



NONPOINT SOURCE SUCCESS STORY

Kentucky

Watershed Planning and Collaboration Efforts Reduce Sedimentation in Floyds Fork

Waterbody Improved

The Kentucky Division of Water (DOW) added a 9.9-mile segment of Floyds Fork (mile 24.2–34.1) to the 2006 Clean Water Act (CWA) section 303(d) List/Integrated Report as impaired for warm water aquatic habitat (WAH) due to sedimentation and siltation. Suspected contributing nonpoint sources of siltation include agriculture and land development in the five HUC-12 watersheds draining to this segment of Floyds Fork. After years of watershed planning, stream restoration and agriculture best management practice (BMPs) installation in the Floyds Fork watershed, water quality monitoring revealed significant improvement by 2012. As a result, DOW delisted this segment of Floyds Fork for the WAH designated use in the 2016 Integrated Report to Congress.

Problem

The Floyds Fork watershed is a large and complex system in the Outer Bluegrass and Knobs regions of central Kentucky that drains into the Salt River (Figure 1). Floyds Fork is approximately 64 miles long and drains a 284-square-mile watershed including forested, agricultural and developed lands in Henry, Bullitt, Shelby, Jefferson, Oldham and Spencer counties. The delisted segment of Floyds Fork (miles 24.2–34.1) drains six subwatersheds and is in the 38.7-square mile Cane Run–Floyds Fork watershed.

The Floyds Fork watershed has been the subject of significant evaluation, including a 1991 DOW water quality study, a 2003 DOW mussel survey, a 2008 partial Floyds Fork watershed plan, a U.S. Environmental Protection Agency (EPA)-accepted watershed plan for the Currys Fork (2011) subwatershed, and EPA-approved total maximum daily loads for dissolved oxygen (1997) and bacteria (2014). In 2012, DOW reclassified this stream segment from *nonsupport* to *partial support* for its WAH designated use. However, the stream remained impaired by sediment; suspected sources included agriculture and land development.

Story Highlights

The CWA section 319(h) program funded a partial watershed plan for the 284-square mile Floyd's Fork watershed that includes the now-delisted segment. Additionally, 319(h) program funding supported

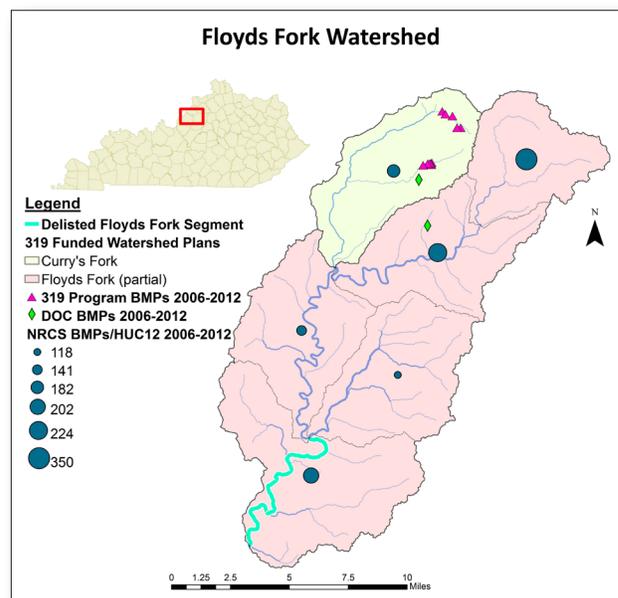


Figure 1. Floyds Fork is in central Kentucky.

development of the EPA-approved Currys Fork watershed plan (HUC 051401020804), located upstream of the delisted segment. The Currys Fork watershed plan facilitated over 3,700 linear-feet of stream channel restoration, 1,695 acres of riparian forest buffer and 1,020 feet of riparian vegetative buffer. These practices reduced sediment loss to Floyds Fork by 239.7 tons/year in 2012 alone (Figure 2).

The 38.7-square-mile Cane Run–Floyds Fork watershed containing the delisted segment received funding from the Natural Resources Conservation Service

(NRCS) for 202 agricultural BMPs on 2.6 square miles of farmland between 2006 and 2012. Combined with the other five watersheds upstream of the delisted stream, NRCS funded 1,217 agriculture BMPs on nearly 28 square miles of farmland (see Figure 1). BMPs included cover crops, contour farming, critical area planting and grassed waterways. The Kentucky Division of Conservation (DOC) also funded heavy use feeding areas in the Lick Fork–Floyds Fork and Currys Fork watersheds upstream of the delisted stream. Heavy use feeding areas help manage livestock mud that contributes to stream sedimentation.

Results

Sedimentation in the Floyds Fork segment decreased due to the implementation of agriculture BMPs and upstream stream restoration projects. Aquatic biological sampling in 2012 by DOW revealed an *excellent* Macroinvertebrate Bioassessment Index (MBI) score (76.6 MBI) and a *good* Kentucky Index of Biotic Integrity (KIBI) fish score (49 KIBI). These scores represent improvement over 1999 aquatic biological sampling, which had revealed *fair* scores at river miles 32.6 (53 MBI) and 27.3 (49 MBI). The 2012 data show that the 9-mile segment now fully supports its WAH designated use and is no longer impaired for sediment/siltation. As a result, DOW removed Floyds Fork (river miles 24.2–34.1) from the impaired waters list in the 2016 Integrated Report.

Partners and Funding

In addition to EPA and DOW, key partners in the watershed-related efforts include the NRCS, Kentucky DOC, the Oldham County Fiscal Court, the Kentucky Department of Fish and Wildlife Resources (KDFWR), local watershed groups and the University of Louisville Stream Institute. The NRCS was the driving agency in the implementation of the agricultural BMPs, providing funding and technical resources. The Currys Fork Watershed Association, Kentucky Waterways Alliance, and Floyds Fork Environmental Association facilitated the collection of monitoring data and community



Figure 2. A site upstream of delisted Floyds Fork segment, before and after restoration.

involvement to identify watershed needs. The Oldham County Fiscal Court maintains a watershed coordinator to direct projects in the Curry's Fork watershed. DOC funded agricultural BMP installation (\$15,427) through utilization of state cost-share dollars.

CWA section 319(h) grants supported numerous monitoring, implementation and watershed planning activities, including a 2003 Floyd's Fork mussel survey (\$135,750), the Floyd's Fork watershed plan (\$216,953), monitoring of urban stormwater in the Floyd's Fork watershed (\$244,000), and the Currys Fork watershed plan and implementation (\$970,500). Additional section 319(h) grants supported the University of Louisville's research on sediment loading (\$362,579) and development of a stream restoration manual (\$372,408) using data from the Floyd's Fork watershed. KDFWR's In-Lieu Fee Mitigation Program invested over \$878,000 into stream restoration activities in the watershed. The DOW's Nonpoint Source and Basin Team Section provided technical assistance for these projects and facilitated NRCS, DOC and KDFWR funding throughout the watershed.



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For additional information contact:

Josiah Frey
Kentucky Division of Water
502-782-0164 • josiah.frey@ky.gov