FY 2011 OPERATING PLAN

A Compilation of Actions to Implement the *Gulf Hypoxia Action Plan 2008*

Mississippi River
Gulf of Mexico
Watershed Nutrient
Task Force

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FY 2011 OPERATING PLAN
A COMPILATION OF ACTIONS TO IMPLEMENT THE *GULF HYPOXIA ACTION PLAN 2008*

The *Gulf Hypoxia Action Plan 2008* provides an overview of how federal agencies, states, and tribes within the Mississippi/Atchafalaya River Basin are working together to take action to reduce the size of the hypoxic zone, while protecting and restoring the human and natural resources of the Mississippi River Basin. The Task Force has committed to using an adaptive management approach to guide the implementation of the Action Plan, as well as future reassessments. This approach involves continual management action evaluation and interpretation of new scientific information used together to improve and inform management strategies, and to target actions within watersheds where they will be most effective.

This *FY 2011 Operating Plan* is a compilation of actions that the various state and federal members of the Task Force have planned to undertake during FY11 to implement the *Gulf Hypoxia Action Plan 2008*. Each item in this Operating Plan specifically implements one of the 11 actions in the 2008 Action Plan. The Operating Plan includes, where known, background information on milestones reached in FY10 and actions to be undertaken in FY11. In some cases the plan identifies critical needs for the next fiscal year to acknowledge and analyze barriers to progress and to assist in state and federal planning and funding. Inclusion of an action in the Operating Plan is at the discretion of the individual Task Force agencies and does not convey endorsement by all the members of the Task Force. Rather, these items are listed here to illuminate the cumulative efforts of the individual Task Force agencies in implementing the *Gulf Hypoxia Action Plan 2008*.

In addition to the activities listed in the *FY 2011 Operating Plan* that specifically address the actions in the 2008 Action Plan, Task Force member organizations are engaged in numerous other ongoing activities that result in improvements to state and local water quality and the reduction and mitigation of hypoxia in the Gulf of Mexico. The Appendix at the end of this document highlights these complementary actions. The Appendix is by no means a comprehensive list, and it will change as projects are completed, new projects are proposed and funded, and items are incorporated into the state and federal nutrient reduction strategies as they are developed. In addition to the yearly Operating Plans and Appendices, this year the Task Force will also issue an annual report that will measure the results of these actions. Task Force agencies will use this information and input from the public in an adaptive management process to modify their actions as needed for subsequent Operating Plans and Appendices.

1. **Complete and implement comprehensive nitrogen and phosphorus reduction strategies for states within the Mississippi/Atchafalaya River Basin encompassing watersheds with significant contributions of nitrogen and phosphorus to the surface waters of the Mississippi/Atchafalaya River Basin, and ultimately to the Gulf of Mexico.**

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Arkansas	Identify planned nutrient reduction activities and the corresponding availability and needs for funding. Continue developing nutrient reduction strategies, including an analysis of implementation costs. Continue discussions on development and implementation of potential hypoxia-reducing activities and projects.	Ongoing.		
		Initiate discussions on the feasibility of completing state nutrient reduction strategy (estimate resource and time requirements) as part of the multi-state Gulf of Mexico Hypoxia effort.	0.1 full-time equivalent (FTE).	
		Initiate efforts to (1) draft outline document identifying state strategy components and (2) compile summary of estimated resource requirements and benefits.	0.1 FTE.	

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Illinois	Identify planned nutrient reduction activities and the corresponding availability and needs for funding. Begin developing nutrient reduction strategies, including an analysis of implementation costs. Initiate state agency discussions regarding feasibility of developing strategy. Initiate 18-month study of nutrient loadings in Illinois watersheds. Completed first draft of summary regarding nutrients in Illinois; met with individual stakeholder groups. Funding withdrawn.	Convene a nutrient summit for all stakeholders.		$500,000 to develop state-level nutrient reduction strategy.
	Continue work on coordinated effort on state-level nutrient reduction plans. Continue progress on coordinated policy decisions, budgeting, and message among federal agencies and within agencies, and on state level among state agencies.	Ongoing.		
Indiana	Identify nutrient reduction strategies occurring across the state, including programs available and those involved.	Develop a comprehensive nutrient reduction plan statewide to address nutrient contribution.		
	First Notice of Rulemaking to adopt numeric nutrient water quality standards (WQS) for Indiana's lakes and reservoirs for total phosphorus. [Indiana Register Notice 6-30-2010]	Final rule promulgated.		

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Indiana (cont)		Working with partners, identify those watersheds with the most significant nutrient contribution. Attempt to provide additional technical resources in those watersheds.		
	Evaluate multiple lines of evidence for development of numeric nutrient criteria for streams.	Initiate rulemaking.		
	Revising Indiana's Nutrient Plan, which is submitted to the U.S. Environmental Protection Agency (USEPA) annually.	Ongoing.		
Iowa	Continue to identify methodologies and leadership from the technical and social sciences and agencies for developing a state-level strategy for nutrient reductions (begun in FY09).	Continue progress in developing the state-level strategy for nutrient reductions.	Existing in-state staffing and funding resources.	Financial support for completing the state-level strategy.
	Completed the Cedar River watershed study to assess the needed management practices, level of deployment, targeted locations, and resources needed to meet the nutrient reduction targets of the hypoxia goal to inform future state-level strategy development (begun in FY07).	Publish and disseminate the final report and findings.	Existing in-state staffing and funding resources.	None.
Kentucky	Complete data assessment to begin developing regional range for total phosphorus and total nitrogen in effort to determine proposed nutrient numeric criteria for wadeable streams. Completed most of the data assessment necessary to begin developing regional ranges for total phosphorus and total nitrogen.	Expect to develop regional range for total phosphorus and total nitrogen in effort to determine proposed nutrient numeric criteria for wadeable streams.		

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Kentucky (cont)	Watershed management plan development in priority watersheds. Nine watershed plans were received. Seven were accepted: Banklick Creek, Clark's River, Dix River (Clark's Run and Hanging Fork), Dry Creek, Hancock Creek and Stockton Creek. Two were rejected.	There are seven watershed plans under development.		
Louisiana	Developed first draft of *Louisiana's Nutrient Reduction Strategy* (2010). Draft strategy based on format of *Coastal Nutrient Reduction Strategy Template*, a consensus document by the Gulf of Mexico Alliance (GOMA) Nutrients Priority Issue Team (PIT). Draft strategy includes Executive Summary, Introduction, proposed Table of Contents, and first draft of 7 of 12 sections of the Table of Contents. Draft strategy document was influenced by nutrient reduction work of the Hypoxia Task Force Nutrient Reduction Strategy Work Group and the Gulf Alliance Nutrients PIT, as well as ongoing work with the Louisiana Department of Environmental Quality (LDEQ) nonpoint source and watershed programs and LDEQ Environmental Leadership Program's (ELP) Nutrient Reduction Work Group.	Coordination with AgNPS partners at the U.S. Department of Agriculture (USDA), Louisiana State University (LSU) and Louisiana Department of Agriculture and Forestry (LDAF) will continue. Special meetings are planned to get input on technical aspects of strategy document that deals with AgNPS issues in order to include integration of Farm Bill programs and recently implemented the Natural Resources Conservation Service (NRCS) Mississippi River Basin Initiative (MRBI), which includes three watersheds in Louisiana where special nutrient reduction best management practices (BMPs) will be applied. Plans also include continued participation in NRCS State Technical Committee meetings and the LDEQ nonpoint source and watershed management programs. Point source nutrient reduction initiatives will also continue through the LA ELPs Nutrient Reduction Work Group. A meeting is planned for October/November 2010 to gather input for nutrient reduction strategy and plan for award recognition for member facility nutrient reduction activity. NALCO Company of Garyville, LA, was the most recent industry facility to receive a nutrient reduction award.	LDEQ will provide water quality and nonpoint source staff support for coordinating the continued development of the Strategy and will receive support from USDA, LSU, and LDAF Staff. Member facilities of the LA ELP's Nutrient Reduction Work Group have also volunteered to help with point source nutrient reduction technologies.	Some financial support for completing and implementing a final nutrient reduction strategy might be necessary but cannot be quantified at this time.

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Minnesota	Continue to work on individual nutrient reduction strategies. Evaluate adequacy of existing databases. Continue to work on individual strategies and databases. Hold discussions with USEPA Region 5 and state partners on scoping and approach to state strategies development. USEPA contractors (University of Minnesota and Tetra Tech) analyzing alternatives for achieving a 20% reduction of nitrogen to Lake Pepin.	Work with USEPA Region 5 contractors to design a watershed treatment system for nutrients as part of the Farm Service Agency (FSA) Farmable Wetlands initiative. Continue work with contractor on three subwatersheds within the Lake Pepin Basin.		Minnesota is addressing nutrients as part of an array of water stressors. Most activities are designed to be directionally correct or designed to achieve a particular local impairment restoration and are not sized to reach a particular quantified reduction for the state.
	Discuss work plan schedule for consolidating individual strategies into overall state strategy document. Discussions including face-to-face meeting with USEPA Region 5 on strategy expectations and also with state and federal partners to lay groundwork for strategy development and documentation development.	Primary emphasis is on nutrient reduction for state waters. The launch of development of a nutrient strategy for the state is pending resources to hire an outside contractor. Will maintain intra-state discussions on preparation and launch of state strategy.		The current agency work plan queue is full. Funding to hire a contractor for facilitating and drafting the nutrient plan, with support of state and federal agency partners, will move it forward.
	Looking into the potential to revive project on nitrogen inventory and budget using funding from 2010 legislative session and partner funding.	Will depend on ability to bring together funding and technical resource availability.	Legislature provided about 25%–50% of the funding needed.	Funding and technical resource capability.

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Minnesota (cont)	Develop draft rule criteria. Also developing criteria specific to the Mississippi River pools, considering nitrate aquatic life toxicity standards for rivers. Technical Support Documents for river eutrophication standards nearly completed. To be released in late summer 2010. Nitrate aquatic life standard under final development. Draft criteria expected early fall 2010.	Public review and comment on Technical Support Documents and draft criteria. Begin rule and Statement of Need and Reasonableness drafting.	Three FTEs working on developing these specific standards.	Technical review by USEPA and other technical experts.
	2008–2012 Nonpoint Source Management Program Plan was approved by USEPA March 14, 2008. FY09 and Fy10 funds are awarded.	FY11 request for proposals (RFP) is complete for 319, and grant recipients will be selected by the end of 2010. Minnesota operates several funding programs for nonpoint source and watershed management, including: 319, Clean Water Legacy and Clean Water Partnership. Undertake update of Continuing Planning Process (CPP) to integrate planning for environmental improvement.		

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Mississippi	Development of a Nutrient Reduction Strategy for the Mississippi Delta. (Co-leads – Mississippi Department of Environmental Quality (MDEQ), Delta Farmers Advocating Resource Management (F.A.R.M.).	Completed December 15, 2009.		
	Implementation of the Delta Nutrient Reduction Strategy through the development and/or revision and implementation of local watershed management plans in the following Mississippi Delta watersheds: Harris Bayou, Porter's Bayou, Steele Bayou, Lake Washington, Wolf/Broad Lake, Bee Lake. (Leads – Delta F.A.R.M., U.S. Army Corps of Engineers (USACE), MS Soil and Water Conservation Commission, and Washington County Soil & Water District, Delta Wildlife).	Continue implementation of the Delta Nutrient Reduction Strategy through the development and/or revision and implementation of local watershed management plans in the following Mississippi Delta watersheds: Harris Bayou, Porter's Bayou, Steele Bayou, Lake Washington, Wolf/Broad Lake, Bee Lake. (Leads – Delta F.A.R.M., USACE, MS Soil and Water Conservation Commission, and Washington County Soil & Water District, Delta Wildlife). Complete watershed implementation plans (WIPs) – March 2011; Implement WIPs – April 2011.	$4,150,000 (319); $3,206,278 (in-kind); $4,450,000* (MRBI); $1,250,000* (in-kind); $5,800,000 (USACE). **Covers additional watersheds in addition to those listed.*	Continued funding.
	Pre-implementation monitoring to quantify changes in water quality and nutrient loadings in the following Delta watersheds: Harris Bayou, Porter's Bayou, Steele Bayou, Lake Washington, Wolf/Broad Lake, Bee Lake. (Leads – USACE, U.S. Geological Survey (USGS), MDEQ, MS State University, USDA Agricultural Research Service (ARS), MDEQ).	Continue pre-implementation monitoring to quantify changes in water quality and nutrient loadings in the following Delta watersheds: Harris Bayou, Porter's Bayou, Steele Bayou, Lake Washington, Wolf/Broad Lake, Bee Lake. (Leads – USACE, USGS, MDEQ, MS State University, USDA ARS, MDEQ).	Funding sources: – 319 Nonpoint Source (MDEQ, USEPA) – Cooperative Monitoring Program (USGS) – USACE – MS/AL Sea Grant	Continued funding to sustain monitoring network to ensure water quality benefits are quantified over time.

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Mississippi (cont)	Completed farmer-to-farmer exchanges w/ Iowa: Iowa farmers to Mississippi Delta and Gulf of Mexico – May 2010; Delta farmers to Iowa – July 2010. (Leads – Delta F.A.R.M., MDEQ)	Plan and solicit resources for farmer-to-farmer exchange with an upper Mississippi River state. (Leads – TBD) Farmer-to-farmer exchange with an upper Mississippi River state. (Lead – MS/AL Sea Grant)	$20,000 (MS/AL Sea Grant).	Funding support.
	Develop aligned Nutrient Reduction Strategy Template for Coastal Watersheds for Gulf of Mexico States: Started September 2009. (Lead – GOMA Nutrients PIT)	Completed January 2010.	~$45,000 (National Oceanic and Atmospheric Administration (NOAA)).	
	Develop Nutrient Reduction Strategies for Mississippi Coastal Watersheds. Started March 2010. (Lead – GOMA Nutrients PIT, MDEQ)	Complete Nutrient Reduction Strategies for Mississippi Coastal Watersheds. Complete February 2011. (Lead – GOMA Nutrients PIT, MDEQ)	$32,000 (NOAA).	
	Implement the Coastal Watersheds Nutrient Reduction Strategies through the development and implementation of local WIPs in the Rotten Bayou watershed. The project will tie-in with the nutrient source, fate and transport study in St. Louis Bay. Started 2010. (Lead – MDEQ)	Continue to implement the Coastal Watersheds Nutrient Reduction Strategies through the development and implementation of local WIPs in the Rotten Bayou watershed. The project will tie in with the nutrient source, fate and transport study in St. Louis Bay. Complete WIP – February 2011. Implement WIP – Late 2011. (Lead – MDEQ)	$525,000 (319); $350,000 (in-kind).	Additional funding support.

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Mississippi (cont)		Pre-implementation monitoring to quantify changes in water quality in Rotten Bayou watershed. The watershed project will tie in with the nutrient source, fate and transport study in St. Louis Bay. Start – Late 2010. (Leads – MDEQ, USGS)	Funding sources ($$TBD): – 319 Nonpoint Source (MDEQ, USEPA) – Cooperative Monitoring Program (USGS) – Other TBD	Continued funding to sustain monitoring network to ensure water quality benefits are quantified over time.
	Develop Nutrient Reduction Strategies for Mississippi Uplands Watersheds: Started 2010. (Lead – MDEQ)	Continue to develop Nutrient Reduction Strategies for Mississippi Uplands Watersheds: Complete strategies – February 2011. (Lead – MDEQ)	$86,450 (319).	
	Implement Uplands Watersheds Nutrient Reduction Strategies through the development and implementation of local WIPs in the Muddy Creek and Tarebreeches Creek watersheds. (Leads – MDEQ, Mississippi Soil and Water Conservation Commission (MSWCC))	Implement Uplands Watersheds Nutrient Reduction Strategies through the development and implementation of local WIPs in the Muddy Creek and Tarebreeches Creek watersheds: Complete WIP – February 2011. Implement WIP – Late 2011. (Leads – MDEQ, MSWCC)	$815,000 (319); $543,333 (in-kind).	Additional funding support.
		Pre-implementation monitoring to quantify changes in water quality in the following uplands watersheds: Muddy Creek watershed: Start Date – TBD. (Lead s– MDEQ, USGS) Tarebreeches Creek Watershed: Start Date – TBD. (Leads – MDEQ, USGS)	Funding sources ($$TBD): – 319 Nonpoint Source (MDEQ, USEPA) – Cooperative Monitoring Program (USGS)	Continued funding to sustain monitoring network to ensure water quality benefits are quantified over time.

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Mississippi (cont)	Continue to coordinate with Mississippi/Atchafalaya River Basin (MARB) and Gulf of Mexico states to transfer information generated from nutrient reduction strategy planning, implementation, and monitoring activities. (Lead – MDEQ)	Continue to coordinate with MARB and Gulf of Mexico states to transfer information generated from nutrient reduction strategy planning, implementation, and monitoring activities. (Lead – MDEQ)		
	Implement nutrient reduction BMPs to support implementation of the Mississippi Delta Nutrient Reduction Strategies: (Lead – Delta F.A.R.M.)	Continue to implement nutrient reduction BMPs to support implementation of the Mississippi Delta Nutrient Reduction Strategies. (Lead – Delta F.A.R.M.)	$1,500,000 (Monsanto).	
		Fold Mississippi Delta, Coastal, and Uplands Nutrient Reduction Strategies into a state-level strategies document that addresses all nutrients source categories in Mississippi. Funding support is provided by MDEQ.	$18,000 (federal).	
		Mississippi River Basin Initiative –Cooperative Conservation Partnership Initiative (MRBI – CCPI). Implementation of nutrient reduction BMPs in the Big Sunflower, Steele Bayou, and Upper Yazoo River Basin 8-digit hydrologic unit codes (HUCs) in the Mississippi Delta. Funding support is provided by USDA-NRCS and project support by the Mississippi Soil and Water Conservation Commission, local Soil and Water Conservation Districts (SWCDs), and partnering agencies/organizations.	$17,800,000 (federal total); $4,450,000 (in-kind total); $4,450,000 (federal annual); $1,250,000 (in-kind annual).	

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Mississippi (cont)		Mississippi River Basin Initiative–Wetland Reserve Enhancement Program (MRBI – WREP). Implementation of wetland restoration practices in the Big Sunflower 8-digit HUC in the Mississippi Delta. Funding support is provided by USDA-NRCS and project support by Delta F.A.R.M.	$13,200,000 (federal total); $600,000 (in-kind total).	
		Cooperative Conservation Partnership Initiative (CCPI). Implementation of BMPs to support implementation of the Delta Nutrient Reduction Strategies. Funding support is provided by USDA-NRCS and project support by Delta F.A.R.M.	$3,200,000 (federal total); $N/A (In-kind).	
		Agricultural Water Enhancement Program (AWEP). Implementation of water management practices in the Mississippi Delta (e.g., tailwater recovery systems, on-farm water storage). These practices also promote the reuse and denitrification of nutrient-enriched waters. Funding support is provided by USDA-NRCS and project support by the Yazoo Mississippi Delta Joint Water Management District.	$670,000 (federal FY11); $N/A (in-kind).	Additional funding support.

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Mississippi (cont)		Conservation Innovation Grant. Implementation of BMPs to support implementation of the Delta Nutrient Reduction Strategies. Funding support is provided by USDA-NRCS and project support by Delta F.A.R.M.	$434,000 (federal total); $491,000 (in-kind total).	
		Fellowship for a Healthier Gulf of Mexico. The objective of this project is to provide funding support to create a professional position at Delta F.A.R.M., co-lead of the Delta Nutrient Reduction Strategy Planning and Implementation Team, which will facilitate, coordinate, develop and implement projects that foster long-term, sustainable improvements to water quality within the Yazoo River Basin of northwest Mississippi that will ultimately contribute to improved water quality in the lower Mississippi River and a healthier Gulf of Mexico. Funding support is provided by the Mississippi Department of Marine Resources.	$150,000 (state FY11).	Continued funding to sustain fellowship.
		Development of a statewide nutrient reduction education and outreach plan. Facilitation of the development and implementation of a statewide education and outreach plan for Mississippi that can be transferable to other Gulf of Mexico states. Funding support is provided by NOAA through the GOMA Nutrients PIT.	$13,000 (federal).	Additional funding to implement the plan.

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Mississippi (cont)		Development of a Decision Support Toolbox and specified components for Gulf decision makers. An interactive electronic toolbox that can be accessed online by Gulf decision makers will be developed as a "living" entity so that tools can be added over time. The toolbox will provide options for nutrient reduction activities that promote smart growth and BMPs. Funding support is provided by NOAA through the GOMA Nutrients PIT.	$71,000 (federal).	
		Active projects that will be incorporated into the toolbox include: – Report that describes nutrient reduction approaches by various states. – Management tools necessary for assessing and predicting the effects of excessive nutrients on living resource populations. – Support information for resource managers about the effectiveness of nutrient reduction tools and practices for nonpoint and point sources and recommended practices. – Report that describes the best available nutrient reduction technology for prioritized sources.		

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Mississippi (cont)		Development of a social marketing portion of the GOMA Nutrient Reduction Campaign (Phase 1). The campaign will focus on reducing nutrient runoff into the Gulf of Mexico through educating homeowners on proper lawn fertilization techniques. Funding support is provided by Mississippi/Alabama Sea Grant through the GOMA Nutrients PIT and Environmental Education Network.	$45,000 (federal).	Continued funding for Phase 2.
		Nutrient Reduction Strategy Development Workshop (Tuesday, 9/28/10). This workshop, for interested Task Force states, is designed to advance the development of state-level nutrient reduction strategies within the Mississippi and Ohio River Basins. This workshop will be hosted by the Lower Mississippi River Sub-basin Committee (LMRSBC) and the Lower Mississippi River Conservation Committee (LMRCC). Funding support is provided by NOAA and USEPA's Gulf of Mexico Program Office (GMPO) through the GOMA Nutrients PIT.	$40,000 (federal).	Funding for one or two additional upriver workshops.

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Mississippi (cont)		Prepare and facilitate a nutrient removal treatment technology, tools, and efficiency workshop for small/medium-sized wastewater treatment facilities in Mississippi. Point source nutrient reductions are also needed to achieve overall goals for nutrient reduction. Many of the existing nutrient reduction treatment technologies are feasible for large, major National Pollutant Discharge Elimination System (NPDES)- permitted dischargers, but these technologies may be neither technically nor economically feasible for small to medium NPDES dischargers. This workshop will provide information on existing and emerging technology that is both technically and economically feasible for small/medium NPDES dischargers. Additionally, emphasis will be placed on improving wastewater treatment efficiencies, with a special focus on energy savings, to offset any additional costs related to nutrient reduction. A 1.5-day workshop will be designed and conducted to provide this information to operators and managers of these facilities. Funding support is provided by MDEQ.	$45,000 (federal).	Continued funding support for additional workshops in Gulf of Mexico states.

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Mississippi (cont)		Watershed Modeling Improvements to Enhance Coastal Ecosystems. The goal of this project is improved watershed-wide decision support for resource management agencies. Improved hydrologic and water quality data collection, analysis, and simulation tools are demonstrated on selected catchments of the Mobile River watershed. Four interconnected processes are evaluated in this study: rainfall-runoff generation; sediment yield; BMPs; and habitat response. Funding support is provided by NOAA through Mississippi State University/Northern Gulf Institute (NGI).	$N/A (federal).	
Missouri	Identify planned nutrient reduction activities and the corresponding availability of and need for funding. Begin developing nutrient reduction strategies, including an analysis of implementation costs. Needs assessments conducted by the SWCDs in Missouri for 2010 identified more resource concerns and water-quality-related conservation practices for addressing nutrient runoff. The number of conservation practices available to producers statewide increased from 41 to 43 practices. The costs of developing a nutrient reduction strategy in Missouri were estimated.	Identify planned nutrient reduction activities and, contingent upon the available of funding, begin to identify nutrient reduction goals and develop nutrient reduction strategies, including an analysis of implementation costs.		

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Missouri (cont)	Staff within the Soil and Water Conservation Program (SWCP) of the Office of the Director worked closely with staff in the Missouri Division of Environmental Quality in developing project proposals for the Mississippi River Basin Healthy Watersheds Initiative. In addition, SWCP staff has participated on Division of Environmental Quality technical committees for developing nutrient criteria and coordinating watershed projects.	Continue to pursue opportunities to coordinate nutrient reduction strategic planning efforts across divisions within the Missouri Department of Natural Resources (MDNR) and among state, federal, and local agencies and organizations.		
	Continue development of rulemaking for establishing statewide nutrient criteria for lakes and reservoirs. The rule for WQS was revised to include nutrient criteria for lakes and reservoirs. The rule established limits for concentrations of total phosphorus, total nitrogen, and chlorophyll in lakes and reservoirs in all regions of the state except the big river bottomlands. The nutrient limits are dependent on natural environmental factors in different physiographic regions of the state, including hydrologic characteristics such as lake depth and hydraulic residence time.	Continue efforts to establish reference streams and develop statewide numerical criteria for nutrients in streams and rivers through the Nutrient Criteria Technical Subcommittee.		

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Missouri (cont)	The Department contracted with USGS to analyze available nutrient data in the state, which included over 40,000 analytical results collected over several decades. The USGS staff initiated analyses based on statistical methods recommended by USEPA. An interagency subcommittee has been reviewing the USGS analyses and examining macroinvertebrate response to nutrient concentrations in streams in the northern part of the state. USGS continued a study of algae response to nutrient loads in Ozarks streams.			
Ohio	Identify planned nutrient reduction activities and the corresponding availability and needs for funding. Begin developing nutrient reduction strategies, including an analysis of implementation costs. Will look similar to those reported in 2009 Ohio report.	Ongoing. Develop state nutrient reduction strategy by 2013 per state and Task Force guidance.	0.25 FTE.	1 FTE ($75,000).

