The Missouri
Nonpoint Source Management Program
Annual Report
For Federal Fiscal Year 2009

MISSOURI
DEPARTMENT
OF NATURAL
RESOURCES

Prepared by the Missouri Department of Natural Resources
Division of Environmental Quality
Water Protection Program, Watershed Protection Section, Nonpoint Source Unit

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Nonpoint source pollution occurs when water runs over land or through the ground, picks up natural or human-made pollutants, and deposits them in surface waters or ground water. Fulfilling the water quality protection mission of the Missouri Nonpoint Source Management Program can be accomplished only with the cooperation of other resource agencies and the citizens of the state. As administrator of the program, the Missouri Department of Natural Resources (the Department) and its partners continue to make significant progress in the protection of water, as well as air and land resources.

This document reports the impacts being made by the Department and its partners in the control and abatement of nonpoint source pollution through the 319-grant program and collaborative efforts in the State of Missouri during the Federal Fiscal Year 2009 (October 2008 through September 30, 2009).

I. Missouri's Nonpoint Source Management Program

A. Mission Statement

The mission of Missouri's Nonpoint Source Management Program (the program) is to preserve and protect the quality of the water resources of the state from nonpoint source impairments.

Goal A: Water Quality Assessment, Monitoring and Prioritization
Continue and enhance statewide water quality assessment processes to evaluate water quality and prioritize watersheds affected by nonpoint source (NPS) pollution.

Goal B: Water Quality Improvement and Protection
Improve water quality by implementing NPS-related projects and other activities.

Goal C: **State Nonpoint Source Program Management**
Maintain a viable, relevant, and effective program with the flexibility necessary to meet changing environmental conditions and regulations.

B. Elements of an Effective State Program

The Missouri Nonpoint Source Management Plan (NPSMP), initially approved and implemented in June 2000, is a five-year plan that contains broad goals intended to identify the general activities necessary to achieve the program's mission statement: Preserve and protect the quality of the water resources of the state from NPS impairments. Objectives reflect the five-year life of the NPSMP, with most of them being targeted for completion in five years or less. Specific sections of the NPSMP were updated, according to a prescribed schedule, in 2001-2005. Currently, the mission, goals, and objectives are being reevaluated to determine if the objectives were achieved, if the objectives were appropriate for reaching the goals, and if the goals are appropriate for achieving the mission. After the review, an update of the NPSMP will be completed. The NPSMP may be found at http://www.dnr.mo.gov/env/wpp/nps/mgmtplan/index.html.

C. Missouri's Nine Key Elements

In 1996, a committee of state and U.S. Environmental Protection Agency (EPA) Region 7 representatives developed a list of items considered to be essential components of a state program. These components were embodied in EPA guidance commonly referred to as Nine Key Elements of an Effective State Program. The following elements provide the framework for Missouri's NPSMP. Missouri's approach to the nine key elements is outlined beginning on page 19 in the NPSMP: http://www.dnr.mo.gov/env/wpp/nps/mgmtplan/index.html. To determine the progress, specifically the successes, of the program, the Department must continually endeavor to satisfy the intent of these nine key elements.

1. The state program contains explicit short and long-term goals, objectives, and strategies to protect surface and ground water.
2. The state strengthens its working partnerships and linkages to appropriate state, interstate, tribal, regional and local entities (including conservation districts), private sector groups, citizen groups, and federal agencies.
3. The state uses a balanced approach that emphasizes both statewide programs and on-the-ground management of individual watersheds where waters are impaired or threatened.
4. The state program (a) abates known water quality impairments from NPS pollution and (b) prevents significant threats to water quality from present and future NPS activities.
5. The state program identifies waters and their watersheds impaired by NPS pollution and identifies important unimpaired waters that are threatened or otherwise at risk. Further, the state establishes a process to progressively address these identified waters by conducting more detailed watershed assessments and developing watershed implementation or management plans, and then implementing the plans.

6. The state reviews, upgrades, and implements all program components required by section 319(b) of the Clean Water Act, and establishes flexible, targeted, and iterative approaches to achieve and maintain beneficial uses of water as expeditiously as practicable. The state programs include:
    - A mix of water quality-based and/or technology-based programs designed to achieve and maintain beneficial uses of water; and
    - A mix of regulatory, non-regulatory, financial, and technical assistance as needed to achieve and maintain beneficial uses of water as expeditiously as practicable.
7. The state identifies federal lands and activities, which are not managed consistently with state program objectives. Where appropriate, the state seeks EPA assistance to help resolve issues.
8. The state manages and implements its program efficiently and effectively, including necessary financial management.
9. The state periodically reviews and evaluates its program using environmental and functional measures of success and revises its NPS assessment and its program at least every five years.

D. State Program Challenges

This annual report focuses on goals of the NPSMP, which outlines the challenges that Missouri faces with NPS pollution. The report will also illustrate progress that has been made toward addressing the following challenges:

1. 303(d) listed waters;
2. Water Quality Standards;
3. Total Maximum Daily Loads (TMDLs); and
4. Watershed Management Planning.

The program challenges listed above are assessed at the 8-digit hydrologic unit code (HUC) level. Identifying challenges by watershed will help to identify areas of the state where progress is being made toward reducing NPS pollution in watersheds, and will also identify areas where watershed protection and restoration efforts might be lacking.

In general, one of the greater challenges is data sharing among agencies and other partners. Of primary interest to the NPS Program are dollars, acres, and activities being provided at a watershed scale. Since various partners do not have the same goals or needs as the NPS Program, data is collected and stored in incompatible formats. For example: type of information needed, title or data category, and units of measure are often incompatible and therefore difficult to translate, evaluate and incorporate at the larger scale. Ideally the NPS Program would like to track all partner efforts in terms of dollars, best management practices (BMPs), other restorative efforts, and the number of projects at a watershed level. Such information would assist targeting efforts and help troubleshoot various efforts and processes.

Program activity measures (PAMs) for NPS pollution, as established by EPA, are identified in the summary charts provided in Section II and in discussion of individual watersheds in Section III of this report. PAMs include watershed-based plans designed to remediate impaired waters (with or without TMDLs), and which include protective actions for the watersheds. These plans are those that address EPA's nine critical elements of watershed planning, as provided in EPA's 2004 guidance. Plans will be listed in each 8–digit HUC that are being developed, being implemented, and those that have been substantially completed.

II. 319 Nonpoint Source Grant Program Overview

A. Missouri Section 319(h) Nonpoint Source Management Grants

NPS grant funds are provided from EPA through Section 319(h) of the Clean Water Act. Funds are used to address nonpoint sources of pollution and are administered from EPA through the Department to eligible sponsors. Funds can be used to address NPS pollution through information/education, water quality monitoring, demonstrations, and implementation of practices that preserve, conserve, restore, or improve water quality. Eligible sponsors include state and local agencies, educational institutions, and non-profit organizations. Each year a request for proposals (RFP) is distributed describing the grant opportunity.

B. Priorities and Project Selection Process

Selection for 319 funding emphasizes projects that restore the quality of waters on the state's 303(d) list due to nonpoint sources. However, other high quality NPS projects are encouraged. Highest priority for funding is assigned to projects addressing agricultural, urban, and abandoned coal mine land. Priorities that help guide the selection process are established in the NPSMP.

To confront these priorities, three types of subgrants are offered: major subgrants, minigrants, and watershed planning subgrants.

Major subgrants are awarded through an annual RFP. The RFP is sent to entities on a mailing list, sent electronically to members of the Water Quality Coordinating Committee, advertised on the Department's Web site, provided to all Soil and Water Conservation Districts and NRCS offices, and distributed at various conferences, meetings, and events. The availability is announced in Departmental newsletters, by our resource partners, and via press release. Applicant pre-proposals are submitted and reviewed by staff, while final ranking is performed by an interagency review committee.

A combined RFP for grant years 2008-2009 was announced in August 2009. Non-agricultural projects were encouraged because more state cost-share funds than usual were made available to traditional agricultural nonpoint source projects. Watersheds were prioritized based upon several criteria including: 303(d) listing, presence of a TMDL or

Watershed Plan, priority of partnering agencies, existing remedial efforts, and probability of success.

Final applications for subgrants are evaluated, and the applicants interviewed by an interagency review committee. The proposed projects are ranked by the review committee, submitted to the Department and Missouri Clean Water Commission for concurrence, and submitted to EPA for approval.

Minigrant applications were not accepted in federal fiscal year 2009 (FFY09) though the minigrant program will resume in FFY 2010. These projects awards are $10,000 or less, last up to 24 months, and are selected triannually. Applications are reviewed, prioritized, and rated by an in-house review committee. Selected projects are recommended for funding.

Watershed Management Planning Subgrants are available for producing nine-element watershed plans in watersheds with 303(d) listed NPS impairments. Up to $15,000 may be awarded for projects lasting up to 24 months. The focus of this program is to produce a watershed management plan that incorporates EPA's nine critical elements. Applications for these funds are reviewed quarterly.

C. Measuring Benefits of the Section 319(h) Nonpoint Source Management Grant Program

In 2009, NPS 319 grants have accomplished significant results in the control and mitigation of NPS pollution in the State of Missouri. By focusing funding on water quality information and education, innovative pollution prevention practices, and remediation of existing water quality problems, 319 grant funding has proven to be a valuable resource to the citizens of Missouri.

Water bodies achieve water quality standards through education and action through management practices. The 319 NPS Management Grant Program strives to provide Missouri citizens with choices, tools, and decision-making skills that will benefit water quality through education in the use and protection of natural resources and through implementation of BMPs. BMPs are used to control the production or delivery of pollutants from agricultural, mining, and urban activities to water resources, and to prevent impacts to the physical and biological integrity of surface and ground water. BMPs can be either structural or managerial.

Structural BMPs include physical structures or materials that are used to protect water quality and slow water velocities to prevent soil erosion. Some examples are animal waste facilities, sediment basins, silt fences, check dams, water diversions, and grade stabilization.

Managerial BMPs address how projects are implemented, primarily the method of carrying out a project. Examples of managerial BMPs include nutrient and pest management, rotational grazing, conservation tillage, street sweeping, use of native plants, and practices that minimize or prevent soil erosion. It can be difficult to quantify the benefits of

managerial BMPs because they are often represented by philosophical changes among land managers.

BMPs promote sustainability and may be reproduced to achieve comparable results in other locations. Some BMPs are founded in research that identifies potential for measured reductions in pollution that will be achieved through use of the practice.

One of the broad goals described in the state's NPSMP, Goal B, specifies that the state will "Improve water quality by implementing NPS-related projects and other activities." Water quality benefits are often difficult to quantify and BMP implementation can take a considerable period of time before improvements to water quality can be measured. In Section III, the Department has estimated the number of BMPs implemented as a direct result of 319 NPS grants for 2009. Load reductions data collection is not all-inclusive, as not all projects are required to report, but it does indicate that the 319 NPS Program is having a significant, positive impact on the state's water quality.

Projects activity summary: The Department administered and managed 71 Section 319 NPS grant projects during FFY09. Among those 71, the Department initiated 16 new 319 NPS projects. Twenty-one subgrant projects were completed in FFY09. In FFY09, four Watershed Management Planning Grant applications were submitted and recommended for funding. Approximately 23 projects have helped to implement TMDLs since 2004.

Six water bodies met water quality standards and were removed from the 2008 303(d) list of impaired waters:

1. Buffalo Ditch (Kennett WWTP) for ammonia;
2. Dutro Carter Creek (Rolla SE WWTP) ammonia;
3. E. Fork Locust Creek (Milan WWTP and potentially NPSs) low dissolved oxygen;
4. Tributary to Saline Cr. (Madison mine) for nickel;
5. Walt Disney Lake (stormwater discharges from Hutchinson Salt Co.) for chloride; and
6. W. Fork Locust Creek - pollutant unknown, rated as unimpaired based on biomonitoring that shows normal aquatic invertebrate community.

Currently, Missouri's Nonpoint Source Management Plan uses the 1998 303(d) list as a base for which to measure progress. Missouri believes that 104 impairments identified in the list now meet state water quality standards, or approximately 49%. Approximately 82 water bodies identified on that list have restored or partially restored water quality. Restoration was achieved through the various processes including permits, compliance, education, and changing management practices. Below is a list of 1998 303(d) water body-pollutant pairs that now meet standards.

Figure 1: Water Body/Pollutant Pairs on 1998 Missouri 303(d) Returned to Compliance with WQ Standards by Jan. 2010.

WBID	Water Body Name	Pollutant	Source	Size	Units	County	Comments
1224	Big Otter Cr.	pH	AML	1	Mi.	Henry/St. Clair	Much data since 1998. WQS now met.
859	Brushy Cr.	BOD	Sedalia Central WWTP	1	Mi.	Pettis	Data since 1998. WQS now met.
859	Brushy Cr.	NFR	Sedalia Central WWTP	1	Mi.	Pettis	Data since 1998. WQS now met.
859	Brushy Cr.	Ammonia	Sedalia Central WWTP	1	Mi.	Pettis	Data since 1998. WQS now met.
3269	Buffalo Cr.	Nutrients	CAFOs	8	Mi.	Newton/McDonald	Nutrient levels have not declined, but no longer listed in absence of WQS for nutrients
3273	Buffalo Cr.	Nutrients	CAFOs	1.7	Mi.	Newton	Nutrient levels have not declined, but no longer listed in absence of WQS for nutrients
709	Bynum Cr.	Sediment	Limestone Quarry	0.3	Mi.	Callaway	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
103	Salt R. Re-reg Pool	Iron	Cannon Dam	10	Mi.	Ralls	Secondary DW Standard removed from state WQ Standards
103	Salt R. Re-reg Pool	Manganese	Cannon Dam	10	Mi.	Ralls	Secondary DW Standard removed from state WQ Standards
737	Cedar Cr.	Sulfate	AML	4	Mi.	Callaway/Boone	Data since 1998. WQS now met. Biomonitoring still indicates some concerns.
737	Cedar Cr.	pH	AML	1	Mi.	Callaway/Boone	Data since 1998. WQS now met. Biomonitoring still indicates some concerns.
3238	Clear Cr.	BOD	Monett WWTP	1	Mi.	Newton	Data since 1998. WWTP now meets BOD,NFR, Ammonia limits
3238	Clear Cr.	NFR	Monett WWTP	1	Mi.	Newton	Data since 1998. WWTP now meets BOD,NFR, Ammonia limits
3238	Clear Cr.	Ammonia	Monett WWTP	1	Mi.	Newton	Data since 1998. WWTP now meets BOD,NFR, Ammonia limits
3239	Clear Cr.	BOD	Monett WWTP	2	Mi.	Newton	Data since 1998. WWTP now meets BOD,NFR, Ammonia limits
3239	Clear Cr.	NFR	Monett WWTP	2	Mi.	Newton	Data since 1998. WWTP now meets BOD,NFR, Ammonia limits
3239	Clear Cr.	Ammonia	Monett WWTP	2	Mi.	Newton	Data since 1998. WWTP now meets BOD,NFR, Ammonia limits
690	Dark Cr.	Sulfate	AML	8	Mi.	Randolph	Data since 1998. WQS now met.
912	Davis Cr.	Low DO	Odessa SE WWTP	2	Mi.	Lafayette	New WWTP since 1998. Data since 1998 shows WQS now met.
2604	Eleven Point R.	Chlorine	Willow Springs WWTP	0.4	Mi.	Oregon	Improved disinfection at WWTP. Data since 1998 shows WQS now met.
3246	Elk R.	Nutrients	CAFOs	21.5	Mi.	McDonald	Nutrient levels have not declined, but no longer listed in absence of WQS for nutrients
2860	Goose Cr.	Nickel	Madison Mine	0.5	Mi.	Madison	Mine discharged eliminated. Data since 1998 shows WQS now met.
1251	Honey Cr.	Sulfate	AML	3	Mi.	Henry	Data since 1998. WQS now met.
2582	Howell Cr.	Chlorine	West Plains WWTP	0.3	Mi.	Oregon	Data since 1998. WQS now met.
3259	S. Indian Cr.	Nutrients	CAFOs	9	Mi.	Newton	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
3260	N. Indian Cr.	Nutrients	CAFOs	5	Mi.	Newton	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
2347	James R.	Nutrients	Multiple Pt/NPS	29.4	Mi.	Stone	Nutrient levels have declined due to point source controls. No numeric criteria in WQS.
2362	James R.	Nutrients	Multiple Pt/NPS	23.5	Mi.	Stone/Greene	Nutrient levels have declined due to point source controls. No numeric criteria in WQS.
2365	James R.	Nutrients	Primarily NPS	2	Mi.	Greene	Nutrient levels have not declined, but no longer listed in absence of WQS for nutrients

WBID	Water Body Name	Pollutant	Source	Size	Units	County	Comments
1016	Kelley Br.	Habitat Loss	ORV Use	1	Mi.	Boone	Finger Lakes SP initiated changes to protect stream. Visual survey indicates improvement.
535	Long Cr.	Sediment	Limestone Quarry	0.2	Mi.	Caldwell	Data since 1998. WQS now met.
942	N. Moreau Cr.	NFR	California S. WWTP	10	Mi.	Cole	Lagoon replaced w/mechanical WWTP since 1998. Effluent is low in NFR.
1300	Mound Br.	Ammonia	Butler WWTP	1	Mi.	Bates	Data since 1998. WQS now met.
855	Muddy Cr.	BOD	Sedalia Central WWTP	33	Mi.	Pettis	Data since 1998. WQS now met. This portion of stream is now part of WBID 853.
1305	Mulberry Cr.	Sulfate	Reclaimed mined land	8	Mi.	Bates	Data since 1998. WQS now met.
3268	Patterson Cr.	Nutrients	CAFOs	2	Mi.	McDonald	No numeric WQS for nutrients. Insufficient data to determine WQ time trend.
1714	Rock Cr.	BOD	2 WWTPs	2	Mi.	Jefferson	2 WWTPs eliminated. WQS now met.
1714	Rock Cr.	Ammonia	2 WWTPs	2	Mi.	Jefferson	2 WWTPs eliminated. WQS now met.
1014	Rocky Fk.	Sediment	ORV Use	0.5	Mi.	Boone	Visual surveys since 1998 indicate WQS now met.
278	Rush Cr.	BOD	Platte Co. SD WWTP	4	Mi.	Platte	WWTP eliminated since 1998. Subsequent visual survey indicates WQS met.
2190	Saline Cr.	Ammonia	2 WWTPs	2	Mi.	Jefferson	2 WWTPs eliminated. Data since 1998 shows WQS now met.
91	Salt R.	Iron	Cannon Dam	29	Mi.	Ralls	Secondary DW Standard removed from state WQ Standards
91	Salt R.	Manganese	Cannon Dam	29	Mi.	Ralls	Secondary DW Standard removed from state WQ Standards
3249	L. Sugar Cr.	Nutrients	CAFOs	11	Mi.	McDonald	Nutrient levels have not declined, but no longer listed in absence of WQS for nutrients
3250	B. Sugar Cr.	Nutrients	CAFOs	35	Mi.	Barry/McDonald	Nutrient levels have not declined, but no longer listed in absence of WQS for nutrients
1282	E. Fk. Tebo Cr.	pH	AML	1	Mi.	Henry	Data since 1998. WQS now met.
1292	W. Fk. Tebo Cr.	Sulfate	AML	7	Mi.	Henry	Data since 1998. WQS now met.
2850	Trace Cr.	pH	Sawmill	4.7	Mi.	Madison	Sawdust management improved, leachate eliminated. 0.8 mi. still impaired by natural conditions
1211	Trib. Barkers Cr.	pH	AML	0.3	Mi.	Henry	Erroneously assigned to WBID 1211, is actually on unclassified trib. Trib. Still impaired.
1505	Whetstone Cr.	BOD	2 Mtn Grove WWTPs	2	Mi.	Wright	1 WWTP upgraded. Data since 1998 indicates WQS now met.
1719	Cameron Lake #3	Atrazine	Row crop farming	96	Ac.	DeKalb	Data since 1998. WQS now met.
7120	Cameron Lake #1	Atrazine	Row crop farming	25	Ac.	DeKalb	Data since 1998. WQS now met.
7121	Cameron Lake #2	Atrazine	Row crop farming	35	Ac.	DeKalb	Data since 1998. WQS now met.
7237	Fellows Lake	Algae	Ag/Urban NPS	820	Ac.	Greene	Only one episode of taste/odor complaints in last 20 years
7124	Hamilton Lake	Cyanazine	Row crop farming	80	Ac.	Caldwell	Cyanazine banned from all uses in 2001. WQ monitoring state-wide shows no occurrence.
7190	Higginsville Lake	Atrazine	Row crop farming	223	Ac.	Lafayette	Data since 1998. WQS now met.
7022	LaBelle Lake #1	Atrazine	Row crop farming	17	Ac.	Lewis	Data since 1998. WQS now met.
7023	LaBelle Lake #2	Atrazine	Row crop farming	112	Ac.	Lewis	Data since 1998. WQS now met.
7033	Mark Twain Lake	Atrazine	Row crop farming	18600	Ac.	Monroe	Data since 1998. WQS now met.
7031	Monroe City Rt. J Lake	Atrazine	Row crop farming	94	Ac.	Monroe	Data since 1998. WQS now met.
7031	Monroe City Rt. J Lake	Cyanazine	Row crop farming	94	Ac.	Monroe	Cyanazine banned from all uses in 2001. WQ monitoring state-wide shows no occurrence.
7077	Smithville Lake	Atrazine	Row crop farming	7190	Ac.	Clay	Data since 1998. WQS now met.
7205	Truman Lake	Manganese	Natural	10000	Ac.	Henry	Levels have not declined. Secondary DW Standard removed from state WQ Standards

WBID	Water Body Name	Pollutant	Source	Size	Units	County	Comments
7032	Vandalia Lake	Atrazine	Row crop farming	37	Ac.	Audrain	Data since 1998. WQS now met.
1250	Big Cr.	Sediment	Ag. NPS	49	Mi.	Johnson	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
449	W. Fk. Big Cr.	Sediment	Ag. NPS	18	Mi.	Harrison	EPA approved de-listing based on "reference stream" status*
436	Big Muddy Cr.	Sediment	Ag. NPS	8	Mi.	Daviess	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
653	Blackbird Cr.	Sediment	Ag. NPS	6	Mi.	Adair	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
921	S. Fk. Blackwater R.	Sediment	Ag. NPS	5	Mi.	Johnson	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
1336	Clear Cr.	Sediment	Ag. NPS	18	Mi.	Vernon	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
372	E. Fk. Crooked Cr.	Sediment	Ag. NPS	14	Mi.	Ray	EPA approved de-listing based on "reference stream" status*
865	Flat Cr.	Sediment	Ag. NPS	20	Mi.	Pettis	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
502	Grindstone Cr.	Sediment	Ag. NPS	16	Mi.	DeKalb	EPA approved de-listing based on "reference stream" status*
457	E. Fk. Grand R.	Sediment	Ag. NPS	25	Mi.	Gentry	EPA approved de-listing based on "reference stream" status*
468	M. Fk. Grand R.	Sediment	Ag. NPS	25	Mi.	Gentry	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
337	Honey Cr.	Sediment	Ag. NPS	8.5	Mi.	Nodaway	EPA approved de-listing based on "reference stream" status*
554	Honey Cr.	Sediment	Ag. NPS	23	Mi.	Livingston	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
212	Indian Camp Cr.	Ammonia	Landfill	0.3	Mi.	Warren	Data since 1998. WQS now met.
612	W. Fk. Locust Cr.	Sediment	Ag. NPS	17	Mi.	Linn	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
339	Long Br.	Sediment	Ag. NPS	6	Mi.	Nodaway	EPA approved de-listing based on "reference stream" status*
508	Marrowbone Cr.	Sediment	Ag. NPS	11	Mi.	Daviess	EPA approved de-listing based on "reference stream" status*
619	E. Fk. Medicine Cr.	Sediment	Ag. NPS	36	Mi.	Sullivan	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
623	W. Fk. (Little) Medicine Cr.	Sediment	Ag. NPS	Lower 20	Mi.	Mercer	Normal Invertebrate community. Upper 20 mi. still impaired based on biological monitoring
1299	Miami Cr.	Sediment	Ag. NPS	18	Mi.	Bates	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
345	White Cloud Cr.	Sediment	Ag. NPS	11	Mi.	Andrew	EPA approved de-listing based on "reference stream" status*
674	Mussel Fk.	Sediment	Ag. NPS	29	Mi.	Sullivan	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
81	North R.	Sediment	Ag. NPS	40	Mi.	Marion	EPA approved de-listing based on "reference stream" status*
121	M. Fk. Salt R.	Sediment	Ag. NPS	49	Mi.	Monroe	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
657	Spring Cr.	Sediment	Ag. NPS	18	Mi.	Adair	EPA approved de-listing based on "reference stream" status*
710	Stinson	Ammonia	Fulton WWTP	0.5	Mi.	Callaway	Data since 1998. WQS now met.

WBID	Water Body Name	Pollutant	Source	Size	Units	County	Comments
248	L. Tarkio Cr.	Sediment	Ag. NPS	17.5	Mi.	Atchison	Monitoring indicates normal aquatic invertebrate community. No biological impairment.
7171	Long Branch Lake	Atrazine	Row crop farming	2430	Ac.	Audrain	Cyanazine banned from all uses in 2001. WQ monitoring state-wide shows no occurrence.
417	Blue R.	Chlordane	Urban NPS	4	Mi.	Jackson	Monitoring since 1998 indicate tissue guidelines now met.
418	Blue R.	Chlordane	Urban NPS	9	Mi.	Jackson	Monitoring since 1998 indicate tissue guidelines now met.
419	Blue R.	Chlordane	Urban NPS	9	Mi.	Jackson	Monitoring since 1998 indicate tissue guidelines now met.
421	Blue R.	Chlordane	Urban NPS	2	Mi.	Jackson	Monitoring since 1998 indicate tissue guidelines now met.
37	Fox R.	Manganese	Natural	12	Mi.	Clark	Secondary DW Standard removed from state WQ Standards
46	Wyaconda R.	Manganese	Natural	8	Mi.	Lewis	Secondary DW Standard removed from state WQ Standards
63	M. Fabius R.	Chlordane	Urban NPS	2	Mi.	Jackson	Monitoring since 1998 indicate tissue guidelines now met.
7255	Creve Coeur Lake	Chlordane	Urban NPS	300	Ac.	St. Louis	Monitoring since 1998 indicate tissue guidelines now met.
7054	Lake St. Louis	Chlordane	Urban NPS	525	Ac.	St. Charles	Monitoring since 1998 indicate tissue guidelines now met.
7211	Pleasant Hill Lake	Chlordane	Urban NPS	115	Ac.	Cass	Monitoring since 1998 indicate tissue guidelines now met.
76	N. Fabius R.	Manganese	Natural	82	Mi.	Marion	Levels have not declined. Secondary DW Standard removed from state WQ Standards
7205	Lake of the Ozarks	Gas Superst.	Truman Dam	50	Ac.	Benton	Modifications to spillway solved gas supersaturation problems.

1. Summary of FFY09 Project Evaluation Measures

The data contained in the following charts was compiled from information submitted by 319 subgrant project sponsors and reflects the activities that have been conducted as part of their projects that were active during this reporting period.

Figure 1, on the following page, entitled "Summary of FFY09 319 NPS Project Evaluation Measures: All Activities," represents a summary of results for all 319-related project activities in FFY09. Project sponsors reported these project activities and load reductions on a statewide, regional, or HUC 8 basis. Figure 2, titled "Summary of FFY09 319 NPS Project Evaluation Measures: Statewide," shows only projects that reported statewide (more than one HUC 8) achievements and were not designated to a watershed level or specific HUC 8. Figure 3, titled "Summary of FFY09 319 NPS Projects Evaluation Measures: Regional," shows only projects that reported achievements on a regional basis (multiple HUCs) as opposed to statewide or by individual HUC. These projects impacted more than one HUC. Finally, Figure 4, titled "Summary of FFY09 319 NPS Projects Evaluation Measures: 8 digit HUC Summary," provides a summary of achievements at watershed (HUC) levels.

Figure 2: Summary of FFY09 319 NPS Project Evaluation Measures: All Activities

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	32	164	493	30	1	4	2	63
					acres	acres	acres	acres
					265,286	457,440	83,200	3,938

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	1	0	0	225	94	0

	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	13	333	41	1,444	4	52	721	3,970	55	6

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	21	27	31	32,361	22	5,229	99	230	76

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	2	1	10	16	28	230	820	133

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remedations
Groundwater Protection	512	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	200	3,988	1,112	50,841	19,507	1,285	52

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	6	5	6	1,005	2,400	1	0

Figure 3: Summary of FFY09 319 NPS Project Evaluation Measures: Statewide

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	10	37	18	4	0	1	1	41
					acres	acres	acres	acres
					0	0	0	2,238

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	0	0	0

	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	0	22	11	424	0	10	704	925	40	3

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	3	8	5	1,800	14	4,019	0	0	0

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	1	1	5	5	12	183	754	21

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remedations
Groundwater Protection	0	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	0	0	0	0	0	0	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	Ilbs of Manure Transferred Out
Agricultural	0	0	0	0	0	0	0

Figure 4: Summary of FFY09 319 NPS Project Evaluation Measures: Regional

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	13	95	429	2	0	0	1	0
					acres	acres	acres	acres
					0	0	83,200	0

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	0	0	0

	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	6	206	25	945	0	0	8	2,267	13	3

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	9	1	14	24,595	8	1,000	93	169	31

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	0	0	0	0	0	34	46	90

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remedations
Groundwater Protection	0	0	3	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	111	56	0	0	0	0	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	Ilbs of Manure Transferred Out
Agricultural	0	0	0	0	0	0	0

Figure 5: Summary of FFY09 319 NPS Project Evaluation Measures: 8-Digit HUC Summary

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	9	32	46	24	1	3	0	22
					acres	acres	acres	acres
					265,286	457,440	0	1,700

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	1	0	0	225	94	0

	Field Days	Field Day Participants	Workshops	Workshop Particpants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	7	105	5	75	4	42	9	778	2	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	9	18	12	5,966	0	210	6	61	45

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	1	0	5	11	16	13	20	22

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remedations
Groundwater Protection	512	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	89	3,932	1,112	50,841	19,507	1,285	52

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	6	5	6	1,005	2,400	1	0

319 NPS Regional Projects:

1. G06-NPS-07, Table Rock Lake Long-Term Monitoring Program
2. G06-NPS-22, Clean Water Education and Resource Project
3. G07-NPS-03, Perry County Karst Protection
4. G07-NPS-19, Camden County Septic Maintenance & Nonpoint Source Educational Project
5. G07-NPS-21, "Nonpoint Source is No Nonsense"… Coming to Your Watershed!
6. G08-NPS-05, Douglas County Urban Conservation Initiative
7. G08-NPS-08, Perry County Karst Water Quality Education Project
8. G08-NPS-10, Columbia/Boone County Rain Garden Project
9. G08-NPS-12, Stormwater and Environmental Education
10. G08-NPS-18, Morgan County Septic Maintenance & Nonpoint Source Educational Project
11. G09-NPS-05, "Living on Karst" Educational Video and Course Materials

319 NPS Statewide Projects:

1. G04-NPS-19, Stream Educational Workshops and Project Development
2. G06-NPS-08, Lakes of Missouri Volunteer Program
3. G06-NPS-10, Achieving TMDLs Through Locally Developed and Implemented Watershed Management Plans
4. G06-NPS-13, Water Quality Education for the Professionally Trained Logger
5. G06-NPS-20, Statewide Lake Assessment Project
6. G07-NPS-12, Reducing Nitrogen Using Color-Guided Sidedressing
7. G07-NPS-14, Developing Reach Specific Watershed Data on Nonpoint Pollution Sources
8. G09-NPS-01, Assisting Communities to Implement Healthy Yards for Clear Streams Program

319 NPS HUC Projects:

HUC 07110002
1. G07-NPS-13, North Fabius Watershed Management Plan
2. G08-NPS-06, North Fabius Water Quality Improvement Project

HUC 07140101
1. G06-NPS-18, River des Peres Southwest Branch Water Quality Project
2. G07-NPS-06, Watkins Creek Watershed Education Project
3. G08-NPS-04, A Sewer Runs Through It: A History of the River des Peres
4. G09-NPS-09, Sandy Creek Watershed Management Plan Development
5. G09-NPS-13, Missouri Botanical Garden Deer Creek Watershed Initiative

HUC 07140104
1. G04-NPS-22, Upper Big River Corridor Groundwater Protection & Well Decommissioning

HUC 10240011
1. G03-NPS-06, Brush Creek Mid-Shed Project

HUC 10280101
1. G07-NPS-02, Mudd Creek 319 Water Quality Project

HUC 10280102
1. G06-NPS-14, Hickory Creek Watershed Demonstration Project

HUC 10280103

1. G09-NPS-02, Locust Creek Restoration Project

HUC 10290106

1. G07-NPS-08, Fellows McDaniel Fulbright Watershed Nutrient Reduction Project
2. G08-NPS-03, Little Sac Watershed Management Plan

HUC 10290107

1. G08-NPS-12, Town Branch of Piper Creek Watershed Management Plan

HUC 10290108

1. G09-NPS-06, Community Rain Garden and Nonpoint Source Education

HUC 10290109

1. G08-NPS-16, Lake of the Ozarks Watershed Management Plan

HUC 10290201

1. G08-NPS-02, Ozark Rain Gardens

HUC 10300102

1. G08-NPS-01, Jefferson Farms Water Quality Demonstration Project
2. G08-NPS-09, Hinkson Creek Watershed Restoration Project Phase II
3. G08-NPS-17, Monitoring Hydrology in the Hinkson Creek Watershed

HUC 10300103

1. G07-NPS-18, Gabriel Creek Streambank Stabilization Project

HUC 11010002

1. G06-NPS-15, Sources and Reduction of Stormwater Runoff in the James River Basin
2. G06-NPS-23, Finley River Non-Traditional Agricultural Implementation Project
3. G07-NPS-07, Lower James and Table Rock Lake Watershed Management Plan
4. G08-NPS-13, On-Site System Identification and Remediation Project
5. G09-NPS-11, James River Basin Riparian Corridor Restoration and Protection

HUC 11010008

1. G08-NPS-11, Improved Septic Disposal Equals Improved Swimming in the Jacks Fork River

HUC 11070207

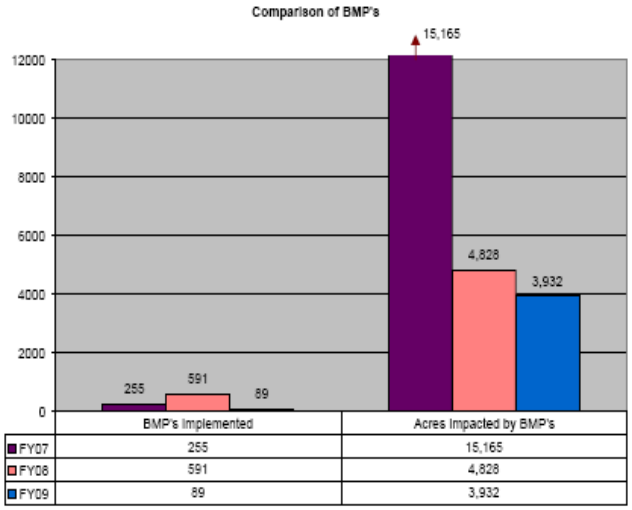
1. G06-NPS-16, Wildcat Glades Conservation & Audubon Center
2. G09-NPS-03, Upper Shoal Creek On-Site System Implementation

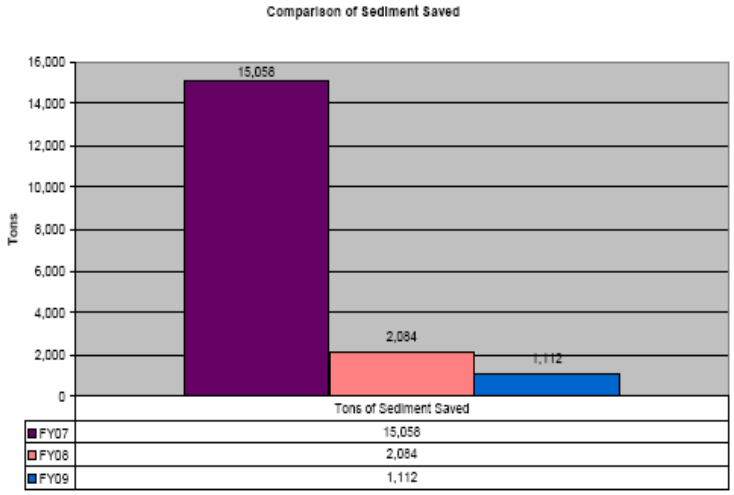
HUC 11070208

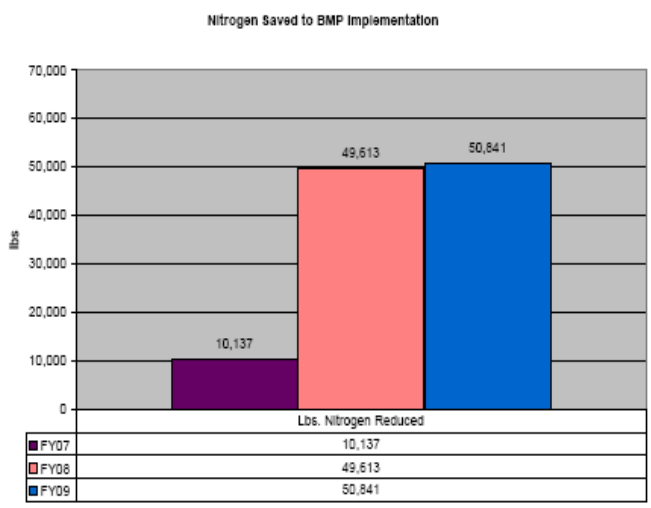
1. G07-NPS-11, Elk River Watershed Management Action Plan Implementation

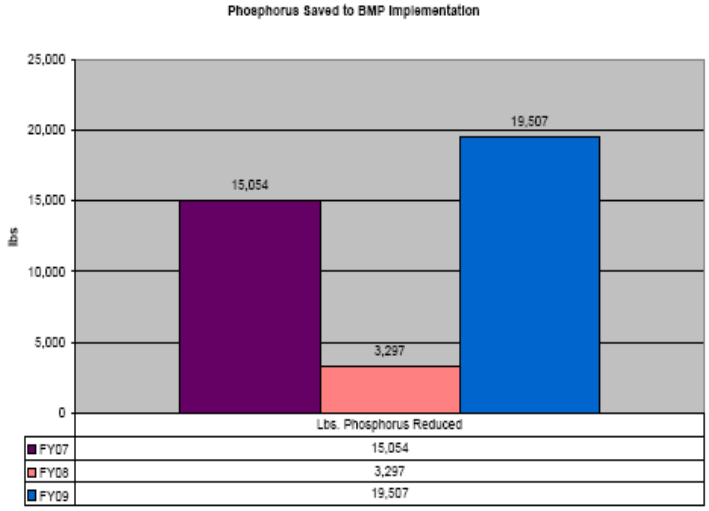
Figures 6 – 9 below depicts the number of BMPs and any load reductions reported by 319 projects for the FFY 2009 and how those results compare to the previous two years.

Figure 6 (Comparison of BMPs), Figure 7 (Comparison of Sediment Saved), Figure 8 (Nitrogen Saved to BMP Implementation), and Figure 9 (Phosphorus Saved to BMP Implementation): below display graphically selected information from the preceding tables and compare 319 implementation and load reduction for years 2007 through 2009.









2. Summary of FFY09 319 Grant Program Dollars Spent

Overall, $4,334,329.77 was spent in FFY2009 from open 319 grants to implement the NPS Program, including pass through project funding. The amount spent from six open Nonpoint Source Program grants in FFY09 on local, regional, and state 319 pass through projects was $2,596,277.56. This funding was provided to sponsors for water quality education, demonstration, implementation, modeling, and monitoring.

3. Summary of FFY09 319 Results through Modeling

STEPL

EPA supports several computer models that simulate and measure load reductions. One such model is called the Spreadsheet Tool for Estimating Pollutant Load (STEPL). STEPL employs simple algorithms to calculate nutrient and sediment loads from different land uses and the load reductions that would result from the implementation of various BMPs. STEPL provides a user-friendly Visual Basic (VB) interface to create a customized spreadsheet-based model in Microsoft Excel. It computes watershed surface runoff; nutrient loads, including nitrogen, phosphorus, and 5-day biological oxygen demand (BOD5); and sediment delivery based on various land uses and management practices.

For each watershed, the annual nutrient loading is calculated based on the runoff volume and the pollutant concentrations in the runoff water as influenced by factors such as the land use distribution and management practices. The annual sediment load (sheet and rill erosion only) is calculated based on the Universal Soil Loss Equation (USLE) and the sediment delivery ratio. The sediment and pollutant load reductions that result from the implementation of BMPs are computed using the known BMP efficiencies.

The STEPL model is provided to project sponsors to help quantify the effectiveness of their projects. Currently, load reduction data and other evaluation information reported to the Department by 319 subgrant recipients is provided through quarterly and annual project reporting. Although STEPL is recommended, it is not required. Subgrant recipients use several approved methods for quantifying load reductions.

RUSLE2

Many project personnel calculate sediment loss using the Revised Universal Soil Loss Equation version 2 (RUSLE2). For more information on RUSLE2, review the following Web sites: http://fargo.nserl.purdue.edu/rusle2_dataweb/RUSLE2_Index.htm and http://nmplanner.missouri.edu/.

Other Calculations and/or Models

In most cases, the Natural Resources Conservation Service (NRCS) has worked with the project sponsors to obtain this information. Reduction in nutrient loading for animal waste projects was calculated using equations based upon university publications and from soil and litter analysis.

Department staff uses Microsoft Excel to compile data received from the project sponsors. This software provides analyses capabilities and is the source of the data summaries and tabulated totals used to create the graphs and tables for this document.

For more information about STEPL and other models approved by EPA for measuring pollutant load reductions, review the following Web site: http://it.tetratech-ffx.com/stepl/.

4. Activities of the 319 Program Staff

Some staff funded through the 319 program are responsible for promoting, implementing, and reporting progress of subgrant projects. Staff performs other activities not directly associated with a grant project such as providing input and direction on a wide variety of water quality related issues that are priorities for the Department. Staff served on many workgroups and committees to help address issues which include, but are not limited to, wetlands, forest management, lake monitoring, abandoned mine lands, animal waste handling, urban and stormwater runoff, TMDLs, mercury contamination, abandoned landfills, pesticide and nutrient planning, general agriculture, sand and gravel mining, watershed planning, source water protection, wellhead protection, State Revolving Fund (SRF) NPS on-site systems, and Missouri Stream Teams.

Staff participated in conferences and meetings, gave approximately seven presentations, and set up three displays at a variety of venues throughout the state to provide awareness about grant opportunities and disseminate information to those interested in addressing NPS problems. The number of presentations does not include presentations made during the subgrant application training session.

5. General Progress Statements

To date, approximately, 49% of the impaired segments shown on the 1998 303(d) list of impaired waters now meet water quality standards and have been removed from the list.

Twelve (12) TMDL Action Plans and thirty-four (34) watershed-based plans have been implemented.

Cumulatively, EPA has approved 152 TMDLs and approximately 34 more are currently being developed. There are approximately 24 active watershed groups that have developed or are developing watershed plans. Approximately eleven plans have been written and twenty-two are being developed.

III. 319 Project Accomplishments

The program focus is on watershed based, NPS projects. Therefore, staff strives to track NPS accomplishments by watershed. A watershed is an area of land that catches rainfall and snowmelt, which then drains into low-lying bodies of water. Watersheds come in all shapes and sizes, from a few acres to over a million square miles and are sometimes difficult to delineate. Consequently, Hydrologic Unit Codes (HUCs) were created to logically convey the drainage relationship of stream systems, watersheds, and larger river basins. Generally, HUC describes an area of land that most effectively and consistently describes a drainage area for surface runoff. A unique HUC number,

consisting of 2 to 14 digits, identifies every hydrologic unit (a watershed or subwatershed). The larger the HUC number the smaller the watershed. There are sixty-six 8-digit HUCs in Missouri, which includes several that are shared with neighboring states.

A. Successful 319 Nonpoint Source Grant Projects

There were many successful 319 NPS grant projects active in FFY09. The 319 NPS grant funds three types of NPS water quality projects: Information and Education, Implementation, and Water Quality Monitoring and Assessment.

1. Wildcat Glades Conservation & Audubon Center

National Audubon Society; G06-NPS-16

Figure 10: Logo of New Nature Center

The Audubon Society and key partners constructed a Nature Center south of Joplin on 160 ac. in Wildcat Glades park area. The primary goal of the National Audubon Society, local stakeholders and their regional governing board is to provide children and adults with nature-related educational programs and outdoor experiences through a sustainably developed, Leadership in Energy & Environmental Design (LEED) accredited facility, site amenities and trail system near Joplin. The project implemented practices and techniques that will safeguard the unique natural resources of the Spring River watershed through stewardship activities, hands-on outdoor programs, and remediation and management of site erosion, runoff and sedimentation issues, and building and parking lot run off. The Center includes a green roof, pervious paving, bioretention, a cistern, native landscaping, riparian improvement and restoration of native savannas. The project included installation of post and cable barriers along one mile of Shoal Creek

The center is open six days a week with members of the target audience visiting the center daily. The focus of the program Tuesday-Friday is on school and home school groups and on Saturdays an average of three programs a day are offered to families, youth groups and tourists. Between the Fall of 2007 and Spring of 2009 over 80,000 people visited the Center, including 12% of all students in Joplin. The Center also reaches the public through brochures, newsletters, an annual water festival, volunteer work days and stream team activities.
http://www.wildcatglades.audubon.org/default.html

2. Reducing Nitrogen with Color-Guided Sidedressing

University of Missouri – Columbia, G07-NPS-12

Figure 11: Project Manager Peter Scharf and a participating producer in an applicator with front-mounted color sensors.

The Midwestern portion of the United States produces many agricultural crops including corn. Fertilizers such as nitrogen (N) are often applied at rates higher than the corn can use, and it remains in the soil after harvest. This creates the potential for the transport of nitrate to Missouri streams via subsurface flow. Ideally, N application rates would match the actual need of the corn crop. Color-guided sidedressing is one way which the producer can achieve this objective and as a result decrease the amount of nitrate which is deposited into Missouri's rivers and streams and ultimately the hypoxic zone in the Gulf of Mexico.

The University believes corn color is the most reliable tool for predicting how much N fertilizer is needed in different sections of a cornfield. The University developed an application system based on a color sensor mounted on the front of a variable-rate fertilizer applicator. The University considers this to be the most effective Best Management Practice (BMP) for N application and it was approved as a BMP by the Natural Resource Conservation Service (NRCS) in 2006. It optimizes both application timing and application rate to maximize delivery to the crop and minimize nitrate runoff to water.

This project complemented an existing NRCS Conservation Innovation Grants project. That project used the same sensors and technology to do variable-rate N demonstrations with Agricultural Research Service and MFA Inc. owned applicators. This project facilitated widespread adoption of this BMP by helping producers to overcome technical obstacles to using sensors on their own equipment, along with convincing producers of the environmental and economic benefits of the technology.

3. Lakes of Missouri Volunteer Program

University of Missouri – Columbia, G06-NPS-08

Figure 12: Volunteers measuring transparency with a Secchi Disk

The Lakes of Missouri Volunteer Program (LMVP) uses citizen monitors to collect water samples and water quality data from Missouri lakes. Using volunteers is an extremely cost-effective way to collect continuous water quality data across a large geographic area. Volunteers use a Secchi disk to measure transparency, measure surface water temperature, and make a visual assessment while on the lake. Water samples are processed for nutrients (nitrogen and phosphorus), algal chlorophyll, and suspended sediments. LMVP trains its volunteers to collect research quality data that has been used in scientific journal articles.

All samples are analyzed at UMC using the same methods as staff-directed water quality projects. Additionally, we use data collection as a way to involve citizens in the stewardship of local lakes and educate them about nonpoint source pollution issues. These volunteers are then equipped to speak to others about lake water quality trends and nonpoint source issues. LMVP also produces an annual data report documenting the quality of lakes sampled during the previous year. http://www.lmvp.org/Data/2008/index.htm

B. NPS Information for HUC 8 Watersheds

For this report, and for practical purposes, information has been aggregated to the HUC 8 scale. Though the HUC 8 scale is practical for reporting purposes, the units are rather large and many watershed based programs and projects tend to focus on smaller, more manageable sub-watersheds. The active 319 projects in FFY09 are presented on a HUC 8 watershed scale so the implementation and monitoring results, educational efforts, load reduction, TMDL, source water protection, and program activity measures may be viewed as they relate to the watershed. The basins will be listed based upon HUC 8, USGS basin names, and Missouri basin names. The watershed information is presented in the order described in Figure 13.

