

**Mississippi River/Gulf of Mexico  
Watershed Nutrient Task Force**

**Management Action Review Team Report**

**November, 2006**

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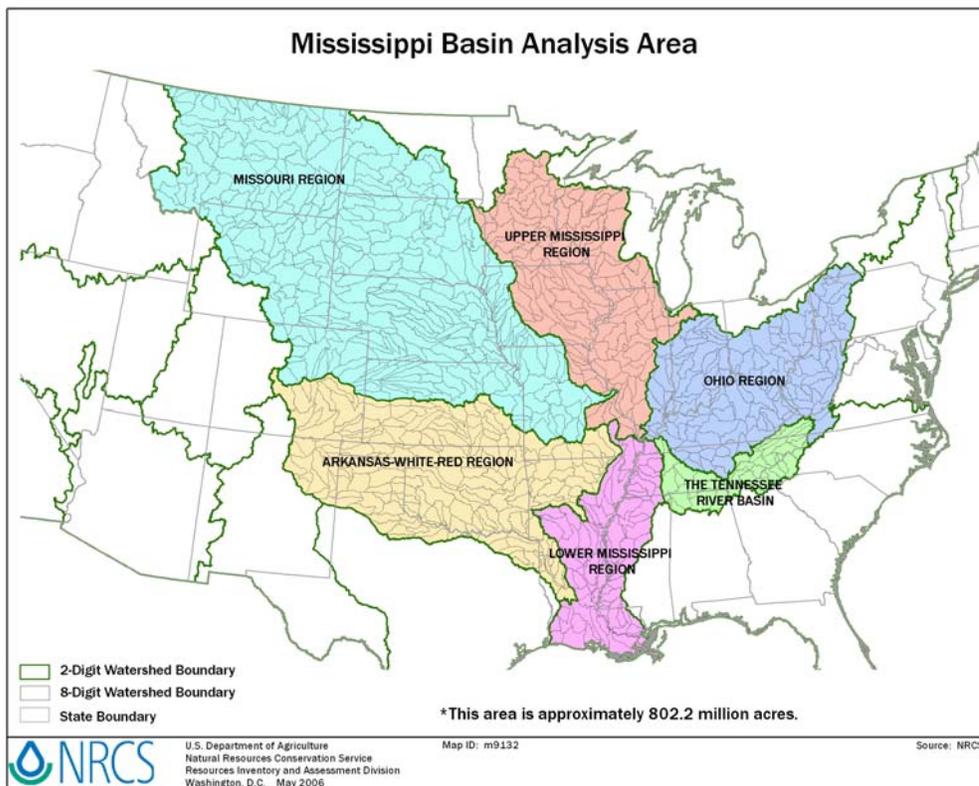
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# 1. Introduction

On June 3, 2005, the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force (Task Force) asked the Management Action Reassessment Team (MART) to collate information on both point sources in the Mississippi River Basin (Figure 1) and available programs that assist landowners, municipalities, and others in the basin to reduce nutrient loadings. The MART has prepared this summary which describes:

- The distribution of Farm Bill Programs from 2000 through 2005,
- The distribution of the Clean Water Act Section 319 Nonpoint Source Management Program (319 Program), as well as the loading reductions resulting from that program from 2002 through the present,
- The distribution of the Partners for Fish and Wildlife Program (PFW), and
- The distribution of Combined Sewer Overflows (CSO) and Sanitary Sewer Overflows (SSO)
- An inventory of point sources throughout the Mississippi River Basin, using the National Pollutant Discharge Elimination System (NPDES) Permitting Program.

Figure 1. Mississippi River Basin



The following information summarizes the use of available programs to reduce excess nutrients to the Mississippi River watershed. While these programs are currently organized to directly broad natural resource objectives, they do not specifically address

reduction of nutrients at their source. This information presented illustrates the current use and shows the potential of these programs to address nutrient reduction if these available resources were to be aligned and integrated with the Action Plan. This report is represents the first time the Task Force has compiled this type of snapshot of programmatic information, thus this report represents a baseline for future reassessments.

This report is divided into two sections, and has been developed to frame the response for Action Items 9 and 10 in the Action Plan. The first section describes the programs that are discussed in this report, and the second section provides specific information as to the distribution and allocation of these programs. This report is meant to be a living document, and the MART will continue to add information as it becomes available throughout the Reassessment of the Action Plan.

## **2. Programs to meet the Goals of the Action Plan**

The United States Department of Agriculture (USDA), the United States Environmental Protection Agency (EPA), and the Fish and Wildlife Service (FWS), as well as other federal agencies and the states, constantly struggle to manage our natural resources and find the balance between agricultural production, sustainable communities and businesses, and environmental protection.

### **2.1 Farm Security and Rural Investment Act of 2002**

To help maintain this balance, USDA has implemented a portfolio approach to conservation using management tools including conservation technical assistance, cost-share assistance, stewardship incentives, land retirement through easements, and grants for conservation innovation. The Farm Security and Rural Investment Act of 2002 (Farm Bill) was landmark legislation for conservation. Under the conservation title of the Farm Bill, funding for existing conservation was increased and new conservation programs were created. The USDA will continue to fully implement the provisions of the Farm Bill to maintain and improve productive lands and a healthy environment.

This report describes the progress made in implementing conservation programs and notes their accomplishments, while focusing on management actions that address reduction of nutrients loadings. Data presented were extracted from the existing NRCS Performance and Results Measurement System, NRCS Program data or obtained from the Farm Service Agency.

## 2.2 Clean Water Act Section 319 Nonpoint Source Management Program

Nonpoint source pollution continues to be the largest remaining source of water quality impairments in the nation. State nonpoint source programs, developed under the 319 Program, are working to meet this challenge, and utilizing inventive ideas and mechanisms to plan for the future of the watershed in this country.

Congress enacted the 319 Program in 1987, establishing a national program to control nonpoint sources of water pollution. Under Section 319(a) of the Clean Water Act, all States have addressed nonpoint source pollution by developing nonpoint source assessment reports that identify nonpoint source pollution problems and the sources responsible for those water quality problems. Under Section 319(b), all States have also adopted management programs to control nonpoint source pollution. Since 1990, Congress has annually appropriated grant funds to States under Section 319(h) to help them to implement those management programs.

## 2.3 Partners for Fish and Wildlife Program

The PFW Program was established in 1987 and has grown through the years into a diversified habitat restoration program assisting thousands of private landowners across the nation. Projects are primarily targeted to benefit FWS trust resources, including migratory birds, inter-jurisdictional fish, and federally-listed endangered, threatened or other declining or imperiled species. Because approximately 73% of the land in the United States is privately owned and the majority of fish and wildlife resources occur on those lands, it is essential that fish and wildlife habitats on these lands be managed and improved through cooperative conservation programs such as the PFW Program.

The PFW Program provides technical and financial assistance to private landowners and Tribes who are willing to work with the FWS and other partners on a voluntary basis to help meet the habitat needs of federal trust species. The program's locally-based field personnel work one-on-one with private landowners and other partners to plan, implement, and monitor projects. This is accomplished through community education and outreach, establishing habitat-based partnerships, as well as providing technical and financial assistance to implement projects. Technical assistance to individual landowners may include habitat assessment, project design, consultation and coordination throughout project implementation, identification of additional potential project partners, grant writing and assistance with permits, as necessary. Technical assistance to partner agencies and organizations often results in policy and decision-making that have positive ecological and economic effects on tens of thousands of acres.

The PFW Program is guided by a national policy with the following identified objectives:

- Promote and implement habitat improvement projects that benefit federal trust species

- Provide conservation leadership and promote partnerships;
- Encourage public understanding and participation;
- Work with the USDA to implement conservation programs.

The PFW policy has established priority ranking factors to help guide project selection. These priorities are stepped down to the state and local levels as field staff collaborate with stakeholders to further refine habitat priorities and geographic focus areas. National priority ranking factors are then used to assign funding priority status to proposed projects that:

- Improve habitat for federal trust species, including migratory birds; threatened and endangered species; interjurisdictional fish; marine mammals; and, other declining species;
- Complement activities on National Wildlife Refuge (NWR) System lands, or contribute to the resolution of problems on NWRs that are caused by off-refuge practices;
- Address species and habitat priorities that have been identified through Service planning teams (with our partners), or in collaboration with state fish and wildlife agencies;
- Reduce habitat fragmentation or serve as buffers for other important federal or state conservation lands; or
- Result in self-sustaining systems that are not dependent on artificial structures.

If other considerations are generally equal, then priority is directed to those projects that link private lands to important federal lands (such as NWRs), have cooperative agreements of longer duration, multiple partners, cost sharing, and the greatest cost effectiveness. The overall goal of PFW projects is to return a site to the ecological condition that likely existed prior to loss or degradation.

## 2.4 National Pollutant Discharge Elimination System

As authorized by the Clean Water Act, the NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches, and industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit. In most cases, the NPDES permit program is administered by authorized states. Since its introduction in 1972, the NPDES permit program is responsible for significant improvements to our Nation's water quality, by identifying the sources of excess pollutants.

In the United States, two types of public sewer systems predominate: combined sewer systems (CSSs) and sanitary sewer systems (SSSs). A CSS is a wastewater collection system owned by a municipality (as defined by Section 502(4) of the Clean Water Act) that conveys domestic, commercial, and industrial wastewater and storm water runoff

through a single pipe system to a publicly-owned treatment works (POTW). An SSS is a wastewater collection system owned by a municipality that conveys domestic, commercial, and industrial wastewater, and limited amounts of infiltrated groundwater and storm water to a POTW. Areas served by SSSs often have a municipal separate storm sewer system (MS4) to collect and convey runoff from rainfall and snowmelt.

Combined Sewer Overflow (CSO) refers to a discharge from a CSS at a point prior to the POTW treatment plant. CSOs generally occur in response to wet weather events; that is, during and following periods when rainfall or snowmelt drain to the CSS. Most CSSs are designed to discharge flows that exceed conveyance capacity directly to receiving waterbodies, such as rivers, streams, estuaries, and coastal waters.

CSO discharges include a mix of domestic, commercial, and industrial wastewater, and storm water runoff. As such, CSO discharges contain human, commercial, and industrial wastes as well as pollutants washed from streets, parking lots, and other surfaces.

Sanitary Sewer Overflow (SSO) refers to untreated or partially treated sewage releases from an SSS. SSOs have a variety of causes, including, but not limited to, severe weather, blockages, line breaks, power failures, lapses in sewer system operation and maintenance, inadequate sewer design and construction, and vandalism. SSO discharges typically contain a mix of domestic, commercial, and industrial waste. SSOs can pose challenging public health and environmental issues when they occur.