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Ohio (cont)	Continued work on coordinated effort on state-level nutrient reduction plans. Continued progress on coordinated policy decisions, budgeting and message among federal agencies and within agencies, and on state level among state agencies. Some increased activity within the Ohio River Basin due to support from Targeted Watershed Grants through the Electric Power Research Institute, through the Ohio River Valley Water Sanitation Commission (ORSANCO). Significant progress in June to proceed with a state nutrient strategy. Decision is backed by Ohio Water Resources Council (pending an official vote in fall 2010).	Ongoing. Develop state nutrient reduction strategy by 2013 per state and Task Force guidance.	0.25 FTE.	1 FTE ($75,000).
		Promote the state nutrient reduction strategy through the Ohio Water Resources Council. Further integrate with state nonpoint source plan.	0.25 FTE.	1 FTE ($75,000) per year for 2 years.
Wisconsin	Nutrient WQS criteria development for lakes and rivers. Phosphorus WQS criteria for lakes and streams adopted by Natural Resources Board on June 23, pending legislative review and USEPA approval. Companion permit rules also adopted.	Begin use in impaired waters listing and in developing effluent limits in permits.		
	Statewide ban on phosphorus in lawn fertilizer went into effect April 2010.	Continue implementation.		
	Statewide ban on phosphates in dishwasher detergent went into effect July 1, 2010.	Continue implementation.		

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Wisconsin (cont)	Municipal wastewater treatment plants continue to comply with state regulations and maintain the 68% reduction since 1993.	Continue implementation.		
	Adopted phosphorus index = 6 for agricultural lands as part of approved changes to Natural Resources (NR) Statute 151, nonpoint source performance standards and prohibitions, at June 23 Natural Resource Board meeting.	Begin implementation.		
USEPA	Gulf of Mexico Program providing funding support for Hypoxia Task Force meeting in September.		$10,000.	
	Delta Nutrient Reduction Strategies document complete. Project is in implementation phase. Quality Assurance Project Plan (QAPP) approved.	Implement strategies in targeted watersheds and in Lake Washington.	Total project budget is $300,000.	Funding for future implementation of strategies in Delta and beyond.
	Gulf of Mexico Program funded and began work with LSU on the cooperative agreement *Using Wetlands for Nutrient Reduction in the Mississippi Basin: Potential for Minimizing Greenhouse Gases*. This project pulses river floodwater into natural, restored, and constructed wetlands to determine nutrient and greenhouse gas removal/creation levels. Study in Louisiana, Arkansas, and Ohio locations continued. There is a hold on sampling at the Louisiana site since the BP oil spill and the opening of continuous freshwater flow.	Continued site studies at the wetlands in the three states. Continuation of study in Louisiana once the freshwater continuous flow is stopped. The project will be extended for one additional year because of the oil spill delays.	Total project budget is $472,690.	Closing of the fresh water diversion in Louisiana.

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USEPA (cont)	USEPA Region 6 continued to offer technical assistance to Louisiana in the state's efforts to develop comprehensive nitrogen and phosphorus reduction strategies. Region 6 has recommended that Louisiana and Arkansas consider SPARROW (Spatially Referenced Regressions on Watershed Attributes) model results as they develop their Nutrient Reduction Strategies.	USEPA Region 6 will continue its offer to assist Louisiana and Arkansas as they develop their Nutrient Reduction Strategies.	Small amount of staff time.	Additional staff time, possibly small amounts of travel funding.
	USEPA's Office of Science and Technology (OST) working to finalize technical guidance for states to assist with the derivation of numeric nutrient criteria based on stressor-response variables. Revised draft technical guidance has been completed.	Finalize and release technical guidance.	Staff (0.25 FTE).	None.
NOAA	Task Force federal members to provide input and assistance as needed and able to states in development of nutrient reduction strategies. Provided funding to Mississippi and GOMA for the development of nutrient reduction strategies and a nutrient criteria framework. Provided funding to Mississippi, through the GOMA, to develop strategy template.	Ongoing.	Funding.	NOAA funding for the Gulf Alliance has been transferred to a competitive Regional Ocean Governance Grant that will be competed in FY11.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USACE	Task Force federal members to provide input and assistance as needed and able to states in development of nutrient reduction strategies. Mississippi Valley Division (MVD) Commander made Corps Hypoxia Task Force representative. Transferred from Assistant Sec. Army.	Ongoing. More focused efforts.	MVD staff.	None identified at this time.
	Identify planned nutrient reduction activities and the corresponding availability of and need for funding. Louisiana Beneficial Use of Dredged Material report developed and currently under review. Program was developed under Louisiana Coastal Area program. Get report approval by vertical team; begin identified projects associated with Corps navigation channels. Report reviewed by Corps MVD and HQ. Had HQ meeting between Mr. Hannon and Mr. Ensch at HQ.	Follow-up on report. More meetings needed.	Acting Directorate Chief follow-up, MVD staff.	Need HQ meeting, look for potential pilot project.
	Provide help to Phase II Iowa Conservation Reserve Enhancement Program (CREP) as program develops for permit efforts. Coordinated with MVR regulatory and Iowa CREP. On some support teams.	Maintain coordination and team efforts as program moves into Phase 2 of CREP.	As needed, MVR regulatory and MVD.	None identified at this time.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USDA	Task Force federal members to provide input and assistance as needed and able to states in development of nutrient reduction strategies. USDA is engaged on the nutrient reduction strategy subcommittee.	Ongoing. USDA will continue to highlight and inform states about how Farm Bill conservation programs can benefit states' nutrient reduction strategies.	Staff.	
U.S. Department of Interior (USDOI)	Task Force federal members to provide input and assistance as needed and able to states in development of nutrient reduction strategies.	Ongoing.		
	Commitment by agency to begin to align listed programs with needs for hypoxia.	Ongoing.		

2. **Complete and implement comprehensive nitrogen and phosphorus reduction strategies for appropriate basin-wide federal programs and projects. Target first those federal programs and projects with significant federal lead or co-implementation responsibilities.**

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USEPA	Gulf of Mexico Program funded and began cooperative agreement work with MDEQ on St. Louis Bay pilot nutrient criteria project, "Development of Pilot Nutrient Criteria for a Mississippi Estuary." Held workshop with GOMA partners to plan the implementation of this project. The results of this work will eventually support nutrient efforts in all Gulf states, including the Mississippi River drainage. QAPP approved. Work delayed because of Deepwater Horizon Oil Spill.	Conduct sampling/monitoring activities.	Total project budget is $500,000.	Oil spill-related staff time demands to decrease.
	Continued work with National Academy of Sciences (NAS). The NAS is scheduled to provide USEPA with a report documenting its findings over the past year in October 2010.	Consider ways to implement the recommendations in the NAS report. Address report recommendations at Hypoxia Task Force meeting. Continue to work with NAS in other aspects of research.	Funded for $100,000 in 2009. Available funds will be assessed after the report is completed.	Continued funding.
	Analysis comparing existing nutrient WQS, nutrient-related listings and nutrient Total Maximum Daily Loads (TMDLs) in MARB states. Initial Assessment and Watershed Protection Division (AWPD)/Watershed Branch compilation completed.	More detailed assessment of methods used in nutrient TMDL development (e.g., determining water quality target, modeling, allocations). Planning state workshop on nutrient TMDLs.	Funded for $80,000 in 2010. Effort being funded by USEPA HQ and Regions 4, 5, 6, 7 and 8.	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USEPA (cont)	USEPA headquarters and regions providing technical support to MARB states in developing numeric nutrient criteria, as well as advancing research to reduce the scientific uncertainties regarding source, fate, and transport of nitrogen and phosphorus.	USEPA headquarters and regions providing technical support to MARB states in developing numeric nutrient criteria, as well as advancing research to reduce the scientific uncertainties regarding source, fate, and transport of nitrogen and phosphorus.	Staff (0.25 FTE).	None.
USACE	List of programs with greatest impacts on nutrient levels, by agency. After section 5022 guidance is released, will reach out to other divisions and add to the project list. Worked on 5022 guidance past two years; guidance came out in August 2010.	Coordinate with other Divisions, such as Northwestern Division NWD and Great Lakes and Ohio River Division LRD, as well as those identified in the guidance.	MVD staff.	None identified at this time.
	Commitment by agency to begin to align listed programs with needs for hypoxia, such as Water Resources Development Act (WRDA) section 5022. Get guidance signed and distributed as appropriate. Begin looking at resource leveraging once guidance is final. Guidance is final and signed. Needs further development with Assistant Secretary of the Army ASA and Commands within MARB.	Look for expanding section 5022 activity and resources.	MVD, HQ and ASA.	Vertical/horizontal support and good communication.
		Develop some Assistant Secretary of the Army actions, for the MARB Corps Commands, to support section 5022 of WRDA.	MVD, HQ and ASA.	None identified at this time.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USDA	USDA-NRCS is in the first year of providing technical and financial assistance to implement the MRBI. Conservation Programs used in support of MRBI include CCPI, Wetlands Reserve Enhancement Program, Conservation Innovation Grants, and Conservation Stewardship Program.	USDA-NRCS will continue the second year of implementing the MRBI.	FY11 – $80 million for the 12 states identified in the MRBI.	
	USDA-NRCS projects have been selected for MRBI. Monitoring and evaluation of conservation practices will be conducted in these projects to provide important information regarding applied BMPs.	Evaluate monitored MRBI field data and make any adaptive management changes to the next MRBI proposal.	Staff, funding through MRBI.	
	Nitrogen, phosphorus, and sediment reductions for Conservation Reserve Program (CRP) in the Mississippi River Basin reported for FY09.	Report for FY10 will be completed November 2010.	Staff, funding through MRBI.	
	Farmable Wetlands Program (FWP) enrollment under interim rule initiated. Signed SD CREP agreement providing enhanced incentives for buffer, wetland, and wildlife enhancement practices. July 28, 2010 – the CRP interim rule was published.	Continue to work with states to implement FWP and establish constructed wetlands. Work with states in developing CREP agreements.	Staff.	Continued Interagency and state coordination on FWP technical specifications and on regulatory issues. Partnership development for outreach, technical assistance, and funding.
	Develop and begin implementing an Agricultural Working Lands initiative to accelerate nutrient management and reduce loadings in identified watersheds within the Mississippi River Basin. Nitrogen, phosphorus, and sediment reductions for CRP in the Mississippi River Basin reported for FY09.	Report for FY10 will be completed November 2010.	Staff, funding through MRBI.	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USDOI	National Park Service – Continue to implement basin-wide nutrient reduction plans for two national park units in the Upper Mississippi River Basin (UMRB) (St. Croix National Scenic Riverway, through its Nutrient Reduction Goal for 2020, and Mississippi National River and Recreation Area, through its involvement in Minnesota's Lake Pepin TMDL process). This is an ongoing, long-term project begun more than a decade ago. A detailed phosphorus loading study was completed for the St. Croix watershed, the Lake St. Croix TMDL report was completed, and a special issue of *Journal of Paleolimnology* (vol. 41, no.4) was published, detailing the results of long-term monitoring and paleolimnological studies of Lakes St. Croix and Pepin.	Continue to implement basin-wide nutrient reduction plans for two national park units in the UMRB (St. Croix National Scenic Riverway, through its Nutrient Reduction Goal for 2020, and Mississippi National River and Recreation Area, through its involvement in Minnesota's Lake Pepin TMDL process).		

3. **While developing comprehensive state and federal nitrogen and phosphorus reduction strategies and continuing current reduction efforts, examine and, where possible, implement opportunities to enhance protection of the Gulf and local water quality through existing federal and state water quality, water management and conservation programs.**

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Arkansas		Continue state coordination on federal programs such as Environmental Quality Incentive Program (EQIP), CRP, CREP, Wetlands Reserve Program (WRP), and state technical team to increase nutrient reduction activities.	0.2 FTE.	
		Continue Arkansas Natural Resources Commission (ANRC) state technical assistance and support in writing "on-farm" nutrient management plans within the state's designated nutrient-surplus watersheds.	2 FTEs.	
		Increase promotion and participation in the state ANRC riparian zone restoration, easement, and wetland creation tax credit program.	1 FTE.	
		Conduct additional public meetings to increase participation and sign-up in the Illinois River CREP program. A total of $30 million is available through federal, state and private funds to enroll 15,000 acres in Illinois River watershed.	1 FTE.	
		Complete modification efforts on existing Illinois River CREP agreement to increase landowner participation.	1 FTE.	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Illinois	Continue to work with federal agencies on EQIP, CRP, CREP, and Wetland Reserve. Provided technical assistance for application to the USDA-NRCS MRBI to secure funding to reduce nutrients in the targeted watersheds. The state released $10 million to reopen CREP program. CREP Amendment to allow CREP to reopen and expand to Kaskaskia River watershed in progress. The Programmatic Environmental Assessment should be completed in October, and it is anticipated that CREP will reopen late October. Work with SWCDs to promote CREP in TMDL watersheds. Technical assistance continues to be provided through 319 funds.	Continue targeting CREP to TMDL watersheds and promoting nutrient reducing practices. Continue work with all Farm Bill programs to reduce nutrient loading. Technical assistance will expand into the Kaskaskia River Basin.		
	Enforce siting and construction requirements of Livestock Management Facilities Act (LMFA). Under LMFA, livestock waste-handling facilities are required to be designed, constructed and maintained as zero-discharge facilities. Reviewed 45 applications.	Ongoing.		
	Enforce livestock waste management plan requirements of the LMFA. Livestock producers with animal unit capacities of 1,000 animal units or greater are required to prepare and implement a waste management plan. Received nine plans and/or certifications.	Ongoing.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Illinois (cont)	Cost-share the construction of soil and water conservation practices in nutrient-impaired TMDL watersheds and throughout the state. Ongoing. Provided $2,419,948 of cost share and incentive payments for 948 practices with Partners for Conservation Fund Program.	Ongoing.		Large reductions in state funding to SWCDs and limited funds are likely to reduce activities.
	Cost-share the development and implementation of farm nutrient management plans statewide. 24 plans written and 91 plans implemented at a total cost of $44,638.	Ongoing.		Large reductions in state funding to SWCDs and limited funds are likely to reduce activities.
Indiana	Sediment and nutrient reduction projects funded by the Lake and River Enhancement Program of Indiana Department of Natural Resources (Indiana DNR), Division of Fish and Wildlife, and conducted with cooperation and assistance of Indiana Conservation Partnership Members.	Ongoing dependent upon state funding levels.		
	CREP expansion. Indiana's CREP is now available in 11 watersheds; previously it was 3.	Work with partners to implement conservation using federal and state dollars. Encourage and assist local entities to apply for grants or other funding sources.		
	Provide state and local technical/administrative support to Farm Bill programs.	Ongoing.		Staff-dependent.
	Apply for USEPA section 319 to provide additional technical assistance.	Implement conservation practices and train employees, focusing on state- level programs.		
	NPDES: 58 major dischargers and 159 minor dischargers with phosphorus limits or monitoring requirements in their permits.	Ongoing.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Iowa	Continue and expand implementation of the Iowa CREP constructing targeted nitrogen-removal wetlands, thereby removing 40%–90% of nitrate from large cropland drainage areas (begun in FY02).	Ongoing.	$20.6 million state and federal funds.	Financial support for accelerating restoration of nitrate-removal wetlands.
	Continue implementation of Iowa-funded and -led water quality programs and initiatives for nonpoint source landscapes, many of which directly address and reduce nutrient and sediment transport to water resources.	Ongoing.	See program listings in Appendix.	Financial support for accelerating nonpoint source programs and initiatives.
	Continue to provide state and local support to federally funded Farm Bill conservation and water quality programs, many of which provide technical and financial assistance to landowners to reduce nutrient and sediment transport to water resources.	Ongoing.		
Kentucky	Train staff in USEPA models used for nutrient TMDL development. Two staff trained in BASINS and WASP HSPF models.	Identifying watersheds for nutrient TMDL development and conducting TMDLs for selected watersheds.		
	Require comprehensive nutrient management plans (CNMPs) for all animal feeding operation (AFO)/concentrated animal feeding operation (CAFO) permits.	Ongoing.		
	Require phosphorus and total nitrogen limits on all sanitary and domestic wastewater treatment plant permittees discharging to streams impaired for nutrients or organic enrichment. Included on 88 permits.	Ongoing.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Louisiana	Expand work with USDA through participation on LA State Technical Committee to apply Farm Bill programs for nutrient reduction in targeted watersheds having the most nutrient drainage to the Gulf. Support USDA-NRCS in its planned Gulf of Mexico/Hypoxia Nutrient Management Initiative through more innovative use of Farm Bill programs. Support development of watershed information for LA NRCS State Conservationist to help in a unified Louisiana response to the national NRCS hypoxia initiative. Work with Louisiana USDA offices—NRCS, FSA, ARS —to coordinate nutrient reduction work between federal and state programs and funding. Continued key work with USDA, LSU and LDAF on implementing important Federal Farm Bill Programs including EQIP, CRP, CREP and Wetland Reserve (2010). Also provided technical water quality support to USDA-NRCS, LSU, Resource Conservation and Development Districts, and LDAF in implementation of USDA MRBI on three selected Louisiana Watersheds.	Continue working with NRCS State Technical Committee to implement appropriate Farm Bill programs for best nutrient reduction result. Will give special support to the Imperial Calcasieu RC&D, Northeast Delta RC&D, and LDAF for implementing tiered water quality monitoring programs in each respective watershed to measure MRBI BMP effectiveness. The three watersheds are Bayou Chene in southwest Louisiana, and Boeuf River and Joe's Bayou/Bayou Macon in the Mississippi River Alluvial Plains of northeast Louisiana. Support will include helping select appropriate water quality monitoring locations for tier 1 edge-of-field monitoring, tier 2 immediately downstream HUC 12 conditions, and tier 3 downstream HUC 8-level conditions.	LDAF and LDEQ staff will provide in-kind field support for water quality and other MRBI work beyond MRBI funding support.	Follow-up USDA funds will be needed to help implement proven nutrient reduction BMPs across state watersheds.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Louisiana (cont)	Co-sponsored LA ELP's Nutrient Reduction Work Group for industries and municipalities with the Louisiana Chemical Association to implement technology-based nutrient removal technologies at their facilities on the Mississippi River. Held annual work group meeting on November 5, 2009, and meeting was attended by 21 staff from 9 municipalities and 10 industries. At the meeting updates were given on Hypoxia Task Force activities, Lower Basin Subcommittee activities, Louisiana and Mississippi state nutrient reduction strategies, and the Mississippi River nutrient petitions. Other meeting topics included the status of Louisiana's nutrient criteria development and a summary of nutrient reduction activities by member participants. This year's winner of the LA ELP Nutrient Reduction award was NALCO Company, which was presented the award by the LDEQ Secretary in a ceremony in March 2010.	Plans are under way to hold the next meeting of the LA ELP's Nutrient Reduction Work Group meeting in October or November 2010 and to encourage member industries and municipalities to submit nominations for the 2011 nutrient reduction awards. Plans are also under way to revise the proposal for updating data and information on nutrient releases to the Mississippi River, which was not funded as previously submitted. The proposed work would revise the popular 2000 report, which was widely distributed in the Mississippi River Basin.	LDEQ staff has contributed staff support to the LA ELP's Nutrient Reduction Program and has received help from industry and municipality staffs.	To adequately revise the 2000 Mississippi River nutrient release report to include the reduction and other activities that have occurred on the river over the 10-year period will require outside funding support. The previous proposal was for approximately $50,000, but more might now be needed.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Louisiana (cont)		Nutrient reduction in the Mississippi River and Gulf through implementation of Mississippi River diversions to coastal wetlands as part of long-term Louisiana Coastal Protection and Restoration Master Plan. Currently includes diversions at Caernarvon on East back of the Mississippi Delta, Davis Pond, West Pointe a la Hache, and Naomi on West bank and delta-wide crevasses near the river's mouth. Diversions date from the 1990s. Nutrient reduction has been demonstrated by associated environmental monitoring of wetlands and water quality. New diversions planned for Myrtle Grove, Violet, White's Ditch, Bonnet Carré wetlands, Lake Maurepas wetlands and Bayou Lafourche.	LA Office of Coastal Protection and Restoration provide staff management of all diversion projects. Environmental monitoring done in conjunction with other state and federal regulatory agencies. Large-scale diversions built with support from USACE.	Federal and state financial and logistical support needed for long-term sustainability and success of river diversions and continuation of nutrient reduction benefits to the Gulf of Mexico.
Minnesota	Define approach for focus watersheds and establish monitoring approach for FY10 nutrient initiative. HUC 8 watersheds selected are Root, Upper Cedar, Middle Minnesota, and Sauk. Projects were approved in each of these HUC 8 watersheds. Looking into potential to enhance monitoring associated with selected projects to increase learning about BMP effectiveness.	Work with project sponsors and partners to implement the projects that are funded.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Minnesota (cont)	Site-specific total suspended solids standard for the Mississippi River from the Minnesota River to Lake Pepin has been set and sent to USEPA for approval. USEPA contractors (University of Minnesota and Tetra Tech) are evaluating scenarios for reducing nitrogen in three subwatersheds of Lake Pepin. This information will be used to design a 20% reduction implementation plan for the lake.	Lake Pepin eutrophication standard to be developed, along with statewide standards and river nutrient standards. Once standards are completed, the Lake Pepin TMDL for phosphorus will continue.		Development of nonpoint source performance standards for nitrogen and phosphorus. Results of modeling will help determine level of funding needed for implementation.
	Minnesota River TMDL began: 2005. Preliminary draft of report completed. Stakeholders have completed review of preliminary draft. USEPA reviewing. Stakeholder meetings for implementation planning are occurring.	Public notice. USEPA approval. Begin implementation strategy development.	Adequate staff for modeling, funding for sediment research projects (Ravine, Bank, Bluffs, LeSueur River Sediment Budget, sediment fingerprinting, etc.).	Funding for additional research to aid in prioritization of implementation activities. Projects to demonstrate effective BMPs on ravines, banks, bluffs (projects and funding needed here). Approach to coordinate the development of the implementation strategy with state agencies, watershed projects, federal agencies, et al. Performance measures and standards for nonpoint source practices.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Mississippi	State and federal agencies and stakeholders to continue to work together to leverage program support to develop and implement nutrient reduction strategies in Mississippi. These include USDA's EQIP, CRP, CREP and Wetland Reserve; USGS' Cooperative Monitoring; and MDEQ's 319 Nonpoint Source, Basin Management, TMDL, and Water Quality Monitoring programs.	State and federal agencies and stakeholders to continue to work together to leverage program support to develop and implement nutrient reduction strategies in Mississippi. These include USDA's EQIP, CRP, CREP and Wetland Reserve; USGS' Cooperative Monitoring; and MDEQ's 319 Nonpoint Source, Basin Management, TMDL, and Water Quality Monitoring Programs.	$N/A (MDEQ).	Additional funding support.
	Continue leadership and support of the GOMA Nutrients PIT and its activities. (Lead – MDEQ)	Continue leadership and support of the GOMA Nutrients PIT and its activities. (Lead – MDEQ)		
	Continue enhanced nutrient reduction/hypoxia focus for Mississippi's Basin Management Approach.	Continue enhanced nutrient reduction/hypoxia focus for Mississippi's Basin Management Approach.		
	Continue implementation of Mississippi's Nutrient Criteria Development Plan. Mississippi's Nutrient Criteria Development Technical Advisory Group (TAG) meets quarterly to discuss nutrient data analysis and criteria development to advance development of numeric criteria and discuss tools under development (Trophic Status Index and Index of Biotic Integrity (IBI)). (Lead – MDEQ)	Continue implementation of Mississippi's Nutrient Criteria Development Plan. Mississippi's Nutrient Criteria Development TAG meets quarterly to discuss nutrient data analysis and criteria development to advance development of numeric criteria and discuss tools under development (Trophic Status Index and IBI). (Lead – MDEQ)	$N/A (MDEQ, USEPA).	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Mississippi (cont)	The GOMA Nutrients and Nutrient Impacts PIT (led by MDEQ) is working with Gulf states to foster an aligned approach/process to develop numeric nutrient criteria and related research. (Lead – GOMA Nutrients PIT, MDEQ)	The GOMA Nutrients and Nutrient Impacts PIT (led by MDEQ) is working with Gulf states to foster an aligned approach/process to develop numeric nutrient criteria and related research. The PIT will finalize an implementation plan for this activity during FY11. (Lead – GOMA Nutrients PIT, MDEQ)	$N/A (NOAA, USEPA GMPO).	
	Special Projects Team continues to coordinate MDEQ efforts to support the Mississippi River/Gulf of Mexico Watershed Task Force and implement its Hypoxia Action Plan and GOMA and implement its *Governors' Action Plan*.	Special Projects Team continues to coordinate MDEQ efforts to support the Mississippi River/Gulf of Mexico Watershed Task Force and implement its Hypoxia Action Plan and GOMA and implement its *Governors' Action Plan*.		
	Three FTEs to provide staff support for the Mississippi River/Gulf of Mexico Watershed Task Force activities and implement its Hypoxia Action Plan and GOMA and implementation of its *Governors' Action Plan*. Started – 2009.	Three FTEs to provide staff support for the Mississippi River/Gulf of Mexico Watershed Task Force activities and implement its Hypoxia Action Plan and GOMA and implementation of its *Governors' Action Plan*.	2 FTEs (319). 1 FTE (MDEQ).	Continued 319 funding support.
	Regional Coordinator hired and established for the GOMA Nutrients PIT. Start – 2009. (Lead – GOMA Nutrients PIT; MDEQ)	Regional Coordinator hired and established for the GOMA Nutrients PIT. (Lead – GOMA Nutrients PIT, MDEQ)	1 FTE (NOAA).	Continued NOAA funding support.
	Funding for coordination, collaboration, and participation in support of GOMA activities and coordination w/ Hypoxia Task Force. (Lead – GOMA Nutrients PIT; MDEQ)	Funding for coordination, collaboration, and participation in support of GOMA activities and coordination w/ Hypoxia Task Force. (Lead – GOMA Nutrients PIT; MDEQ)	$75,000 (NOAA).	Continued NOAA funding support.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Missouri	Continue to work with federal agencies on EQIP, CRP, CREP, and Wetland Reserve. The SWCP assisted eligible SWCDs in developing project proposals for NRCS MRBI and CCPI funding. Twelve MRBI projects and three CCPI projects in Missouri were funded in 2010. SWCP attended numerous MRBI meetings and served on the NRCS EQIP subcommittee and the State Technical Committee.	Continue to work with federal agencies on MRBI, CCPI, EQIP, CRP, Conservation Innovation Grant (CIG), and Wetland Reserve. Coordinate modification and expansion of existing soil and water conservation practices through coordination with SWCP. Continue to coordinate development of an interface between state and federal mapping systems.		
	Will continue to review state water quality data and information to better refine where the largest nutrient loads are located in the state to facilitate the most accurate targeting of resources in these locations. MDNR staff participated in WebEx cyberseminars about the SPARROW model.	Continue to work with USGS to refine the SPARROW model for ranking watersheds in the Missouri and Mississippi River basins. Continue to refine and, contingent upon available resources, expand state water quality monitoring networks and use this information to target sub-watersheds with the largest nutrient loads.		
	Continue statewide implementation of agricultural BMPs through MDNR's SWCP. The SWCP will continue to pursue opportunities to expand the statewide conservation practice docket and encourage adoption of water quality practices throughout the state.	Continue statewide implementation of agricultural conservation practices through the Department of Natural Resources' SWCP. As resources allow, develop special conservation practices to address water quality issues and reduce nutrient runoff.		
	Work to develop expanded capacity for nutrient management planning that will be required by both CAFO and sub-CAFO operations.	Ongoing. Continue to coordinate nutrient management issues through the rulemaking and permitting processes.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Missouri (cont)	Continue to support Missouri Conservation Reserve Enhancement Program (MO CREP) efforts to retire environmentally sensitive lands through the CRP. Continue MO CREP's active involvement in the protection of 83 watersheds in the state. Since 1999, this program has successfully retired 40,000 acres of environmentally sensitive land and will be completed in 2010.	This program will be completed in 2010.		
		Research project using sprinkler irrigation as an experimental method for growing rice on heavy clay soils in the Bootheel area of southeastern Missouri by University of Missouri Delta Research Center. Project will test various rates and timing of nitrogen applications, rice varieties, and water usage to see if the potential exists for an incentive practice to encourage producers to grow rice using sprinkler irrigation.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Missouri (cont)		Twelve Mississippi River Basin Healthy Watersheds Initiative project proposals in Missouri were awarded $6 million in funding for 2010 and a total of $28.2 million over the next 5 years for voluntary implementation of conservation practices that avoid, control, and trap nutrient runoff, improve wildlife habitat, and maintain agricultural productivity. These MRBI projects will be implemented in 20 SWCDs, 59 12-digit HUC watersheds, and six 8-digit HUC watersheds. The Missouri MRBI projects will also: adopt "systems approaches" and "adaptive management" strategies for reducing nutrient runoff; target conservation practices and systems in critical watersheds; collaborate with federal, state, and local stakeholders; and leverage federal MRBI funds with state and local funding. Monitoring for MRBI projects in six 8-digit HUC watersheds in Missouri to determine the effectiveness various conservation practices to avoid, control, and trap nutrients and sediment. MDNR will conduct STEPL modeling and develop load duration curves for nutrients and sediment in all of the 12-digit HUC watersheds of the MRBI projects awarded funded in Missouri. These 12 MRBI projects will range from 4¼ to 5 years.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Missouri (cont)		Southwest Ozarks CCPI project proposal in Newton and McDonald counties in Missouri was awarded $330,000 in EQIP funding over the next 3 years. Project will focus on fencing livestock from streams, implementing grazing systems, installing alternative water supplies with solar pumps to conserve energy and promote renewable energy production, promoting carbon sequestration, and enhancing streambank protection along section 303(d) streams listed for nutrients and bacteria in the Elk River and Shoal Creek basins.		
		Environmental Resources Coalition (ERC) and MEC Water Resources, Inc. (now Geosyntec, Inc.) were awarded two CIG grants from NRCS in the amounts of $500,000 and $75,000, respectively, to demonstrate the effectiveness of innovative conservation practices to reduce nutrient runoff, introduce nutrient and carbon trading to Missouri producers, and develop and test a model environmental trading platform between point and nonpoint sources of pollution. ERC will implement the Missouri Innovative Environmental Stewardship Project from 2010 until 2014. The Missouri Innovative Nutrient Trading Project will be conducted by Geosyntec, Inc., from 2010 until 2013.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Ohio	Continue to work with federal agencies on EQIP, CRP, CREP, and Wetland Reserve.	Ongoing.	0.5 FTE.	
	Continue to implement the Scioto Watershed CREP through 2011 (addresses nitrogen, phosphorus, and sediment).	Ongoing.	0.25 FTE.	
	Provide technical support for two or more Water Quality Trading projects.	Ongoing.	1 FTE.	
		Install two constructed wetland pilot projects in row crop tile-drained area in collaboration with FSA.	0.1 FTE.	$24,000 for state/local contribution.
		Implement the Muskingum Water Quality Program.	0.4 FTE.	
		Implement State Action Plan and local watershed action plan to control nutrients and harmful algal blooms in Grand Lake. New regulations on small/medium livestock operations and associated manure management pending.	1.5 FTEs.	$100,000 for additional FTE for implementing new regulations.
Tennessee	Continue to implement watershed restoration projects through the Clean Water Act (CWA) section 319 Nonpoint Source Program and the state-funded Agricultural Resources Conservation Fund to lessen water pollution transport to streams in Tennessee and ultimately to the Gulf of Mexico.	Ongoing.		
		Proposals submitted for Mississippi River Basin Healthy Watershed Initiative (MRBI) to USDA. Funds awarded to Tennessee for Obion River, South Fork Obion River and Red River for Federal Fiscal Year FFY10–13.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Wisconsin	Continue to work with NRCS and USGS on EQIP, CRP, CREP, and Wetland Reserve. Two Wisconsin projects were selected: Dane County—Pheasant Branch/Six-Mile Creek ($2 million) and Kettle Moraine Land Trust—Delevan Lake//Jackson Creek ($200,000).Planning was started in the Silver Spring, Lafayette County watershed.	Implementation of chosen projects. Benchmark monitoring (P-indexing) to continue in Silver Spring with hopes of submitting a project to NRCS in FY11.	Stream biological (Wisconsin DNR) and physical (USGS) monitoring. $25,000 to University of Wisconsin (UW)–Platteville for nutrient management.	
USEPA	Participate and provide leadership to the GOMA Water Quality and Nutrient Reduction teams. Arkansas has proposed a chlorophyll-a criterion for Beaver Reservoir. The state is also carrying out studies of least-impacted reference lakes for nutrient criteria development. Louisiana proposed draft methodology for developing nutrient criteria in flowing waters in 2010. USEPA Region 6 is assisting Louisiana and Arkansas in nutrient criteria development. Louisiana completed draft total nitrogen/total phosphorus criteria for inland rivers/streams. Region 6 and USEPA headquarters comments on draft nutrient criteria sent to Louisiana in May 2010. Arkansas nutrient criteria activities static.	Ongoing. Gulf of Mexico Program professional staff is federal co-lead on Water Quality and Nutrients teams. Expected Arkansas promulgation of Beaver Lake chlorophyll-a/turbidity criterion. Expected Louisiana promulgation of total nitrogen/total phosphorus criteria for inland rivers/streams.	R6 staff continually working with states (est. 0.5 FTE Mississippi River Basin).	States need financial/technical assistance from USEPA for continued nutrient criteria development.
	GOMA *Governors' Action Plan II* development and roll-out completed. USEPA's GMPO has federal co-leads for GOMA Water Quality and Nutrient Reduction teams.	Ongoing.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USEPA (cont)	Region 5 will develop and implement a Regional Framework to reduce nutrient loadings into the UMRB. Region 5 is working with Minnesota, Wisconsin, Illinois, Indiana, and Ohio on the development and implementation of State Nutrient Reduction Strategies. Continued focus on the development and adoption of nutrient WQS and targeting available resources to nutrient reduction efforts.	Region 5 will continue working with Minnesota, Wisconsin, Illinois, Indiana, and Ohio on the development and implementation of State Nutrient Reduction Strategies. Implementing priority pilot activities/projects in Minnesota, Indiana, and Ohio. Partnering with Region 7 on a workshop on developing the agricultural component of the State Nutrient Reduction Strategies.	Region 5 FY10: 4.5 FTEs $495,000 section 319 carryover funds HQ contract support.	Region 5 FY11: 12 FTEs $17 million in contracts/grants Technical support on WQS adoption.
		Through cooperation with The Nature Conservancy (Louisiana), U.S. Fish and Wildlife Service (USFWS), LDEQ, USEPA Region 6, and Corporate partnerships, over 16,000 acres of former farmland in the Mississippi River overflow basin (Ouachita River Basin, Louisiana) has been replanted using native forest species mix and overflow hydrology has been restored. Water quality and habitat restoration is being monitored, with particular note of changes in nutrients and sediment. This project exemplifies healthy watershed protection and restoration opportunities in the Mississippi River Basin.	Multiple funding sources and staff support.	Long-term monitoring and project maintenance funding and technical support.
NOAA	Identify barriers to aligning existing programs, projects, and initiatives with needs of hypoxia. Develop strategies when appropriate or possible to reduce or eliminate barriers.	Ongoing.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USACE	Identified barriers to aligning existing programs, projects, and initiatives with needs of hypoxia. Develop strategies when appropriate or possible to reduce or eliminate barriers. Draft guidance; educate MVD environmental team leaders. Guidance still in review for signature. Team leaders briefed. Continue to push overt inclusion of hypoxia considerations in all reports in MVD. Hypoxia being addressed in environmental documents.	Continue pushing hypoxia related efforts in projects and documents. Get coordinated MARB effort and communication in the Corps.	MVD team and other commands.	Some funding for inclusion/analysis in reports. Add to internal project cost estimates and management plans.
	Work with the Long-Term Resource Monitoring Program (LTRMP) Strategic Planning Team to incorporate considerations of value and multiple uses of the data by other programs such as the Hypoxia Task Force, middle Mississippi watershed. Open dialog with the Environmental Management Program (EMP). On hold. EMP, of which LTRMP is part, is being transitioned to the Navigation and Ecosystem Sustainability Program (NESP) program. Will need to wait for successful transition; no new starts for EMP now. Hopefully, can have a meeting and get into use needs this year.	EMP developing some projects for 2011 with hopes of funding. Will see about incorporation and cross-walking program efforts.	Several staff in EMP and MVD. EMP includes the St. Paul, Rock Island, and St. Louis districts.	Funding for EMP and get communication moving forward.
USDA	NRCS delivers technical assistance for conservation through its voluntary Conservation Technical Assistance (CTA) Program. CTA is available to any group or individual interested in conserving natural resources and sustaining agricultural production in this country and helps to maintain and improve water quality.	Ongoing.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USDA (cont)	EQIP was reauthorized in the Farm Security and Rural Investment Act of 2002 (Farm Bill) to provide a voluntary conservation program for farmers and ranchers that promotes agricultural production and environmental quality as compatible national goals. EQIP offers financial and technical assistance to help eligible participants install or implement structural and management practices on eligible agricultural land. During FY08 over $220 million was obligated in the 10 Mississippi River corridor states plus Indiana and Ohio. In both 2008 and 2009, Indiana NRCS obligated over 50 percent ($16.9 million) of each fiscal year's EQIP allocation toward Conservation Cropping Systems practices in response to continuing concerns about water quality, energy, fossil fuels, and agricultural input costs.	Ongoing.		
	CRP, administered by FSA, is a voluntary program for agricultural landowners. Through CRP, it is possible to receive annual rental payments and cost-share assistance to establish long-term, resource- conserving covers on eligible farmland. CREP is a voluntary land retirement program that helps agricultural producers protect environmentally sensitive land, decrease erosion, restore wildlife habitat, and safeguard ground and surface water. Continuous Signup CRP was conducted July 2010. The 39th General Signup CRP was announced. Signup will be conducted August 2–27, 2010. Contracting process will be completed by September 30, 2010.	Continuous Signup CRP will be conducted. General Signup CRP will be conducted.	Staffing and funds for annual, cost-share, and incentive payments are available.	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USDA (cont)	The WRP is a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. NRCS provides technical and financial support to help landowners with their wetland restoration efforts. The NRCS goal is to achieve the greatest wetland functions and values, along with optimum wildlife habitat, on every acre enrolled in the program. This program offers landowners an opportunity to establish long-term conservation and wildlife practices and protection. Due to the success of the projects, WREP projects implemented in the Lower Missouri River Basin of Nebraska were expanded in the upper reach of the Missouri River in 2009, providing many public benefits such as wildlife habitat, flood prevention, and water quality improvement.	Ongoing.		
	The Conservation Stewardship Program encourages agricultural and forestry producers to maintain existing conservation activities and adopt additional ones on their operations. The program is a new voluntary conservation program that provides financial and technical assistance to conserve and enhance soil, water, air, and related natural resources. The Conservation Stewardship Program provides opportunities to both recognize excellent stewards and deliver valuable new conservation.	Ongoing.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USDA (cont)	Other USDA programs, including the Public Law 83-566 Watershed Protection and Flood Prevention Program, the Resource Conservation and Development Program use RC&D, and Conservation Innovation Grants under EQIP, provide additional water quality benefits. (Ongoing.) USDA-NRCS Watershed Protection and Flood Prevention Program provided financial and technical assistance in 129 active watersheds within the MRBI area. Projects included watershed protection practices for erosion control, water quality improvement, water conservation, chemical and nutrient management, animal waste management, stream enhancement and protection, and wildlife habitat improvement. Flood prevention projects included dam construction and other flood mitigation measures.	Ongoing.	FY10 – $40.6 million in ARRA funding and $11.2 million in annual appropriations for projects in 11 states identified in the MRBI.	
	Coordinated delivery of IA CREP with Iowa Department of Agriculture and Land Stewardship (IDALS). Sixty-five constructed wetlands in Iowa have signed contracts.	Continuing enrollment.	FSA and IDALS staffing and funds for annual, cost share, and incentive payments are available.	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USDOI	USGS – Continue to incorporate science needs for improving conservation programs design and implementation of various agencies into research and monitoring programs and vice versa.	Participate in the GOMA Nutrient Reduction and Water Quality PITs. Work with USEPA and USDA to enhance monitoring to assess effectiveness of nutrient management actions.		
	USFWS – Provide technical assistance and work with partners in implementing fish and wildlife habitat restoration and improvement projects with ancillary nutrient reduction benefits on private lands on 50,000 acres and 200 stream miles in the Mississippi River Basin.	Ongoing.		
	USGS – Identify barriers to aligning existing programs, projects, and initiatives with needs of hypoxia. Develop strategies when appropriate or possible to reduce or eliminate barriers.	Ongoing.		