The majority of the information reported in the following HUCs are activities conducted during the FFY09; although, information for the number of watershed management plans, rapid watershed assessments, TMDL summary list, and number of watershed groups formed are cumulative listings to-date and are denoted with an asterisk (*). From the cumulative listings, any listing that occurred in FFY09 is followed by double asterisks (**).

The information presented in the HUC summary tables are generated from information collected from active projects in FFY09 and reflect activities reported by the sponsoring agencies. Volunteer water quality data in each HUC that does not have any data reported is denoted with ND (no data).

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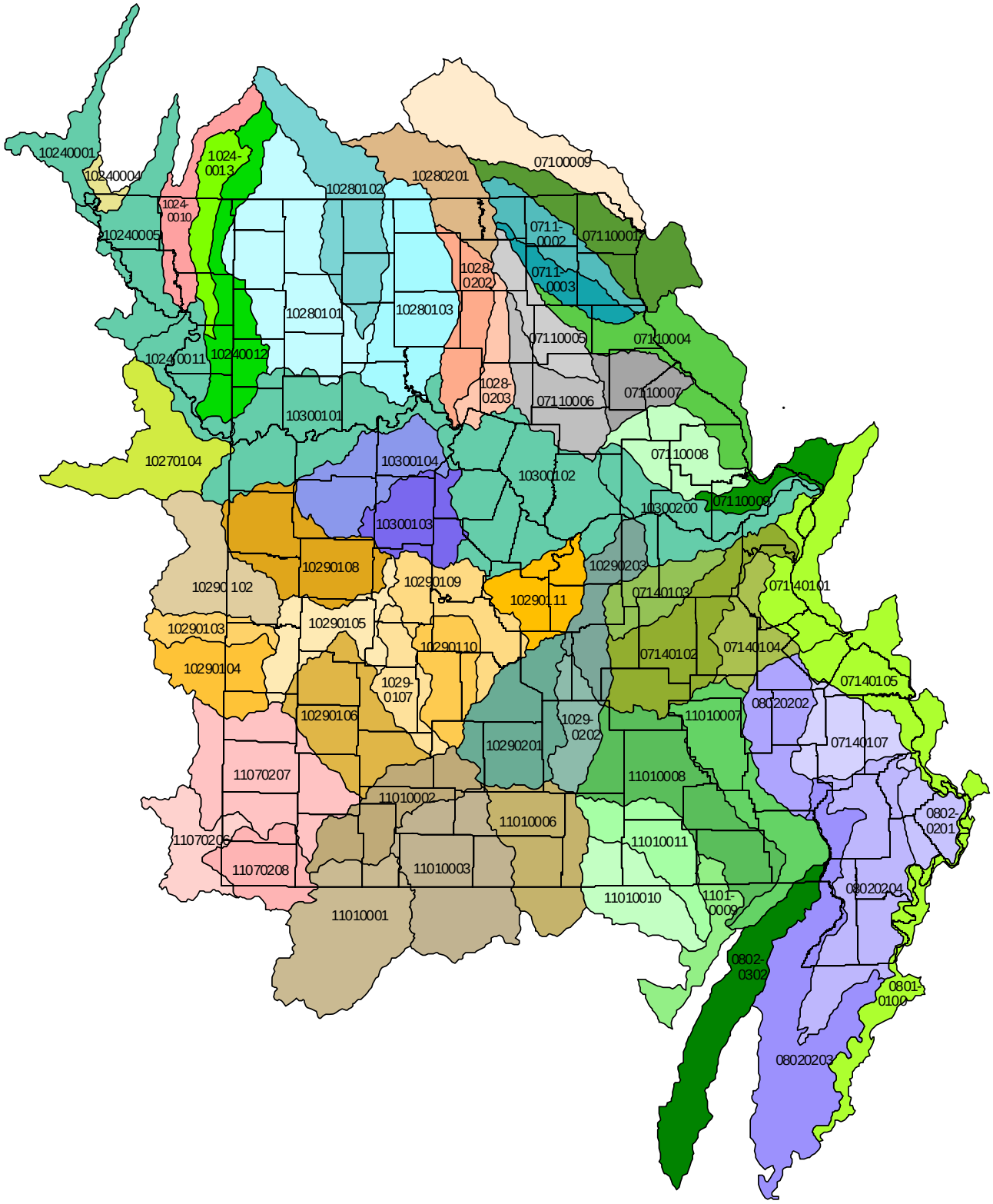
Figure 13: Missouri Watersheds based on their HUC 8, USGS basin name, and Missouri basin name

HUC 8	USGS Basin Name	Missouri Basin Name
07100009	Lower Des Moines	Des Moines Basin
07110001	Bear-Wyaconda	Wyaconda - Fox Rivers
07110002	North Fabius	North Fabius River Basin
07110003	South Fabius	South Fabius River Basin
07110004	The Sny	North River - Bobs Creek
07110005	North Fork Salt	North Salt River Basin
07110006	South Fork Salt	Middle-South Forks of the Salt River
07110007	Salt	Lower Salt River Basin
07110008	Cuivre	Cuivre River Basin
07110009	Peruque-Piasa	Peruque-Dardenne Creeks
07140101	Cahokia-Joachim	Mississippi River Tribs - St. L-Ste. Gen
07140102	Meramec	Meramec River Basin
07140103	Bourbeuse	Bourbeuse River Basin
07140104	Big	Big River Basin
07140105	Upper Mississippi-Cape Girardeau	Mississippi River Tribs - Ste. Gen-Cape Gir.
07140107	Whitewater	Castor-Whitewater Rivers Basin
08010100	Lower Mississippi-Memphis	Mississippi River Mainstem Below Ohio
08020201	New Madrid-St. Johns	St. Johns Bayou
08020202	Upper St. Francis	Upper St. Francis Basin
08020203	Lower St. Francis	Lower St. Francis Basin
08020204	Little River Ditches	Little River Ditches
08020302	Cache	Cache River Basin
10240001	Keg-Weeping Water	Missouri River Bottom
10240004	Nishnabotna	Nishnabotna River Basin
10240005	Tarkio-Wolf	Tarkio-Squaw Tributaries Basin
10240010	Nodaway	Nodaway River Basin
10240011	Independence-Sugar	Missouri River Mainstem
10240012	Platte	Platte River Basin
10240013	One Hundred and Two	102 River Basin
10270104	Lower Kansas	Kansas River Basin
10280101	Upper Grand	Upper Grand River Basin
10280102	Thompson	Thompson River Basin
10280103	Lower Grand	Middle Grand River Basin
10280201	Upper Chariton	Upper Chariton River Basin
10280202	Lower Chariton	Lower Chariton River Basin
10280203	Little Chariton	Little Chariton River Basin
10290102	Lower Marais Des Cygnes	Maries des Cygnes River Basin
10290103	Little Osage	Little Osage River Basin
10290104	Marmaton	Marmaton River Basin

HUC 8	USGS Basin Name	Missouri Basin Name
10290105	Harry S. Truman Reservoir	Upper Osage River Basin
10290106	Sac	Sac River Basin
10290107	Pomme De Terre	Pomme de Terre River Basin
10290108	South Grand	South Grand River Basin
10290109	Lake of the Ozarks	Lake of Ozarks Basin
10290110	Niangua	Niangua River Basin
10290111	Lower Osage	Lower Osage River Basin
10290201	Upper Gasconade	Upper Gasconade River Basin
10290202	Big Piney	Big Piney River Basin
10290203	Lower Gasconade	Lower Gasconade River Basin
10300101	Lower Missouri-Crooked	Missouri River Mainstem - KC to Glasgow
10300102	Lower Missouri-Moreau	Missouri River Mainstem - Glasgow to
10300103	Lamine	Lamine River Basin
10300104	Blackwater	Blackwater River Basin
10300200	Lower Missouri	Missouri River Mainstem - Hermann to St.
11010001	Beaver Reservoir	Table Rock Lake Basin
11010002	James	James River Basin
11010003	Bull Shoals Lake	Bull Shoals Lake Basin
11010006	North Fork White	North Fork White River Basin
11010007	Upper Black	Black River Basin
11010008	Current	Current River Basin
11010009	Lower Black	Fourche Creek Basin
11010010	Spring	Spring River Basin (Howell/Oregon
11010011	Eleven Point	Eleven Point River Basin
11070206	Lake O' the Cherokees	Cherokees Lake Basin
11070207	Spring	Spring River Basin
11070208	Elk	Elk River Basin

Figure 14: Missouri Hydrologic Unit Delineations by 8-digit Hydrologic Unit Code.



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Lower Des Moines Basin
(HUC 07100009)
Missouri Basin Name – Des Moines Basin

The Lower Des Moines River basin lies in the northeastern corner of Missouri in Clark County. The Des Moines is the largest interior river in Iowa and drains much of the central portion of that state. The lower 29 miles of the Des Moines forms the state line between Missouri and Iowa and there is a strip of land three to four miles in width along the river that comprises its watershed in Missouri. The Des Moines River flows in a southeasterly direction to its confluence with the Mississippi River. A mixture of hills and open plains characterizes the Des Moines River basin. Most water movement in the basin is through the surface stream network.

The most serious NPS pollution problem is degradation of aquatic habitat and agricultural runoff. The basin is mainly rural.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

- None

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- None

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 15: Number of Volunteer Water Quality Sampling Events Conducted in 07100009 Lower Des Moines River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share
Soil Conserved – 7,460 tons

Active Nonpoint Source Projects
319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 16: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07100009

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	3,258
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	4
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	2
Windbreak (feet)	0	Water/Sediment Basins (#)	1
Waste Utilization	0	Wells Decommissioned (#)	2
Nutrient Management (acres)	704		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	1
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	3	4

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Bear-Wyaconda Basin
(HUC 07110001)
Missouri Basin Name – Wyaconda-Fox Rivers Basin

Bear-Wyaconda River basin, HUC 07110001, lies in the northeastern corner of Missouri and occupies portions of Scotland, Clark, Lewis, and Marion counties. The uppermost portions of the Wyaconda basin and the upper half of the Fox River basin lie in southeastern Iowa. The Fox and Wyaconda flow in a southeasterly direction to their confluence with the Mississippi River. The largest tributaries within Missouri are the Little Fox and Little Wyaconda rivers. The largest reservoir in the basin is Agate Lake with a surface area of 167 acres. Wyaconda Lake, which serves the town of Wyaconda, is the only public drinking water reservoir in the basin.

The basin is characterized by a mixture of hills and open plains and is mostly rural. The main land use in the basin is for crops and pastureland. Most water movement in the basin is through the surface stream network. The most serious NPS pollution problem is degradation of aquatic habitat. Over 50% of classified streams in the basin are considered to have degraded aquatic habitat. Channelization has occurred in 77 miles (19%) of streams in the basin. Other NPS pollution results from sediment, nutrients, and pesticides from crop production.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Watershed Restoration Action Strategy (WRAS) for HUCs 07110001030, 001, 002 and 003 was developed through 319 project #G03-NPS-07. The WRAS is also being implemented through the project.

Rapid Watershed Assessment *

- Bear-Wyaconda, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 10300101: http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
0037	Fox River	Naturally occurring manganese	NA	Yes	No
0001	Mississippi River	Chlordane and PCBs	11/03/2006	Yes	Yes
0050	South Wyaconda River	Sediment	11/22/2006	Yes	Yes
0050	South Wyaconda River	Naturally occurring manganese	NA	Yes	No
0046	Wyaconda River	Naturally occurring manganese	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Fox River Ecosystem Development Board of Supervisors
- FRED Board (Fox River)
- Fox River Ecosystem Development group

Source Water Protection Plans

- Fox River at Wayland
- Wyaconda River above Canton

Water Quality Monitoring

Active USGS Gaging Station(s)

- Fox River at Wayland
- Wyaconda River above Canton

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Wyaconda River.

Figure 17: Number of Volunteer Water Quality Sampling Events Conducted in 07110001 Bear-Wyaconda Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	1	ND	ND
3	ND	1	ND	1
4	ND	ND	ND	ND
TOTAL	ND	2	ND	1

State Cost Share

Soil Conserved – 188,661 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- South Wyaconda (SN102)

Figure 18: Bear-Wyaconda Basin AgNPS SALT Project Plan Goals for HUC 07110001

Watershed Name	South Wyaconda
Project #	SN102
Watershed Size (ac)	51,502
Cropland (ac)	16,512
Cropland Treated in Plan (ac)	3,715
Pasture/Hayland (ac)	19,308
Pasture/Hayland Treated in Plan (ac)	1,500
CRP Land (ac)	6,074
CRP Treated in Plan (ac)	1,500
Urban (ac)	916
Urban Treated in Plan (ac)	0
Woodland (ac)	7,187
Woodland Treated in Plan (ac)	0
Public Land (ac)	0
Public Land Treated in Plan (ac)	0
Other (ac)	0
Other Treated in Plan (ac)	0
Stream (mi)	37
Stream Treated in Plan (mi)	0

Figure 19: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07110001

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	7	Terraces (feet)	73,751
Filter Strip (acres)	113	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	3	Critical Planting (acres)	3
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	20
Windbreak (feet)	0	Water/Sediment Basins (#)	1
Waste Utilization	116	Wells Decommissioned (#)	0
Nutrient Management (acres)	989		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	1
Conservation Reserve Program	27	55
Conservation Security Program	0	0
Wetland Reserve Program	3	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	18	22

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

North Fabius River Basin
(HUC 07110002)
Missouri Basin Name – North Fabius River Basin

The North Fabius River basin, HUC 07110002, lies in northeastern Missouri in portions of Schuyler, Scotland, Adair, Knox, Clark, Lewis, and Marion counties, except for a very small portion of the watershed that extends into southeastern Iowa. The largest tributaries are the North and Middle Forks of the Fabius. These streams all flow in a southeasterly direction and join just a few miles before flowing into the Mississippi River near West Quincy. The North Fabius River basin is characterized by a mixture of hills and open plains with the major land use being agricultural.

In this river basin, the most serious NPS pollution problem is degradation of aquatic habitat. Most of the classified streams in the basin are considered to have degraded aquatic habitat partially due to channelization in a number of basin streams. Several reservoirs in the basin serve as drinking water supplies.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- The North Fabius Watershed Management Plan is being developed through 319 project #G07-NPS-13. A Watershed Management Plan Worksheet has been completed. The plan is in the first draft stage.

Rapid Watershed Assessment *

- North Fabius River Sub-basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 07110002: http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
7015	Deer Ridge Community Lake	Mercury	NA	Yes	No
7020	Lewistown Lake	Atrazine and cyanazine	NA	Yes	No
0063	Middle Fabius River	Manganese from natural conditions.	NA	Yes	No
0056	North Fabius River	Sediment	11/15/2006	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- North and Middle Fabius Watershed Management Plan Steering Committee

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- North Fabius River near Ewing
- Middle Fabius River near Ewing

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- North Fabius River

Figure 20: Number of Volunteer Water Quality Sampling Events Conducted in 07110002 North Fabius Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	1	ND	1	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	1	ND	1	ND

State Cost Share

Soil Conserved – 238,573 tons

Active Nonpoint Source Projects

319 NPS Projects

- G07-NPS-13, North Fabius Watershed Management Plan
- G08-NPS-06, North Fabius Water Quality Improvement Project

AgNPS SALT Projects

- South Fork of North Fabius (SN065)
- Middle Fork of North Fabius (SN066)

Figure 21: North Fabius Basin AgNPS SALT Project Plan Goals for HUC 07110002

Watershed Name	S. Fork of N. Fabius River	M. Fork of N. Fabius River	Total
Project #	SN065	SN066	
Watershed Size (ac)	51,484	42,092	93,576
Cropland (ac)	15,817	15,083	30,900
Cropland Treated in Plan (ac)	5,000	5,000	10,000
Pasture/Hayland (ac)	22,923	14,040	36,963
Pasture/Hayland Treated in Plan (ac)	5,000	2,900	7,900
CRP Land (ac)	6,808	5,762	12,570
CRP Treated in Plan (ac)	500	1,500	2,000

Urban (ac)	0	401	401
Urban Treated in Plan (ac)	0	0	0
Woodland (ac)	4,418	4,578	8,996
Woodland Treated in Plan (ac)	300	0	300
Public Land (ac)	1,518	90	1,608
Public Land Treated in Plan (ac)	0	0	0
Other (ac)	0	2,138	2,138
Other Treated in Plan (ac)	0	0	0
Stream (mi)	12	12	24
Stream Treated in Plan (mi)	12	12	24

Figure 22: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07110002

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	77,738
Filter Strip (acres)	110	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	1	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	2	Critical Planting (acres)	6
Stream/Shore Protection (feet)	500	Grade Stab. Structures (#)	8
Windbreak (feet)	0	Water/Sediment Basins (#)	12
Waste Utilization	244	Wells Decommissioned (#)	4
Nutrient Management (acres)	854		

	Planned	Applied
Nutrient Plans (CNMP)	5	8
Conservation Reserve Program	38	37
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	1	1
EQIP Ground/Surface Water Plans	43	34

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 23: Summary of the FFY09 319 NPS Project Evaluation Measures: HUC 07110002 North Fabius Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	3	17	14	23	1	1	0	22
					acres	acres	acres	acres
					265286	265286	0	1700

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	1	0	0	0	0	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	4	42	3	46	2	22	9	778	1	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	4	5	8	4,264	0	0	0	0	0

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	1	0	2	7	7	10	15	14

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	9	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	32	1,700	120	43,500	12,000	1200	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	1	0	1	305	2,400	1	0

South Fabius River Basin
(HUC 07110003)
Missouri Basin Name – South Fabius River Basin

The South Fabius River basin, HUC 07110003, lies in northeastern Missouri in portions of Schuyler, Knox, Lewis, Shelby, Adair, Scotland, and Marion counties. The South Fabius and Troublesome Creek and their tributaries all flow in a southeasterly direction and join just a few miles before flowing into the Mississippi River near West Quincy. A mixture of hills and open plains characterizes the basin.

In this river basin, the most serious NPS pollution problem is degradation of aquatic habitat. Most of the classified streams in the basin are considered to have degraded aquatic habitat partially due to channelization in a number of basin streams. Several reservoirs in the basin serve as drinking water supplies.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
7026	Edina Reservoir	Atrazine and cyanazine	NA	Yes	No
7023	LaBelle Lake #2	Atrazine and cyanazine	NA	Yes	No
7023	LaBelle Lake #2	Mercury	NA	Yes	No
0073	Troublesome Creek	Sediment	11/22/2006	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Forest Lake/Hazel Creek Watershed Group

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- South Fabius River above Newark
- South Fabius River near Taylor

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- South Fabius Basin

Figure 24: Number of Volunteer Water Quality Sampling Events Conducted in 07110003 South Fabius Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	1	1	1	ND
4	ND	ND	ND	ND
TOTAL	1	1	1	ND

State Cost Share

Soil Conserved – 110,359 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 25: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07110003

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	65,140
Filter Strip (acres)	20	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	13	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	1
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	7
Windbreak (feet)	0	Water/Sediment Basins (#)	11
Waste Utilization	270	Wells Decommissioned (#)	0
Nutrient Management (acres)	539		

	Planned	**Applied**
Nutrient Plans (CNMP)	1	3
Conservation Reserve Program	25	20
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	1	1
EQIP Ground/Surface Water Plans	18	32

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

The Sny River Basin
(HUC 07110004)
Missouri Basin Name – North River-Bobs Creek

The Sny River Basin, HUC 07110004, lies in northeastern and eastern Missouri and encompasses the watersheds of the North and South Rivers and several small direct tributaries to the Mississippi River in Pike and Lincoln counties. Other counties included within this unit are Knox, Monroe, Marion, St. Charles, Shelby, Ralls, and Lewis. North River originates in Knox County near Novelty and flows eastward into the Mississippi River. Aside from North River, the larger streams in this basin include South River, Noix, Buffalo, Bryant, and Bobs creeks, all of which flow directly into the Mississippi River. The basin also contains the Old Kings Lake slough, with 22 miles of standing or slowly flowing waters in the Mississippi River floodplain in Lincoln County. The basin is 1,018 square miles in area, with 237.5 miles of classified streams in the basin. The largest reservoir in the basin is Hunnewell Lake with a surface area of 228 acres. There are two small public drinking water reservoirs in this basin that serve the town of Bowling Green. A mixture of hills and open plains characterizes the basin. Basin-wide, 38% of the land is row crop, 37% is pasture and hay fields, 22% forest, and 1% open water. Most water movement in the basin is through the surface stream network. There are 34 small springs of note in the basin. None of these sustain flow in dry weather.

In the North River basin, the most serious NPS pollution problem is degradation of aquatic habitat. A total of 86.5 miles (36 percent) of classified streams in the basin are considered to have degraded aquatic habitat. Channelization has occurred in 15 miles (6%) of streams in the basin. Studies of private well water quality in northeastern Missouri have shown that about 20 percent of all private wells sampled exceeded drinking water standards for nitrate. One to two percent of wells exceeded drinking water standards or health advisory levels for pesticides, most commonly the herbicides Atrazine or Alachlor. This contamination is often caused by local land use practices or surface contamination of the wellhead and does not represent widespread contamination of the underground aquifer. Deeper aquifers are protected from surface contamination by impermeable strata.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- Sny River Sub-basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 17110004: http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
7029	Hunnewell Lake	Mercury	NA	Yes	No
0001	Mississippi River	Chlordane and PCBs	11/03/2006	Yes	Yes

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- North River at Palmyra
- Mississippi River at Hannibal
- Bear Creek at Hannibal

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Rollins Creek

Figure 26: Number of Volunteer Water Quality Sampling Events Conducted in 07100009 Lower Des Moines River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	1	ND	1	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 128,743 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 27: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07110004

Contour Buffer Strips (acres)	0	Diversion (feet)	735
Field Border (feet)	22	Terraces (feet)	65,272
Filter Strip (acres)	19	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	3	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	28
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	715	Water/Sediment Basins (#)	0
Waste Utilization	279	Wells Decommissioned (#)	1
Nutrient Management (acres)	2,060		

	Planned	**Applied**
Nutrient Plans (CNMP)	4	7
Conservation Reserve Program	10	18
Conservation Security Program	0	0
Wetland Reserve Program	2	2
Wildlife Habitat Incentive Program	2	2
EQIP Ground/Surface Water Plans	14	44

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

North Fork Salt River Basin
(HUC 07110005)
Missouri Basin Name – North Salt River Basin

The North Fork of the Salt River Basin, HUC 07110005, lies in northeastern Missouri. North Fork Salt River originates in Schuyler County near Queen City, includes portions of Macon, Adair, Monroe, Knox, and Shelby counties, and flows into Mark Twain Lake. The major tributary streams in this basin are Bear, Black, Crooked, and Otter creeks. The downstream end of the basin occurs where these streams flow into Mark Twain Lake. The basin is 893 square miles in area. The largest reservoir in the basin is La Plata New Lake, with a surface area of 81 acres. There are four public drinking water reservoirs. A mixture of hills and open plains characterizes the North Fork of the Salt River basin. The western uplands of the basin lie within the Central Claypan, an area of very flat lands dominated by row crop agriculture. Basin-wide, 44% of the land is row crop, 42% grasslands, 11% forest, and 1% urban. Most water movement in the basin is through the surface stream network. The major NPS pollution problems result from agriculture and loss of habitat. All 202 miles (100 percent) of classified streams in the basin are considered to have degraded aquatic habitat.

Channelization has occurred in 53 miles (26 percent) of streams in the basin. During warm weather, when streams are low, livestock tend to gather in and around streams. The wastes they leave in the water contribute to nuisance algae growths, low levels of dissolved oxygen, and elevated levels of ammonia and bacteria.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Shelbina Lake Watershed Plan http://www.mowin.org/Training/WQMP/pdf/shelbina.pdf
- North Fork of Salt River (WRAS) (G03-NPS-01) http://www.mowin.org/Training/WQMP/pdf/nfsaltwras.pdf

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
0115U	Bear Creek	Unknown pollutant	NA	Yes	No
7033	Mark Twain Lake	Mercury	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Turf Issues Workshop Planning Committee
- Water Festival Planning Committee

- Target MAP Planning Committee
- Shelbina Watershed Committee
- Community Wastewater Program Committee
- Youth Retreat Committee
- Regional Watershed Conference Committee
- On-site Sewage Workshop Committee

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- North Fork Salt River at Hagers Grove
- North Fork Salt River near Shelbina
- Crooked Creek near Paris

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 28: Number of Volunteer Water Quality Sampling Events Conducted in 07110005 North Fork Salt Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 218,865 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- North Fork Salt (SN047)
- North Fork Salt (SN053)

Figure 29: North Fork Salt Basin AgNPS SALT Project Plan Goals for HUC 07110005

Watershed Name	North Fork Salt River	North Fork Salt River	Total
Project #	SN047	SN053	
Watershed Size (ac)	44,124	64,666	108,790
Cropland (ac)	16,364	23,698	40,062
Cropland Treated in Plan (ac)	6,150	10,000	16,150
Pasture/Hayland (ac)	19,229	28,835	48,064
Pasture/Hayland Treated in Plan (ac)	7,100	2,500	9,600
CRP Land (ac)	3,848	2,675	6,523
CRP Treated in Plan (ac)	0	0	0
Urban (ac)	38	216	254
Urban Treated in Plan (ac)	0	0	0
Woodland (ac)	4,563	11,547	16,110
Woodland Treated in Plan (ac)	500	500	1,000
Public Land (ac)	0	276	276
Public Land Treated in Plan (ac)	0	0	0
Other (ac)	82	419	501
Other Treated in Plan (ac)	0	0	0
Stream (mi)	120	132	252
Stream Treated in Plan (mi)	60	5	65

Figure 30: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07110005

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	44	Terraces (feet)	128,680
Filter Strip (acres)	27	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	27	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	11	Critical Planting (acres)	23
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	6
Windbreak (feet)	3,070	Water/Sediment Basins (#)	0
Waste Utilization	375	Wells Decommissioned (#)	0
Nutrient Management (acres)	3,890		

	Planned	**Applied**
Nutrient Plans (CNMP)	2	2
Conservation Reserve Program	51	70
Conservation Security Program	0	0
Wetland Reserve Program	1	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	16	50

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

South Fork Salt River Basin
(HUC 07110006)
Missouri Basin Name – Middle-South Forks of the Salt River

The Middle, Elk, and South Forks of the Upper Salt River basin, HUC 07110006, lies in northeastern Missouri and encompasses much of Monroe, Audrain, eastern Randolph and Macon, and portions of Callaway, Shelby, and Boone counties. The major streams in this basin are the Middle Fork, Elk Fork, and South Fork of Salt River. The downstream end of the basin occurs where these streams flow into Mark Twain Lake. The basin is 1,214 square miles in area. The largest reservoir in the basin is Teal Lake with a surface area of 76 acres. There are no public drinking water reservoirs in this basin.

The uppermost portion of the basin is in an area of very flat lands dominated by row crop agriculture. Basin-wide, 50% of the land is row crop, 34% is grassland, 13% forest and 1% open water. Most water movement in the basin is through the surface stream network. There are only two small springs of note in the basin, and neither sustains flow during dry weather.

All 316 miles (100 percent) of classified streams in the basin are considered to have degraded aquatic habitat. The quality of aquatic habitat is impaired by large amounts of removed wooded riparian vegetation and by the channelization of streams. Channelization has occurred in seven miles (two percent) of streams in the basin. Stormwater runoff of fertilizers, animal wastes, and pesticides into streams contribute to nonpoint source pollution. Studies of private well water quality in northeastern Missouri have shown that about 20 percent of all private wells sampled exceeded drinking water standards for nitrate and one to two percent of wells exceeded drinking water standards or health advisory levels for pesticides, most commonly the herbicides Atrazine or Alachlor.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
0121	Middle Fork Salt River	Sediment	11/01/2006	Yes	Yes
7033	Mark Twain Lake	Mercury	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- South Fork Salt River above Santa Fe
- Long Branch near Santa Fe
- Middle Fork Salt River near Holliday
- Elk Fork Salt River near Madison

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 31: Number of Volunteer Water Quality Sampling Events Conducted in 07110006 South Fork Salt

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 487,123 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- Bee and Turkey Creek (SN034)
- Middle Fork Salt (SN086)
- Elk Fork/Salt/Coon Creek (SN100)

Figure 32: South Fork Salt Basin AgNPS SALT Project Plan Goals for HUC 07110006

Watershed Name	Bee and Turkey Creek	Middle Fork Salt River	Elk Fork/Salt R./ Coon Creek	Total
Project #	SN034	SN086	SN100	
Watershed Size (ac)	22,806	42,926	35,294	101,026
Cropland (ac)	592	18,217	17,445	36,254

Cropland Treated in Plan (ac)	-	3,413	7,000	10,413
Pasture/Hayland (ac)	6,816	14,252	11,630	32,698
Pasture/Hayland Treated in Plan (ac)	-	1,430	4,000	5,430
CRP Land (ac)	-	3,643	1,250	4,893
CRP Treated in Plan (ac)	-	0	0	0
Urban (ac)	459	1,114	90	1,663
Urban Treated in Plan (ac)	-	0	0	0
Woodland (ac)	2,924	4,660	4,754	12,338
Woodland Treated in Plan (ac)	-	200	400	600
Public Land (ac)	-	0	110	110
Public Land Treated in Plan (ac)	-	0	0	0
Other (ac)	15	1,040	15	1,070
Other Treated in Plan (ac)	-	0	0	0
Stream (mi)	39	109	57	205
Stream Treated in Plan (mi)	-	7	5	12

Figure 33: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07110006

Contour Buffer Strips (acres)	0	Diversion (feet)	4,245
Field Border (feet)	27	Terraces (feet)	209,365
Filter Strip (acres)	43	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	60	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	28	Critical Planting (acres)	85
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	27
Windbreak (feet)	3,611	Water/Sediment Basins (#)	0
Waste Utilization	165	Wells Decommissioned (#)	1
Nutrient Management (acres)	1,659		

	Planned	**Applied**
Nutrient Plans (CNMP)	2	4
Conservation Reserve Program	41	48
Conservation Security Program	0	0
Wetland Reserve Program	3	1
Wildlife Habitat Incentive Program	3	2
EQIP Ground/Surface Water Plans	31	50

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Salt River Basin
(HUC 07110007)
Missouri Basin Name – Lower Salt River Basin

The Salt River basin, HUC 07110007, lies in northeastern Missouri and flows east to its confluence with the Mississippi River about 20 miles southeast of Hannibal. The basin includes all of Mark Twain Lake and the watershed of the Salt River downstream of Mark Twain Lake. Counties within this unit are Marion, Pike, Ralls, Shelby, Audrain, and Monroe. The basin is 794 square miles in area and the major tributaries include Spencer and Peno creeks. The largest reservoir in the basin is Mark Twain Lake with a surface area of 18,600 acres. A mixture of hills and open plains characterizes the Lower Salt River basin. Land use consists of 50% row crop, 26% grasslands, 21% forest, and 3% open water. There are 22 known small springs. Most water movement in the basin is through the surface stream network.

A total of 18 miles (14 percent) of classified streams in the basin are considered to have degraded aquatic habitat. Nonpoint source pollution results from sediment, nutrients and pesticides from crop fields and removal of wooded riparian vegetation. The state standard for the maximum allowable level of Atrazine in a raw public water supply is 3 ug/l as an average. Long-term Atrazine levels in Monroe City Route J Lake and Vandalia Lake exceed this standard. Average levels of a second herbicide, Cyanazine, exceed Federal Drinking Water Health Advisory guidelines of 1 ug/l in Monroe City Route J Lake.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- 9-element plan is being written for Vandalia Lake, HUC 07110007030003. The plan was developed through 319 project #G00-NPS-12
- Monroe City Reservoirs Watershed Plan: http://www.mowin.org/Training/WRAS/Monroecity.pdf

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
7033	Mark Twain Lake	Mercury	NA	Yes	No
7031	Monroe City Route J Lake	Atrazine and cyanazine	NA	Yes	No
0091	Salt River	Mercury	NA	Yes	No
0091	Salt River	Manganese	NA	Yes	No
0103	Salt River	Manganese and iron	NA	Yes	No
7032	Vandalia Lake	Atrazine	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Monroe City Resources Steering Committee
- Vandalia Watershed Management Committee

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Lick Creek at Perry
- Salt River near Center
- Salt River near New London
- Spencer Creek below Plum Creek near Frankford

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 34: Number of Volunteer Water Quality Sampling Events Conducted in 07110007 Salt River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 141,058 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 35: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07110007

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	19	Terraces (feet)	66,332
Filter Strip (acres)	100	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	37	Vegetative Barrier (feet)	0

Riparian Forest Buffer (acres)	13	Critical Planting (acres)	25
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	650	Water/Sediment Basins (#)	3
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	2,992		

	Planned	**Applied**
Nutrient Plans (CNMP)	2	5
Conservation Reserve Program	32	55
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	6	11
EQIP Ground/Surface Water Plans	19	40

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Cuivre River Basin
(HUC 07110008)
Missouri Basin Name – Cuivre River

The Cuivre River basin, HUC 07110008, lies in east central Missouri and flows in a southeasterly direction to its confluence with the Mississippi River about 15 miles northwest of St. Charles. It flows through portions of Audrain, Montgomery, Warren, Lincoln, Pike, Ralls, and St. Charles counties. The basin is 1,260 square miles in area and the major tributaries include the North and West Forks of the Cuivre River, and Indian, Coon, Elkhorn, Bear, and Big creeks. The largest reservoir in the basin is Golden Eagle Lake with a surface area of 141 acres. The western portion of the basin is part of the Central Claypan area, a flat landscape dominated by row crop agriculture. The remainder of the basin is a mixture of hills and plains with more pasture and forested land. In total, 53% of the land is row crop, 26% is grassland and 19% forest.

There are many small springs along the lower North Fork Cuivre River and its tributaries and along the lower portion of the West Fork. There are few springs in the remainder of the basin. Most water movement in the basin is through the surface stream network. Groundwater from bedrock aquifers is used for all public and most private drinking water supplies in this basin. There are no public drinking water reservoirs in this basin. Along the northern and western edges of the basin, bedrock aquifers become increasingly saline and are unfit for either drinking water or agricultural irrigation. The most serious nonpoint source pollution problem is degradation of aquatic habitat. A total of 121 miles (30%) of classified streams in the basin are considered to have degraded aquatic habitat.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
0189	Elkhorn Creek	Biochemical oxygen demand and volatile suspended solids	Permit-in-lieu+ 05/01/2006	Yes	Yes
0189	Elkhorn Creek	Sediment	NA	Yes	No
0212	Indian Camp Creek	Nonvolatile suspended solids and ammonia nitrogen	NA	Yes	No
0159	Mill Creek	Sediment	07/15/2008	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm
+Permit-in-lieu: http://www.dnr.mo.gov/env/wpp/tmdl/0189-elkhorn-ck-pil.pdf

Watershed Groups Formed *

- Montgomery County Soil and Water Conservation District Watershed Committee

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Cuivre River near Troy

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Big Creek
- Sugar Creek

Figure 36: Number of Volunteer Water Quality Sampling Events Conducted in 07110008 Cuivre River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	4	ND	ND	ND
2	1	2	1	1
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	5	2	1	1

State Cost Share

Soil Conserved – 170,544 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- Bear and Brush Creeks (SN077)

Figure 37: Cuivre River Basin AgNPS SALT Project Plan Goals for HUC 07110008

Watershed Name	Bear and Brush Creeks	Total
Project #	SN077	
Watershed Size (ac)	71,347	71,347
Cropland (ac)	39,932	39,932
Cropland Treated in Plan (ac)	8,845	8,845

Pasture/Hayland (ac)	15,295	15,295
Pasture/Hayland Treated in Plan (ac)	1,703	1,703
CRP Land (ac)	1,350	1,350
CRP Treated in Plan (ac)	0	0
Urban (ac)	298	298
Urban Treated in Plan (ac)	0	0
Woodland (ac)	13,869	13,869
Woodland Treated in Plan (ac)	660	660
Public Land (ac)	88	88
Public Land Treated in Plan (ac)	0	0
Other (ac)	515	515
Other Treated in Plan (ac)	0	0
Stream (mi)	160	160
Stream Treated in Plan (mi)	1	1

Figure 38: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07110008

Contour Buffer Strips (acres)	0	Diversion (feet)	2,800
Field Border (feet)	0	Terraces (feet)	133,538
Filter Strip (acres)	24	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	16	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	7
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	5
Windbreak (feet)	483	Water/Sediment Basins (#)	38
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	3,332		

	Planned	**Applied**
Nutrient Plans (CNMP)	2	5
Conservation Reserve Program	17	22
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	1
EQIP Ground/Surface Water Plans	19	42

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Peruque-Piasa River Basin
(HUC 07110009)
Missouri Basin Name – Peruque-Dardenne Creeks

The Peruque-Piasa basin, HUC 07110009, lies within Warren, Lincoln and St. Charles counties. Peruque and Dardenne creeks are the main streams in the basin. Peruque Creek originates in Warren County, and Dardenne Creek begins in western St. Charles County. Both streams flow easterly through a heavily urbanized area and gradually turn north to flow into the Mississippi River. Peruque Creek forms Lake St. Louis and Lake Ste. Louise.

Nonpoint source pollution results from stormwater flow over impervious surfaces. Pollutants from urban sources such as oil and other car fluids, road salt, pet waste, lawn fertilizer, and sediment from construction areas all impact the water quality. Lack of riparian habitat causes streambank erosion. Much of Dardenne Creek has been channelized which results in loss of habitat and flash flooding.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Peruque Creek Watershed Study/Watershed Management Action Plan was developed by the City of Lake Saint Louis through an EPA Region 7 grant.

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
0221	Dardenne Creek	Unknown	NA	Yes	No
7055	Lake Ste. Louise	Fecal coliform	NA	Yes	No
0001	Mississippi River	Chlordane and PCBs	11/03/2006	Yes	Yes
0217	Peruque Creek	Nonvolatile suspended solids	NA	Yes	No
0218	Peruque Creek	Nonvolatile suspended solids	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Peruque Creek Watershed Alliance
- Dardenne Creek Watershed Alliance

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Peruque Creek at Lake St. Louis
- Dardenne Creek at O'Fallon
- Dardenne Creek at Old Town St. Peters

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Peruque Creek
- Dardenne Creek
- Belleau Creek

Figure 39: Number of Volunteer Water Quality Sampling Events Conducted in 07110009 Peruque-Piasa River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	1	3	3	3
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	3	21	ND	2
TOTAL	4	24	3	5

State Cost Share

Soil Conserved – 640 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 40: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07110009

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	458		

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	3
Conservation Security Program	0	0
Wetland Reserve Program	1	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	2	10

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Cahokia-Joachim River Basin
(HUC 07140101)
Missouri Basin Name – Mississippi River Tribs - St. Louis-Ste. Genevieve

The Middle Mississippi River (MMR) corridor ecosystem is a 200-mile long reach of the Mississippi River running from St. Louis, Missouri, to Cairo, Illinois. The Cahokia-Joachim portion, HUC 07140101, stretches along the eastern border of St. Louis City, St. Louis County, Jefferson, St. Charles, St. Francis, and Ste. Genevieve counties. The river and its associated floodplain provide habitat for numerous native fish and wildlife, and serves as a vital migration corridor for ducks and other waterfowl within the Mississippi Flyway.

What is locally referred to as the "batture" lands are unprotected lands inside the levees and bluffs on both the Missouri and Illinois sides, within the floodplain of the river. A 140-mile stretch of the "open river" begins just north of St. Louis, Missouri, at the confluence of the Missouri River and runs south to the confluence of the Ohio River near Cairo, Illinois. This section is called the open river because it is free of dams and does not have as intricate a levee and drainage system as does the river below Cairo. This area sustained much of the $12 billion in damages caused by the Great Flood of 1993.

The World Resources Institute (WRI) brief, Awakening the Dead Zone (2003), states that 56% of the nitrogen entering the Mississippi River occurs above where the Ohio River enters near Cairo, Illinois. This is predominantly from agricultural nonpoint sources. Loss of aquatic, wetland, and forested riparian habitats has exacerbated nutrient and sedimentation loading along this river stretch. Many of these lands were cleared of bottomland hardwood forests in the 1950s-70s and drained for cropping, resulting in the loss of natural ecosystems that were rich in biodiversity and helped to maintain water quality.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Ecosystem Management Plan for Ruth Park Woods, Golf Course and River Des Peres (project #G06-NPS-18).
- 9-element plan is being developed for the Watkins Creek Sub-watershed. Phase I of the plan development was completed through 319 project #G06-NPS-25.
- 9-element plan is being developed for the Sandy Creek Sub-watershed. The plan is being developed by Jefferson County through 319 project #G09-NPS-09. **
- 9-element plan is being developed for the Deer Creek Sub-watershed. The plan is being developed by the Missouri Botanical Garden through 319 project #G09-NPS-13. **

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
1746	Big Bottom Creek	Biochemical oxygen demand and volatile suspended solids	NA	Yes	No
1707	Mississippi River	Chlordane and PCBs	11/03/2006	Yes	Yes
1707	Mississippi River	Lead and zinc	NA	Yes	No
9003	River des Peres	Low dissolved oxygen	NA	Yes	No
1714	Rock Creek	Biochemical oxygen demand and ammonia nitrogen	12/01/1999	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Earth Day Symposium Planning Committee
- Great River Planning Sub-committee
- Community Design and Water Quality Planning Sub-committee
- Green Buildings Planning Sub-committee
- Water Resources Advisory Council Brochure Project Focus Group Review Committee
- River Des Peres Coalition
- Watkins Creek task group
- Little Creek Watershed Project Sub-committees
- Sandy Creek Watershed Management Units Sub-committees **
- Watkins Creek Planning Committee **
- Watkins Creek Common Sense Coalition **
- Deer Creek Watershed Friends **
- Ladue Creeks Committee **
- MSD Demonstration Protections Planning Team **

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Watkins Creek near Bellefontaine Neighbors
- Watkins Creek at Bellefontaine Neighbors
- Maline Creek at Bellefontaine Neighbors
- Mississippi River at St. Louis

- River des Peres near University City
- River des Peres Trib. at Pagedale
- Engelholm Creek near Wellston
- Deer Creek at Litzinger Road at Ladue
- Two-Mile Creek at Ladue
- Sebago Creek near Rock Hill
- Deer Creek at Ladue
- Black Creek near Brentwood
- Deer Creek at Maplewood
- McKenzie Creek near Shrewsbury
- Frammond Creek near Wilbur Park
- River des Peres at St. Louis
- Gravois Creek near Mehlville
- Martigney Creek near Arnold

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Black Creek
- Deer Creek
- Engelholm Creek
- Grand Glaize Creek
- Gravois Creek
- Little Creek
- Magnolia Creek
- Maline Creek
- River Des Peres
- Rock Creek
- Sandy Creek
- Sandy Grove Creek
- Tributary to Deer Creek
- Tributary to Grand Glaize Creek
- Tributary to McKenzie Creek
- Tributary to River des Peres
- Tributary to Watkins Creek
- Two-Mile Creek
- Unnamed pond
- Watkins Creek

Figure 41: Number of Volunteer Water Quality Sampling Events Conducted in 07140101 Cahokia-Joachim River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	5	9	3	5
2	4	17	9	2

3	16	40	19	7
4	ND	ND	ND	ND
TOTAL	25	66	31	14

State Cost Share
Soil Conserved – 20,164 tons

Active Nonpoint Source Projects
319 NPS Projects

- River des Peres Southwest Branch Water Quality Project, G06-NPS-18
- Watkins Creek Watershed Education Project, G07-NPS-06
- A Sewer Runs Through It: A History of the River des Peres, G08-NPS-04
- Sandy Creek Watershed Management Plan Development, G09-NPS-09
- Missouri Botanical Garden Deer Creek Watershed Initiative, G09-NPS-13

AgNPS SALT Projects

- None

Figure 42: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07140101

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	4	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	3
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	1
Windbreak (feet)	0	Water/Sediment Basins (#)	10
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	161		

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	10	9
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	1	2
EQIP Ground/Surface Water Plans	8	18

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 43: Summary of FFY09 319 NPS Project Evaluation Measures: HUC 07140101 - Cahokia-Joachim River Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	1	10	10	1	0	1	0	0
					acres	acres	acres	acres
					0	96077	0	0

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	150	47	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	0	0	0	0	0	0	0	0	0	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	1	2	0	0	0	0	3	1	25

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	0	0	1	0	0	0	0	0

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	213	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	9	623	213	900	4,100	35	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	0	0	0	0	0	0	0

Meramec River Basin
(HUC 07140102)
Missouri Basin Name – Meramec River Basin

The Meramec River basin, HUC 07140102, is located in east central Missouri in Crawford, Dent, Franklin, Iron, Jefferson, Phelps, Reynolds, St. Louis, Texas, and Washington counties. The Meramec River and its tributaries drain 2,149 square miles. The main stem of the Meramec's 218 linear miles carries water from the lightly populated, forested, and agricultural upper watershed northeasterly to the heavily populated and urbanized lower watershed to enter the Mississippi River below St. Louis. Meramec tributaries of fifth order or greater include Courtois, Crooked, Dry, Dry Fork, Huzzah, and Indian creeks and the Little Meramec River. Meramec base flows are well sustained by springs characteristic of the region's karst topography and by drainage from the Big and Bourbeuse rivers, two major tributaries.

Meramec River basin land cover consists of roughly 50% forest, 25% pasture, and 25% cropland, rural transportation, urban development, water, and other minor land uses combined. Within the upper Meramec River portion, nearly one third of the forestland is privately owned. The Mark Twain National Forest covers a large area in the remaining two thirds. Major resource uses within the Meramec River basin include grazing, logging, and mining lead, iron, sand and gravel. There is a current trend toward increasing numbers of cattle and increasing grazing density. Where cattle have free access to streams, this trend causes more stream-channel disturbance. Also, gravel mining contributes to the accelerated transport of sediments in the Meramec River basin.

Overall, water quality within the Meramec River basin is good. Segments of Courtois Creek, Huzzah Creek, Blue Springs Creek, and the Meramec River are Outstanding State Resource Waters. Nonpoint source pollution problems result from cattle grazing on creek bottom pastures with access to streams where they damage riparian areas and cause excessive nutrient loading of the streams. In the upper basin, impoundments containing tailings from mining operations pose a potential threat to stream water quality. The lower watershed from Eureka to Fenton is an urbanized zone that poses other threats to water quality. Sediment and pollution-laden runoff enter the lower Meramec system rapidly because of impervious surfaces from development and the channelization of tributaries.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- LaBarque Creek Watershed Conservation Plan.
- Watershed Planning for the Lower Meramec River report was developed by East-West Gateway Council of Government. The document development was supported by a grant from EPA Region 7.

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
2184	Grand Glaize Creek	Mercury	NA	Yes	No
1946	Indian Creek	Zinc	NA	Yes	No
1846	Meramec River	Mercury	NA	Yes	No
2190	Saline Creek	Biochemical oxygen demand and ammonia nitrogen	01/12/2001	Yes	Yes
7280	Schuman Park Lake	Mercury	NA	Yes	No
1870	Spring Branch	Biochemical oxygen demand and volatile suspended solids	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- LaBarque Creek Watershed Coordinating Committee
- LaBarque Creek Watershed Landowner Committee

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Meramec River at Cook Station
- Meramec River near Steelville
- Huzzah Creek near Steelville
- Meramec River near Sullivan
- Meramec River near Eureka
- Kiefer Creek near Ballwin
- Williams Creek near Peerless Park
- Fishpot Creek at Valley Park
- Yarnell Creek at Fenton
- Fenton Creek near Fenton
- Mattese Creek near Mattese

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Blue Springs Creek
- Brush Creek
- Dry Fork Meramec River

- Fishpot Creek
- Fox Creek
- Grand Glaize Creek
- Hamilton Creek
- Indian Creek
- L. Dry from Meramec River
- LaBarque Creek
- Little Meramec River
- Little Hazel Creek
- Mattese Creek
- Maramec River
- Pierce Creek
- S. Fork LaBarque Creek
- Saline Creek
- Sugar Creek
- Unnamed tributary to Grand Glaize Creek
- William Creek

Figure 44: Number of Volunteer Water Quality Sampling Events Conducted in 07140102 Meramec River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	6	3	ND	2
2	15	25	9	10
3	8	8	2	7
4	ND	ND	ND	ND
TOTAL	29	36	11	19

State Cost Share
Soil Conserved – 64,129 tons

Active Nonpoint Source Projects
319 NPS Projects
- None

AgNPS SALT Projects
- None

Figure 45: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07140102

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	4	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0

Riparian Forest Buffer (acres)	0	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	131		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	7	4
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	5	3
EQIP Ground/Surface Water Plans	31	22

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Bourbeuse River Basin
(HUC 07140103)
Missouri Basin Name – Bourbeuse River Basin

The Bourbeuse River watershed, HUC 07140103, is located within the northeastern quarter of the Ozark Highlands. The main stem of the Bourbeuse River winds northeasterly through Phelps, Gasconade, and Franklin counties to join the Meramec River; its watershed additionally encompasses portions of Maries, Osage, and Crawford counties. The Bourbeuse River is 147 miles from mouth to headwaters, and the lower 132 miles have permanent flow. The Bourbeuse River watershed drains 843 square miles and is composed of a number of smaller watersheds including Spring Creek, Boone Creek, Brush Creek, Red Oak Creek, Dry Fork, Little Bourbeuse River, and the Lower Bourbeuse River. Land uses within the watershed consist of 45% cropland and pasture found primarily within stream floodplains, 51% deciduous forest, and the remainder a mixture of other forest types, shrub and brush rangeland, and urban areas. Most of the urban-type land use is found in the lower watershed near Union.