SSOs include those overflows that reach waters of the United States, as well as overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations. A limited number of municipalities have regular SSO discharges from fixed points within the sewer system. SSSs can back up into buildings, including private residences. When backups are caused by problems in the publicly-owned portion of an SSS, they are considered SSOs.

SSOs that reach waters of the United States are point source discharges, and, like other point source discharges from municipal SSSs, are prohibited unless authorized by an National Pollutant Discharge Elimination System (NPDES) permit. Moreover, SSOs, including those that do not reach waters of the United States, may be indicative of improper operation and maintenance of the sewer system, and thus may violate NPDES permit conditions.

## **3. Implementation of Action Items No. 9 and No. 10 and other Indicators**

### **3.1 Action Item No. 9**

*By Spring 2003, or on a time frame established by the sub-basin committees, States and Tribes within the Mississippi and Atchafalaya River Basin, with support from Federal agencies, will increase assistance to landowners for voluntary actions to restore, enhance, or create wetlands and vegetated or forested buffers along rivers and streams within priority watersheds consistent with Action #6.*

#### **3.1.1 Farm Bill Programs**

Two voluntary land retirement programs, the Conservation Reserve Program (CRP) and the Wetland Reserve Program (WRP) were established in the 1990 Farm Bill and continued through the 2002 Farm Bill.

##### Producer/acres enrolled in CRP

The water quality benefits of acres enrolled in Conservation Reserve Program (CRP) general sign-ups are derived from the conversion of enrolled acres having high input crop systems into long term vegetative cover. Establishing CRP acres into high quality conservation cover means that there will be a significant reduction in sheet, rill, wind and gully soil erosion. General CRP enrolls large tracts or whole fields of cropland. Retiring large tracts of cropland also results in a significant reduction in applied pesticides, which lessens the potential for pesticide movement into receiving waters or ground water aquifers.

Continuous CRP and Conservation Reserve Enhancement Program (CREP) target water quality benefits through the establishment of the wetland restoration and filter strip/riparian buffer practices. These practices provide known water quality benefits by trapping sediment and pesticides contained in the runoff from associated upland crop fields that will flow through these restored systems. These same practices are also known to help meter water runoff and also serve as a flood water reduction and flood damage reduction practices.

CRP enrollment for 2005, provided by USDA Farm Service Agency, is displayed by acres and number of contracts in Figures 2 and 3.

Figure 2. MRB Cumulative CRP Enrollment, 2005 (ac enrolled)

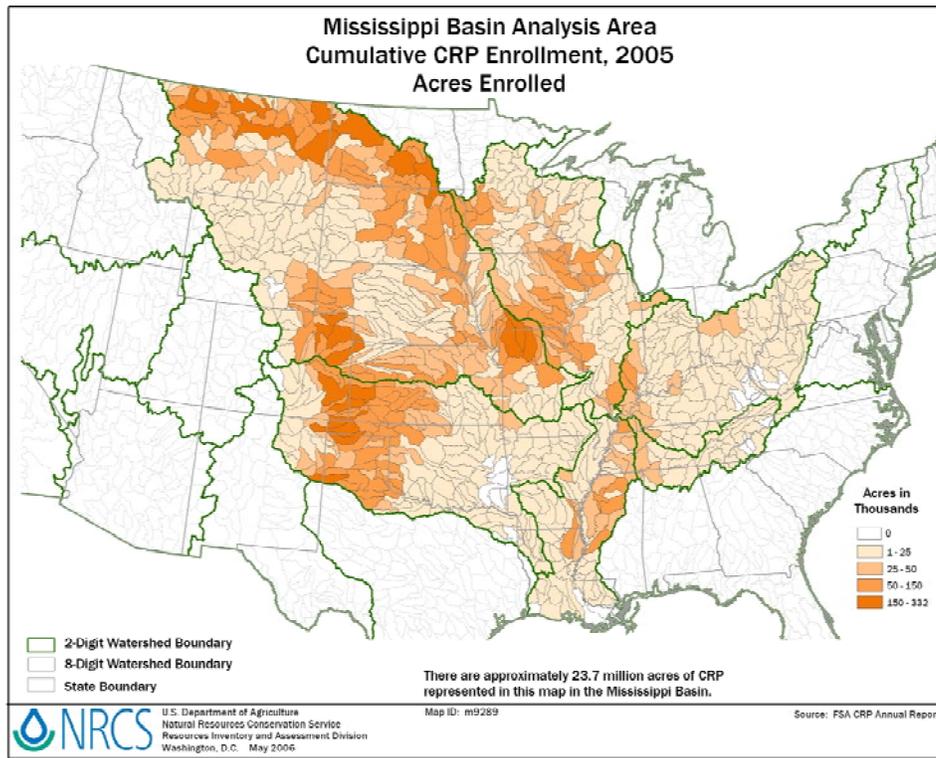
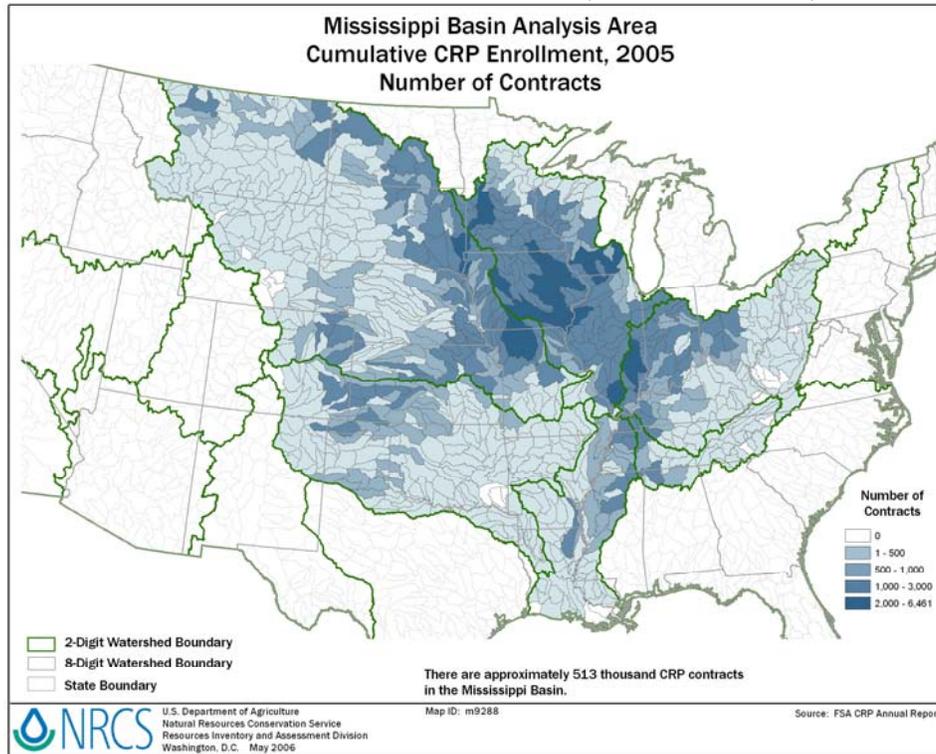


Figure 3. MRB Cumulative CRP Enrollment, 2005 (number contracts)



As shown in the Table 1, there were 513,000 contracts covering 23.8 million acres within the basin during FY 05 with over 50% occurring in the Upper Mississippi and Missouri sub-basins.

Table 1. Conservation Reserve Program Cumulative CRP Enrollment, 2005			
<u>2-digit Watershed</u>	<u>Number of Contracts</u>	<u>Acres Enrolled</u>	<u>Rental Payments</u>
05 (Ohio)	69,902	975,570	\$81,251,158
06 (Tennessee)	6,970	181,075	\$10,049,562
07 (Upper Mississippi)	200,847	3,735,018	\$347,308,410
08 (Lower Mississippi)	27,581	1,201,235	\$62,245,123
10 (Missouri)	162,238	11,965,241	\$509,064,001
11 (Arkansas White Red)	45,624	5,721,670	\$194,157,400
<b>Total</b>	<b>513,161</b>	<b>23,779,808</b>	<b>\$1,204,075,655</b>

#### Producer/acres enrolled in WRP

The Wetlands Reserve Program is a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. The USDA Natural Resources Conservation Service (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.

WRP enrollment for 2005, is displayed by acres and number of contracts in Figures 4 and 5.

Figure 4. MRB Cumulative WRP Enrollment, 2005 (ac enrolled)

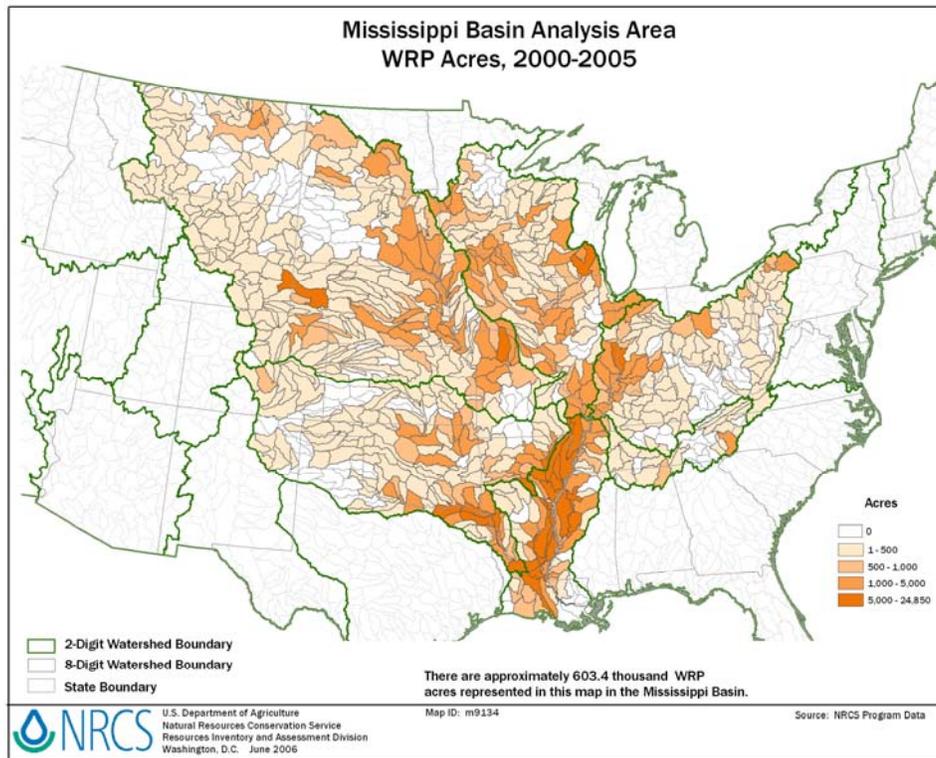
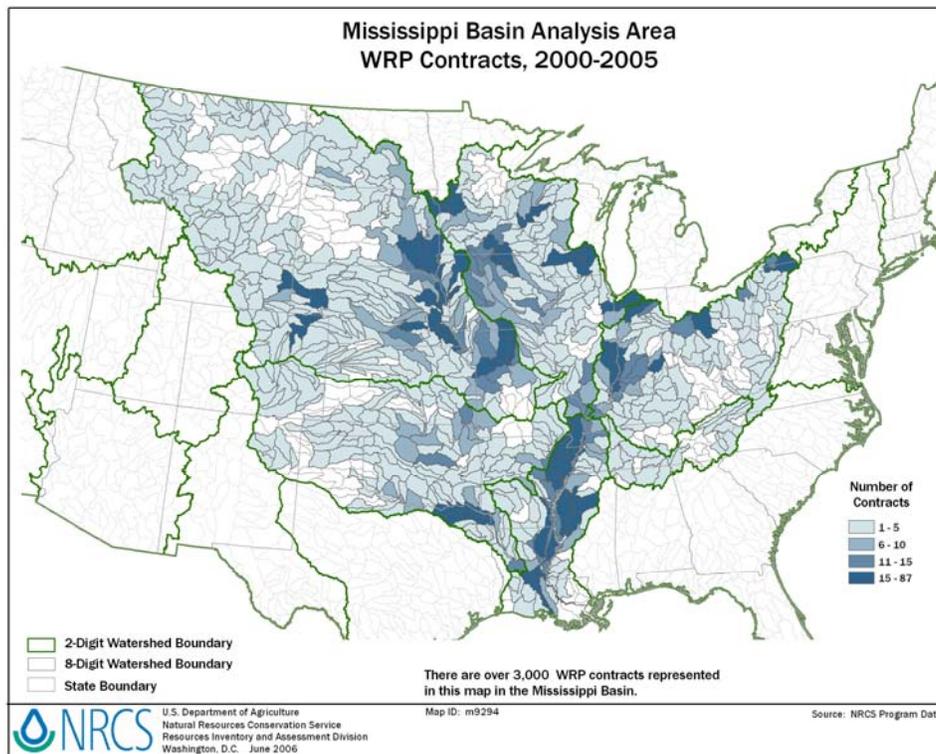


