



Section 319

NONPOINT SOURCE PROGRAM SUCCESS STORY

Alabama

Best Management Practices, Public Outreach Help River Recover from Impairments

Waterbody Improved

Runoff from agricultural activities and urbanization contributed to organic enrichment and dissolved oxygen (DO) impairments in the lower mainstem of the Flint River in Alabama. The implementation of best management practices (BMPs) and stakeholder education and outreach enhanced water quality and helped the Flint River meet the water quality standards associated with its designated water use classifications. As a result, the Alabama Department of Environmental Management (ADEM) expects to remove a 28-mile segment of the Flint River from the state's 2006 303(d) list of impaired waters.

Problem

Originating in Tennessee, the Flint River flows south through Madison County, Alabama, before joining the Tennessee River. Data collected during the mid-1990s revealed that a 28-mile segment of the Flint River was not meeting its designated water use classifications as a public water supply and fish and wildlife resource. Consequently, the segment was placed on Alabama's 1998 303(d) list of impaired waters for organic enrichment and low dissolved oxygen.

ADEM variously listed the sources of water quality impairments as unknown in 1998, agriculture in 2002, and agriculture/urban runoff in 2004.

Project Highlights

ADEM used a section 319 grant to reduce the cumulative effects of nonpoint source pollution. Between 2001 and 2003, federal, state, and local agencies teamed with local landowners to implement numerous agricultural BMPs, including

- winter cover and conservation tillage on 2,000 acres
- livestock BMPs (e.g., stream crossings, alternative watering facilities, exclusion fencing, rotational grazing plans) on 10 farms encompassing 400 acres



Exclusion fencing was installed to limit cattle's access to creeks, and alternative watering sources were constructed at eight different locations.

- cropland conversion of 10 acres
- heavy-use protection areas on 13 sites
- annual soil tests and nutrient management plans covering 300 acres

Partners also led numerous education and outreach activities, including stream cleanups, presentations at local schools, landowner/public meetings, and field days. The local news media's coverage helped outreach efforts.



Volunteers who live, work, and recreate in the area supported stream cleanup efforts throughout the watershed.

Results

Between March and October of both 2003 and 2005, ADEM collected dissolved oxygen data at three sites on the impaired segment of the Flint River. The agency also collected continuous dissolved oxygen data at two of the sites during July 2005.

As shown in the following table, only two monthly measurements (4.6 mg/L and 4.97 mg/L) fell below the state minimum criterion of 5.0 mg/L for the public water supply and fish and wildlife designated water use classifications. Furthermore, none of the continuous

Station	Type of data	# of samples	DO < 5 mg/L
FLIM-5	Water column	17	0
FLIM-6	Water column	17	1
	Continuous	217	0
FLIM-7	Water column	17	1
	Continuous	216	0

Project leaders measured water column dissolved oxygen concentrations at three stations during separate 8-month periods in 2003 and 2005. In addition, continuous dissolved oxygen monitoring occurred at two stations in July 2005. Only two water column samples showed concentrations below the water quality standard of 5 mg/L.

dissolved oxygen measurements were below the minimum criterion.

ADEM's assessment methodology stipulates that conventional water quality parameters, including dissolved oxygen, may not exceed water quality standards more than 10 percent of the time in waterbodies designated as public water supply and fish and wildlife resources. The data demonstrate that this 28-mile segment of the river now meets this requirement. As a result, ADEM has proposed that the segment be removed from the state's 2006 303(d) list of impaired waters. The next scheduled monitoring year for the segment is 2008.

Partners and Funding

ADEM provided \$250,000 in section 319 funding to support a watershed coordinator and to implement BMPs. Other stakeholders—including the Madison County Soil and Water Conservation District, the U.S. Department of Agriculture–Natural Resources Conservation Service, the Tennessee Valley Authority, the Flint River Conservation Association, and the City of Huntsville—contributed \$331,000 in nonfederal matching funds. The total project cost was \$581,000.



Sediment loading in the watershed was reduced by implementing conservation tillage and planting cover crops on approximately 2,000 acres.



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