Water quality in the Bourbeuse River watershed is generally good. Nonpoint source pollution in the form of sediment from erosion and organic wastes from livestock are the main problems. Stream habitat conditions within the Bourbeuse River and its tributaries are variable. The main stem has no channelized segments, and old mill dams located near Beaufort and Union provide channel grade controls. A number of tributaries are impounded, with the largest impoundment being Indian Lake (326 acres) in the Brush Creek subwatershed. In many streams, the lack of adequate riparian corridors, excessive nutrient loading, streambank erosion, excessive runoff and erosion, and the effects of extensive in-stream gravel mining are among the problems observed. Grazing practices along many streams contribute to streambank instability, nutrient loading, and poor riparian corridor conditions.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
2034	Bourbeuse River	Mercury	NA	Yes	No
7382	Foxboro Lake	Mercury	NA	Yes	No
7288	Indian Hills Lake	Mercury	NA	Yes	No
2038	Red Oak Creek and Tributaries	Volatile suspended solids	Permit-in-lieu+ 04/21/2006	Yes	MO State Operating Permit++

3360	Red Oak Creek Tributary	Volatile suspended solids	Permit-in-lieu+ 04/21/2006	Yes	MO State Operating Permit++
3361	Red Oak Creek and Tributaries	Volatile suspended solids	Permit-in-lieu+ 04/21/2006	Yes	MO State Operating Permit++

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm
+Permit-in-lieu: (not available online)
++MO State Operating Permit: http://www.dnr.mo.gov/env/wpp/permits/issued/0041068.pdf

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Bourbeuse River near High Gate
- Bourbeuse River at Union

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Bourbeuse River
- Little Bourbeuse River
- Red Oak Creek

Figure 46: Number of Volunteer Water Quality Sampling Events Conducted in 07140103 Bourbeuse River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	1		1	
2	4	4	4	1
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	5	4	5	1

State Cost Share

Soil Conserved – 157,757 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 47: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07140103

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	8	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	3	Critical Planting (acres)	5
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	4
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	3
Nutrient Management (acres)	381		

	Planned	Applied
Nutrient Plans (CNMP)	1	2
Conservation Reserve Program	5	4
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	9	18

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Big River Basin
(HUC 07140104)
Missouri Basin Name – Big River Basin

The Big River Watershed Basin, HUC 07140104, is located in east-central Missouri and drains 955 square miles of the Ozark plateau in portions of Ste. Genevieve, St. Francis, Franklin, Washington, Jefferson, and Iron counties. Big River has eight 5th order tributaries and flows northward for 138 miles until it reaches the Meramec River. The majority of basin land use is forest and pasture with some row cropping along stream bottoms. However, urbanization is rapidly increasing in the lower basin. Ninety-five percent of the basin is privately owned and is used extensively for recreation, especially fishing. Basin streams exhibit typical Ozarkian characteristics: good water quality and fish habitat. Damage to some aquatic habitats and the potential for serious damage to several streams exists due to past lead and barite mining activity. Unsafe mine dams and poorly-stored mine waste continue to degrade habitat or biota in about 110 miles of basin streams.

Riparian corridor habitat is fair to good, with Big River having slightly better habitat than tributary streams. About 75% of basin's streambanks have either minimal or no erosion and are protected by trees or shrubs. Riparian corridors are negatively affected by riparian land use, especially along tributary streams. The major source of nonpoint source pollution in the basin comes from mine chat and tailings piles. The eroded mine waste has buried aquatic habitats in some basin streams, leading to extirpation of some benthic invertebrates. This sediment is associated with elevated levels of heavy metals. Habitat quality is threatened by potential releases of mine waste. A fish consumption advisory for some fish species is present on Big River due to lead contamination.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Belews Creek Watershed Management Plan (G06-NPS-03).
- 9–element plan for Big River, HUC's 07140104 010 004, 010 004, 010 004, and 080 003 is being developed through 319 projects #G04-NPS-22 and G00-NPS-12. The plan is in the second draft development stage.

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
2074	Big River	Lead	NA	Yes	No
2080	Big River	Lead and nonvolatile suspended solids	NA	Yes	No
2168	Flat River Creek	Lead, nonvolatile suspended solids, and zinc	NA	Yes	No

2128	Pond Creek Tributary	Nonvolatile suspended solids	NA	Yes	No
2170	Shaw Branch	Lead and nonvolatile suspended solids	NA	Yes	No
2120	Shibboleth Creek	Nonvolatile suspended solids	NA	Yes	No
3282	Turkey Creek	Biochemical oxygen demand and volatile suspended solids	01/13/2005	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Steering Committee for Upper Big River Corridor Groundwater Protection and Well Decommissioning Project
- Upper Big River Corridor Steering Committee
- Belews Creek Watershed Partnership Committee
- Belews Creek Public Advisory Group
- Big River-St. Francois County Watershed Group **

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Big River at Irondale
- Big River near Richwoods
- Big River at Byrnesville

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Big River
- Coonville Creek
- Dry Creek
- Tributary to Lake Wauwanoka
- Unnamed tributary to Lake Wauwanoka

Figure 48: Number of Volunteer Water Quality Sampling Events Conducted in 07140104 Big River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	2	5	2	2

3	1	1	ND	1
4	ND	ND	ND	ND
TOTAL	3	6	2	3

State Cost Share
Soil Conserved – 48,529 tons

Active Nonpoint Source Projects
319 NPS Projects

- Upper Big River Corridor Groundwater Protection & Well Decommissioning, G04-NPS-22

AgNPS SALT Projects

- Upper Big River (SN078)

Figure 49: Big River Basin AgNPS SALT Project Plan Goals for HUC 07140104

Watershed Name	Upper Big River
Project #	SN078
Watershed Size (ac)	26,552
Cropland (ac)	300
Cropland Treated in Plan (ac)	100
Pasture/Hayland (ac)	6,752
Pasture/Hayland Treated in Plan (ac)	2,173
CRP Land (ac)	5
CRP Treated in Plan (ac)	0
Urban (ac)	2,700
Urban Treated in Plan (ac)	0
Woodland (ac)	13,500
Woodland Treated in Plan (ac)	2,335
Public Land (ac)	2,000
Public Land Treated in Plan (ac)	0
Other (ac)	1,295
Other Treated in Plan (ac)	0
Stream (mi)	20
Stream Treated in Plan (mi)	8

Figure 50: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07140104

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	2
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	2
Windbreak (feet)	0	Water/Sediment Basins (#)	0

Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	163		

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	3	2
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	1
EQIP Ground/Surface Water Plans	27	20

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 51: Summary of FFY09 319 NPS Project Evaluation Measures: HUC 07140104 – Big River Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	2	0	0	0	0	1	0	0
					acres	acres	acres	acres
					0	96077	0	0

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	75	47	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	0	0	0	1	0	0	0	0	1	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	1	1	2	2	0	0	3	60	20

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	0	0	1	0	0	0	0	0

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	287	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	25	307	287	1,000	1,000	50	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	0	0	0	0	0	0	0

Upper Mississippi- Cape Girardeau
(HUC 07140105)
Missouri Basin Name – Mississippi River Tribs- Ste. Genevieve - Cape Girardeau

The Middle Mississippi River (MMR) corridor ecosystem is a 200-mile long reach of the Mississippi River running from St. Louis, Missouri, to Cairo, Illinois. The Upper Mississippi – Cape Girardeau portion, HUC 07140105, stretches along the eastern border of Ste. Genevieve, Perry, Cape Girardeau, Scott, St. Francis, Bollinger, and Mississippi counties. The river and its associated floodplain provide habitat for numerous native fish and wildlife, and serves as a vital migration corridor for ducks and other waterfowl within the Mississippi Flyway. What is locally referred to as the "batture" lands are unprotected lands inside the levees and bluffs on both the Missouri and Illinois sides, within the floodplain of the river.

A 140-mile stretch of the "open river" begins just north of St. Louis, Missouri, at the confluence of the Missouri River and runs south to the confluence of the Ohio River near Cairo, Illinois. This section is called the open river because it is free of dams and does not have as intricate a levee and drainage system as does the river below Cairo. This area sustained much of the $12 billion in damages caused by the Great Flood of 1993.

The World Resources Institute (WRI) brief, Awakening the Dead Zone (2003), states that 56% of the nitrogen entering the Mississippi River occurs above where the Ohio River enters near Cairo, Illinois. This is predominantly from agricultural nonpoint sources, loss of aquatic, wetland and forested riparian habitats has exacerbated nutrient and sedimentation loading along this river stretch. Many of these lands were cleared of bottomland hardwood forests in the 1950s-70s and drained for cropping, resulting in the loss of natural ecosystems that were rich in biodiversity and helped maintain water quality.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- 9-element plan is being develop for Perry County Karst Protection Area, HUC's 07140105070001, 02, 03, and 04. The plan is being developed through 319 project #G07-NPS-03.

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
1707	Mississippi River	Chlordane and PCBs	11/03/2006	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Perry County Planning Group
- Perry County Stream Team
- Perry County Karst Protection Project Steering Committee
- Perry County Karst Protection Project Homeowner/Landowner Steering Committee
- Addressing Organic Waste on Water Quality in Three St. Louis Streams Project Steering Committee

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- South Fork Saline Creek near Perryville
- Mississippi River at Cape Girardeau

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Cape LaCroix Creek

Figure 52: Number of Volunteer Water Quality Sampling Events Conducted in 07140105 Upper Mississippi-Cape Girardeau River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	1	ND	1	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	1	ND	1	ND

State Cost Share

Soil Conserved – 134,278 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 53: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07140105

Contour Buffer Strips (acres)	0	Diversion (feet)	651
Field Border (feet)	5	Terraces (feet)	6,465
Filter Strip (acres)	28	Lined WW or Outlet (feet)	0

Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	16	Critical Planting (acres)	27
Stream/Shore Protection (feet)	110	Grade Stab. Structures (#)	13
Windbreak (feet)	0	Water/Sediment Basins (#)	44
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	938		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	20	14
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	5	7
EQIP Ground/Surface Water Plans	29	68

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Whitewater Basin
(HUC 07140107)
Missouri Basin Name – Castor-Whitewater Rivers Basin

The Whitewater River basin includes portions of Cape Girardeau, Ste. Genevieve, Madison, Wayne, Perry, St. Francois, Bollinger, and Scott counties. The four primary streams in the 1,207-square mile watershed include the Castor River (6th order, 69 miles), Whitewater River (6th order, 56 miles) and Crooked Creek (5th order, 49 miles), which are now tributaries to the man-made Headwater Diversion Channel (7th order, 34 miles) that drains into the Mississippi River near Cape Girardeau, Missouri. The basin is primarily Ozarkian in nature with a steep descent into the Mississippi Lowlands and is characterized by a high incidence of permanent streams, diverse channel gradients and land use, which is 55% woodland, 22% grassland and 19% cropland. Only 30,100 people live in the basin, which is free of heavy industrial developments and major urban centers.

An abundant water supply provided by adequate precipitation, good infiltration, high subsurface storage and minimal runoff assures clean, sustained and stable base flows which help maintain high water quality. Nonpoint source pollution problems are generally moderate and local in nature. Nutrient loading from livestock waste, non-permitted gravel mining, sawdust leachate and occasional raw sewage bypasses sometimes constitute minor threats to basin streams. An estimated 6% of the streambanks are severely or moderately eroding. The quality of the corridor vegetation is typically good with 75% of the existing corridors in dense timber. Corridor widths, however, are variable and agricultural encroachment into narrow corridors causes some streambank erosion problems.

Soils in the basin are highly erosive when disturbed. The potential for sheet, rill and gully erosion is the highest in the state; but, few fine sediments actually reach stream channels because of modest cropland acreage and fairly good farming practices. Coarse sediments, however, are eroding from the wooded uplands and clogging some downstream reaches because of poor timber harvest and woodland grazing practices.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Watershed Restoration Action Strategy (WRAS) for Hubble Creek HUC 07140107060001 Status - substantially implemented through G01-NPS-04
- Hubble Creek Watershed Improvement Plan, developed by Cape Girardeau County Commission and Cape Girardeau County Soil and Water Conservation District

Rapid Watershed Assessment *

- Whitewater Sub-basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 07140107: http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

- None

Watershed Groups Formed *

- Cape Girardeau County Stormwater Committee
- Stormwater Advisory Committee (Cape Girardeau)
- Hubble Creek SALT Steering Committee
- Hubble Creek Local Planning Committee

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Castor River at Zalma
- Castor River at Greenbriar

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Castor River
- L. Whitewater Creek
- Stone's Creek
- Whitewater River

Figure 54: Number of Volunteer Water Quality Sampling Events Conducted in 07140107 Whitewater River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	2	1	ND	4
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	2	1	ND	4

State Cost Share

Soil Conserved – 167,285 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- Hurricane Creek (SN093)
- Byrd Creek (SN094)
- Ramsey Creek (SN079)

Figure 55: Whitewater River Basin AgNPS SALT Project Plan Goals for HUC 07140107

Watershed Name	Hurricane Creek	Byrd Creek	Ramsey Creek	Total
Project #	SN093	SN094	SN079	
Watershed Size (ac)	62,957	43,439	22,606	129,002
Cropland (ac)	4,278	10,459	14,547	29,284
Cropland Treated in Plan (ac)	290	2,463	5,000	7,753
Pasture/Hayland (ac)	23,614	22,971	3,397	49,982
Pasture/Hayland Treated in Plan (ac)	2,625	1,365	1,115	5,105
CRP Land (ac)	174	3,363	1,079	4,616
CRP Treated in Plan (ac)	0	0	0	0
Urban (ac)	306	1,107	1,170	2,520
Urban Treated in Plan (ac)	0	0	0	0
Woodland (ac)	33,445	4,786	2,093	40,324
Woodland Treated in Plan (ac)	1,750	676	10	2,436
Public Land (ac)	0	0	285	285
Public Land Treated in Plan (ac)	0	0	0	0
Other (ac)	1,140	753	35	1,928
Other Treated in Plan (ac)	0	0	0	0
Stream (mi)	75	47	69	191
Stream Treated in Plan (mi)	0	6	3	9

Figure 56: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 07140107

Contour Buffer Strips (acres)	0	Diversion (feet)	1,225
Field Border (feet)	5	Terraces (feet)	0
Filter Strip (acres)	13	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	26	Critical Planting (acres)	39
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	29
Windbreak (feet)	0	Water/Sediment Basins (#)	10
Waste Utilization	0	Wells Decommissioned (#)	1
Nutrient Management (acres)	656		

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	21	14
Conservation Security Program	0	0
Wetland Reserve Program	0	1
Wildlife Habitat Incentive Program	0	2
EQIP Ground/Surface Water Plans	20	36

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Lower Mississippi – Memphis Basin
(HUC 08010100)
Missouri Basin Name – Mississippi Mainstem Below Ohio River

The Middle Mississippi River (MMR) corridor ecosystem is a 200-mile long reach of the Mississippi River running from St. Louis, Missouri, to Cairo, Illinois. The Lower Mississippi-Memphis portion, HUC 08010100, stretches along the east boundary of Mississippi, New Madrid, and Pemiscot counties. The river and its associated floodplain provide habitat for numerous native fish and wildlife, and serves as a vital migration corridor for ducks and other waterfowl within the Mississippi Flyway.

The World Resources Institute (WRI) brief, Awakening the Dead Zone (2003), states that 56% of the nitrogen entering the Mississippi River occurs above where the Ohio River enters near Cairo, Illinois. This is predominantly from agricultural nonpoint sources. Loss of aquatic, wetland and forested riparian habitats has exacerbated nutrient and sedimentation loading along this river stretch. Many of these lands were cleared of bottomland hardwood forests in the 1950s-70s and drained for cropping, resulting in the loss of natural ecosystems that were rich in biodiversity and helped maintain water quality.

Generally, some 96% of the lower Mississippi River Valley floodplain has been cut off from the river primarily to serve agricultural purposes. In southeast Missouri an estimated 50,000 of the 2.5 million acres of forested floodplain remain and existing in very small patches. In addition to the floodplain itself, the Mississippi River tributaries enter the river throughout and create passages for fish to reach and exit the critical nursery floodplain habitat that maintains their populations. With the construction of the levee system, these rivers now enter the river through concrete gates. While some forested floodplain exists along the main river course outside the area protected by the levees (e.g., Donaldson Point Conservation Area and Seven Island Conservation Area), the New Madrid Floodway stands as the only backwater floodplain along the lower Mississippi. Most of this area is flooded approximately once every three years. As a result of its regime of floods the area contains a vast diversity of stream habitats including forested wetlands, swamps, flooded croplands, and critically important ephemeral wetland depressions that pond during late winter and spring.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
3152	Mississippi River	Chlordane and PCBs	11/03/2006	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- None

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 57: Number of Volunteer Water Quality Sampling Events Conducted in 08010100 Lower Mississippi-Memphis River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 780 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 58: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 08010100

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	80	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0

Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	245		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	1	1
Conservation Security Program	0	0
Wetland Reserve Program	1	1
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	0	0

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

New Madrid-St. John's Basin
(HUC 08020201)
Missouri Basin Name – St. John's Bayou

The Middle Mississippi River (MMR) corridor ecosystem is a 200-mile long reach of the Mississippi River running from St. Louis, Missouri, to Cairo, Illinois. The New Madrid-St. John's Basin, HUC 08020201, occupies portions of Scott, Mississippi, and New Madrid counties. The majority of the streams in this basin are channelized. St. John's Ditch and several other tributaries flow into St. John's Bayou. The river and its associated floodplain provide habitat for numerous native fish and wildlife, and serves as a vital migration corridor for ducks and other waterfowl within the Mississippi Flyway. Generally some 96% of the lower Mississippi River Valley floodplain has been cut off from the river primarily to serve agricultural purposes. Main nonpoint source impairments come from sediment, nutrients and pesticides from agricultural sources as well as problems associated with channelization. Meanwhile, in southeast Missouri only 50,000 of the 2.5 million acres of forested floodplain remain and these in only very small patches. In addition to the floodplain itself, throughout the Mississippi River tributaries enter the river and create passages for fish to reach and exit the critical nursery floodplain habitat that maintains their populations. With the construction of the levee system, these rivers now enter the river through concrete gates.

While some forested floodplain exists along the main river course outside the area protected by the levees (e.g., Donaldson Point Conservation Area and Seven Island Conservation Area), the New Madrid Floodway stands as the only backwater floodplain along the lower Mississippi. Most of this area is flooded approximately once every three years. As a result of its regime of floods the area contains a vast diversity of stream habitats including forested wetlands, swamps, flooded croplands and critically important ephemeral wetland depressions that pond during late winter and spring.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
3134	Spillway Ditch	Sediment	11/22/2006	Yes	Yes
3151	Swift Ditch	Mercury	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- None

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 59: Number of Volunteer Water Quality Sampling Events Conducted in 08020201 New Madrid-St. John's River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 44,730

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- St. John's Bayou (SN091)

Figure 60: New Madrid-St. John's River Basin AgNPS SALT Project Plan Goals for HUC 08020201

Watershed Name	St. John's Bayou	Total
Project #	SN091	
Watershed Size (ac)	18,007	18,007
Cropland (ac)	17,005	17,005
Cropland Treated in Plan (ac)	8,400	8,400
Pasture/Hayland (ac)	181	181
Pasture/Hayland Treated in Plan (ac)	0	0
CRP Land (ac)	160	160
CRP Treated in Plan (ac)	0	0
Urban (ac)	271	271
Urban Treated in Plan (ac)	0	0
Woodland (ac)	318	318

Woodland Treated in Plan (ac)	0	0
Public Land (ac)	72	72
Public Land Treated in Plan (ac)	0	0
Other (ac)	0	0
Other Treated in Plan (ac)	0	0
Stream (mi)	44	44
Stream Treated in Plan (mi)	12	12

Figure 61: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 08020201

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	33	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	14
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	46
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	2,427		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	7	16
Conservation Security Program	0	0
Wetland Reserve Program	4	5
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	13	12

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Upper St. Francis River Basin
(HUC 08020202)
Missouri Basin Name – Upper St. Francis Basin

The Upper St. Francis Basin, HUC 08020202, lies in portions of Iron, St. Francois, Madison, Ste. Genevieve, Butler, Reynolds, Washington, and Wayne counties. The St. Francis River originates in Iron County in southeast Missouri and flows 225 miles to the Missouri/Arkansas border. The basin drains 1,839 square miles in Missouri. The Upper St. Francis Basin is located above Wappapello Dam and the Lower St. Francis Basin below Wappapello Dam. Six dams are located in the upper basin, which can affect flows and fish movement. These include Wappapello Dam and Lake (8,400 acres) and the dam at DiSalvo Lake on the mainstem and four dams located on mainstem tributaries.

This basin is 77% woodland, 10% grassland, 7% cropland, and 6% other land uses, which include industrial, urban, and water developments. The basin is mostly rural. The communities of Farmington, Fredericktown, and Ironton and the area surrounding Wappapello Lake are experiencing the greatest population growth. Uncontrolled sediment and stormwater runoff at construction sites pose localized nonpoint source pollution problems. Other nonpoint source pollution problems include runoff from mine tailing piles and nutrient enrichment from agricultural activities.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
2916	Big Creek	Metals	02/17/2006	Yes	Yes
2860	Goose Creek	Nickel and cobalt	12/01/1999	Yes	Yes
2860	Saline Creek	Nickel and cobalt	12/01/1999	Yes	Yes
2190	Saline Creek	Biochemical oxygen demand and ammonia nitrogen	01/12/2001	Yes	Yes
2835	St. Francis River	Biochemical oxygen demand and ammonia nitrogen	02/01/2006	Yes	Yes
2850	Trace Creek	pH form natural sources	11/15/2004	Yes	Yes
2864	Village Creek	Nonvolatile suspended solids	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- Wayne-Butler Counties PWSD #4 Source Water Protection Plan

Water Quality Monitoring

Active USGS Gaging Station(s)

- St. Francis River near Roselle
- Little St. Francis River at Fredericktown
- St. Francis River near Mill Creek
- St. Francis River near Saco
- Big Creek at Sam A. Baker State Park
- St. Francis River near Patterson

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 62: Number of Volunteer Water Quality Sampling Events Conducted in 08020202 Upper St. Francis River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 181,307 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 63: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 08020202

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	5
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	4
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	27	Wells Decommissioned (#)	1
Nutrient Management (acres)	0		

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	1	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	1	4
EQIP Ground/Surface Water Plans	20	38

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Lower St. Francis River Basin
(HUC 08020203)
Missouri Basin Name – Lower St. Francis Basin

The Lower St. Francis Basin, HUC 08020203, lies in portions of Bollinger, Wayne, Stoddard, Butler and Dunklin counties. The St. Francis River originates in Iron County in southeast Missouri and flows 225 miles to the Missouri/Arkansas border. The basin drains 1,839 square miles in Missouri. The Upper St. Francis Basin is located above Wappapello Dam and the Lower St. Francis Basin below Wappapello Dam. Drainage in the lower basin has been altered by a system of levees and drainage ditches. Most of the west bank of the lower St. Francis River is a levee, which prevents drainage into the river from the west. Flow in the lower sub-basin is primarily regulated by water released through Wappapello Dam. However, extensive infiltration produces a good aquifer with abundant groundwater supplies.

Nonpoint source water pollution is mainly associated with headcutting, streambank erosion, and the resulting increased sediment load and deposition downstream which adversely effects water quality. Nutrient enrichment from cropland in many of the smaller tributary ditches can cause turbidity, excessive growth of aquatic plants, and low dissolved oxygen concentrations during summer low flow periods. Pesticide residues are present in surface and shallow groundwater supplies throughout the basin. Irrigation is a major use of groundwater. The majority of the land use in the basin is for crops with 90% of the basin being used for cropland and pasture.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

- None

Watershed Groups Formed *

- None

Source Water Protection Plans

- Wayne-Butler Counties PWSD #4 Source Water Protection Plan

Water Quality Monitoring

Active USGS Gaging Station(s)

- St Francis River at Wappapello
- St. Francis River at Fisk

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 64: Number of Volunteer Water Quality Sampling Events Conducted in 08020203 Lower St. Francis River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 124,217 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 65: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 08020203

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	65	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	2
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	33
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	102		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	1
Conservation Reserve Program	9	0
Conservation Security Program	0	0
Wetland Reserve Program	1	3
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	7	25

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Little River Ditches Basin
(HUC 08020204)
Missouri Basin Name – Little River Ditches Basin

The Little River Ditches Basin, HUC 08020204, flows through seven counties in Missouri, Bollinger, Cape Girardeau, Scott, Stoddard, New Madrid, Pemiscot, and Dunklin to the Missouri-Arkansas border. Drainage in the basin has been altered by a system of levees and drainage ditches. Irrigation is a major use of ground water. Wetland drainage, timber clearing, and flood control projects have converted the basin from an immense swampland forest to a vast agricultural area. Approximately 90% of the basin is cropland, 7% woodland, and 3% other.

Excessive streambank erosion and headcutting are serious problems in the channelized section of the lower sub-basin mainstem and most of its tributaries. The quality of the riparian corridor varies considerably. The streambed is primarily composed of clay and sand, with very little diversity. Excessive sedimentation is occurring below the channelized sections. The main nonpoint source pollutants are sediment and nutrients from agricultural activities.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
3118	Buffalo Ditch	Biochemical oxygen demand	NA	NA	No
3050	Ditch #1	Mercury	NA	Yes	No
3105	Lateral #2 Main Ditch	Sediment	NA	Yes	No
3041	Old Channel Little River	Sediment	11/01/2006	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Little River Ditch No. 1 near Morehouse

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 66: Number of Volunteer Water Quality Sampling Events Conducted in 08020204 Little River Ditches Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 1,259,214 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- Pemiscot Bayou (SN024)
- Dexter Creek (SN080)
- Clay Root Bayou (SN089)
- Bess Slough (SN092)
- Crowley's Ridge (SN096)

Figure 67: Little River Ditches Basin AgNPS SALT Project Plan Goals for HUC 08020204

Watershed Name	Pemiscot Bayou	Dexter Creek	Clay Root Bayou	Bess Slough	Crowley's Ridge	Total
Project #	SN024	SN080	SN089	SN092	SN096	
Watershed Size (ac)	46,490	31,101	50,840	18,007	43,642	190,080
Cropland (ac)	41,795	20,004	50,170	17,005	37,847	166,821
Cropland Treated in Plan (ac)	0	9,000	18,863	8,400	13,976	50,239
Pasture/Hayland (ac)	2,941	1,745	0	181	490	5,357
Pasture/Hayland Treated in Plan (ac)	0	80	0	0	123	203
CRP Land (ac)	0	82	23	160	928	1,193
CRP Treated in Plan (ac)	0	0	0	0	0	0
Urban (ac)	0	2,345	272	271	904	3,792

Urban Treated in Plan (ac)	0	0	0	0	0	0
Woodland (ac)	789	5,030	0	318	1,422	7,559
Woodland Treated in Plan (ac)	0	0	0	0	100	100
Public Land (ac)	0	732	0	72	763	1,567
Public Land Treated in Plan (ac)	0	0	0	0	0	0
Other (ac)	965	1,163	375	0	1,288	2,503
Other Treated in Plan (ac)	0	0	0	0	0	0
Stream (mi)	0	48	26	44	74	118
Stream Treated in Plan (mi)	0	7	26	12	22	45

Figure 68: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 08020204

Contour Buffer Strips (acres)	0	Diversion (feet)	1,050
Field Border (feet)	128	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	26
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	171
Windbreak (feet)	23,510	Water/Sediment Basins (#)	94
Waste Utilization	0	Wells Decommissioned (#)	5
Nutrient Management (acres)	4,470		

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	14	12
Conservation Security Program	0	1
Wetland Reserve Program	3	3
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	73	116

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Cache River Basin
(HUC 08020302)
Missouri Basin Name – Cache River Basin

The Cache River Basin, HUC 08020302, has a small portion that lies in Butler County, Missouri, with the majority of the basin located in Arkansas. The total area of the watershed is approximately 2,000 square miles.

Watershed Efforts and Ongoing Activities

Watershed Planning *

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

- None

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- None

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 69: Number of Volunteer Water Quality Sampling Events Conducted in 08020302 Cache River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share
Soil Conserved – 2,990 tons

Active Nonpoint Source Projects
319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 70: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 08020302

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	5
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	100		

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	0	2

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Keg-Weeping Water Basin
(HUC 10240001)
Missouri Basin Name – Missouri River Bottom

The Keg-Weeping Water Basin, HUC 10240001, has only 6,498.2 acres (10.2 square miles) in Atchison County, Missouri, which is in the most northwest corner of the state. The basin extends into Harrison, Mills, Pottawattamie, Fremont, and Shelby counties in Iowa and Cass, Nemaha, and Otoe counties in Nebraska. The Missouri River provides the boundary for the western edge of the basin in Missouri. There are no classified streams in the Missouri portion of the basin. Land use is rural.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
0226	Missouri River	Chlordane and PCBs	11/03/2006	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- None

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Rush Creek

Figure 71: Number of Volunteer Water Quality Sampling Events Conducted in 10240001 Keg-Weeping Water Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	1	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	1	ND	ND

State Cost Share
Soil Conserved – NA

Active Nonpoint Source Projects
319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 72: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10240001

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	0		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	0	0

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Nishnabotna River Basin
(HUC 10240004)
Missouri Basin Name – Nishnabotna River Basin

The Nishnabotna River Basin, HUC 10240004, has 44,994 acres in Atchison County, Missouri. The basin extends into Fremont County, Iowa and Nemaha County in Nebraska. The Missouri River provides the boundary for the western edge of the basin in Missouri. The Nishnabotna River flows into Missouri from Iowa. High Creek and its tributaries flow in a westerly direction until they meet the Nishnabotna which then flows to the Missouri River. Greys Lake is the largest lake in the basin.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

- None

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- None

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 73: Number of Volunteer Water Quality Sampling Events Conducted in 10240004 Nishnabotna River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share
Soil Conserved – 53,960 tons

Active Nonpoint Source Projects
319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 74: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10240004

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	8	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	6	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	747		

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	5	5
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	1	2

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Tarkio-Wolf River Basin
(HUC 10240005)
Missouri Basin Name – Tarkio-Squaw Tributaries Basin

The Tarkio-Wolf River Basin, HUC 10240005, covers 543,144 acres (848.7 square miles) in Atchison, Holt, Andrew, and Nodaway counties. The Tarkio River, and Middle and West Tarkio creeks flow into Missouri from Iowa. The Tarkio River and all streams in the watershed flow in a southerly direction and empty into the Missouri River. Little Tarkio, Squaw, Kimsey, Mill, Rock Creek, and Old Chain Nishnabotna are the main creeks in the watershed. Big Lake in Holt County is the only significant impoundment. The watershed is mostly rural. Nonpoint source impacts from agricultural runoff and channelization contribute to sediment loading from fields and streambanks. Channelization also results in degraded riparian habitat in the watershed.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
0248	Little Tarkio Creek	Sediment	10/13/2006	Yes	Yes
0226	Missouri River	Chlordane and PCBs	11/03/2006	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Tarkio River at Fairfax

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Long Branch

Figure 75: Number of Volunteer Water Quality Sampling Events Conducted in 10240005 Tarkio-Wolf River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	1	1
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	1	1

State Cost Share
Soil Conserved – 395,148 tons

Active Nonpoint Source Projects
319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 76: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10240005

Contour Buffer Strips (acres)	26	Diversion (feet)	0
Field Border (feet)	32	Terraces (feet)	169,457
Filter Strip (acres)	512	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	11	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	4	Critical Planting (acres)	381
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	0	Water/Sediment Basins (#)	36
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	9,233		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	1
Conservation Reserve Program	35	33
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	17	63

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Nodaway River Basin
(HUC 10240010)
Missouri Basin Name – Nodaway River Basin

The Nodaway River watershed (basin), HUC 10240010, lies within Iowa and Missouri. The upper two-thirds of the Nodaway River basin lies in southern Iowa and the lower one-third of the basin in northwestern Missouri. In Missouri, the Nodaway River flows almost due south to its confluence with the Missouri River about 12 miles northwest of St. Joseph. The Missouri portion of the basin has an area of 567 square miles in Nodaway, Holt, Atchison, and Andrew counties. The major tributaries include Clear, Elkhorn, and Mill creeks. The largest reservoir in the basin is Bilby Ranch Lake with a surface area of 110 acres. There are no public drinking water reservoirs in this basin. Most water movement in the basin is through the surface stream network. There are eight small springs of note in the basin, only one of which, Hazlett Spring, produces more than ten gallons per minute. The land is a mixture of hills and plains. Sixty-five percent of the land is row crop, 28 percent is pasture and hay fields and 6 percent forest.

In the Nodaway River basin, the most serious nonpoint source problem is degradation of aquatic habitat in 178 miles (100 percent) of the classified streams because of the prevalence of highly erosive loess soils, large amounts of row crop agriculture, removal of riparian vegetation and channelization of streams. Channelization has occurred in 42.5 miles (24 percent) of streams in the basin. Storm water runoff carries significant amounts of fertilizers, animal wastes, and pesticides into streams. There were seven nonpoint source watershed projects in the basin during the 1990's, which treated over 15,800 acres of land, comprising about four percent of the entire basin.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

- None

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Nodaway River near Graham
- Missouri River at St. Joseph

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 77: Number of Volunteer Water Quality Sampling Events Conducted in 10240010 Nodaway River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 164,085 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 78: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10240010

Contour Buffer Strips (acres)	0	Diversion (feet)	2,150
Field Border (feet)	62	Terraces (feet)	179,533
Filter Strip (acres)	38	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	18	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	39
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	2
Windbreak (feet)	0	Water/Sediment Basins (#)	95
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	4,379		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	16	14
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	1	0
EQIP Ground/Surface Water Plans	4	17

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Independence-Sugar Basin
(HUC 10240011)
Missouri Basin Name – Missouri River Bottom

The Independence-Sugar Basin, HUC 10240011, covers the western portions of Andrew, Buchanan, Platte, Jackson, and Clay counties with the remainder of the watershed being in Kansas. The Missouri River follows the western edge of the basin in Missouri. There are several small lakes in the watershed. The watershed contains the urban areas of Savannah, St. Joseph and part of Kansas City. Nonpoint source pollution from urban runoff is a primary concern in these areas.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Brush Creek Mid-Shed Comprehensive Watershed Management Plan (G03-NPS-06)

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
0226	Missouri River	Chlordane and PCBs	11/03/2006	Yes	Yes
7071	Weatherby Lake	Mercury	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Brush Creek Steering Committee
- Brush Creek Technical Advisory Committee for Water Quality
- Brush Creek Cost Share Program Committee
- Brush Creek Outreach/Education Advisory Committee

Source Water Protection Plans

- City of Weston Source Water Protection Plan

Water Quality Monitoring

Active USGS Gaging Station(s)

- None

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Rush Creek
- White Alloe Creek

Figure 79: Number of Volunteer Water Quality Sampling Events Conducted in 10240011 Independence-Sugar River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	1	ND	ND
2	1	2	2	2
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	1	3	2	2

State Cost Share
Soil Conserved – 159,665 tons

Active Nonpoint Source Projects
319 NPS Projects

- Brush Creek Mid-Shed Project, G03-NPS-06

AgNPS SALT Projects

- None

Figure 80: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10240011

Contour Buffer Strips (acres)	0	Diversion (feet)	9,422
Field Border (feet)	0	Terraces (feet)	124,087
Filter Strip (acres)	50	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	51	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	2
Windbreak (feet)	8,078	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	7,062		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	9	9
Conservation Security Program	1	1
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	2	2
EQIP Ground/Surface Water Plans	34	31

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 81: Summary of FFY09 319 NPS Project Evaluation Measures: HUC 10240011 Independence-Sugar River Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	0	2	5	0	0	0	0	0
					acres	acres	acres	acres
					0	0	0	0

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	0	0	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	0	0	0	0	0	0	0	0	0	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	0	0	0	0	0	210	0	0	0

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	0	0	0	0	0	0	0	0

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	0	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	3	12	16	41	7	0	51

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	Ibs of Manure Transferred Out
Agricultural	0	0	0	0	0	0	0

Platte River Basin
(HUC 10240012)
Missouri Basin Name – Platte River Basin

The Platte River watershed (basin), HUC 10240012, originates near Spaulding, Iowa, in the southwestern portion of that state, and enters Missouri near the town of Sheridan, Missouri. Portions of nine counties are included in the watershed including Andrew, Buchanan, Worth, Platte, Dekalb, Gentry, Nodaway, Clay, and Clinton. The Platte River is a low gradient, eighth order river which flows southward for about 200 miles through northwest Missouri, and drains into the Missouri River near Farley, Missouri. The 102 River is the largest tributary of the Platte River, while smaller tributaries include Honey Creek, Long Branch, Third Fork Platte River, Little Third Fork Platte River, Castile Creek, and Little Platte River. Streams within the basin are typical of prairie type, with turbid water and generally homogeneous substrate consisting of silt and sand. The high erosion and deposition rates within the basin have created major water quality concerns and have resulted in filling riffle and pool habitats, as well as widening of stream channels.

Nonpoint source pollution caused by channelization, intensive row cropping, and livestock have had the greatest negative influence upon water quality in the watershed. Water quality concerns are low dissolved oxygen, high levels of turbidity, and organic nutrients. Row cropping and grazing of pastureland dominates the land use within the basin, although urban construction and runoff are problematic in the Kansas City and St. Joseph areas. The Platte River, 102 River, and Little Platte River, including Smithville Lake are also classified for drinking water use and irrigation.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Ensuring the Future Quality of Smithville Lake: A Watershed Management Plan, G03-NPS-12

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
3326	Rocky Branch Creek	Biochemical oxygen demand	07/20/2006	Permit-in-lieu+ 07/20/2006	MO State Operating Permit++
7077	Smithville Reservoir	Mercury	NA	Yes	No
0327	Third Fork Platte River	Sediment	11/15/2006	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm
+Permit-in-lieu: (not available online)
++MO State Operating Permit: http://www.dnr.mo.gov/env/wpp/permits/issued/0048305.pdf

Watershed Groups Formed *

- Smithville Lake Watershed Coalition (SLWC)

Source Water Protection Plans

- Platte County PWSD #4 Source Water Protection Plan

Water Quality Monitoring

Active USGS Gaging Station(s)

- Patter River near Agency
- Little Platte River near Plattsburg
- Little Platte River at Smithville
- Platte River at Sharps Station

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 82: Number of Volunteer Water Quality Sampling Events Conducted in 10240012 Platte River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 402,089 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- Little Third Fork (SN058)

Figure 83: Platte River Basin AgNPS SALT Project Plan Goals for HUC 10240012

Watershed Name	Little Third Fork
Project #	SN058
Watershed Size (ac)	50,963
Cropland (ac)	18,377
Cropland Treated in Plan (ac)	9,000
Pasture/Hayland (ac)	13,724

Pasture/Hayland Treated in Plan (ac)	2,000
CRP Land (ac)	8,753
CRP Treated in Plan (ac)	200
Urban (ac)	235
Urban Treated in Plan (ac)	0
Woodland (ac)	8,378
Woodland Treated in Plan (ac)	250
Public Land (ac)	0
Public Land Treated in Plan (ac)	0
Other (ac)	1,496
Other Treated in Plan (ac)	0
Stream (mi)	32
Stream Treated in Plan (mi)	9

Figure 84: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10240012

Contour Buffer Strips (acres)	25	Diversion (feet)	4,010
Field Border (feet)	34	Terraces (feet)	401,475
Filter Strip (acres)	65	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	414	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	65
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	10
Windbreak (feet)	375	Water/Sediment Basins (#)	2
Waste Utilization	0	Wells Decommissioned (#)	2
Nutrient Management (acres)	5,166		

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	43	29
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	25	51

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

One Hundred and Two River Basin
(HUC 10240013)
Missouri Basin Name – 102 River Basin

The One Hundred and Two River Basin, HUC 10240013, has its upstream portion in southern Iowa. The river flows almost due south to its confluence with the Platte River just north of St. Joseph. The Missouri portion of the basin has an area of 386 square miles and includes portions of Nodaway, Buchanan, and Andrew counties. The two largest tributaries are Mozingo and White Cloud creeks. The largest reservoir in the basin is Mozingo Reservoir with a surface area of 1,000 acres.

The basin is a mixture of hills and plains. Land use is 52% row crop, 39% grassland, 7% forest and 1% urban. Most water movement in the basin is through the surface stream network.
The most serious nonpoint problem is degradation of aquatic habitat. A total of 110 miles (100 percent) of classified streams in the basin are considered to have degraded aquatic habitat. Channelization has occurred in 44 miles (40 percent) of streams in the basin. Mozingo Lake, the main water supply for Maryville is the only public water supply reservoir in the basin. Pesticide monitoring of this lake began in 2002 and at present there is inadequate data to estimate an average atrazine level in the lake.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

- None

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- One Hundred and Two River at Maryville
- One Hundred and Two River near Bolckow

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 85: Number of Volunteer Water Quality Sampling Events Conducted in 10240013 One Hundred and Two River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share
Soil Conserved – 104,707 tons

Active Nonpoint Source Projects
319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 86: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10240013

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	83,226
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	3	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	1
Windbreak (feet)	0	Water/Sediment Basins (#)	10
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	1,437		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	7	9
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	1	0
EQIP Ground/Surface Water Plans	4	16

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Lower Kansas River Basin
(HUC 10270104)
Missouri Basin Name – Kansas River Basin

The Lower Kansas River basin, HUC 10270104, is a small segment (4,576 acres) of a very large watershed that is located almost entirely in Kansas. The portion of the watershed in Missouri is in Jackson County and completely within the urban area of Kansas City. It has no classified waters within in the Missouri portion of the watershed. Potential sources of nonpoint pollution come from stormwater runoff from urban sources.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

- None

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- None

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 87: Number of Volunteer Water Quality Sampling Events Conducted in 10270104 Lower Kansas River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share
Soil Conserved – NA

Active Nonpoint Source Projects
319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 88: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10270104

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	0		

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	0	0

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Upper Grand River Basin
(HUC 10280101)
Missouri Basin Name – Upper Grand River Basin

The Upper Grand River Basin, HUC 10280101, has its most upstream portions in southern Iowa. The East, Middle and West forks meet just south of Albany, Missouri, and form the Grand River. The upper portion of the basin within Missouri extends from the Iowa state line to the confluence with Shoal Creek near Chillicothe. The Missouri portion of the basin has an area of 2,811 square miles and includes portions of Livingston, Harrison, Nodaway, Worth, Caldwell, Clinton, Andrew, Carroll, Daviess, DeKalb, Ray, Gentry, and Grundy counties. The major tributaries include the East, Middle, and West forks of the Grand and Big, Lost, and Shoal creeks. The largest reservoir in the basin is Lake Viking with a surface area of 550 acres. Reservoirs are an important source of drinking water in this portion of the state. There are 18 reservoirs that serve as public drinking water supply sources in this basin.

The basin is a mixture of hills and plains with 53% grasslands, 33% row crop, and 14% forest. Most water movement in the basin is through the surface stream network. There are 19 small springs of note in basin, none of which sustain flow during dry weather. The most serious nonpoint source pollution problem in the basin is degradation of aquatic habitat. A total of 859 miles (100%) of classified streams in the basin are considered to have degraded aquatic habitat. Channelization has occurred in 138 miles (16%) of streams in the basin. Proper animal waste management is especially important in this basin due to the presence of several large hog farms that land apply large amounts of liquid hog manure. There are 18 reservoirs in the Upper Grand River basin that serve as drinking water supplies and none of those tested exceeds the standards for atrazine, an agricultural herbicide.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- Upper Grand River Sub-basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 10280101 http://www.mo.nrcs.usda.gov/technical/RWAs.html **

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
7109	Bethany Reservoir	Mercury	NA	Yes	No
0436	Big Muddy Creek	Sediment	10/13/2006	Yes	Yes
0510	Dog Creek	Nonvolatile suspended solids	Permit-in-lieu+ 12/28/2007	Yes	MO State Operating Permit++
7384	Grindstone Reservoir	Mercury	NA	Yes	No

0442	Hickory Creek	Unknown pollutant	NA	Yes	No
7105	Jamesport City Lake	Mercury	NA	Yes	No
0468	Middle Fork Grant River	Sediment	11/15/2006	Yes	Yes
7453	Wallace State Park Lake	Fecal coliform	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm
+Permit-in-lieu: http://www.dnr.mo.gov/env/wpp/tmdl/dog-pilo-appr-subm.pdf
++MO State Operating Permit: http://www.dnr.mo.gov/env/wpp/permits/issued/0134091.pdf

Watershed Groups Formed *

- Mudd Creek 319 Project Committee **
- Mudd Creek AgNPS Committee **

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- East Fork Grand River at Albany
- East Fork Big Creek near Bethany
- Grand River near Gallatin
- Grand River at Chillicothe
- Shoal Creek near Braymer

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 89: Number of Volunteer Water Quality Sampling Events Conducted in 10280101 Upper Grand River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 1,197,047 tons

Active Nonpoint Source Projects

319 NPS Projects

- Mudd Creek 319 Water Quality Project, G07-NPS-02

AgNPS SALT Projects

- Mudd Creek (SN043), Hickory Creek (SN045)
- West Fork of Big Creek (SN070)
- Shoal Creek (SN070)/Caldwell County
- Shoal Creek (SN084)/Clinton County

Figure 90: Upper Grand River Basin AgNPS SALT Project Plan Goals for HUC 10280101

Watershed Name	Mudd Creek	Hickory Creek	West Fork of Big Creek	Shoal Creek	Shoal Creek	Total
Project #	SN043	SN045	SN046	SN070	SN084	
Watershed Size (ac)	41,499	17,037	81,722	40,312	15,047	195,617
Cropland (ac)	15,069	7,245	10,269	20,939	5,933	59,455
Cropland Treated in Plan (ac)	10,064	4,320	4,000	8,794	4,000	30,178
Pasture/Hayland (ac)	13,807	600	18,851	2,188	4,100	39,546
Pasture/Hayland Treated in Plan (ac)	9,319	480	7,200	1,395	2,750	21,144
CRP Land (ac)	7,437	6,547	4,684	6,541	1,015	26,224
CRP Treated in Plan (ac)	0	360	0	0	0	360
Urban (ac)	772	10	300	632	792	2,506
Urban Treated in Plan (ac)	0	0	0	0	0	0
Woodland (ac)	3,961	2,631	7,690	8,730	1,817	24,829
Woodland Treated in Plan (ac)	1,980	240	1,200	1,419	250	5,089
Public Land (ac)	0	0	0	0	0	0
Public Land Treated in Plan (ac)	0	0	0	0	0	0
Other (ac)	453	4	0	1,282	1,390	3,129
Other Treated in Plan (ac)	0	0	0	0	0	0
Stream (mi)	28	19	29	104	13	193
Stream Treated in Plan (mi)	28	5	8	12	3	56

Figure 91: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10280101

Contour Buffer Strips (acres)	0	Diversion (feet)	4,463
Field Border (feet)	98	Terraces (feet)	345,058
Filter Strip (acres)	243	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	19	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	13	Critical Planting (acres)	95
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	53
Windbreak (feet)	4,056	Water/Sediment Basins (#)	1
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	4,581		

	Planned	Applied
Nutrient Plans (CNMP)	1	6
Conservation Reserve Program	120	112
Conservation Security Program	0	0
Wetland Reserve Program	0	1
Wildlife Habitat Incentive Program	15	18
EQIP Ground/Surface Water Plans	35	104

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 92: Summary of FFY09 NPS Project Evaluation Measures: HUC 10280101 – Upper Grand River Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	2	2	7	0	0	0	0	0
					acres	acres	acres	acres
					0	0	0	0

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	0	0	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	2	13	2	28	2	20	0	0	0	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	0	0	1	1,500	0	0	0	0	0

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	0	0	1	4	9	3	5	8

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	3	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	15	1,100	340	5,400	2,400	0	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	5	5	5	700	0	0	0

Thompson River Basin
(HUC 10280102)
Missouri Basin Name – Thompson River Basin

The Thompson River Basin, HUC 10280102, originates in southern Iowa and flows almost due south through north central Missouri to its confluence with the Grand River near Chillicothe, Missouri. The Missouri portion of the basin has an area of 1,105 square miles and includes portions of Grundy, Mercer, Harrison, Daviess, and Livingston counties. The major tributaries include the Weldon River and Muddy, Honey and No creeks. The largest reservoir in the basin is Lake Paho with a surface area of 273 acres. Mercer Reservoir and Ridgeway Lake serve as public drinking water supply sources.