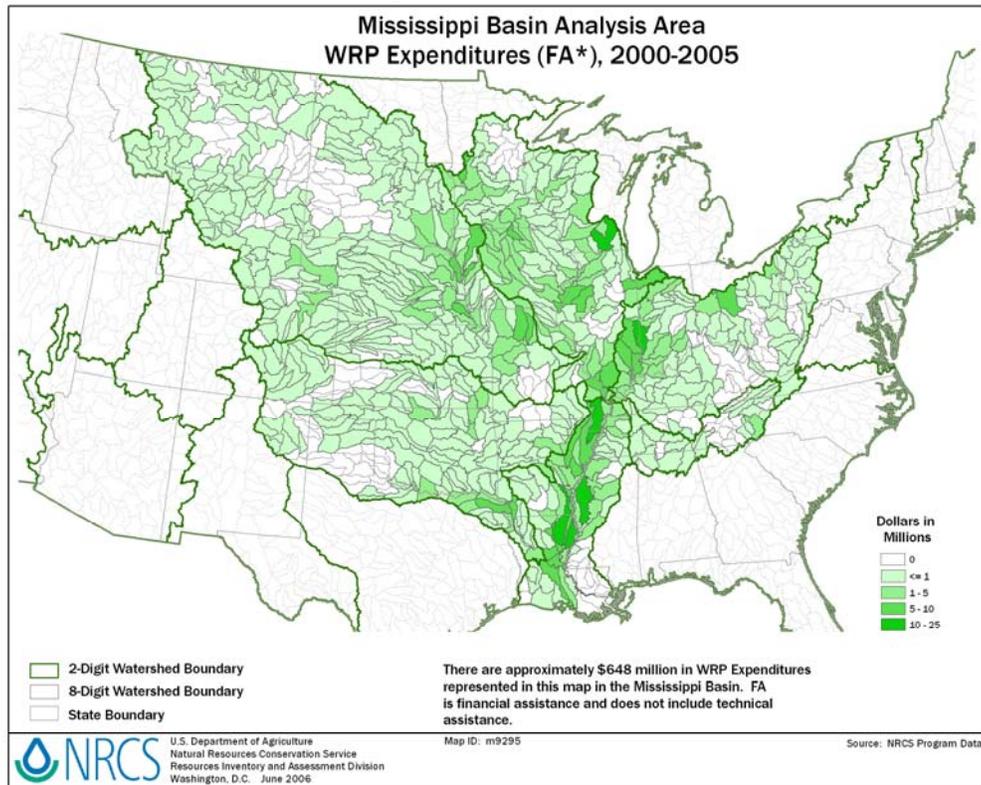
Figure 5. MRB Cumulative CRP Enrollment, 2005 (number contracts)



From 2000 – 2005, there were more than 3000 contracts on 603,000 acres within the basin. There were approximately \$648 million in WRP expenditures during this period (excluding technical assistance) (Table 2, Figure 6). As shown in the Figures 4 and 5, efforts have been focused in the Lower Basin and along major river corridors within the basin.

Table 2. Wetlands Reserve Program For Period 2000 - 2005			
<u>2-digit Watershed</u>	<u>Contracts</u>	<u>Acres</u>	<u>Financial Assistance Expenditures</u>
05 (Ohio)	388	42,040	\$75,452,243
06 (Tennessee)	23	4,678	\$5,983,943
07 (Upper Mississippi)	708	97,153	\$177,818,269
08 (Lower Mississippi)	676	237,654	\$195,757,648
10 (Missouri)	891	112,902	\$121,012,239
11 (Arkansas White Red)	361	109,015	\$71,511,805
<b>Total</b>	<b>3,047</b>	<b>603,441</b>	<b>\$647,536,147</b>

Figure 6. MRB Cumulative WRP Expenditures



## Vegetated or forested buffers established along rivers and streams of priority watersheds

Riparian forested buffers are important for controlling nonpoint source pollution because they intercept sediment, nutrients, pesticides, and other pollutants before they reach streams. Forested buffers are the most effective type of buffer because infiltration rates of trees are 10 to 15 times higher than those of grassy buffers and 40 times higher than those of a plowed field. Current studies have demonstrated a 30 to 98 percent reduction of nutrients (nitrogen and phosphorous), sediment, and pesticides in surface and groundwater after passing through a forested riparian buffer. In addition, trees provide deep root systems that hold soil in place, thereby stabilizing stream banks and reducing erosion.

Woody vegetation in forested buffers provides food and cover for wildlife, helps lower water temperatures by shading the stream or water body, and slows out-of-bank flows thereby reducing the peaks of flooding. In addition, the vegetation closest to the stream provides litter fall and large woody debris that provide food and cover for small bottom-dwelling organisms (e.g., crustaceans, amphibians, insects, and small fish), which are critical to the aquatic food chain. Streams that travel through forested buffers provide more habitat for fish by providing better spawning and water quality conditions. When properly connected, forested riparian buffers provide crucial migratory habitat for migratory songbirds, some of which are now threatened due to loss of habitat. As shown in Figure 7 and Table 3, there were approximately 332,000 acres of land under riparian buffers regardless of program from 2002 to 2005.

Figure 7. MRB Acres of Riparian Buffers

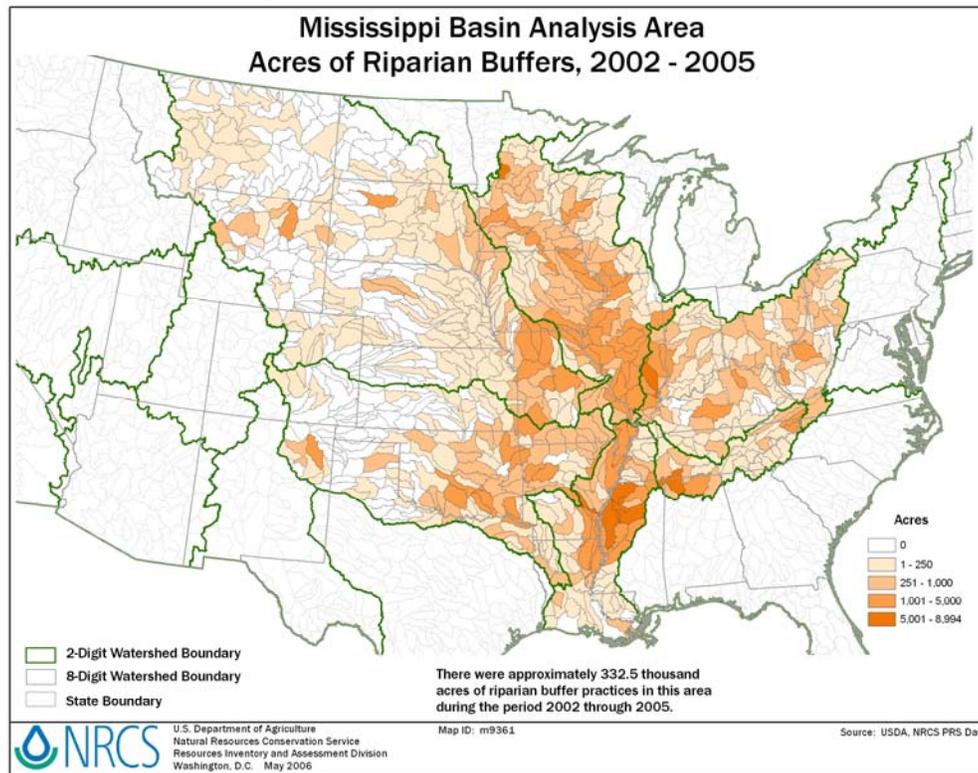


Table 3. Conservation Practices  
Acres for Period 2002 - 2005

<u>2-digit Watershed</u>	<u>Residue Management</u>	<u>Nutrient Management</u>	<u>Riparian Buffers</u>	<u>Wetland Creation, Enhancement, &amp; Restoration</u>
05 (Ohio)	1,480,852	1,488,266	45,984	48,773
06 (Tennessee)	248,704	514,202	16,902	2,468
07 (Upper Mississippi)	3,390,004	1,671,962	99,727	201,522
08 (Lower Mississippi)	750,248	1,423,758	87,380	328,888
10 (Missouri)	3,796,822	2,434,826	35,380	113,594
11 (Arkansas White Red)	2,108,750	2,751,977	47,100	89,764
<b>Total</b>	<b>11,775,380</b>	<b>10,284,991</b>	<b>332,473</b>	<b>785,009</b>

