Clean Water starts with you

Big Sioux River

Pollutant: *Bacteria*

Pollution Sources: *Human and animal waste material*

The DNR tests waters throughout Iowa to make sure they are meeting state water quality standards. Those standards are in place to protect drinking water, aquatic life and recreational uses, like swimming. When a stream or lake doesn't meet those standards, the stream or lake is placed on the state's impaired waters list. The DNR then creates a plan which outlines ways Iowans can help improve the water quality in their community's lakes and streams.

DNR needs your input

Every Iowan needs the help of their fellow citizens and watershed groups to improve water quality in their community. If you or your group would like to meet with a DNR staff member to discuss water quality, please contact Chris Van Gorp at (515) 281-4791 or Chris.VanGorp@dnr.state.ia.us

DNR

For more information on water quality improvements plans (TMDLs), please visit www.iowadnr.com/water/tmdlwqa/ .

What's wrong with the Big Sioux River?

Pollution from human and animal waste, also known as fecal matter, keeps the river from meeting its state-designated standards. Untreated waste from these sources can carry disease-causing microorganisms, called pathogens, into the water. These pathogens can make people sick.

Testing for *E. coli* bacteria levels can indicate if there may be fecal matter and disease-causing pathogens present in the water.

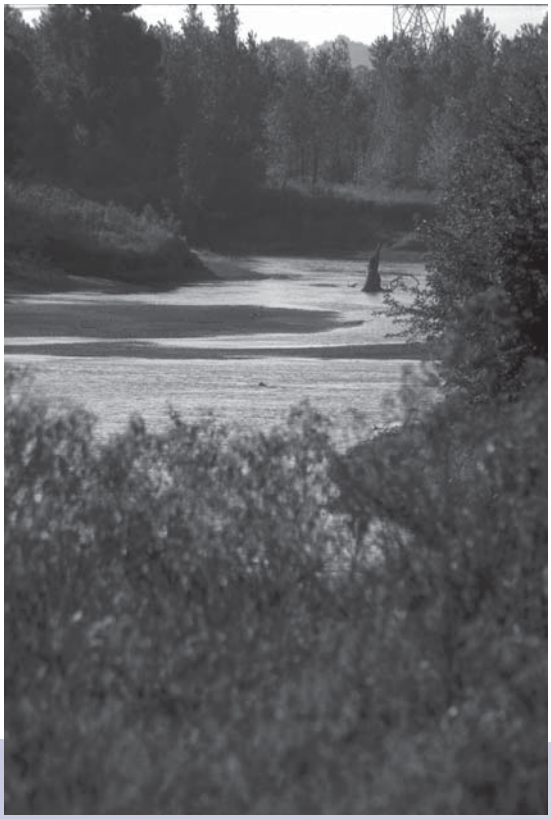
The impaired segment of the Big Sioux River is between Ninemile Creek in Lyon County and Broken Kettle Creek south of Westfield in Plymouth County. That's almost a 110-mile stretch of the river.

However, it's necessary to improve water quality in the entire watershed, which also covers part of South Dakota and Minnesota, to maintain water quality in the river along the impaired segment.

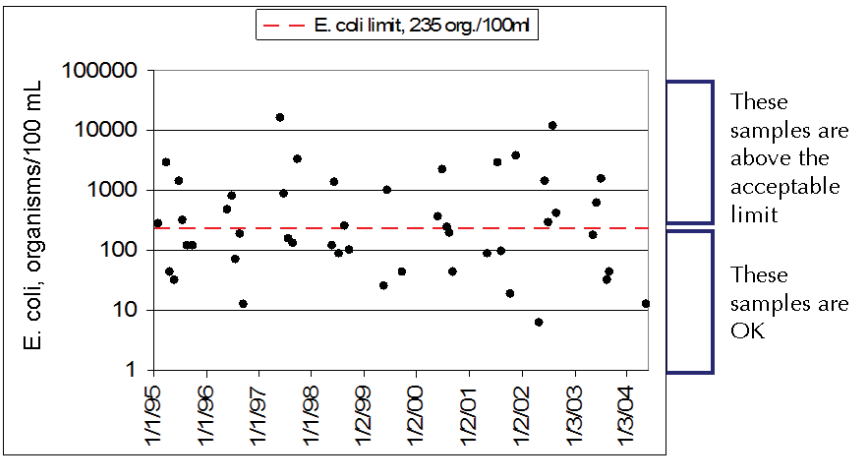
What is causing the problem?

Most pollution in the Big Sioux River watershed (the area of land that drains into the river) comes from nonpoint sources, or sources that are not easily traced back to a specific "point," like a wastewater treatment or industrial plant.