The Thompson River basin is a mixture of hills and plains. Land use is 53% grasslands, 31% row crop and 15% forest. Most water movement in the basin is through the surface stream network. There are only two small springs of note in basin and these probably cease flowing in dry weather. The most serious nonpoint source problem is degradation of aquatic habitat. A total of 383 miles (100%) of classified streams in the basin are considered to have degraded aquatic habitat. Channelization has occurred in 125 miles (33%) of streams in the basin. Storm water runoff carries significant amounts of fertilizers, animal wastes, and pesticides into streams. Studies of water quality of private wells in northern and western Missouri show that about one third of wells exceed the drinking water standard for nitrate. Local land use practices or surface contamination of the wellhead often causes this pollution. During warm weather when stream flows are low, livestock tend to gather in and around streams. The wastes they leave in the water contributes to nuisance algae growths, low levels of dissolved oxygen and elevated levels of ammonia and bacteria.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
7135	Crowder State Park Lake	Mercury	NA	Yes	No
0589	Hickory Creek Tributary	Unknown pollutant	NA	Yes	No
0554	Honey Creek	Sediment	11/05/2006	Yes	Yes
0557	Muddy Creek	Unknown pollutant	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Thompson River at Trenton

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 93: Number of Volunteer Water Quality Sampling Events Conducted in 10280102 Thompson River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 589,500 tons

Active Nonpoint Source Projects

319 NPS Projects

- Hickory Creek Watershed Demonstration Project, G06-NPS-14

AgNPS SALT Projects

- Honey Creek (SN033)
- Hickory Creek (SN073)
- Little Muddy Creek (SN076)

Figure 94: Thompson River Basin AgNPS SALT Project Plan Goals for HUC 10280102

Watershed Name	Honey Creek	Hickory Creek	Little Muddy Creek	Total
Project #	SN033	SN073	SN076	
Watershed Size (ac)	64,500	17,664	55,611	137,775
Cropland (ac)	34,200	6,955	6,925	48,080
Cropland Treated in Plan (ac)		1,565	2,410	3,975
Pasture/Hayland (ac)	21,500	3,085	19,470	44,055
Pasture/Hayland Treated in Plan (ac)		695	4,700	5,395

Watershed Name	Honey Creek	Hickory Creek	Little Muddy Creek	Total
CRP Land (ac)		3,674	9,682	13,356
CRP Treated in Plan (ac)		0	0	0
Urban (ac)		0	235	235
Urban Treated in Plan (ac)		0	0	0
Woodland (ac)	7,300	2,489	7,900	17,689
Woodland Treated in Plan (ac)		0	100	100
Public Land (ac)		0	0	0
Public Land Treated in Plan (ac)		0	0	0
Other (ac)	1,500	1,461	1,385	4,346
Other Treated in Plan (ac)		0	0	0
Stream (mi)	27	19	36	82
Stream Treated in Plan (mi)		4	7	11

Figure 95: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10280102

Contour Buffer Strips (acres)	0	Diversion (feet)	2,775
Field Border (feet)	0	Terraces (feet)	97,675
Filter Strip (acres)	71	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	2	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	14
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	24
Windbreak (feet)	0	Water/Sediment Basins (#)	20
Waste Utilization	0	Wells Decommissioned (#)	1
Nutrient Management (acres)	2,221		

	Planned	**Applied**
Nutrient Plans (CNMP)	2	0
Conservation Reserve Program	15	21
Conservation Security Program	0	0
Wetland Reserve Program	1	0
Wildlife Habitat Incentive Program	2	3
EQIP Ground/Surface Water Plans	13	36

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 96: Summary of FFY09 319 NPS Project Evaluation Measures: HUC 10280102 Thompson River Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	1	1	10	0	0	0	0	0
					acres	acres	acres	acres
					0	0	0	0

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	0	0	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	1	50	0	0	0	0	0	0	0	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	3	10	1	200	0	0	0	0	0

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	0	0	0	0	0	0	0	0

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	0	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	5	190	136	0	0	0	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	0	0	0	0	0	0	0

Lower Grand River Basin
(HUC 10280103)
Missouri Basin Name – Middle Grand River Basin

The Grand River originates in southern Iowa and flows almost due south through north central Missouri to its confluence with the Missouri River. Counties within this watershed include Putnam, Carroll, Chariton, Macon, Linn, Grundy, Livingston, Sullivan, and Mercer. The Lower Grand River basin, HUC 10280103, begins at the confluence of the Grand River and Shoal Creek near Chillicothe. The basin lies in north central Missouri. It has an area of 2,234 square miles, and encompasses all tributaries entering the Grand between Shoal Creek and the confluence with the Missouri River near Brunswick. The major tributaries include Medicine, Locust, and Yellow creeks. The largest reservoirs are Silver Lake (2,464 acres), Swan Lake (1,425 acres), and South Pool (1,151 acres). All three are shallow lakes that lie within the Swan Lake National Wildlife Refuge.

The Lower Grand River basin is a mixture of hills and plains. Land use is 53% grasslands, 32% row crop, and 14% forest. Most water movement in the basin is through the surface stream network. Two small springs are known and probably cease flowing in dry weather. A total of 678 miles (100%) of classified streams in the basin are considered to have degraded aquatic habitat. Channelization has occurred in 115 miles (17%) of streams in the basin. Nonpoint source pollution problems result from sedimentation due to channelization and lack of riparian corridor, nutrients from land application of animal waste, and nutrients and pesticides from crop production.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
0619	East Fork Medicine Creek	Sediment	11/22/2006	Yes	Yes
0612	West Fork Locust Creek	Unknown pollutant	NA	Yes	No
0613	West Fork Locust Creek	Unknown pollutant	NA	Yes	No
0623	Little Medicine Creek (also known as West Fork Medicine Creek)	Sediment	10/13/2006	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Locust Creek Restoration Steering Committee **

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Medicine Creek near Laredo
- Locust Creek near Linneus
- Grand River near Sumner
- Grand River below Sumner

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 97: Number of Volunteer Water Quality Sampling Events Conducted in 10280103 Lower Grand River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 521,523 tons

Active Nonpoint Source Projects

319 NPS Projects

- Locust Creek Restoration Project, G09-NPS-02

AgNPS SALT Projects

- Big Creek (SN071)

Figure 98: Lower Grand River Basin AgNPS SALT Project Plan Goals for HUC 10280103

Watershed Name	Big Creek
Project #	SN071
Watershed Size (ac)	47,889
Cropland (ac)	16,740
Cropland Treated in Plan (ac)	5,538
Pasture/Hayland (ac)	12,321

Watershed Name	Big Creek
Project #	SN071
Pasture/Hayland Treated in Plan (ac)	1,850
CRP Land (ac)	9,025
CRP Treated in Plan (ac)	0
Urban (ac)	151
Urban Treated in Plan (ac)	0
Woodland (ac)	7,574
Woodland Treated in Plan (ac)	540
Public Land (ac)	0
Public Land Treated in Plan (ac)	0
Other (ac)	2,078
Other Treated in Plan (ac)	0
Stream (mi)	294
Stream Treated in Plan (mi)	20

Figure 99: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10280103

Contour Buffer Strips (acres)	0	Diversion (feet)	600
Field Border (feet)	107	Terraces (feet)	424,962
Filter Strip (acres)	193	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	8	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	168	Critical Planting (acres)	166
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	59
Windbreak (feet)	0	Water/Sediment Basins (#)	19
Waste Utilization	493	Wells Decommissioned (#)	1
Nutrient Management (acres)	2,350		

	Planned	**Applied**
Nutrient Plans (CNMP)	3	8
Conservation Reserve Program	160	201
Conservation Security Program	0	0
Wetland Reserve Program	4	2
Wildlife Habitat Incentive Program	0	2
EQIP Ground/Surface Water Plans	39	65

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 100: Summary of FFY09 NPS Project Evaluation Measures: HUC 10280103 – Lower Grand River Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	1	5	10	0	0	0	0	0
					acres	acres	acres	acres
					0	0	0	0

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	0	0	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	2	5	0	0	0	0	0	0	0	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	0	0	0	0	0	0	0	0	0

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	1	0	1	1	2	7	42	8

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	0	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	0	0	0	0	0	0	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	0	0	0	0	0	0	0

Upper Chariton River Basin
(HUC 10280201)
Missouri Basin Name – Upper Chariton River Basin

The Chariton River originates in southern Iowa and flows almost due south through north central Missouri to its confluence with the Missouri River. The watershed includes portions of Putnam, Adair, Sullivan, and Schuyler counties. The river flows through 2 basins, the Upper and Lower Chariton. The major tributaries in the Upper Chariton include Shoal and Blackbird creeks. The largest reservoirs in the Missouri portion of the basin are Lake Thunderhead (1,015 acres) near Unionville. Reservoirs supply much of the public drinking water in this basin. Atrazine is an agricultural herbicide used on corn and grain sorghum. The reservoirs in the basin that serve as drinking water supplies have average atrazine or cyanazine levels in excess of state or federal standards.

The land is a mixture of hills and plains with the northern portion of the basin having more hills and woods than any other portion of the plains region in Missouri. The main land use is for pasture and hayfields. The majority of classified streams in the basin are considered to have degraded aquatic habitat due to channelization and agriculture. The major nonpoint source concerns in the basin are sediment, nutrients and pesticides from agricultural activities. Abandoned coal mined lands in the Blackbird, Shoal, and Sandy creek watersheds have resulted in increased levels of dissolved minerals, primarily sulfate.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
0653	Blackbird Creek	Sediment	06/27/2006	Yes	Yes
0652	Sandy Creek	Unknown pollutant	NA	Yes	No
9005U	Willow Branch	Unknown pollutant	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Chariton River at Livonia

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 101: Number of Volunteer Water Quality Sampling Events Conducted in 10280201 Upper Chariton River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 112,160 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- Blackbird Creek (SN035)

Figure 102: Upper Chariton River Basin AgNPS SALT Project Plan Goals for HUC 10280201

Watershed Name	Blackbird Creek
Project #	SN035
Watershed Size (ac)	36,287
Cropland (ac)	2,537
Cropland Treated in Plan (ac)	
Pasture/Hayland (ac)	13,021
Pasture/Hayland Treated in Plan (ac)	
CRP Land (ac)	
CRP Treated in Plan (ac)	
Urban (ac)	1,344
Urban Treated in Plan (ac)	
Woodland (ac)	5,455
Woodland Treated in Plan (ac)	
Public Land (ac)	
Public Land Treated in Plan (ac)	

Watershed Name	Blackbird Creek
Project #	SN035
Other (ac)	2,440
Other Treated in Plan (ac)	
Stream (mi)	27
Stream Treated in Plan (mi)	

Figure 103: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10280201

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	2,550
Filter Strip (acres)	37	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	3	Critical Planting (acres)	23
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	14
Windbreak (feet)	1,500	Water/Sediment Basins (#)	7
Waste Utilization	517	Wells Decommissioned (#)	6
Nutrient Management (acres)	563		

	Planned	Applied
Nutrient Plans (CNMP)	1	3
Conservation Reserve Program	12	10
Conservation Security Program	0	0
Wetland Reserve Program	1	0
Wildlife Habitat Incentive Program	1	0
EQIP Ground/Surface Water Plans	13	17

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Lower Chariton River Basin
(HUC 10280202)
Missouri Basin Name – Lower Chariton River Basin

The Chariton River originates in southern Iowa and flows almost due south through north central Missouri to its confluence with the Missouri River. The Lower Chariton Basin, HUC 10280202, includes portions of seven counties, Putnam, Sullivan, Adair, Linn, Macon, Chariton and Randolph. The major tributaries include Brush and Mussel Fork creeks. The largest reservoir in the basin is Forest Lake in Thousand Hills State Park (573 acres). This reservoir and several smaller ones provide much of the drinking water in the basin. Atrazine is an agricultural herbicide used on corn and grain sorghum. The reservoirs in the basin that serve as drinking water supplies have average atrazine or cyanazine levels in excess of state or federal standards.

The basin is a mixture of hills and plains. The land use is mainly rural dominated by grasslands and row crops. The majority of classified streams in the basin are considered to have degraded aquatic habitat due to channelization and agriculture. The major nonpoint source concerns in the basin are sediment, nutrients and pesticides from agricultural activities.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
0674	Mussel Fork Creek	Sediment	09/25/2006	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Chariton River at Novinger
- Chariton River near Prairie Hill
- Mussel Fork near Musselfork

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Mussel Fork Creek

Figure 104: Number of Volunteer Water Quality Sampling Events Conducted in 10280202 Lower Chariton River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	1	ND	1	ND
4	ND	ND	ND	ND
TOTAL	1	ND	1	ND

State Cost Share

Soil Conserved – 154,699 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- Mussel Fork Creek (SN056)

Figure 105: Lower Chariton River Basin AgNPS SALT Project Plan Goals for HUC 10280202

Watershed Name	Mussel Fork Creek
Project #	SN056
Watershed Size (ac)	53,111
Cropland (ac)	14,290
Cropland Treated in Plan (ac)	6,000
Pasture/Hayland (ac)	26,220
Pasture/Hayland Treated in Plan (ac)	7,000
CRP Land (ac)	4,951
CRP Treated in Plan (ac)	0
Urban (ac)	1,100
Urban Treated in Plan (ac)	0
Woodland (ac)	5,200
Woodland Treated in Plan (ac)	700
Public Land (ac)	650
Public Land Treated in Plan (ac)	0
Other (ac)	700
Other Treated in Plan (ac)	0

Stream (mi)	58
Stream Treated in Plan (mi)	10

Figure 106: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10280202

Contour Buffer Strips (acres)	0	Diversion (feet)	1,233
Field Border (feet)	0	Terraces (feet)	65,530
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	59	Critical Planting (acres)	31
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	11
Windbreak (feet)	0	Water/Sediment Basins (#)	11
Waste Utilization	0	Wells Decommissioned (#)	1
Nutrient Management (acres)	2,027		

	Planned	Applied
Nutrient Plans (CNMP)	1	1
Conservation Reserve Program	22	47
Conservation Security Program	0	0
Wetland Reserve Program	2	0
Wildlife Habitat Incentive Program	2	6
EQIP Ground/Surface Water Plans	6	13

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Little Chariton River Basin
(HUC 10280203)
Missouri Basin Name – Little Chariton River Basin

The Little Chariton River Basin, HUC 10280203, occupies portions of five counties, Howard, Chariton, Randolph, Macon and Adair. The classified portions of the East Fork of the Chariton River and Long Branch Creek originate in northern Macon County and flow in a southerly direction to form Long Branch Lake and Macon Lake. The East Fork of the Chariton flows out of these lakes and into Randolph County where it eventually flows in a southwesterly direction into Chariton County. The Middle Fork of the Chariton and Stinking Creek also begin in northern Macon County and flow southerly to form Thomas Hill Lake in Macon and Randolph counties. The Middle Fork of the Chariton flows out of the lake in a southwesterly direction into Chariton County where it converges with the East Fork to empty into the Little Chariton. The Old Chain Chariton, which flows from the Chariton River, joins the Little Chariton shortly before it empties into the Missouri River.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Long Branch Watershed Assessment and Management Plan
  http://www.mowin.org/Training/WQMP/pdf/Longbranch.pdf

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
0690	Dark Creek	Sulfate	12/15/2004	Yes	Yes
7171	Long Branch Lake	Mercury	NA	Yes	No
0686	Sugar Creek	Low pH	12/19/2002	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Long Branch Watershed Steering Committee

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Long Branch Creek near Atlanta
- East Fork Little Chariton River near Macon
- East Fork Little Chariton River near Huntsville

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 107: Number of Volunteer Water Quality Sampling Events Conducted in 10280203 Little Chariton River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 210,101 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- Dark and Sugar Creek (SN036)
- Long Branch (SN049)
- Little Chariton (SN060)

Figure 108: Little Chariton River Basin AgNPS SALT Project Plan Goals for HUC 10280203

Watershed Name	Dark and Sugar Creeks	Long Branch	Little Chariton River	Total
Project #	SN036	SN049	SN060	
Watershed Size (ac)	44,467	63,775	26,616	134,858
Cropland (ac)	18,500	16,029	11,478	46,007
Cropland Treated in Plan (ac)		9,475	3,195	12,670
Pasture/Hayland (ac)	15,000	15,498	10,601	41,099
Pasture/Hayland Treated in Plan (ac)		3,210	700	3,910
CRP Land (ac)		9,525	1,136	10,661
CRP Treated in Plan (ac)		0	180	180
Urban (ac)	500	297	8	805
Urban Treated in Plan (ac)		0	0	0
Woodland (ac)	6,000	15,239	3,297	24,536
Woodland Treated in Plan (ac)		940	240	1,180
Public Land (ac)	467	7,187	0	7,654

Public Land Treated in Plan (ac)		0	0	0
Other (ac)	4,000	0	96	4,096
Other Treated in Plan (ac)		0	0	0
Stream (mi)	35	245	35	315
Stream Treated in Plan (mi)		19	10	29

Figure 109: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10280203

Contour Buffer Strips (acres)	0	Diversion (feet)	550
Field Border (feet)	0	Terraces (feet)	68,570
Filter Strip (acres)	18	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	13
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	15
Windbreak (feet)	0	Water/Sediment Basins (#)	88
Waste Utilization	153	Wells Decommissioned (#)	0
Nutrient Management (acres)	790		

	Planned	Applied
Nutrient Plans (CNMP)	0	1
Conservation Reserve Program	22	46
Conservation Security Program	0	0
Wetland Reserve Program	1	0
Wildlife Habitat Incentive Program	0	1
EQIP Ground/Surface Water Plans	14	15

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Lower Marais des Cygnes
(HUC 10290102)
Missouri Basin Name – Marais des Cygnes Basin

The Lower Marais des Cygnes basin, HUC 10290102, covers 3,704 square miles; 13% of the basin is in Missouri with the remainder in Kansas. The basin lies in Bates County except for a very small portion in Cass County. Over 35% of the mainstem Marais des Cygnes River is channelized. On the average, the Marais des Cygnes exceeds bank full discharge eight times per year.

The major nonpoint source problems in the watershed result from unreclaimed strip mines, acid mine drainage, channelization, sedimentation, agricultural runoff, and low base flows. During low flows, the Marais des Cygnes River has exceeded secondary drinking water supply standards for sulfates. Contamination from abandoned and reclaimed coal mines is a major problem for several streams in this basin. Erosion, sedimentation, acid mine drainage, high sulfate concentrations and iron deposits have seriously degraded some streams. Walnut Creek appears to be the most impacted. Mulberry Creek, Park Branch, New Home Creek, Miami Creek, the Marais des Cygnes River and other tributaries also are affected.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Marais Des Cygnes, Marmaton and Little Osage River Watershed Management Action Plan (G05-NPS-05)
- Butler City Lake Watershed Management Plan

Rapid Watershed Assessment *

- Lower Marais Des Cygnes Sub-basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 10290102: http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
1299	Miami Creek	Sediment	11/15/2006	Yes	Yes
1300	Mound Branch	Biochemical oxygen demand and ammonia nitrogen	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Marmaton, Marais des Cygnes, Little Osage Watershed Management Plan Committee
- Citizen Watershed Committee (multi-counties)
- Butler Lake Watershed Management Committee

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Marais des Cygnes River near KS-MO state line

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 110: Number of Volunteer Water Quality Sampling Events Conducted in 10290102 Lower Marais Des Cygnes River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 55,543 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- Lower Marais Des Cygnes (SN069)

Figure 111: Lower Marais Des Cygnes River Basin AgNPS SALT Project Plan Goals for HUC 10290102

Watershed Name	Lower Marais des Cygnes*
Project #	SN069
Watershed Size (ac)	36,749
Cropland (ac)	13,720
Cropland Treated in Plan (ac)	3,722
Pasture/Hayland (ac)	13,617
Pasture/Hayland Treated in Plan (ac)	1,945
CRP Land (ac)	750
CRP Treated in Plan (ac)	0
Urban (ac)	7

Urban Treated in Plan (ac)	0
Woodland (ac)	5,979
Woodland Treated in Plan (ac)	70
Public Land (ac)	279
Public Land Treated in Plan (ac)	0
Other (ac)	2,397
Other Treated in Plan (ac)	0
Stream (mi)	208
Stream Treated in Plan (mi)	10

* Same information for both HUCs (10290102 & 10290105). These numbers have not been divided out per HUC (i.e., duplicate numbers).

Figure 112: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10290102

Contour Buffer Strips (acres)	0	Diversion (feet)	2,290
Field Border (feet)	23	Terraces (feet)	6,740
Filter Strip (acres)	50	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	24	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	9	Critical Planting (acres)	51
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	3
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	2,816		

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	25	20
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	17	24

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Little Osage River Basin
(HUC 10290103)
Missouri Basin Name – Little Osage River Basin

The Little Osage River Basin, HUC 10290103, lies within Bates and Vernon counties. The Little Osage River flows from Kansas into Missouri in Vernon County where it continues in an easterly direction to join the Marmaton River. The basin is rural with the primary land use being agriculture. Row crops, pasture and hay production, and swine and cattle dominate the agricultural activities. On the average, the Little Osage River exceeds bank full discharge two times per year.

The main nonpoint source pollution problems are associated with agricultural and mining activities. These include nutrient enrichment and streambank degradation due to row crop and animal agriculture; inadequate riparian corridors, erosion and sedimentation caused by channelization; maintenance of already low base flows; and threats to base flows by watershed developments.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Marais des Cygnes, Marmaton and Little Osage River Watershed Management Action Plan (G05-NPS-05)

Rapid Watershed Assessment *

- Little Osage Sub-Basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 10290103: http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
3652	Little Osage River	Low dissolved oxygen	NA	Yes	No
1308	Marmaton River	Low dissolved oxygen	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Marmaton, Marais des Cygnes, Little Osage Rivers Watershed Planning Steering Committee

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Little Osage River at Horton

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 113: Number of Volunteer Water Quality Sampling Events Conducted in 10290103 Little Osage River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 28,571 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 114: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10290103

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	2,800
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	12	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	16
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	577	Water/Sediment Basins (#)	0
Waste Utilization	250	Wells Decommissioned (#)	0
Nutrient Management (acres)	567		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	8	3
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	3	7

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Marmaton River Basin
(HUC 10290104)
Missouri Basin Name – Marmaton River Basin

The Marmaton River Basin, HUC 10290104, lies within Vernon and Barton counties. The Marmaton River flows from Kansas into Missouri in Vernon County where it continues in an easterly direction, and then just before reaching the city of Nevada it turns northeasterly until the Little Osage River empties into it. It has two main tributaries, Drywood Creek and Little Drywood Creek, which originate in Barton County and flow north into the Marmaton.

The basin is rural with the primary land use being agriculture. Row crops, pasture and hay production and beef, swine and dairy cattle dominate the agricultural activities. The main nonpoint source pollution problems are associated with agricultural and mining activities. Stream problems in the basin include: water quality degradation due to cattle; inadequate riparian corridors, erosion and sedimentation caused by channelization and agricultural runoff; maintenance of already low base flows; threats to base flows by future watershed developments. The Marmaton River is highly mineralized, characterized by high specific conductance values and sulfate concentrations. The Marmaton River has exceeded total sulfate concentration standards for public drinking water supplies, irrigation, and livestock and wildlife watering.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Marais Des Cygnes, Marmaton and Little Osage River Watershed Management Action Plan (G05-NPS-05)

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
1308	Marmaton River	Low dissolved oxygen	NA	Yes	No
1319	Second Nicolson Creek	Sulfate	06/09/2004	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Marais Des Cygnes, Marmaton and Little Osage River Plan Committee

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Marmaton River near Richards
- East Drywood Creek at Prairie State Park
- Marmaton River near Nevada

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 115: Number of Volunteer Water Quality Sampling Events Conducted in 10290104 Marmaton River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 208,635 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- Lower Marmaton (SN040)
- Osage Plains (SN081)

Figure 116: Marmaton River Basin AgNPS SALT Project Plan Goals for HUC 10290104

Watershed Name	Lower Marmaton River	Osage Plains	Total
Project #	SN040	SN081	
Watershed Size (ac)	35,706	44,821	80,527
Cropland (ac)	15,543	15,897	31,440
Cropland Treated in Plan (ac)		6,000	6,000
Pasture/Hayland (ac)	8,087	13,527	21,614
Pasture/Hayland Treated in Plan (ac)		2,000	2,000
CRP Land (ac)		1,473	1,473
CRP Treated in Plan (ac)		0	0
Urban (ac)	180	1,925	2,105
Urban Treated in Plan (ac)		0	0
Woodland (ac)	5,429	7,632	13,061

Watershed Name	Lower Marmaton River	Osage Plains	Total
Project #	SN040	SN081	
Woodland Treated in Plan (ac)		0	0
Public Land (ac)	150	799	949
Public Land Treated in Plan (ac)		0	0
Other (ac)	6,317	3,568	9,885
Other Treated in Plan (ac)		0	0
Stream (mi)	36	180	216
Stream Treated in Plan (mi)		4	4

Figure 117: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10290104

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	42,950
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	44	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	33
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	2
Windbreak (feet)	1,220	Water/Sediment Basins (#)	0
Waste Utilization	182	Wells Decommissioned (#)	0
Nutrient Management (acres)	352		

	Planned	Applied
Nutrient Plans (CNMP)	0	1
Conservation Reserve Program	11	8
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	2
EQIP Ground/Surface Water Plans	14	8

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Harry S. Truman Reservoir
(HUC 10290105)
Missouri Basin Name – Upper Osage River Basin

The Harry S. Truman Reservoir, HUC 10290105, covers portions of Barton, Vernon, St. Clair, Cedar, Hickory, Benton, Bates, Polk, and Henry counties. The Osage River originates at the confluence of the Bates County Drainage Ditch and Marmaton River northwest of Schell City, Missouri, in northeast Vernon County then flows in an easterly direction and inundates Harry S. Truman Lake. Truman Dam impounded 98.5 miles of the Osage River in November 1979. Since the construction of Truman Dam, flooding has increased in the lower portions of streams within the flood pool of Truman Lake. Main tributaries include Clear, Panther, Mongaw, Gallinipper, Weaubleau, and Bear creeks.

Land use in the basin is primarily animal agriculture and forestland. Agriculture, coal strip mines, and sewage discharges are the major sources of water quality problems. Problems associated with agricultural runoff, livestock grazing in the watershed, and discharges from unregulated or faulty animal waste facilities include turbidity, sedimentation, low dissolved oxygen, high nitrogen and phosphorous concentrations, high ammonia, and high fecal coliform counts. Several areas in Clear Creek and the Monegaw are impacted heavily by mine drainage.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
1336	Clear Creek (Vernon County)	Sediment	11/15/2006	Yes	Yes
1308	Marmaton River	Low dissolved oxygen	NA	Yes	No
1234	Monegaw Creek	Sulfate	08/17/2006	Yes	Yes
1339	Walnut Creek	Biochemical oxygen demand and volatile suspended solids	Permit-in-lieu+ 05/26/2006	Yes	MO State Operating Permit++

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm
+Permit-in-lieu: http://www.dnr.mo.gov/env/wpp/tmdl/1339-walnut-ck-pil.pdf
++MO State Operating Permit: http://www.dnr.mo.gov/env/wpp/permits/issued/0040002.pdf

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Osage River above Schell City
- Osage River near Schell City
- Weaubleau Creek near Collins

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 118: Number of Volunteer Water Quality Sampling Events Conducted in 10290105 River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 153,011 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- Weaubleau Creek (SN032)
- Lower Marais des Cygnes (SN069)

Figure 119: Harry S. Truman Reservoir Basin AgNPS SALT Project Plan Goals for HUC 10290105

Watershed Name	Weaubleau Creek	Lower Marais des Cygnes*	Total
Project #	SN032	SN069	
Watershed Size (ac)	39,308	36,749	76,057
Cropland (ac)	5,898	13,720	19,618
Cropland Treated in Plan (ac)		3,722	3,722
Pasture/Hayland (ac)	22,609	13,617	36,226

Watershed Name	Weaubleau Creek	Lower Marais des Cygnes*	Total
Project #	SN032	SN069	
Pasture/Hayland Treated in Plan (ac)		1,945	1,945
CRP Land (ac)		750	750
CRP Treated in Plan (ac)		0	0
Urban (ac)	975	7	982
Urban Treated in Plan (ac)		0	0
Woodland (ac)	9,826	5,979	15,805
Woodland Treated in Plan (ac)		70	70
Public Land (ac)		279	279
Public Land Treated in Plan (ac)		0	0
Other (ac)		2,397	2,397
Other Treated in Plan (ac)		0	0
Stream (mi)	75	208	283
Stream Treated in Plan (mi)		10	10

*Same information for both HUCs (10290102 & 10290105). These numbers have not been divided out per HUC (i.e., duplicate numbers).

Figure 120: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10290105

Contour Buffer Strips (acres)	0	Diversion (feet)	950
Field Border (feet)	0	Terraces (feet)	26,100
Filter Strip (acres)	74	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	34	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	9	Critical Planting (acres)	27
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	1
Windbreak (feet)	157	Water/Sediment Basins (#)	0
Waste Utilization	45	Wells Decommissioned (#)	0
Nutrient Management (acres)	532		

	Planned	**Applied**
Nutrient Plans (CNMP)	1	3
Conservation Reserve Program	24	17
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	5	2
EQIP Ground/Surface Water Plans	15	22

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Sac River Basin
(HUC 10290106)
Missouri Basin Name – Sac River Basin

The Sac River headwaters originate near Springfield, Missouri. Major tributaries include Little Sac River, Turnback Creek, Sons Creek, Horse Creek, Cedar Creek, Coon Creek, Turkey Creek, Brush Creek, and Bear Creek. Stockton Lake inundates large portions of the Sac River and Little Sac River. Truman Reservoir inundates a large area of the Lower Sac River and occasionally floods the lower portions of Coon Creek, Brush Creek, Turkey Creek, and Cedar Creek. The Sac River basin encompasses an area of 1,981 square miles in southwest Missouri. Counties that are partially or entirely within the basin are Barton, Cedar, Christian, Dade, Greene, Hickory, Lawrence, Polk, St. Clair, and Vernon.

Caves, springs, and losing streams are found primarily in the southern areas of the watershed due to the soluble bedrocks (limestone and dolomite) that underlay that portion of the basin. The streams found in the basin range from clear with predominantly chert gravel/cobble streambeds to turbid with silt, sand, and gravel streambeds. The Sac River is a sixth order stream where it enters Truman Reservoir. The Sac River basin is primarily rural. Land use is primarily pasture/grazing, with smaller amounts distributed among forest, row crop, and urban land practices. Animal agriculture is a major enterprise in the basin with beef cattle and dairy production being predominant. Nonpoint source pollution in the basin comes from various sources including urban development and runoff, mining, land conversion from forest to pasture, livestock with free access to streams and riparian corridors, channelization, road construction, and septic tanks.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Watershed Restoration Action Strategy (WRAS) for HUCs 1029010605, 1029010606 was developed March 27, 2000; Status - substantially implemented through 319 project #G01-NPS-01.
- 9-element Fellow/McDaniel Lake and Fulbright Watershed Management Plan, HUCs 10290106050001, 10290106050002 is being developed through 319 project #G07-NPS-08. The plan is in the draft development stage.
- 9-element Little Sac River Watershed Management Plan, HUC 10290106050 is being developed through 319 project #G08-NPS-03. The plan is in the draft development stage.

Rapid Watershed Assessment *

- Sac River Sub-basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 10290106: http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
1371	Brush Creek	Biochemical oxygen demand and volatile suspended solids	NA	Yes	No

7237	Fellows Lake	Nutrients	NA	Yes	No
7237	Fellows Lake	Mercury	NA	Yes	No
1381	Little Sac River	Fecal coliform	08/09/2006	Yes	Yes
7236	McDaniel Lake	Nutrients	02/03/2004	Yes	Yes
1361	Stockton Branch	Volatile suspended solids	Permit-in-lieu+ 05/11/2005	Yes	MO State Operating Permit++

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm
+Permit-in-lieu: http://www.dnr.mo.gov/env/wpp/tmdl/1361-stockton-br-pil.pdf
++MO State Operating Permit: http://www.dnr.mo.gov/env/wpp/permits/issued/0055280.pdf

Watershed Groups Formed *

- Valley Mills Project Task Force
- Little Sac Watershed Steering Committee
- Community On-site, Stormwater, Groundwater Committees
- Community On-site Training Curriculum Group
- Fellows/McDaniel/Fulbright WMP Stakeholder Committee
- Fellows/McDaniel/Fulbright WMP Technical Committee **
- Fellows/McDaniel/Fulbright Project Planning Committee **

Source Water Protection Plans

- City of Willard Source Water Protection Plan

Water Quality Monitoring

Active USGS Gaging Station(s)

- Sac River near Dadeville
- Turnback Creek above Greenfield
- South Fork Dry Sac River near Springfield
- Little Sac River near Morrisville
- Sac River near Stockton
- Cedar Creek near Pleasant View
- Sac River near Caplinger Mills

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Carmen Hollow Creek
- Clear Creek
- Johnson Creek
- Little Sac River
- S. Dry Sac River
- Sac River
- Tributary to Turnback Creek
- Turnback Creek

Figure 121: Number of Volunteer Water Quality Sampling Events Conducted in 10290106 Sac River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	3	1	6
2	3	2	3	2
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	3	5	4	8

State Cost Share
Soil Conserved – 132,883 tons

Active Nonpoint Source Projects
319 NPS Projects

- Fellows McDaniel Fulbright Watershed Nutrient Reduction Project, G07-NPS-08
- Little Sac Watershed Management Plan, G08-NPS-03

AgNPS SALT Projects

- None

Figure 122: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10290106

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	16,525
Filter Strip (acres)	6	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	15	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	73	Critical Planting (acres)	6
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	6,597	Water/Sediment Basins (#)	0
Waste Utilization	242	Wells Decommissioned (#)	1
Nutrient Management (acres)	395		

	Planned	**Applied**
Nutrient Plans (CNMP)	2	4
Conservation Reserve Program	10	13
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	7	14
EQIP Ground/Surface Water Plans	31	73

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 123: Summary of FFY09 319 NPS Project Evaluation Measures: HUC 10290106 - Sac River Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	3	6	15	16	0	0	0	16
					acres	acres	acres	acres
					0	0	0	285

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	1	20	220	0	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	2	40	3	239	1	30	0	0	5	5

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	0	0	1	1,200	0	0	0	0	0

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	0	0	0	0	0	0	0	0

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	0	0	0	6

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	20	220	794	0	27	0	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	0	0	0	0	0	0	0

Pomme de Terre River Basin
(HUC 10290107)
Missouri Basin Name – Pomme de Terre River Basin

Pomme de Terre River is a sixth order river originating in southwest Missouri, near Marshfield. The river flows in a northeast direction from Marshfield and is impounded as Pomme de Terre Lake just upstream of Hermitage, Missouri, and further downstream becomes part of Harry S. Truman Reservoir. Pomme de Terre Lake is a 7,820-acre reservoir constructed and operated by the United States Army Corps of Engineers. Pomme de Terre Dam was closed in 1961 forming the lake, which contains 113 miles of shoreline. Harry S. Truman Lake was formed in 1979 with the closing of Harry S. Truman Dam. Pomme de Terre River and Little Pomme de Terre River (north) makes up one arm of this 55,600-acre impoundment. The Pomme de Terre River watershed encompasses about 840 square miles and includes parts of six Missouri counties (Benton, Dallas, Greene, Hickory, Polk, and Webster). Major tributaries include Little Pomme de Terre River (north), Little Pomme de Terre River (south), and Lindley Creek.

The majority of the Pomme de Terre River watershed is covered in grassland (about 53%) and forest (about 37%). Most grassland is used for pasture and/or hay production for dairy and beef cattle production. Contributing factors to nonpoint source pollution includes runoff from pastures, cattle with free access to streams, and urbanization near Bolivar. Generally, stream bank stability in the basin is good with the exception of localized erosion.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- 9-element Town Branch of Piper Creek Watershed Management Plan, HUC 10290107020003, is being developed through 319 project #G09-NPS-12.

Rapid Watershed Assessment *

- Pomme de Terre Sub-basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 10290107: http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
1438	Little Lindley Creek	Biochemical oxygen demand and volatile suspended solids	Permit-in-lieu+ 10/31/2007	Yes	MO State Operating Permit++
1444	Piper Creek (also known as Town Branch)	Volatile suspended solids	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm
+Permit-in-lieu: http://www.dnr.mo.gov/env/wpp/tmdl/lt-lind-pilo-sub-appr.pdf
++MO State Operating Permit: http://www.dnr.mo.gov/env/wpp/permits/issued/0094854.pdf

Watershed Groups Formed *

- Bolivar Community Watershed Improvement Group

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Pomme de Terre River near Polk
- Lindley Creek near Polk
- Pomme de Terre River near Hermitage

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Piper Creek
- Town Branch

Figure 124: Number of Volunteer Water Quality Sampling Events Conducted in 10290107 Pomme De Terre River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	2	2	1	1
2	2	3	3	3
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	4	5	4	4

State Cost Share

Soil Conserved – 32,070 tons

Active Nonpoint Source Projects

319 NPS Projects

- Town Branch of Piper Creek Watershed Management Plan, G08-NPS-12

AgNPS SALT Projects

- Lower Pomme de Terre (SN059)
- Hominy Creek (SN064)

Figure 125: Pomme De Terre River Basin AgNPS SALT Project Plan Goals for HUC 10290107

Watershed Name	Lower Pomme de Terre	Hominy Creek	Total
Project #	SN059	SN064	
Watershed Size (ac)	40,582	52,582	93,164
Cropland (ac)	547	250	797

Watershed Name	Lower Pomme de Terre	Hominy Creek	Total
Project #	SN059	SN064	
Cropland Treated in Plan (ac)	400	75	475
Pasture/Hayland (ac)	14,244	37,865	52,109
Pasture/Hayland Treated in Plan (ac)	6,000	14,380	20,380
CRP Land (ac)	0	16	16
CRP Treated in Plan (ac)	0	0	0
Urban (ac)	18	305	323
Urban Treated in Plan (ac)	0	0	0
Woodland (ac)	21,438	14,080	35,518
Woodland Treated in Plan (ac)	2,600	400	3,000
Public Land (ac)	3,021	5	3,026
Public Land Treated in Plan (ac)	0	0	0
Other (ac)	1,314	61	1,375
Other Treated in Plan (ac)	0	0	0
Stream (mi)	75	187	262
Stream Treated in Plan (mi)	20	10	30

Figure 126: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10290107

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	255	Wells Decommissioned (#)	0
Nutrient Management (acres)	635		

	Planned	Applied
Nutrient Plans (CNMP)	5	4
Conservation Reserve Program	0	1
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	4	6
EQIP Ground/Surface Water Plans	17	12

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 127: Summary of FFY09 NPS Project Evaluation Measures: HUC 10290107 – Pomme de Terre River Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	1	46	15	0	0	0	0	0
					acres	acres	acres	acres
					0	0	0	0

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	0	0	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	7	712	1	35	1	30	1	500	1	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	4	10	8	200	0	0	1	23	2

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	0	0	1	1	35	10	2	11

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	0	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	0	0	0	0	0	0	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	0	0	0	0	0	0	0

South Grand River Basin
(HUC 10290108)
Missouri Basin Name – South Grand River Basin

The South Grand River Watershed, HUC 10290108, occupies a land area of approximately 2,046 square miles in portions of eight counties in Missouri and two counties in Kansas. These counties include Bates, Benton, Cass, Henry, Jackson, Johnson, Pettis, and St. Clair counties in Missouri and Johnson and Miami in Kansas. Most of the watershed (98.5%) lies within Missouri.

The South Grand River is formed by the confluence of Massey Creek and East Creek approximately five miles southwest of Peculiar, Missouri. The river flows approximately 67 miles before emptying into Harry S. Truman Reservoir near Clinton, Missouri. Big Creek is the largest tributary to the South Grand. The South Grand Watershed has 13 cities and towns with populations exceeding 1,000 persons within or partially within its boundary. There are 186 third order and larger streams within the watershed. The South Grand is 66.4 miles long and becomes seventh order at the confluence of Big Creek. Total drainage area of the South Grand Watershed is 2,046 square miles with 2,016 square miles in Missouri. There are approximately 636 stream miles and 24,378 impoundment acres in the basin.

The basin is 52% grassland, 27% cropland, 18% forest, and 3% water and wetland. Major nonpoint sources of pollution are animal agriculture, mine land runoff, construction, urban pollutants, and sedimentation from channelization. Most streams on the impaired list have impacts related to coal mining activities in the watershed. Several streams within of the South Grand Watershed, including the South Grand River and Big Creek, are highly altered by channelization and levees. Inundation by Truman Reservoir has eliminated or impacted many stream miles in the lower portion of the watershed including 39% of the original South Grand River.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- South Grand River Sub-basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 10290108: http://www.mo.nrcs.usda.gov/technical/RWAs.html **

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
9000U	Barkers Creek Trib.	pH and sulfate	02/12/2004	Yes	Yes
1250	Big Creek	Sediment	10/13/2006	Yes	Yes
1224	Big Otter Creek	pH	08/17/2006	Yes	Yes
1225	Big Otter Creek Trib.	pH	10/21/2004	Yes	Yes
7370	Bluestem Lake	Mercury	NA	Yes	No

1282	East Fork Tebo Creek	pH	07/24/2006	Yes	Yes
7207	Harry S. Truman Lake	Naturally occurring manganese	NA	Yes	No
1251	Honey Creek	Sulfate	08/17/2006	Yes	Yes
1284	Middle Fork Tebo Creek	Sulfate	02/12/2004	Yes	Yes
1288	Middle Fork Tebo Creek Tributary	Sulfate and pH	02/12/2004	Yes	Yes
1292	West Fork Tebo Creek	Sulfate	02/12/2004	Yes	Yes
7212	Winnebago Lake	Mercury	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Bolivar Community Watershed Improvement Group **

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- South Grand River at Archie
- Big Creek near Blairstown
- South Grand River near Clinton

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Crooked Creek
- Poney Creek

Figure 128: Number of Volunteer Water Quality Sampling Events Conducted in 10290108 South Grand River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	2	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	2	ND	ND

State Cost Share
Soil Conserved – 209,532 tons

Active Nonpoint Source Projects
319 NPS Projects

- Community Rain Garden and Nonpoint Source Education, G09-NPS-06

AgNPS SALT Projects

- South Grand (SN044)
- Upper Big Creek (SN095)

Figure 129: South Grand River Basin AgNPS SALT Project Plan Goals for HUC 10290108

Watershed Name	South Grand River	Upper Big Creek	Total
Project #	SN044	SN095	
Watershed Size (ac)	49,565	53,273	101,838
Cropland (ac)	18,150	17,497	35,647
Cropland Treated in Plan (ac)	7,623	5,357	12,980
Pasture/Hayland (ac)	24,395	17,359	41,754
Pasture/Hayland Treated in Plan (ac)	4,608	1,913	6,521
CRP Land (ac)	1,050	495	1,545
CRP Treated in Plan (ac)	0	0	0
Urban (ac)	5	5,011	5,016
Urban Treated in Plan (ac)	0	0	0
Woodland (ac)	4,758	8,609	13,367
Woodland Treated in Plan (ac)	100	7	107
Public Land (ac)	631	2,603	3,234
Public Land Treated in Plan (ac)	0	0	0
Other (ac)	576	1,699	2,275
Other Treated in Plan (ac)	0	0	0
Stream (mi)	23	144	167
Stream Treated in Plan (mi)	5	10	15

Figure 130: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10290108

Contour Buffer Strips (acres)	0	Diversion (feet)	4,155
Field Border (feet)	218	Terraces (feet)	63,154
Filter Strip (acres)	36	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	33	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	11	Critical Planting (acres)	50
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	6
Windbreak (feet)	0	Water/Sediment Basins (#)	7
Waste Utilization	175	Wells Decommissioned (#)	3
Nutrient Management (acres)	8,677		

	Planned	Applied
Nutrient Plans (CNMP)	1	1
Conservation Reserve Program	80	116
Conservation Security Program	0	0
Wetland Reserve Program	1	3
Wildlife Habitat Incentive Program	2	5
EQIP Ground/Surface Water Plans	126	122

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 131: Summary of FFY09 NPS Project Evaluation Measures: HUC 10290108 – South Grand River Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	0	0	0	0	0	0	0	0
					acres	acres	acres	acres
					0	0	0	0

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	0	0	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	0	0	0	0	0	0	1	20	0	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	0	0	0	0	0	0	0	0	0

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	0	0	0	0	0	0	0	0

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	0	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	1	1	0	0	0	0	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	0	0	0	0	0	0	0

Lake of the Ozarks Basin
(HUC 10290109)
Missouri Basin Name – Lake of the Ozarks Basin

The Lake of the Ozarks basin, HUC 10290109, is found in central Missouri in the counties of Pulaski, Miller, Camden, Morgan, Laclede, Benton, and Hickory. The Lake of the Ozarks was formed in 1931 in the western half of the East Osage River Basin. A number of losing streams and springs exist within the area. Truman Dam and Bagnell Dam on the Osage River have significantly impacted the hydrology of the region. There are over 85,000 people served in the basin by public supplied surface water (9%), public supplied groundwater (39%), or private wells (52%).

Karst features are common and soils are generally acidic with moderate to low fertility. Land use in the basin is listed as approximately 54.8% forest, 39.7% grassland, 2.5% open water, 1.6% cropland, and 1.6% urban. Erosion rates are generally low although new housing developments, road construction, intensive confinement of livestock and overgrazing have denuded the land, causing locally increased erosion and sediment pollution. Animal feeding operations, gravel mining, failing septic systems, urban construction projects, and stream flow alterations and channel degradation from discharge of impounded water for hydroelectric power result in nonpoint source pollution in the basin.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Lake of the Ozarks Watershed Alliance – Group working with Union Electric on Shoreline Protection Plan.
- 9-element Lake of the Ozarks Watershed Management Plan, HUC 10290109 is being developed through 319 project #G08-NPS-16. The plan is in its final draft stage.

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
1145	Dry Auglaize Creek	Biochemical oxygen demand and non-filterable residue	Permit-in-lieu+ 03/12/2008	Yes	MO State Operating Permit++
7205	Lake of the Ozarks	Fish trauma	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm
+Permit-in-lieu: http://www.dnr.mo.gov/env/wpp/tmdl/1145-dryauglaize-ck-pil.pdf
++MO Stat Operating Permit: http://www.dnr.mo.gov/env/wpp/permits/issued/0089010.pdf

Watershed Groups Formed *

- Lake of the Ozarks Watershed Alliance
- Lake of the Ozarks Watershed Planning Group **

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Osage River at Warsaw

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 132: Number of Volunteer Water Quality Sampling Events Conducted in 10290109 Lake of the Ozarks Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 38,162 tons

Active Nonpoint Source Projects

319 NPS Projects

- Lake of the Ozarks Watershed Management Plan, G08-NPS-16

AgNPS SALT Projects

- Dry Auglaize (SN048)
- Lower Cole Camp (SN083)

Figure 133: Lake of the Ozarks Basin AgNPS SALT Project Plan Goals for HUC 10290109

Watershed Name	Dry Auglaize	Lower Cole Camp	Total
Project #	SN048	SN083	
Watershed Size (ac)	81,490	33,466	114,956
Cropland (ac)	300	2,500	2,800
Cropland Treated in Plan (ac)	90	200	290
Pasture/Hayland (ac)	54,726	8,362	63,088
Pasture/Hayland Treated in Plan (ac)	10,945	3,200	14,145

Watershed Name	Dry Auglaize	Lower Cole Camp	Total
Project #	SN048	SN083	
CRP Land (ac)	64	0	64
CRP Treated in Plan (ac)	64	0	64
Urban (ac)	2,886	311	3,197
Urban Treated in Plan (ac)	0	0	0
Woodland (ac)	22,579	20,093	42,672
Woodland Treated in Plan (ac)	4,516	2,200	6,716
Public Land (ac)	25	400	425
Public Land Treated in Plan (ac)	0	0	0
Other (ac)	910	1,800	2,710
Other Treated in Plan (ac)	0	100	100
Stream (mi)	42	80	122
Stream Treated in Plan (mi)	10	6	16

Figure 134: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10290109

Contour Buffer Strips (acres)	0	Diversion (feet)	400
Field Border (feet)	0	Terraces (feet)	14,500
Filter Strip (acres)	1	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	2	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	6	Critical Planting (acres)	9
Stream/Shore Protection (feet)	287	Grade Stab. Structures (#)	4
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	18	Wells Decommissioned (#)	0
Nutrient Management (acres)	1,559		

	Planned	Applied
Nutrient Plans (CNMP)	1	0
Conservation Reserve Program	1	1
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	3	7
EQIP Ground/Surface Water Plans	12	20

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 135: Summary of FFY09 NPS Project Evaluation Measures: HUC 10290109 – Lake of the Ozarks Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	1	11	6	0	0	0	0	0
					acres	acres	acres	acres
					0	0	0	0

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	0	0	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	0	0	0	0	0	0	0	0	0	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	0	0	0	0	0	0	0	0	0

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	0	0	0	0	0	0	0	0

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	0	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	0	0	0	0	0	0	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	Ibs of Manure Transferred Out
Agricultural	0	0	0	0	0	0	0

Niangua River Basin
(HUC 10290110)
Missouri Basin Name – Niangua River Basin

The Niangua River, HUC 10290110, is a sixth order tributary of the Osage River in west central Missouri. It originates in northern Webster County, at the confluence of its East and West Forks, about 7 miles north of Marshfield. The river meanders 120 miles to the north where it joins the Osage River (Osage Arm, Lake of the Ozarks). The largest tributary is the Little Niangua River, a fifth order stream which drains about one third of the entire watershed which originates in central Dallas County. It meanders to the north and east 59 miles before joining the Niangua River. The lower 21 miles of the Niangua and lower 10 miles of the Little Niangua were inundated in 1931 by Lake of the Ozarks. The Niangua Watershed includes portions of six counties, Webster, Dallas, Camden, Hickory, Laclede and Benton. Only 500 acres of Benton County is within the watershed and includes negligible population and development.