Number and percent of wetland acres restored, enhance, or created

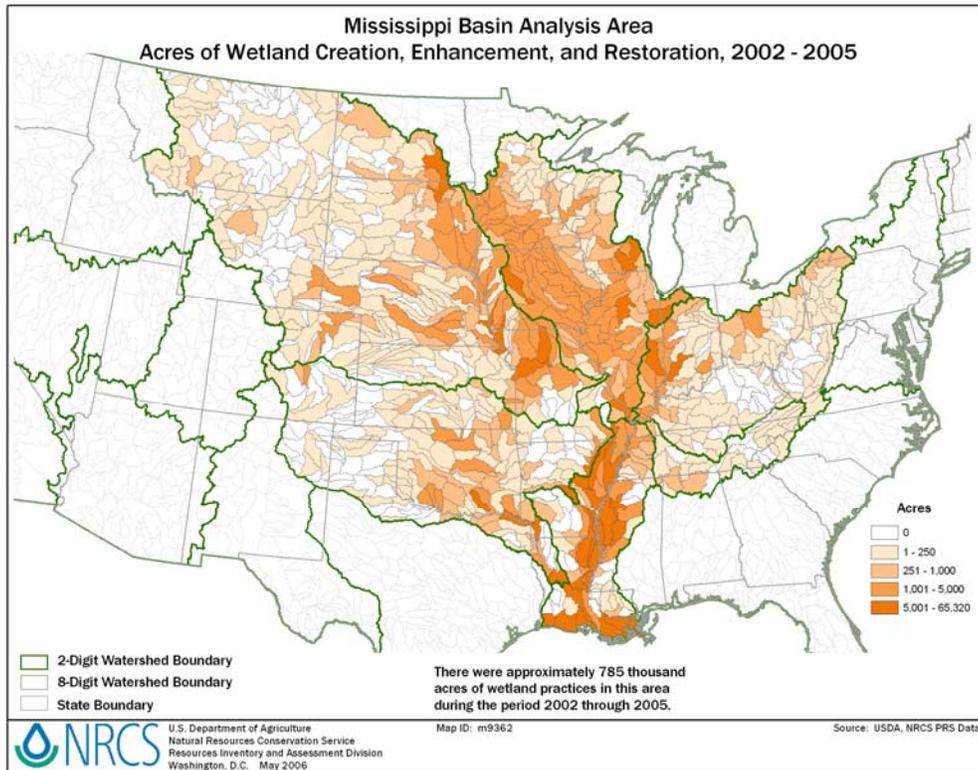
Restoring, creating, or enhancing wetlands plays a critical role in watershed management by protecting and improving water quality, reducing flooding, and providing important fish and wildlife habitat. Wetlands improve water quality by breaking down, removing, or retaining nutrients, organic waste and sediment that is carried into the wetland from runoff of the surrounding watershed. Wetlands reduce the severity of floods downstream

by retaining water and reducing the peaks of flood flows. Some wetlands recharge the aquifer, thus improving both the quality and quantity of groundwater.

Many species of fish and wildlife depend on wetlands for all or parts of their life cycles. More than one-third of the United States' threatened and endangered species live only in wetlands, and nearly half use wetlands at some point in their lives. Most commercial and game fish breed and raise their young in wetlands, and migratory waterfowl use wetlands as resting, feeding, breeding, or nesting grounds for at least part of the year. The high biological productivity of wetlands makes them vital ecosystems not only to the plants and animals that are adapted to them, but to humans as well. Wetlands increase opportunities for bird watching, waterfowl hunting, photography and outdoor education. In addition, wetlands provide economic commodities such as cranberries and timber, and provide spatial amenities to developments.

As shown in the Figure 8 and Table 3 there were 785,000 acres of wetlands creation, enhancement and restoration during 2002-2005 with more than 320,000 acres in the Lower Basin.

Figure 8. MRB Acres of Wetland Creation, Enhancement and Restoration



## 3.2 Action Item No. 10

*By Spring 2003, or on a time frame established by the sub-basin committees, States and Tribes within the Mississippi and Atchafalaya River basin, with support from Federal agencies, will increase assistance to agricultural producers, other landowners, and businesses for the voluntary implementation of best management practices, which are effective in addressing loss of nitrogen to waterbodies, consistent with Action #6.*

### **3.2.1 Farm Bill Programs**

#### Number of Projects/Dollars Directed Through EQIP

The Environmental Quality Incentives Program (EQIP) was reauthorized in the 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 help to assist eligible participants install or implement structural and management practices on eligible agricultural land.

EQIP offers contracts to provide incentive and cost-share payments to implement conservation practices including those described below. National priorities for EQIP for FY 06 include reductions of nonpoint source pollution, such as nutrients, sediment, pesticides, or excess salinity in impaired watersheds consistent with TMDLs where available as well as the reduction of groundwater contamination and reduction of point sources such as contamination from confined animal feeding operations.

As shown in Figures 9, 10 and 11 and Table 4, more than \$1.14 Billion in financial assistance was approved between 2000 and 2005 on 34.9 million acres in the basin.

Figure 9. MRB Cumulative EQIP Enrollment (ac enrolled)

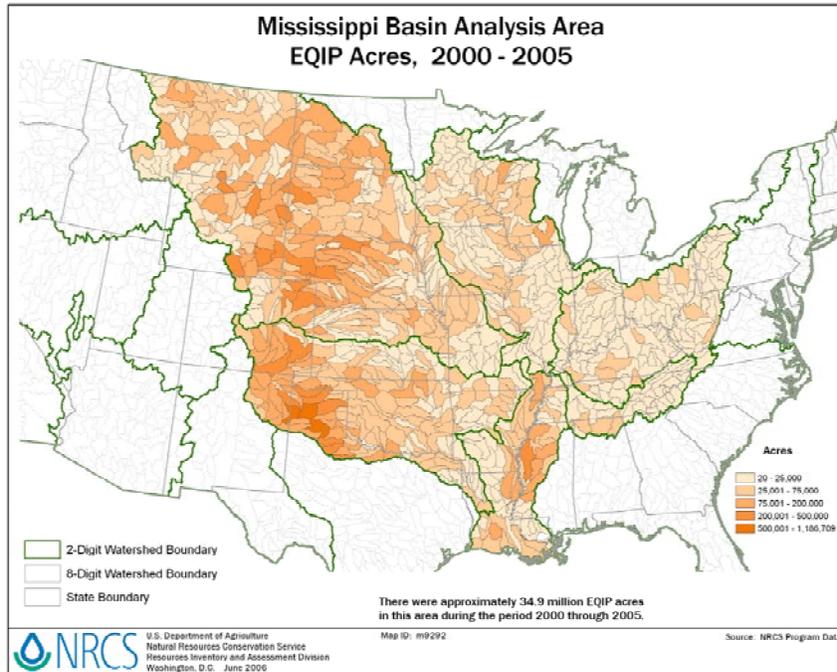


Figure 10. MRB Cumulative EQIP Enrollment (number contracts)

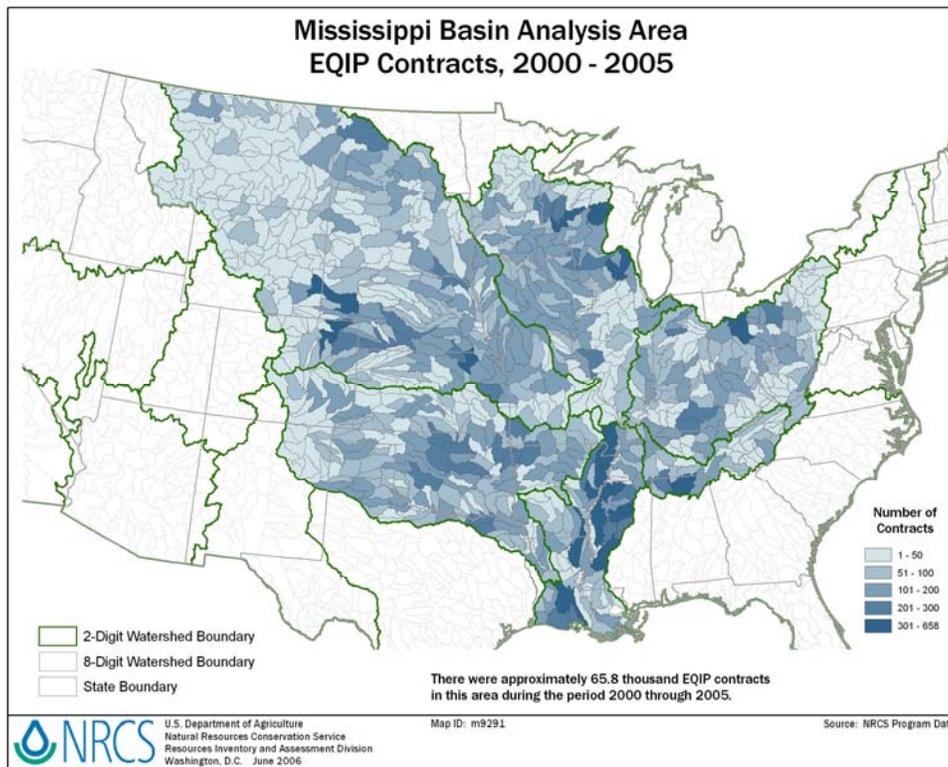


Figure 11. MRB EQIP Financial Assistance

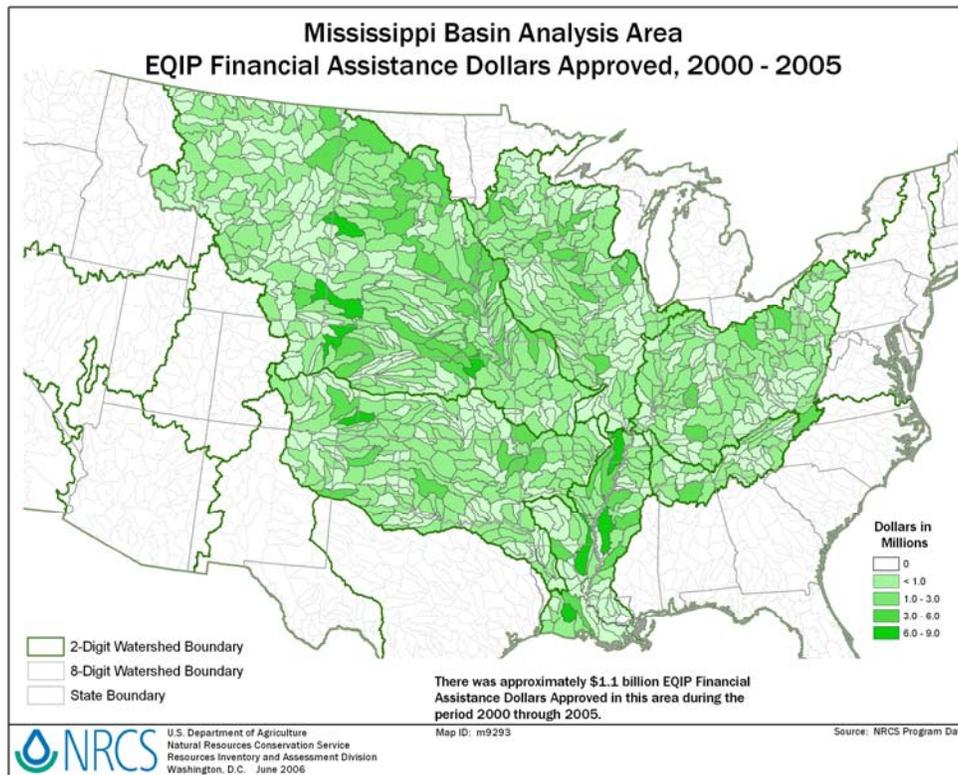


Table 4. Environmental Quality Incentives Program For Period 2000 - 2005			
<u>2-digit Watershed</u>	<u>Contracts</u>	<u>Acres</u>	<u>Financial Assistance Dollars Approved</u>
05 (Ohio)	8,647	1,496,226	\$146,434,051
06 (Tennessee)	2,444	369,749	\$33,547,443
07 (Upper Mississippi)	11,218	2,558,397	\$181,087,909
08 (Lower Mississippi)	10,349	2,720,761	\$118,437,100
10 (Missouri)	18,850	15,074,875	\$432,785,729
11 (Arkansas White Red)	14,364	12,657,804	\$232,102,905
<b>Total</b>	<b>65,872</b>	<b>34,877,812</b>	<b>\$1,144,395,137</b>