4. **Develop and promote more efficient and cost-effective conservation practices and management practices for conserving nutrients within the Mississippi/Atchafalaya River Basin watershed and evaluate their effectiveness at all scales, beginning with local watersheds and aggregating them up to the scale of the Mississippi/Atchafalaya River Basin.**

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Illinois	Conduct Certified Livestock Manager training workshops throughout the state. Ongoing. Planned 13 workshops in 2010. Held 8 workshops; trained 261 producers; currently license 978.	Ongoing.		
	Completed development of refined hydric soils maps of the Illinois River Basin, in cooperation with NRCS, for use in site selection by the Metropolitan Water Reclamation District of Greater Chicago for nutrient farming consideration. Used refined maps of hydric soils in the Illinois River Basin to target wetland restoration efforts through its cost-share programs like CREP and other Farm Bill Programs.	Ongoing.		
	Use fertilizer tonnage tax proceeds to support research on nutrient use efficiency. Funding withheld.	If funds are available, use fertilizer tonnage tax proceeds to support research on nutrient use efficiency.		Funding.
	Support research on nutrient abatement trading using constructed wetlands as an alternative to conventional point source wastewater treatment.	Ongoing.		
	Provide training for SWCD employees on preparation and review of nutrient management plans. Provide training to all employees not currently certified. No training requests received.	Training will be provided when requested.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Illinois (cont)	Support the Council on Best Management Practices (C-BMP) Lake Bloomington watershed project, which provides producers with incentive payments for following nutrient BMPs. An estimated 65% of all eligible acres will be enrolled in the program in 2008. With additional sign-ups, over 70% of producers in the watershed have a nutrient management plan. Project no longer funded. New project in the watershed is investigating interactions between bioenergy, carbon allowances, and water quality BMPs.			
Indiana	Indiana Conservation Partnership focused staff time and resources toward CREP, Blue-Green Algae, Conservation Cropping Systems Initiative, and specially funded watershed projects.	Ongoing.		
	Developed wetland siting models with Purdue and Indiana University.	Pilot wetland project for tile draining working with universities for monitoring. Share wetland model with partners.		Staff and funding needed to complete project.
	Provided direct professional agronomic assistance to Indiana farmers for practices such as: no-till; cover crops; nutrient management; etc. through the Indiana Conservation Cropping Systems Initiative.	Ongoing.		
	Conducted an Environmental Stewardship Awards Program with Red Gold, Inc., to encourage increased conservation management among contracted tomato growers.	Ongoing.		
	Partner initiatives and programs aimed specifically at water quality improvements for the Wabash River.	Ongoing.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Indiana (cont)	Working with NRCS and other partners to implement MRBI projects within the six watersheds chosen for this special funding.	Ongoing.		Staffing low due to budget cuts.
	The section 319(h) Program projects calculate sediment and nutrient load reductions using (for the most part) the USEPA Region 5 Model or STEPL, which IDEM reports through the Grant Reporting and Tracking System (GRTS).	Ongoing.		
Iowa	Continue development of the Iowa Wetland Landscape Systems Initiative for reducing nutrients to water resources, and achieve federal wetland regulatory and policy concurrence.	Implement six initial pilot projects to serve as demonstrations and study sites to confirm nutrient reductions and other benefits. Continue interagency task force of 13 federal/state/university agencies developing monitoring, studies and assessments of the pilot projects.	$10.43 million of state, landowner, and federal funding for construction and restoration of landscape systems for the pilot projects.	Financial resources to conduct monitoring, studies and assessments. Establish federal policy task force to consider policy and regulatory issues associated with the Initiative.
	Continue research under Wetlands, Nutrients and Water Management, and Des Moines Lobe Targeted Watershed Grant projects with Iowa State University to develop new technologies and improve water quality impacts of management practices (begun FY89).	Ongoing.		
	Continue Iowa Learning Farms demonstrations and studies to improve water quality through crop residue management practices, and Integrated Farm and Livestock Management program to demonstrate improved nutrient management practices.	Ongoing.		
	Continue use of fees paid by farmers on the sale of agricultural chemicals to develop improved practices for reducing nutrients to water resources.	Ongoing.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Kentucky	CWA 319(h) grant project evaluating Agriculture Water Quality Act AWQA planning, implementation and assessment. Project initiated.	Ongoing.		
	Applied for MRBI projects and received funding for three watersheds in Kentucky: Licking River, lower Green River, and Bayou Du Chien.	Ongoing.		Project partners on the ground; participation of landowners.
	Implement the CREP. $3,938,889.15 for 1268 contracts. To date, $3,224,431.40 has been paid on 791 practices.	Ongoing.		
	Implement the Kentucky Soil Erosion and Water Quality Cost Share Program with a priority on animal waste concerns. $5,327,686.53 for 781 Cost Share Practices and 912 EQIP Piggyback Payments during FY09. To date, after 15 years of the program over 10,350 landowners have been assisted and over $113.5M spent to install BMPs.	Ongoing.		
	Implement the Landowner Incentive Programs. $94,115.78 for 9 projects.	Ongoing.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Kentucky (cont)	Implement conservation practices through state cost-share program and NRCS programs. Conservation practices planned – 46,483 Conservation practices applied – 32,129 Conservation plans written – 3172 Conservation plans applied – 4,056 Conservation plans written for 314,531 acres Conservation plans applied to 331,561 acres CNMPs – 22 CNMPs applied to 4,304 acres Soil quality applied to 27,603 acres Grazing and forestland applied to 54,060 acres Wetlands created, restored, enhanced – 1,277 acres	Ongoing.		
Minnesota	Core inter-agency coordination was planned to deliver additional courses and course development. Funding ran out during summer 2009. However, training still occurred in December 2009.	Additional Technical Service Provider (TSP) training will occur as needed.	USDA-NRCS providing funding at this time.	Financial support necessary for coordinated, multi-agency training of private-sector TSPs.
	The Board of Water and Soil Resources received an USEPA 319 grant to investigate the impact of side inlets on water quality. The project will also develop design guidance for side inlet controls. The project began in FY10. The Board of Water and Soil Resources BWSR also has worked with drainage authorities in the state to install a woodchip bioreactor and to construct a two-stage ditch project. The BWSR also administers a Conservation Drainage grant available to LGUs to put in demonstration projects.	Continue with 319 project. Continue to provide technical expertise to drainage authorities to implement conservation drainage practices. Award the FY11 Conservation Drainage grants.	1 FTE devoted to drainage-related issues. 319 grant is $341,000 grant, $130,000 cash match and $140,000 in-kind. The conservation drainage grant has $330,000 available in FY11.	State budget shortfalls may impact personnel and program funding. Funding for Conservation Drainage depends on biennial legislative appropriation.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Minnesota (cont)	The Agricultural Watershed Restoration projects were completed in 2010.	The BWSR will summarize the results of the different projects.	Funding for Phase 3; implementation was eliminated.	This was a onetime appropriation, so no further work related to this project will be done.
	Nitrogen reduction through wetland restorations on agricultural lands, including many with tile outlets into restored wetlands – Minnesota Board of Water and Soil Resources and USDA-NRCS. Minnesota/Wetlands Reserve Program Reinvest in Minnesota (RIM-WRP) partnership (all restorations with and without tile outlets. Continued site investigation, easement acquisition, design and construction for RIM-WRP wetland restorations. Current RIM-WRP partnership began in 2008.	Ongoing. Continue site investigation, easement acquisition, design and construction for RIM-WRP wetland restorations.	Approximately 10 BWSR FTEs. FY11 approximately $7 million state and $13 million federal to date.	Continued state and federal funding. Additional technical assistance.
	"Highway 90 Drainage Project" began: Initial background monitoring was started in 2006. Project continues long term evaluating nutrient and pesticide losses through drainage water under different management practices.	Continued monitoring under probable soybean crop system. Limited nutrient management comparisons.	Funding included in MDA's Fertilizer Management Budget through 2012. Possibly Clean Water Legacy.	
	Nutrient Management Initiative Project began: 2006 cropping year. Funded through USDA-NRCS EQIP. For crop year 2010, 50 sites are enrolled in the program located in 27 Minnesota counties.	Probably will continue with an additional pilot for manure management. Discussion with Minnesota NRCS office in near future to determine 2011 activities.	Funding dependant on USDA-NRCS funding available at the state level. MDA offers 1 to 1 in-kind for the program.	Explore addition of a manure management component for producers.
	Drainage Control to Promote High Crop Yields and Diminish Nutrient Losses from Agricultural Fields in Minnesota. Project began in 2006. Drain flow and water quality (nitrogen and phosphorus) are measured in drain flow. An additional 50 acres was installed and is being monitored.	Additional research on a sub-irrigation treatment will be established.	100% in-kind. There is no external funding for this project at this time.	Additional research funds for continuing this project.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Minnesota (cont)	Maximizing the economic benefits of manure to reduce nutrient loading. Project began October 2008. Twenty workshops were held in FY10. Two on-farm trials on timing of manure applications were begun.	Twenty or more workshops will be delivered, and six additional trials on timing of manure will be initiated.	One soil scientist extension educator is funded by the project. In-kind assistance is provided by Extension and county staff of SWCDs and County Feedlot Offices.	In-field spatial management of phosphorus on fields receiving manure is essential to water quality protection. This has not been addressed in farmer education programs or on-farm research. Funding is needed for these activities.
Mississippi	Continue support for the Delta Water Quality Research Initiative. The Initiative continues to identify and support numerous nutrient-related research projects in the Delta. (Leads – MDEQ, USDA ARS)	Continue support for the Delta Water Quality Research Initiative. The Initiative continues to identify and support numerous nutrient-related research projects in the Delta. (Leads – MDEQ, USDA ARS)	$N/A (USACE).	Continued USACE funding support.
		Mississippi Delta Nutrient Management: Position Resource Management Agencies for Effective Delivery and Implementation. This "bundle" of projects is designed to advance implementation of the Mississippi Delta Nutrient Reduction Strategy. Funding support is provided by the Mississippi Department of Marine Resources through Delta F.A.R.M. and Mississippi State University/NGI. Individual projects are described below:	$1.5 million (state total).	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Mississippi (cont)		– Stakeholder Awareness, Outreach and Education: First Step – Stakeholder Beliefs and Perceptions (Phase 1). One of the first steps in implementing nutrient reduction strategies in the Delta is to gain a better understanding of the beliefs and values of the various target audiences about nutrient issues. In this project social science survey instruments will be used to identify the underlying beliefs and values selected target audiences use in making decisions about land management practices and stewardship, and identify the perceptions of these groups. The focus of this project is at three nested scales: local watersheds and catchments, Mississippi Delta, and the State of Mississippi. The study could easily be expanded to larger spatial scales, such as the Mississippi Alluvial Plain (AR, MS, LA), or the Mississippi River Basin.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Mississippi (cont)		– Watershed Assessment Tools: Mississippi Delta Evaluation. This project will develop and improve analytic tools for the evaluation of nutrient load reductions expected from implementation of BMPs in the Mississippi Delta. Effective implementation of nutrient load reductions requires that analytical tools be available to accurately estimate loads from watersheds and water bodies as a function of hydrologic conditions and alternative management practices. Hydrologic models are available that could be used to estimate relationships among climate, soil characteristics, land practices, and nutrient runoff. Hydrologic models could be used, for example, to estimate nutrient loads from watersheds under existing conditions and conditions following implementation of BMPs in order to estimate potential load reductions. Hydrologic models can also be used to aid in the site selection and design of BMPs. In order to be effective, estimates are required for pollutant removal efficiencies as a function of BMPs design and placement.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Mississippi (cont)		– Develop and validate new BMPs (such as low-grade weirs, drop pipes and flashboard risers) as low-technology, innovative drainage management structures for nutrient management in primary aquatic systems associated with agriculture. – Technical assistance to increase producer adoption of nutrient input management. Reducing nutrient inputs and increasing nutrient utilization efficiency are key components of comprehensive nutrient management. Site-specific, or precision agriculture, practices provide technological, information-based approaches to reducing nutrient inputs and increasing utilization efficiency. Adoption of precision farming practices can help farmers to reduce costs, increase profits, and minimize environmental degradation by applying only the required amount of nutrients. – Implementation of BMPs to support implementation of the Mississippi Delta Nutrient Reduction Strategies. One-half of the grant funding is being used to implement BMPs in projects that implement the Mississippi Delta Nutrient Reduction Strategies and which will improve water quality and improve fisheries habitat through decreased nutrient loadings to the Gulf of Mexico.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Mississippi (cont)		Evaluation of Innovative, Low-Technology Water Management Structures as Important Tools in Nutrient Reduction Strategies. The main objective of this project is to evaluate BMPs (such as low-grade weirs, drop pipes and flashboard risers) as low-technology, innovative drainage management structures for nutrient management in primary aquatic systems associated with agriculture. Implementation of drainage structures and monitoring of nutrient loads/concentrations and biogeochemical circumstances will highlight the effectiveness of each structure for water quality improvements and will demonstrate and delineate how local innovative nutrient reduction strategies will decrease source nutrient contributions to coastal ecosystems. It is further anticipated that synergistic nutrient reductions will occur with integrated technologies, both new and old. This research will provide irrefutable evidence for BMPs and their contribution to nutrient management. Funding support is provided by USEPA's GMPO through Mississippi State University and Delta F.A.R.M.	$672,000 (federal); $490,000 (in-kind).	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Mississippi (cont)		Decreasing Nitrate Loads to Coastal Ecosystems with Innovative Drainage Management Strategies in Agricultural Landscapes. Evaluation of nutrient reduction BMPs at the macro and micro levels. Funding support is provided by Mississippi/Alabama Sea Grant through Mississippi State University.	$125,000 (federal).	
Missouri	Through the Department of Natural Resources SWCP, continue to provide funding for the Agriculture Nonpoint Source Special Area (AgNPS SALT) Programs. Through Missouri's Nonpoint Source Grant Program (funded pursuant to CWA section 319), continue to support projects that improve the quality of Missouri's waters listed as impaired or threatened by nonpoint source pollution. The SWCP provided approximately $7.4 million for conservation practices for the remaining active AgNPS SALT projects in 2010. In addition, the SWCP allocated $177,249 in addition funding for conservation practices in the three targeted watersheds in Missouri (Black Creek, North Fork Spring River, and Jack's Fork). Coordination continued between the section 319 Nonpoint Source Management Program and the SWCP in funding projects located on impaired waterbodies.	The SWCP will continue to provide funding for the AgNPS SALT to sustain the remaining 42 active AgNPS SALT projects through 2015. The SWCP will continue to coordinate efforts with the section 319 Nonpoint Source Management Program to support projects that improve the water quality of waterbodies listed as impaired by nutrients and other nonpoint source pollutants.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Ohio	Conduct a pilot study to further develop and test controlled drainage structures and bioreactor treatment practices for tile outlets.	Ongoing.	$60,000.	$50,000.
	Share results of several pilot projects assessing the pollutant assimilative capabilities and other ecological services of self-forming/wide-channel designs in drained areas.	Ongoing.	0.75 FTE.	$250,000 for field demos and computer model improvements; ties into water quality trading tools.
	Develop and publish a manual for the implementation of best practices for modified channels for drained/tiled agricultural fields. Manual not finalized due to workload and budget problems.	Ongoing.	0.1 FTE.	
Tennessee	Continue to support research by the University of Tennessee Institute of Agriculture in setting conservative fertilizer recommendations for agricultural crops, in order to educate producers regarding "most profitable yield" concept. Continue to support educational outreach programs such as Tennessee Yards and Neighborhoods and educational efforts of urban stormwater programs to focus on appropriate fertilizer use principles.	Ongoing.		
Wisconsin	Develop phosphorus and nitrogen water-quality-based indices for agricultural lands (pilot projects in southwest corner of state). Phosphorus Index PI = six developed and adopted.	Implement statewide.		
	Implement Discovery Watershed Approach (see Senate Farm Bill). Did not pass. Was not included in Farm Bill.			