Most of the streams in the watershed are designated for whole body contact recreation and many streams are designated for cool-water fishing. A portion of Little Niangua River is protected as an Outstanding State Resource Water (OSRW). Major nonpoint source pollution in the watershed comes from animal agriculture due to large numbers of cattle in these counties. Other significant sources of pollution are from individual septic tanks especially around the Lake of the Ozarks, and improper sand and gravel mining.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

- None

Watershed Groups Formed *

- Bennett Spring Area Water Protection Committee

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Niangua River at Windyville
- Bennett Spring at Bennett Springs
- Niangua River at Lake Niangua near Mack's Creek
- Niangua River at Tunnel Dam near Mack's Creek
- Little Niangua River near Mack's Creek

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Broadus Branch
- L. Niangua River
- Niangua River
- Tributary to Niangua River

Figure 136: Number of Volunteer Water Quality Sampling Events Conducted in 10290110 Niangua River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	1	2	2	1
2	1	ND	ND	ND
3	ND	2	ND	1
4	ND	ND	ND	ND
TOTAL	2	4	2	2

State Cost Share

Soil Conserved – 35,268 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- Greasy Creek (SN072)

Figure 137: Niangua River Basin AgNPS SALT Project Plan Goals for HUC 10290110

Watershed Name	Greasy Creek
Project #	SN072
Watershed Size (ac)	46,227
Cropland (ac)	500
Cropland Treated in Plan (ac)	200
Pasture/Hayland (ac)	29,377
Pasture/Hayland Treated in Plan (ac)	9,005
CRP Land (ac)	0
CRP Treated in Plan (ac)	0
Urban (ac)	142
Urban Treated in Plan (ac)	0
Woodland (ac)	16,107
Woodland Treated in Plan (ac)	450
Public Land (ac)	0
Public Land Treated in Plan (ac)	0

Other (ac)	101
Other Treated in Plan (ac)	0
Stream (mi)	32
Stream Treated in Plan (mi)	8

Figure 138: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10290110

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	15	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	430	Water/Sediment Basins (#)	0
Waste Utilization	469	Wells Decommissioned (#)	9
Nutrient Management (acres)	1,881		

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	1	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	6	6
EQIP Ground/Surface Water Plans	17	27

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Lower Osage River Basin
(HUC 10290111)
Missouri Basin Name – Lower Osage River Basin

The Lower Osage River Basin, HUC 10290111, is found in central Missouri in the counties of Osage, Maries, Cole, Pulaski, Miller, Camden, and Morgan. The basin begins at Bagnell Dam where the Lake of the Ozarks enters the Osage River in Miller County. The river runs in a northwesterly direction until it empties into the Missouri River in Cole County. The major tributaries to the Osage River are the Tavern Creek and the Maries River. The basin is primarily rural with animal agriculture as the primary land use. Nonpoint source pollution in the watershed comes from improper sand and gravel mining, animal agriculture and construction in the Osage Beach and Lake Ozark areas. Hydroelectric power generation using the discharge of impounded water of the Osage River has caused considerable stream flow alteration and channel degradation to the Osage River below Bagnell Dam and has caused multiple fish kills below Bagnell Dam.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- Lower Osage River Sub-basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 10290111: http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
1031	Osage River	Mercury	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Osage River near Bagnell
- Osage River below St. Thomas
- Maries River at Westphalia

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Barren Fork
- Little Saline Creek
- Maries River
- Saline Creek

Figure 139: Number of Volunteer Water Quality Sampling Events Conducted in 10290111 Lower Osage River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	1	ND	1	ND
2	3	3	2	3
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	4	3	3	3

State Cost Share
Soil Conserved – 156,309 tons

Active Nonpoint Source Projects
319 NPS Projects
- None

AgNPS SALT Projects
- Upper Big Maries (SN050)
- Lower Big Maries (SN051)
- Upper Tavern Creek (SN061)
- Little Maries (SN074)
- Little Maries Creek (SN088)

Figure 140: Lower Osage River Basin AgNPS SALT Project Plan Goals for HUC 10290111

Watershed Name	Upper Big Maries River	Lower Big Maries River	Upper Tavern Creek	Little Maries River	Little Maries Creek	Total
Project #	SN050	SN051	SN061	SN074	SN088	
Watershed Size (ac)	61,689	67,863	42,682	38,616	19,000	229,850
Cropland (ac)	118	2,664	300	4,634	200	7,916
Cropland Treated in Plan (ac)	37	1,000	80	912	106	2,135
Pasture/Hayland (ac)	33,568	26,496	20,292	18,755	9,300	108,411
Pasture/Hayland Treated in Plan (ac)	8,900	10,000	6,700	3,589	3,066	32,255
CRP Land (ac)	0	110	0	0	85	195
CRP Treated in Plan (ac)	0	0	0	0	0	0

Watershed Name	Upper Big Maries River	Lower Big Maries River	Upper Tavern Creek	Little Maries River	Little Maries Creek	Total
Project #	SN050	SN051	SN061	SN074	SN088	
Urban (ac)	141	135	97	0	15	388
Urban Treated in Plan (ac)	0	0	0	0	0	0
Woodland (ac)	27,628	38,354	20,436	14,960	9,400	110,778
Woodland Treated in Plan (ac)	8,288	9,000	3,000	1,988	1,508	23,784
Public Land (ac)	234	104	28	267	0	633
Public Land Treated in Plan (ac)	0	0	0	0	0	0
Other (ac)	0	0	1,529	0	0	1,529
Other Treated in Plan (ac)	0	0	0	0	0	0
Stream (mi)	315	279	82	164	96	936
Stream Treated in Plan (mi)	46	67	12	20	2	147

Figure 141: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10290111

Contour Buffer Strips (acres)	0	Diversion (feet)	475
Field Border (feet)	3	Terraces (feet)	0
Filter Strip (acres)	11	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	1	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	25	Critical Planting (acres)	10
Stream/Shore Protection (feet)	295	Grade Stab. Structures (#)	5
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	627	Wells Decommissioned (#)	3
Nutrient Management (acres)	2,213		

	Planned	Applied
Nutrient Plans (CNMP)	9	7
Conservation Reserve Program	7	1
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	3
EQIP Ground/Surface Water Plans	15	25

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Upper Gasconade River Basin
(HUC 10290201)
Missouri Basin Name – Upper Gasconade River Basin

The Upper Gasconade River basin, HUC 10290201, includes portions of Wright, Webster, Laclede, Camden, Texas, and Pulaski counties. The Gasconade River meanders north to northeast until it joins the Missouri River. The Upper and Lower Gasconade River watersheds drain 2,806 square miles. The Gasconade River is 271 miles long from mouth to headwaters with 263 miles having permanent flow. The entire Gasconade River watershed is reported to have 76 springs and the largest concentration of big springs in the state. The karst topography causes losing portions in the Upper basin in the Osage Fork, Roubidoux, and North Cobb creeks, and Gasconade River.

The Gasconade River watershed is mostly rural with low population density and high farmland density. The most populated area in the Upper basin is in Pulaski County, which is experiencing land development from growth surrounding Fort Leonard Wood. The basin has 49% grassland and cropland, 46% forest, with the remainder as urban and water areas. Designated uses on water bodies within the watershed are warm water aquatic life protection (fishing) and livestock and wildlife watering. Nonpoint source pollution results from animal agriculture, sand and gravel mining, residential septics, construction, and impervious surface runoff in urbanized areas. The Upper Gasconade River watershed is poorly forested along major segments of its tributaries with only 38% of the major stream segments with forested corridors.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
1505	East Whetstone Creek	Biochemical oxygen demand	01/28/2002	Yes	Yes
1455	Gasconade River	Mercury	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Osage Fork of the Gasconade 319 Project Steering Committee

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Gasconade River near Hazelgreen
- Roubidoux Creek above Ft. Leonard Wood
- Roubidoux Creek at Rolla Rd below Ft. Leonard Wood

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Gasconade River
- Osage Fork Gasconade River
- Tributary to Osage Fork

Figure 142: Number of Volunteer Water Quality Sampling Events Conducted in 10290201 Upper Gasconade River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	1	ND	1	ND
2	3	3	1	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	4	3	2	ND

State Cost Share

Soil Conserved – 143,731 tons

Active Nonpoint Source Projects

319 NPS Projects

- Ozark Rain Gardens, G08-NPS-02

AgNPS SALT Projects

- Woods Fork-Gasconade (SN082)
- Clark/Wolf Creeks (SN104)

Figure 143: Upper Gasconade River Basin AgNPS SALT Project Plan Goals for HUC 10290201

Watershed Name	Woods Fork - Gasconade	Clark/Wolf Creek	Total
Project #	SN082	SN104	
Watershed Size (ac)	41,600	49,454	91,054
Cropland (ac)	250	442	692
Cropland Treated in Plan (ac)	75	115	190
Pasture/Hayland (ac)	24,710	37,114	61,824
Pasture/Hayland Treated in Plan (ac)	5,570	8,837	14,407
CRP Land (ac)	0	0	0
CRP Treated in Plan (ac)	0	0	0

Watershed Name	Woods Fork - Gasconade	Clark/Wolf Creek	Total
Project #	SN082	SN104	
Urban (ac)	371	0	371
Urban Treated in Plan (ac)	0	0	0
Woodland (ac)	16,152	11,898	28,050
Woodland Treated in Plan (ac)	1,000	4,418	5,418
Public Land (ac)	117	0	117
Public Land Treated in Plan (ac)	0	0	0
Other (ac)	0	0	0
Other Treated in Plan (ac)	0	0	0
Stream (mi)	33	154	187
Stream Treated in Plan (mi)	2	2	4

Figure 144: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10290201

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	4	Critical Planting (acres)	160
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	2
Nutrient Management (acres)	268		

	Planned	Applied
Nutrient Plans (CNMP)	3	4
Conservation Reserve Program	2	2
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	5	5
EQIP Ground/Surface Water Plans	29	50

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 145: Summary of FFY09 319 NPS Project Evaluation Measures: HUC 10290201 Upper Gasconade River Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	0	0	0	0	0	0	0	0
					acres	acres	acres	acres
					0	0	0	0

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	0	0	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	0	0	0	0	2	700	2	150	0	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	0	0	5	0	1	0	0	0	0

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	0	0	0	0	0	0	0	0

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	0	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	2	0	0	0	0	0	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	0	0	0	0	0	0	0

Big Piney River Basin
(HUC 10290202)
Missouri Basin Name – Big Piney River Basin

The Big Piney River basin, HUC 10290202, occupies an area of approximately 755 square miles in portions of Texas, Howell, Phelps, and Pulaski counties in Missouri. Most of the watershed (74%) lies within Texas County, while Pulaski, Phelps, and Howell counties contain 14%, 12%, and less than 1% of the watershed respectively. The Big Piney River begins as a first order stream approximately 4 miles northwest of Cabool, Missouri. From its beginnings, the stream flows in a southeasterly direction for approximately six miles before turning northeast and flows slightly over 100 miles before emptying into the Gasconade River 2.8 river miles north of Interstate 44. The geology of the Big Piney Watershed (primarily consisting of soluble rock formations of dolomites and sandstone dolomites), in combination with an average annual precipitation of over 42 inches has created a karst landscape within the watershed. This karst landscape is characterized by a close relationship between the surface water and ground water systems. There are 91 third order and larger streams within the watershed. These streams account for a total of approximately 602 stream miles or 30% of the total stream miles within the watershed. The Big Piney River is 110.5 miles long and becomes sixth order at the confluence of West Piney Creek. There are five major subwatersheds (based on 5th order streams) within the watershed. These include the subwatersheds of Spring Creek, West Piney Creek, Arthur Creek, Big Paddy Creek, and Bald Ridge Creek.

Approximately 62.7% of the watershed is forested, 36.6% grassland, 0.1% cropland and 0.6% urban, and 0.1% water. Approximately 264 stream miles and 10 impoundment acres within the Big Piney Watershed are classified and have designated beneficial uses. Nonpoint source pollution problems result from livestock access to streams, and uncontrolled septic discharge. Also, all waters within the watershed are currently (2004) included in a statewide fish consumption advisory for largemouth bass for mercury. Periodically elevated phosphorous levels and fecal coliform counts have been noted at a few water quality sample sites within the watershed and two springs within the watershed have been determined to suffer from probable septic contamination. In addition, detections of pesticides and/or elevated levels of other constituents have been noted from some ground water and surface water quality sites.

A 0.4 mile segment of Brushy Creek is included on 2002 303(d) listing of impaired waters for biochemical oxygen demand and volatile suspended solids with the source being the Houston Brushy Creek Wastewater Treatment Plant.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
1592	Brushy Creek	Biochemical oxygen demand, volatile suspended solids	11/30/2005	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Big Piney River near Big Piney
- Big Piney below Ft. Leonard Wood

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Big Piney River

Figure 146: Number of Volunteer Water Quality Sampling Events Conducted in 10290202 Big Piney River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	5	ND	ND
2	1	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	1	5	ND	ND

State Cost Share

Soil Conserved – 98,711 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 147: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10290202

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	0		

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	4	5
EQIP Ground/Surface Water Plans	4	7

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Lower Gasconade River Basin
(HUC 10290203)
Missouri Basin Name – Lower Gasconade River Basin

The Lower Gasconade River Basin, HUC 10290203 is located in portions of Gasconade, Osage, Maries, Texas, Dent, Phelps, and Pulaski counties. The karst topography causes losing stream portions in the Little Piney, Spring, and Mill creeks, and the Gasconade River. There are a large number of springs in the watershed with a major concentration in the Little Piney Creek watershed. Little Piney Creek for 25 miles has been protected as an Outstanding State Resource Water (OSRW) in Missouri.

As a whole, the Gasconade River watershed is rural with low population density and high farmland density. Watershed areas of Maries, Osage, and Gasconade counties have low population density. The basin has approximately 33% grassland and cropland and 66% forest. Nonpoint source pollution in the watershed results from sand and gravel mining, runoff from farms, mining operations, construction sites, forest operations, residential septics, and impervious surface in urbanized areas. Forty-six percent of the major segments of the watershed have forested corridors.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- Lower Gasconade River Sub-basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 10290203 http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
1455	Gasconade River	Mercury	NA	Yes	No
1529	Little Beaver Creek	Volatile suspended solids	Permit-in-lieu+ 09/09/2006	Yes	MO State Operating Permit++

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm
+Permit-in-lieu: http://www.dnr.mo.gov/env/wpp/tmdl/1529-little-beaver-ck-pil.pdf
++MO State Operating Permit: http://www.dnr.mo.gov/env/wpp/permits/issued/0047023.pdf

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Little Piney Creek at Newburg
- Gasconade River at Jerome
- Gasconade River near Rich Fountain

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Beaver Creek
- Mill Creek
- Pointer Creek

Figure 148: Number of Volunteer Water Quality Sampling Events Conducted in 10290203 Lower Gasconade River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	1	1	1
2	1	1	1	1
3	1	1	1	1
4	ND	ND	ND	ND
TOTAL	2	3	3	3

State Cost Share

Soil Conserved – 72,653 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 149: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10290203

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	26	Critical Planting (acres)	2
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	3
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	248		

	Planned	Applied
Nutrient Plans (CNMP)	0	1
Conservation Reserve Program	7	2
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	1
EQIP Ground/Surface Water Plans	10	22

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Lower Missouri - Crooked River Basin
(HUC 10300101)
Missouri Basin Name – Missouri River Mainstem-Kansas City to Glasgow

The Lower Missouri-Crooked, HUC 10300101, consists of the land drained by the Missouri River and its tributaries from just downstream of its confluence with the Kansas River to Glasgow, Missouri. The drainages of the Grand River, Chariton River, and Little Chariton River are not included in the basin. It covers an area of approximately 2,650 square miles, 95% of which lies in western Missouri, with the remainder in eastern Kansas. Missouri counties partially contained in this watershed include Clay, Caldwell, Howard, Carroll, Johnson, Chariton, Clinton, Lafayette, Jackson, Cass, Platte, Ray, and Saline. The major tributaries of the Missouri that drain the basin are the Blue River, Little Blue River, Fishing River, Crooked River, Sni-a-Bar Creek, and Wakenda Creek. The only sizable lakes in the basin are oxbows near the Missouri, such as Cooley Lake, Jackass Bend, Sunshine Lake, and Cut-Off Lake.

The Missouri portion of the basin is largely agricultural with 43% row crops, 33% grasslands and 18% forest. Kansas City and surrounding areas contribute 4% urban area, and 1% is open water. There are 758.1 miles of classified stream in the basin, of which 5.2 miles, or 0.7%, are impaired by point source discharges. The major nonpoint source issue is the degradation of aquatic habitat in 97% of the watershed, resulting from channelization (27% of the streams), other streambank alterations, and loss of riparian corridors. Soil erosion, subsequent in-stream sediment deposition, and runoff of fertilizers, pesticides, and animal wastes, and urban storm water are also concerns. The majority of the people living in the basin receive their drinking water from municipal supplies drawn from the Missouri River or its alluvial aquifer.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- Lower Missouri – Crooked River Basin, HUC 10300101, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 8: http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
0417	Blue River	Chlordane	11/19/2001	Yes	Yes
0418	Blue River	Chlordane	11/19/2001	Yes	Yes
0419	Blue River	Chlordane	11/19/2001	Yes	Yes
0421	Blue River	Chlordane	11/19/2001	Yes	Yes
7090	Cooley Lake	Mercury	NA	Yes	No

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
3413	Horseshoe Creek	Biochemical oxygen demand and ammonia nitrogen	Permit-in-lieu+ 04/21/2006	Yes	MO State Operating Permit++
0420	Indian Creek	Fecal coliform	NA	Yes	No
0423	Little Blue River	Mercury	NA	Yes	No
7097	Longview Reservoir	Mercury	NA	Yes	No
0356	Missouri River	Chlordane and PCBs	11/03/2006	Yes	Yes
0701	Missouri River	Chlordance and PCBs	11/03/2006	Yes	Yes
7087	Watkins Mill Lake	Fecal coliform	NA	Yes	No
0400	West Fork Sni-A-Bar Creek	Biochemical oxygen demand and volatile suspended solids	01/06/2006	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm
+Permit-in-lieu: (not available online)
++MO State Operating Permit: http://www.dnr.mo.gov/env/wpp/permits/issued/0130371.pdf

Watershed Groups Formed *

- Kansas City Metropolitan Water Quality Initiative Stakeholders Advisory Committee
- McCroskie Creek Project Steering Committee
- Metro Green Advisory Committee
- Missouri River Conservation Working Group
- Upper Blue River Conservation Working Group

Source Water Protection Plans

- City of Independence Source Water Protection Plan
- City of Carrollton Source Water Protection Plan

Water Quality Monitoring

Active USGS Gaging Station(s)

- Missouri River at Kansas City
- Blue River at Blue Ridge Blvd. Exit in Kansas City
- Indian Creek at 103rd St. in Kansas City
- Blue River at Kansas City
- Brush Creek at Ward Parkway in Kansas City
- Brush Creek at Kansas City
- Brush Creek at Rockhill Road in Kansas City
- Town Fork Creek at Satchel Paige Memorial Stadium in Kansas City

- Blue River at Stadium Drive in Kansas City
- Rock Creek at Kentucky Road in Independence
- Little Blue River at Lee's Summit Road in Independence
- East Fork Little Blue River near Blue Springs
- Little Blue River at 39th St. in Independence
- Spring Branch Creek at Holke Road in Independence
- Little Blue River near Lake City
- Fishing River above Mosby
- Missouri River at Napoleon
- Crooked River near Richmond
- Missouri River at Waverly
- Wakenda Creek at Carrollton

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Blue River
- Brush Creek
- E. Fork Little Blue River
- Indian Creek
- Keeney Creek
- L. Blue River
- Missouri River, Rush Creek
- Shoal Creek
- Tributary to Lumpkins Creek

Figure 150: Number of Volunteer Water Quality Sampling Events Conducted in 10300101 Lower Missouri - Crooked River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	3	10	3	4
2	1	7	1	1
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	4	17	4	5

State Cost Share

Soil Conserved – 361,774 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- McCroskie Creek (SN031)
- Crooked River (SN101)

Figure 151: Lower Missouri - Crooked River Basin AgNPS SALT Project Plan Goals for HUC 10300101

Watershed Name	McCroskie Creek	Crooked River	Total
Project #	SN031	SN101	
Watershed Size (ac)	43,744	37,082	80,826
Cropland (ac)	24,565	22,215	46,780
Cropland Treated in Plan (ac)	0	4,664	4,664
Pasture/Hayland (ac)	15,803	6,869	22,672
Pasture/Hayland Treated in Plan (ac)	0	1,110	1,110
CRP Land (ac)	0	2,172	2,172
CRP Treated in Plan (ac)	0	0	0
Urban (ac)	0	699	699
Urban Treated in Plan (ac)	0	0	0
Woodland (ac)	3,070	3,888	6,958
Woodland Treated in Plan (ac)	0	100	100
Public Land (ac)	0	110	110
Public Land Treated in Plan (ac)	0	0	0
Other (ac)	298	1,129	1,427
Other Treated in Plan (ac)	0	0	0
Stream (mi)	98	22	120
Stream Treated in Plan (mi)	0	12	12

Figure 152: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10300101

Contour Buffer Strips (acres)	0	Diversion (feet)	12,345
Field Border (feet)	33	Terraces (feet)	208,195
Filter Strip (acres)	199	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	26	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	99	Critical Planting (acres)	210
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	22
Windbreak (feet)	0	Water/Sediment Basins (#)	14
Waste Utilization	40	Wells Decommissioned (#)	0
Nutrient Management (acres)	5,470		

	Planned	**Applied**
Nutrient Plans (CNMP)	2	1
Conservation Reserve Program	64	61
Conservation Security Program	4	1
Wetland Reserve Program	1	2
Wildlife Habitat Incentive Program	4	1
EQIP Ground/Surface Water Plans	69	151

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Lower Missouri-Moreau River Basin
(HUC 10300102)
Missouri Basin Name – Missouri River Mainstem - Glasgow to Hermann

The Missouri River Mainstem from Glasgow to Hermann, HUC 10300102, lies in the central Missouri counties of Cole, Osage, Howard, Gasconade, Morgan, Randolph, Cooper, Chariton, Saline, Callaway, Boone, Audrain, Miller, Montgomery, and Moniteau. The Moreau River is formed by the union of North Moreau Creek and South Moreau Creek, and empties into the Missouri River just south of Jefferson City, Missouri in Cole County. The watershed is approximately 584 square miles. The Moreau is a 6th order stream with base flows that are poorly sustained.

Current land use in the basin is 2.6% urban, 5.8% woodland, 18.4% forest, 32.4% grassland, and 40.5% cropland. The cities of Jefferson City, California, Versailles, Tipton, Eldon, and Wardsville ring the perimeter of the basin. Cropland and grassland uses predominate in the western portion of the basin. Forest, grassland and woodland predominate in the eastern half of the basin.

Nonpoint source pollution in 1997 included soil erosion from cropland and pasture. Other sources of pollution include in-stream erosion and nutrient-loaded runoff from crop fields, livestock pastures, and residential septic fields. The clearing of riparian corridors contributes to streambank instability and allows sediment laden runoff to reach streams. Inspection of aerial photos of the mainstem Moreau River indicated 16% of streambanks had virtually no tree corridor and 40% had one row to 25 meters of continuous tree coverage. Forty-four percent had a tree corridor at least 26 meters wide. An appropriate goal for a wooded riparian border is 100-300 feet (33-99 meters) wide.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Watershed Restoration Action Strategy (WRAS) was developed for the Upper Cedar Creek watershed, January 18, 2001, by the Missouri Department of Natural Resources, Land Reclamation Program. Status – substantially implemented through 319 Cedar Creek Land Reclamation project.
- Bonne Femme Watershed Management Plan (G03-NPS-16).
- 9–element plan for Hinkson Creek HUC 10300102120001 and 10300102120002 is being developed through 319 projects #G04-NPS-23 and #G08-NPS-09. The plan is currently in the draft development stage.

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
7168	Ben Branch Lake	Mercury	NA	Yes	No

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
0709	Bynum Creek	Nonvolatile suspended solids	Permit-in-lieu+ 12/28/2007	Yes	MO State Operating Permit++
0737	Cedar Creek	pH and sulfate	01/30/2001	Yes	Yes
0737	Cedar Creek	Sulfate	07/14/2004	Yes	Yes
0811	E. Brush Creek	Nutrients, biochemical oxygen demand, non-filterable residue	Permit-in-lieu+ 12/11/2006	Yes	MO State Operating Permit++
1007	Hinkson Creek	Unknown pollutants	NA	Yes	No
1008	Hinkson Creek	Unknown pollutants	NA	Yes	No
7388	Hough Park Lake	Mercury	NA	Yes	No
1016	Kelley Branch	Nonvolatile suspended solids (sediment)	12/19/2003	Yes	Yes
7436	Lake of the Woods	Mercury	NA	Yes	No
0742	Manacle Creek	Low pH and sulfate	07/14/2004	Yes	Yes
0701	Missouri River	Chlordane and PCBs	11/03/2006	Yes	Yes
0942	North Moreau Creek	Non-filterable residue	12/01/1999	Yes	Yes
1014	Rocky Fork	Nonvolatile suspended solids	NA	Yes	No
0710	Stinson Creek	Biochemical oxygen demand and volatile suspended solids	NA	Yes	No
0959	Straight Fork	Volatile suspended solids	Permit-in-lieu+ 12/11/2006	Yes	MO State Operating Permit++

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm
+Permit-in-lieu (Bynum Creek): http://www.dnr.mo.gov/env/wpp/tmdl/bynum-pilo-appr-subm.pdf
++MO State Operating Permit (Bynum Creek): http://www.dnr.mo.gov/env/wpp/permits/issued/0133957.pdf
+Permit-in-lieu (E Brush Creek): http://www.dnr.mo.gov/env/wpp/tmdl/0811-e-brush-ck-tmdl-pil.pdf
++MO State Operating Permit (E Brush Creek): http://www.dnr.mo.gov/env/wpp/permits/issued/0023281.pdf
+Permit-in-lieu (Straight Fork): http://www.dnr.mo.gov/env/wpp/tmdl/0959-straight-fk-pil.pdf

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL

++MO State Operating Permit (E Brush Creek):
http://www.dnr.mo.gov/env/wpp/permits/issued/0094927.pdf

Watershed Groups Formed *

- Hinkson Creek Steering Committee
- Bonne Femme Watershed Policy Committee
- Bonne Femme Watershed Stakeholder Committee
- Columbia Show-Me Yards and Neighborhood Technical Committee
- Wonderful World of Water Festival Planning Committee
- Hinkson Creek Stakeholder Committee **

Source Water Protection Plans

- City of Slater Source Water Protection Plan

Water Quality Monitoring

Active USGS Gaging Station(s)

- Missouri River at Glasgow
- Missouri River at Boonville
- Moniteau Creek near Fayette
- Petite Saline Creek at Hwy U near Boonville
- Hinkson Creek at Columbia
- Missouri River at Jefferson City
- Moreau River near Jefferson City
- Auxvasse Creek near Reform

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Bailey's Creek
- Bear Creek
- Cedar Creek
- Clear Creek
- County House Branch
- Dickerson Creek
- Flat Branch
- Gans Creek
- Grindstone Creek
- Hinkson Creek
- Hominy Creek
- Jamerson Creek
- Logan Creek
- Missouri River
- Moreau River

- Perche Creek
- S. Moreau Creek
- Salt Creek
- Silver Fork
- Stinson Creek
- Tributary to Bear Creek
- Wears Creek

Figure 153: Number of Volunteer Water Quality Sampling Events Conducted in 10300102 Lower Missouri - Moreau River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	6	4	5	5
2	10	10	5	3
3	3	5	3	3
4	ND	ND	ND	ND
TOTAL	19	19	13	11

State Cost Share
Soil Conserved – 441,765 tons

Active Nonpoint Source Projects
319 NPS Projects

- Jefferson Farms Water Quality Demonstration Project, G08-NPS-01
- Hinkson Creek Watershed Restoration Project Phase II, G08-NPS-09
- Monitoring Hydrology in the Hinkson Creek Watershed, G08-NPS-17

AgNPS SALT Projects

- Upper Moniteau Creek (SN057)
- Lower Moniteau Creek (SN062)
- Gray's Creek (SN085)

Figure 154: Lower Missouri – Moreau River Basin AgNPS SALT Project Plan Goals for HUC 10300102

Watershed Name	Upper Moniteau Creek	Lower Moniteau Creek	Gray's Creek	Total
Project #	SN057	SN062	SN085	
Watershed Size (ac)	77,347	71,398	35,801	183,826
Cropland (ac)	16,590	8,044	6,800	31,434
Cropland Treated in Plan (ac)	7,299	2,517	2,950	12,766
Pasture/Hayland (ac)	44,832	35,194	19,715	99,741
Pasture/Hayland Treated in Plan (ac)	2,350	7,860	4,295	14,505

Watershed Name	Upper Moniteau Creek	Lower Moniteau Creek	Gray's Creek	Total
Project #	SN057	SN062	SN085	
CRP Land (ac)	1,840	1,113	70	3,023
CRP Treated in Plan (ac)	0	0	0	0
Urban (ac)	108	218	5,500	5,826
Urban Treated in Plan (ac)	0	0	0	0
Woodland (ac)	12,462	23,062	3,000	38,524
Woodland Treated in Plan (ac)	220	350	400	970
Public Land (ac)	1,462	3,484	716	5,662
Public Land Treated in Plan (ac)	0	0	0	0
Other (ac)	53	283	0	336
Other Treated in Plan (ac)	0	0	0	0
Stream (mi)	206	231	97	534
Stream Treated in Plan (mi)	13	21	15	49

Figure 155: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10300102

Contour Buffer Strips (acres)	0	Diversion (feet)	16,624
Field Border (feet)	9	Terraces (feet)	221,984
Filter Strip (acres)	418	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	18	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	19	Critical Planting (acres)	95
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	28
Windbreak (feet)	1,994	Water/Sediment Basins (#)	59
Waste Utilization	330	Wells Decommissioned (#)	4
Nutrient Management (acres)	4,539		

	Planned	**Applied**
Nutrient Plans (CNMP)	7	11
Conservation Reserve Program	81	85
Conservation Security Program	0	0
Wetland Reserve Program	1	1
Wildlife Habitat Incentive Program	11	20
EQIP Ground/Surface Water Plans	70	102

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 156: Summary of FFY09 319 NPS Project Evaluation Measures: HUC 10300102 Lower Missouri - Moreau River Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	1	14	10	1	0	0	0	1
					acres	acres	acres	acres
					0	0	0	40

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	0	0	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	23	1,027	4	95	2	58	0	0	0	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	0	0	1	96	0	7,556	0	0	0

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	1	0	0	0	0	5	0	1

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	0	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	5	68	0	0	0	0	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	0	0	0	0	0	0	0

Lamine River Basin
(HUC 10300103)
Missouri Basin Name – Lamine River Basin

The Lamine River Basin, HUC 10300103, consists of all the land drained by the Lamine River and its tributaries, except that drained by the Blackwater River and its tributaries. It is a 6th order stream and covers an area of approximately 1,110 square miles in west central Missouri including portions of Pettis, Benton, Morgan, Saline, Cooper, Johnson, and Moniteau counties. The Lamine basin is unique for its combination of prairie and Ozarkian streams. Streams such as Richland Creek, Gabriel Creek, Haw Creek, and Flat Creek generally support an assemblage of aquatic life that is more characteristic of the Ozarks than Muddy Creek or Heaths Creek.

The Lamine River basin is mainly agricultural with 49% pasture or grassland, 29% row crops, 21% forest or woodland, and 1% urban. There is very little subsurface movement of water in the basin, mainly due to the presence of impermeable shales in the bedrock. The Lamine River and its tributaries can have highly variable flows, rising quickly after heavy rainfall and soon returning to low-flow levels. The only surface source of drinking water in the basin is Spring Fork Lake, on Spring Fork, and there are seven recorded springs in the basin.

Most nonpoint source pollution in the basin is from soil erosion and animal waste runoff. Levels of dissolved oxygen can be very low during periods of low flow. Of the 489.6 miles of classified stream in the basin, 417.6 miles, or 85%, are considered to be impaired habitat for aquatic life due to a large amount of surface runoff. Siltation in the main stem of the Lamine River and Heath and Muddy creeks are excessive. There are two small abandoned coal mined areas on upper Muddy Creek in Johnson County, which may cause occasional minor problems with low pH, high sulfate and high iron levels in the receiving streams.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Spring Fork Lake Water Management Plan & Wellhead Protection Plan (G05-NPS-07)
- 9–element plan for Gabriel Creek, HUC 103001030200-02 is being developed through 319 project #G07-NPS-18

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
0859	Brushy Creek	Biochemical oxygen demand, ammonia nitrogen, and non-filterable residue	02/11/2002	Yes	Yes

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
0865	Flat Creek	Sediment	11/22/2006	Yes	Yes
0883	Gabriel Creek	Biochemical oxygen demand and non-filterable residue	NA	Yes	No
0875	Lake Creek	Sediment	07/15/2008	Yes	Yes
0847	Lamine River	Mercury	NA	Yes	No
0856	Little Muddy Creek	Temperature	01/12/2001	Yes	Yes
3490	Little Muddy Creek Tributary	Temperature	01/12/2001	Yes	Yes
0857	Long Branch	Impairment unknown	NA	Yes	No
0855	Muddy Creek	Biochemical oxygen demand	02/11/2002	Yes	Yes
9004	Sewer Branch	Low dissolved oxygen	NA	Yes	No
7187	Spring Fork Lake	Nutrients	07/20/2006	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Sedalia Watershed Steering Committee
- Gabriel Creek Watershed Committee **

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Lamine River near Otterville

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Gabriel Creek
- Haw Creek
- Shaver Creek

Figure 157: Number of Volunteer Water Quality Sampling Events Conducted in 10300103 Lamine River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	1	4	1	1
2	1	1	1	1

3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	2	5	2	2

State Cost Share
Soil Conserved – 131,704 tons

Active Nonpoint Source Projects
319 NPS Projects

- Gabriel Creek Streambank Stabilization Project, G07-NPS-18

AgNPS SALT Projects

- Heath's Creek (SN099)
- Muddy Creek (SN063)

Figure 158: Lamine River Basin AgNPS SALT Project Plan Goals for HUC 10300103

Watershed Name	Heaths Creek	Muddy Creek	Total
Project #	SN099	SN063	
Watershed Size (ac)	35,044	68,690	103,734
Cropland (ac)	20,750	23,902	44,652
Cropland Treated in Plan (ac)	12,450	10,036	22,486
Pasture/Hayland (ac)	7,845	29,825	37,670
Pasture/Hayland Treated in Plan (ac)	4,500	2,339	44,509
CRP Land (ac)	883	500	1,383
CRP Treated in Plan (ac)	0	0	0
Urban (ac)	145	6,154	6,299
Urban Treated in Plan (ac)	0	0	0
Woodland (ac)	4,953	8,062	13,015
Woodland Treated in Plan (ac)	500	144	644
Public Land (ac)	0	247	247
Public Land Treated in Plan (ac)	0	0	0
Other (ac)	468	0	468
Other Treated in Plan (ac)	0	0	0
Stream (mi)	18	41	59
Stream Treated in Plan (mi)	9	13	22

Figure 159: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10300103

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	23	Terraces (feet)	108,567
Filter Strip (acres)	51	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	41	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	73	Critical Planting (acres)	21
Stream/Shore Protection (feet)	550	Grade Stab. Structures (#)	4

Windbreak (feet)	0	Water/Sediment Basins (#)	4
Waste Utilization	1,303	Wells Decommissioned (#)	0
Nutrient Management (acres)	3,602		

	Planned	**Applied**
Nutrient Plans (CNMP)	16	15
Conservation Reserve Program	43	30
Conservation Security Program	0	0
Wetland Reserve Program	1	2
Wildlife Habitat Incentive Program	2	4
EQIP Ground/Surface Water Plans	43	58

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 160: Summary of FFY09 319 NPS Project Evaluation Measures: HUC 10300103 - Lamine River Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	1	8	6	1	0	0	0	1
					acres	acres	acres	acres
					0	0	0	69393

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	0	0	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	4	350	2	35	0	0	0	0	0	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	0	0	1	305	12	325	0	0	0

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	0	0	2	3	4	4	2	3

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	0	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	0	0	0	0	0	0	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	0	0	1	289	1,000	0	0

Blackwater River Basin
(HUC 10300104)
Missouri Basin Name – Blackwater River Basin

The Blackwater River Basin, HUC 10300104, occupies portions of five counties: Johnson, Lafayette, Saline, Pettis and Cooper. The Blackwater River originates in Johnson County and flows in a northeasterly direction. A main tributary to Blackwater River, Davis Creek originates in Lafayette County and flows eastward to joins the Blackwater River in Pettis County near the Pettis and Saline county line. The Blackwater River then continues eastward where the Salt Fork tributary empties into it just before reaching the Cooper County line. The Blackwater River empties into the Lamine River in Cooper County.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Concordia – Edwin A. Pape Lake Watershed Management Plan
  http://www.mowin.org/Training/WRAS/concord.pdf
- Higginsville Lake Watershed Management Plan, HUC 10300104060003
  Status - developed through 319 project #G00-NPS-12, updated September 2007
  http://www.ctic.purdue.edu/kyw/tmdl/TipsAndHints/PlanIndex.html
- 9-element plan being written for Higginsville Lake, HUC 10300104060003
- 9-element plan being written for Concordia Lake, HUC 10300104050004
  Status - developed through 319 project #G00-NPS-12

Rapid Watershed Assessment *

- Blackwater River Sub-Basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 10300104: http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
9012	Davis Creek	Low dissolved oxygen	08/13/2003	Yes	Yes
7196	Knob Noster State Park Lake	Mercury	NA	Yes	No
0921	South Fork Blackwater River	Sediment	11/15/2006	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Concordia – Edwin A. Pape Lake Water Resources Needs Committee
- Higginsville City Lake - Watershed Steering Committee

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Blackwater River at Valley City
- Blackwater River at Blue Lick

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Clear Fork Blackwater River
- S. Fork Blackwater River

Figure 161: Number of Volunteer Water Quality Sampling Events Conducted in 10300104 Blackwater River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	3	ND	3	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	3	ND	3	ND

State Cost Share

Soil Conserved – 504,495 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- Salt Fork Creek (SN090)

Figure 162: Blackwater River Basin AgNPS SALT Project Plan Goals for HUC 10300104

Watershed Name	Salt Fork Creek
Project #	SN090
Watershed Size (ac)	44,026
Cropland (ac)	38,243
Cropland Treated in Plan (ac)	20,000
Pasture/Hayland (ac)	3,268
Pasture/Hayland Treated in Plan (ac)	1,700
CRP Land (ac)	355
CRP Treated in Plan (ac)	250
Urban (ac)	195

Watershed Name	Salt Fork Creek
Project #	SN090
Urban Treated in Plan (ac)	0
Woodland (ac)	1,700
Woodland Treated in Plan (ac)	500
Public Land (ac)	24
Public Land Treated in Plan (ac)	0
Other (ac)	241
Other Treated in Plan (ac)	0
Stream (mi)	100
Stream Treated in Plan (mi)	24

Figure 163: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10300104

Contour Buffer Strips (acres)	0	Diversion (feet)	8,725
Field Border (feet)	108	Terraces (feet)	669,132
Filter Strip (acres)	82	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	66	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	37	Critical Planting (acres)	63
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	11
Windbreak (feet)	2,493	Water/Sediment Basins (#)	2
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	1,966		

	Planned	**Applied**
Nutrient Plans (CNMP)	6	5
Conservation Reserve Program	72	46
Conservation Security Program	0	0
Wetland Reserve Program	1	1
Wildlife Habitat Incentive Program	4	2
EQIP Ground/Surface Water Plans	54	49

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Lower Missouri River Basin
(HUC 10300200)
Missouri Basin Name – Missouri River Mainstem - Hermann to St. Louis

The Missouri River Mainstem from Hermann to St. Louis, HUC 10300200, lies in the eastern Missouri counties of Audrain, Callaway, Montgomery, Gasconade, Warren, Franklin, St. Charles, and St. Louis. The Missouri River runs through the middle of the basin from west to east. The major tributaries that drain into the Missouri River are Loutre River, Charrette Creek, St. John's Creek, Boeuf Creek and Big Berger Creek. Creve Couer, Callaway and Sherwood Lakes are some of the larger lakes in the watershed that are associated with the river system. The western portion of the basin is primarily rural and the eastern is heavily urbanized by St. Louis and adjoining areas.

Nonpoint source pollution results from farming practices in the western portion of the basin and urban storm water and associated pollutants in the eastern portion.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- Lower Missouri River Sub-basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 10300200: http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

WBID#	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
1605	Femme Osage Creek (also known as Femme Osage Slough)	Mercury	NA	Yes	No
1604	Missouri River	Chlordane and PCBs	11/03/2006	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Missouri River at Hermann

- Bonhomme Creek near Ellisville
- Bonhomme Creek near Clarkson Valley
- Caulks Creek at Chesterfield
- Creve Coeur Creek at Chesterfield
- Creve Coeur Creek near Creve Coeur
- Fee Fee Creek near Bridgeton
- Missouri River at St. Charles
- Cowmire Creek at Bridgeton
- Mill Creek near Florissant
- Coldwater Creek near Black Jack
- Spanish Lake Tributary near Black Jack

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Boeuf Creek
- Bonhomme Creek
- Caulks Creek
- Charrette Creek
- Coldwater Creek
- Creve Coeur Creek
- Creve Coeur Lake
- Dripping Springs
- Fee Fee Creek
- Femme Osage Creek
- L. Femme Osage
- Tributary to Caulk's Creek
- Tributary to Creve Coeur Creek
- Tributary to Fee Fee Creek
- Tributary to Missouri River
- W. Fork Caulk's Creek

Figure 164: Number of Volunteer Water Quality Sampling Events Conducted in 10300200 Lower Missouri River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	4	7	6	3
2	4	6	3	5
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	8	13	9	8

State Cost Share

Soil Conserved – 98,890 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- Charrette Creek (SN054)
- Lower Loutre (SN087)

Figure 165: Lower Missouri River Basin AgNPS SALT Project Plan Goals for HUC 10300200

Watershed Name	Charrette Creek	Lower Loutre	Total
Project #	SN054	SN087	
Watershed Size (ac)	90,562	81,988	172,550
Cropland (ac)	22,094	5,000	27,094
Cropland Treated in Plan (ac)	11,047	2,988	14,035
Pasture/Hayland (ac)	5,975	45,569	51,544
Pasture/Hayland Treated in Plan (ac)	2,987	5,538	8,525
CRP Land (ac)	1,326	450	1,776
CRP Treated in Plan (ac)	0	0	0
Urban (ac)	24,358	400	24,758
Urban Treated in Plan (ac)	0	0	0
Woodland (ac)	34,636	27,329	61,965
Woodland Treated in Plan (ac)	20,781	2,215	22,996
Public Land (ac)	1,408	1,640	3,048
Public Land Treated in Plan (ac)	0	0	0
Other (ac)	765	1,600	2,365
Other Treated in Plan (ac)	0	0	0
Stream (mi)	298	19	317
Stream Treated in Plan (mi)	0	4	4

Figure 166: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 10300200

Contour Buffer Strips (acres)	0	Diversion (feet)	2,667
Field Border (feet)	7	Terraces (feet)	33,685
Filter Strip (acres)	25	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	10	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	1	Critical Planting (acres)	33
Stream/Shore Protection (feet)	110	Grade Stab. Structures (#)	16
Windbreak (feet)	0	Water/Sediment Basins (#)	6
Waste Utilization	10	Wells Decommissioned (#)	6
Nutrient Management (acres)	1,968		

	Planned	Applied
Nutrient Plans (CNMP)	2	0
Conservation Reserve Program	20	13
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	2	6
EQIP Ground/Surface Water Plans	45	59

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Beaver Reservoir
(HUC 11010001)
Missouri Basin Name – Table Rock Lake Basin

Beaver Reservoir basin, HUC 11010001, is also called Table Rock Lake Basin, which covers portions of Taney, Stone and Barry Counties. Table Rock Lake created by the damming of the White River in Taney County covers from 43,000 to 52,000 acres and is one of the most popular tourist destinations in Missouri with visitor use of between 30 and 40 million hours per year. A large increase in permanent residents and businesses is also occurring. The Table Rock Lake basin is part of the White River basin, which covers 5,184 square miles of Missouri and Arkansas. There are three notable springs in the watershed. Table Rock Lake is designated for livestock & wildlife watering, aquatic life, whole body contact recreation, drinking water supply, and secondary contact recreation.

Localized, excessive eutrophication and the resulting increases in phytoplankton and lower water clarity in Table Rock Lake have been a cause for concern. Nonpoint source pollution contributing to these problems comes mainly from residential septic systems and livestock and poultry waste.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
7313	Table Rock Lake	Nutrients	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Table Rock Lake Shoreline Cleanup Committee

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Roaring River at Roaring River State Park

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 167: Number of Volunteer Water Quality Sampling Events Conducted in 11010001 Beaver Reservoir Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share
Soil Conserved – 0 tons

Active Nonpoint Source Projects
319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 168: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 11010001

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	0		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	1	1

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

James River Basin
(HUC 11010002)
Missouri Basin Name – James River Basin

The James River Basin, HUC 11010002, is a major tributary to the White River and its geology is characterized by karst which creates a terrain dominated by sinkholes, losing streams, caves and springs. The basin includes all of the land drained by the unimpounded portions of the James River and all of its tributaries, an area of 1,512 square miles. The basin is located in southwest Missouri in portions of Webster, Greene, Christian, Stone, Wright, Douglas, Lawrence, and Barry counties. The James River flows nearly 100 miles from Webster County to its mouth in Table Rock Lake. Major tributaries of the James River within the basin include Crane Creek, Flat Creek, Finley Creek, Panther Creek, Pearson Creek and Wilson Creek.

Approximately 30% of the land cover within the James River basin is hardwood forest, 63% is agricultural, and 7% is urban. Springfield is the largest city in the basin but population growth and land use changes from rural to urban are rapidly occurring south of Springfield. Potential sources of nonpoint pollution in the basin include: animal agriculture, sedimentation from erosion, sludge application from sewage treatment facilities, coal pile runoff, seepage from septic tanks, and runoff from urban areas. Both urban and rural phosphorus sources are significant.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Watershed Restoration Action Strategy written for the James River 8-digit HUC11010002; Status - developed January 3, 2000.
- Watershed Restoration Action Strategy written for the Wilson Creek, HUC11010002; Status – developed January 3, 2000.
- 9–element plan Finley River, HUC 1101000203, is being developed through 319 project #G06-NPS-23. The plan is in the final draft development stage.
- Ward Branch, Watershed Management Plan, HUC 11010002020002, was developed through 319 project #G04-NPS-24.
- 9–element plan for the Middle James River, HUC 1101000202001, 1101000202002, 1101000202003 and Finley River, HUC 11010002030004 is being developed through 319 project #G06-NPS-15. The plan is in the draft development stage.
- Lower James, HUC 11010002070 and Table Rock Lake, HUC 1101002050, was developed through 319 project #G07-NPS-07.
- 9-element plan for Big River, HUC's 07140104 010 004, 010 004, and 080 003 are being developed through 319 projects #G04-NPS-22 and G00-NPS-12. The plans are in the second draft development stage.