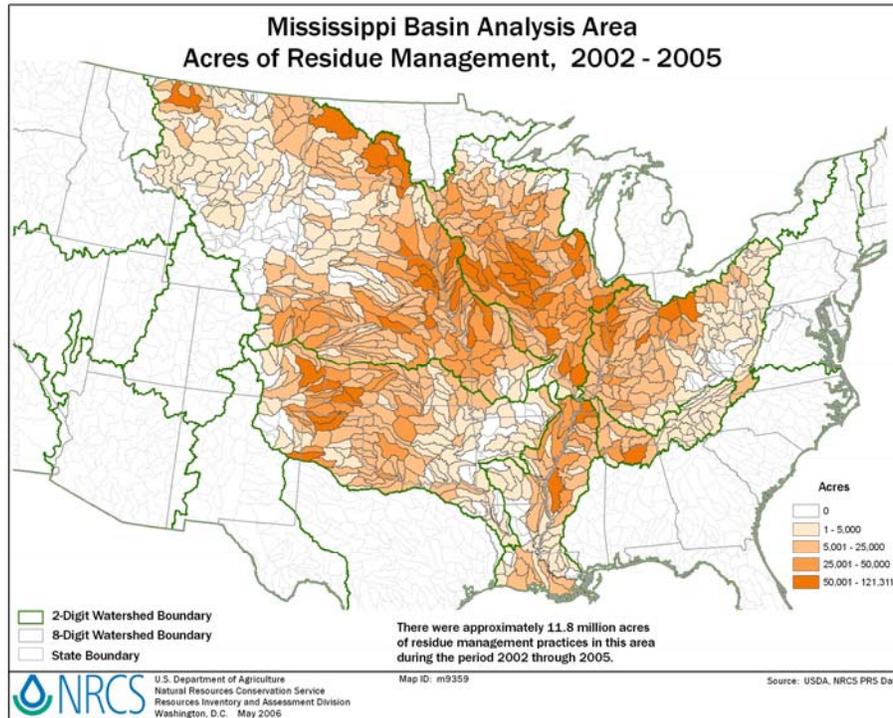
### Acres in Conservation Tillage

Residue management systems include no-till, ridge-till, mulch-till, reduced-till, and other conservation practices that provide sufficient residue cover to help protect the soil surface from wind and water erosion and can help increase plant available moisture. For most soils, the higher the level of crop residue (stems, stalks, and leaves from the previous harvest) left on the surface of a field, the greater the benefits. When combined with other

conservation practices, managing residue can also provide food and cover for wildlife and is part of a conservation management system.

As shown in the Table 3 and Figure 12, there were 11.8 million acres under residue management for the period 2002 -2005.

Figure 12. MRB Acres of Residue Management

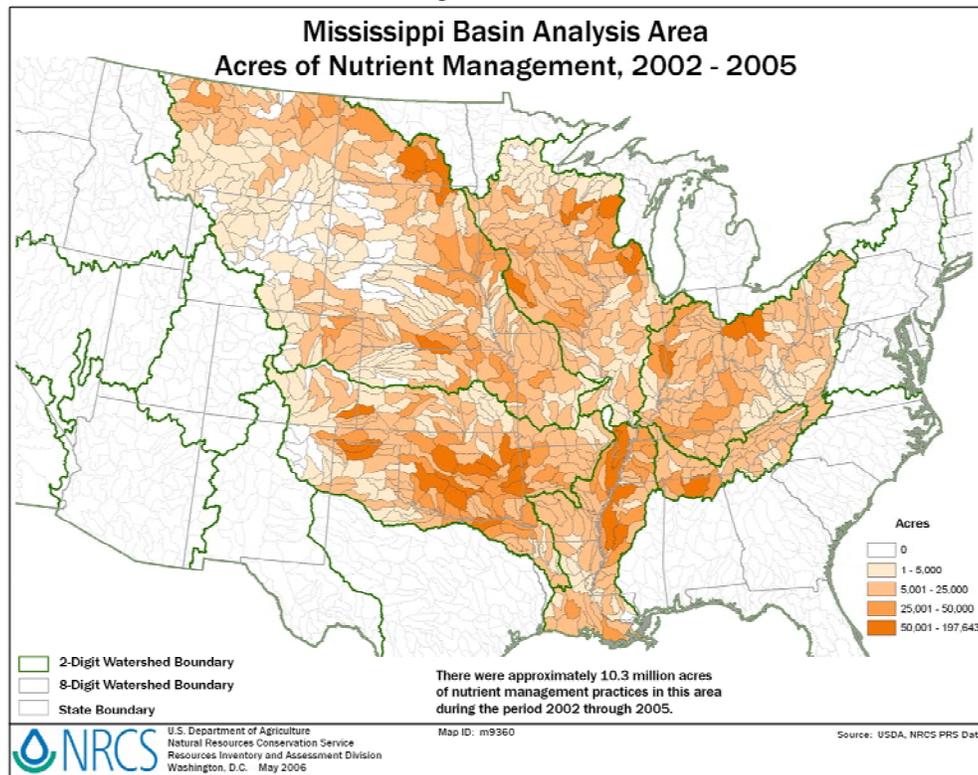


### Producers Implementing Nutrient Management Plans and the Number of Acres Affected

Since revision of the nutrient management policy in 1999, USDA NRCS has been developing conservation practice standards, nutrient management plans, risk assessment tools, and management techniques to assist landowners in their management of crop nutrients. This renewed effort has produced a large number of individual nutrient management plans on producer farms that entail soil and manure analyses, crop nutrient requirements, nutrient budgets, assessment of nutrient loss from the farmer's fields, and conservation measures that mitigate any adverse effects and control nutrient losses. There has been broad cooperation between producer groups, government agencies, land grant universities, and the farmers in implementing these plans.

As shown in the Figure 13 and in Table3, there are approximately 10.3 million acres under nutrient management from 2002-2005 with approximately 50% occurring in the Missouri and Arkansas Red White Basins.

Figure 13. MRB Acres of Nutrient Management



A comprehensive nutrient management plan (CNMP) is the overall conservation system that addresses all aspects of an animal feeding operation. CNMPs are developed in accordance with NRCS conservation planning policy and established conservation practice standards. A CNMP identifies management and conservation actions that will be followed to meet clearly defined soil and water conservation goals, including nutrient management, on an animal feeding operation (AFO).

A CNMP is a conservation plan which groups conservation practices and management activities which, when implemented as part of a conservation system, help to ensure that both production and natural resource protection goals are achieved. CNMPs will contain actions that address water quality criteria for the feedlot, production area, and land on which the manure and organic by-products will be applied. A CNMP addresses natural resource concerns dealing with soil erosion, manure, and organic by-products and their potential impact on water quality.

### 3.2.2 Section 319 of the Clean Water Act

Since 1990, the 319 Program has allocated hundreds of millions of dollars for on-the-ground work to abate nonpoint sources throughout the States. In 2006, \$123,598,117 was spent in Mississippi River Basin States alone. An allocation formula ensures that all

states receive the same percentage of available funds each year. Table 5 depicts the breakdown of 319 funding in Mississippi River Basin States.

Table 5. FY2006 319 Program Funding in Mississippi River Basin States.

State	FY 2006 Funding	State	FY 2006 Funding
NEW YORK	3,326,100	OHIO	6,063,000
MARYLAND	2,662,900	ARKANSAS	3,926,100
PENNSYLVANIA	5,872,000	LOUISIANA	4,856,800
VIRGINIA	3,928,600	NEW MEXICO	2,439,600
WEST VIRGINIA	2,199,600	OKLAHOMA	3,158,200
ALABAMA	3,916,400	TEXAS	9,466,900
GEORGIA	4,665,500	IOWA	4,566,800
KENTUCKY	3,417,300	KANSAS	3,689,000
MISSISSIPPI	3,831,000	MISSOURI	4,614,400
N. CAROLINA	4,643,500	NEBRASKA	3,638,000
S. CAROLINA	3,116,000	COLORADO	2,525,600
TENNESSEE	3,179,400	MONTANA	2,643,100
ILLINOIS	8,217,000	N. DAKOTA	4,821,600
INDIANA	4,478,000	S. DAKOTA	3,267,000
MICHIGAN	5,836,900	WYOMING	1,947,200
MINNESOTA	6,893,400	TOTAL	\$123,598,117

### Summary of Loading Reductions

The States report 319 Program projects and corresponding load reductions through the Grants Reporting Tracking System (GRTS). For this report, all projects funded from 2002 – 2006 in the Mississippi River Basin were summarized by:

- All 319 Projects in the Mississippi River Basin (Figure 14)
- Both Nitrogen and Phosphorus Reduction (Figure 15 and Table 6)
- Only Phosphorus Reduction (Figure 16 and Table 7)
- Only Nitrogen Reduction (Figure 17 and Table 8)

Figure 14. All 319 Projects in the Mississippi River Basin, 2002-2006.