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Wisconsin (cont)	Promote cellulosic alternatives for ethanol production. Continue working with other agencies to promote use of grasses and wood wastes for direct energy production. i.e., state heating and cooling boilers.	Ongoing.		
USEPA	Through its Targeted Watershed Grants Program, USEPA has awarded $3.7 million for projects that focus on water quality trading or other market-based water quality projects to reduce nitrogen, phosphorus, sediment, or other pollutant loadings that cause low oxygen levels in the Northern Gulf of Mexico. The awardees include the Conservation Technology and Information Center (CTIC), the Electric Power Research Institute, Iowa State University, the Miami Conservancy District, The Nature Conservancy, Ohio State University, The Wetlands Initiative, the University of Kentucky, West Virginia University, and the World Resources Institute. The projects are located in the three Mississippi River subbasins with the highest nutrient loads contributing to hypoxia in the Northern Gulf of Mexico: the Ohio River, the Upper Mississippi River, and the Lower Mississippi River. Grants were awarded to selected projects. http://epa.gov/owow/watershed/trading/twg	Tracking activities under each grant awarded.	Staff time to manage grants.	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USEPA (cont)		Gulf of Mexico Program-funded project with Mississippi State University entitled "Evaluation of Water Management Structures in Nutrient Reduction Strategies." The project will include installation of weirs, slotted pipes and similar structures to slow down water flow and create opportunities for more natural nutrient reduction on Mississippi Delta farms.	Total project budget is $1,162,817.	
USDA	Conservation Effects Assessment Project (CEAP) Cropland Assessment for the UMRB was released by USDA (Ag Secretary) on June 16, 2010. Findings from the report were shared by the Secretary in a briefing, in press releases and related media stories. The USDA, NRCS and CEAP websites publicized the major findings of the study. More information on the report, the findings and the methodologies can be found on the CEAP website at: http://www.nrcs.usda.gov/Technical/nri/ceap, and at the CEAP UMRB webpage: http://www.nrcs.usda.gov/Technical/nri/ceap/umrb/index.html. Model runs are under way for the other subbasins of the Mississippi River Basin.	Complete report preparation, technical review and release of CEAP Cropland results for other Mississippi River Basin subbasins, documenting the effects of conservation practices in those subbasins and analyzing conservation treatment needs and strategies for improved conservation effects. Analyses to support the Soil and Water Resources Conservation Act (RCA) National Conservation Program using CEAP data, analytical infrastructure, and resource assessments will be carried out in FY11.	Existing staff and funding in place.	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USDA (cont)	Provide results from ARS's Water Availability and Watershed Management National Program (National Program #211) on methods for reducing nutrients from agricultural systems. (2006) CEAP ARS Watershed Assessment Studies. These ARS watershed studies provide information needed to verify the accuracy of models used in the National Assessment. Fourteen watersheds were selected with a focus on water and soil quality and water conservation as primary resource concerns on rain-fed agricultural land.	Ongoing. Highlights of hypoxia-related accomplishments from past year can be found at: http://www.ars.usda.gov/SP2UserFiles/Program/211/NP2112009AnnualReportFinalFinal.pdf Planning for the FY2011 – FY2015 Action Plan for Water Availability and Watershed Management is underway with a workshop planned for Chicago in September with ARS customers, stakeholders, and partners. CEAP watershed highlights from 2009 can be found at: http://www.nrcs.usda.gov/technical/nri/ceap/library.html#highlights		
	Expand CRP-FWP to include land on which a constructed wetland is to be developed that will receive flow from a row-crop agriculture drainage system and is designed to provide nitrogen removal in addition to other wetland functions. FWP has been identified as Task Force priority initiative. Four states have expressed an active interest in implementing FWP.	Continue to work with states to implement FWP and establish constructed wetlands. Develop pilot FWP projects in four states.	Staffing and funds for annual, cost-share, and incentive payments are available.	Continued Interagency and state coordination on FWP technical specifications, and regulatory issues. Partnership development for outreach, technical assistance, and funding.
USDOI	National Park Service – Evaluate (through monitoring and modeling) the success of nutrient management practices applied in the St. Croix and Lake Pepin watersheds. Continued to support the monitoring and modeling needed to evaluate the success of nutrient management practices applied in the St. Croix and Lake Pepin watersheds.	Ongoing.		

5. **Identify and, where possible, quantify the effects of the hypoxic zone on the economic, human, and natural resources in the Mississippi/Atchafalaya River Basin and Northern Gulf of Mexico, including the benefits of actions to reduce nitrogen and phosphorus and the costs of alternative management strategies.**

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Indiana	With Purdue, looking at socioeconomic indicators of implementing conservation.	Ongoing.		
Iowa	Completed study of assessing the costs of achieving the target nutrient reductions at large-watershed scale through the Cedar River watershed study to assess the costs and needed management practices to meet the nutrient reduction targets of the hypoxia goal.	Publish and disseminate the final report and findings.		
Mississippi		Valuing Ecosystem Services for Agriculture. The Mississippi Delta Nutrient Reduction Strategies Planning and Implementation Team's Economic Incentives and Funding Work Group will outline a plan and strategies to identify, quantify, and value specific ecosystem services that are applicable to agroecosystems within the Mississippi Delta. The work group will be expanded to include individuals with expertise in agricultural economics, non-market valuation practices, agronomy, wildlife and waterfowl management, forestry, producers within the Mississippi Delta, and other members identified by the work group. (Leads – Delta F.A.R.M., MDEQ)	$N/A (federal).	Funding support.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
NOAA	Conduct workshop on the application of hypoxia impact studies to fisheries management activities, and foster collaboration between hypoxia researchers and fisheries scientists and managers. Workshop to Coordinate Gulf of Mexico Hypoxic Zone Research was convened in February 2010 and consisted of a full-day session devoted to improved fisheries-related collaborations between scientists and managers.	Completion of report, *Hypoxia Impacts on Gulf Fisheries – Plan for Coordinating Research and Management Application.*	Workshop was cosponsored by NOAA National Centers for Coastal Ocean Science, NOAA Gulf of Mexico Regional Collaboration Team, NOAA National Coastal Data Development Center, and the NGI. Report development is through in-kind support.	None.
	Continued funding and management of the Northern Gulf of Mexico Ecosystems and Hypoxia Assessment (NGOMEX) research program. Initiation of project to assess the economic impacts of the hypoxic zone on the brown shrimp fishery through the development of a shrimp bio-economic model. Continued research on the reproductive impacts of hypoxia on Atlantic croaker. Initiate modeling effort to scale up the physiological findings to population-level effects through both population and croaker movement modeling. Initiate project to develop quantitative tools to probabilistically forecast the production of economically and ecologically important fishes, which include Gulf menhaden, bay anchovy, Atlantic bumper, and Spanish bumper in response to hypoxia. Food web interactions will also be explored and incorporated into the models through exploration of fish/zooplankton predator-prey interactions. The first of three years of funding was provided in September 2009.	Ongoing. Second year of funding.	National Centers for Coastal Ocean Science supported NGOMEX projects: $973,000 for FY11.	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USACE	USACE–Engineer Research and Development Center (ERDC): Build data collection/monitoring into project actions. By August 2008, evaluate some possible quantification efforts such as contributing to NGOMEX. Attended some meetings; no funds developed. Still on hold.	Continue to look for leveraged efforts. Possible work with national WQ effort being led by HQ.	ERDC and MVD staff.	Funding, about $500,000.

6. Coordinate, consolidate, and improve access to data collected by state and federal agencies on Gulf hypoxia and Mississippi/Atchafalaya River Basin program activities and results.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Arkansas		Evaluate the benefit and feasibility of incorporating nutrient reduction information and data into Arkansas Wetland Resource Information Management System AWRIMS website.	0.1 FTE.	
Indiana	Start using SharePoint website as collective data use and sharing with ISDA employees and districts to keep track of customers and acres of conservation.	Ongoing. Hope to broaden use to other partners.		
	Establishing model and statewide data sharing system for estimating nutrient load reductions.	Using SharePoint and modeling, report acres and nutrient load reduction.		
Iowa	Continue assessing nutrient load reductions from all Iowa-funded and -led conservation programs.	Ongoing.		
	Assist USDA in assessing nutrient load reductions from all federally funded Farm Bill conservation programs conducted in Iowa.	Ongoing.		
Louisiana		Creation of a special LDEQ link on its home page website for dissemination of environmental information on the Mississippi River and Gulf of Mexico—www.deq.louisiana.gov/portal/HOME/Gulfofmexicoandmississippiriver.aspx. Includes sections on Gulf of Mexico hypoxia and the Hypoxia Task Force and Action Plan, with a link to USEPA's hypoxia website. Other sections on the Web link are on the Gulf of Mexico Program and Alliance and Mississippi River water quality.	Supported by LDEQ Water Quality Assessment and Technical Services staff.	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Minnesota	Continue to develop electronic submittal of Discharge Monitoring Reports (DMRs) for NPDES-permitted facilities. Project began in January 2008. Project finished November 2009. Develop and implement a CROMERR (Cross Media Electronic Reporting Rule)-compliant electronic DMR submittal system.	Marketing efforts to increase the number of wastewater facilities using the service. (Started with 4 and now up to around 40 facilities.) A new project is being considered to receive daily data in addition to DMR summary data.	The existing system is supported by existing Minnesota Pollution Control Agency (MPCA) staff. At the current time one staff person is responsible for ongoing support. Other staff is added as necessary for projects.	None at this time.
	Continue implementation of Hydstra for storage, management and sharing of data from stream gauges and sampling. Project began in fall 2004. The second year of Hydstra auditing was completed, giving Minnesota better confidence in its published data. Enhancements to the Cooperative Stream Gauging website (http://www.dnr.state.mn.us/waters/csg), including a better mapping interface and site picture display, were completed. A new intranet page was created for access to hydrology and chemistry data by internal staff (http://s-sp12).	Two current goals to be addressed in FY11 are better storage of ground water data and expanding the user base of Hydstra to include new internal and external users and sources of data. At this point a replacement system is being considered and an RFP planned to be drafted early in FY11 so all options can be evaluated.	Possible LCCMR funding.	Expansion of the user base and the possible development of a replacement system to deal with shortcomings - hard to connect to other data systems, does not adequately support groundwater data, and user security is not sufficient.
	eLINK reporting of phosphorus and sediment reductions associated with BMPs. All nonpoint source-funded activities are tracked for applicable loading reduction estimates for nitrogen, phosphorus and sediment. This information is entered into USEPA's GRTS database.	MN Board of Water and Soil Resources is seeking $340,000 from the Minnesota Legislature to revise the pollutant estimators by 2013.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Mississippi	Continue participation with Regional Technical Advisory Group (RTAG) and USEPA Region 4. (Lead – MDEQ)	Continue participation with RTAG and USEPA Region 4. (Lead – MDEQ)		Continued USEPA support.
	Continue support for the LMRCC's collaborative efforts to implement USEPA's National Flowing Waters Assessment of the Lower Mississippi River. MDEQ is working with LMRCC member states Louisiana, Arkansas, Tennessee, Missouri, and Kentucky to implement water quality monitoring activities on the lower Mississippi River. (Lead – MDEQ)	Continue support for the LMRCC's collaborative efforts to implement USEPA's National Flowing Waters Assessment of the Lower Mississippi River. MDEQ is working with LMRCC member states Louisiana, Arkansas, Tennessee, Missouri, and Kentucky to implement water quality monitoring activities on the lower Mississippi River. (Lead – MDEQ)	$N/A (USEPA).	Funding support to sustain monitoring and assessment activities.
Missouri	Continue participation with RTAG and USEPA Region 7. All nutrient data available to the state are made available to this work group.	Ongoing. Continue to coordinate nutrient criteria development efforts with USEPA Region 7 and RTAG. Share all available nutrient data in the state with the RTAG work group.		
Ohio	Share information and developments related to our soil and water information management systems (e.g., aggregating load reductions) and Ohio's new geographic information system (GIS) database project.	Ongoing. Specific efforts to developing water quality trading design and tracking modules.	0.6 FTE.	$5,000 for subcontract.
Tennessee	Continue to input watershed project data into USEPA's GRTS database.	Ongoing.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Wisconsin	Developed a "Tributary Monitoring Plan" including a better information base for nutrient loading and the ability to assess improvements on a smaller-area scale over time. Upper Mississippi River Tributary analysis to be set up so data are collected consistently for parameters, analysis, and for multiple states with consistent frequency (St. Croix, Chippewa, Black, Wisconsin Rivers). Funding not available to implement. Continued monthly or quarterly sampling at a number of sites with USGS gauging stations. Could not expand number of samples per year due to a lack of funding.	Work with the Upper Mississippi River Basin Association water quality task force to compile existing information on tributary nutrient concentrations in five states represented.		
NOAA	Continued development of a data portal to maximize accessibility to, and exchange of, hypoxia data as called for in tier 1 of Gulf of Mexico Hypoxia Monitoring Implementation Plan. Continue to make available data from monitoring cruises and other projects through NOAA National Coastal Data Development Center. Development of data portal was advanced at Workshop to Coordinate Gulf of Mexico Hypoxic Zone Research through dedicated session. Consensus from Workshop to develop a National Hypoxia Data Portal.	Ongoing. Develop plan for *National Hypoxia Data Management System*, an output from the *Workshop to Coordinate Gulf of Mexico Hypoxic Zone Research*.	Report development is through in-kind support from NOAA National Centers for Coastal Ocean Science, NOAA Gulf of Mexico Regional Collaboration Team, NOAA National Coastal Data Development Center, and the NGI.	Core System Requirement #6 of *Gulf of Mexico Hypoxia Monitoring Implementation Plan*: O&M for a National Monitoring Network with continued data management and technology transfer development; creation of a National Hypoxia Database. Maintenance of FTE positions over 5 years ($600,000/year).

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
NOAA (cont)	Hypoxic zone monitoring implementation plan meeting to advance effort to identify potential funding sources, additional partners, and collaborators. Workshop to Coordinate Gulf of Mexico Hypoxic Zone Research was convened in February 2010 and consisted of a full-day session devoted to improved collaboration and coordination for monitoring. This workshop followed a December 2008 meeting to identify funding potential for monitoring. The FY10 Hypoxic Zone Monitoring Coordination Plan was completed following the February workshop and development of 2010 Gulf Hypoxic Zone Monitoring Implementation.	Ongoing. 2nd *Annual Workshop to Coordinate Gulf of Mexico Hypoxic Zone Research* to coordinate of FY11 monitoring activities.	In-kind support from NOAA National Centers for Coastal Ocean Science, NOAA Gulf of Mexico Regional Collaboration Team, NOAA National Coastal Data Development Center, and the NGI.	$60,000/year for workshops.
USACE	Compiled available data on nutrient loading and removal in the Lower Mississippi River Subbasin; however, project on hold with no funds to move forward. Still on hold – no funding.	Hoping to move forward if leveraged funding develops. Looking at various programs.	MVD and lower districts, including Memphis, Vicksburg, and New Orleans districts.	Need funding, about $300,000.
	Distribute Task Force material throughout the Corps and to partners. Distributed 2008 Action Plan material. Will continue to distribute as needed. All six MVD districts and regional partners have a copy of the 2008 Action Plan or have been sent a link to the plan. National leaders received copies or links as well. Sent info to partners, MARB Corps team members, incorporated into America's Inner Coast Conference 2010 work group on science needs.	Continue as same. America's Inner Coast Summit (AICS) 2011 development. National Conference on Ecosystem Restoration NCER 2011 is another opportunity in Baltimore.	MVD.	None identified.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USDOI	USEPA/USGS - Continue to enhance the coordinated delivery of information from USGS National Water Information System (NWIS) and USEPA STORET. Initial Web services to integrate access to USGS and USEPA databases are available at http://qwwebservices.usgs.gov Work with USDA-ARS on strengthening collaboration with the ARS STEWARDS CEAP data sets through the Water-Quality Web Services.	Ongoing. Continue to enhance Web services to integrate access to USGS and USEPA databases are available at: http://qwwebservices.usgs.gov/portal.html and http://storetnwis.epa.gov/storetqw/portal.html Work with USDA-ARS on strengthening collaboration with the ARS STEWARDS CEAP data sets through Water-Quality Web Services.		Need to identify state needs related to transferring data into STORET.

7. **Track interim progress on the actions to reduce nitrogen and phosphorus by producing an annual report on federal and state programs' nutrient reduction activities and results.**

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Arkansas		Estimate costs for expansion and development of AWRIMS interface to include landscape changes associated with state-wide non-point pollution abatement efforts.	0.1 FTE.	
Illinois	Implement system to track estimated reductions in nutrient losses for all cost-shared conservation practices. Ongoing for all Illinois Department of Agriculture and section 319 projects. Tracking program updated to meet data requests.	Continue to track estimated reductions in nutrient losses for all cost-shared conservation practices.		
Iowa	Continue assessing nutrient load reductions from all Iowa funded and led conservation programs.	Ongoing.		
	Assist USDA in assessing nutrient load reductions from all federally-funded Farm Bill conservation programs conducted in Iowa.	Ongoing.		
Mississippi	Continue to work closely with state, university, USDA, USEPA, NOAA and other agencies and stakeholders to track Mississippi nutrient reduction activities. (Lead – MDEQ, Delta F.A.R.M.)	Continue to work closely with state, university, USDA, USEPA, NOAA and other agencies and stakeholders to track Mississippi nutrient reduction activities. (Lead – MDEQ, Delta F.A.R.M.)		
	Continue report tracking of CWA section 319 nonpoint source -funded nutrient reduction watershed projects through GRTS database. (Lead – MDEQ)	Continue report tracking of CWA section 319 nonpoint source -funded nutrient reduction watershed projects through GRTS database. (Lead – MDEQ)		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Missouri	Continue implementation of the Missouri Soil and Water Information Management System (MoSWIMS). The MoSWIMS mapping and project planning function was completed and maps associated with 10 conservation practices were required for producer contracts. In addition, MoSWIMS was revised to include updated screen shots, qualifying criteria questions, new administrative system changes to clarify processes, and an explanation of the new scanning process. The MoSWIMS Training Manual was updated to include instructions for all the new functions.	Continue to support, refine, and expand the capabilities of the Missouri Soil and Water Information Management System (MoSWIMS). MoSWIMS automates the cost-share and incentive procedures used by the Missouri SWCD offices in implementing the Cost-Share Program and AgNPS SALT Program. Mapping of all practice locations on MoSWIMS will facilitate efforts to model the effectiveness of the various conservation practices offered by these programs in reducing nutrient loads.		
	Continue developing the Conservation Management Tool (CMT), an interactive mapping and data-collection system. The SWCP worked with Information Technology (IT) staff and University of Missouri partners to complete several updates to CMT, including an interface with MoSWIMS which allowed maps of conservation practices to be uploaded from CMT. The SWCP also initiated discussions with NRCS to develop a method for integrating NRCS's Toolkit software with the state's CMT software so that data can be exchanged between these systems. If successful, the integration of these systems will eliminate the duplication of effort that currently exists between NRCS and the SWCDs at the county level in designing and mapping cost-share practices, developing contracts, and entering practice cost data. Toolkit/CMT integration would also facilitate statewide strategic planning efforts.	Continue to support CMT and work with NRCS to integrate CMT with Toolkit.		
Tennessee	Coordinate with conservation agencies on methods to track nutrient reduction progress.	Ongoing.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Wisconsin	Issued 28 grants for nutrient management and reduction projects in 2009, 45 in 2008, and 17 in 2007. Annual phosphorus load tracking for point sources to begin in 2010. Issued 36 grants for nutrient management and reduction projects in 2010.	Ongoing.		
NOAA	Annual prediction on size of hypoxic zone. 2010 Forecast issued based on predictions from two models.	Ongoing. Forecast window extended; third forecast model included in ensemble.	Part of NOAA National Centers for Coastal Ocean Science supported NGOMEX projects – see Action Item #9; USGS provides in-kind support for nutrient loading data.	Funds needed for transition to operation; $500,000/year for 2 FTEs and computer costs.
	Annual monitoring survey of hypoxic zone to assess progress toward Action Plan goals (three shelf-wide monitoring surveys). Two shelf-wide monitoring cruises are planned—one in late July and one in August 2010. An additional cruise was planned in June 2010, but it was cancelled due to mechanical problems on the ship. Autonomous underwater vehicle (AUV) capabilities tested.	Minimum of three shelf-wide monitoring cruises and AUV (glider) deployments.	Current monitoring is provided through NOAA National Centers for Coastal Ocean Science supported NGOMEX program ($450,000/year).	Funding for core requirements (tier 1) of *Gulf of Mexico Hypoxia Monitoring Implementation Plan* (see Action Item #9).

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USDA	Estimate and report CRP nutrient reductions for Mississippi River Basin. Produced 2008 CRP annual report. Nitrogen, phosphorus, and sediment reductions for CRP in the Mississippi River Basin reported for FY09.	Report for FY10 will be completed November 2010.	Staff.	
		Initiate monitoring assessment and evaluation projects to better estimate nutrient reduction effects of CRP conservation projects.	$1 million funding is available for FY10.	
USDOI	USGS - October 2009 to May 2010 preliminary nutrient load estimates from Mississippi/Atchafalaya River Basin available at: http://toxics.usgs.gov/hypoxia/mississippi/oct_jun/index.html 2009 annual nutrient loads from Mississippi/Atchafalaya River Basin available at: http://toxics.usgs.gov/hypoxia/mississippi/flux_ests/index.html USGS - Graphs of annual and monthly loads of total nitrogen and total phosphorus available at: http://water.usgs.gov/nasqan/nitrogen_phosphorus_gulf.html Graphs of annual total nitrogen load and flow-weighted concentration from 1980 to 2009 at selected sub-basins available at: http://water.usgs.gov/nasqan/docs/marb.nitrogen.pdf	Continue to estimate spring nutrient load estimates for the Mississippi River Basin and post online in mid-June. Continue to calculate annual nutrient loads by water year for downstream sites, major subbasins, and tributaries monitored as part of USGS National Stream Quality Accounting Network (NASQAN) and National Water-Quality Assessment Program (NAWQA) and post online in mid-June. Ongoing.		
	National Park Service – Provide annual nutrient load estimates from a gauge at the mouth of the St. Croix River to evaluate progress toward nutrient reduction goals.	Ongoing.		