Rapid Watershed Assessment *

- None

TMDL Summary List

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
2347	James River	Nutrients	05/07/2001, updated 12/01/2004	Yes	Yes
2347	James River	Mercury	NA	Yes	No
2362	James River	Nutrients	05/07/2001, updated 12/01/2004	Yes	No
2362	James River	Mercury	NA	Yes	No
2365	James River	Nutrients	05/07/2001, updated 12/01/2004	Yes	Yes
2373	Pearson Creek	Unknown pollutant(s)	NA	Yes	No
7313	Table Rock Lake	Nutrients	NA	Yes	No
2375	Wilsons Creek	Unknown pollutant(s)	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- James River Rescue Planning Committee
- Ward Branch Technical Advisory Committee
- Ward Branch Advisory Committee
- Watershed Coordinating Committee
- Missouri Watershed Modeling Group
- Habitat Low Impact Development Site Planning Committee
- Habitat Low Impact Development Landscape Committee
- Low Impact Development Technical Stormwater Demonstration Committee
- James River Stormwater Project Advisory, Technical & Stakeholders Committees
- Finley River NAIP Steering Committee
- Finley River Watershed Management Plan Stakeholder Committee
- Middle James Stakeholder Group
- Lower James River Stakeholder Group
- Table Rock Lake Stakeholder Group
- Finley River Project Committee
- Lower James and Table Rock Planning Committee
- Lower James and Table Rock Technical Committee **

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Pearson Creek near Springfield
- James River near Springfield
- Wilson Creek at Springfield
- Wilson Creek near Springfield
- South Creek near Springfield
- Wilson Creek near Brookline
- James River near Boaz
- Finley Creek below Riverdale
- James River at Galena
- Flat Creek below Jenkins

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Crane Creek
- Fassnight Creek
- Finley Creek
- Flat Creek
- Gallaway Creek
- James River
- Panther Creek
- Pearson Creek
- Wilson Creek

Figure 169: Number of Volunteer Water Quality Sampling Events Conducted in 11010002 James River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	2	4	3	4
2	3	33	4	1
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	5	37	7	5

State Cost Share

Soil Conserved – 103,952 tons

Active Nonpoint Source Projects

319 NPS Projects

- Sources and Reduction of Stormwater Runoff in the James River Basin, G06-NPS-15
- Finley River Non-Traditional Agricultural Implementation Project, G06-NPS-23
- Lower James and Table Rock Lake Watershed Management Plan, G07-NPS-07
- On-Site System Identification and Remediation Project, G08-NPS-13
- James River Basin Riparian Corridor Restoration and Protection, G09-NPS-11

AgNPS SALT Projects

- Crane Creek (SN039)
- James River Headwaters (SN041)
- Flat Creek (SN055)
- James R. Lower Headwaters (SN103)
- Pearson Creek (SN097)

Figure 170: James River Basin AgNPS SALT Project Plan Goals for HUC 11010002

Watershed Name	Crane Creek	James River Headwaters	Flat Creek	James R. Lower Headwaters	Pearson Creek	Total
Project #	SN039	SN041	SN055	SN103	SN097	
Watershed Size (ac)	53,060	75,356	72,900	50,412	46,368	298,096
Cropland (ac)	500	1,670	2,190	2,490	1,855	8,705
Cropland Treated in Plan (ac)	0	0	250	400	150	800
Pasture/Hayland (ac)	41,730	45,605	57,009	26,232	16,692	187,268
Pasture/Hayland Treated in Plan (ac)	0	0	16,085	2,750	4,250	23,085
CRP Land (ac)	0	0	15	0	11	26
CRP Treated in Plan (ac)	0	0	0	0	0	0
Urban (ac)	200	1,100	1,942	755	12,983	16,980
Urban Treated in Plan (ac)	0	0	0	0	0	0
Woodland (ac)	9,000	25,641	11,754	19,281	11,128	76,804
Woodland Treated in Plan (ac)	0	0	500	600	330	1,430
Public Land (ac)	730	840	80	0	406	2,056
Public Land Treated in Plan (ac)	0	0	0	0	0	0
Other (ac)	900	500	0	1,654	3,293	6,347
Other Treated in Plan (ac)	0	0	0	0	0	0
Stream (mi)	100	477	79	139	138	933
Stream Treated in Plan (mi)	0	0	12	20	12	44

Figure 171: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 11010002

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	13	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	6	Critical Planting (acres)	1
Stream/Shore Protection (feet)	340	Grade Stab. Structures (#)	0
Windbreak (feet)	775	Water/Sediment Basins (#)	0
Waste Utilization	215	Wells Decommissioned (#)	2
Nutrient Management (acres)	1,235		

	Planned	Applied
Nutrient Plans (CNMP)	5	4
Conservation Reserve Program	1	2
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	3	3
EQIP Ground/Surface Water Plans	29	50

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 172: Summary of FFY09 319 NPS Project Evaluation Measures: HUC 1101002 - James River Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	2	17	31	2	2	0	0	0
					acres	acres	acres	acres
					0	0	0	0

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	0	0	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	15	2,111	8	484	2	56	7	3,088	0	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	7	23	16	15,240	6	16,360	4	330	9

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	1	0	0	0	0	0	0	0

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	0	0	1	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	198	37	2	411	91	0	0.5

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	0	0	0	0	0	0	0

Bull Shoals Lake Basin
(HUC 11010003)
Missouri Basin Name – Bull Shoals Lake Basin

The Bull Shoals Lake Basin, HUC 11010003, includes Lake Taneycomo, which covers 1,730 acres, and Bull Shoals Lake, which covers 45,000 acres with approximately 740 miles of shoreline. The upper 9,000 acres of the Bull Shoals basin lies in Missouri, and the remainder lies in Arkansas. Missouri counties within this watershed are portions of Wright, Stone, Ozark, Taney, Douglas, Christian, and Webster. These lakes are designated for livestock & wildlife watering, aquatic life, whole body contact recreation, secondary contact recreation, and drinking water supply. In addition, Lake Taneycomo is designated as a cold water fishery.

The Lake Taneycomo sub-watershed is estimated at 93% forest, 4% pasture, and 3% urban. Lake Taneycomo supports a large rainbow trout fishery and in the surrounding hills, Branson, Missouri, is one of the largest tourist destinations in the Midwest. Increasing human population and land use changes in the basin present challenges to local and state governments trying to protect the lake for its recreational potential and drinking water supply. The Bull Shoals Lake sub-basin is estimated at 85% forest and 15% pasture. The upper portion of Bull Shoals Lake lies in Missouri and the remainder in Arkansas. The lake is larger and has much less development than Lake Taneycomo. Water quality in the lake and its tributary streams is very good.

Significant nonpoint sources include storm water runoff from urban areas. Major pollutants from these sources include nitrogen, phosphorus, sediment, and bacteria. Urban runoff can carry heavy metals or toxic organics. Other potential nonpoint sources also include sedimentation from erosion in disturbed watersheds, sludge application from sewage treatment facilities, and seepage from septic tanks. Continuing urban and suburban development in the watershed will increase sewage loads and storm water runoff problems in these lakes and area streams. Because of the rapid pace of development and steep slopes in the Branson area, soil erosion associated with land clearing for development is one of the largest nonpoint source problems in the area of the Lake Taneycomo sub-watershed.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
7314	Lake Taneycomo	Low dissolved oxygen	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Lake Taneycomo Stakeholders Group

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Table Rock Lake Tailwater near Branson
- Bull Creek near Walnut Shade
- Beaver Creek at Bradleyville

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Blair Creek
- Bull Creek
- James River
- Swan Creek
- Woods Fork Bull Creek

Figure 173: Number of Volunteer Water Quality Sampling Events Conducted in 11010003 Bull Shoals Lake Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	1	13	1	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	1	13	1	ND

State Cost Share

Soil Conserved – 254,775 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- South Bull Shoals (SN052)
- Beaver Creek (SN067)

Figure 174: Bull Shoals Lake Basin AgNPS SALT Project Plan Goals for HUC 11010003

Watershed Name	South Bull Shoals	Beaver Creek	Total
Project #	SN052	SN067	
Watershed Size (ac)	55,386	89,495	144,881
Cropland (ac)	500	150	650
Cropland Treated in Plan (ac)	0	0	0
Pasture/Hayland (ac)	18,184	31,308	49,492
Pasture/Hayland Treated in Plan (ac)	5,000	3,600	8,600
CRP Land (ac)	0	0	0
CRP Treated in Plan (ac)	0	0	0
Urban (ac)	640	100	740
Urban Treated in Plan (ac)	0	0	0
Woodland (ac)	22,713	25,984	48,697
Woodland Treated in Plan (ac)	2,000	2,550	4,550
Public Land (ac)	7,556	29,179	36,735
Public Land Treated in Plan (ac)	0	0	0
Other (ac)	5,793	2,774	8,567
Other Treated in Plan (ac)	0	0	0
Stream (mi)	28	56	84
Stream Treated in Plan (mi)	10	15	25

Figure 175: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 11010003

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	71	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	30	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	1
Nutrient Management (acres)	22		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	1
Conservation Reserve Program	0	1
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	7	10
EQIP Ground/Surface Water Plans	16	16

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

North Fork White River Basin
(HUC 11010006)
Missouri Basin Name – North Fork White River Basin

The North Fork White River Basin, HUC 11010006, occupies approximately 1,389 square miles in parts of six counties in the southern Missouri Ozarks - Douglas, Howell, Ozark, Texas, Webster, and Wright. The North Fork Watershed in Missouri constitutes approximately 76% of the total area of the North Fork Watershed with the remainder in Arkansas. The North Fork White River originates in the vicinity of Mountain Grove in southeastern Wright County. The river flows in a general southerly direction across Douglas and Ozark counties for 67 miles before emptying into Norfork Reservoir (22,000 acres) near Tecumseh, Missouri. The North Fork White River is joined by Bryant Creek, its largest tributary, approximately one-half mile north of Tecumseh. Bryant Creek flows southeasterly across Douglas and Ozark counties for 71 miles before emptying into the North Fork White River.

Caves, springs, losing streams, and sinkholes are common in the watershed, due to the highly karst nature of its topography. There are 283 springs within the watershed as determined from USGS 7.5-minute topographic maps. The largest of these springs are Double (Rainbow) and North Fork Springs, which emerge close together on the North Fork White River.

Land use/land cover within the North Fork Watershed primarily consists of grassland/cropland (37.5%) and forest/woodland (61.9%). Urban areas make up 0.4% of the watershed. The greatest nonpoint source pollution threat in is the potential contamination of the groundwater system. Seventy-four percent of the water withdrawn within the watershed comes from the groundwater system.

Water quality within the North Fork Watershed is relatively good; however periodically high fecal coliform levels, nutrient loading, and sediment/gravel deposition are threats to water quality. Gravel dredging, indiscriminate land clearing, and the presence of livestock in riparian zones for extended periods of time are some causes of the water quality problems. In addition, the potential contamination of the ground water system by septic systems as well as municipal discharges to losing streams is also of concern. No streams within the North Fork Watershed are designated for use as a drinking water supply.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
7316	Noblett Lake	Mercury	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- North Fork River near Tecumseh
- Bryant Creek near Tecumseh

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Bennet's Bayou
- Bridges Creek
- N. Fork White River
- Rippee Creek

Figure 176: Number of Volunteer Water Quality Sampling Events Conducted in 11010006 North Fork White River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	2	2	2	2
2	1	2	1	2
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	3	4	3	4

State Cost Share

Soil Conserved – 150,312 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 177: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 11010006

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	30	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	42		

	Planned	Applied
Nutrient Plans (CNMP)	2	1
Conservation Reserve Program	2	2
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	2	5
EQIP Ground/Surface Water Plans	22	18

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Black River Watershed
(HUC 11010007)
Missouri Basin Name – Black River Basin

The Upper Black River basin, HUC 1101007, originates in Reynolds and Iron counties, Missouri, and flows south through Wayne and Butler counties and into Arkansas. Also included in this watershed, are portions of Dent, Ripley, Carter, and Shannon counties. The Black River drains 1,756 square miles in Missouri. The basin lies in the Ozark Plateau. A large portion of the basin forested with much of the land in public ownership. Soils in the basin are primarily suited for trees and are considered highly erodible. There are excessive amounts of gravel bedload in the stream channel.

Basin streams generally exhibit good water quality and most streams are classified as full use attainment. In the upper subbasin, Logan Creek, Clearwater Lake, the Black River, and all three forks of the Black River are designated for whole-body contact recreation. Two reservoirs, Clearwater Lake and Lower Taum Sauk Lake, affect stream flows and fish movement.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- Black River Sub-basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 11010007: http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
2769	Black River	Mercury	NA	Yes	No
7326	Clearwater Reservoir	Mercury	NA	Yes	No
2814	Main Ditch	Biochemical oxygen demand, volatile suspended solids and low dissolved oxygen	12/19/2005	Yes	Yes
2786	McKenzie Creek	Biochemical oxygen demand	NA	Yes	No
2787	McKenzie Creek	Naturally low pH	11/15/2004	Yes	Yes
2755	West Fork Black River	Nutrients	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- Wayne-Butler Counties PWSD #4 Source Water Protection Plan

Water Quality Monitoring

Active USGS Gaging Station(s)

- East Fork Black River near Lesterville
- East Fork Black River below Lower Taum Sauk Reservoir
- East Fork Black River at Lesterville
- Black River near Annapolis
- Black River below Annapolis
- Logan Creek at Ellington
- Clearwater Tailwater near Piedmont
- Black River at Leeper
- Black River above Williamsville

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 178: Number of Volunteer Water Quality Sampling Events Conducted in 11010007 Upper Black River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 132,729 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 179: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 11010007

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	3
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	32
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	329		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	2
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	2
EQIP Ground/Surface Water Plans	21	35

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Current River Basin
(HUC 11010008)
Missouri Basin Name – Current River

The Current River Basin, HUC 11010008, drains a land area of approximately 2,621 square miles in portions of 9 counties in Missouri, and 2 counties in Arkansas. These counties include Texas, Dent, Reynolds, Shannon, Howell, Oregon, Carter, Butler, and Ripley in Missouri; and Randolph and Clay in Arkansas. Most of the watershed (95.9%) lies within Missouri. The Jacks Fork River drains approximately 18% of the Current River Watershed, which flows into the Current River approximately five air miles east-northeast of Eminence, Missouri. The Current River is formed by the confluence of Pigeon Creek and the Montauk Spring complex near Montauk, Missouri. From its beginning, the river flows approximately 184 miles in a southeasterly to south direction before flowing into the Black River near Pocahontas, Arkansas.

A combination of climate and geology has created a karst landscape in the watershed characterized by a close interaction between groundwater and surface water systems through sinkholes, losing streams, and springs. Dye trace data for the Current River Watershed indicates the watershed receives substantial amounts of ground water from neighboring watersheds; the most notable example is the Big Spring recharge area. Much of this recharge area is located in the Eleven Point River Watershed.

There are approximately 197 third order and larger streams within the watershed. The Current River is a seventh order stream. An estimated 678 stream miles in the watershed have permanent water. Approximately 98 miles of channelized stream exists within the Current River with most of the areas located in the lowlands of the southeast corner of the watershed. The watershed is 80% forested, and 16% grasslands with approximately 32% (420,576 acres) of land under public ownership. The United States Forest Service (USFS) holds the largest amount of publicly-owned land, totaling 235,279 acres.

Overall water quality within the watershed appears to be relatively good with a diverse biotic community. Nonpoint source water pollution problems in this watershed, include large numbers of livestock in riparian zones for extended periods of time, private septic system failure, improper sand and gravel removal and poor land use practices such as indiscriminate land clearing. These can result in periodic high fecal coliform levels, nutrient loading, and increased sediment deposition.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans

- Jacks Fork Watershed, HUC 1101000805, is being developed with assistance from 319 project #G06-NPS-10. The plan is in the second draft development stage.

Rapid Watershed Assessment

- Current River Sub-basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 11010008: http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
2681	Jack's Fork River	Fecal coliform	01/21/2004	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Jack's Fork Watershed Steering Committee

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Current River at Montauk State Park
- Current River above Akers
- Jacks Fork near Mountain View
- Jacks Fork at Alley Spring
- Jacks Fork at Eminence
- Current River at Van Buren
- Big Spring near Van Buren
- Current River at Doniphan
- Little Black River below Fairdealing

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Bay Creek
- Current River
- Little Black River

Figure 180: Number of Volunteer Water Quality Sampling Events Conducted in 11010008 Current River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	1	ND	1
2	2	1	1	2
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	2	2	1	3

State Cost Share

Soil Conserved – 147,618 tons

Active Nonpoint Source Projects

319 NPS Projects

- Improved Septic Disposal Equals Improved Swimming in the Jacks Fork River, G08-NPS-11

AgNPS SALT Projects

- None

Figure 181: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 11010008

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	5
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	2
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	28	Wells Decommissioned (#)	0
Nutrient Management (acres)	41		

	Planned	Applied
Nutrient Plans (CNMP)	2	2
Conservation Reserve Program	1	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	4	4
EQIP Ground/Surface Water Plans	23	44

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 182: Summary of FFY09 319 NPS Project Evaluation Measures: HUC 11010008 - Current River Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	0	9	10	0	0	0	0	0
					acres	acres	acres	acres
					0	0	0	0

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	0	0	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	0	0	6	14	0	0	3	600	1	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	7	8	0	0	5	0	2	154	3

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	1	0	0	0	0	5	0	0

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	0	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	0	0	0	0	0	0	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	0	0	0	0	0	0	0

Lower Black River Basin
(HUC 11010009)
Missouri Basin Name – Fourche Creek Basin

The Lower Black River basin, HUC 11010009, lies mainly within the southwest corner of Ripley County with a small fraction of the watershed in Oregon County. Fourche Creek and its tributaries are the classified water bodies within the Missouri portion of the basin. Fourche Lake is located in the main stem of Fourche Creek. The basin is 55% forested and 45% row crop or pasture. Wetland drainage, timber clearing, and flood control projects have converted the southern and eastern sections of the watershed into a vast agricultural area. Nonpoint source pollution comes from agricultural runoff. In the southeast portion of the basin, approximately 30% of the wells exceed nitrate water quality standards. Flow in the lower Black River is primarily regulated by water released through Clearwater Lake.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

- none

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- None

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 183: Number of Volunteer Water Quality Sampling Events Conducted in 11010009 Lower Black River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share
Soil Conserved – 6,842 tons

Active Nonpoint Source Projects
319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 184: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 11010009

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	1
Nutrient Management (acres)	0		

	Planned	**Applied**
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	2	4

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Spring River Basin
(HUC 11010010)
Missouri Basin Name – Spring River Basin (Howell/Oregon counties)

The Spring River Basin, HUC 11010010, is located southwest of the Eleven Point Watershed and is bounded to the west by the North Fork White River Watershed. The Spring River Basin in Missouri occupies 480.3 square miles. It constitutes approximately 39% of the total area of the Spring River Watershed with the remainder in Arkansas and of which the Eleven Point River is also a tributary. The basin occupies parts of Howell and Oregon counties in Missouri. Caves, springs, losing streams, and sinkholes are common in the watershed. The watershed consists of three major streams, which generally flow in a south to southeast direction and cross the Missouri/Arkansas border to join the Spring River in Arkansas. These streams include the South Fork Spring River, Myatt Creek, and Warm Fork Spring River. The longest of these tributaries in Missouri is the Warm Fork Spring River, which originates in the headwaters as Howell Creek within the city limits of West Plains, Missouri. There have been no significant channel alterations within the watershed.

Land use/land cover primarily consists of grassland/cropland (49.1%) and forest/woodland (48.3%). Urban areas make up 2.4% of the watershed. West Plains is the largest population center in south central Missouri and a hub of transportation. Approximately 2% of the watershed is in public ownership, nearly all of which is managed by the Missouri Department of Conservation. Nonpoint source pollution results from poor land use practices, gravel dredging, large numbers of cattle, and runoff as well as sewage effluent associated with developed and urbanized areas. These sources all contribute to water quality problems in both surface water and ground water. Nearly all water for domestic use is obtained from ground water systems within the watershed.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- None

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
2582	Howell Creek	Chlorine	01/31/2001	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- None

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Galloway Creek

Figure 185: Number of Volunteer Water Quality Sampling Events Conducted in 11010010 Spring River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	1	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	1	ND	ND	ND

State Cost Share

Soil Conserved – 38,358 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- Warm Fork of Spring River (SN098)

Figure 186: Spring River Basin AgNPS SALT Project Plan Goals for HUC 11010010

Watershed Name	Warm Fork of Spring River
Project #	SN098
Watershed Size (ac)	43,365
Cropland (ac)	217
Cropland Treated in Plan (ac)	100
Pasture/Hayland (ac)	19,489
Pasture/Hayland Treated in Plan (ac)	7,500
CRP Land (ac)	40
CRP Treated in Plan (ac)	5
Urban (ac)	781
Urban Treated in Plan (ac)	0
Woodland (ac)	21,873
Woodland Treated in Plan (ac)	3,800

Public Land (ac)	0
Public Land Treated in Plan (ac)	0
Other (ac)	965
Other Treated in Plan (ac)	0
Stream (mi)	112
Stream Treated in Plan (mi)	5

Figure 187: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 11010010

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	66	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	18	Critical Planting (acres)	0
Stream/Shore Protection (feet)	4,460	Grade Stab. Structures (#)	0
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	34		

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	6	1
EQIP Ground/Surface Water Plans	13	14

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Eleven Point River Basin
(HUC 11010011)
Missouri Basin Name – Eleven Point River Basin

The Eleven Point Basin, HUC 11010011, originates near the town of Willow Springs, located in northeastern Howell County. The river flows southeasterly across northern Howell and Oregon counties and then south, crossing the Arkansas state line about 2.5 miles west of the southeast corner of Oregon County. From there it flows generally south through Randolph County, Arkansas, joining the Spring River approximately 3.7 miles above the Spring River/Black River Confluence near Black Rock, Arkansas. Major tributaries of the Eleven Point River include Middle Fork, Spring Creek, Hurricane Creek, and Fredrick Creek. Greer Spring also contributes significantly to the flow of the Eleven Point River, turning the river into a cold water stream. The Eleven Point Watershed drains approximately 1,024 square miles in portions of five counties within Missouri. These include Howell, Oregon, Ripley, Carter, and Shannon. The watersheds bordering the Eleven Point Watershed include the Jacks Fork to the north, the Current and Fourche to the east, and the North Fork White River and Spring River to the west. Many caves, springs, and losing streams are present within the watershed. This is due to the highly karst nature of its topography.

Land use/land cover within the Eleven Point Watershed is 64.9% forest/woodland, 34.4% grassland/cropland and 0.4% urban. Approximately 22% of the watershed is in public ownership with the majority of this land managed as part of the Mark Twain National Forest.

Water quality within the Eleven Point Watershed is relatively good; however, high fecal coliform levels, nutrient loading, and sediment and gravel deposition are the most severe nonpoint source pollution threats to water quality. Poor land use practices, gravel dredging, and increasing cattle populations are the primary causes of the water quality problems. Lead prospecting has occurred throughout the watershed, and is a potential threat to water quality along with lead mining. The Eleven Point River between Thomasville and Highway 142 has been designated as a National Scenic River Area (Outstanding National Resource Water). The biotic community of the Eleven Point Watershed is diverse.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans*

- None

Rapid Watershed Assessment *

- Eleven Point Sub-basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 10300104: http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
2593	Eleven Point River (Oregon County)	Mercury	NA	Yes	No

2604	Eleven Point River (Howell County)	Chlorine	01/12/2001	Yes	Yes
2614	Piney Creek	Chlorine	01/12/2001	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- None

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Eleven Point River near Bardley

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- No data

Figure 188: Number of Volunteer Water Quality Sampling Events Conducted in 11010011 Eleven Point River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	ND	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	ND	ND	ND	ND

State Cost Share

Soil Conserved – 197,823 tons

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 189: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 11010011

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0

Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	2
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	0		

	Planned	**Applied**
Nutrient Plans (CNMP)	2	1
Conservation Reserve Program	1	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	8	9
EQIP Ground/Surface Water Plans	19	33

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Lake O' the Cherokees
(HUC 11070206)
Missouri Basin Name – Cherokees Lake Basin

The Lake O' the Cherokees basin, HUC 11070206, has two portions in Missouri, one above the Elk River basin and one below in the southwest most corner of the state. The Missouri counties of Newton and McDonald contain portions of the watershed. The flow in the basin is westerly and the headwaters originate in several locations in Missouri and Arkansas. Big Sugar Creek and Little Sugar Creek join to form the Elk River near Pineville, Missouri, from which it flows west, terminating in Grand Lake O' the Cherokees in Oklahoma. Lost Creek and Honey Creek which are in the Lake O' the Cherokees basin are tributaries of Neosho/Grand River and originate in Missouri, then flow to the Lake O' the Cherokees.

Animal agriculture is a major enterprise in the basin. Confined animal agriculture (primarily poultry) has grown explosively in the basin since the early 1980s. Waste management and disposal at these facilities, wastewater treatment and disposal at associated processing plants, and increasing pollutants in basin streams has become a concern in the basin.

Nonpoint source pollution in the basin comes from various sources including urban development and runoff, mining, land conversion from forest to pasture, free ranging livestock, animal feeding operations, road construction, and septic tanks. The Lake O' the Cherokees basin is subject to intense water-based recreational use in the warmer months. Intensive animal based agriculture and poor land use are the primary water quality related problems in the watershed.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Grand Lake Watershed Plan - developed September 2008 by Grand Lake O'Cherokees Watershed Alliance Foundation – Grove, OK **

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
3245	Cave Spring Branch	Nutrients	NA	Yes	No

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Lower Shoal Creek Watershed Alliance
- Upper Shoal Creek Watershed Group
- Spring River Basin Clearinghouse

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Cave Springs Branch near South West City
- Honey Creek near South West City

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Little Lost Creek.

Figure 190: Number of Volunteer Water Quality Sampling Events Conducted in 11070206 Lake O' the Cherokees Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	1	ND	ND	ND
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	1	ND	ND	ND

State Cost Share

Soil Conserved – NA

Active Nonpoint Source Projects

319 NPS Projects

- None

AgNPS SALT Projects

- None

Figure 191: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 11070206

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	0	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	0
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	0	Water/Sediment Basins (#)	0
Waste Utilization	0	Wells Decommissioned (#)	0
Nutrient Management (acres)	0		

	Planned	Applied
Nutrient Plans (CNMP)	0	0
Conservation Reserve Program	0	0
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	0	5

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Spring River Basin
(HUC 11070207)
Missouri Basin Name – Spring River Basin

The Spring River Basin, HUC 11070207, is located in southwest Missouri in Barry, Barton, Christian, Dade, Jasper, Lawrence, Newton, and Stone counties. The Spring River originates along the Barry-Lawrence county line south of Verona, flows west-northeast to its confluence with the North Fork Spring River east of Asbury in Jasper County and then southwest into Kansas and Grand Lake of the Cherokees in Oklahoma. Major tributaries within the basin are the North Fork Spring River, Center Creek, Turkey Creek, and Shoal Creek. Numerous smaller tributaries flow throughout the basin. The Spring River watershed totals 2,271 square miles. The total mileage of streams with permanent flow is 331 miles. Intermittent streams add another 188 miles. Several losing stream reaches and numerous springs are also located in the basin. There are six stream segments listed on the 2002 303(d) list totaling 107.5 miles.

Land use in the North Fork of the Spring River area of the basin is approximately 85% agricultural (pasture and row cropping) and 15% forested. Land use in the Spring River portion of the basin is estimated at 70% row crop and pasture and 30% forested. In the Center/Shoal Creek sub-basin, land use is approximately 52% row crop and pasture, 45% forest cover, and 3% mined lands. Stream habitat quality is fair to good throughout most of the basin. Some areas, including portions of the Capps Creek sub-basin, suffer from a severe lack of riparian vegetation. Sources of nonpoint source pollution in the basin include: runoff from mine tailings and active mining sites, livestock operations, sedimentation from erosion in disturbed watersheds, sludge application from sewage treatment facilities, seepage from septic tanks, and runoff from urban areas.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Watershed Restoration Action Strategy (WRAS) was developed for the Upper Spring River, March 10, 2000, by the Lawrence County Soil and Water Conservation District.
- Watershed Restoration Action Strategy (WRAS) - developed for Lower Shoal Creek Watershed by Harry S. Truman Coordinating Council.
- 9–element plan is being developed by the Shoal Creek Watershed Improvement Group for the Upper Shoal Creek Watershed, HUC 11070207100001, 11070207100002, 11070207100003 and 11070207030001. A watershed plan worksheet has been completed for the watershed.
- 9-element plan is being developed for the North Fork Spring River, HUC 110702070201, 02, 03, 05, 06, 07, 09, 12 and 13 by the Jasper County Soil and Water Conservation District. The plan is in the first draft development stage.
- 9-element plan is being developed for the Spring River Watershed at Carthage, Missouri, by the Spring River Watershed Management Group, HUC 11070207140002. The plan is in the first draft development stage. **

Rapid Watershed Assessment *

- Spring River Sub-basin, NRCS Rapid Watershed Assessment includes planning efforts for the entire HUC 11070207: http://www.mo.nrcs.usda.gov/technical/RWAs.html

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
3203	Center Creek	Zinc	10/25/2006	Yes	Yes
3239	Clear Creek (Barry County)	Biochemical oxygen demand, non-filterable residue, and ammonia nitrogen (nutrients)	12/01/1999	Yes	Yes
3168	Douger Branch	Zinc	08/29/2006	Yes	Yes
7356	Lamar Lake	Nutrients	07/20/2006	Yes	Yes
3188	North Form Spring River	Sediment	11/22/2006	Yes	Yes
3230	Shoal Creek	Bacteria	11/18/2003, updated 11/15/2007	Yes	Yes
3231	Shoal Creek	Bacteria	11/15/2007	Yes	Yes
3232	Pogue Creek	Bacteria	11/15/2007	Yes	Yes
3233	Joyce Creek	Bacteria	11/15/2007	Yes	Yes
3216	Turkey Creek	Zinc	10/25/2006	Yes	Yes
3217	Turkey Creek	Zinc	10/25/2006	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Lamar Lake Community Group
- Shoal Creek Watershed Partnership
- Shoal Creek Watershed Committee
- Shoal Creek Watershed Improvement Group **
- Spring River Watershed Management Group **
- Shoal Creek Conservation Opportunity Area committee **

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Spring River at LaRussell
- Spring River at Carthage
- North Fork Spring River near Purcell
- Spring River near Waco
- Shoal Creek above Joplin

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Capps Creek
- Carver Branch
- Center Creek
- Clear Creek
- Glendale Fork
- Shoal Creek
- Silver Creek
- Spring River
- Tributary to Spring River

Figure 192: Number of Volunteer Water Quality Sampling Events Conducted in 11070207 Spring River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	4	4	3	3
2	6	8	4	2
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	10	12	7	5

State Cost Share

Soil Conserved – 334,291 tons

Active Nonpoint Source Projects

319 NPS Projects

- Upper Shoal Creek On-Site System Implementation, G09-NPS-03
- Wildcat Glades Conservation & Audubon Center, G06-NPS-16

AgNPS SALT Projects

- Little North Fork Spring River (SN068)

Figure 193: Spring River Basin AgNPS SALT Project Plan Goals for HUC 11070207

Watershed Name	Little North Fork Spring River
Project #	SN068
Watershed Size (ac)	49,467
Cropland (ac)	21,578
Cropland Treated in Plan (ac)	8,016
Pasture/Hayland (ac)	16,665
Pasture/Hayland Treated in Plan (ac)	2,550
CRP Land (ac)	1,375
CRP Treated in Plan (ac)	0

Urban (ac)	901
Urban Treated in Plan (ac)	0
Woodland (ac)	4,913
Woodland Treated in Plan (ac)	100
Public Land (ac)	3,245
Public Land Treated in Plan (ac)	0
Other (ac)	790
Other Treated in Plan (ac)	0
Stream (mi)	194
Stream Treated in Plan (mi)	4

Figure 194: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 11070207

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	29	Terraces (feet)	75,610
Filter Strip (acres)	1	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	45	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	0	Critical Planting (acres)	29
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	1
Windbreak (feet)	12,365	Water/Sediment Basins (#)	0
Waste Utilization	77	Wells Decommissioned (#)	5
Nutrient Management (acres)	1,885		

	Planned	Applied
Nutrient Plans (CNMP)	9	8
Conservation Reserve Program	26	30
Conservation Security Program	0	1
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	1	1
EQIP Ground/Surface Water Plans	42	78

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 195: Summary of FFY09 319 NPS Project Evaluation Measures: HUC 11070207 - Spring River Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	1	2	7	1	0	1	0	0
					acres	acres	acres	acres
					0	55563	0	0

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	1	0	5	14	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	190	5,945	4	134	1	900	2	509	0	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	0	0	9	12,003	1	0	5	150	2

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	0	0	1	2	15	7	9	9

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	0	0	2	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	2	5	36	0	0	0	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	0	0	0	0	0	0	0

Elk River Basin
(HUC 11070208)
Missouri Basin Name – Elk River Basin

The Elk River basin, HUC 11070208, encompasses 1,032 square miles in the corners of four states, Arkansas, Kansas, Missouri, and Oklahoma. Counties that are partially or entirely within the basin are Benton County in Arkansas; Crawford County in Kansas; Barry, McDonald, and Newton counties in Missouri (866 square miles), and Delaware and Ottawa counties in Oklahoma. The basin runs in a westerly direction. It is bound to the east by the James River basin and the White River basin, bound on the north by the Shoal Creek and the Spring River basins and bound on the south and west by the Lake O' the Cherokees basin. The Elk River headwaters originate in Big Sugar Creek near Seligman, Missouri and Little Sugar Creek near Bentonville, Arkansas. These two streams merge near Pineville, Missouri, to form the Elk River. The Elk River is a sixth order stream for its entire length. Other major tributaries are Indian Creek and Buffalo Creek. The lower portion of Elk River is inundated by, and forms, the Elk River Arm of Grand Lake O' the Cherokees.

There are 234 third order and larger streams in the Elk River basin with a total stream mileage of 1,115 miles. There are 11 water body segments in this basin listed on Missouri's 1998 and 2002 303(d) list with 126.5 miles impaired by nutrients from livestock production. Nonpoint source pollution in the basin comes from various sources including urban development and runoff, mining, land conversion from forest to pasture, free ranging livestock, road construction, and septic tanks. This area of Missouri has a very large concentration of poultry operations. The basin is mainly rural but some areas are rapidly developing. All classified streams in the Elk River basin are designated for aquatic life protection and livestock & wildlife watering. The permanent flowing reaches of the Elk River, Buffalo Creek, Indian Creek, Big Sugar Creek, and Lost Creek are also designated for whole body contact recreation and secondary contact recreation. The permanently flowing reaches of South Indian Creek are designated for cold water fishery.

Watershed Efforts and Ongoing Activities

Watershed Planning

Watershed Management Plans *

- Watershed Restoration Action Strategy (WRAS) was developed for the Elk River Watershed, October 31, 2000, by the Southwest Missouri Resource Conservation & Development (RC&D). Status - substantially implemented through 319 projects #G00-NPS-13 and #G02-NPS-21.
- 9-element Elk River Watershed Management Plan, HUC 11070208 is being developed through 319 project #G07-NPS-11. The plan is in the first draft development stage.

Rapid Watershed Assessment *

- None

TMDL Summary List *

WBID #	Water Body	Water Body Impairment	Date of EPA Approval	Information Sheet	TMDL
3250	Big Sugar Creek	Nutrients	03/26/2004	Yes	Yes
3269	Buffalo Creek	Nutrients	03/26/2004	Yes	Yes
3273	Buffalo Creek	Nutrients	03/26/2004	Yes	Yes
3246	Elk River	Nutrients	03/26/2004	Yes	Yes
3256	Indian Creek	Nutrients	03/26/2004	Yes	Yes
3249	Little Sugar Creek	Nutrients	03/26/2004	Yes	Yes
3262	Middle Indian Creek	Nutrients	03/26/2004	Yes	Yes
3263	Middle Indian Creek	Nutrients	03/26/2004	Yes	Yes
3260	North Indian Creek	Nutrients	03/26/2004	Yes	Yes
3268	Patterson Creek	Nutrients	03/26/2004	Yes	Yes
3259	South Indian Creek	Nutrients	03/26/2004	Yes	Yes

Information sheets home page: http://www.dnr.mo.gov/env/wpp/tmdl/info/index.html
TMDLs home page: http://www.dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-EPA-Appr.htm

Watershed Groups Formed *

- Elk River Watershed Improvement Association

Source Water Protection Plans

- None

Water Quality Monitoring

Active USGS Gaging Station(s)

- Big Sugar Creek near Powell
- Little Sugar Creek near Pineville
- Indian Creek near Lanagan
- Elk River near Tiff City
- Buffalo Creek at Tiff City

Stream Teams – Volunteers submitted water quality monitoring data as of November 30, 2009, for the following water bodies for FFY09 between October 1, 2008 – September 30, 2009:

- Big Sugar Creek

Figure 196: Number of Volunteer Water Quality Sampling Events Conducted in 11070208 Elk River Basin

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	ND	ND	ND	ND
2	1	1	1	1
3	ND	ND	ND	ND
4	ND	ND	ND	ND
TOTAL	1	1	1	1

State Cost Share
Soil Conserved – 42,431 tons

Active Nonpoint Source Projects
319 NPS Projects

- Elk River Watershed Management Action Plan Implementation, G07-NPS-11

AgNPS SALT Projects

- Indian Creek (SN057)

Figure 197: Elk River Basin AgNPS SALT Project Plan Goals for HUC 11070208

Watershed Name	Indian Creek
Project #	SN075
Watershed Size (ac)	87,522
Cropland (ac)	1,700
Cropland Treated in Plan (ac)	200
Pasture/Hayland (ac)	42,040
Pasture/Hayland Treated in Plan (ac)	15,000
CRP Land (ac)	50
CRP Treated in Plan (ac)	0
Urban (ac)	2,000
Urban Treated in Plan (ac)	0
Woodland (ac)	36,612
Woodland Treated in Plan (ac)	345
Public Land (ac)	5,120
Public Land Treated in Plan (ac)	0
Other (ac)	0
Other Treated in Plan (ac)	0
Stream (mi)	46
Stream Treated in Plan (mi)	5

Figure 198: Natural Resources Conservation Service (NRCS) and Partner Contributions: HUC 11070208

Contour Buffer Strips (acres)	0	Diversion (feet)	0
Field Border (feet)	0	Terraces (feet)	0
Filter Strip (acres)	4	Lined WW or Outlet (feet)	0
Grassed Waterways (acres)	0	Vegetative Barrier (feet)	0
Riparian Forest Buffer (acres)	13	Critical Planting (acres)	4
Stream/Shore Protection (feet)	0	Grade Stab. Structures (#)	0
Windbreak (feet)	415	Water/Sediment Basins (#)	0
Waste Utilization	203	Wells Decommissioned (#)	0
Nutrient Management (acres)	396		

	Planned	Applied
Nutrient Plans (CNMP)	21	22
Conservation Reserve Program	0	2
Conservation Security Program	0	0
Wetland Reserve Program	0	0
Wildlife Habitat Incentive Program	0	0
EQIP Ground/Surface Water Plans	20	30

This data table was compiled using the NRCS database at:
http://ias.sc.egov.usda.gov/prsreport2007/

Figure 199: Summary of FFY09 NPS Project Evaluation Measures: HUC 11070208 – Elk River Basin

Activities	Groups Formed	Meetings Held	Ave Attendees	Planning Documents Produced	Watershed Mgmt Plans W/ 9-elements	Watershed Mgmt Plans W/out 9-elements	Source Water Protection Plans Written	Other Plans (Watershed Based)
Planning	0	0	0	0	0	0	0	0
					acres	acres	acres	acres
					0	0	0	0

	TMDL Action Plans Written	TMDL Action Plans Implemented	BMP's Applied Toward TMDL's	TMDL Acres Treated	Stream Miles in compliance	Lake acres in Compliance
(Total Maximum Daily Loads)	0	0	0	0	0	0

	Field Days	Field Day Participants	Workshops	Workshop Participants	Demonstration Sites	Demonstration Site Participants	Brochures, Curriculums, and Factsheets Developed	Brochures, Curriculums, and Factsheets Distributed	GIS Maps/Shape Files Developed	Interactive Maps Created
Education/Information	19	820	1	34	0	0	0	0	0	0

	PSA's Produced	PSA's Aired	Newsletters Developed	Newsletters Distributed	Webpages Produced	Webpage Views	Clean-Up Events Conducted	Clean-Up Event Participants	Tons Collected at Clean-Up Events
Education/Information	1	5,000	8	63,742	1	6,349	0	0	0

	QAPPs Produced	QAPP's Revised	Stream Teams Formed	Training Sessions Conducted	Volunteers Trained	Sampling Locations Monitored	Sampling Events Conducted	Water Quality Parameters Analyzed
Water Quality Monitoring	0	0	0	0	0	5	12	5

	Wells Plugged	Wells Monitored	Sinkhole/Karst Protection	Groundwater Remediations
Groundwater Protection	0	0	0	0

	BMP's Implemented	Acres Impacted by BMP's	Tons of Sediment Saved	Lbs. Nitrogen Reduced	Lbs. Phosphorus Reduced	Lbs. Pesticides Reduced	Other Load Reductions
(Best Management Practices)	11	574	0	0	0	0	0

	CNMP Developed	CNMP's Updated	CNMP's Implemented	Acres Impacted by CNMP's	Animals Impacted by CNMP's	Animal Waste Facilities Built	lbs of Manure Transferred Out
Agricultural	3	0	0	169	0	1	0

IV. Other Department Nonpoint Source Water Quality Accomplishments

The Department programs listed below work in conjunction with the Nonpoint Source Program and can impact nonpoint sources and influence 319 projects either through shared funding to assist the projects, by providing information for watershed management plans, or by assisting in evaluating outcomes of 319 projects or through simultaneous water quality related projects or practices.

A. Agricultural NPS SALT Program and State Cost Share

The Agricultural Nonpoint Source (AgNPS) Special Area Land Treatment (SALT) Program has been discontinued. However, information on active and previously awarded projects can be accessed at: http://www.dnr.mo.gov/env/swcp/salt_overview.htm. Individual watershed goals and project descriptions may be viewed at that Web site.

Provided by funding through half of the 1/10th of one percent Parks and Soils Sales Tax of Missouri, the AgNPS SALT program was offered through the Department's Soil and Water Conservation Program. The program allowed county Soil and Water Conservation Districts (SWCDs) to direct technical and financial assistance to landowners with land identified and prioritized as having water quality problems, to address agricultural nonpoint sources of pollution. Success of these projects is dependent on the cooperation of numerous partners using a variety of tools to accomplish project goals.

Below is a list of the seventy-two AgNPS SALT projects that were active in FFY2009. Approximately $15,000,000 of regular cost-share funds will support these projects until 2015. Further discussion and links to individual SALT projects that were active in FFY09 is provided within the individual HUC 8 watershed pages.

Figure 200: FFY09 Active AgNPS SALT Projects

Project #	District	Project Name
FOURTH CALL		
SN036	Randolph	Dark and Sugar Creeks
SN037	Saline	Finney Creek
SN038	Scotland	Little Fox Creek
SN039	Stone	Crane Creek
SN040	Vernon	Lower Marmaton River
FIFTH CALL		
SN043	Caldwell	Mudd Creek
SN044	Cass	South Grand River
SN045	Daviess / H	Hickory Creek
SN046	Harrison	West Fork of Big Creek
SN047	Knox	North Fork of Salt River
SN048	Laclede	Dry Auglaize
SN049	Macon	Long Branch
SN050	Maries	Upper Big Maries River
SN051	Osage	Lower Big Maries River
SN052	Ozark	South Bull Shoals
SN053	Shelby	North Fork Salt River
SN054	Warren	Charette Creek
SIXTH CALL		
SN055	Barry	Flat Creek
SN056	Chariton	Mussel Fork
SN057	Cooper	Upper Moniteau Creek
SN058	DeKalb	Little Third Fork
SN059	Hickory	Lower Pomme De Terre River
SN060	Howard	Little Chariton River
SN061	Miller	Upper Tavern Creek
SN062	Moniteau	Lower Moniteau Creek
SN063	Pettis	Muddy Creek
SN064	Polk	Hominy Creek AgNPS SALT
SN065	Schuyler	South Fork N. Fabius
SN066	Scotland	N. Fork/Middle N. Fabius
SN067	Taney	Beaver Creek

Project #	District	Project Name
SEVENTH CALL		
SN073	Grundy	Hickory Creek
SN074	Maries	Little Maries River
SN075	McDonald	Indian Creek
SN076	Mercer	Muddy Creek
SN077	Montgomery	Bear/Brush Creek
SN079	Scott	Ramsey Creek
SN080	Stoddard	Dexter Creek
SN081	Vernon	Osage Plains
SN082	Wright	Woods Fork / Gasconade River
SN085	Cole	Grays Creek
SN086	Macon	Middle Fork Salt River
SN087	Montgomery	Lower Loutre
SN088	Osage	Little Maries Creek
SN089	Pemiscot	Pemiscot Clay Root
SN090	Saline	Salt Fork Creek
SN091	Scott	St. Johns Bayou
SN092	Stoddard	Bess Slough
NINTH CALL		
SN093	Bollinger	Hurricane Creek
SN094	Cape Girarde	Byrd Creek
SN095	Cass	Upper Big Creek
SN096	Dunklin	Crowley Ridge
SN097	Greene	Pearson Creek
SN098	Oregon	Warm Fork of Spring Creek
SN099	Pettis	Heaths Creek
SN100	Randolph	Elk Fork Coon Creek
SN101	Ray	Crooked River
SN102	Scotland	South Wyaconda
SN103	Webster	James River Lower Headwater
SN104	Wright	Clarks Creek

In addition to the SALT program, Missouri provides regular state cost share. A portion of the Parks and Soils Sales Tax is used for Missouri landowners that implement soil and water conservation practices, which are available through the state cost-share program. These practices conserve soil, which consequently improves water quality by reducing sedimentation in our rivers and streams. The practices reduce soil erosion by a variety of methods that may include increasing crop residue, improving vegetation, diversion or containment of water to facilitate slower release, protection of stream bank and forested areas from livestock, and reduction of wind erosion. Below is a summary of estimated soil saved by HUC 8.

