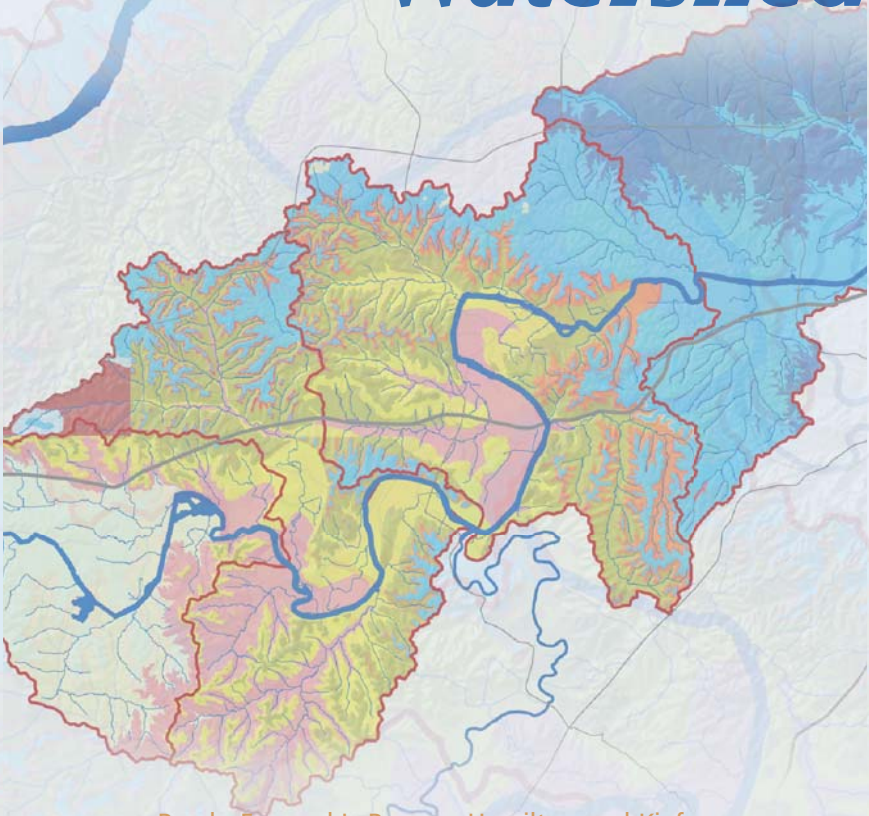
Lower Meramec Watershed



Brush, Fox and LaBarque, Hamilton and Kiefer,
Grand Glaize and Fishpot Watersheds in the Lower Meramec River,
in Franklin, Jefferson and St. Louis Counties

EAST-WEST GATEWAY
Council of Governments

Creating Solutions Across Jurisdictional Boundaries

Meramec River Orientation, June 2010

The Meramec River is one of the longest free-flowing rivers in the United States, covering 220 miles from its source in the Ozarks to the Mississippi River. The drainage basin for the Meramec is nearly 4,000 square miles of central and eastern Missouri and includes the major tributaries of Courtois, Huzzah, Bourbeuse, and Big rivers. The Lower Meramec is that portion of the watershed from Sullivan, Missouri through the southern part of the St. Louis metropolitan area. It enters the Mississippi River near the city of Arnold. The Lower Meramec Watershed contains 33 sub-watersheds draining directly into the Meramec River. Approximately 2.5 million people live within a half hour drive of the Meramec.

What is the Meramec Watershed?

The Meramec Watershed is all of the land area from which rainwater runoff and snowmelt will ultimately drain to the Meramec River.

Watersheds can be as big as the Mississippi River watershed, which drains 1,245,000 square miles and 33 states, or as small as the land that drains to a creek in your backyard.

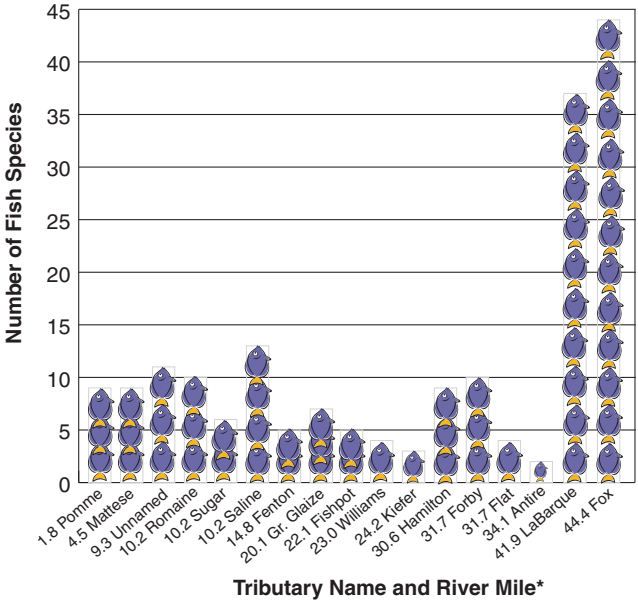
Healthy watersheds provide plentiful drinking water, habitat for many species of fish and wildlife and water for irrigation, industry and recreational activities. Without clean water our society would be radically changed from what it is today. The Lower Meramec River is the primary source of drinking water for south St. Louis County and northern Jefferson County. There is a critical need to protect this source of high quality drinking water that serves more than 200,000 people in St. Louis, Franklin and Jefferson counties.