8. **Continue to reduce existing scientific uncertainties identified in the Science Advisory Board and the Monitoring, Modeling, and Research (MMR) Workgroup reports regarding source, fate, and transport of nitrogen and phosphorus in the surface waters of the Mississippi/Atchafalaya River Basin to continually improve the accuracy of management tools and efficacy of management strategies for nutrient reduction.**

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Arkansas		Continue water quality monitoring and analyses of non-point program and Arkansas Department of Environmental Quality (ADEQ) water quality monitoring data.	1 FTE.	
Illinois	Sediment and nutrient monitoring at selected watersheds within the Illinois River watershed for evaluation of the effectiveness of the Illinois River CREP. For 2008 annual report see: http://dnr.state.il.us/orc/conservation_programs/crep/12-30%20final%20CREP%20Report%202008.pdf	Ongoing. Continue sediment and nutrient monitoring at selected watersheds within the Illinois River watershed for evaluation of the effectiveness of the Illinois River CREP.		
Indiana	Establishing appropriate model to use for estimating nutrient load reductions.	Ongoing.		
Iowa	Continue water quality monitoring to document performance of nitrogen-removal wetlands developed under the Iowa CREP.	Ongoing.		
	Continue water quality monitoring of the Wetlands, Nutrients and Water Management research and Des Moines Lobe Targeted Watershed Grant projects.	Ongoing.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Kentucky	Conducted nutrient monitoring in Ecoregions 71e and 71g, as well as large-river chlorophyll-a monitoring. Completing nutrient data summary report.			
	Require phosphorus and total nitrogen monitoring on all sanitary and domestic wastewater treatment plant permits. Granted 462 permits.	Ongoing.		
Louisiana	Evaluate nutrient concentrations and other water quality in the LA Mississippi River from three state long-term monitoring stations at St. Francisville, Plaquemine and Belle Chase and from Morgan City on the Atchafalaya River. Evaluate data for any long-term trends in nutrient concentrations.	Continue with nutrient data collection and assessment.	LDEQ Water Quality Assessment staff members are providing in-kind work on this effort.	
Minnesota	Continue the Major Watershed Load Monitoring network program. Project began in 2007. The Major Watershed Load Monitoring network (MWLM) uses a multi-agency monitoring approach that combines site-specific stream flow data from USGS and Minnesota DNR flow gauging stations with water quality data collected by the MPCA, Metropolitan Council Environmental Services (MCES), and local monitoring organizations to compute annual nutrient and sediment pollutant loads. Loads are calculated at all 81 major watersheds at the 8-digit HUC scale. 2007 and 2008 loads calculations will be completed by September 2010 and compiled in an annual report.	Ongoing monitoring.	The MWLM network is funded with appropriations from Minnesota's Clean Water Fund.	None.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Mississippi	Development of pilot nutrient criteria for a Mississippi estuary through the St. Louis Bay Nutrient Source, Fate and Transport Study. (Lead – GOMA Nutrients PIT, MDEQ)	Development of pilot nutrient criteria for a Mississippi estuary through the St. Louis Bay Nutrient Source, Fate and Transport Study. (Lead – GOMA Nutrients PIT, MDEQ).	$500,000 (USEPA GMPO).	
	Research to characterize macrobenthic subsystem function that might respond to hypoxia and other stressors ("Macrofaunal Indicators of Hypoxia"). (Lead – Univ. of Southern Mississippi/NGI).	Completion date: September 30, 2010.	$N/A (NGI/NOAA).	
	Continue research to understand coastal nutrient, carbon, and trace element fluxes in several key environments off the Mississippi coast (to better understand the transport and processing of nutrients and pollutants through the coastal transition zone). Hypoxia monitoring in this project would complement the eastern extension in hypoxic zone monitoring proposed as a core system requirement in the Gulf Hypoxia Monitoring Implementation Plan. (Lead – Univ. of Southern Mississippi/NGI).		$N/A (NGI/NOAA).	
	Continue pilot study to evaluate the use of Mississippi wetlands for treated wastewater assimilation. Started – 2009. (Lead – MDEQ)	Continue pilot study to evaluate the use of Mississippi wetlands for treated wastewater assimilation. (Lead – MDEQ)	$200,000 (USEPA).	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Mississippi (cont)	Continue with USACE-funded and USGS-implemented (through the Delta Water Quality Research Initiative) project establishing 12 long-term, real-time hydrologic and water quality monitoring stations in the Mississippi Delta along the Big Sunflower and Yazoo Rivers to collect sufficient hydrologic, suspended-sediment, nutrient, and water quality data to describe current hydrologic and water-quality conditions of streams in the basin, describe spatial and temporal variations in the hydrologic characteristics of the streams monitored, and compute annual loads of sediment and nutrients. Data produced through this initiative will be used to improved water quality models for nutrient transport, water quality criteria development, wasteload allocation (WLA) development, and TMDL development. Started – 2009. (Leads – USGS, USACE)	Continue with USACE-funded and USGS-implemented (through the Delta Water Quality Research Initiative) project establishing 12 long-term, real-time hydrologic and water quality monitoring stations in the Mississippi Delta along the Big Sunflower and Yazoo rivers to collect sufficient hydrologic, suspended sediment, nutrient, and water quality data to describe current hydrologic and water-quality conditions of streams in the basin, describe spatial and temporal variations in the hydrologic characteristics of the streams monitored, and compute annual loads of sediment and nutrients. Data produced through this initiative will be used to improved water quality models for nutrient transport, water quality criteria development, WLA development, and TMDL development. (Leads – USGS, USACE)	$N/A (USACE); Lab analysis (MDEQ).	Continued funding support.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Mississippi (cont)	Continue with USACE-funded and USGS-implemented (through the Delta Water Quality Research Initiative) research to better understand denitrification in the surface waters of the Big Sunflower River Basin, Mississippi. Current nutrient load models rely on denitrification coefficients developed in the Midwest, and the purpose of this work is to determine Yazoo Basin-specific coefficients to better describe and model processes occurring within the Yazoo River Basin. This study will determine whether there is significant denitrification occurring in the streams of the Big Sunflower River Basin and will determine a denitrification rate and the total mass of nitrogen lost from the rivers due to denitrification. Started – 2009. (Leads – USGS, USACE)	Continue with USACE-funded and USGS-implemented (through the Delta Water Quality Research Initiative) research to better understand denitrification in the surface waters of the Big Sunflower River Basin, Mississippi. Current nutrient load models rely on denitrification coefficients developed in the Midwest, and the purpose of this work is to determine Yazoo Basin-specific coefficients to better describe and model processes occurring within the Yazoo River Basin. This study will determine whether there is significant denitrification occurring in the streams of the Big Sunflower River Basin and will determine a denitrification rate and the total mass of nitrogen lost from the rivers due to denitrification. Started – 2009. (Leads – USGS, USACE)	$N/A (USACE).	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Mississippi (cont)	Continue USACE-funded and USGS-implemented (through the Delta Water Quality Research Initiative) research to evaluate the role of ground and surface water interaction on the transport of nutrients in the Big Sunflower River Basin. The objective of this work is to answer two questions, the second related to the first: (1) What is the total flux (movement of water) between streams in the Big Sunflower Basin and the alluvial aquifer? (2) How does this affect water quality in the basin? Started – 2009. (Leads – USGS, USACE)	Continue USACE-funded and USGS-implemented (through the Delta Water Quality Research Initiative) research to evaluate the role of ground and surface water interaction on the transport of nutrients in the Big Sunflower River Basin. The objective of this work is to answer two questions, the second related to the first: (1) What is the total flux (movement of water) between streams in the Big Sunflower Basin and the alluvial aquifer? (2) How does this affect water quality in the basin? Started – 2009. (Leads – USGS, USACE)	$N/A (USACE).	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Mississippi (cont)	Continue USACE-funded and USGS-implemented (through the Delta Water Quality Research Initiative) research to characterize the occurrence of phosphorus in the Mississippi River Valley Alluvial Aquifer (in the Mississippi Delta). In many areas summer stream flow is augmented by irrigation runoff. It is possible that in some areas of the Mississippi Delta, in-stream phosphorus concentrations may be influenced more by groundwater quality than by conventional agricultural activities. USGS will evaluate the spatial distribution of dissolved phosphorus concentrations in ground water in the Mississippi Delta. These data can be used to help determine irrigation runoff/ dissolved phosphorus impacts on delta streams with regard to TMDLs and nutrient criteria. Started – 2009. (Leads – USGS, USACE)	Continue USACE-funded and USGS-implemented (through the Delta Water Quality Research Initiative) research to characterize the occurrence of phosphorus in the Mississippi River Valley Alluvial Aquifer (in the Mississippi Delta). In many areas summer stream flow is augmented by irrigation runoff. It is possible that in some areas of the Mississippi Delta, in-stream phosphorus concentrations might be influenced more by ground water quality than by conventional agricultural activities. USGS will evaluate the spatial distribution of dissolved phosphorus concentrations in ground water in the Mississippi Delta. These data can be used to help determine irrigation runoff/ dissolved phosphorus impacts on delta streams with regard to TMDLs and nutrient criteria. Started – 2009. (Leads – USGS, USACE).	$N/A (USACE).	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Missouri	Continue to provide funding to the University of Missouri for ongoing monitoring of nutrients for 100 lakes in Missouri. In 2010, MDNR used American Recovery and Reinvestment Act (ARRA) funds to significantly expand nutrient monitoring by adding 39 stream sites to its chemical monitoring network. The expanded monitoring will continue through fall 2011. In addition, MDNR continued to provide funding for its cooperative monitoring programs with the University of Missouri (100 lake sites statewide) and USGS (59 stream sites statewide), a 90-site chemical monitoring network, and other monitoring programs.	As resources allow, continue to fund existing stream and lake cooperative monitoring networks with the USGS and University of Missouri and maintain existing MDNR stream gauging and water quality monitoring programs.		
Wisconsin	Failed to initiate long-term load monitoring stations with USGS due to lack of funding. Project on hold due to lack of funding.			
USEPA	USEPA HQ will continue to work with USGS on possible applications of the SPARROW model to the MARB. Gulf of Mexico Program funded and began cooperative agreement work with MDEQ on St. Louis Bay pilot nutrient criteria project, "Development of Pilot Nutrient Criteria for a Mississippi Estuary." USEPA Region 6 continued to track the implementation of SPARROW regional model development, partly funded through an interagency agreement between USGS and USEPA Region 5, in turn, partly funded via transfer of Regional Geographic Initiative funds from Region 6 to Region 5.	Continued coordination. USEPA Region 6 will continue to track SPARROW regional model development and application to Mississippi River Basin and will continue to encourage its use in efforts to reduce nutrient loads from the MARB to the Gulf of Mexico.	Minor staff time.	Continue current level of investment of staff time; cooperation among USEPA HQ, USEPA regions, and USGS critical. Additional funds might be necessary to "translate" regional SPARROW model results into MARB focus.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USDOI	National Park Service/USGS – Complete a two-part project (St. Croix and Mississippi Rivers) to assess the role of riverine backwaters in cycling nutrients. Conducted data analyses and writing in FY10.	A final report and/or manuscript will be prepared.		None. Project ending.
	National Park Service – Complete a nitrogen source study on Lake St. Croix to evaluate the importance of point versus nonpoint source nitrogen contributions to the Lower St. Croix National Scenic Riverway. Preliminary results were presented at local symposia.	A final report and/or manuscript will be prepared.		
	National Park Service – Continued its program of nutrient monitoring in the St. Croix River watershed and in Mississippi National River and Recreation Area (MISS), focusing on MISS in FY10.	National Park Service will continue its program of nutrient monitoring in the St. Croix National Scenic Riverway and in Mississippi National River and Recreation Area, focusing on St Croix Scenic Riverway in FY11.		
	National Park Service – In FY10, began a study on identifying hypoxia effects on Natural Resources at Jean Lafitte Historical Park and Reserve and identify strategies to reduce excessive nutrients Ongoing inventory and monitoring USGS gauging stations. Look at effects seasonal influx of nutrients had on the water from Davis diversion pond and aquatic habitat.	Ongoing inventory and monitoring.		Develop a study that looks at the fish communities and includes PAHs, oil and grease, which are indicators of oil contamination in the Gulf.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USDOI (cont)	USGS - In cooperation with local, state, tribal, and federal agencies, conducted streamflow monitoring at over 3,000 stations in the basin. Continued monitoring at long-term USGS NASQAN and NAWQA stations in the basin: http://water.usgs.gov/nasqan/docs/marb.information.sheet.2pager.pdf Published report on changes in streamflow and nutrient fluxes in the MARB 1980–2007: http://pubs.usgs.gov/sir/2009/5164/	Ongoing monitoring and reporting of stream flows and nutrient loads at stations throughout the Mississippi/Atchafalaya River Basin.		Continued support for long-term monitoring networks.
	USGS/USACE – Continue research and monitoring on riverine ecosystems, processes, and biota, including long-term monitoring of water quality and other ecological variables in the Upper Mississippi River and tributaries in collaboration with USFWS, Minnesota, Wisconsin, Iowa, Missouri, and Illinois (http://www.umesc.usgs.gov). Data collected and data processing begun in 2010 to update bathymetry, elevation Light Detection and Ranging (LiDAR) and land cover for Upper Mississippi and Illinois River corridors.	Continue research and monitoring on riverine ecosystems, processes, and biota, including long-term monitoring of water quality and other ecological variables in the Upper Mississippi River and tributaries in collaboration with USFWS, Minnesota, Wisconsin, Iowa, Missouri, and Illinois (http://www.umesc.usgs.gov). Finish data collection as needed and continue data processing to update bathymetry, elevation (LiDAR), and land cover of Upper Mississippi and Illinois River corridors.	$6 million in FY10.	Continued funding.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USDOI (cont)	Published: – *Longitudinal trends and discontinuities in nutrients, chlorophyll, and suspended solids in the Upper Mississippi River: Implications for transport, processing, and export by large rivers.* Available at: http://www.springerlink.com/content/jg723741g55465q3/?p=62a01078daa341209ae9b5e8cde8b49e&pi=6 – *Nitrogen and phosphorus in the Upper Mississippi River: Transport, processing, and effects on the river ecosystem.* Available at: http://www.springerlink.com/content/rl7703353k34v102/?p=62a01078daa341209ae9b5e8cde8b49e&pi=8 – *Summer nitrate uptake and denitrification in an upper Mississippi River backwater lake: The role of rooted aquatic vegetation*. Available at: http://www.springerlink.com/content/27710t6663595101			
	USGS – Continued application of the SPARROW model to assess nutrient source contributions and nutrient transport and delivery to downstream waterbodies.	Ongoing.		Long-term water-quality monitoring and enhanced characterization of land use and land management actions throughout the watershed.
	USGS – Develop new regional-scale SPARROW nitrogen and phosphorus models for the Upper Mississippi and Ohio Basin, Missouri Basin, and Lower Mississippi-Texas Gulf Basin.	Regional SPARROW nutrient models using 2002 nutrient source information will be released in a feature issue of the *Journal of American Water Resources Association*. Release of feature issue is tentatively planned for Jan/Feb 2011.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USDOI (cont)	USGS – Apply SPARROW model to evaluate the water quality effects of increased corn and ethanol production.	Ongoing.		
	USGS – Operation of continuously measured nitrate at multiple sites in Indiana and Iowa.	Ongoing.		
	USGS/USEPA – Develop a 2002 SPARROW model for the Mississippi River Basin.	Continue development of the model.		

9. Continue to reduce uncertainty about the relationship between nitrogen and phosphorus loads and the formation, extent, duration, and severity of the hypoxic zone, to best monitor progress toward, and inform adaptive management of, the Coastal Goal.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Indiana	IDEM has begun a Blue-Green Algae Monitoring Program funded by an USEPA Supplemental 106 Grant (2-year cycle). The project began July 2010 and will run (for this season) through late September or early October. IDEM is partnering with the Indiana University–Purdue University Indianapolis (IUPUI) Center for Earth and Environmental Science (CEES) for training and split sample analysis. For this summer, IDEM has selected the following five Indiana DNR-managed lakes: Mississinewa, Salamonie, J. Edward Roush, Summit and Whitewater. Each beach will be sampled once a month unless the cell counts are in excess of 100,000/mL, which would trigger biweekly sampling.	Ongoing.		
Wisconsin	Collect baseline nitrogen monitoring data from point sources. Nitrogen was added to the point source permits application monitoring requirement, and monitoring is ongoing. In FY10 collected total nitrogen in Wisconsin Pollutant Discharge Elimination System (WPDES) permit applications from 110 facilities.	In FY11, anticipate collecting total nitrogen from 135 facilities in their WPDES permit applications.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
NOAA	Continued funding and management of NGOMEX research program. Hypoxia modeling workshop to foster collaboration and explore mechanisms to integrate modeling approaches and types. Hypoxic zone monitoring implementation plan meeting to advance effort to identify potential funding sources, additional partners and collaborators. Continued development of predictive models to advance understanding of the relationship between the hypoxic zone and nutrients: Refinement of statistical and 2-D models to advance efforts in assessing causal relationships between nutrient loading and hypoxic zone size, and to develop a forecast with a 6-month window. Refinement of 3-D hydrodynamic model to advance quantitative predictions of the relationship between hypoxia development and causative factors. The first of three years of funding was provided in September 2009. Workshop to Coordinate Gulf of Mexico Hypoxic Zone Research was convened in February 2010 and consisted of a full-day session devoted to improved collaboration and coordination for monitoring.	Ongoing. Second year of funding.	National Centers for Coastal Ocean Science supported NGOMEX projects: $1.55 million for FY11.	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
NOAA (cont)	Expansion of hypoxic zone monitoring surveys from one to three shelf-wide surveys, through NGOMEX program. Extension of the hypoxic zone shelf-wide surveys to the Mississippi Bight (through NGI grant to University of Southern Mississippi (USM)). Continue effort to determine biological and chemical processes that maintain and extend bottom-water hypoxia in the summer after initial hypoxia development. Two shelf-wide monitoring cruises are planned—one in late July and one in August 2010. An additional cruise was planned in June 2010, but it was cancelled due to mechanical problems on the ship. AUV capabilities tested. Monthly to bimonthly cross-shelf transects conducted. Process studies are ongoing in order to support model development. Monthly cross-shelf transects were conducted in the Mississippi Bight by USM through NGI support). Southeast Area Monitoring and Assessment Program and Plan (SEAMAP) Groundfish Survey.	Minimum of three shelf-wide monitoring cruises and AUV (glider) deployments. Monthly to bi-monthly cross-shelf transects. Process studies to support model development. Monthly cross-shelf transects in the Mississippi Bight (by USM through NGI support). SEAMAP Groundfish Survey.	National Centers for Coastal Ocean Science supported NGOMEX projects: $1.55 million for FY11. NOAA National Marine Fisheries Service (NMFS) SEAMAP Groundfish Survey: $N/A.	Funding for core requirements (tier 1) of *Gulf of Mexico Hypoxia Monitoring Implementation Plan*: Expansion of temporal and spatial coverage of monitoring surveys: $1.33 million/year. AUV pilot study: $0.3 million/year. Data management: $0.6 million/year. Outreach: $0.4 million/year. TOTAL TIER 1: $2.63 million. Funding for tier 2 system requirements of *Gulf of Mexico Hypoxia Monitoring Implementation Plan*, to maintain and expand observing systems ($1.4 million/year).

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
NOAA (cont)		Workshop to develop monitoring plan for assessing the impacts of increased wetland diversions on northern Gulf of Mexico ecosystems (providing scientific guidance for USACE diversion and sediment transport plans to restore wetlands under CEQ LA/Miss Restoration initiative); includes incorporation of Deepwater Horizon oil effects.	In-kind support from NOAA National Centers for Coastal Ocean Science, NOAA Gulf of Mexico Regional Collaboration Team, and NOAA NMFS.	Workshop (fall 2010) and plan development - $100,000.
		Glider (AUV) trials to improve hypoxic zone monitoring capabilities.	Ongoing by USM (through NGI support) and Louisiana Universities Marine Consortium (LUMCON) (Virginia Institute of Marine Science (VIMS) and NOAA NGOMEX).	Core System Requirement #5 of *Gulf of Mexico Hypoxia Monitoring Implementation Plan*. Glider deployment at $300,000/year.
		Second Annual Workshop to Coordinate Gulf of Mexico Hypoxic Zone Research.	In-kind support from NOAA National Centers for Coastal Ocean Science, NOAA Gulf of Mexico Regional Collaboration Team, NOAA National Coastal Data Development Center, and the NGI.	$60,000/year for workshops.

10. Promote effective communications to increase awareness of hypoxia and support the activities of the Task Force.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Arkansas		Facilitate discussions on hypoxia at upcoming AWAG conference.	0.1 FTE.	
		Continue state and federal outreach and coordination efforts related to nutrient loading and management.	1 FTE.	
		Continue to support LMRSBC's future outreach and education efforts.	0.1 FTE.	
		Continue state coordination of MRBI projects in St. Francis, L'Anguille and Cache River watersheds.	1 FTE.	
Indiana	Consultations with neighboring states on hypoxia issues, including joint effort with Ohio involving Wabash watershed.	Ongoing.		
		Host a seminar that addresses the concerns associated with Gulf Hypoxia and nutrient reduction strategies for Indiana's portion of the Mississippi River Basin.		
Iowa	Iowa-Mississippi farmer-to-farmer exchange tours. Iowa tour of Mississippi May 2010, Mississippi tour of Iowa July 2010.	Completed.		
	Increase awareness of Gulf hypoxia and actions within Iowa needed for nutrient reductions, through publicizing the 2008 Gulf Guardian Award to the Iowa CREP, a "Partnership of Iowa Agriculture to Reduce Nutrients to the Gulf."	Ongoing.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Iowa (cont)	Continue to sponsor and support media releases and articles on Gulf hypoxia and Iowa initiatives to address needed nutrient reductions.	Ongoing.		
	Continue meetings and outreach to inform policymakers, agencies, environmental organizations, and farm organizations on Gulf hypoxia and the Iowa Wetland Landscape Systems Initiative for nutrient reductions.	Ongoing.		
Kentucky	Work with Agriculture Water Quality Authority (AWQA) on nutrient and related issues. Nutrient Management Committee of the AWQA met to scope producer nutrient needs and methods for ensuring education and assistance of producers regarding CNMP development and implementation.	Nutrient Management Committee of the AWQA work on nutrient planning producer guidelines and training.		Funding for CNMP outreach and training.
	Developed protocol to have the Agriculture Science Monitoring Committee of the AWQA working to coordinate federal and state monitoring efforts.	Agriculture Science Monitoring Committee of the AWQA working to coordinate federal and state monitoring efforts.		
Louisiana	As a member of the LMRSBC, continued to support LMRSBC activities for promoting information on Gulf Hypoxia and nutrient reduction. Supported work on state nutrient reduction strategies at Hypoxia Task Force and Coordinating Committee meetings. Also making plans to participate in the state Nutrient Reduction Strategy Development Workshop planned for September 28 as part of the Hypoxia Task Force Meeting and co-hosted by the LMRSBC.	Continue to support and participate in LMRSBC activities.	LDEQ has provided in-kind staff participation.	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Louisiana (cont)	Attended and participated in Louisiana Hypoxia Working Group meetings to help support dissemination of information on Hypoxia Task Force activities to interested Louisiana participants. Meetings held at locations convenient to Louisiana citizens.	Continue to support Louisiana Hypoxia Working Group to spread information on the status of Gulf Hypoxia.	LDEQ and other state agencies have provided in- kind staff participation.	
	Continued to partner with NOAA on Ecological Impacts of Gulf Hypoxia on Living Resources. Attended NOAA-sponsored meeting on Living Resources on January 17–18, 2010, in Bay St. Louis, MS. Heard several presentations on a diverse array of Gulf marine life and hypoxic impacts. LDEQ was also invited to participate in special NGOMEX workshop in New Orleans on June 14–15, 2010. The participating researchers came from several universities and represented diverse disciplines in the marine sciences. LDEQ was able to assist in providing comments on local conditions that related to their research. Of special interest was the discussion of an upcoming special cruise by several NGOMEX researchers to the Hypoxia Zone to do research on potential oil spill impacts as it may relate to hypoxia. The cruise is funded by a special emergency NSF grant.	Close work with NOAA in support of research into hypoxia effects on living aquatic resources will continue. The resulting information is vital to the State of Louisiana and of interest to state regulatory and management agencies as well as state citizens.	LDEQ staff support and participation in NOAA sponsored meetings will continue.	

