

Seeman says that one of these focus areas is a tributary called Brushy Fork Creek. “One limitation of a certified sampler route is that it is on a set schedule for logistical purposes.

However, here at Brushy Fork Creek, we’ve allowed ourselves some flexibility in order to monitor at specific times in relation to rainfall, temperature, flow, or crop cycle. We have monitored this site since 1999, so we have data from both wet and dry years.

The very beginning of the creek is a series of several tile lines that feed higher nitrate groundwater than we might see farther downstream. With this type of sampling we aren’t surprised to find high values. As we move down the watershed, there are also sedimentation pools that provide a suitable environment for *E. coli* survival between rain events.

These observations reinforce the dynamic nature of watersheds. Often in addressing a pollutant of concern we are forced a trade off on another contaminant because so much depends on the mode of transport — nitrate flows from tile lines while *E. coli* and phosphorous are associated with surface runoff. A reduction in one can be offset by an increase in the other. Based on our experience with the Brushy Fork Creek site, we have established another 15 sites of interest.

## TMDL Plan for Raccoon River

Concerns over multiple impairments in the Raccoon led to the watershed being selected by the Iowa Department of Natural Resources (IDNR) for preparation for a Total Maximum Daily Load (TMDL) plan for the Raccoon River in 2007. One of the primary objectives of the TMDL is to reduce nitrogen loading to the river to meet water quality standards and attain non-impaired resource use.

ACWA data was included in water quality models in the TMDL plan development process, with subwatershed areas within the North Raccoon identified as high priority for additional planning and programs.

Targeted projects at sub watershed scales are getting started or are already underway, including efforts, involving:

- planning at both the individual farm scale and at larger sub watershed scales,
- modeling of surface water,
- additional technical and financial assistance provided to local farmers,
- implementation of Best Management Practices and more intensive monitoring, and
- evaluation and research of farming systems and impacts upon water quality.

The initiation of the TMDL process by the IDNR is a milestone in the Raccoon River Watershed. It illustrates the scope of the problem and highlights places where additional action is needed. ACWA members have voiced their support of thoughtful and systematic approaches for making progress on water quality.

While the TMDL will likely have fairly significant impact for the permitted facilities in the Raccoon River, much of the targeted reduction in nitrate load (48%) will undoubtedly need to come from the non-point source community – which depends on voluntary actions. The TMDL begins to shed light on a pathway to achieve performance gains.

### The TMDL process | the basics

Ultimately, because TMDLs are a community issue, Raccoon River watershed farmers and ag retailers are going to add ‘TMDL’ to their farm management vocabulary in the next couple years. The ultimate goal is to improve water quality and remove the Raccoon River from the state’s impaired waters list.

A TMDL (Total Maximum Daily Load) is the maximum amount of a pollutant that can be ‘loaded’ into a stream or lake in one day without sending that water body over the maximum allowable threshold and into violation of established water quality standards.

TMDLs were originally established

for industry — for ‘point sources’ like a discharge pipe. The idea was to regulate what came out of the pipe and hold the pipe owner accountable for meeting the standard. Creating a TMDL in Iowa’s farming-dominated watersheds is going to be different from regulating discharge pipes, because farm runoff finds its way into waterbodies through many pathways from a wide area. It’s ‘non-point source pollution.’

In a non-point-source environment, responsibility for TMDLs falls on the shoulders of everyone in the watershed — farmers, ag retailers, municipalities and individuals are all

included. Because of its water monitoring program and data collected, and its network of relationships with farmers in the watershed, ACWA can provide a jump-start on the process in the Raccoon River watershed. For more information on TMDLs:

- <http://www.epa.gov/owow/tmdl/>
- <http://www.iowadnr.com/water/watershed/tmdl/index.html>