Figure 201: Summary of Estimate Soil Saved by HUC *

8-Digit HUC	Name	Tons of Soil Saved (life of practice)
7100009	Lower Des Moines Basin	7460.00
7110001	Bear-Wyaconda - Fox Rivers	188661.00
7110002	North Fabius River Basin	238573.00
7110003	South Fabius River Basin	110359.00
7110004	North River - Bobs Creek	128743.00
7110005	North Salt River Basin	218865.00
7110006	Middle-South Forks of the Salt River	487123.00
7110007	Lower Salt River Basin	141058.00
7110008	Cuivre River Basin	170544.00
7110009	Peruque-Dardenne Creeks	640.00
7140101	Cahokia-Joachim Mississippi River Tribs - St. L-Ste. Gen	20164.00
7140102	Meramec River Basin	64129.00
7140103	Bourbeuse River Basin	157757.00
7140104	Big River Basin	48529.00
7140105	Upper Mississippi-Cape Girardeau Mississippi River Tribs – Ste. Gen-Cape Gir.	134278.00
7140107	Castor-Whitewater Rivers Basin	167285.00
8010100	Lower Mississippi-Memphis Mississippi River Mainstem Below Ohio River	780.00
8020200	???	680.00
8020201	St. Johns Bayou	44730.00
8020202	Upper St. Francis Basin	181307.00
8020203	Lower St. Francis Basin	124217.00
8020204	Little River Ditches	1259214.00
8020302	Cache River Basin	2990.00
10240004	Nishnabotna River Basin	53960.00
10240005	Tarkio-Squaw Tributaries Basin	395148.00
10240010	Nodaway River Basin	164085.00
10240011	Independence-Sugar Missouri River Mainstem	159665.00
10240012	Platte River Basin	402089.00
10240013	One Hundred and Two River Basin	104707.00
10280101	Upper Grand River Basin	1197047.00
10280102	Thompson River Basin	589500.00
10280103	Lower Grand Middle Grand River Basin	521523.00
10280201	Upper Chariton River Basin	112160.00
10280202	Lower Chariton River Basin	154699.00
10280203	Little Chariton River Basin	210101.00

8-Digit HUC	Name	Tons of Soil Saved (life of practice)
10290102	Lower Marais Des Cygnes River Basin	55543.00
10290103	Little Osage Little Osage River Basin	28571.00
10290104	Marmaton River Basin	208635.00
10290105	Harry S. Truman Reservoir Upper Osage River Basin	153011.00
10290106	Sac River Basin	132883.00
10290107	Pomme De Terre River Basin	32070.00
10290108	South Grand River Basin	209532.00
10290109	Lake of the Ozarks Basin	38162.00
10290110	Niangua River Basin	35268.00
10290111	Lower Osage River Basin	156309.00
10290201	Upper Gasconade River Basin	143731.00
10290202	Big Piney River Basin	98711.00
10290203	Lower Gasconade River Basin	72653.00
10300101	Lower Missouri-Crooked Missouri River Mainstem	361774.00
10300102	Lower Missouri-Moreau Missouri River Mainstem	441765.00
10300103	Lamine River Basin	131704.00
10300104	Blackwater River Basin	504495.00
10300200	Lower Missouri River Mainstem - Hermann to St. Louis	98890.00
11010002	James River Basin	103952.00
11010003	Bull Shoals Lake Basin	254775.00
11010006	North Fork White River Basin	150312.00
11010007	Upper Black River Basin	132729.00
11010008	Current River Basin	147618.00
11010009	Lower Black Fourche Creek Basin	6842.00
11010010	Spring River Basin (Howell/Oregon counties)	38358.00
11010011	Eleven Point Eleven Point River Basin	197823.00
11070207	Spring River Basin	334291.00
11070208	Elk River Basin	42431.00
	Total Tons Saved	**12,275,608**

(*****life of practice varies from 5-10 years)

B. Source Water Protection

Public Drinking Water information can be accessed at: http://www.dnr.mo.gov/env/wpp/dw-index.htm

The Safe Drinking Water Act (SDWA) Amendments of 1996 require states to implement Source Water Assessment Plans (SWAP) to better protect public drinking water from contamination. These tasks include:

- Delineate source water areas
- Inventory significant potential sources of contamination
- Determine the susceptibility of each public water supply to contamination
- Make the results available to the public

There are 10 surface water community water supplies (CWS) in the state that have approved Source Water Protection Plans (SWPPs). There are 24 groundwater CWS in Missouri with approved SWPPs. Seven SWPPs were approved or renewed in 2009. The total population served by the 34 approved SWPPs is 508,736 or about 10.04% of the state's population who are served by CWS. The Source Water Inventory Projects Web site http://drinkingwater.missouri.edu/swip/index.html provides information on source water assessment for Missouri's drinking water supplies.

The Public Drinking Water Branch, in association with the U.S. EPA and other partners, has an active program to reach out to community planners and civic leaders to educate and inform the citizens of Missouri about the importance and benefits of establishing SWPPs in their communities.

Further discussion and links to approved source water plan information are provided within the individual HUC 8 watershed pages.

CREP Overview

The Conservation Reserve Enhancement Program (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.

The program is a partnership among producers; tribal, state, and federal governments; and, in some cases, private groups. CREP is an offshoot of the country's largest private-lands environmental improvement program - the Conservation Reserve Program (CRP).

Like CRP, CREP is administered by USDA's Farm Service Agency (FSA). By combining CRP resources with state, tribal, and private programs, CREP provides farmers and ranchers with a sound financial package for conserving and enhancing the natural resources of farms.

CREP addresses high-priority conservation issues of both local and national significance, such as impacts to water supplies, loss of critical habitat for threatened and endangered wildlife species, soil erosion, and reduced habitat for fish populations such as salmon. CREP is a community-based, results-oriented effort centered around local participation and leadership.

C. Total Maximum Daily Load (TMDL) Development

Under the federal Clean Water Act, the TMDL program provides a framework for identifying and cleaning up impaired waters. Section 303(d) of the law requires states to identify all waters that are failing to meet the state's water quality standards. These are waters that remain impaired even though the existing regulatory and permitting requirements have been put in place, and must be added to the 303(d) list. The state is required to develop a TMDL for all waters on the 303(d) list. Missouri's 2004/2006 303(d) list can be viewed at the following URL: http://www.dnr.mo.gov/env/wpp/waterquality/303d.htm

Once an impaired water is identified, a watershed management plan to correct the impairment starts to be developed, which includes a TMDL. Developing a TMDL is a water quality based process. It is a mathematical calculation of the amount of a specific pollutant a water body can absorb and still meet water quality standards. The development of a TMDL requires several elements. First, all of the sources of a given pollutant are identified so the maximum pollutant load and daily pollutant allocation can be calculated for each source. A "margin of safety" is taken from the total pollutant loading to account for the level of uncertainty associated with the water quality approach. Lastly, the TMDL must address seasonality to ensure the pollutant loading allocated will be protective at all times. Next, strategies are recommended to protect or restore water quality and achieve the impaired waters' designated uses. The TMDL goes through the Department's internal review and then goes out for public comment for a given period of time. The comments are addressed and incorporated into the next version of the TMDL. Finally, the state's completed TMDL, adjusted to integrate the comments, is submitted to U.S. EPA for their approval or disapproval.

The Department is currently required to develop TMDLs for 186 impaired water bodies for approval by the U.S. EPA. Since 1999, 152 have been completed, approved, or delisted including 3 in FFY2009. Each river, stream or lake on the list will have a TMDL study done and a plan written for restoring the water to its designated uses.

Information contained in a TMDL document includes:

- Location of the impaired water body.
- Identification of the pollutant(s).
- Sources of the pollutant(s).
- A calculation of the pollutant "load" that the water body can assimilate without becoming impaired.
- A plan to reduce the pollutant "load" and restore the water body to meet the standards for its designated use.

TMDLs are specifically designed to address nonpoint sources of pollution, which occur when runoff from rainwater, snowmelt, and crop irrigation carries pollutants into the water.

Additional information on approved TMDLs and those in progress can be viewed at the following Web site: http://www.dnr.mo.gov/env/wpp/tmdl/index.html. Further discussion and links to TMDL information for each basin in Missouri is provided in Section III of this report, within the individual HUC 8 watershed pages.

Figure 202: Water bodies having TMDLs approved in FFY 2009

WBID#	Steam Segment Name	Date EPA Approved	HUC 8
NA	TMDLs have been submitted to EPA; however, none have been approved during FFY09.	NA	NA

Two TMDLs (in three water body segments) were completed and submitted to EPA within FFY2009: McKenzie Creek (WBID2786) on 2/2/2009 and Village Creek (WBIDs 2863 & 2864) on 9/10/2009.

TMDL staff participated in 29 local watershed related meetings according to the table below.

Figure 203: TMDL Stakeholder Meeting Attendance

Meeting Location	No. of Meetings
Big River	9
Hinkson Creek	16
Town Branch/Piper Creek	2
Spring Creek	1
Tri-State Mining District (Turkey and Center Creeks in SW MO)	1

Additional information on approved TMDLs and those in progress can be viewed at the following Web site: http://www.dnr.mo.gov/env/wpp/tmdl/index.html. Further discussion and links to TMDL information for each basin in Missouri is provided in Section III, within the individual HUC 8 watershed pages.

D. Hazardous Waste Program (Superfund Sites)

In 1980, the U.S. Congress established the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), better known as Superfund. This law was passed in response to the indiscriminant disposal of the by-products of industrial life, which contaminated soil and water, resulting in threats to public health and the environment. The federal law provided both response and funding mechanisms for the cleanup of hazardous substance disposal sites. The Superfund section is designed to clean up contaminated property where releases of hazardous substances have occurred in the past or are threatening to occur due to past practice. The federal law requires the past polluters, called responsible parties, to pay for the cleanup. The Missouri Department of Natural Resources, Superfund Section has responsibility for many of these sites.

National Priorities List Sites http://www.epa.gov/region7/cleanup/npl_files/index.htm

- Annapolis Lead Mine
- Armour Road
- Bee Cee Manufacturing Plant
- Big River Mine Tailings/St. Joe Minerals
- Conservation Chemical Company
- Ellisville Site
- Fulbright Landfill
- Kem-Pest Laboratories
- Lake City Army Ammunition Plant
- Lee Chemical

- Madison County Mine
- Minker/Stout/Romaine Creek
- Missouri Electric Works
- Newton County Mine Tailings Site
- Newton County Wells
- North-U Drive Well Contamination
- Oak Grove Village Well
- Oronogo-Duenweg Mining Belt
- Pools Prairie
- Quality Plating
- Riverfront
- Shenandoah Stables
- Solid State Circuits, Inc.
- St. Louis Airport/HIS/Futura Coatings
- SW Jefferson County Mining
- Syntex Facility, Inc.
- Times Beach Site
- Valley Park, TCE
- Washington County - Old Mines
- Washington County - Potosi
- Washington County - Richwoods
- Weldon Spring Former Army Ordnance Works
- Weldon Spring Quarry/Plant/Pitts (USDOE)
- Westlake Landfill
- Wheeling Disposal Service Co. Landfill

E. Land Reclamation Program

http://www.dnr.mo.gov/env/lrp/index.html

Historically, nearly 67,000 acres have been left unreclaimed by coal-mining operations, and an estimated 40,000 acres were left abandoned through the mining of other commodities. Missouri was left with acid mine drainage, dangerous high walls, hazardous water bodies, open wells and mine shafts, barren mine spoils, coal waste, soil erosion, stream sedimentation, and channelized streams.

The Land Reclamation Program (LRP) plays an integral role in protecting and preserving Missouri's water resources. The program is responsible for regulating today's mining industry and for correcting health, safety and environmental problems associated with abandoned mines. When properly reclaimed, the land can once again be used as for a variety of uses, including agricultural and wildlife areas. Wildlife habitat remains a primary concern of the LRP. Whenever possible, abandoned mines are reclaimed with wetlands, native prairie grasses and trees that are part of Missouri's history. Of primary importance to this report is that reclaiming abandoned mine land (AML) protects the environment by preventing or addressing toxic or acid mine drainage, groundwater contamination and soil erosion.

In addition to coal mine reclamation, the program was approved to use funds to close lead and zinc mine shafts throughout the state but primarily in southwest Missouri. Since that approval, 88 abandoned Lead/Zinc mine shafts have been closed to the benefit of groundwater quality in that region.

West Montrose AML Reclamation Project. In July 2009, the Missouri LRP began construction work on the 63-acre West Montrose AML Reclamation Project. By the end of 2009, the grading work was nearly complete and the contractor was stockpiling lime for treatment of the inherent acid-forming soils. The project consists of approximately 63 acres of abandoned coal mine lands that feature dangerous piles, a hazardous water body, 1100 feet of dangerous highwall, a trash dump, and several acid impoundments. The barren and eroding mine spoils were generating acid mine drainage that was affecting nearby ponds and impoundments which ultimately discharge into waters of the State. This site is located approximately two miles west of Montrose in Henry County.

The completed reclamation project will regrade approximately 63 acres of barren and eroding mine waste and will return the area to gentle sloping grassland. The mine wastes were extremely acidic, so large quantities of agricultural lime will be applied and incorporated into the graded area and then directly revegetated. Planned successive green cover crops will be planted to produce organic matter and encourage microbial and biological development of the soil. The final seeding will be cool-season grass utilized for livestock grazing.

F. Financial Assistance Center and State Revolving Fund

State Revolving Fund (SRF) information can be found at:
http://www.dnr.mo.gov/env/wpp/srf/cwsrf-info.htm
The State Revolving Fund (SRF) provides low-interest loans to communities for wastewater and drinking water infrastructure projects. Projects may be new construction or the improvement or renovation of existing facilities. Various programs are listed below.

NPS Animal Waste Disposal Loan Program

This is a nonpoint source loan program designed to provide low interest financing to small producers for design and construction of animal waste treatment facilities.
http://www.dnr.mo.gov/env/wpp/srf/cwsrf-animal-loans.htm

NPS Neighborhood Improvement Loans

The SRF may finance neighborhood improvement projects if the project is a benefit to water quality and the problem is addressed in Missouri's NPS Management Plan. The Neighborhood Improvement District Act, adopted by the Missouri General Assembly in 1990, provides a framework for political subdivisions of the State to issue general obligation bonds upon a 100% petition or a majority vote (4/7 in general, municipal, or primary elections; 2/3 in special elections) of the residents in an area to form a neighborhood improvement district (NID). These projects were the result of a cooperative effort between a city, county, sewer district and the residents within a proposed neighborhood improvement district. The city/county/district's role was to coordinate efforts and provide engineering,

inspection, and financial support. Individual members of the NID were given the choice to pay for the improvement in a lump sum or through special property tax assessments. Projects are financed for 10 to 20 years.

Brownfields Redevelopment
SRF monies may be loaned for Brownsfields Redevelopment if the project can result in a benefit to local water quality and if the category of problem is identified in Missouri's NPS Management Plan. The SRF funds can be used in conjunction with a number of other state and federal funding sources to affect the clean up of a "Brownfields" site, underutilized or abandoned, contaminated, industrial property. The Department of Natural Resources' Voluntary Cleanup Program provides technical oversight for Brownfield remediation. Additional financial incentives (tax rebates or credits) can be obtained through the Missouri Department of Economic Development's Brownfield Redevelopment Program.

Clean Water Act (CWA) Section 604(b)
CWA section 604(b) requires each state to receive 1% of the Clean Water SRF grant to carry out planning under the CWA section 205(j) and 303(e). Under CWA section 205(j)(3), each state must allocate at least 40% of its Clean Water Act section 205(j) grant to regional public comprehensive planning organizations or appropriate interstate organization.

Section 604(b) Projects:

1. 208 Water Quality Management Plan Update and Related Initiatives, G09-WQM-01
2. Creating a MetroGreen Alliance, G09-WQM-02

G. Water Quality Standards/Monitoring/Assessment

Water Quality Monitoring, Assessment, and Standards can be found at:
http://www.dnr.mo.gov/env/wpp/waterquality/

Water Quality Monitoring
The Department monitors water quality to:

- characterize background or reference water quality conditions;
- better understand daily, flow-event, and seasonal water quality variations and their underlying processes;
- characterize aquatic biological communities and habitats and to distinguish between the impacts of water chemistry and habitat quality;
- assess time trends in water quality;
- characterize the impacts of regional and local point and nonpoint source discharges on water quality;
- check for compliance with water quality standards or wastewater permit limits and monitor the effectiveness of pollution control activities; and
- support development of strategies to return impaired waters to compliance with water quality standards.

The Department released an updated version of the Missouri Water Quality Report, also called the 305(b) Report, in FY08. The complete document can be viewed at the following URL: http://dnr.mo.gov/env/wpp/waterquality/305b/index.html

The Department also funded seventy-two USGS long-term monitoring stations in FFY09. The cost to the Department was $1,252,730. The cost to 319 was $721,284, with the remainder paid from 106 Monitoring Grant, State Revolving Fund and General Revenue. http://mo.water.usgs.gov/

Water Quality Standards

Information on Missouri's water quality standards can be found at: http://www.dnr.mo.gov/env/wpp/wqstandards/index.html

The objective of the Clean Water Act of 1972 along with its amendments are to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The first national set of water quality standards were published in 1983 and codified in 40 CFR Part 131. These regulations allow individual states to construct their own water quality standards framework providing there is no reduction in protection compared to federal guidelines.

Water Quality Standards are to be reviewed and modified every three years. Termed the triennial review process, coordinators with the Missouri Department of Natural Resources meet with the U.S. EPA, other state agencies, and concerned citizens to evaluate the effectiveness of our standards.

Water quality standards provide a means by which attainment of water quality objectives can be measured. The objective is protection of designated uses through the application of narrative or numeric criteria http://www.dnr.mo.gov/env/wpp/wqstandards/wq_criteria.htm. The level of protection given to a stream, lake, or river is dependent on the expected or "designated use(s)," of that water. Classified waters in Missouri have been assigned the designated uses that are listed in 10 CSR 20-7.031(c). The Antidegradation section requires actions to maintain existing uses.

Attainment frequency of water quality standards are used in identifying and characterizing waters of the state for purposes of compiling the 303(d) list and 305(b) report. In addition, effluent limits contained in National Pollution Discharge Elimination System (NPDES) permits are frequently derived using water quality standards. http://www.dnr.mo.gov/env/wpp/permits/

New standards were put into effect on September 30, 2009, after a lengthy process of citizen and stakeholder involvement, commission and staff review, public comment, and rulemaking procedure. The new standards can be found at Secretary of State's Web site: http://www.sos.mo.gov/adrules/csr/current/10csr/10c20-7.pdf

H. Environmental Services Program (ESP)

The Water Quality Monitoring Section (WQMS) of the ESP takes part in the important effort of the Department of Natural Resources to ensure that Missourians will always have clean water for drinking, recreation, tourism, and continued economic growth. Staff travel to all areas of the state conducting a variety of investigations. These investigations routinely include monitoring wastewater discharges, groundwater monitoring, electro fishing and stream surveys. The WQMS often assists with special projects such as enforcement actions, environmental risk assessments, or damage assessments resulting from chemical spills. The staff is responsible for and possess the expertise to collect and evaluate a wide variety of water, sediment, and macroinvertebrate samples. The results of these studies are used to ensure that the rivers, streams, and lakes of Missouri remain a treasure for all to enjoy. (From ESP web page.)

More information on the ESP can be obtained from their Web site, http://www.dnr.mo.gov/env/esp/esp-wqm.htm

The above link does not specify the work that was conducted, but there are established QAPPs that can be referenced to determine specifically what work has been done by ESP.

V. Agency Partnerships

Partner agencies' impact on NPS pollution is critical to nonpoint source programs. Both technical and financial assistance is available from various other state agencies to address nonpoint source pollution. This section highlights the many significant contributions that some of our other agency partners made in 2009 and recent years.

A. Natural Resources Conservation Service (NRCS)

http://www.nrcs.usda.gov/

NRCS puts nearly 70 years of experience to work assisting America's private landowners with conserving their soil, water, and other natural resources. Local, state and federal agencies and policymakers also rely on their expertise. NRCS delivers technical assistance based on science and is suited to a customer's specific needs. Cost-share and financial incentives are available in some cases. Most work is done with local partners. Participation in NRCS programs is voluntary. Some examples of the work NRCS did in Missouri for 2009 (most recent presentation in this format) are listed below. In some instances the latest available data has been presented.

- Comprehensive Nutrient Management Plans (CNMPs) - In 2009, 108 were written, 155 applied.
- Conservation Buffers - In 2009, 4,837 acres (this includes contour buffer strips, filter strips, grassed waterways, riparian forest buffers).
- Erosion reduction in 2005 was reported at 287,849 tons.

- Irrigation water management (practice #449) - In 2009, 20,787 acre-feet were reported.
- Nutrient Management - In 2009 (practice #590) 109,426 acres were applied.
- Pest Management - In 2009 (practice #595) 98,937 acres were applied.
- Wetlands Created, Restored, or Enhanced - 4,857 acres were applied in 2009.

The following table summarizes the most recent report of selected NRCS nonpoint source related activities in FFY09.

Figure 204: NRCS FFY 2009 Report of Selected NPS-Related Achievements.

NRCS Fiscal Year 2009 Report

Summary Conservation Practices	**Planned**	**Applied**
Anaerobic Digestor, Ambient Temperature (365) (no)	0	0
Anaerobic Digestor, Controlled Temperature (366) (no)	0	0
Animal Mortality Facility (316) (no)	40	15
Channel Bank Vegetation (322) (ac)	0	0
Channel Stabilization (584) (ft)	0	0
Composting Facility (317) (no)	11	11
Comprehensive Nutrient Management Plan (100) (no)	62	81
Conservation Cover (327) (ac)	38,829	53,216
Constructed Wetland (656) (ac)	0	0
Controlled Stream access for Livestock Watering (730) (no)	0	0
Cover Crop (340) (ac)	14,654	9,667
Critical Area Planting (342) (ac)	3,833	1,959
Field Border (386) (ft)	1,461	1,140
Filter Strip (393) (ac)	4,268	2,856
Grade Stabilization Structure (410) (no)	645	715
Grass Buffer Strip (741) (ac)	0	0
Manure Transfer (634) (no)	NA	111
Monitoring Well (353) (no)	0	0
Mulching (484) (ac)	976	624
Nutrient Management (590) (ac)	134,583	109,426
Riparian Buffers - Vegetative (759) (ac)	0	0
Riparian Forest Buffer (391) (ac)	1,844	875
Riparian Herbaceous Cover (390) (ac)	0	0
Spring Development (574) (no)	48	18
Stewardship Payment (SP) (ac)	0	153
Stream Corridor Improvement (745) (ft)	0	0
Stream Crossing (578) (no)	34	9
Stream Crossing (728) (no)	0	0
Streambank and Shoreline Protection (580) (ft)	11,196	6,357
Terrace (600) (ft)	5,482,055	4,280,304
Use Exclusion (472) (ac)	NA	71,736
Vegetated Sinkhole Buffer (768) (ac)	0	0

Waste Management System (312) (no)	0	0
Waste Storage Facility (313) (no)	58	37
Waste Treatment (629) (no)	0	0
Waste Utilization (633) (ac)	4,571	7,107
Waste Water & Feedlot Runoff Control (784) (ac)	0	0
Well Decommissioning (351) (no)	93	66
Well Plugging (755) (no)	0	0
Wetland Creation (658) (ac)	789	916
Wetland Enhancement (659) (ac)	141	252
Wetland Restoration (657) (ac)	6,883	3,689

Rapid Watershed Assessments

"Rapid watershed assessments provide initial estimates of where conservation investments would best address the concerns of landowners, conservation districts, and other community organizations and stakeholders. These assessments help land-owners and local leaders set priorities and determine the best actions to achieve their goals.

These assessments are conducted by watershed planning teams traveling through each watershed, meeting with landowners and conservation groups, inventorying agricultural areas, identifying conservation opportunities and current levels of resource management, and estimating impacts of these opportunities on the local priority resource concerns. While these rapid assessments provide less detail and analysis than full-blown studies and plans, they do provide the benefits of NRCS locally-led planning in less time and at a reduced cost." (NRCS, RWA Website)

Figure 205: NRCS Rapid Watershed Assessments

NRCS "Internal" Rapid Watershed Assessments for 2007

NRCS Area	HUC Name	HUC Number
Area 5	Upper Black River	11010007
Areas 4 and 5	Current River	11010008
Area 2	North Fabius River	07110002
Area 2	North River Bobs Creek	07110004
Areas 1 and 3	Lower Missouri Crooked River	10300101

University of Missouri "External" Rapid Watershed Assessments for 2007

NRCS Area	HUC Name	HUC Number
Area 4	Sac River	10290106
Area 1	South Grand River	10290108
Area 3	Lower Osage River	10290111
Area 3	Lower Gasconade River	10290203

"Internal" NRCS Rapid Watershed Assessments for 2008 Multi-State HUCs

NRCS Area	HUC Name	HUC Number
Area 2 (MO & IA)	Bear-Wyaconda	07110001

Areas 1 and 3 (MO & KS)	Little Osage River	10290103
Area 4	Spring River	11070207
Area 1 (MO & IA)	Upper Grand River	10280101
Areas 1 and 3 (MO & KS)	Lower Marais Des Cygnes	10290102

Within-State HUCs

NRCS Area	HUC Name	HUC Number
Area 3	Blackwater	10300104
Areas 2 and 3	Lower Missouri River	10300200
Area 4	Pomme de Terre	10290107
Area 5	Whitewater	07140107
Areas 4 and 5	Eleven Point River	11010011

For additional NRCS reporting information select the following link:
http://ias.sc.egov.usda.gov/prsreport2008/

B. Missouri Department of Health and Senior Services

http://www.dhss.mo.gov/

The mission of the Department of Health and Senior Services (DHSS), Bureau of Environmental Regulation and Licensure, and Bureau of Environmental Epidemiology are to protect and promote quality of life and health for all Missouri citizens by developing and implementing programs and systems that provide:

1. Assessment services for environmental health conditions,
2. Public assurance through education, effective regulation and oversight, and surveillance of environment health conditions, and
3. Public health policies that effectively achieve the DHSS mission.

There is particular cooperation and partnership regarding nonpoint issues relating to private drinking water, on-site sewage, and other various wastewater systems.

The DHSS Health Laboratory provides private well testing services for public assurance of environment health. Local county public health agencies and DHSS provide technical advice to private well owners related to drinking water quality.

The DHSS Bureau of Environmental Regulation and Licensure works to educate and license contractors that construct or repair on-site wastewater treatment systems. A listing by county of On-Site Wastewater Treatment Installers may be found at http://www.dhss.mo.gov/Onsite/onsite_map.html. In general, DHSS also works with local county public health agencies on the issuance of onsite sewage permits http://www.dhss.mo.gov/Onsite/PermitProcess.html.

To assure the public of fish consumption safety, the DHSS Bureau of Environmental Epidemiology also assesses fish tissue data obtained from Missouri Department of Conservation (MDC) and Department of Natural Resources *http://www.dhss.mo.gov/fishadvisory/*. Related to fish consumption safety, DHSS also provides technical support for the Department of Natural Resources' Section 303(d) Impaired Waters Listing and TMDL listings. As needed, DHSS also cooperates with MDC and the Department of Natural Resources on fish kills and pollution investigations to protect public health from these events.

C. Missouri Department of Conservation

http://mdc.mo.gov/

Strategic goals of the Conservation Commission and MDC are to preserve and restore the state's biodiversity; to inform and educate the public about fish, forest and wildlife conservation; to help landowners manage their land for sustainable resources; to develop and maintain public land that invites public use; and to integrate conservation principles and urban lifestyles. Creating effective partnerships, retaining public support, recruiting new participants and improving their business management systems are also important goals. The most recent annual report from MDC was completed for the years 2007-2008. http://www.mdc.mo.gov/conmag/2009/01/30.htm.

During FFY09, Fisheries Division staff responded to 6,861 requests for watershed, floodplain, riparian corridor, and stream or lake management information and technical assistance on streams or lakes. MDC made 1,460 on-site visits and wrote 268 recommendation letters or management plans. On-site work included 518 stream problem investigations, 248 fish population surveys, 270 stocking inspections and 48 fish-kill investigations. Staff conducted 37 stream or lake management workshops attended by 1,008 people. MDC also coordinated or participated in 40 active watershed-focused resource management projects.

D. Missouri Department of Agriculture

http://www.mda.mo.gov

The Missouri Department of Agriculture sets agriculture policy and provides assistance to farmers throughout the state. While the Department maintains its regulatory functions, its expanded duties include: consumer protection; public health roles; environmental advocacy; agricultural marketing; public information and awareness; and promoting new technology and new uses for Missouri's agricultural goods. As its primary mission, the Department strives to serve, promote, and protect the agricultural producers, processors, and consumers of Missouri's food, fuel, and fiber products.

Pesticide Applicator Training

Section 281.100 and 2 CSR 70-25.050 (2) of the Missouri Pesticide Use Act and Code of State Regulations authorizes the Missouri Department of Agriculture's Bureau of Pesticide Control to establish minimum criteria for re-certifying Missouri certified Commercial and Non-commercial Pesticide Applicators and Public Operators. Each re-certification training course must be approved in advance by the Bureau of Pesticide Control. http://mda.mo.gov/pi/pesticide_control.htm

Currently, there are approximately 7,500 commercial, noncommercial, and public pesticide applicators as well as about 21,500 private applicators in Missouri. Depending on the type of license, these applicators have participated in initial training, taken exams or both. In addition to initial training or exams, these applicators recertify by attending training programs conducted by University Extension or other entities and approved by the Missouri Department of Agriculture's Bureau of Pesticide Control.

Dead Animal Reporting

The Animal Health Division responds to reports of dead livestock that have not been properly disposed. Division staff do not dispose of the animals, but do attempt to locate those responsible and see that they properly dispose of the carcasses in a timely manner as required by the Disposal of Dead Animal Law, Chapter 269, RSMo. http://www.mda.mo.gov/ah/dead_animal.htm. The division only investigates animals raised for commercial purposes and does not respond to reports of dead animals under the Wildlife Code (deer, coyotes, etc.), or pets, whether confined or stray.

E. United States Geological Survey

http://mo.water.usgs.gov/district_info/index.htm

The United States Geological Survey (USGS) is the Nation's largest earth-science agency and has the principal responsibility within the federal government for providing hydrologic information and for appraising the nation's water resources. The water resources of Missouri consist of numerous streams, springs, lakes, and aquifer systems. In 2009, the USGS Missouri Water Science Center measures continuous stream flow at 213 stream-gauging stations, continuous water-surface elevation at 16 lakes and reservoirs, continuous water-level elevation at 9 ground-water wells, continuous water-quality at 19 surface water-quality stations, stage only at 22 stations, annual peak stage and discharge at 39 crest-stage stations, and periodic water-level elevation at 164 ground-water wells. The USGS also collects periodic water-quality samples at 42 ground-water wells and 83 surface-water stations. These hydrologic data and other data are used in research and hydrologic studies to describe the quantity, quality, and location of Missouri's water resources. The collection, analysis, and interpretation of these data are done in cooperation with other Federal, State and local agencies, universities, and research centers. Much of this data is made available on the Internet at: http://waterdata.usgs.gov/mo/nwis/rt.

VI. Teams, Committees, and Volunteers

A. Missouri Water Quality Coordinating Committee

The Water Quality Coordinating Committee (WQCC) is an informal interagency and public committee dealing with water quality issues. Representatives from non-profit organizations, universities and colleges, cities and businesses, as well as state, federal and local agencies, regularly attend WQCC meetings. It is informal in that the committee has no statutory or regulatory foundation. It exists through and for the participants. Each agency or group brings issues, information or requests to the committee that are related to water quality, and each continues to exercise its statutory responsibilities.

The Department of Natural Resources originally convened the WQCC to deal with animal waste issues, specifically, poultry in southwest Missouri. The committee's activities continue to be organized through the Department's Water Protection Program. As a forum for discussion among agencies on that issue, it was readily apparent that the information exchange and coordination opportunities afforded by the committee were valuable far beyond that original issue, and the committee's scope expanded. A sampling of issues brought before the committee for this reporting period include superfund site remediation impacts on surface waters, climate change in Missouri streams, developing human threat indices for assessing the ecological integrity of freshwater ecosystems across EPA Region 7, Missouri onsite loan program pilot project, watershed management development education, Green Infrastructure projects in Missouri State Parks, source water protection in Missouri, Well drilling in Missouri, Targeting BMPs, Soil and Water District needs assessment, Missouri River public use assessment update, Case Study of watershed planning in Goodwater Creek, Overview of Mercury in Missouri Water, Mercury in Missouri Fish: Spatial and Temporal Trends, and 319 project updates.

The committee meetings are open to the public, which gives the public an opportunity to address the agencies on specific water quality concerns. Speakers included members from Missouri Department of Natural Resources, Missouri Resource Assessment Partnership, UMC Extension, Benson Consulting, Missouri Department of Conservation, among others. The Committee may also assist in the coordination and implementation of watershed protection strategies.

During this annual reporting period, five meetings were held. Future meeting information and minutes from previous meetings can be found on the Department's Web site at http://www.dnr.mo.gov/env/wpp/wqcc/index.html.

B. Water Protection Forum

The Water Protection Forum was initiated in May 2005 as a means to involve a variety of individuals in water quality policy discussions. A wide diversity of interests is represented in the forum, including agriculture, municipalities, industry, environmental groups, consultants, attorneys, and others. The Department must always consider how policy issues

affect regulated entities and the public and this is a means to solicit input from those affected interests.

Due to the many complex issues presented at the main Water Protection Forum meetings, the group formed several advisory groups to work on selected issues. These subcommittees include:

- 303(d) List/Water Quality Monitoring Issues,
- Antidegradation Implementation Procedures,
- Continuing Authorities,
- Federal Safe Drinking Water Rules/Design Guide,
- Funding/Staff/Resources,
- Small Flows (<22,500 gal/day) Effluent Limits/Lagoon Pesticides Policy,
- State Revolving Fund Priority Points/Process,
- Unclassified Streams/Wetland Classification/Tiered Aquatic Life,
- Water Quality Effluent Limits/Effluent Dominated Streams/Waivers to Disinfect,
- Nutrient Criteria Development Stakeholder Workgroup, and
- Missouri Nonpoint Source Management Plan Revisions Stakeholder Meetings.

During this annual reporting period, the Forum has been inactive due to administrative changes at the state and department level. In 2010 it is anticipated that the Forum will resume considering policy matters. Future meeting information and presentations from previous meetings can be found on the Department's Web site at http://www.dnr.mo.gov/env/wpp/cwforum/index.html.

C. Water Resources Center

Information on Department of Natural Resources' Water Resources Center can be found at: http://www.dnr.mo.gov/env/wrc/index.html.

The Mission of the Missouri Water Resources Center is to administer the development, conservation and use of the state's water resources. The Center's primary role is to provide technical advice and assistance on water use, comprehensive water supply and use planning, ground water, and surface water hydrology.

Collection, maintenance and interpretation of water resources information is imperative in order for Missouri to respond to environmental and economic problems related to water. Types of issues requiring this kind of information include: interstate water availability and usage, public water well locations, water quality and quantity determinations, drought and flood response and planning, coordination and resolution of river basin issues, major water users data collection, groundwater and surface water contamination potential and prevention, and water use decisions.

One can find links to a magnitude of information, both for general knowledge and potentially helpful for watershed planning. These links include drought information, dam and reservoir safety, interstate waters, State Water Plan, groundwater, springs and caves,

major water users, surface water, wetlands, publications, forms, frequently asked questions, a staff directory and links to other water related sites.

D. Missouri Stream Teams/Volunteer Water Quality Monitoring Program

A summary of Stream Team-related activities, including Volunteer Water Quality Monitoring (VWQM) can be found in this section. More detailed information about Missouri Stream Team and Volunteer Water Quality Monitoring programs can be found at the following Web site: http://www.mostreamteam.org/.

The State of Missouri is rich in water resources, with over 110,000 miles of free flowing streams. The waterways of Missouri are beneficial to all living inhabitants of the state, and indirectly beneficial to the nation as a whole. Missouri Stream Team is a network of citizens who are concerned about Missouri streams. It provides an opportunity to become involved in stream conservation by offering free membership to any interested citizen, family or organization. Stream Teams often adopt a local stream, although doing so is not a requirement. Missouri Stream Teams strive to assist in the proper management of these waterways. The Missouri Stream Team program organizes concerned citizens to address stream problems at the local level. Collectively, Stream Team members learn to monitor water quality on a geographic scale far beyond what government agencies can do. They also work to plant trees, stabilize stream banks, and improve fish and wildlife habitats in or near streams. Homeowners, students, landowners, and businesses are a few examples of the cross section of society that Stream Teams hope to continue to enlist in their efforts to conserve Missouri's greatest natural assets. Each Stream Team has the opportunity to bring together public and private resources to reach the goals of the program. The objectives of Missouri Stream Teams are:

- To organize concerned citizens to address stream problems that result from pollution, alteration, and general neglect.
- To address the issues involving stream alteration and pollution on a local basis by involving members of the community and educating them on the importance of water quality, and conservation of natural resources.
- To draw together public and private resources to implement solutions across jurisdictional lines.
- To help communities appreciate streams as positive assets through education and group involvement in the program.

The Stream Team VWQM program has trained approximately 7,000 volunteers since the activity was introduced in 1993. Currently, the program averages approximately 440 volunteers attending workshops annually.

Training Levels

The Voluntary Water Quality Monitoring (VWQM) Program currently has five levels of training. The classes are chronological, meaning each one is a pre-requisite for the next, as is submission of appropriate data as listed below. Classes are only offered at specific times of the year, at various training sites around the state.

- Introductory: This is the entry level of monitoring that includes watershed mapping, stream discharge, and biological monitoring. The primary emphasis is education about watersheds. These classes are usually offered in the spring and early summer each year. Starting in 2009, these classes were held in odd numbered years. This will allow VWQM staff to provide review sessions at a field site for existing volunteers at this level.

- Level 1: Volunteers who have attended the Introductory workshop and submitted site information and biological data are eligible to attend a Level 1 workshop. This level of monitoring focuses on chemical and physical monitoring (e.g., measuring flow), although biological monitoring is reviewed. A quality control designation of Level 1 indicates that the volunteer has completed the 8-hour Level 1 Workshop. These classes are offered in the fall of each year. Starting in 2009, these classes will be held in even numbered years. This will allow VWQM staff to provide review sessions at a field site for existing volunteers at this level.

- Level 2: Volunteers who have attended the Level 1 workshop and have submitted water chemistry and flow data are eligible to attend a Level 2 workshop. Data assigned the quality control designation of Level 2 indicates a volunteer has successfully completed the Level 2 Quality Assurance/Quality Control Workshop, where they correctly identified 75% of the macroinvertebrates covered in the workshop to Order and established accuracy limits on 4 out of 5 chemical parameters. Attending a Level 2 allows the volunteer to check chemical monitoring equipment to ensure it is functioning properly, as well as to improve chemical monitoring techniques. This workshop may also improve the volunteer's ability to correctly identify macroinvertebrates since instructors will assist in identifying unknown invertebrates that volunteers bring to the class from their streams. Volunteers can also get assistance confirming identification of invertebrates in their reference collections. Level 2 classes are offered during the winter of each year.

- Level 3: The designation of Level 3 indicates that program personnel have evaluated the volunteer in the field at their monitoring site - it is more an audit than a workshop. A volunteer is eligible for a Level 3 audit if they have successfully completed the Level 2 Workshop. Participants must meet accuracy limits on five out of five chemical parameters and correctly identify all invertebrates at their site to Order to be elevated to Level 3. This evaluation is scheduled through appointment only.

- Cooperative Site Investigation (CSI): CSI volunteers participating in specific projects will be required to successfully complete all VWQM courses through Level 2. They must have demonstrated a commitment to monitoring and submitting data on a timely basis before becoming a CSI. Volunteers shall attend a one-day training class conducted in a classroom setting along with a field exercise to learn proper collection, preservation, tag and transportation of water

samples (including Chain-of-Custody procedures) for analysis by the Department of Natural Resources' Environmental Services Program. Training will be conducted statewide on a case-by-case basis, the need for which will be determined by the Department of Natural Resources. Parameters may include E. coli, nitrate, ammonia, phosphorus, settleable solids, lead, and/or others as needed.

Stream Team Monitoring/Assessment Activities

- Number of Stream Teams formed in fiscal year 2009 was 270. These are comprised of 209 teams formed by adults and 61 youth formed teams.
  - Number of volunteers attending the Missouri Stream Team Program's VWQM workshops in calendar year 2009 was 406 attendees at 24 workshops. Note: Individuals can and do attend more than one workshop in a year. Therefore, the number of citizens trained without counting them twice or three times would be slightly less than the count provided. The individual workshops/audits have the following values:
    - 7 "Introduction to VWQM" workshops attended by 214 citizens.
    - 6 Level 1 workshops attended by 64 individuals.
    - 5 Level 2 workshops attended by 65 participants.
    - 1 Level 3 audit held for 1 participant.
    - 1 CSI training session held for 8 individuals.
    - 4 Macroinvertebrate Workshop attended by 53 individuals.
- Amount of data submitted to the Stream Team Program: See individual watershed (8-digit HUC) descriptions. Nineteen "Dedicating a Decade to Water Monitoring" and "Contributing to the State's Scientific Data" certificates and engraved plaques were awarded by the Department of Natural Resources in 2009.
- Number of newsletters developed by Stream Team staff:
  - 6800 issues of Monitoring News & Notes by DNR were distributed to active monitors and at the Missouri State Fair in 2009.
  - Missouri Department of Conservation's Channels newsletters can be found at http://www.mostreamteam.org/channel.asp
- Water Temperature Data Loggers were set out in 2 cool water streams. The loggers were checked periodically and downloaded. The information will be valuable as an assessment of a cool water stream's maximum daily water temperature. This project will continue for at least 3 years, and plans are to add 30 more temperature data loggers in spring 2009. This study was requested by U.S. Environmental Protection Agency for tracking global climate change.
- Stream Team Activities:
  - See Figures 206 (Volunteer Water Quality Sampling Events Conducted Statewide) and 207 (Missouri Stream Team (ST) Activities for FFY 2009)

Figure 206: Volunteer Water Quality Sampling Events Conducted Statewide

Training Level	Monitoring Category			
	Invertebrate	Chemical	Visual	Flow
Intro/1	54	69	44	50
2	74	156	61	48
3	31	59	27	20
4	3	21	ND	2
TOTAL	162	305	132	121

Figure 207: Missouri Stream Team (ST) Activities for FFY 2009 (Activities reported as of 12/14/2009)

Activity Code	Sum of Hours	Sum of Participants	Sum of Units		Count of Acts
Adopt-An-Access	30.00	28	13.00	agreements	13
Advocacy on stream issue	487.50	38	487.50	hours	20
Article written for newspaper, etc.	30.00	25	23.00	articles	20
ST Association activity	1,190.00	228	889.00	hours	24
Award received	47.00	4	4.00	awards	4
ST display at school, fair, etc.	1,376.00	123	31.00	events	20
Education project	7,045.50	2,237	389.00	events	66
Forestkeepers monitoring	86.50	12	5.00	trips	5
GPS reading	28.00	32	15.00	trips	15
Greenway development	48.00	16	4.00	projects	4
Grant applied/received	84.00	10	8.00	projects	8
Habitat improvement	615.15	168	49.00	projects	45
ST Inventory Guide submitted	70.00	39	6.00	inventories	6
Letter written on stream issue	7.50	13	17.00	letters	4
Litter pickup	56,844.32	11,689	649.07	tons	666
Media contact/interview	16.00	10	12.00	interviews	8
ST mentoring	493.00	84	141.00	hours	14
Monofilament recycling project	44.50	21	13.02	ounces	12
ST meeting	2,489.85	1,150	1,105.00	attendees	104
Other: please describe*	3,012.50	2,270	2,035.00	events	38
Pre-activity planning	2,127.25	597	159.00	events	157
Tree planting	2,993.00	712	15,018.00	trees	62
Photo point monitoring	83.00	60	407.00	photos	18
Presentation to groups	4,338.39	1,339	90.00	presentations	53
Recruited new Team/members	288.50	168	182.00	people	38
Riverwatch/River observation	42.50	13	27.50	hours	6
Storm drain stenciling	357.50	91	189.00	drains	8
Streambank stabilization project	622.00	60	4.00	events	4
Watershed mapping	23.00	13	8.00	trips	5
Stream workshop attended	4,750.25	693	678.00	attendees	554
Water quality monitoring	18,214.80	7,070	1,092.00	trips	1,068
Zebra mussel monitoring form	20.00	12	4.00	trips	4

*e.g., building trails, building park benches, creating newsletters, developing a ST web site, etc.

Missouri Stream Team Annual Reports: http://www.mostreamteam.org/annreport.asp

VII. Conclusion: Future Efforts

The Missouri Department of Natural Resources and their resource partners will continue a watershed approach to address nonpoint pollution according to the guidance of Missouri's Nonpoint Source Management Plan. The Department anticipates continued success in the use of funding sources to improve water quality, while concurrently improving upon reporting and evaluation measures as specified in the Nonpoint Source Management Plan.

Questions regarding this report or other nonpoint source management issues in the State of Missouri should be directed to Greg Anderson, Chief, Nonpoint Source Unit, Missouri Department of Natural Resources, Water Protection Program, P. O. Box 176, Jefferson City, MO 65102, by phone at (573) 751-7144, or by email at greg.anderson@dnr.mo.gov.

Appendices

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Appendix A: Water Data Available through the United States Geological Survey

About USGS Water Data (http://nwis.waterdata.usgs.gov/mo/nwis/about) – **excerpt follows**.

The United States Geological Survey (USGS) has collected water resources data at approximately 1.5 million sites across the United States, Puerto Rico, and Guam. The types of data collected are varied, but generally fit into the broad categories of surface water and ground water. Surface water data, such as gage height (stage) and streamflow (discharge), are collected at major rivers, lakes, and reservoirs. Ground water data, such as water level, are collected at wells and springs.

Water-quality data are available for both surface water and ground water. Examples of water-quality data collected are temperature, specific conductance, pH, nutrients, pesticides, and volatile organic compounds. The National Water Information System Web (NWISWeb) maintained by the USGS contains current and historical data. Data are retrieved by category of data, such as surface water, ground water, or water quality, and by geographic area.

Not all water-resources data collected by the USGS are provided on the NWISWeb site. To inquire about the availability of additional hydrologic data, as well as other USGS information such as reports, visit the USGS Water Resources Home Page at http://water.usgs.gov.

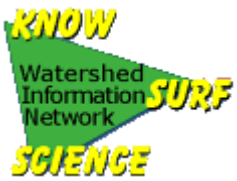
How to Access Current and Historical Water Data (NWISWeb)

1. From USGS' main Web page (http://www.usgs.gov), find the "Water" link (http://water.usgs.gov)
2. From the Water Resource of the United States Web page, find the link entitled "NWISWeb Water Data" (http://waterdata.usgs.gov/nwis).
3. On the NWISWeb Data for the Nation page, select "Missouri" under the drop down menu for "Geographical Area:" in the upper right hand corner of the Web page (http://waterdata.usgs.gov/mo/nwis/nwis).
4. Depending on the type of data you would like to review, five categories exist:
   - Real-time (current-conditions data transmitted from selected surface-water, ground-water, and water-quality sites).
   - Site Information (descriptive site information for all sites with links to all available water data for individual sites).
   - Surface Water (water flow and levels in streams, lakes, and springs).
   - Ground Water (water level in wells).
   - Water Quality (chemical and physical data for streams, lakes, springs, and wells).
5. For the purpose of introducing individuals to the amount of information available from this Web site, proceed with the Site Information category (http://waterdata.usgs.gov/mo/nwis/si).
6. On the Site Information for Missouri Web page, click on the link to "Site Information" (http://waterdata.usgs.gov/mo/nwis/inventory).

7. The Site Inventory for Missouri Web site has many criteria by which one can search for information, including county, hydrologic unit, and site name. As part of this exercise choose the "Hydrologic unit" box only and then click on "Submit" (http://waterdata.usgs.gov/mo/nwis/inventory?search_criteria=huc_cd&submitted_form=introduction).
8. Under Select Sites, choose the eight-digit hydrologic unit code (HUC 8) that you wish to gather information on. (If you do not know which HUC 8 you need, see the instructions for navigating the Web page "Science in Your Watershed" or "Surf Your Watershed".)
9. Under Chose Output Format, the primary format is a table of the sites sorted by site number, which should already be selected. However, if you wish to display the information in a different format, choose the option most appropriate for your purposes.
10. Click "Submit". After you have done so, the data may take a while to display, particularly if you have a slower connection. A page should be displayed noting if there is too much information to retrieve, and you will need to select a more specific query.
11. Displayed before you should be a table with links to specific sites with a brief description of the sites.
12. If you wish to view specific water information for a site, simply click on the site number link. The site data will be displayed under "Available Data" with links to the different types for this site. In addition to the available water data, the site location, site type, drainage area, and other information can be obtained from the site's Web page. A dropdown menu at the middle, top of the page also contains a link to EPA's "Surf Your Watershed" Web page, which has maps and additional information on the watershed.

Appendix B. Watershed Information Network

The Watershed Information Network symbol on the right identifies three Web sites cooperating to provide watershed information:



- Know Your Watershed (http://www.ctic.purdue.edu/KYW/KYW.html) is maintained by the Conservation Technology Information Center. It focuses on a registry of watershed partnerships working to meet local goals.
- Surf Your Watershed (http://cfpub.epa.gov/surf/locate/index.cfm) is maintained by the U.S. Environmental Protection Agency. It provides a service to help you locate, use, and share environmental information about your place.
- Science in Your Watershed (http://water.usgs.gov/wsc/) is maintained by the U.S. Geological Survey. Its focus is on bringing you scientific information such as streamflow organized by watershed.

Though each site is responsible for its own content, they are linked together through the unique Hydrologic Unit Code (http://water.usgs.gov/GIS/huc.html) for each watershed.

Appendix B.1. "Know Your Watershed"

Maintained by the Conservation Technology Information Center (CTIC)

About "Know Your Watershed" (http://www.ctic.purdue.edu/KYW/KYW.html**)**

It is a coordinated national effort to encourage the formation of local, voluntary watershed partnerships and help assure that these partnerships successfully attain their goals.

The initiative is sponsored by more than 70 diverse national partners representing private and public corporations, government agencies, and non-profit organizations. Each national partner agrees to provide financial and/or in-kind support.

The national effort is coordinated by the CTIC, a non-profit data and technology information transfer center. In addition to coordinating the National Watershed Network, National Watershed Calendar, and many other on-going tools for watershed coordinators, the effort also...