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Minnesota	CTIC to develop and support a Coalition for Nutrient Management in Southern Minnesota. CTIC's initial grant will expire at the end of 2010. The coalition intends to maintain progress but will seek financial support. Overall upgrade of MPCA website is being undertaken.	The Coalition for Nutrient Management is supporting a small grant demonstration for nutrient efficiency projects. It is being launched summer 2010.		
Mississippi	Continue to develop targeted education and outreach materials and activities. Start date: October 2008. (Leads – GOMA Nutrients PIT and Environmental Education Network, MDEQ, Delta F.A.R.M.)	Continue to develop targeted education and outreach materials and activities. Start date: October 2008. (Leads – GOMA Nutrients PIT and Environmental Education Network, MDEQ, Delta F.A.R.M.)		Funding support.
	Connecting the Dots: From Nutrient TMDLs to Nutrient Reduction Strategies to Gulf Hypoxia to Nutrient Criteria. Start Date: October 2008. Numerous presentations made at national, regional, state, and local forums.	Numerous presentations at national, regional, state, and local forums. (Leads – MDEQ, Delta F.A.R.M.)		
	Continue to participate in the LMRSBC's coordination efforts. (Lead – MDEQ)	Continue to participate in the LMRSBC's coordination efforts. (Lead – MDEQ)		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Missouri	Provide information and education on nutrient issues affecting water quality in the state, including the relationship of nutrient loading to hypoxia in the Gulf of Mexico. Education and outreach on nutrient issues were provided by several MDNR programs, SWCDs, University of Missouri Extension, NRCS, and CTIC. CTIC is working with partners in the Bootheel region of Missouri through the Missouri Bootheel Nutrient Management Committee to develop and implement strategies for delivering nutrient management solutions to farmers. This project is supported by USEPA Gulf of Mexico Program funds awarded to CTIC. It allows producers in several Bootheel counties to sign up for the GENERATIONS program, which provides corn stalk sampling and testing for nitrate content. The nitrogen status of a corn crop will be assessed by measuring nitrate concentrations in the lower portion of cornstalks at the end of the growing season. By assessing the levels of nitrate in cornstalks, producers can use this information as another fertilizer management tool in conjunction with soil maps, yield maps, varietal differences and the different forms of nitrogen fertilizer to give more precision to management decisions. This project should improve profitability for farming operations and reduce the amounts of nitrogen used.	Continue to provide education and outreach on nutrient issues that affect water quality in the state, including the relationship between nutrient loading in Missouri and hypoxia in the Gulf of Mexico.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Ohio	Continued coordinated work with the CTIC.	Ongoing in Wabash watershed.	0.1 FTE.	
	Consultations with neighboring states on hypoxia issues, including joint effort with Indiana involving Wabash watershed.	Ongoing.	0.2 FTE.	
		Align state nutrient reduction strategy efforts with USACE Ohio Basin initiative.	0.2 FTE.	
Tennessee	Continue to participate in Gulf of Mexico Hypoxia Coordinating Committee and Task Force activities.	Ongoing.		
Wisconsin	Continued participation in Gulf of Mexico Hypoxia Coordinating Committee and Task Force activities. Partnering with NRCS to target EQIP, The Nature Conservancy in southwestern Wisconsin for the Pleasant Valley watershed, and UW–Platteville on Pioneer Farm research.	Ongoing.		
USEPA	Gulf of Mexico Program published newspaper articles on nutrients and rain gardens, a fact sheet on hypoxia for homeowners by September 30, 2009, and ongoing development of radio spots on nutrients and hypoxia. Mississippi State University and Gulf of Mexico Program Staff completed Cooperative Extension fact sheet on Gulf Hypoxia for homeowners. It is also on the Web at http://msucares.com/pubs/publications/p2583.pdf	Newspaper articles on nutrients and hypoxia. Fact sheet for agricultural producers on hypoxia.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USEPA (cont)	The Gulf of Mexico Program funded and began work on a cooperative agreement with the Mobile Bay National Estuary Program (NEP) titled "Interacting with the Watershed: A Nutrient Adventure." An interactive 15-minute video about the impacts of excess nutrients on Gulf coastal ecosystems and waters is in production for use at Coastal Ecosystem Learning Center kiosks.			
	Gulf of Mexico/Office of Wetlands, Oceans, and Watersheds (OWOW) nutrient/ hypoxia radio spots for rural and coastal communities.			
NOAA	Outreach in collaboration with GOMA and the Gulf of Mexico Coastal Ocean Observing System (GCOOS). Created Gulf Hypoxia Monitoring Stakeholder Committee (GHMSC) website. Creation of new position by Alabama/Mississippi Sea Grant (GulfQuest) to coordinate outreach and communication between land and sea grants in the Gulf of Mexico, Great Lakes and Midwest. Gulf of Mexico Hypoxia Monitoring Implementation Plan meeting to advance effort to identify potential funding sources, additional partners, and collaborators. GulfQuest Hypoxia Outreach position filled. Workshop to Coordinate Gulf of Mexico Hypoxic Zone Research was convened in February 2010 and included a session devoted to improved hypoxia communicate and outreach (coordination between GHMSC, Hypoxia Task Force Communication Subcommittee, GOMA Environmental Education Network, LUMCON, GCOOS Educational and Outreach Council, MI/AL Sea Grant GulfQuest, and NGI Education and Outreach – Developed Gulf Hypoxia Communications Plan.	Completion of *Gulf Hypoxia Communications Plan*.	Hypoxia communication and outreach position at GulfQuest funded through MS/AL Sea Grant. Maintenance of GHMSC website through in-kind support from NOAA National Coastal Data Development Center.	Core System Requirement #7 of *Gulf of Mexico Hypoxia Monitoring Implementation Plan*. Workshop costs and 1 FTE = $400,000/year.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
USDOI	National Park Service – Continued routine outreach to park visitors on the importance of nutrient reductions to water quality; expanded outreach to high school and college-age students through the St. Croix Watershed Research Station's Science Training and Research Skills (STARS) program.	Continue outreach to park visitors and area high school and college students.		
	USGS – released spring and annual nutrient loads and concentration information and reports addressing nutrient fate and transport. SPARROW modeling information available at: http://water.usgs.gov/nawqa/sparrow Load data available at: http://water.usgs.gov/nasqan	Ongoing.		
	Continue development of a SPARROW decision support tool to enable water resource managers to predict effects of large-scale upstream nutrient reductions on nutrient loads delivered to downstream waterbodies.	Decision support tool released in conjunction with the release of the regional SPARROW models (tentatively planned for January/February 2011).		

11. **In four years (2013) reassess nitrogen and phosphorus load reductions, the response of the hypoxic zone, changes in water quality throughout the Mississippi/Atchafalaya River Basin, and the economic and social effects, including changes in land use and management, of the reductions in terms of the goals of the Action Plan. Evaluate how current policies and programs affect the management decisions made by industrial and agricultural producers, evaluate lessons learned, and determine appropriate actions to continue to implement or, if necessary, revise this strategy.**

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Illinois	Identify quantitative measures of in-basin nutrient reductions that exhibit progress toward both the "Within Basin" and "Coastal" goals.	Ongoing.		
Louisiana	Completed USEPA contracted work on "Ecological Assessment of the Mississippi River in Louisiana". Grant monies equaled $158,761 and the contract period was May 2008–December 2009. Partner agencies were the Louisiana Department of Wildlife and Fisheries, which did all the required fish collecting and assessment, and the USGS, which conducted work on water quality, plankton, habitat and sediment. Sixteen stations were sampled on the River from St. Francisville above Baton Rouge to Belle Chase below New Orleans. The LMRCC was also a sponsor. Lab data from supporting USEPA laboratories are still not complete, and a final report on all collected data has not been completed. Data from the project include nutrients, so when completed it will offer a recent picture of river nutrient concentrations from Cairo to New Orleans. Coinciding with Louisiana Mississippi River monitoring was a similar effort upriver in the Mississippi River states of Mississippi, Arkansas, Tennessee, Kentucky and Missouri.	As soon as the final data are received from USEPA, LDEQ, LA Wildlife and Fisheries (LDWF) and LA USGS will assess the Louisiana section and assist in final report preparation.	Following completion of the study and end of funding support, LDEQ, LDWF and USGS staff will work in-kind as time allows to help complete a final report.	Further USEPA funding might be necessary under the National Rivers and Streams Assessment (NRSA) to help provide participating states to get the best use out of the recent Mississippi River Study.

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Minnesota	Identify quantitative measures of in-basin nutrient reductions that exhibit progress toward both the "Within Basin" and "Coastal" goals. Currently report phosphorus reductions along with sediment load reductions from funded nonpoint projects through eLINK database. Continue tracking and reporting reductions.	Ongoing.		
Missouri	Identify quantitative measures of in-basin nutrient reductions that exhibit progress toward both the "Within Basin" and "Coastal" goals. Initiated a review of water quality data for the state and developed estimated nutrient loading for HUC 8 watersheds in the state. Continue to refine this database with a resolution down to the HUC 12/14 level.	Ongoing. As resources allow, continue to identify quantitative measures of nutrient reductions that exhibit progress toward both the "Within Basin" and "Coastal" goals. Assess available water quality data and develop estimated nutrient loads for the 12-digit and 8-digit HUC watersheds in the state. Estimate the pre-implementation nutrient loads for all 12-digit HUC watersheds in the MRBI projects in Missouri using STEPL modeling and calculation of load duration curves. In addition, implement Tier 1 – edge-of-field, Tier 2 – small watershed, and Tier 3 – large watershed monitoring for MRBI projects to document the pre-implementation water quality concentrations and loads. These results will be compared to the post-implementation modeling, load duration curves, and water quality monitoring data.		

Lead Agency	FY10 Activities and Current Status (Includes Year Project Began)	FY11 Planned Activities	Existing Level of Support (Staff, Funding, In-kind)	Future Critical Needs (Financial, Regulatory, Other)
Wisconsin	Collecting baseline information from all point sources in watershed. Plan to expand to collect 12 monthly samples from point sources and then quarterly samples afterward. This expanded effort has not been implemented in FY10. Looking at the available data to determine the appropriate sampling frequency to require applicants.	Plan not finalized, but will try to implement in FY11.		

APPENDIX

This Appendix highlights some of the numerous complementary actions Task Force member organizations are engaged in that result in improvements to state and local water quality and the reduction and mitigation of hypoxia in the Gulf of Mexico. These actions do not necessarily address one of the 11 Action Items in the *Gulf Hypoxia Action Plan 2008*, but they represent important contributions toward advancing and improving nutrient management and hypoxia in the Mississippi River Basin and Northern Gulf of Mexico. This Appendix is by no means a comprehensive list, and it will change as projects are completed, new projects are proposed and funded, and items are incorporated into the state and federal nutrient reduction strategies. This list includes recently completed projects, ongoing projects, and new projects planned for FY11.

TASK FORCE STATE MEMBER ACTIVITIES

STATE OF ILLINOIS

Education and Outreach

- Continue to support ongoing projects of the Illinois Council on Best Management Practices (C-BMP), a coalition of producer organizations and the agricultural industry, http://www.cbmp.uiuc.edu.
- Use fertilizer tonnage tax proceeds to support website with information on soil temperatures throughout the state and educational outreach to producers and agricultural retailers stressing the importance of using nitrification inhibitors during fall anhydrous ammonia application.
- Conduct Illinois Tillage Seminars.
- Use section 319 funds to support projects to promote the reduction of nutrient use on lawns and farmlands, including projects that are educationally based or implementation-based and that reduce, control, or eliminate the use of nutrients on lawns and farmlands. Currently there are at least 18 projects funded under section 319 that meet these goals.
- Through educational exhibits at several museums, zoos, and schools, provide nutrient reduction and nonpoint source pollution information to Illinois citizens.

Monitoring, Modeling, and Research

- Continue Fox River Watershed Investigation, Stratton Dam to the Illinois River. Project is expected to reach completion during FY10.
- Continue to support two of the Corps of Engineers Long-Term Resource Monitoring Program stations on the Illinois and Mississippi rivers.

Implementation

- Continue to work with U.S. Department of Agriculture (USDA) Farm Service Agency, Association of Illinois Soil and Water Conservation Districts, Soil and Water Conservation Districts (SWCDs), and others on the Conservation Reserve Enhancement Program (CREP) – Ongoing program with 232,000-acre goal. Have enrolled 126,016 acres on the federal side and 78,546 acres in the state program.
- Continue to support The Nature Conservancy's efforts in Mackinaw River Basin to help guide and influence the use of conservation-oriented agricultural techniques for water quality improvement.
- Cost-share the construction of stream bank stabilization and restoration practices. During the last reporting period, 47 projects were completed at a cost of $328, 891.
- Use section 319 funds for (1) 6 projects implementing urban green infrastructure practices to reduce nutrient nonpoint source pollution; (2) 20 stream, lake, or/and wetland restoration/protection projects; and (3) 3 animal waste/exclusion projects.
- Continue to develop and implement Total Maximum Daily Loads (TMDLs) in watersheds tributary to lakes that exceed the 0.05 mg/L total phosphorus lake water quality standard (WQS). Currently there are 105,580 lake acres impaired for phosphorus.
- Continue to develop and implement one TMDL in a watershed tributary to drinking water intakes that exceed the 10 mg/L nitrate potable drinking WQS.

STATE OF IOWA

Implementation and Watershed Protection

- Continue to implement the Iowa CREP, constructing highly targeted nitrogen-removal wetlands for cropland drainage. State and federal funding for FY11 totals $20.6 million. The program currently has 72 wetlands restored or under development totaling 715 acres of wetland pools, which treat the drainage from 86,100 watershed acres and remove 40 to 90 percent of nitrate, for an estimated 53,600 tons of nitrate removed over design life.
- Continue to implement the Iowa Watershed Protection Program currently supporting 50 watershed protection projects, which primarily reduce nutrients and sediment contributed to water resources. Continue watershed targeting and assessment of nutrient load reductions from the watershed projects. FY11 funding is $4.3 million state, $3.0 million section 319 Clean Water Act (CWA) funds, and $2.4 million landowner match funds, for a total of $9.7 million.

- Implement the Iowa Jobs initiative for watershed protection projects, conservation practice flood damage repair and reclamation, which will significantly reduce nutrients and sediment to water resources. FY11 funding is $5.5 million state funds and estimated landowner match of $1.83 million, for a total of $7.33 million.
- Continue to implement the competitive grant award program to local sponsors through the Watershed Improvement Review Board. Much of the funding is used to reduce nutrients and sediment to water resources. FY11 funding is $2 million state funds and $4.4 million of estimated local match funds, for a total of $6.4 million.
- Continue to implement the Iowa Financial Incentive Program for cost-sharing implementation of soil and water conservation practices on private working lands to reduce erosion, sedimentation, and nutrient transport to water resources. FY11 state funding is $11.9 million, which with landowner match funds of $11.9 million is estimated to total $23.8 million in conservation practices.
- Continue to implement the District Initiatives program, which for FY11 provides $1.35 million state funds to leverage federal conservation programs and increase Iowa landowner participation in federal conservation programs.
- Continue to implement the Local Water Protection Program, which for FY11 provides $14 million, comprised of $8 million to implement animal waste management practices and $6 million for general nonpoint source practices. The program assists landowners with the installation of practices to protect and improve water quality.
- Continue to implement the Resource Enhancement and Protection program, which for FY11 provides $1.3 million for watershed and water quality protection projects, $1.3 million for cost-sharing management practices for water quality enhancement, and with $1.1 million landowner match totals $3.7 million.
- Continue to implement the Watershed Development and Planning Assistance Grant program to assist local watershed project sponsors in the assessment, targeting, and planning of water quality and watershed protection projects. FY11 state funding is $0.12 million with local match of $0.04 million for a total of $0.16 million.
- Continue to provide state personnel support and funding to Iowa's 100 SWCDs, which assist in implementing federal, state, and local conservation programs that reduce nutrients and sediment. Federal programs delivered through SWCDs include the Environmental Quality Incentives Program (EQIP), Wetland Reserve Program (WRP), Conservation Stewardship Program, Conservation Reserve Program (CRP), CREP, Watershed Protection and Flood Prevention, Conservation Technical Assistance (CTA), and Resource Conservation and Development (RC&D).
- Continue development of TMDLs for waterbodies impaired by nutrients, and collection of water quality nutrient monitoring data for streams and lakes.

Research and Technology Development

- Continue the Wetlands, Nutrients and Water Management research initiative with Iowa State University to develop new technologies and improve the targeting and efficiency of water quality management practices. Continue water quality monitoring of research sites evaluating various management practices and monitoring of CREP nitrogen-removal wetland field sites. FY11 state funding is $0.44 million.
- Continue technology development through the USEPA Targeted Watershed Grant "Integrated Drainage-Wetland Systems for Reducing Nitrate Loads from Des Moines Lobe Watersheds" with Iowa State University. FY11 federal and state funding is $0.2 million.
- Continue development of the Iowa Wetland Landscape Systems Initiative for reducing nitrogen and phosphorus to water resources across 6 million acres of croplands targeted for nitrate reduction to water resources. For FY11, implement six initial pilot projects to serve both as demonstrations and as study sites to confirm nutrient reductions and other benefits. Funding for FY11 is $4.0 million state funds, $0.4 million federal plus low-interest loan, $0.73 million for wetland restoration through Iowa CREP, and $5.3 million landowner match, which totals $10.43 million.
- Continue Integrated Farm and Livestock Management program funding of research and demonstrations through Iowa State University on impacts of nutrient management, harvest of crop biomass for bio-energy, and cover crops on water quality of drainage and surface runoff. FY11 state funding is $0.1 million.
- Continue to invest fees paid by farmers on the sale of agricultural chemicals toward developing new technologies and improved practices for reducing nutrients from cropped landscapes to water resources. FY11 funding is $0.62 million.
- Continue to conduct cover crop farm demonstrations and nitrogen management assessments for corn following cover crops. FY11 funding is $0.1 million.

Education and Outreach

- Continue websites, publications, and educational/outreach initiatives sponsored by the Cooperative Extension Service of Iowa State University. These address nutrient management in cropped landscapes, detailing topics such as nitrogen and phosphorus fertility recommendations, a real-time soil temperatures website to determine acceptability of fall nitrogen fertilization for water quality improvement, livestock waste management systems and land application, phosphorus index for water quality improvement, and so forth.
- Continue Iowa Learning Farms demonstrations, education, and outreach through Iowa State University to improve water quality through crop residue and tillage management. FY11 funding is $0.45 million.
- Continue outreach and education concerning Gulf hypoxia and nutrient reductions to farm organizations, Iowa drainage districts, and watershed management groups.

STATE OF LOUISIANA

- Review nutrient removal best available technologies (BATs) with USEPA for industrial and municipal permits.
- Develop watershed implementation plans with nutrient best management practices (BMPs) under Louisiana section 319 Nonpoint Source Program.
- Continue ongoing implementation of the Louisiana Nutrient Criteria Development Plan.
- Work with Governor's Office and Congressional Delegation on Gulf hypoxia funding initiatives.
- Participate in the Nutrient Reduction and Water Quality Priority Issue Teams (PITs) of the Gulf of Mexico Alliance (GOMA) to coordinate with Gulf States on nutrient reduction, sources, fate, transport, and criteria development.
- Participate with USEPA Flowing Waters Assessment Program to conduct environmental and water quality monitoring on the Lower Mississippi River Louisiana segment.

STATE OF MISSISSIPPI

Other Mississippi Department of Environmental Quality (MDEQ) Supporting Program Activities

- Over 300 total nitrogen and/or total phosphorus TMDLs have been developed in more than 100 waterbody segments across the state. Where there were point sources in the watershed, National Pollutant Discharge Elimination System (NPDES) facilities were included in the wasteload allocation (WLA) of the TMDL. The facilities were assigned nutrient loads based on a cap at estimated existing levels or on a reduction of the estimated existing levels as determined by the TMDL. These loads are being implemented as permits are reissued.
- Continue nutrient monitoring where required in NPDES permits. Nutrient monitoring is required in numerous permits; it will provide needed data to help with future planning and decision-making.
- Increase emphasis on nutrient reduction activities during development of local watershed plans throughout the state. Implementation plans for priority watersheds identified through Mississippi's Basin Management Approach are being developed and implemented. In watersheds with nutrient impairments, the plans will address nutrient problems and use the load reduction in approved nutrient TMDLs as the reduction targets.
- Enhanced nutrient focus for section 319 Nonpoint Source Program. The FY09 and FY10 Nonpoint Source Program Annual Work Plans have an enhanced focus on supporting nutrient reduction activities. FY09 and FY10 section 319 Nonpoint Source funding was targeted to support the nutrient reduction watershed management efforts (i.e., local watershed team building, management planning, pre- and post-implementation monitoring, and implementation activities), and the Base Education/Outreach Program will have a greater focus on nutrient education. This effort is ongoing.

- Support expanded concentrated animal feeding operation (CAFO) training program. MDEQ, Mississippi Department of Agriculture and Commerce, Natural Resources Conservation Service (NRCS), Farm Bureau, Extension Service, and Board of Animal Health are working together through the Poultry CAFO Advisory Committee to expand a required CAFO training program (in which continuing education units are earned by CAFO permittees) to make the training available to interested animal feeding operations (AFOs) on a voluntary basis.

Other State Office Natural Resources Conservation Service (NRCS)-Facilitated Supporting Program Activities

- Implementation of a new precision agriculture program that makes funding available for technology transfer to producers to reduce nutrient overloading.
- Support for development of comprehensive nutrient management plans (CNMPs). A steering committee of state and federal agencies and agricultural stakeholders has been meeting during the past year to develop the components, tools, and processes for generating CNMPs.
- A new nutrient management standard has been developed for Mississippi. This standard establishes updated guidelines for nutrient and conservation management.
- Implementation of new manure transfer program: The program will reduce nutrient overloading by transferring manure to watersheds with phosphorus-deficient soils.

Other Northern Gulf Institute-Facilitated Activities Addressing the Gulf of Mexico

The Northern Gulf Institute (NGI), a cooperative of the National Oceanic and Atmospheric Administration (NOAA), develops, operates, and maintains an integrated research program focusing on the Gulf of Mexico. NGI works with the GOMA, member states and federal agencies to measurably contribute to the recovery and future health, safety, resilience, and productivity of the Gulf region through sustained research and application in a geospatial and ecosystem context. Current research facilitated by NGI addressing Gulf of Mexico water quality related to Mississippi and nutrients issues includes the following projects:

- Variations in Chemical and Phase Speciation of Phosphorus during Estuarine Mixing in the Bay of Saint Louis*(Laodong Guo, University of Southern Mississippi, Marine Science; Peng Lin)(Zhengzhen Zhou, University of Southern Mississippi, Marine Sciences; Laodong Guo)*
- Spatial Technology and High Performance Computing for Improving Prediction of Surface Water Quality *(Vladimir Alarcon, Mississippi State University, Geosystems Research Institute; William McAnally; John Cartwright; Rita Jackson)*
- Developing a Tool for Assessing Cost-Effective BMPs for Resilient Communities *(Wayne Wilkerson, Mississippi State University, Landscape Architecture)*
- SULIS—A Tool for Healthy Watersheds, Healthy Oceans, Healthy Ecosystems *(William McAnally, Mississippi State University, Civil and Environmental Engineering; John Cartwright; Rita Jackson; James Martin; Jairo Diaz-Ramirez)*

- Hydrological Modeling of Coastal Catchments in Alabama *(Jairo Diaz-Ramirez, Mississippi State University, Civil and Environmental Engineering; William McAnally, Northern Gulf Institute; James Martin, Mississippi State University, Civil and Environmental Engineering)*
- Comparison of Lumped and Distributed Hydrologic Models for the Runoff Simulation of a Large Watershed in Alabama and Mississippi *(Jairo Diaz-Ramirez, Mississippi State University, Civil and Environmental Engineering; Billy Johnson, US Army Corps of Engineers, Engineer Research and Development Center; William McAnally, Northern Gulf Institute; James Martin, Mississippi State University, Civil and Environmental Engineering)*
- Influence of Mobile Bay on the Hydrographic Variability of the Inner Alabama Shelf (*Brian Dzwonkowski, Dauphin Island Sea Lab, Marine Science; K. Park; H-K Ha; W.M. Graham; F. Hernandez)*
- Defining the Mobile Bay Foodweb Using Measured Mercury and Stable Carbon, Nitrogen, and Sulfur Isotope Values in Biota *(David Evans, NOAA, Center for Fisheries and Habitat Research; Colleen Rochelle; Lauren Showalter; Ruth Carmichael; Charlyn Partridge; Anne Boettcher)*
- Water Resources Modeling in the Mobile River Watershed and Mobile Bay *(Vladirmir Alarcon, Mississippi State University, Geosystems Research Institute; W. McAnally; J. Cartwright; R. Jackson)*
- Project WetKids: Eco-Education along the Mississippi Coast *(Julie Cwikla, Mississippi State University, Project WetKids; Susan Stachowski; Maria Walden; Kelli Moore; John McKernan; Sarah Lawrence; Courtney Emfinger; Noel Lamey; Nancy Price; Noel Allen; Connie Roth)*
- Design and Implementation Support of the GOMA Environmental Education Network and Diversity Websites by NGI and GOMA/DISL *(Valerie Kleinschmidt, Gulf of Mexico Alliance/Dauphin Island Sea lab; Gabriel Brackman, Mississippi State University, HPC2, Suzanne Shean, Northern Gulf Institute; Lee Yokel, Dauphin Island Sea lab; Jay Ritchie, Northern Gulf Institute)*
- Bacterioplankton Abundances in the Bay of St. Louis, MS Relative to Environmental Water Quality *(Allison K. Mojzis, University of Southern Mississippi, Marine Sciences; Donald B. Redalje, University of Southern Mississippi)*
- The Relationships between Chlorophyll, Dissolved Inorganic Nitrogen and Phosphate Concentrations in Northern Gulf of Mexico Waters *(Donald G. Redalje, University of Southern Mississippi, Marine Science; S.E. Lohrenz, University of Southern Mississippi; S. Howden, University of Southern Mississippi; K. Gundersen, University Mississippi; K. Martin, University of Southern Mississippi; A. Mojzia, University Mississippi; M. Shim, University Mississippi)*
- Temporal and Spatial Dynamics of Algal Bloom Events *(Stephen Lohrenz, University of Southern Mississippi, Marine Science)*
- Assessment of Ecosystem Services of Selected Coastal Habitat Types: Towards a Model-Based Toolset for Management Planning *(Paul Grammer, University of Southern Mississippi, Coastal Sciences; Richard Fulford, University of Southern Mississippi; Mark Peterson, University of Southern Mississippi; Wei We, University of Southern Mississippi; Harriet Perry, University of Southern Mississippi; Rebecca Haehn, University of Southern Mississippi)*
- Developing Macrobenthic Indicators of Organic Enrichment and Hypoxia for the Coastal Mississippi Hypoxic Zone *(Chet Rakocinski, University of Southern Mississippi Gulf Coast Research Lab, Coastal Sciences; Daneen P. Menke)*

- Variations in Optical Properties of Dissolved Organic Matter along a Salinity Gradient in the Bay of Saint Louis Estuary *(Zhengzhen Zhou, University of Southern Mississippi, Marine Science; Laodong Guo)*

Other U.S. Army Corps of Engineers (USACE) Supporting Program Activities

- Mississippi Delta Headwaters Project. Authorized in 1984 as the Demonstration Erosion Control Project, the Delta Headwaters Project has performed bank stabilization and constructed grade-control and water-retarding structures in 16 watersheds in the eastern Bluff Hill region of the Yazoo River Basin. The watersheds range in size from 220 acres to 423,000 acres and total 2,950 square miles. The project has reduced the loss of land due to erosion and sedimentation and prolonged the life of the four Yazoo River Basin flood control reservoirs by reducing sediment transfer within the watershed streams. Research by the University of Colorado has shown nutrient reduction benefits derived from the project. The project is estimated to provide between $100,000 and $1 million per year of benefits from phosphorus removal depending on the size of the watershed. USACE contracts in FY10 totaled $10.04 million. FY11 contracts, as of July 2010, total $11.6 million.