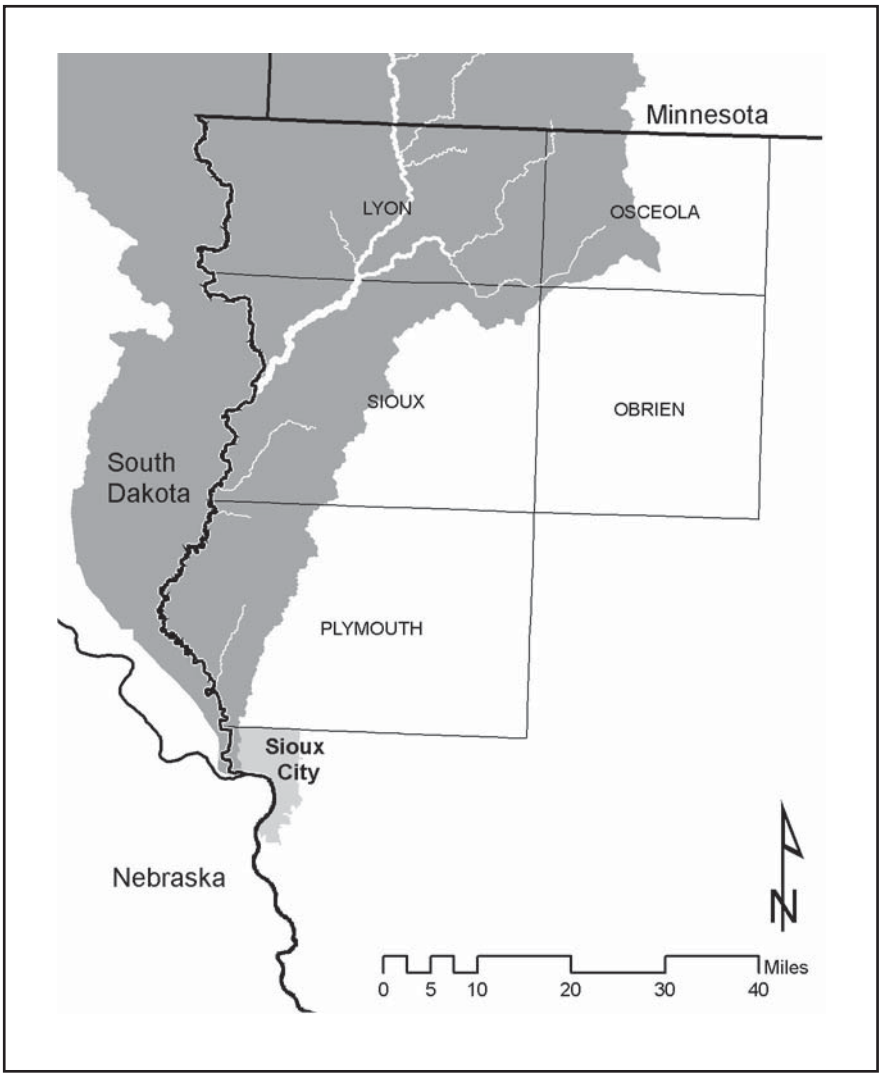
In the Big Sioux River watershed, nonpoint sources include areas used to land-apply manure, and improperly connected or failing septic systems. Rainwater and snowmelt can wash waste from livestock (confined and pastured), pets and wildlife into the river.



The Big Sioux River flows through Gitchie Manitou State Preserve in northwest Iowa.



The above chart shows the average bacteria levels in the Big Sioux River. All the samples, shown above as dots, were taken from one sampling site. Dots above the dashed line represent bacteria samples over an acceptable limit.



The map above shows the Big Sioux River watershed shaded in gray. A watershed is an area of land that drains into a body of water. In this case, all land shaded in gray drains into the Big Sioux River.

To reduce the amount of fecal matter reaching the river, changes in waste and land management will be needed. It will take time to make these changes and to see the effects.

What can be done to improve the Big Sioux River?

The ultimate goal is to improve water quality and remove the river from the state's impaired waters list. To do that, sources of human and animal waste need to be cleaned up in the watershed.

Using research results and with the help of the public, the DNR has developed a water quality improvement plan (also known as a TMDL, or total maximum daily load). The plan will help reduce the amount of pollutants reaching the Big Sioux River. A water quality improvement plan is a suggestion to local communities on how they can improve their area's water quality.

While the DNR has done the background research and can provide some technical and funding assistance, it is ultimately up to the watershed residents and businesses to take action and clean up the river.

The DNR has suggested the following conservation practices for the Big Sioux River watershed:

♦ Control livestock manure runoff.

♦ Limit cattle access to streams and explore other water sources for cattle.

♦ Improve manure application activities and reduce soil erosion.

♦ Find and replace improperly connected or failing septic systems. An estimated 90 percent of rural homes in the Iowa portion of the watershed have unpermitted septic systems with improper hookups.