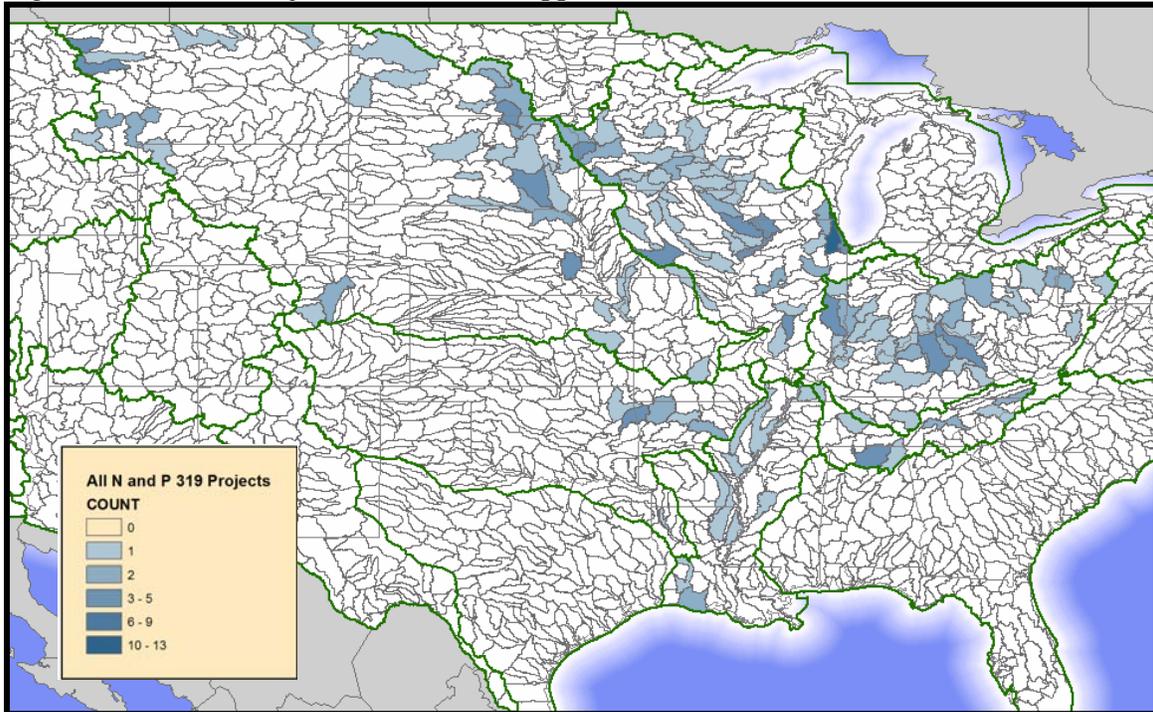


Figure 15. 319 Projects Exploring Both N and P Reductions in the Mississippi River Basin, 2002-2006.

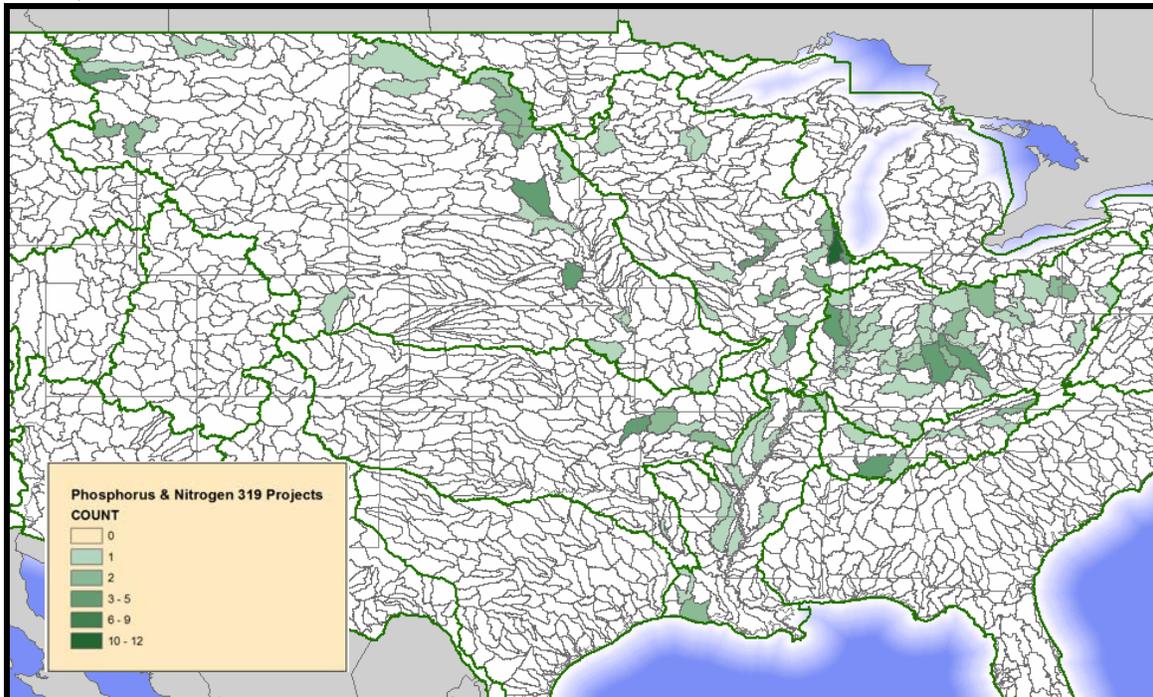


Table 6. 319 Program Projects Exploring Both N and P Reductions By Mississippi River Basin State; 2006 Load Reductions Estimates, and Cumulative Load Reduction Estimates since 2002.

<u>State Name</u>	<u>Pollutant Type Name</u>	<u>Current Year Estimates</u>	<u>Cumulative Estimates</u>	<u>Unit Of Measure</u>	<u>Pollutant Type Name</u>	<u>Current Year Estimates</u>	<u>Cumulative Estimates</u>	<u>Unit Of Measure</u>
Alabama	Nitrogen	529,151	547,031	LBS/YR	Phosphorus	109,994	127,874	LBS/YR
Arkansas	Nitrogen	2,307,705	4,022,149	LBS/YR	Phosphorus	1,952,418	3,966,944	LBS/YR
Colorado	Nitrogen	0	0	LBS/YR	Phosphorus	0	600	LBS/YR
Illinois	Nitrogen	324,179	332,247	LBS/YR	Phosphorus	163,631	168,475	LBS/YR
Indiana	Nitrogen	110,818	141,259	LBS/YR	Phosphorus	49,474	64,687	LBS/YR
Iowa	Nitrogen	0	0	LBS/YR	Phosphorus	0	2,171	LBS/YR
Kansas	Nitrogen	6,739	746,646	LBS/YR	Phosphorus	7,909	525,749	LBS/YR
Kentucky	Nitrogen	17,274	74,152	LBS/YR	Phosphorus	22,893	67,730	LBS/YR
Louisiana	Nitrogen	1,587	1,052,413	LBS/YR	Phosphorus	613	203,013	LBS/YR
Minnesota	Nitrogen	0	0	LBS/YR	Phosphorus	0	0	LBS/YR
Mississippi	Nitrogen	2,071	8,245	LBS/YR	Phosphorus	1,997	12,372	LBS/YR
Missouri	Nitrogen	141,840	155,792	LBS/YR	Phosphorus	29,520	39,888	LBS/YR
Montana	Nitrogen	250,560	277,147	LBS/YR	Phosphorus	100,220	108,078	LBS/YR
Nebraska	Nitrogen	289,000	911,554	LBS/YR	Phosphorus	173,000	439,086	LBS/YR
North Carolina	Nitrogen	2,310,584	2,310,584	LBS/YR	Phosphorus	400,709	400,709	LBS/YR
North Dakota	Nitrogen	1	290,391	LBS/YR	Phosphorus	1	70,538	LBS/YR
Ohio	Nitrogen	561,219	563,106	LBS/YR	Phosphorus	153,750	154,695	LBS/YR
Oklahoma	Nitrogen	10,821	68,661	LBS/YR	Phosphorus	2,984	33,827	LBS/YR
Pennsylvania	Nitrogen	0	57	LBS/YR	Phosphorus	699	809	LBS/YR
South Dakota	Nitrogen	0	31	LBS/YR	Phosphorus	0	7,096	LBS/YR
Tennessee	Nitrogen	5,283,245	6,945,829	LBS/YR	Phosphorus	7,001,977	7,077,252	LBS/YR
Texas	Nitrogen	3,915,005	3,915,005	LBS/YR	Phosphorus	558,631	558,631	LBS/YR
Virginia	Nitrogen	1,311,513	2,656,056	LBS/YR	Phosphorus	244,374	851,876	LBS/YR
West Virginia	Nitrogen	0	6,780	LBS/YR	Phosphorus	0	5,040	LBS/YR
Wisconsin	Nitrogen	56,962	517,788	LBS/YR	Phosphorus	29,107	361,422	LBS/YR

Figure 16. 319 Projects Exploring P Reductions in the Mississippi River Basin, 2002-2006.

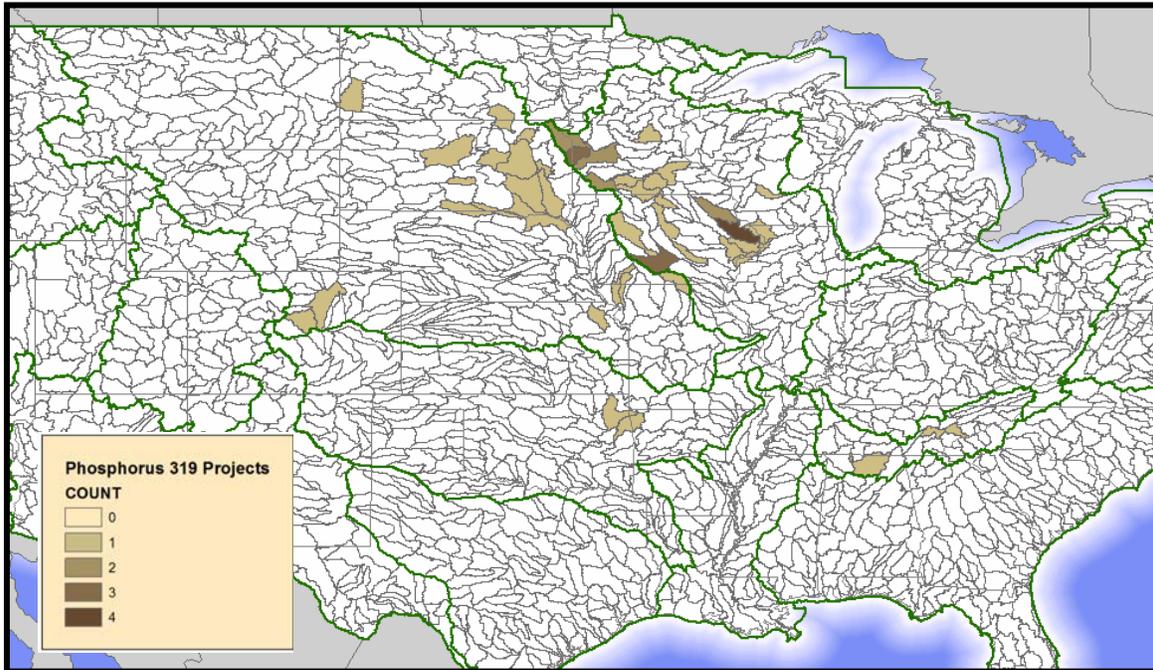


Table 7. 319 Program Projects Exploring P Reductions By Mississippi River Basin State; 2006 Load Reductions Estimates, and Cumulative Load Reduction Estimates since 2002.