- Compensatory mitigation for USACE projects in the Yazoo River Basin: Purchase and reforestation of agricultural land within the Mississippi Delta to mitigate for fisheries and terrestrial damages caused by USACE projects began in 1990. As of FY10, USACE has taken 27,068 acres of agricultural land out of production and reforested the tracts with bottomland hardwoods. Of these acres, approximately 13,400 have been reforested and turned over to the Mississippi Department of Wildlife, Fisheries and Parks for management. Another 5,975 acres will be turned over for management once reforestation is completed and trees become established. Approximately 7,000 acres in Big Twist and Panther Swamp areas are managed by the U.S. Fish and Wildlife Service, with another 613 acres in the Darlove area scheduled to be transferred in 2011.

- In 2001, USACE Engineer Research and Development Center (ERDC) began monitoring the success of reforestation of bottomland hardwoods on the Vicksburg District's mitigation lands. Scientists monitor the reforested properties on a rotational basis, using hydrogeomorphic functional assessment methodology to measure functional recovery at these sites and to determine whether recovery is occurring along expected trajectories. In 2009, ERDC began monitoring the wetland biological function, removal of elements and compounds of nitrogen. Scientists began analyzing soil samples for total nitrogen, extractable nitrate and extractable ammonia to establish baseline values for future examinations of restoration efficiency. In addition, they are also measuring denitrification potential through denitrification enzyme activity analysis in order to determine how quickly and efficiently the reforested wetland soils regain their denitrification functional activity.

Other USDA–Agricultural Research Service, National Sedimentation Laboratory (ARS/NSL) Research to Support Nutrient Reduction Strategies in the Mississippi Delta

- Assessment of Management Practices to Mitigate Sediment and Nutrient Impacts.

- CRP: In long-term Conservation Effects Assessment Project (CEAP) research in Beasley Lake watershed, USDA-ARS/NSL scientists are evaluating the effects of CRP establishment on sediment and nutrient runoff losses. Lake monitoring includes various parameters, including nutrient, pesticides, suspended sediment, turbidity, and chlorophyll. Periodically, fish populations are assessed.

- Reduced tillage, cover crops, and vegetative buffers: Sediment runoff is impeded under reduced tillage and cover crop systems with and without vegetative buffers. Vegetative buffers alone also reduce sediment loss, but results are mixed with respect to nutrients and soluble organic carbon. USDA-ARS/NSL scientists are conducting experiments in the Mississippi Delta to address gaps in the database quantifying impacts of tillage, cover crops, and buffers on nutrient losses.
- Vegetated agricultural drainage ditches: Vegetated agricultural drainage ditches have been shown to help reduce nutrient loads leaving fields before they enter rivers, lakes, and streams. USDA-ARS/NSL scientists plan to continue experimental assessments of nutrient mitigation in 2011 by manipulating vegetation and hydroperiod for improved ditch efficiency. Locations for additional field experiments and routine monitoring are being explored in the Mississippi Delta for 2011. Similar experiments with pesticide mitigation are planned as well in similar locations.
- Wetlands: USDA-ARS/NSL scientists continue to demonstrate the ability of constructed and natural wetlands to mitigate sediments and nutrients. In fall 2009, a study examining the ability of rice to mitigate pesticides and nutrients was conducted in wetland mesocosms. Similar studies will be conducted on equal and larger-scale systems in 2011. Vegetation will be expanded beyond rice to additional aquatic plants. Other planned studies will examine how mixtures of sediment, nutrients, and pesticides from agricultural runoff might affect the biology of wetlands and influence potential for processing and mitigation pollutants.
- Retention Ponds: USDA-ARS/NSL scientists will conduct experiments to evaluate pesticide and nutrient dissipation in retention ponds. These will build upon a 2009 NSL study.
- Nutrient and Ecological Assessment in Mississippi Delta Watersheds.
- USDA-ARS/NSL scientists will conduct a long-term project in three selected small delta watersheds to provide data supporting MDEQ calibration and improvement of nutrient criteria. Sites representative of conditions typical of those documented by existing data sets will be selected for study in 2010. Efforts will be made to select sites that correspond to locations of previous water quality, fish, or Index of Biotic Integrity (IBI) collections. Changes in water quality, habitat, and biological community will be observed.
- Mississippi Delta streams can process and transport nutrients differently under a variety of conditions, including variable flow, dissolved oxygen, and organic carbon levels. In other studies, USDA-ARS/NSL scientists plan to conduct experiments to address these variables as they relate to nutrient processing and transport during 2011.

Other U.S. Geological Survey (USGS) Research to Evaluate Nutrient Reduction Strategies in the Mississippi Delta

- National Stream Quality Accounting Network (NASQAN) and National Monitoring Network (NMN) sites: Long-term monitoring of nutrients is being conducted by personnel of the USGS-Mississippi Water Science Center (MWSC) at two locations. The first is the Yazoo River below Steele Bayou near Long Lake, Mississippi, which is funded as part of NASQAN. The second is the Mississippi River at Vicksburg, Mississippi, which is funded as part of the Ocean Action Plan NMN.

- Personnel of the USGS-MWSC are developing a SPARROW (Spatially Referenced Regressions on Watershed Attributes) model for total nitrogen and total phosphorus for streams in the south-central United States. The models will allow users to generate load estimates at unsampled stream locations in the study area, as well as to understand sources and transport mechanisms of nutrients to the northwestern Gulf of Mexico. The study area includes the Lower Mississippi, Arkansas-White-Red, and Texas-Gulf basins.

Other Gulf of Mexico Alliance (GOMA) Nutrients and Nutrient Impacts Priority Issue Team (PIT) Activities

GOMA has developed a position statement fully supporting the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force and implementation of its *Gulf Hypoxia Action Plan 2008*. The Alliance's Nutrients and Nutrient Impacts PIT is finalizing a comprehensive 5-year implementation plan to reduce nutrient loadings to the Gulf. The Team is composed of the five Gulf of Mexico states—Alabama, Florida, Louisiana and Texas—and is led by Mississippi (Department of Environmental Quality). The implementation plan focuses on four major actions—nutrient characterization, nutrient criteria development, hypoxia and nutrient reduction strategies. It leverages the nutrient reduction activities of the states and develops new projects with anticipated funding from NOAA, USEPA's Gulf of Mexico Program Office (GMPO), Mississippi/Alabama Sea Grant, Northern Gulf Institute, and other sources. In an effort to leverage these projects and activities with the *Gulf Hypoxia Action Plan 2008*, the following coordination matrix was developed to better understand the relationships of the Alliance's *Governors' Action Plan II* and the Task Force's *Gulf Hypoxia Action Plan 2008*. For more information on the Alliance's *Nutrients and Nutrient Impacts Implementation Plan*, contact Ann Porter, Regional Coordinator of the Nutrients PIT, at ann_porter@deq.state.ms.us.

Gulf of Mexico Alliance
Position Statement Concerning Gulf Hypoxia

The Gulf of Mexico Alliance recognizes that hypoxia is an important threat to Gulf of Mexico ecosystems in the hypoxic zone over the Louisiana/Texas continental shelf and in numerous other Gulf coastal and estuarine systems. The incidence of hypoxia is increasing in both the magnitude of documented hypoxic zones and the number of Gulf estuarine systems reporting hypoxia. Reported ecosystem impacts of Gulf hypoxia include reduced population abundances, loss of habitat, reduced species diversity, mass mortalities and reproductive impairments. Continued intensification and expansion of hypoxia would pose a further threat to Gulf of Mexico ecosystems and socioeconomic well-being. Because increasing Gulf hypoxia is a symptom of advancing eutrophication, reducing nutrient inputs is a critical strategy to reducing, mitigating, and controlling hypoxia in Gulf coastal waters and estuaries. Progress in science and management approaches to address the Northern Gulf Hypoxia can both inform and be informed by efforts to understand hypoxia and effective nutrient management approaches in all Gulf coastal waters and estuaries.

The Gulf of Mexico Alliance considers the control and reduction of hypoxia in Gulf of Mexico coastal waters and estuaries, including the Northern Gulf Hypoxic Zone, a priority need, and will strive to achieve the following goals and priority actions under *Governors' Action Plan II*:

- Coordinate strategies and provide guidance to better characterize hypoxia and the resulting socioeconomic impacts.
  1. Develop a framework to monitor and characterize hypoxic events in estuaries and coastal waters and their impacts to critical habitats.
  2. Coordinate resources and research to develop hypoxia reduction goals, thresholds, and reference sites or conditions.
  3. Support the goals and actions of the Mississippi River-Gulf of Mexico Watershed Nutrient Task Force.
  4. Participate in and promote the exchange of information and technology between the upper and lower Mississippi River Basin states and organizations.
- Develop management tools and implement nutrient reduction activities in cooperation with local communities to reduce excess nutrient inputs to estuaries and coastal waters.
  1. Develop outreach materials to be distributed through the Alliance's Environmental Education Network.
  2. Develop and distribute a decision support toolbox for decision makers.
  3. Increase partnerships throughout the Gulf of Mexico watershed to identify significant sources of nutrients and opportunities for reductions, increase the implementation of BMPs, and pilot innovative nutrient reduction technologies.
  4. Regionally prioritize sources of nutrient loads to identify reduction trends and opportunities.
  5. Develop a nutrient reduction strategy template that can be applied to Gulf watersheds.
  6. Implement and evaluate a nutrient reduction strategy in a Gulf watershed.

Relationship of Plans and Actions (Coordination Matrix)
Governors' Action Plan II* (Nutrients and Nutrient Impacts Chapter) and *Gulf Hypoxia Action Plan 2008

***Governors' Action Plan II* Actions**	***Governors' Action Plan II* Action Steps**	***Gulf Hypoxia Action Plan 2008* Actions**
1. Nutrient Characterization. Implement regional nutrient characterization studies to evaluate ecosystem responses and to develop the tools for better characterization of nutrients in coastal waters. (State Lead – Mississippi) ***Rationale:*** *Before nutrients can be effectively managed, their roles and impacts within Gulf ecosystems must be understood. In addition, nutrient characterization studies are necessary to improve the science used by water quality managers to address excess nutrients in coastal waters. Nutrient characterization studies will provide a better understanding of the sources and dynamics of nutrients and help establish the links between nutrients and the health of coastal ecosystems. Leveraging resources and expertise to adequately characterize nutrients in coastal ecosystems assures a more consistent, efficient approach across the Gulf.*	**1.1. Nutrient Sources, Fate, Transport, and Effects Studies.** Conduct "Nutrient Sources, Fate, Transport and Effects" studies within Gulf ecosystems. **1.2. Ecosystem and Socioeconomic Impacts.** Identify methods and data needed to estimate ecosystem and socioeconomic impacts of excess nutrients. **1.3. Regional Models.** Identify and apply regional models to characterize sources, loads, ecosystem responses, and socioeconomic impacts of nutrients. **1.4. Monitoring Strategy.** Recommend a strategy to improve monitoring data coverage for characterization of nutrient loads, trends and impacts to coastal ecosystems in the Gulf. **1.5. Environmental and Biological Indicators.** Identify and develop environmental and biological indicators of nutrient impacts. **1.6. Role of Coastal Wetlands.** Increase the understanding of the role of coastal wetlands in nutrient dynamics. **1.7. Connectivity and Contribution of Adjacent Freshwater Systems.** Characterize the connectivity and contribution of adjacent, freshwater systems to Gulf watersheds using a regionally consistent methodology.	**5. Quantify Effects of Gulf Hypoxic Zone on Economic, Human and Natural Resources.** Identify and, where possible, quantify the effects of the hypoxic zone on the economic, human and natural resources in the Mississippi/Atchafalaya River Basin (MARB) and Northern Gulf of Mexico, including the benefits of actions to reduce nitrogen and phosphorus and the costs of alternative management strategies. (Coordinating Committee (CC) Lead – NOAA, USDA) **8. Reduce Scientific Uncertainties about Nutrient Source, Fate and Transport.** Continue to reduce existing scientific uncertainties identified in the Science Advisory Board (SAB) and MMR reports regarding source, fate and transport of nitrogen and phosphorus in the surface waters of the MARB to continually improve the accuracy of management tools and efficacy of management strategies for nutrient reductions. (CC Lead – USGS, Ohio)

***Governors' Action Plan II* Actions**	***Governors' Action Plan II* Action Steps**	***Gulf Hypoxia Action Plan 2008* Actions**
2. Nutrient Criteria Development. Identify common state needs and priorities for the development of nutrient criteria and provide support and technical assistance to facilitate a regional approach to nutrient criteria development and management. (State Lead – Mississippi) ***Rationale:*** *By working collaboratively, the Alliance is providing a forum to the States that encourages the establishment of a consistent and scientifically defensible coastal nutrient criteria development process. Establishing appropriate and protective nutrient criteria will, in turn, increase the productivity and economic viability of the Gulf region.*	**2.1. Aligned Gulf States Approach.** Establish an aligned Gulf States approach for the development of coastal nutrient criteria. **2.2. Enhanced Coordination.** Conduct an annual conference on coastal nutrient criteria development to enhance regional coordination. **2.3. Assessment Tools and Thresholds.** Establish a technical work group to recommend appropriate biological assessment tools and nutrient-related thresholds for nutrient criteria development. **2.4. Region-wide Classification System.** Develop a region-wide classification system for coastal waters and estuaries for use in nutrient criteria development and management. **2.5. Pilot Project.** Pilot the process for developing and evaluating nutrient criteria in at least one coastal estuary.	The *Gulf Hypoxia Action Plan 2008* does not include any corresponding actions related to nutrient criteria development.

***Governors' Action Plan II* Actions**	***Governors' Action Plan II* Action Steps**	***Gulf Hypoxia Action Plan 2008* Actions**
3. Hypoxia. Coordinate strategies and provide guidance to better characterize hypoxia and the resulting socioeconomic impacts. (State Lead – Mississippi) ***Rationale:*** *More than 40 percent of the United States drains into the Gulf of Mexico; therefore, addressing hypoxia in the Gulf requires collaboration and effort at a national scale. On a watershed scale, it is important to encourage the development of watershed-specific nutrient reduction targets to minimize areas affected by hypoxia. The Alliance is partnering and will continue to partner with the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force to address the large hypoxic zone off the Louisiana and Texas coasts.*	**3.1. Monitoring and Characterization Framework.** Develop a framework to monitor and characterize hypoxic events in estuaries and coastal waters and their impacts to critical habitats. **3.2. Coordinate Resources and Research to Quantify Objectives.** Coordinate resources and research to develop hypoxia reduction goals, thresholds, and reference sites or conditions. **3.3. Support Gulf Hypoxia Action Plan.** Support the goals and actions of the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force as identified in the *Gulf Hypoxia Action Plan 2008*. **3.4. Information and Technology Exchange.** Participate in and promote the exchange of information and technology between the upper and lower Mississippi River Basin states and organizations.	**9. Reduce Scientific Uncertainties about Nutrient Loads and Hypoxic Zone.** Continue to reduce uncertainty about the relationship between nitrogen and phosphorus loads and the formation, extent, duration, and severity of the hypoxic zone, to best monitor progress toward, and inform adaptive management of, the Coastal Goal. (CC Lead – NOAA, Mississippi) **10. Promote Effective Communication.** Promote effective communications to increase awareness of hypoxia and support the activities of the Task Force. (CC Lead – Task Force Communications Subcommittee) **11. Reassessment.** In five years (2013), reassess nitrogen and phosphorus load reductions, the response of the hypoxic zone, changes in water quality throughout the Mississippi/Atchafalaya River Basin, and the economic and social effects, including changes in land use and management, of the reductions in terms of the goals of the Action Plan. Evaluate how current policies and programs affect the management decisions made by industrial and agricultural producers, lessons learned and determine appropriate actions to continue to implement or, if necessary, revise this strategy. (CC Lead – USEPA)

***Governors' Action Plan II* Actions**	***Governors' Action Plan II* Action Steps**	***Gulf Hypoxia Action Plan 2008* Actions**
4. Nutrient Reduction Strategies. Develop management tools and implement nutrient reduction activities in cooperation with local communities to reduce excess nutrient inputs to estuaries and coastal waters. (State Lead – Mississippi) ***Rationale:*** *Excess nutrients impact ecosystem health and reduce the economic benefit and human use for coastal communities along the Gulf Coast. With the Gulf States working collaboratively to characterize nutrients and their impacts, establish coastal nutrient criteria, and increase public awareness of Gulf hypoxia, this is a perfect opportunity to implement actions to reduce excessive nutrient inputs to Gulf waters.*	**4.1. Outreach Materials.** Develop outreach materials to be distributed through the Alliance's Environmental Education Network. (State Lead – Alabama) **4.2. Decision Support Toolbox.** Develop and distribute a decision support toolbox for decision makers. **4.3. Partnerships for Planning and Implementation.** Increase partnerships throughout the Gulf of Mexico watershed to identify significant sources of nutrients and opportunities for reductions, increase the implementation of BMPs, and pilot innovative nutrient reduction technologies. **4.4. Prioritize Nutrient Sources.** Regionally prioritize sources of nutrient loads to identify reduction trends and opportunities. **4.5. Nutrient Reduction Strategy Template.** Develop a nutrient reduction strategy template that can be applied to Gulf watersheds. **4.6. Implement and Evaluate Strategy.** Implement and evaluate a nutrient reduction strategy in a Gulf watershed.	**1. State Nutrient Reduction Strategies.** Complete and implement comprehensive nitrogen and phosphorus reduction strategies for states within the Mississippi/Atchafalaya River Basin. Target first those states with significant contributions of nitrogen and phosphorus to the surface waters of the MARB and ultimately to the Gulf of Mexico. (CC Lead – USEPA, Illinois) **2. Federal Nutrient Reduction Strategies.** Complete and implement comprehensive nitrogen and phosphorus reduction strategies for appropriate basin-wide federal programs and projects. Target first those federal programs and projects with significant federal lead or co-implementation responsibilities. (CC Lead – USEPA) **3. Enhance Protection of Gulf Water Quality through Existing Federal and State Programs.** While developing comprehensive state and federal nitrogen and phosphorus reduction strategies and continuing current reduction efforts, examine and, where possible, implement opportunities to enhance protection of the Gulf and local water quality through existing federal and state water quality, water management and conservation programs. (CC Lead – USDA, USACE) **4. Develop and Promote Efficient and Cost-effective Nutrient Conservation and Management Practices.** Develop and promote more efficient and cost-effective conservation and management practices for conserving nutrients within the MARB watershed and evaluate their effectiveness at all scales beginning with local watersheds and aggregating them up to the scale of the Mississippi/Atchafalaya River Basin. (CC Lead – USDA, USACE, LMRSBC)

***Governors' Action Plan II* Actions**	***Governors' Action Plan II* Action Steps**	***Gulf Hypoxia Action Plan 2008* Actions**
To address data access and other needs, the Gulf of Mexico Alliance has established a Data Management Council that consists of database and subject matter experts from each of the PITs.		**6. Improve Access to Data.** Coordinate, consolidate and improve access to data collected by state and federal agencies on Gulf hypoxia and MARB program activities and results. (CC Lead – USACE-ERDC)
Within the Gulf of Mexico Alliance, the tracking of interim progress is addressed by each of the PITs individually as well as the Alliance as a whole.		**7. Track Interim Progress.** Track interim progress on the actions to reduce nitrogen and phosphorus by producing an annual report on state and federal nutrient reduction activities and results. (CC Lead – USEPA)

STATE OF MISSOURI

- Continue to implement a matrix of agricultural BMPs through the Department of Natural Resources' Soil and Water Conservation Program. The program provides technical staff and cost-share funding for all the counties of the state. The program prevented an estimated 12 million tons of soil from being introduced into waterways of the state for the 2004–2008 time frame. In the 2009 the cost-share docket was expanded from 17 practices to 41. Most of the newly added practices are designed to promote stewardship activities that mitigate water quality impacts from agriculture. Specific program information and support is available at http://www.dnr.mo.gov/env/swcp.
- Continue to support the Animal Waste Treatment Loan Program used to finance animal waste treatment systems for independent livestock and poultry producers at below conventional interest rates. The program is authorized for a total of $10 million in revolving funds.
- Constitutional and statutory changes were enacted to allow the Stormwater Grant and Loan Program that is currently administered by the Missouri Department of Natural Resources (MDNR) to disperse more funds for stormwater issues by re-offering unused funds, eliminating the 50 percent grant-to-loan ratio requirement, and creating a revolving fund for loans. Draft rulemaking is in progress to support this change in the Stormwater Grant Loan Program.
- Continue current steps to develop a needs assessment framework for Soil and Water Conservation Program funding. This recent process dictates that each district develop a 5-year needs assessment, and it is expected to allow more flexibility in program allocations to better address specific resource concerns such as nutrient loading. Current fiscal year practices have been allocated to each district on the basis of the 2008 needs assessment. This will promote efforts to adopt many of the new practices offered by the expanded practice docket. New needs assessments have been requested of the 114 district offices and will be used to guide funding for the next fiscal cycle.
- Implementation of the state water quality anti-degradation policy. The program requires reevaluation of point sources on classified streams and in some cases will require steps to achieve greater pollution reduction through the permitting process.

- Implementation of Missouri Nonpoint Source Management Plan, requiring continued development of TMDL strategies associated with section 303(d) impaired waters. The MDNR will submit a revised list of impaired waters for USEPA review in 2009/2010. A portion of the impaired waterbodies on the list will be required to initiate nutrient reduction actions when nutrient levels adversely affect beneficial water uses. A list of impaired waters and those with specific nutrient impact can be found at http://www.dnr.mo.gov/env/wpp/waterquality/303d.htm.
- Provide reporting and guidance on Gulf hypoxia issues to the Water Quality Coordinating Committee. The Water Quality Coordinating Committee is an informal interagency and public committee dealing with water quality issues. It includes representatives of nonprofit organizations, universities and colleges, cities and businesses, and state, federal, and local agencies.
- Continue support of a statewide Volunteer Water Quality Monitoring Program. State partners provide training and equipment to this citizen monitoring group, which submits physical, chemical, and biological data from monitoring sites throughout the state. Over 4,000 citizen volunteers have attended at least one of the training workshops. The program provides screening-level data used by state and local decision makers to determine current stream conditions and to identify potential problems or trends in water quality. A similar program is supported for monitoring the state's lakes and reservoirs (Lakes of Missouri Volunteer Program).
- Administer the Watershed Management Plan Development Grants. The program provides directed section 319 funding to restore waters impaired by nonpoint source pollution. It is targeted at waterbodies that are on the state's Targeted Nonpoint Source 303(d) list. The funded watershed plans support activities that will result in achieving the load reduction goals set forth in the corresponding TMDL developed for the affected waterbody. The most recent call for proposals was released in August 2009.
- Ongoing effort to implement phase I and II stormwater regulations. Permits required regulated municipal separate storm sewer systems (MS4s) to have stormwater management programs in place by March 10, 2008. These efforts have the potential to address a significant number of nutrient-related issues associated with stormwater pollution from large and small metropolitan areas. Possible interface with stimulus funding.
- As part of the expansion of the cost-share practice docket in the state Soil and Water Conservation Program, $4 million has been made available specifically for water quality practices. The majority of these practices will result in a reduction of nutrients entering the state's rivers, streams, and reservoirs. Traditional soil protection practices will still be funded at the levels of the last 3 years' average, and these practices also provide nutrient-reduction benefits. A total of $26 million will be offered across 114 districts in FY10. The Soil and Water Program is estimated to have prevented a total of 2.2 million tons of soil and associated nutrients from entering the state's waters in 2009.
- Through the Northern Gulf of Mexico Ecosystems and Hypoxia Assessment (NGOMEX) program, NOAA supports research designed to provide managers with tools, techniques, and information to make informed decisions and assess alternative management strategies regarding the hypoxic zone.

STATE OF OHIO

Ohio strives to capitalize on existing program efforts. Below are key linkages and statements relating to major program efforts and guiding documents for the Ohio River Basin within Ohio. These linkages provide the detailed information on programs such as Farm Bill conservation efforts, local watershed plan implementation, state water quality studies (TMDL reports), point source programs, monitoring, and so forth.