Standards for a healthy watershed are easily defined by “yes” answers to two important questions.

- Is the stream or river clean enough for a person to swim?
- Is the stream or river clean enough for aquatic life to thrive?

Although the Meramec River is one of the most biologically diverse rivers in the United States, with over 125 species of fish, many of its tributaries in the St. Louis Region are in significant decline (see chart below).

Fish Diversity in Meramec River Tributary Streams



**Distance (miles) upstream from the mouth of the Meramec River at the Mississippi River*

Threats and Challenges Facing the Watershed

Water has been recycled naturally throughout the ages. The quality and quantity of water is always at risk. Activities that disturb the land affect the quality of water in a watershed. Changes in land use which increase pavement and rooftops—called impervious surfaces—increase stormwater runoff causing flooding and erosion. Impervious surfaces prevent water from soaking into the ground and replenishing groundwater. In addition, careless disposal of pet waste and fertilizers can have an impact on water quality.

Throughout the last 200 years, almost all of the watersheds surrounding the St. Louis area have been affected by human activities including everything from farming, logging, mining, illegal dumping and road building to urban development. These have put considerable strains on ensuring good water quality in the Meramec River Watershed.

Urban Development —In the Lower Meramec River Watershed, development in some cases has separated streams from adjacent forest habitats, contributing to a large loss of streamside vegetation that naturally filters runoff, increases infiltration and stabilizes stream banks. It is projected that unless development practices change, future growth and development will continue to negatively impact the region's available water.

Pollution —Numerous pollutants such as sediment, bacteria (human, pet, farm animals and wildlife sources), air deposition of mercury from coal fired plants, road salt and emerging contaminants from pharmaceutical drugs have worked their way into the watershed.

Harmful Practices —Common issues throughout the watershed include large animal grazing, illegal waste disposal, stream straightening and improper use of motorized vehicles in streams, as well as poorly designed low water structures.

Increased Flooding —Development is a major factor causing increased flood frequencies and intensities because with development comes increased impervious areas and decreased natural rainwater absorption into soils.

Underperforming Sewage Treatment Facilities —Underperforming sewage treatment facilities and failing septic systems result in seepage of sewage, leading to higher bacteria and nutrient levels in streams.

What is Watershed Management?

