



# NONPOINT SOURCE SUCCESS STORY

## Mississippi

### Implementing Conservation Practices Reduced Polluted Runoff and Restored the Biological Integrity of McKinley Creek

#### Waterbody Improved

Sedimentation and organic enrichment from agricultural, silvicultural and cattle activity impacted water quality in

Mississippi's McKinley Creek. As a result, the Mississippi Department of Environmental Quality (MDEQ) placed McKinley Creek on the state's 1998 Clean Water Act (CWA) section 303(d) list for aquatic life use impairment. Implementing best management practices (BMPs) as part of the Luxapalila/Yellow Creek Demonstration Project and Buttahatchee Watershed Restoration Project significantly reduced sediment and nutrients entering McKinley Creek. As a result, a 13.5-mile segment of McKinley Creek was assessed as attaining the aquatic life use in the state's 2014 CWA section 305(b) report and was removed from the impaired waters list.

#### Problem

McKinley Creek is in the 36-square-mile Wilson Creek-McKinley Creek Watershed (HUC 031601011403) in northeastern Mississippi's Monroe County. The watershed spans approximately 36 square miles, and is comprised primarily of forestland and pastureland (Figure 1). Pollution sources in McKinley Creek included sedimentation from silvicultural and agricultural practices, organic enrichment from agricultural processes, and livestock.

Biological community data are routinely used by MDEQ to determine if streams are healthy enough to support a balanced aquatic community. McKinley Creek (Waterbody ID: MS804011) was monitored in 2001 as part of Mississippi's biological monitoring program. Using MDEQ's index of biological integrity, the Mississippi Benthic Index of Stream Quality (M-BISQ), McKinley Creek scored 54, less than the assessment threshold of 57 required to attain aquatic life use support for this region. Therefore, McKinley Creek's original 1998 listing as *not attaining aquatic life use* due to pesticides, nutrients, siltation and organic enrichment/low dissolved oxygen (based primarily on review of anecdotal information and no monitoring data) was updated to *not attaining aquatic life use* due to biological impairment. According to a Stressor Identification Report generated for McKinley Creek in 2006, causes of the biological impairment to the creek were attributed to sediment.

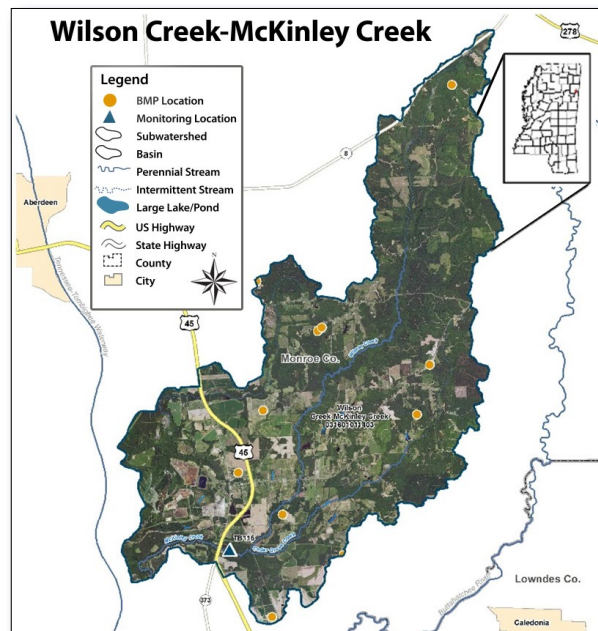


Figure 1. The Wilson Creek-McKinley Creek subwatershed is in northeastern Mississippi.

#### Project Highlights

Between 2001 and 2007, MDEQ partnered with the Mississippi Soil and Water Conservation Commission, the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) and the Monroe County Soil and Water Conservation District to implement the Luxapalila/Yellow Creek Demonstration Project



Farmers implemented multiple practices to reduce polluted runoff, including adopting conservation tillage to control soil erosion (top), implementing prescribed grazing to achieve vegetation management goals (middle), and conducting pasture and hayland planting to protect soil and provide livestock forage (bottom).

(2001–2004) and the Buttahatchee Watershed Restoration Project (2004–2007). BMP installations within the McKinley Creek area began in 2003 and concluded in 2006. Supported with CWA section 319 funds, the implemented BMPs included 1,688 acres of conservation tillage, 476 acres of pasture and hayland planting, 421 acres of prescribed grazing, and 647 acres of integrated crop management (see photos, left). A total of 16 practices were installed covering approximately 3,232 acres and saving an estimated 112 tons of soil per year.

## Results

In 2011 MDEQ returned to the original sampling location in McKinley Creek to collect biological community data. The score was 67.43, above the updated assessment threshold of 65.7 required to attain aquatic life use support for this region. Using this 2011 data, a 13.5-mile segment of McKinley Creek was assessed as attaining the aquatic life use in the 2014 CWA section 305(b) report and was removed from the state's impaired waters list.

## Partners and Funding

The restoration of McKinley Creek was a collective effort between the Mississippi Soil and Water Conservation Commission, MDEQ, U.S. Environmental Protection Agency, NRCS and the Monroe County Soil and Water Conservation District. The total cost of the overall Luxapalila/Yellow Creek Demonstration Project and Buttahatchee Watershed Restoration Project was \$766,667, of which \$460,000 was CWA section 319 funding. Participating state and local stakeholders contributed a total of \$306,667 towards implementing these two watershed projects.



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