- Stimulates multiplication of consistent messages among all national partners to state and local leaders of organizations, government agencies and companies.
- Serves as a conduit between national partners who have useful tools and coordinators of local watershed partnerships.
- Shares state activities and successes with state-level stakeholders in other states and regions.
- Facilitates and/or encourages broad-based state-level partnerships that encourage and provide support to local watershed partnerships.
- Encourages use and sharing of processes and methods that have been found to work successfully for watershed coordinators.

National Watershed Network (http://www.ctic.purdue.edu/KYW/nwn/nwn.html)
The National Watershed Network is a registry of locally led watershed partnerships working to meet local goals through voluntary actions.

- Search the registry by providing your state, county or watershed name to find active watershed partnerships in your watershed (http://www.ctic.purdue.edu/KYW/NWN/WatershedForm1.html).
- Point and click by using the interactive map (http://www.ctic.purdue.edu/KYW/NWN/US_Watersheds_8digit.html). Or,
- Identify an organization that has already faced a similar issue by using the issue/concern search (http://www.ctic.purdue.edu/KYW/NWN/WatershedForm2.html).

You can also register your watershed partnership with the National Watershed Network (http://www.ctic.purdue.edu/KYW/NWN/WatershedApplication.html).
When you register with the National Watershed Network, you are registering with an exclusive network of watershed partnerships. Partnerships listed on the Network actively work to make their watershed healthier. They welcome all stakeholders and encourage everyone with a stake to get involved in the search for assessing the watershed, setting goals and developing strategic solutions that can be locally implemented on a voluntary basis.

- To register, simply fill out the form at http://www.ctic.purdue.edu/KYW/NWN/WatershedApplication.html. Call (765) 494-9555. You will be contacted annually to update the information.

- When you register, you benefit in four ways:
    1. New watershed partnerships use the Network to find a mentor. This 'sister' partnership can help guide them through the process, answer questions, or lend an ear for use as a sounding board.
    2. Nearly 100 national partners rely on the annual survey the Network conducts. The partners rely on feedback to develop new technologies, programs, and resources. Many local partnerships have also worked directly with individual national partners to obtain assistance with monitoring activities, demonstrating management practices, conducting training sessions, and much, much more.
    3. Partnership information is on the web. Viewers learn details about what your group is doing.
    4. Receive a free subscription to Watershed Leader, the newsletter published for watershed groups. It carries the latest in ideas, programs, resources, events, and other news of interest to watershed coordinators.

Appendix B.2. "Surf Your Watershed"

Maintained by the United States Environmental Protection Agency (USEPA)

About "Surf Your Watershed" (http://cfpub.epa.gov/surf/locate/index.cfm)

Choose from the options below to locate your watershed.

- Search by map – Use a clickable map to locate your watershed.
- Find a place – Search all the geographic navigation tables in Surf Your Watershed by your city, river, county, state, watershed, zip code, 8-digit hydrologic unit code, or other information.

Adopt Your Watershed

Information can be added to any of these databases using the Add Information button found at the top of Surf Your Watershed pages. Additional information can also be found at this link.

- Adopt Your Watershed (http://www.epa.gov/adopt/) - This is a voluntary, national catalog of organizations involved in protecting local water bodies, including formal watershed alliances, local groups, and schools that conduct activities such as volunteer monitoring, cleanups, and restoration projects. You can search for a group in your area either by state, zip code, group name, keywords, or even stream name. As of December 2006 over 4000 groups are indexed. (Contact Person & Group Information Form: http://yosemite.epa.gov/water%5Cadopt.nsf/adoptform?openform)
- River Corridor and Wetland Restoration (http://www.epa.gov/owow/wetlands/restore/) – Learn about restoration, funding, add information about your own project or update previous information about your project. Organized by state or organization type.
- American Heritage Rivers (http://www.epa.gov/rivers/) - A multi-agency initiative to help river communities that seek federal assistance and other resources to meet some tough challenges. Without any new regulations on private property owners, state, local and tribal governments, the American Heritage Rivers initiative is about making more efficient and effective use of existing federal resources, cutting red-tape, and lending a helping hand.

Environmental Information (http://www.epa.gov/enviro/)

Envirofacts Web site is a single point of access to select U.S. EPA environmental data. This Web site provides access to several EPA databases to provide you with information about environmental activities that may affect air, water, and land anywhere in the United States. With Envirofacts, you can learn more about these environmental activities in your area or you can generate maps of environmental information.

Watershed Information (http://www.epa.gov/owow/watershed/whatis.html)

Watersheds are those land areas that catch precipitation and drain to specific marshes, streams, rivers, lakes, or to ground water.

Appendix B.3. "Science in Your Watershed"

Maintained by the United States Geological Survey (USGS)

About "Science in Your Watershed" (http://water.usgs.gov/wsc/)

The purpose of this site is to help you find scientific information organized on a watershed basis. This information, coupled with observations and measurements made by watershed groups, provides a powerful foundation for characterizing, assessing, analyzing, and maintaining the status and health of a watershed.

A watershed is defined as the divide separating one drainage basin from another and in the past has been generally used to convey this meaning. However, over the years, use of the term to signify drainage basin or catchment area has come to predominate, although drainage basin is preferred. Drainage divide, or just divide, is used to denote the boundary between one drainage area and another.

Discussions with watershed groups across the country resulted in this Web site. This Web site provides access to:

- Locate Your Watershed (http://water.usgs.gov/wsc/map_index.html) - use the mapping interface to locate your watershed and link to additional information from your watershed.
- Information Discovery (http://water.usgs.gov/wsc/information.html) - find links to research, planning, management, and development activities related to your watershed.
- Data Integration (http://water.usgs.gov/wsc/dataintegration.html) - learn more about how you can use scientific data to understand your watershed.

The Web site provides a decision-support process by making accessible recent case studies of projects that have occurred, publications produced, databases and information assembled, and providing access to free and nearly free software tools for manipulating spatial information.

Appendix C. References and Useful Web Links

Center for Agricultural, Resource, and Environmental Systems (CARES)
http://www.cares.missouri.edu/

Missouri Department of Conservation http://mdc.mo.gov
Missouri's Watersheds http://mdc.mo.gov/fish/watershed

Missouri Department of Natural Resources http://www.dnr.mo.gov
Water Protection Map Gallery http://www.dnr.mo.gov/env/wpp/wpp-map-gallery.htm
303(d) List of Impaired Waters
http://www.dnr.mo.gov/env/wpp/waterquality/303d/index.html
What watershed do you live in? http://www.dnr.mo.gov/env/wpp/watersheds.htm
Missouri Water Quality Report
http://www.dnr.mo.gov/env/wpp/waterquality/305b/index.html
319 Nonpoint Source Implementation Program
http://www.dnr.mo.gov/env/wpp/nps/index.html

Missouri Watershed Information Network http://www.mowin.org

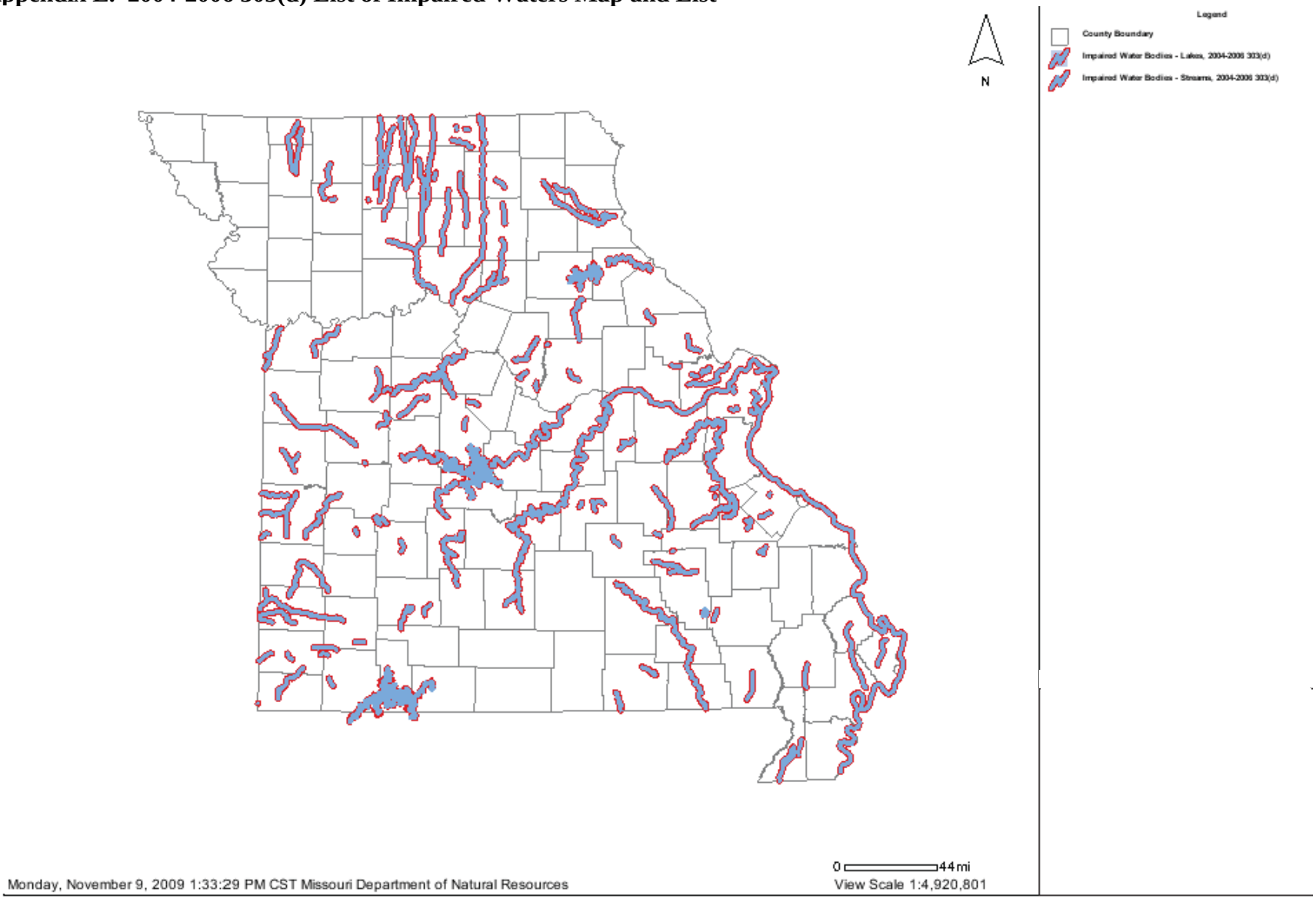
Missouri Resource Assessment Partnership http://www.cerc.usgs.gov/morap/

Environmental Protection Agency http://epa.gov/
Office of Wetlands, Oceans and Watersheds http://www.epa.gov/owow/nps/
Watershed Funding Opportunities http://www.epa.gov/owow/funding.html
Publications and Information Resources http://www.epa.gov/owow/nps/pubs.html
Low Impact Development http://www.epa.gov/owow/nps/lid/
Nonpoint Source Outreach Toolbox http://www.epa.gov/owow/nps/toolbox/
Watershed Planning Handbook http://www.epa.gov/owow/nps/watershed_handbook/
Targeted Watershed Grant http://www.epa.gov/owow/watershed/initiative/

Appendix D. Acronyms

AgNPS	Agricultural Nonpoint Source
BMP	Best Management Practice
BOD5	5-day Biochemical Oxygen Demand
CARES	Center for Agricultural, Resource, and Environmental Systems
CNMP	Comprehensive Nutrient Management Plan
CWA	Clean Water Act
CWC	Missouri Clean Water Commission
DHSS	Missouri Department of Health and Senior Services
DNR	Missouri Department of Natural Resources
EPA	United States Environmental Protection Agency
HUC	Hydrologic Unit Code
LRP	DNR, Land Reclamation Program
MDA	Missouri Department of Agriculture
MDC	Missouri Department of Conservation
MoRAP	Missouri Resource Assessment Partnership
MoWIN	Missouri Watershed Information Network
NID	Neighborhood Improvement District
NPS	Nonpoint Source
NPSMP	Nonpoint Source Management Plan
NRCS	United States Department of Agriculture, Natural Resources Conservation Service
PAM	Program Activity Measure
PIL	Permit-in-Lieu of TMDL
PWSSID	Public Water Supply System ID
QAPP	Quality Assurance Project Plan
QAQC	Quality Assurance/Quality Control
RFP	Request for Proposal
RUSLE	Revised Universal Soil Loss Equation
RWA	Rapid Watershed Assessment (NRCS)
SALT	Special Area Land Treatment
SDWA	Safe Drinking Water Act
SRF	State Revolving Fund
STEPL	Spreadsheet Tool for Estimating Pollutant Load
SWAP	Source Water Assessment Plan
SWPP	Source Water Protection Plan
SWCD	Soil and Water Conservation District
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
USDA	United States Department of Agriculture
USGS	United States Geological Survey
USLE	Universal Soil Loss Equation
UST	Underground Storage Tank
VB	Visual Basic
VWQM	Volunteer Water Quality Monitoring
WPP	DNR, Water Protection Program
WQCC	Water Quality Coordinating Committee
WQS	Water Quality Standards
WRAS	Watershed Restoration Action Strategy

Appendix E. 2004-2006 303(d) List of Impaired Waters Map and List



Missouri Department of Natural Resources

Disclaimer: Although this map has been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the department in the use of these data or related materials.

Yr	WBID	Water Body Name	Cls	Size	Units	Pollutant	Source	IU	OU	U/D County
2002	0115U-01	Bear Creek	U			Unknown		1G		Adair
2006	2760	Bee Fk.	C	8.5	Mi.	Lead	Fletcher Mine	1	2,4	Reynolds
2006	7365	Belcher Branch Lake	L3	55	Ac.	Mercury(T)	Atmospheric Dep.	1G	2,4,5	Buchanan
1998	1746	Big Bottom Creek	C	1.9	Mi.	Ammonia	Lake Forest WWTP	1	4	Ste. Genevieve
1998	1746	Big Bottom Creek	C	1.9	Mi.	Low D.O.	Lake Forest WWTP	1	4	Ste. Genevieve
2006	0444	Big Creek	P	22	Mi	Ammonia	Bethany WWTP	1	2,3,4	Harrison
2006	0444	Big Creek	P	22	Mi	Low D.O.	Bethany WWTP	1	2,3,4	Harrison
2006	1225	Big Otter Creek Trib	C	1	Mi.	Low D.O.	Unknown	1	2,4	St. Clair/Henry
1998	2074	Big River	P	53	Mi.	Lead	Old Lead Belt AML	1	2,4,5,6	Jefferson
2006	2080	Big River	P	68	Mi.	Cd (S)	Mill tailings (Aban.)	1G	2,4,7	Washington/Jefferson
1994	2080	Big River	P	68	Mi.	Lead (S,T))	Mill tailings (Aban.)	1G	2,4,7	Washington/Jefferson
2006	2080	Big River	P	68	Mi.	Zinc	Mill tailings (Aban.)	1G	2,4,7	Washington/Jefferson
1994	2080	Big River	P	68	Mi.	Inorganic Sediment	Mill tailings (Aban.)	1G	2,4,7	Washington/Jefferson
2006	3184	Blackberry Creek	C	6.5	Mi.	Sulfate + Chloride		1	2,4	Jasper
2006	0417	Blue River	P	4	Mi.	Bacteria	Urban Runoff	2	1,4,5,7	Jackson
2006	0418	Blue River	P	9	Mi.	Bacteria	Urban Runoff	2	1,4,5,7	Jackson
2006	0419	Blue River	P	9	Mi.	Bacteria	Urban Runoff	2	1,4,5	Jackson
2006	0421	Blue River	C	11	Mi.	Bacteria		2	1,4,5	Jackson
2006	0035	Bobs Creek	C	12.5	Mi.	Low D.O.	Lincoln Co. PSD#1	1	2,4	Lincoln
2006	0750	Bonne Femme Cr.	P	7	Mi.	Bacteria		2	1,4	Boone
2002	1371	Brush Creek	P	4	Mi.	Low D.O.	Humansville WWTP	1	2,4	Polk/St. Clair
2002	1371	Brush Creek	P	4	Mi.	Organic Sediment	Humansville WWTP	1	2,4	Polk/St. Clair
1994	3118	Buffalo Ditch	P	18	Mi.	Low D.O.	Unknown	1	2,4	Dunklin
2006	3118	Buffalo Ditch	P	18	Mi.	Ammonia	Unknown	1	2,4	Dunklin
2006	1865	Burgher Branch	C	2	Mi.	Low D.O.		1	4	Phelps
2006	7057	Busch WQ Lake 35	L3	51	Ac.	Mercury		1	2,4	St. Charles
2006	3234	Capps Creek	P	4	Mi.	Bacteria	Rural NPS	2	1,3,4,5,6	Barry
1998	3245U-01	Cave Spring Branch	U		Mi.	Nutrients	Simmons Ind.			McDonald
2006	0743	Cedar Creek, Trib.	C	1.5	Mi.	Low D.O.		1	2,4	Callaway
2006	3203	Center Creek	P	26	Mi.	Cadmium (W,S)	Tri-State AML	1	2,4,5,6,7	Jasper
2006	3203	Center Creek	P	26	Mi.	Lead (S)	Tri-State AML	1G	2,4,5,6,7	Jasper
2006	0640	Chariton River	P	110	Mi.	Bacteria	Rural NPS	2	1,4,5,6	Putnam/Chariton
2006	1333	Clear Creek	P	15.5	Mi.	Low D.O.		1G	2,4	St. Clair/Vernon
2006	1336	Clear Creek	C	15	Mi.	Low D.O.		1	2,4	Vernon
2006	3238	Clear Creek	P	9	Mi.	Bacteria		2	1,4	Lawrence/Newton
2006	3239	Clear Creek	C	3 (2)	Mi.	Low D.O.	Monett WWTP	1	2,4	Barry/Lawrence
2002	3239	Clear Creek	C	3(2)	Mi.	Nurtients	Monett WWTP	1	2,4	Barry/Lawrence
2006	0935	Clear Fork	P	24.5	Mi.	Low D.O.		1	2,4	Johnson
2002	7326	Clearwater Lake	L2	1650	Ac.	Mercury(T)	Atmospheric Dep.	1G	2,4,5	Reynolds/Wayne
2006	1706	Coldwater Creek	C	5.5	Mi.	Chloride		1,2	4	St. Louis

Yr	WBID	Water Body Name	Cls	Size	Units	Pollutant	Source	IU	OU	U/D County
2006	1706	Coldwater Creek	C	5.5	Mi.	Low D.O.		1,2	4	St. Louis
2006	1943	Courtois Creek	P	30	Mi.	Lead (W)	Viburnum Mine Tailings	1	2,4,5	Washington/Crawford
2006	1943	Courtois Creek	P	30	Mi.	Zinc	Viburnum Mine Tailings	1G	2,4,5	Washington/Crawford
2006	1703	Creve Coeur Creek	C	2	Mi.	Bacteria		2	1,4	St. Louis
2006	1703	Creve Coeur Creek	C	2	Mi.	Chloride		1	2,4	St. Louis
2006	1703	Creve Coeur Creek	C	2	Mi.	Low D.O.		1	2,4	St. Louis
2006	1928	Crooked Creek	P	3.5	Mi.	Cadmium (W,S)	Casteel Mine *	1,1G	2,4	Dent/Crawford
2006	1928	Crooked Creek	P	3.5	Mi.	Lead (S)	Casteel Mine *	1,1G	2,4	Dent/Crawford
2006	2636	Current River	P	118	Mi.	Mercury (T)		1G	2,4,5,6	Shannon/Ripley
2006	0221	Dardenne Creek	P	15	Mi.	Inorganic Sediment	Sub./Rural NPS	1G	2,4,5	St. Charles
2006	0222	Dardenne Creek	C	6	Mi.	Inorganic Sediment	Sub./Rural NPS	1G	2,4	St. Charles
2002	0221	Dardenne Creek	P	15	Mi.	Unknown	Urban/Rural NPS	2	1,4,5	St. Charles
2006	0219	Dardenne Creek	P1	7	Mi.	Low D.O.		1	2,4,5	St. Charles
2006	0222	Dardenne Creek	C	6	Mi.	Low D.O.		1	2,4	St. Charles
2006	0690	Dark Creek	C	8	Mi.	Low D.O.		1	2,4	Randolph
2002	7015	Deer Ridge Lake	L3	48	Ac.	Mercury (T)	Atmospheric Dep.	1G	2,4,5	Lewis
2006	3109	Ditch #36	P	7	Mi.	Low D.O.		1	2,4	Dunklin
2006	3120	Ditch to Buffalo Ditch	P	12	Mi.	Low D.O.		1	2,4	Dunklin
2006	3168	Douger Branch	C	4.5	Mi.	Cadmium (W)	Aurora AML	1	2,4	Lawrence
2006	3168	Douger Branch	C	4.5	Mi.	Lead (S)	Aurora AML	1G	2,4	Lawrence
2006	1180	Dousinbury Creek	P	3.5	Mi.	Bacteria	Rural NPS	2	1,4	Dallas
2006	3569	Dutro Carter Creek	P	1.5	Mi.	Low D.O.	Rolla SE WWTP	1	2,4	Phelps
2006	3569	Dutro Carter Creek	P	1.5	Mi.	Ammonia	Rolla SE WWTP	1	2,4	Phelps
2006	0682	E. Fk. Chariton River	P	48.5	Mi.	Sulfate	Multiple AMLs	3	1,2,4,6	Macon/Chariton
2006	0457	E. Fk. Grand River	P	25	Mi	Bacteria	Rural NPS	2	1,3,4,5,6	Worth/Gentry
2006	3706	E. Fk. Locust Creek	P	3.6	Mi	Low D.O.	Milan WWTP	1	4	Sullivan
2006	0619	E. Fk. Medicine Creek	P	36	Mi.	Bacteria		2	1,4	Putnam/Grundy
2006	1282	E. Fk. Tebo Creek	C	12	Mi.	Low D.O.	Windsor SW WWTP	1	2,4	Henry
2006	2166	Eaton Branch	C	3	Mi.	Cadmium (S,W)	Mill tailings (Aban.)	1,1G	2,4	St. Francois
2006	2166	Eaton Branch	C	3	Mi.	Lead (S)	Mill tailings (Aban.)	1G	2,4	St. Francois
2006	2166	Eaton Branch	C	3	Mi.	Zinc (S,W)	Mill tailings (Aban.)	1,1G	2,4	St. Francois
2006	2597	Eleven Point River	P	10	Mi.	Mercury (T)		1	2,4,5	Oregon
2006	1283	Elm Branch	C	3	Mi.	Low D.O.		1	2,4	Henry
2006	2186	Fishpot Creek	P	2	Mi.	Low D.O.		1	2,4	St. Louis
2006	0865	Flat Creek	C	21.8	Mi.	Unkknown	Unknown	1G	2,4,5	Pettis
1994	2168	Flat River Creek	C	9	Mi.	Inorganic Sediment	Old Lead Belt AML	1G	2,4	St. Francois
1994	2168	Flat River Creek	C	9	Mi.	Zinc (W)	Old Lead Belt AML	1	2,4	St. Francois
1994	2168	Flat River Creek	C	9	Mi.	Lead (S,T)	Old Lead Belt AML	1G	2,4	St. Francois
2006	2168	Flat River Creek	C	9	Mi.	Cadmium	Old Lead Belt AML	1	2,4	St. Francois
2006	0747	Fowler Creek	C	6	Mi.	Low D.O.		1	2,4	Boone

Yr	WBID	Water Body Name	Cls	Size	Units	Pollutant	Source	IU	OU	U/D County
2002	1455	Gasconade River	P	249	Mi.	Mercury (T)	Atmospheric Dep.	1G	2,3,4,5	Gascon./Wright
2006	2184	Grand Glaize Creek	C	4	Mi.	Chloride		1	2,4	St. Louis
2006	0593	Grand River	P	60	Mi	Bacteria	Rural NPS	2	1,3,4,5,6	Livin./Chariton
2006	1712	Gravois Creek	P	2	Mi.	Bacteria	Urban Runoff	2	1,4	St. Louis
2006	1713	Gravois Creek	C	4	Mi.	Bacteria	Urban Runoff	2	1,4	St. Louis
2006	1713	Gravois Creek	C	4	Mi.	Chloride		1	2,4	St. Louis
2006	1713	Gravois Creek	C	4	Mi.	Low D.O.		1	2,4	St. Louis
2006	1009	Grindstone Creek	C	1.5	Mi.	Bacteria	Unknown	2	1,4	Boone
2002	0589	Hickory Cr., Trib.	C	1	Mi.	Unknown		1G	2,4	Grundy
2006	3226	Hickory Creek	P	4.5	Mi.	Bacteria	Unknown	2	1,4	Newton
2002	0442	Hickory Creek	C	1.5	Mi.	Unknown		1G	2,4	Daviess
1998	1007	Hinkson Creek	P	6	Mi.	Unknown	Urban Runoff	1G	2,4,5	Boone
2006	1008	Hinkson Creek	C	18	Mi.	Unknown	Urban Runoff	1G	2,4	Boone
2006	1008	Hinkson Creek	C	18	Mi.	Bacteria		2	1,4	Boone
2002	7388	Hough Park Lake	L3	7	Ac.	Mercury (T)	Atmospheric Dep.	1G	2,4	Cole
1998	0212	Indian Camp Creek	C	5.0	Mi.	Inorganic Sediment	JZ Landfill	1	2,4	Warren/St. Charles
2006	3256	Indian Creek	P	26	Mi.	Bacteria	Rural NPS	2	1,4,5,6	Newton
2002	0420	Indian Creek	C	3	Mi.	Bacteria	WWTP(Ks),Urban Runoff	2	1,4,7	Jackson
2006	0420	Indian Creek	C	3	Mi.	Chloride	WWTP(Ks),Urban Runoff	2	1,4,7	Jackson
2006	1946	Indian Creek	C	1.5	Mi.	Lead (W)	Viburnum Mine Tailings	1	2,4	Washington
2002	1946	Indian Creek	C	1.5	Mi.	Zinc	Viburnum Mine Tailings	1	2,4	Washington
2006	3663	Indian Creek Trib	C	0.5 (0.3)	Mi.	Lead (W)	Viburnum 29 Mine	1	2,4	Washington
2006	3663	Indian Creek Trib	C	0.5(0.3)	Mi.	Zinc (W)	Viburnum 29 Mine	1	2,4	Washington
2006	3374	Jordan Creek	P	3.8	Mi.	Low D.O.		1G	2,4	Greene
2002	7196	Knob Noster S.P. Lakes (Lake Buteo)	L3	24	Ac.	Mercury (T)	Atmospheric Dep.	1G	2,4	Johnson
2006	1529	L. Beaver Creek	C	4	Mi.	Low D.O.		1	2,4	Phelps
2006	1863	L. Dry Fork	P	5	Mi.	Low D.O.	Rolla SE WWTP	1	2,4	Phelps
2006	1864	L. Dry Fork	C	4.5	Mi.	Low D.O.		1	4	Phelps
2006	1325	L. Drywood Creek	P	17	Mi.	Low D.O.		1	2,4	Vernon
2006	3490	L. Muddy Creek Trib	C	0.4	Mi.	Color	Tyson Foods	G	1,2,4	Pettis
2006	3490	L. Muddy Creek Trib	C	0.4	Mi.	Chloride	Tyson Foods	1	2,4	Pettis
2006	1189	L. Niangua River	P	43	Mi.	Low D.O.		1	2,4,5	Dallas/Camden
2002	3652	L. Osage River	C	16	Mi.	Low D.O.		2	1,4	Vernon
1998	7205	Lake of the Ozarks	L2	59520	Ac.	Fish Trauma		1G	2,4,5	Camden
2002	7436	Lake of the Woods	L3	3	Ac.	Mercury (T)	Atmospheric Dep.	1G	2,4	Boone
2002	7055	Lake Ste. Louise	L3	86	Ac.	Bacteria	Urban Runoff	2	1,4	St. Charles
1994	7314	Lake Taneycomo	L2	1730	Ac.	Low D.O.	Table Rock Dam	1	2,3,4,5	Taney
2006	0847	Lamine River	P	54	Mi.	Bacteria	Rural NPS	2	1,4,5,6	Morgan/Cooper
2006	3105	Lat. #2 Main Ditch	P	11.5	Mi.	Low D.O.		1	2,4	Stoddard
1998	3105	Lat. #2 Main Ditch	P	11.5	Mi.	Sediment		1	2,4	Stoddard

Yr	WBID	Water Body Name	Cls	Size	Units	Pollutant	Source	IU	OU	U/D County
2002	7020	Lewistown Lake	L1	29	Ac.	Atrazine	Crop Production	3	1,2,4,5	Lewis
2006	606	Locust Creek	P	84	Mi.	Bacteria		2	1,3,4,5	Putnam/Chariton
2002	0857	Long Branch	C	4.5	Mi.	Unknown		1	2,4	Johnson/Pettis
2006	0696	Long Branch Creek	C	13	Mi.	Low D.O.	Atlanta WWTP	1	2,4	Macon
2006	3278	Lost Creek	P	8.5	Mi.	Bacteria	Rural NPS	2	1,4,5	Newton
2006	2814	Main Ditch	C	14	Mi.	pH	Poplar Bluff WWTP	1	2,4,6	Butler
2006	2814	Main Ditch	C	14	Mi.	Ammonia	Poplar Bluff WWTP	1	2,4,6	Butler
2006	2814	Main Ditch	C	14	Mi.	Temperature	Stream Modification	1	2,4,6	Butler
2006	1709	Maline Creek	C	1	Mi.	Chloride		1	4	St. Louis
2002	7033	Mark Twain Lake	L2	18600	Ac.	Mercury (T)	Atmospheric Dep.	1G	2,3,4,5	(Monroe)/Ralls
2002	1308	Marmaton River	P	49.5	Mi.	Low D.O.		2	1,4,6	Vernon
2006	7399	McKay Park Lake	L3	6	Ac.	Mercury (T)		1G	2,4	Cole
2002	2786	McKenzie Creek	P	6	Mi.	Low D.O.	Piedmont WWTP	1	2,4	Wayne
2006	1841	Meramec River	P	37	Mi.	Mercury (T)		1G	2,3,4,5,7	Franklin/Jefferson
2006	1299	Miami Creek	P	18	Mi.	Low D.O.		1	2,4	Bates
2006	0468	Middle Fk. Grand River	P	25	Mi	Bacteria	Rural NPS	2	1,4,5,6	Worth/Gentry
1998	1707	Mississippi River	P	195.5	Mi.	Lead	Herculaneum Smelter	1	3,4,5,6,7	St. Louis/Mississippi
1998	1707	Mississippi River	P	195.5	Mi.	Zinc	Herculaneum Smelter	1	3,4,5,6,7	St. Louis/Mississippi
2006	3152	Mississippi River	P	124.5	Mi.	Mercury (T)		1	2,3,4,5,6,7	Mississippi/Pemiscot
2006	1604	Missouri River	P	100	Mi.	Bacteria		2	1,3,4,5,6,7	Gasconade/St.Louis
1998	1300	Mound Branch	C	10	Mi	Low D.O.	Butler WWTP	1	2,4	Bates
2002	0557	Muddy Creek	P	36.5	Mi.	Unknown		1	4	Mercer/Grundy
2006	0853	Muddy Creek	P	55	Mi.	Color	Tyson Foods	G	2,4	Pettis
2006	0853	Muddy Creek	P	55	Mi.	Chloride		1G	2,4	Pettis
2006	0674	Mussel Fork Creek	C	29	Mi.	Bacteria		2	1,3,4	Sullivan/Macon
2006	0170	N. Fk. Cuivre River	C	8	Mi.	Bacteria		1	2,4	Pike
2006	0170	N. Fk. Cuivre River	C	8	Mi.	Low D.O.		1	2,4	Pike
2006	3188	N. Fk. Spring River	C	51.5	Mi.	Unknown	Unknown	2	1,4	Dade/Jasper
2006	3188	N. Fk. Spring River	C	51.5	Mi.	Low D.O.	Lamar WWTP	1	2,4	Barton (Dade/Jasper)
2006	3188	N. Fk. Spring River	C	51.5	Mi.	Ammonia	Lamar WWTP	1	2,4	Barton (Dade/Jasper)
2006	1170	Niangua River	P	51	Mi.	FC, E. coli	Rural NPS	2	1,4,5	(Webster)/Dallas
2006	0550	No Creek	P	22.5	Mi	Bacteria	Rural NPS	2	1,4	Grundy/(Livingston)
2002	7316	Noblett Lake	L3	26	Ac.	Mercury (T)	Atmospheric Dep.	1G	2,4	Douglas
2006	1031	Osage River	P	82	Mi.	Low D.O.		1*	2,4,5,6	Miller/Osage
2006	1373	Panther Creek	C	7.8	Mi.	Low D.O.		1	2,4	Hickory(St.Clair)/Polk
2006	2373	Pearson Creek	P	8	Mi.	Bacteria	Unknown	2	1,4	Greene
1998	2373	Pearson Creek	P	8	Mi.	Unknown toxicity	Unknown	1G	2,4	Greene
2002	0217	Peruque Creek	P	4	Mi.	Inorganic Sediment	Urban/Rural NPS	1	2,4	St. Charles
2002	0216	Peruque Creek	C	8.5	Mi.	Inorganic Sediment	Urban/Rural NPS	1	2,4	St. Charles
2006	1755	Pickle Creek	P	7	Mi.	pH	Natural	1	2,4	Ste. Genevieve

Yr	WBID	Water Body Name	Cls	Size	Units	Pollutant	Source	IU	OU	U/D County
1998	1444	Piper Creek	P	7.5	Mi.	Organic Sediment	Bolivar WWTP	1G	2,4	Polk
2006	1444	Piper Creek	P	7.5	Mi.	Unknown	Unknown	1G	2,4	Polk
1998	2128	Pond Creek Trib.	C	1	Mi.	Inorganic Sediment	Barite Tailings Pond	1	2,4	Washington
2006	2038	Red Oak Creek	C	9	Mi.	Low D.O.		1	2,4	Gasconade
2006	3360	Red Oak Creek Trib	C	0.5	Mi.	Low D.O.		1	2,4	Gasconade
2006	3361	Red Oak Creek Trib.	C	1.5	Mi.	Low D.O.		1	4	Gasconade
2006	1711	River des Peres	C	1	Mi.	Chloride		1	4	St. Louis City
2006	1711U-01	River des Peres	U		Mi.	Chloride		1G		St. Louis
2006	1512	Roubidoux Creek	P	4	Mi.	Low D.O.		1	2,4,5	Pulaski
2006	0655	S. Blackbird Creek	C	13	Mi.	Ammonia	Unknown	1	2,4	Putnam
2006	0071	S. Fabius River	P	61.5	Mi.	Bacteria		2	1,4,6	Knox/Marion
2006	0142	S. Fk. Salt River	C	32	Mi.	Low D.O.		1	2,3,4	Callaway/Audrain
2006	1249	S. Grand River	P	62.5	Mi.	Bacteria		2	1,4,5	Cass/Henry
2006	2859U-01	Saline Creek Trib.	U		Mi.	Nickel	Madison Mine	1		Madison
2002	0091	Salt River	P	29	Mi.	Mercury (T)	Atmospheric Dep.	1G	2,3,4,5,6	Ralls/Pike
2002	0652	Sandy Creek	C	3	Mi.	Unknown		1	2,4	Putnam
2002	7280	Schuman Park Lake	L3	5	Ac.	Mercury (T)	Atmospheric Dep.	1G	2,4	Phelps
1994	2170	Shaw Branch	C	2	Mi.	Inorganic Sediment	Federal AML	1,1G	2,4	St. Francois
2006	2170	Shaw Branch	C	2	Mi.	Lead (S)	Federal AML	1,1G	2,4	St. Francois
2006	2170	Shaw Branch	C	2	Mi.	Cadmium (S)	Federal AML	1,1G	2,4	St. Francois
1998	2120	Shibboleth Creek	C	3	Mi.	Inorganic Sediment	Barite Tailings Pond	1	2,4	Washington
2006	3231	Shoal Creek	C	4	Mi.	Low D.O.		1	2,4	Barry
2006	0399	Sni-a-bar Creek	P	32	Mi.	Low D.O.		1	2,3,4	Jackson/Lafayette
1994	3708	Spring Branch	C	7.4	Mi.	Organic Sediment	Salem WWTP	1	4	Dent
1994	3708	Spring Branch	C	7.4	Mi.	Low D.O.	Salem WWTP	1	4	Dent
2006	3160	Spring River	C	58.5	Mi.	Bacteria	Urban/Rural Point Sources, NPS	2	1,4,5,6,7	Lawrence/Jasper
2006	3138	St. Johns Ditch	P	35	Mi.	Bacteria		2	1,4	Scott/New Madrid
2006	3138	St. John's Ditch	P	35	Mi.	Mercury (T)		1G	2,4	Scott/New Madrid
2006	3135	Stevenson Bayou	C	14	Mi.	Low D.O.		1	2,4	Mississippi
1994	0710	Stinson Creek	C	9	Mi.	Low D.O.	Fulton WWTP	1	2,4	Callaway
1994	0710	Stinson Creek	C	9	Mi.	Organic Sediment	Fulton WWTP	1	2,4	Callaway
2006	1361	Stockton Branch	C	5	Mi.	Low D.O.	Stockton WWTP,	1	2,4	Cedar
2006	0959	Straight Fork	C	6	Mi.	Chloride		1	2,4	Morgan
2006	0959	Straight Fork	C	6	Mi.	Low D.O.		1	2,4	Morgan
2006	2751U-01	Strother Creek	U		Mi.	Zinc (W)	Buick Mine	1G		Reynolds/Iron
2006	0686	Sugar Creek	P	5	Mi.	Low D.O.		1	2,4	Randolph
2002	7313	Table Rock Lake	L2	43100	Ac.	Nutrients	Point Sources/NPS	G	1,2,4,5	(Barry)/Stone
2006	0074	Troublesome Creek	C	34	Mi.	Low D.O.		1	2,4	Knox/Marion
2002	3282	Turkey Creek	P	2.4	Mi.	Cadmium (W)	Mine Tailings	1	2,4	St. Francois
2002	3282	Turkey Creek	P	2.4	Mi.	Lead	Mine Tailings	1	2,4	St. Francois

Yr	WBID	Water Body Name	Cls	Size	Units	Pollutant	Source	IU	OU	U/D County
2006	3282	Turkey Creek	P	2.4	Mi.	Zinc (W)	Mine Tailings	1	2,4	St. Francois
2006	3216	Turkey Creek	P	7	Mi.	Cadmium	Multiple AMLs	1	2,4	Jasper
2006	3216	Turkey Creek	P	7	Mi.	Bacteria	Mill tailings (Aban.)	2	1,4	Jasper
2006	2863	Village Creek	P	1.5	Mi.	Inorganic Sediment	Mine La Motte AML	1G	2,4	Madison
2006	2863	Village Creek	P	1.5	Mi.	Manganese**	Mine La Motte AML	1G	2,4	Madison
2006	2863	Village Creek	P	1.5	Mi.	Lead	Mine La Motte AML	1G	2,4	Madison
1994	2864	Village Creek	C	3	Mi.	Inorganic Sediment	Mine La Motte AML	1G	2,4	Madison
1998	2755	W. Fk. Black River	P	31.7	Mi.	Nutrients	Doe Run West Fk. Mine	1G	2,4	Reynolds
2006	1317	W. Fk. Drywood Creek	C	5.5	Mi.	Low D.O.		1	2,4	Vernon
2002	0612	W. Fk. Locust Creek	P	17	Mi.	Unknown		1G	2,4	Sullivan/Linn
2002	0613	W. Fk. Locust Creek	C	17	Mi.	Unknown		1G	4	Sullivan
2006	0623	W. Fk. Medicine Creek	P	40	Mi.	Unknown	Unknown	1G	2,4	Mercer/Grundy
2006	0623	W. Fk. Medicine Creek	P	40	Mi.	Bacteria		2	1,4	Mercer/Grundy
2006	1175	W. Fk. Niangua River	P	7	Mi.	Low D.O.		1	2,4	Webster
2006	7137	Walt Disney Lake	L3	18	Ac.	Chloride		1	2,4	Linn
2006	2579	Warm Fk. Spring River	P	12	Mi.	Bacteria	Unknown	2	1,4,5,6	Oregon
2006	1708	Watkins Creek	C	3.5	Mi.	Chloride		1,2	4	St. Louis City
2006	1708	Watkins Creek	C	3.5	Mi.	Bacteria	Urban Runoff	1,2	4	St. Louis City
2006	0560	Weldon River	P	42	Mi.	Bacteria		2	1,4	Mercer/Grundy
2006	0599	West Yellow Creek	C	43	Mi.	Low D.O.		***	***	Sullivan/(Linn)
2006	1504	Whetstone Creek	P	13	Mi.	Low D.O.		1	2,4	Wright
2002	0654U-01	Willow Branch	U		Mi.	Unknown		G		Putnam
2006	0955	Willow Fork	C	6.5	Mi.	Low D.O.		1	2,4	Moniteau
2006	0956	Willow Fork Trib.	C	0.5	Mi.	Low D.O.	Tipton WWTP	1	4	Moniteau
2002	2375	Wilson Creek	P	18	Mi.	Unknown toxicity		1G	2,4	Greene
2006	2375	Wilson Creek	P	18	Mi.	Bacteria		2	1,4	Greene
2006	2879	Wolf Creek	C	8	Mi.	Low D.O.		1	2,4	St. Francois
2006	3589	Wolf Creek Trib.	C	1.5	Mi.	Low D.O.		1	2,4	St. Francois

Notations next to pollutant in parenthesis indicate the medium affected: W=water, S=sediment, T=fish tissue. This information was not included on the EPA final list, but was added by Missouri DNR to clarify the nature of the problem.
Counties shown in parenthesis were not on the original EPA list, but were added by Mo. DNR to show the full extent of the water body as listed.
* Casteel Mine was incorrectly noted as the source of the impairment. The actual source is the Buick secondary lead smelter.
** Manganese was removed from Missouri Water Quality Standards prior to the submission of the 2006 303(d) List. It is presumed this listing was made in error.
*** Due to an oversight, this segment of West Yellow Creek does not appear in State Water Quality Standards. Therefore, there are no designated uses.
All waters on the above list are listed for their full size as given in 10 CSR 20-7.031 Water Quality Standards, Tables G and H.

Definition of Column Headers
Yr = Year this water body/pollutant pair was first placed on 303(d) List
WBID = unique water body identification number
Water Body Name = Name as it appears in Tables G & H of the state Water Quality Standards

Cls = Water body classification as it appears in Tables G & H of the state Water Quality Standards
Size = Size of water body
Units = Miles for streams; Surface acres for lakes
Pollutant = pollutant causing the impairment
Source = the source of the pollutant causing the impairment
IU = Impaired Beneficial Uses
OU= Other Beneficial Uses recognized for this water body as they appear in Tables G & H of the state Water Quality Standards
Beneficial Use Codes: G = general or narrative criteria, 1 = Protection of aquatic life (includes human health protection for fish consumption), 2 = Whole Body Contact Recreation (swimming), 3 = Public Drinking Water Supply, 4 = Livestock and Wildlife Watering, 5 = Secondary Contact (wading, fishing, boating), 6 = Irrigation, 7 = Industrial Uses
U/D County = County the water body is in. If two county names are given, the first is for the upstream end of the water body and the second is for the downstream end.

January 22, 2009
Water Protection Program, Missouri Department of Natural Resources

Water Bodies Where the TMDL is Written and Approved during 2009

WBID	Water Body	Size	Unit	Pollutant	Source	Downstream County	Upstream
588	Hickory Creek	7	Miles	Unknown	NA	Grundy	9, 60N, 25W
7205	Lake of the Ozarks	50	Acres	Gas supersaturation	Truman Dam	Benton	9, 60N, 25W
7205	Lake of the Ozarks	50	Acres	Low DO	Truman Dam	Benton	9, 60N, 25W
602	Long Branch	13	Miles	Unknown	NA	Linn	9, 60N, 25W
56	N. Fabius River	82	Miles	Manganese	AgNPS	Marion	26, 67N, 13W
860U	Sewer Branch	NA	NA	Low DO	Unknown Pt/NPS	Pettis	9, 60N, 25W
73	Troublesome Creek	3.5	Miles	Manganese	Natural	Marion	15, 59N, 7W

Appendix F. Outstanding National Resource Waters List

10 CSR 20-7.031, Table D		
Outstanding National Resource Waters		
Water Body	**Location**	**County(ies)**
Current River	Headwaters to Northern Ripley Co. Line	Dent to Ripley
	Sec. 22,32N,07W to Sec. 15,25N,01E	
Jacks Fork River	Headwaters to Mouth	Texas to Shannon
	Sec. 29,28N,07W to Sec. 9/15,29N,03W	
Eleven Point River	Headwaters to Hwy. 142	Oregon
	Sec. 32,25N,05W to Sec. 21,22N,02W	

Appendix G. Outstanding State Resource Waters List

10 CSR 20-7.031, Table E

Outstanding State Resource Waters

Water Body	Size		Location	County(ies)
Baker Branch	4	mi.	Taberville Prairie	St. Clair
Bass Creek	1	mi.	in Three Creek Conservation Area	Boone
Big Buffalo Creek	1.5	mi.	Big Buffalo Creek Conservation Area	Benton-Morgan
Big Creek	5.3	mi.	Sam A. Baker State Park	Wayne
Big Sugar Creek	7	mi.	Cuivre River State Park	Lincoln
Big Lake Marsh	150	ac.	Big Lake State Park	Holt
Blue Springs Creek	4	mi.	Blue Spring Creek Conservation Area	Crawford
Bonne Femme Creek	2	mi.	Three Creeks Conservation Area	Boone
Brush Creek	0.7	mi.	Bonanza Conservation Area	Caldwell
Bryant Creek	1.5	mi.	Bryant Creek Natural Area in Rippee Conservation Area	Ozark/Douglas
Bull Creek	8	mi.	Mark Twain National Forest (S24, 25N, 21W to S22, 26N, 20W)	Christian
Cathedral Cave Branch	5	mi.	Onondaga Cave State Park	Crawford
Chariton River	9.8	mi.	Rebels Cove Conservation Area	Putnam-Schuyler
Chloe Lowry Marsh	40	ac.	Chloe Lowry Marsh Conservation Area	Mercer
Coakley Hollow	1.5	mi.	Lake of the Ozarks State Park	Camden
Coonville Creek	2	mi.	St. Francois State Park	St. Francois
Courtois Creek	12	mi.	Mouth to Hwy. 8	Crawford
Crabapple Creek	1	mi.	Bonanza Conservation Area	Caldwell
Devils Ice Box Cave Branch	1.5	mi.	Rock Bridge State Park	Boone
East Fork Black River	3	mi.	Johnson's Shut-Ins State Park	Reynolds
First Nicholson Creek	2	mi.	Prairie State Park	Barton
Gan's Creek	3	mi.	Rock Bridge State Park	Boone
Huzzah Creek	6	mi.	Mouth to Hwy. 8	Crawford
Indian Creek	17.5	mi.	Mark Twain National Forest	Douglas-Howell
Ketchum Hollow	1.5	mi.	Roaring River State Park	Barry
Little Piney Creek	25	mi.	Mouth to 21,35N,08W	Phelps
Little Black River	3	mi.	Mud Puppy Natural History Area (S22, 24N, 3E to S25, 24N, 3E)	Ripley
Log Creek	0.4	mi.	Bonanza Conservation Area	Caldwell
Meramec River	8	mi.	Adjacent to Meramec State Park	Crawford/Franklin
Meramec River	3	mi.	Adjacent to Onondaga and Huzzah State Forest	Crawford
Mill Creek	5	mi.	Mark Twain National Forest	Phelps
N. Fork White River	5.5	mi.	Mark Twain National Forest	Ozark
Noblett Creek	5	mi.	Above Noblett Lake, Mark Twain National Forest	Douglas-Howell
Onondaga Cave Branch	0.6	mi.	Onondaga Cave State Park	Crawford
Pickle Creek	3	mi.	Hawn State Park	Ste. Genevieve
S. Prong L. Black River	2	mi.	In Little Black Conservation Area	Ripley
Shoal Creek	0.5	mi.	Bonanza Conservation Area	Caldwell
Spring Creek	17	mi.	Mark Twain National Forest	Douglas
Spring Creek	6.5	mi.	Mark Twain National Forest	Phelps
Taum Sauk Creek	5.5	mi.	Johnson's Shut-Ins State Park Addition S23	Reynolds-Iron
Turkey Creek	4.6	mi.	In Three Creeks Conservation Area	Boone
Van Meter Marsh	80	ac.	Van Meter State Park	Saline
Whetstone Creek	5.1	mi.	Whetstone Creek Conservation Area	Callaway