



NONPOINT SOURCE SUCCESS STORY

Mississippi

Implementing Best Management Practices Restored the Biological Integrity of McCall Creek

Waterbody Improved

The Mississippi Department of Environmental Quality (MDEQ) placed McCall Creek (Waterbody ID: MS461E) on the state's 1998 Clean Water Act (CWA) section 303(d) list of impaired waters for aquatic life use. A revision of the state's watershed boundaries split the original impaired reach into an upstream segment and a downstream segment located in two watersheds. Implementing best management practices (BMPs) through the U.S. Department of Agriculture Natural Resource Conservation Service (NRCS) program helped to decrease sediment entering streams from contributing land use activities. As a result of the BMPs, impacts from sediments were reduced, and the water quality in McCall Creek improved. In 2022, McCall Creek was included in the state's CWA section 303(d) list as a total maximum daily load (TMDL) success due to reaches assessed as attaining; it was also assessed as attaining aquatic life use in the state's 2022 CWA section 305(b) report.

Problem

The upstream segment (Waterbody ID: 606411) of McCall Creek is in the Beaver Creek-McCall Creek watershed (HUC 080602050102) in Mississippi's Lincoln County, and the downstream segment (Waterbody ID: 606611) is in the Beaver Run Branch-McCall Creek watershed (HUC 080602050104) in Mississippi's Franklin County. These watersheds are within Mississippi's South Independent Streams drainage basin and span approximately 35,756 acres. Combined land use within the two watersheds comprises 70% forest, 15.3% pasture/grassland, 4.3% urban, 8% scrub-barren, 2.3% wetland, and less than 1% water (Figure 1).

McCall Creek runs through the center of the watersheds and serves as the primary receiving stream. MDEQ routinely uses biological community data to determine if streams are healthy enough to support a balanced aquatic community. McCall Creek (Waterbody IDs: 606411, 606611) was monitored as part of Mississippi's biological monitoring program. Using MDEQ's index of biological integrity, the Mississippi Benthic Index of Stream Quality (M-BISQ), McCall Creek scored below the attainment threshold used to assess aquatic life use for this region of the

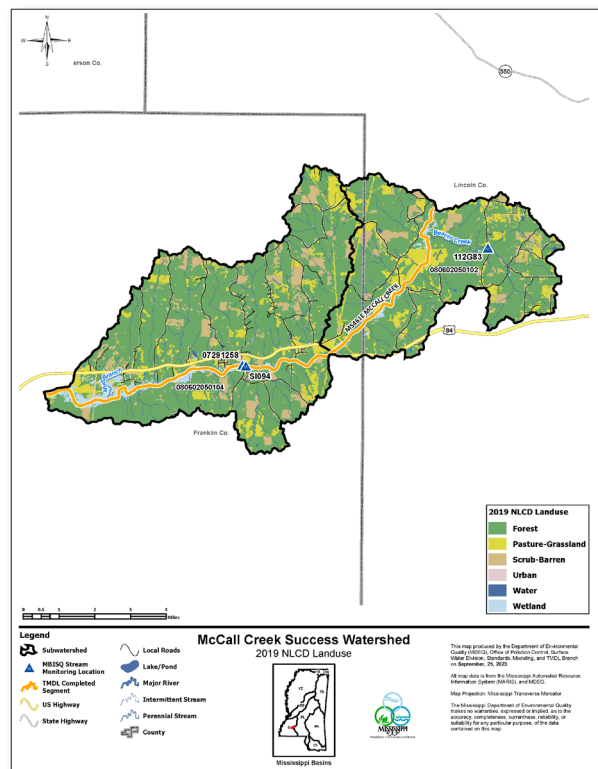


Figure 1. The Beaver Creek-McCall Creek and Beaver Run Branch-McCall Creek watersheds are in southwest Mississippi.

state. MDEQ placed McCall Creek on the state’s 1998 CWA section 303(d) list of impaired waters for aquatic life use impairment. Upon additional investigation, it was determined that excessive sedimentation was causing the impairment. As a result, MDEQ developed a sediment TMDL for McCall Creek in 2009 that called for a reduction in sediment delivered to the stream.

Story Highlights

The Environmental Quality Incentives Program (EQIP) is a voluntary conservation program offered by NRCS. The EQIP program provides financial and technical assistance to agricultural and forestry producers to address natural resource concerns and deliver environmental benefits such as improved water and air quality, conserved ground and surface water, reduced soil erosion and sedimentation, and improved or created wildlife habitat. NRCS, the Franklin and Lincoln soil and water conservation districts (SWCDs), and local producers worked together in 2007–2016 to implement BMPs, including heavy-use area protection, watering facilities, tree/shrub establishment, pasture and hayland planting, forest site preparation, and fencing in the Beaver Creek-McCall Creek and Beaver Run Branch-McCall Creek watersheds (Figures 2 and 3).

Results

The upstream segment of McCall Creek was sampled in 2011 and scored 8 points above the M-BISQ attainment threshold. In 2016, MDEQ returned to McCall Creek to collect biological community data at the downstream segment. The M-BISQ data was 43 points above the attainment threshold used to assess aquatic life use support for this region. Using this biological community data, both segments of McCall Creek were assessed as attaining aquatic life use and were listed as a success in the state’s CWA section 303(d) list in the 2022 cycle (Table 1). McCall Creek was also assessed as attaining aquatic life use in the state’s 2022 CWA section 305(b) report.



Figure 2. A watering facility and heavy-use area protection BMP.



Figure 3. A fencing BMP installed in the watershed.

Partners and Funding

Restoring McCall Creek was a collective effort between NRCS, the Mississippi Soil and Water Conservation Commission (MSWCC), the Franklin and Lincoln County SWCDs, and local producers. From 2007 through 2016, partners used nearly \$131,242 in the Beaver Creek-McCall Creek and Beaver Run Branch-McCall Creek watersheds. MDEQ worked with NRCS, MSWCC, and partners to evaluate existing water quality information and data to measure environmental improvements from implementing conservation practices. This evaluation linked actions with outcomes resulting in better water quality in McCall Creek.

Table 1. M-BISQ data for the upstream and downstream segments of McCall Creek (2002–2016).

Station	Collection Year	Score	Threshold	Calibration	Points From Threshold
SI094	2002	43.9	57.55	Calibration 1	-13.65
SI094	2016	87.37	43.7	Calibration 3	+43.67
112D27	2011	60.62	52.3	Calibration 2	+8.32



U.S. Environmental Protection Agency
Office of Water
Washington, DC

EPA 841-F-24-001M
April 2024

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