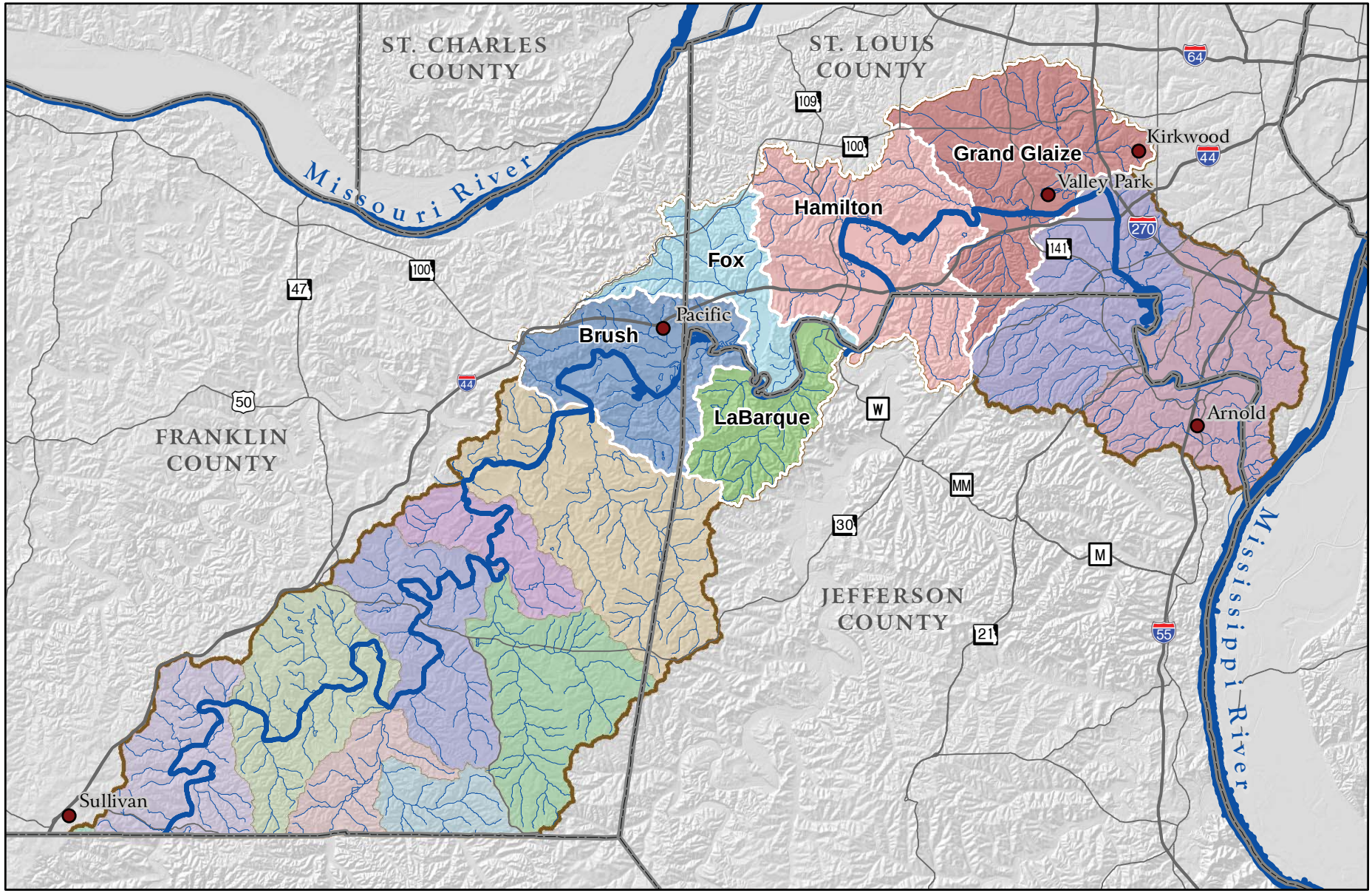
Watershed protection is good business. Preventing adverse impacts is more effective and cost efficient than repairing damage after it occurs.

Few communities are alone in a watershed. All communities in a common watershed are affected by activities of neighboring towns or counties upstream or downstream, uphill or downhill. A watershed plan brings diverse interests and resources together to solve common problems.

Local officials can do much to protect their water resources by considering the location, extent, drainage and maintenance of impervious surfaces. These issues should be considered at the watershed, community and individual site levels. Natural resources-based planning, low impact site design and the use of best management practices, i.e., conserving natural areas, form an effective three-tiered approach to solving watershed problems.

A watershed approach depends on a proper balance between natural resources and development issues. Proper watershed management involves all affected groups and crosses jurisdictional boundaries. The process ensures decisions that address all concerns and promotes support from everyone.

Lower Meramec River Watershed



Subwatersheds

Selected Subwatersheds

Other Subwatersheds

Meramec River Watershed

River or Stream

Major Road

County Boundary

0 1 2 4 Miles

Sources: USDA/NRCS via MSDIS,
East-West Gateway Council of Governments
August 2011

East-West Gateway
Council of Governments
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Green Approaches

for clean water and healthy communities

Low Impact Development (LID) is a new way of thinking about rainwater runoff. LID focuses on building codes and design standards to plan and engineer any type of community or individual site in order to maintain or restore hydrologic and ecological function. Communities can increase land value and reduce administrative and infrastructure costs by implementing LID practices.

LID Strategies

Tree Preservation

Natural tree cover reduces the volume of rain reaching the ground, reduces the energy of rain that does reach the ground, and serves to reduce the volume of runoff by 10 to 30 percent. Preserving existing trees is most cost effective. Newly planted trees require several years before they can reduce rainwater runoff.

Green Buffers

Protection of stream corridors with natural vegetative streamside buffers serves to reduce erosion, improve water quality, and reduce flooding. Vegetated buffers protect the floodways and provide storage capacity even on small streams.

Green Roofs

The emergence of green roof technology has provided an opportunity to retain significant amounts of water on the flat roofs of buildings.