State Name	Pollutant Type Name	Current Year Estimates	Cumulative Estimates	Unit Of Measure
Illinois	Nitrogen	1	1	LBS/YR
Iowa	Nitrogen	0	0	LBS/YR
Minnesota	Nitrogen	0	0	LBS/YR
Montana	Nitrogen	0	0	LBS/YR
North Carolina	Nitrogen	2,371,209	2,371,209	LBS/YR
South Dakota	Nitrogen	0	0	LBS/YR
Wisconsin	Nitrogen	28,480	28,480	LBS/YR

Figure 17. 319 Projects Exploring N Reductions in the Mississippi River Basin, 2002-2006.

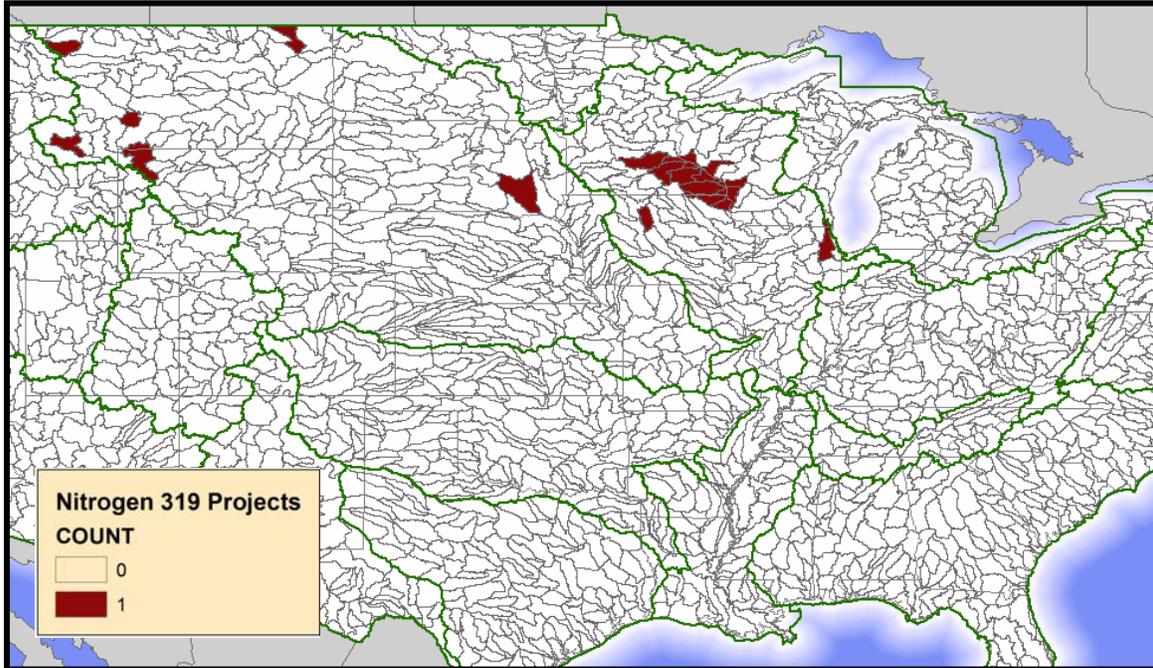


Table 8. 319 Program Projects Exploring N Reductions By Mississippi River Basin State; 2006 Load Reductions Estimates, and Cumulative Load Reduction Estimates since 2002.

State Name	Pollutant Type Name	Current Year Estimates	Cumulative Estimates	Unit Of Measure
Alabama	Phosphorus	0	416	LBS/YR
Colorado	Phosphorus	2,004	2,004	LBS/YR
Iowa	Phosphorus	65,191	66,681	LBS/YR
Kansas	Phosphorus	0	1,569	LBS/YR
Minnesota	Phosphorus	117,205	219,549	LBS/YR
North Dakota	Phosphorus	12	12	LBS/YR
Oklahoma	Phosphorus	0	1,202,864	LBS/YR
South Dakota	Phosphorus	19,466	26,504	LBS/YR
Tennessee	Phosphorus	0	0	LBS/YR
Wisconsin	Phosphorus	14,550	199,725	LBS/YR

### 3.3 Other Programmatic Indicators

#### 3.3.1 Farm Bill Programs

##### Conservation Security Program

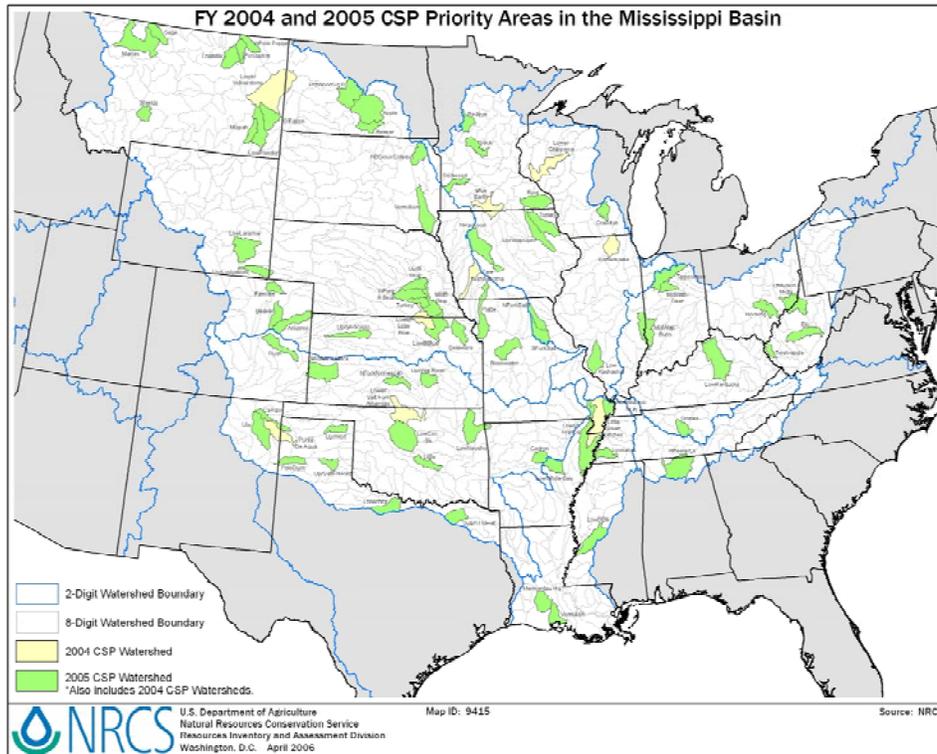
The Conservation Security Program (CSP) is the only working lands conservation program that recognizes and rewards farmers and ranchers for ongoing high levels of environmental stewardship beyond the sustainable level. CSP helps producers maintain and further their conservation commitment and provides a strong incentive for others to follow their example. CSP rewards conservation activities that are integrated with production on working agricultural lands. Though CSP is a program that rewards

existing stewardship, the CSP also offers an enhancement component intended to increase conservation performance above minimum requirements as a result of additional effort by the participant. Enhancement payments could be made to a participant for enhancement activities that exceed the minimum eligibility requirement for the participant's tier of participation.

Minimum conservation treatment levels must be met as part of CSP's eligibility requirement. The CSP emphasizes water quality and soil quality as nationally significant resource concerns because of the potential for significant environmental benefits from conservation treatment that improves their condition.

As shown in Figure 18, during 2004-2005 there were 80 CSP watersheds (8 digit HUC) within the Mississippi Basin with approximately 126,000 farms participating in the program covering 59 million acres.

Figure 18. MRB CSP Priority Areas



### 3.3.2 Partners for Fish and Wildlife Program

Individual projects of the United States Fish and Wildlife Service's Partners for Fish and Wildlife Program create and enhance a variety of fish and wildlife habitats. Although not a primary purpose, many of these projects have ancillary benefits of reducing nutrients entering streams in the Mississippi River watershed.

A total of 5,528 PFW projects with potential nutrient reduction benefits were either completed or projected to be completed during 2001-2006 within the Mississippi River basin (Table 9, Figure 19). These projects established, maintained, enhanced or restored a variety of wetland, river, stream, shoreline and upland habitats throughout the basin. Habitat treatments included: dike or levee construction/improvement; drainage water management; fencing; impoundment construction/repair; mulching; oxbow/swale/pond excavation; planting herbaceous vegetation, trees or shrubs; runoff management, sediment basin establishment; solid waste site cleanup; stream channel stabilization/restoration; streambank stabilization; tile installation or removal; use exclusion/restriction; vegetation buffer establishment; and water control structure installation/modification. Projects improved habitats on approximately 574,000 acres and 800 stream miles in the basin. Direct FWS expenditures on these projects totaled approximately \$12,500,000. These funds were leveraged with an estimated \$307,000 in FWS in-kind services and approximately \$52,193,000 of funding and in-kind contributions from partners for a total cost of almost \$65,000,000 (Table 9). Projects were implemented in all six Mississippi River sub-basins (Figures 20-25). Projects in the Missouri and Upper Mississippi River basins accounted for approximately 71% of the basin total.