- Ohio TMDLs addressing nutrients that are completed or in progress are shown in the map at the website below. In the Ohio River watershed, 43 TMDL reports have been approved, 3 TMDL reports are in draft status, and 23 TMDL reports are in preparation. A list of watersheds by name is on the website at http://www.epa.ohio.gov/dsw/tmdl/OhioTMDLs_InProgress.aspx.
- Twenty-seven local watersheds within the Ohio River watershed have completed plans or have plans in progress. The plans address all sources of impairment, including those associated with excessive nutrient loading. All address local efforts to combat nutrient loading to some degree. Load reduction goals and project cost estimates are typically included in the endorsed plans. These planning efforts, along with TMDL report information, form the basis of Ohio's Gulf hypoxia-related nutrient reduction strategy at this time. Local watershed plans can be found at http://www.dnr.state.oh.us/soilandwater/water/watershedprograms/default/tabid/9192/Default.aspx.
- Scioto watershed CREP enrollment is nearing the goal of 70,000 acres. Nearly 68,000 acres overall have been enrolled in the program to date. Nearly 3,500 acres of wetlands have been restored and enrolled in CREP. Assistance to the Great Miami and Sugar Creek water quality trading projects is ongoing. The Miami Conservancy District reports 207 new conservation practices in place through the Great Miami Credit Trading program. These practices will reduce an estimated 875,942 pounds of phosphorus and nitrogen over their lifespan. The Little Miami watershed CREP application is 50 percent complete. Information on Ohio's SWCDs and their nonpoint source and nutrient/sediment programs can be found at http://www.dnr.state.oh.us/soilandwater/default/swcds/default/tabid/9093/default.aspx.
- Ohio continues to implement state programs addressing small, medium, and large AFOs. A new nutrient management planning tool and training were delivered statewide. Approximately 75 complaints on small and medium operations were responded to. One court-ordered enforcement consent order on a medium-sized AFO operator was executed. There are currently 130 large AFOs within the Ohio River watershed under permit by the Ohio Department of Agriculture; 15 applications requesting expansion are pending.
- Continued implementation of the Ohio Nonpoint Source Management Plan and section 319 Grants Program. Active section 319 grants that address nutrient reduction and/or assimilation include projects in the Big Darby (two), Stillwater, and Little Miami watersheds.
- Ohio EPA approved the Columbus Wet Weather Management Plan. Under the approved plan, Columbus will have constructed projects that will eliminate over 0.5 billion gallons of combined sewer overflow (CSO) each year by the year 2011. By 2025, over 85 percent of the current Columbus sewer overflow will have been eliminated. NPDES, CSO/wet weather, and other federally delegated programs will continue.
- The Ohio River Valley Water Sanitation Commission (ORSANCO) and Ohio DNR will continue to act as liaisons with other Ohio River Basin states. The last Ohio River Basin Steering Committee meeting was held on August 20, 2009, via conference call.

- Ohio DNR has been working with the Muskingum Watershed Conservancy District (MWCD) for several years on a cooperative agreement covering local watershed planning and implementation projects. Ohio DNR would administer a watershed planning and implementation program on behalf of the MWCD and funded by local landowner fees within the watershed. Conservation projects addressing sediments, nutrients, and habitat restoration are expected to be funded in 2010. The MWCD will also use this program to address local infrastructure projects, repairs on dams, and other related projects to help with stormwater management.

STATE OF WISCONSIN

- State administrative code NR 217 requirements for phosphorus effluent limits are implemented for 1 mg/L or an alternative limit for municipal publicly owned treatment works (POTWs) that discharge 150 lb/mo and industries that discharge 90 lb/mo. The average discharge is 0.5 mg/L total phosphorus. This has resulted in a 68 percent reduction in phosphorus loads since 1993.
- Nonpoint source-specific performance standards that apply: State administrative code NR 151 requires agriculture performance standards that are cost share-dependent. Urban performance standards apply at the time of the Wisconsin Pollutant Discharge Elimination System (WPDES) permit application. Priority watersheds in planning must have total suspended solids control by 2013. Priority watershed projects implemented achieved 50 percent of targeted phosphorus and sediment reduction amounts. Performance standards include:
  - Croplands:
    - Control cropland erosion to meet tolerable rates.
    - Build, modify, or abandon manure storage facilities to accepted standards.
    - Divert clean runoff away from livestock and manure storage areas located near streams, rivers, lakes, or areas susceptible to ground water contamination.
    - Apply manure and other fertilizers according to an approved nutrient management plan.
  - Manure management prohibitions:
    - No overflow of manure storage facilities.
    - No unconfined manure piles near waterbodies.
    - No direct runoff from feedlots or stored manure into state waters.
    - No trampled streambanks or shorelines from livestock.
- Stormwater permits issued in the Mississippi River Basin total 3,300 industrials, 130 municipals, and 600 construction sites. MS4 permits require 20 percent and 40 percent reductions in sediment load by target dates. These will reduce phosphorus by 10 to 30 percent. Ninety-two CAFO permits have been issued in this basin.

- TMDL on the Rock River is under development and will have phosphorus limits below current levels. This TMDL included more than 75 individual permits and approximately 200 general permittees.
- TMDL on Lake Pepin with Minnesota is to be completed in the next fiscal year and is to be on public comment in early 2010.
- Begin to collect total nitrogen data from wastewater treatment plants in January 2009 with permit application. Expand now to require 12 samples collected over a year, then quarterly thereafter, from all dischargers.
- Farm Nutrient Management Plans performance standards (acreage goals) are administered by Wisconsin's Department of Agriculture, Trade, and Consumer Protection.
- Statewide lawn fertilizer ban on phosphorus in 2009. Went into effect April 2010.
- Future direction: Proposing cropland phosphorus index requirements, TMDL-derived performance standards, more stringent than statewide. Critical sites may not be limited to croplands. Areas where livestock are pastured/confined may have phosphorus concentrations 10 times higher than croplands (and these areas seldom have soils tested).
- Proposed criteria for phosphorus adopted
  - 100 µg/L total phosphorus for "rivers"
  - 75 µg/L total phosphorus for "streams"
  - 15 to 40 µg/L total phosphorus for lakes and reservoirs, depending on type
  - Site-specific criteria for Lake Pepin
  - Nitrogen criteria in next phase.

TASK FORCE FEDERAL MEMBER ACTIVITIES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA)

- In FY10 USEPA provided technical assistance to 10 MARB states. Data analysis support was provided through the Nutrient Scientific Technical Exchange Partnership and Support (NSTEPS) to these 10 MARB states.
- Continue to provide financial and technical support to states for numeric nutrient criteria development.
- Entered into an interagency agreement with USDA/ARS and Arkansas State University (ASU)–Fayetteville to compile and analyze all existing databases along the length of the Red River, from headwaters in New Mexico to confluence with the Mississippi River. This project began in 2007 and will be completed in 2011. Phase 1 data collection is complete, Phase 2 is ongoing, and Phase 3 (criteria development) was approved

in early 2009. ASU developed a Nutrient Criteria Workshop to present to Region 6 states. Work with states within the region to assist them with implementation of their water quality monitoring programs. Arkansas and Louisiana are conducting water quality monitoring for nutrients.

- Continued participation in the SPARROW modeling effort, through a Regional Geographic Initiative-funded project that is funding data collection for SPARROW for the Lower Mississippi River Basin, through an interagency agreement between Region 5 and USGS, in turn funded through a transfer of Regional Geographic Initiative funds from Region 6 to Region 5.
- The section 319 program in Region 6 works with states to reduce water quality problems related to nonpoint sources of pollution. Approximately 70 percent of the region's section 319 efforts address nutrient reduction. Region 6 works closely with state agencies and the NRCS State Conservationists to strive for collaboration on use of EQIP and section 319 activities for addressing watershed restoration and nutrient reduction. USEPA Region 6 has collaborated with NRCS during FY10 in the selection of priority watershed segments for intensified implementation and water quality monitoring through the NRCS Mississippi River Basin Initiative (MRBI). Region 6 also continues to support the State of Louisiana and The Nature Conservancy's ecosystem restoration and monitoring in the Mollicy Farms project with the restoration of hydrology and replanting of bottomland hardwoods over 16,000 acres of farmland in the Ouachita Basin in Louisiana to natural floodplain. This project serves as a model of what is possible with cooperative landowners in the basin. It will aid in reducing nutrient inputs to the Gulf of Mexico.
- The Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA) Program in USEPA Region 6 is developing four coastal restoration projects that focus on reintroducing Mississippi River water into Louisiana coastal basins (Lake Pontchartrain Basin (Lake Maurepas), Breton Sound Basin, and Barataria Basin). When constructed, these projects will provide for the removal of nitrogen and phosphorus from the loadings that would otherwise go to the Gulf. The region works with the State of Louisiana on these projects (Office of Coastal Protection and Restoration). All four projects are in engineering and design (funded by CWPPRA). The project "River Reintroduction into Maurepas Swamp" is proceeding with detailed responses to comments submitted as part of its 30 percent Design Review under CWPPRA towards 95 percent design. The National Environmental Policy Act work is ongoing and a "Gap Analysis" requested by the USACE and the CWPPRA Task Force, which could help facilitate consideration of project construction under the Water Resources Development Act (WRDA), is about to begin. USEPA estimates that when constructed and operated, these four projects could reduce the nitrogen load from the Mississippi River to the Gulf of Mexico by over 11,000 metric tons/yr (using conservative assumptions), which is about 1.5 percent of the 45 percent reduction in riverine total nitrogen load to the Gulf (measured against the average load over the 1980–1996 time period), recommended by the Reassessment. A similar, but unestimated, total phosphorus reduction should also result.
- USEPA Region 6 has coordinated with the Office of Research and Development's Gulf Ecology Division (ORD-GED) to use Regional Applied Research Effort (RARE) funds to develop a comprehensive Gulf of Mexico hypoxia database. The database will provide researchers and other entities with a valuable tool to perform statistical and modeling analyses to better understand the ecological dynamics of the area. It will also provide water quality managers with a scientifically sound basis for developing strategies and targets to improve water quality in the Mississippi and Atchafalaya River watersheds and reduce impacts of the hypoxic zone.

- USEPA Region 6 is coordinating with ORD-GED to use RARE funds for "Development of an Approach to Establish Numeric Nutrient Criteria for the Northern Gulf of Mexico Hypoxic Zone" (proposed at $200,000; partially funded at $80,000).

UNITED STATES ARMY CORPS OF ENGINEERS (USACE)

- Navigation and Ecosystem Sustainability Program (NESP) is an upper Mississippi River program with a significant ecosystem restoration component. Many of the projects that develop in the future will help with sediment and nutrient retention/treatment. The program remains underfunded in 2009 and 2010. Fifteen ecosystem projects valued at $120 million are in advanced planning and design phases. The program is currently receiving $10 million per year—half for the ecosystem part and half for the navigation part—but no construction funds. A wide range of potential projects, including floodplain restoration, side-channel restoration, island construction, forest restoration, and embankment modifications, are expected to have beneficial effects on water nutrient loading.

- The Environmental Management Program (EMP) is an upper Mississippi River program with two components—development and construction of ecosystem restoration projects, which will help with sediment and nutrient retention/treatment, and a water constituent monitoring program providing valuable water quality data to be used by many state and federal agencies, as well as non-government groups. EMP is in the process of being transitioned to NESP, and no new starts under EMP are allowed. The transition plan aims for a seamless transition to NESP of all projects, designs, and construction efforts, including the monitoring program. To date, EMP has built 50 ecosystem-related projects benefitting more than 83,000 acres. EMP funding ranged from $17 million to $30 million annually.

- The Middle Mississippi River Watershed Study looked at watershed issues in the middle Mississippi River area, including ecosystem restoration, management, socioeconomic concerns, and balance, as well as environmental monitoring needs. From this study, future projects for the benefit of the middle Mississippi River watershed will develop. This study focused on the Mississippi River from the Missouri River to the Ohio River and concluded in early 2009. Outcomes included regional natural resource goals, objectives, and strategies; development of an ecosystem restoration planning tool; and reach assessments. Interagency Middle Mississippi River Partnership has taken ownership now and will move the region forward on study outcomes. Study completed in 2010; available on the USACE St. Louis District website.

- Lower Mississippi River Resource Assessment. Although the focus of this study is related to recreational and economics needs and existing infrastructure, it will have some importance in influencing some future growth and development in the Lower Mississippi River, which in turn could affect hypoxia issues such as sediment and nutrient input. The draft report was delivered July 31, 2009, and is being reviewed before approval. USACE is looking for cost-share partners to go to the feasibility phase and then project implementation. The report recommends a watershed study and implementation plan/potential feasibility reports involving 239 projects identified by a nongovernmental organization, and it is being revised to include a couple multipurpose projects that could go right to feasibility now with an appropriate cost-share partner. The watershed study is a 2- to 3-year effort at $2.5 million cost-shared. Recon level report completed in 2010; available on the USACE Memphis District website.

- Louisiana Coastal Area Study (LCA). Although not specifically authorized, some aspects of LCA associated with other programs and projects are moving forward, including scientific investigation for long-distance sediment transport and freshwater diversions for building new wetlands and nutrient uptake. The Louisiana Coastal Area project has several authorized components per WRDA 07, but it remains largely unfunded as a more comprehensive approach to coastal Louisiana issues develops in the Louisiana Coastal Protection and Restoration effort. Some funded aspects of LCA include activities such as freshwater water symposia and research, beneficial use of dredged material, modeling, innovative mapping efforts, and a science and technology program.

- Coastal Wetlands Planning, Protection and Restoration Act (CWPPRA). Projects for ecosystem restoration and protection are planned and constructed by inter-agency groups each year. For example, the West Bay Sediment Diversion project is a joint effort by the Corps and the State of Louisiana to transport sediment from the river by a specifically designed channel or bank cut for the purpose of building marsh, which in turn reduces sediment and nutrient load to the hypoxic zone in the Gulf of Mexico. At the end of 2008, there were 145 active approved projects, 74 had been constructed, 17 were under construction, and 26 had been de-authorized or transferred to another program. Funding for FY09 and FY10 is at about $5 million for planning each year and about $82 million for construction each year. Total wetland acres to benefit from all projects over their individual 20-year project life would be 110,415 wetland acres. The program began in 1990 and is authorized until 2019.

- America's Inner Coast Summit (AICS) 2010. One hundred and seventeen (117) people from a broad cross section of Mississippi River watershed partners and stakeholders, including non-government organizations, federal agencies, states, tribal nations, private landowners, private industry, academia, and community representatives converged on Union Station in St. Louis for the AICS on June 22–24, 2010. The summit was co-facilitated by Sand County Foundation's Mr. John Laub and the USACE Mississippi Valley Division's Dr. David Vigh. The purpose was to discuss and help further develop a vision for this multiple-use inner coast. The Steering Team included representatives of Monsanto Corporation (Diane Herndon), The Nature Conservancy (Michael Reuter), Gulf Engineers and Consultants, Inc., (Cade Carter), the National Great Rivers Research and Education Center (Richard Sparks), St. Paul District Corps of Engineers (Terry Birkenstock), and the University of Florida, Office of Conferences and Institutes (Beth Miller-Tipton). The summit was opened and closed by Major Generals Terry Mulcahy (R) of Sand County Foundation and Michael Walsh of the USACE.

  The attendees included representatives from 20 states and 76 organizations. Approximate breakdown by partner category was: academic 4 percent; business and landowner 15 percent; community, state, local government 11 percent; federal agencies 30 percent; non-governmental organizations 35 percent; political 4 percent; and tribal 1 percent. The goal of the summit was to develop high-level recommendations to be considered in developing sustainable Mississippi River valley projects and initiatives and to help further the exchange of information regarding progress and barriers or constraints on current projects, programs, and activities to support sustainable watershed efforts. Among the sustainable considerations were nutrient reduction and sediment use strategies.

  A highlight of the summit was the participation of all attendees, on the first day, in six work groups focused on communication, science needs, effective integration, multi-sector management, 200-year vision, and model programs and projects. Work group efforts and results were reported out the next day at the meeting. Complete meeting information can be found at the AICS website http://www.conference.ifas.ufl.edu/aics/index.html.

UNITED STATES DEPARTMENT OF AGRICULTURE (USDA)

- USDA will provide technical and/or financial assistance through the following conservation programs to help reduce nutrient (nitrogen and phosphorus) runoff and leaching to local receiving waters, as well as to the Gulf of Mexico: EQIP, CRP and CREP, WRP, CTA, Conservation Stewardship Program, Public Law 83 566 Watershed Projects, and RC&D.
- USDA will continue to test and demonstrate innovative management practices for reducing nutrient losses to surface waters and evaluate current conservation practices for water quality benefits at the watershed scale. Recent progress has been made in the areas of improving modeling of riparian zone function for more accurate water quality assessments, developing new management practices for reducing nitrate losses in drainage waters, improving water quality models for large-scale watersheds, assessing the water quality effects of management practices in tile-drained agriculture, developing sensors and procedures for improved nitrogen fertilizer management in corn, and designing wetland systems for tile-drained agricultural landscapes. These and other research findings for FY07 can be found at the following websites:
  http://www.ars.usda.gov/SP2UserFiles/Program/211/NP211AnnRptFY07.pdf
  http://www.fsa.usda.gov/Internet/FSA_File/fsa_final_report_crumpton_rhd.pdf
  http://www.fsa.usda.gov/Internet/FSA_File/iameetingagenda.pdf.

2008 Farm Bill

The 2008 Farm Bill (The Food, Conservation, and Energy Act of 2008) reinforces the importance of conservation on working lands. It increases authorized funding for conservation programs administered by NRCS by $4.2 billion over the life of the bill as compared to the 2002 Farm Bill.

Key USDA programs were reauthorized and some, such as the Agricultural Water Enhancement Program (AWEP) under EQIP, were expanded. AWEP offers financial and technical help to assist farmers and ranchers with installing or implementing conservation practices for agricultural water conservation/water quality enhancement activities.

Other highlights that relate to the 2010 Hypoxia Operating Plan:

- Authorizes 32 million acres to be enrolled in the CRP (2010–2012).
- Allows up to 3,041,200 acres of wetlands to be enrolled in the WRP, adding 766,200 acres.
- Renames the Conservation Security Program to the Conservation Stewardship Program and authorizes additional funding to enroll up to 12,769,000 additional acres each year for producers to improve conservation treatment on their lands that benefit soil, water, and air resources.
- Expands partnership opportunities through the Cooperative Conservation Partnership Initiative (CCPI). Directs 6 percent of funds and acres from Farm Bill Conservation Title programs, except CRP, WRP, Farm and Ranch Land Protection Program (FRPP), and Grassland Reserve Program (GRP), be used for targeted conservation activities and areas.

Mississippi River Basin Healthy Watershed Initiative (MRBI)

FY10 Highlights

- The request for proposals (RFP) in the *Federal Register* soliciting proposals from interested entities ended May 3, 2010. The MRBI RFP announced the availability of up to $50 million in financial assistance for the CCPI, which includes components for EQIP, the Wildlife Habitat Incentives Program (WHIP) and the Conservation Stewardship Program, and $25 million for the Wetlands Reserve Enhancement Program (WREP). This is a total of $75 million in financial assistance made available for the MRBI.
- NRCS received 105 CCPI proposals and 21 WREP proposals requesting $76 million ($66 million from CCPI and $10 million from WREP) for FY10.
- The Secretary issued a press release June 15 announcing $32 million in approved projects, which included 58 CCPI projects totaling $22.2 million and 18 WREP projects totaling $9.8 million.
- States have until August 31, 2010, to have CCPI and WREP project funds obligated to producers. WREP projects include 29,000 acres of eligible private lands.
- A total of 13,164 EQIP and WHIP applications for MRBI-CCPI are currently being processed for approvals and obligations. These applicants requested $277,141,571 over a 3- to 5-year contract life.
- A total of 530,250 acres were allocated to the states for the Conservation Stewardship Program portion of MRBI-CCPI. Currently the states have 61 applications in the process of evaluation. These acres have been allocated to the states where the projects are located.
- CIG proposals were submitted on June 4, 2010. To date, 39 entities have requested over $16 million in the12 MRBI states (Arkansas, Illinois, Indiana, Iowa, Kentucky, Louisiana, Minnesota, Mississippi, Missouri, Ohio, Tennessee and Wisconsin). Projects have been evaluated and are now pending final decisions by Chief White.
- NRCS has established a broad framework for watershed monitoring including a monitoring and evaluation national conservation practice standard. This approach will help NRCS identify the localized effects of conservation practice standards on the reduction of nutrient and sediment runoff from agricultural fields.
- In addition, $20 million of EQIP, WHIP and WRP funding is being used to implement the National Migratory Bird Habitat Initiative. The NMBI will be applied to agricultural wetlands (including rice fields and abandoned catfish ponds) and existing WRP easements to increase shallow water areas and moist soil areas for shorebirds, waterfowl and neo-tropical migratory birds. This will, of course, provide direct benefits to the MRBI goals.

Background

- The goal of the MRBI is to address agricultural related nutrient and sediment loading in the Mississippi River Basin. These loadings contribute to water quality problems within the basin as well as in the Gulf of Mexico.
- The NRCS monitoring approach should enable the agency to capture the water quality benefits that occur through pre- and post application data evaluation.
- The data will help NRCS provide enhanced site-specific planning alternatives to clients who want to address nutrient and sediment concerns.

Abbreviations and Acronyms

ADEQ	Arkansas Department of Environmental Quality
AgNPS	Agriculture Nonpoint Source
AgNPS SALT	Agriculture Nonpoint Source Special Areas Land Treatment
AICS	America's Inner Coast Summit
AFO	animal feeding operation
ANRC	Arkansas Natural Resources Commission
ARS	Agricultural Research Service
ASA	Assistant Secretary of the Army
ASU	Arkansas State University
AUV	autonomous underwater vehicle
AWEP	Agricultural Water Enhancement Program
AWPD	Assessment and Watershed Protection Division
AWQA	Agriculture Water Quality Act
AWQA	Agriculture Water Quality Authority
AWRIMS	Arkansas Wetland Resource Information Management System
BAT	best available technology
BMPs	best management practices
BWSR	Board of Water and Soil Resources
C-BMP	Council on Best Management Practices
CAFO	concentrated animal feeding operation
CCPI	Cooperative Conservation Partnership Initiative
CEAP	Conservation Effects Assessment Project
CEES	Center for Earth and Environmental Science
CIG	Conservation Innovation Grant
CMT	Conservation Management Tool
CNMP	comprehensive nutrient management plan
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CSO	combined sewer overflow
CTA	conservation technical assistance
CTIC	Conservation Technology and Information Center
CWA	Clean Water Act

CWPPRA	Coastal Wetlands Planning, Protection and Restoration Act
Delta F.A.R.M.	Delta Farmers Advocating Resource Management
DMR	Discharge Monitoring Report
DNR	Department of Natural Resources
ELP	Environmental Leadership Program
EMP	Environmental Management Program
EQIP	Environmental Quality Incentive Program
ERC	Environmental Resources Coalition
ERDC	Engineer Research and Development Center
FRPP	Farm and Ranch Land Protection Program
FSA	Farm Service Agency
FTE	full-time equivalent
FWP	Farmable Wetlands Program
GCOOS	Gulf of Mexico Coastal Ocean Observing System
GED	Gulf Ecology Division
GHMSC	Gulf Hypoxia Monitoring Stakeholder Committee
GIS	geographic information system
GMPO	Gulf of Mexico Program Office
GOMA	Gulf of Mexico Alliance
GRP	Grassland Reserve Program
GRTS	Grant Reporting and Tracking System
HUC	hydrologic unit code
IBI	Index of Biotic Integrity
IDALS	Iowa Department of Agriculture and Land Stewardship
IUPUI	Indiana University–Purdue University Indianapolis
LCA	Louisiana Coastal Area Study
LDAF	Louisiana Department of Agriculture and Forestry
LDEQ	Louisiana Department of Environmental Quality
LMFA	Livestock Management Facilities Act
LMRCC	Lower Mississippi River Conservation Committee
LMRSBC	Lower Mississippi River Sub-Basin Committee
LRD	Great Lakes and Ohio River Division
LSU	Louisiana State University
LTRMP	Long-Term Resource Monitoring Program
LUMCON	Louisiana Universities Marine Consortium

MARB	Mississippi/Atchafalaya River Basin
MDEQ	Mississippi Department of Environmental Quality
MDNR	Missouri Department of Natural Resources
MMR	Monitoring, Modeling, and Research
MO CREP	Missouri Conservation Reserve Enhancement Program
MoSWIMS	Missouri Soil and Water Information Management System
MPCA	Minnesota Pollution Control Agency
MRBI	Mississippi River Basin Initiative
MS4	municipal separate storm sewer system
MSWCC	Mississippi Soil & Water Conservation Commission
MVD	Mississippi Valley Division
MVK	Vicksburg District
MVM	Memphis District
MVN	New Orleans District
MVP	St. Paul District
MVR	Rock Island District
MVS	St. Louis District
MWCD	Muskingum Watershed Conservancy District
MWSC	Mississippi Water Science Center
NAS	National Academy of Sciences
NASQAN	National Stream Quality Accounting Network
NAWQA	National Water-Quality Assessment Program
NCER	National Conference on Ecosystem Restoration
NEP	National Estuary Program
NESP	Navigation and Ecosystem Sustainability Program
NGI	Northern Gulf Institute
NGOMEX	Northern Gulf of Mexico Ecosystems and Hypoxia Assessment
NMBI	National Migratory Bird Habitat Initiative
NMFS	National Marine Fisheries Service
NMN	National Monitoring Network
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRSA	National Rivers and Streams Assessment
NSL	National Sedimentation Laboratory

NSTEPS	Nutrient Scientific Technical Exchange Partnership and Support
NWIS	National Water Information System
ORD	Office of Research and Development
ORSANCO	Ohio River Valley Water Sanitation Commission
OST	Office of Science and Technology
OWOW	Office of Wetlands, Oceans, and Watersheds
PAHs	polycyclic aromatic hydrocarbons
PIT	Priority Issue Team
POTW	publicly owned treatment works
RARE	Regional Applied Research Effort
RC&D	Resource Conservation and Development Program
RFP	request for proposal
RIM-WRP	Reinvest in Minnesota - Wetlands Reserve Program
RTAG	Regional Technical Advisory Group
SAB	Science Advisory Board
SEAMAP	Southeast Area Monitoring and Assessment Program and Plan
SPARROW	Spatially Referenced Regressions on Watershed Attributes
SWCD	Soil and Water Conservation District
SWCP	Soil and Water Conservation Program
TAG	Technical Advisory Group
TMDL	Total Maximum Daily Load
TSP	Technical Service Provider
UMRB	Upper Mississippi River Basin
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDOI	U.S. Department of the Interior
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USM	University of Southern Mississippi
UW	University of Wisconsin
VIMS	Virginia Institute of Marine Science
WQS	water quality standards
WHIP	Wildlife Habitat Incentives Program
WIP	watershed implementation plan

WLA	wasteload allocation
WPDES	Wisconsin Pollutant Discharge Elimination System
WRDA	Water Resources Development Act
WREP	Wetland Reserve Enhancement Program
WRP	Wetlands Reserve Program