Soil Amendments

In certain soil conditions, materials can be added to the soil to provide improved infiltration and storage capacity and reduce runoff.

Vegetated Swales

Instead of piping water that flows off streets, driveways and parking lots into a stream, constructing swales that slow the flow and support infiltration into the soil is a recommended approach.

Rain Gardens

Shallow planed depressions that slow and hold rainwater temporarily, allow for percolation into the soil and removal of water through plant transpiration. Such gardens prove attractive additions to homes and to businesses while reducing runoff and improving water quality.

Roof Downspout Disconnection

Instead of sending rainwater into combined sewer systems where it can overload the sewage treatment plant, disconnected downspouts can direct rainwater to rain gardens, which slow and retain the water.

Rain Water Harvesting

Downspouts can be connected to rain barrels or cisterns to provide a supply of water for use in the landscape irrigation.

Impervious Surface Reduction

Shorter driveways and site design strategies that reduce street length and width can all serve to reduce impervious surfaces within a new development. These actions can reduce development and maintenance costs and protect or improve stream quality.

Permeable Pavements

Reducing impervious surfaces has been shown to improve stream quality. Generally, permeable pavers, permeable concrete or permeable asphalt are combined with an under-bed that will retain and hold water allowing it to infiltrate into the soil and/or move slowly into other drainage systems. Permeable pavements are especially useful in large parking lots that are used infrequently, such as church parking or the outer parking lots of shopping centers.

What Governments Can Do

Stormwater regulations established under the Clean Water Act promote practices that ensure good watershed stewardship and will help to reduce nonpoint source pollution. Local governments subject to the regulations are required to provide public education, encourage public involvement, eliminate illegal and polluting discharges into streams, control construction site runoff, promote planning for watershed protection, and prevent pollution from municipal operations.

Local governments can use public land to demonstrate best practices for stormwater control, thus reducing stormwater runoff and educating the public about effective strategies such as buffer ordinances to protect water quality.

What You Can Do At Home

- Reduce fertilizer, pesticide use and lawn watering. Environmentally friendly yard practices protect water resources in nearby streams.
- Reduce water use in the home—simple leak repairs and other conservation measures save water and money.
- Reduce impervious surfaces on your property where possible.
- Properly dispose of cleaning products, used motor oil, antifreeze and paint (called household hazardous wastes or HHW) and use less toxic alternatives. Storm drains deliver anything dumped into them directly to local streams.
- Keep litter, pet waste, yard waste and HHW out of the street, and away from storm drains, streams or rivers. Water in a storm drain goes directly to streams and rivers without being treated.
- Practice proper septic tank management. Inspect and pump tank on a regular basis.
- Capture stormwater runoff by installing rain gardens and rain barrels.

And In Your Community

- Be an advocate for your water resources in local planning efforts.
- Participate in Stream Teams, Hazardous Household Waste pickup days and other water friendly activities.
- Support community organizations and events that protect water resources.
- Know your watershed and participate in watershed planning activities.
- Share your environmental knowledge with your neighbors.

Stream Teams in Lower Meramec River Study Area

Watershed	Teams*	Water Quality Monitoring Sites	Non Monitoring Sites
Brush Creek	12	16	1
Fox Creek	11	8	0
LaBarque Creek	18	18	1
Hamilton Creek	27	14	7
Grand Glaize Creek	28	30	15
Total	72	86	24

**A Stream Team can be active in more than one watershed.*

Source – Missouri Stream Team interactive map. www.mostreamteam.org

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Missouri Department of Natural Resources

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Missouri Department of Natural Resources

Missouri Conservation Department

MSD

Missouri American Water

The Open Space Council for the St. Louis Region

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Franklin County Public Works
Friends of LaBarque Creek
Great Rivers Greenway
Hellmuth & Bicknese Architects
Jefferson County Government
Meramec River Greenway
Meramec River Recreation Association
Missouri Botanical Garden – Shaw Nature Reserve
Missouri Coalition for the Environment
Missouri Department of Health
Missouri Smallmouth Alliance
Missouri Stream Team
Museum of Transportation
The Nature Conservancy of Missouri
Northern Ozark Rivers Partnership
Ozark Outdoors Riverfront Resort
Ozark Regional Land Trust
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St. Louis County Municipal League
St. Louis County Parks and Recreation Department
St. Louis Earth Day
The Trust for Public Land
U.S. Fish and Wildlife Service
U.S. Forest Service
City of Ballwin
City of Ellisville
City of Eureka
City of Des Peres
City of Kirkwood
City of Manchester
City of Pacific
City of Valley Park
City of Wildwood

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