Table 9. PFW projects with potential nutrient reduction benefits

<u>Sub-basin</u>	<u>Projects</u>	<u>Acres</u>	<u>Stream Miles</u>	<u>FWS Cost</u>	<u>Project Cost</u>
Arkansas-Red-White	557	135,987	155	2,377,542	8,589,757
Lower Mississippi	279	25,304	32	1,489,355	4,265,626
Missouri	1,970	352,022	324	4,335,511	25,908,254
Ohio	667	6,111	171	648,689	3,808,716
Tennessee	87	945	39	558,151	1,439,766
Upper Mississippi	1,968	53,562	93	3,131,098	20,952,590
Total	5,528	573,931	814	12,540,346	64,964,709

Figure 19. All Mississippi Basin Sites

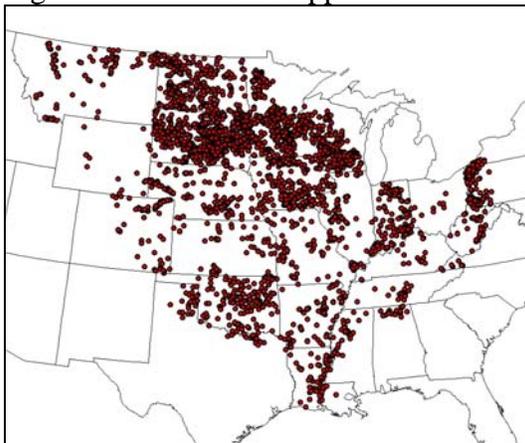


Figure 20. Arkansas Red-White Basin Sites

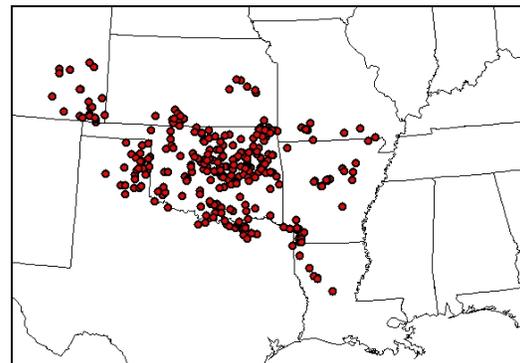


Figure 21. Lower Mississippi Basin Sites

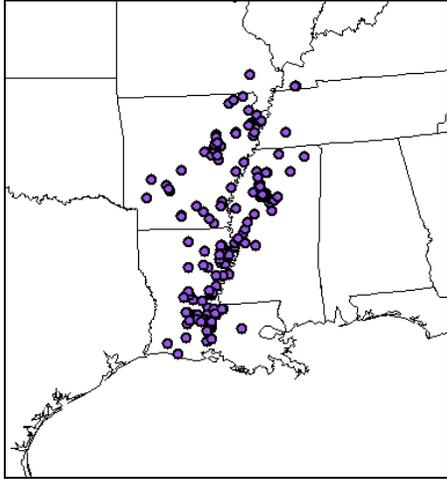


Figure 24. Tennessee Basin Sites

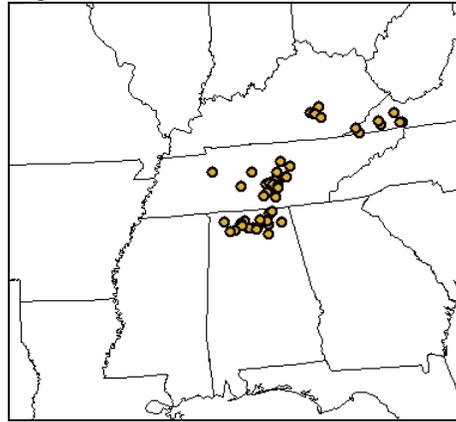


Figure 22. Missouri Basin Sites

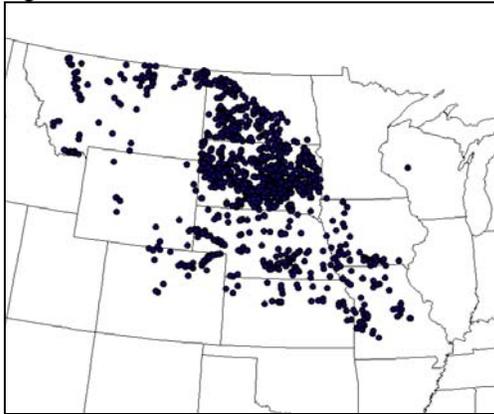


Figure 25. Upper Mississippi Basin Sites

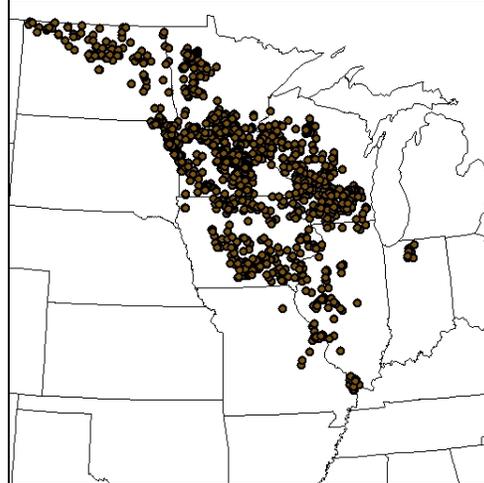
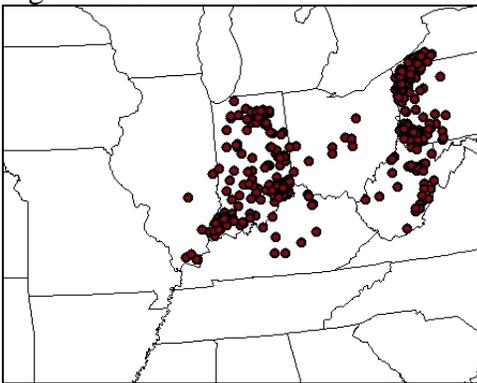


Figure 23. Ohio Basin Sites



### 3.3.3 National Pollutant Discharge Elimination System

An inventory of permitted facilities to identify the nutrient mass load from these facilities in the Mississippi River Basin was conducted for relevant nutrient-related parameters:

- Total Nitrogen
- Total Phosphorus
- Biological Oxygen Demand

Please see the Point Source Nutrient Mass Loadings to the Mississippi River Basin Report for this reassessment of permitted facilities.

### 3.3.4 Combined Sewer Overflows and Sanitary Sewer Overflows

EPA's 2004 *Clean Watersheds Needs Survey Report to Congress* (CWNS) reported 475 municipal SSSs providing wastewater collection, conveyance, and treatment are presently operating within 126 watersheds in the MRB, and not all of these hold NPDES permits. If not properly maintained, satellite systems have the potential to have an SSO or to cause an SSO in downsewer systems. The sum of total CSO related needs in MRB is approximately \$31.2 million. The CWNS also reports that 451 of these facilities, in 106 watersheds, have Combined sewer overflow correction needs (Category V) Category V needs, and the sum of total CSO Category V needs in MRB is approximately \$23.3 million. Table 10 below shows the MRB CSO summary information from the 2004 CWNS by Sub-basin. The distribution of CSOs throughout the MRB is shown in Figure 26 and Table 11. The CWNS includes known SSOs in the CSO count.

Table 10. MRB Sub-basin CSO summary information from the 2004CWNS.

MRB Sub-basin	Count of facilities	Cat. V Needs	Total Needs	Present Resident Population Receiving Collection*
Ohio	293	\$9,794,080	\$ 13,876,547	6,874,323
Tennessee	1	-	\$ 11,316	243,243
Upper Mississippi	167	\$11,797,930	\$ 15,186,290	8,070,683
Lower Mississippi	-	-	-	-
Missouri	12	\$1,706,148	\$ 2,162,229	935,026
Arkansas-Red-White	2	-	-	1,730
	475	\$23,298,158	\$ 31,236,382	16,125,005

\* Population is for combined AND separate sewers because there is no way to separate them in CWNS

Figure 26. Distribution of CSOs in the MRB, based upon the 2004 CWNS.

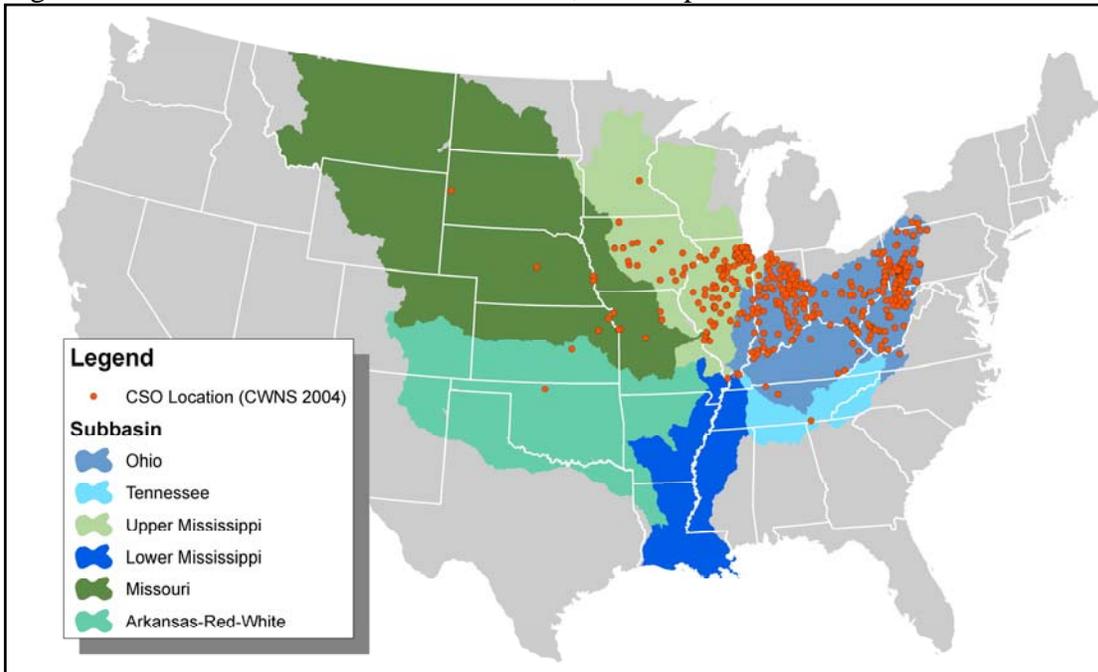


Table 11. Distribution of CSOs throughout the MRB by state.

State	Number CSOs	State	Number CSOs	State	Number CSOs
IA	19	MO	8	PA	87
IL	141	NE	3	SD	1
IN	94	NY	2	TN	3
KS	4	OH	42	VA	1
KY	15	OK	1	WV	53
MN	1				
Total: 475					

## 4. Acronyms and Abbreviations

319 Program	319 Nonpoint Source Management Program
AFO	Animal feeding operation
CNMP	Comprehensive nutrient management plan
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CSO	Combined Sewer Overflow
CSP	Conservation Security Program
CSS	Combined Sewer Systems
CWNS	Clean Watersheds Needs Survey Report to Congress
EPA	United States Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
Farm Bill	Farm Security and Rural Investment Act of 2002
FWS	United States Fish and Wildlife Service
GRTS	Grants Reporting Tracking System
MART	Management Action Reassessment Team
MRB	Mississippi River Basin
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
NRCS	USDA Natural Resources Conservation Service
NWR	National Wildlife Refuge
PFW	Partners for Fish and Wildlife Program
POTW	Publicly-Owned Treatment Works
SSO	Sanitary Sewer Overflow
SSS	Sanitary Sewer Systems
Task Force	Mississippi River/Gulf of Mexico Watershed Nutrient Task Force
USDA	United States Department of Agriculture
WRP	Wetland Reserve Program