Meramec River Watershed

Executive Summary

The Meramec River basin is located in east central Missouri in Crawford, Dent, Franklin, Iron, Jefferson, Phelps, Reynolds, St. Louis, Texas, and Washington counties. Found in the northeast corner of the Ozark Highlands, 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 north easterly 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 large enough to merit their own basin inventory and management plans. The Bourbeuse enters the Meramec at river mile 64.0, and the Big River enters the Meramec at river mile 35.7.

Present Meramec River basin landcover consists of roughly one-half forest, one-quarter pasture, and one-quarter cropland, rural transportation, urban development, water, and other minor land uses combined. Within the upper Meramec River portion, nearly one third of the forest land 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. Earlier land-use practices have been identified as possible causes for stream morphology changes in the Meramec as well as other stream systems within the Ozarks. 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 quite good. In fact, the Missouri Department of Natural Resources Clean Water Commission designated segments of Courtois Creek, Huzzah Creek, Blue Springs Creek, and the Meramec River as Outstanding State Resource Waters. Despite the basin's overall good water quality, problems do exist. In the upper and middle basin, cattle grazing on creek bottom pastures is very common. When cattle have open access to streams, damage to riparian areas and excessive nutrient loading of the streams often results. 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.

Stream habitat quality is fair to good throughout most of the basin. Some areas, including portions of the Brazil subwatershed, Courtois, Huzzah, and Indian Creek watersheds, suffer from a more severe lack of riparian vegetation. In these and other streams the lack of adequate riparian corridors, excessive nutrient loading, streambank erosion, excessive runoff and erosion, and the effects of extensive instream gravel mining are among the problems observed. Grazing practices along many streams contribute to streambank instability, nutrient loading, and poor riparian corridor conditions. Increased land clearing and higher runoff associated with urbanization also impact stream habitat quality.

The basin has a very diverse fish assemblage of 125 fish species collected since 1930. The crystal darter, a state listed species, is present in the lower Meramec Basin. Excellent sportfishing is available on the Meramec and its tributaries, and basin streams are widely acclaimed, particularly for smallmouth bass and rock bass. Sportfishing management emphasis species are smallmouth bass, largemouth bass, rock bass, brown trout, and rainbow trout. Crawford County contains the Meramec River Smallmouth Bass Special Management Area (from Highway 8 to Scott's Ford Access), the Meramec River Special Trout Management Area (from Scott's Ford Access to Bird's Nest Access), and the Blue Springs Creek Wild Trout Management Area. The heavily fished Maramec Spring Park lies immediately adjacent to the Meramec in Phelps County. The taking of non-gamefish (mainly sucker species) by gigging is a strong tradition throughout the basin. Floating and float-fishing are highly popular, particularly on the upper Meramec, Huzzah, and Courtois. Seventeen Missouri Department of Conservation (MDC) stream access sites are located in the basin. Access to stream frontage is also provided by a mix of MDC conservation areas, Missouri Department of Natural Resources (MDNR) state parks, county parks, and United States Forest Service (USFS) lands.

Meramec mussel populations have been surveyed periodically. Relative abundances are declining, and habitat disturbances are the suspected cause. Fortunately, the endangered pink mucket (federal listing) is still maintaining a presence in the lower Meramec.

The Meramec River basin contains 8 species of crayfish and many aquatic insect groups, including pollution intolerant species that require clear, well-oxygenated, unpolluted streams. Unusual macroinvertebrates found in the Maramec Spring system include the cave crayfish (*Cambarus hubrichti*) and a caddisfly, *Glyphopsyche missouri* Ross. The cave crayfish inhabits the subterranean spring system while Glyphopsyche missouri is found in the spring branch. Maramec Spring is the only known location of *Glyphopsyche missouri* in the world.

Major goals for the Meramec River watershed are improving water quality, improving riparian and aquatic habitat conditions, maintaining diverse and abundant populations of native aquatic organisms and sportfish, providing for a high level of recreational use, and increasing public appreciation for the stream resources. Cooperative efforts with other resource agencies on water

quality, habitat, and watershed management issues will be critical. Enforcement of existing water quality and other stream-related regulations and necessary revisions and additions to these regulations will help reduce violations and lead to further water quality improvements. Working with related agencies to promote public awareness and incentive programs and cooperating with citizen groups and landowners will result in improved watershed conditions, better water quality, and a healthier stream system.

Funded by:

U.S. Environmental Protection Agency

Prepared by:

Todd J. Blanc, Fisheries Biologist, Missouri Department of Conservation, Sullivan, Missouri and Mark Caldwell and Michelle Hawks, Fisheries GIS Specialist and GIS Analyst, Missouri Department of Conservation, Columbia, Missouri, November 1998

Contributors include:

Andrew Austin, Ronald Burke, George Kromrey, Kevin Meneau, Michael Smith, John Stanovick, Richard Wehnes

Reviewers and other contributors include:

Sue Bruenderman, Kenda Flores, Marlyn Miller, Robert Pulliam, Lynn Schrader, William Turner, Kevin Richards, Matt Winston

For Additional Information Contact:

St. Louis Regional Fisheries Biologists at 2360 HWY D, St. Charles, MO 63304

Table of Contents