



News Release

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U.S. Geological Survey

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Editors- Photographs are available at: <http://sd.water.usgs.gov/pressrelease/LittleWhiteGallery.html>

Suspended Sediment Concentrations in the Little White River in Todd County Linked to Geologic Conditions by USGS

During 2002-2003, USGS scientists and Rosebud Sioux Tribe Water Resources Department technicians sampled the Little White River to better understand the water-quality and biological conditions of the Little White River. The State of South Dakota lists the section of the Little White River upstream from Rosebud to the confluence of the White River as impaired because it does not meet beneficial use standards for total suspended solids and fecal coliform bacteria. Laboratory results reveal that concentrations of suspended sediments exceed the standard 45 to 82 percent of the time. Fecal coliform bacteria concentrations generally were less than established standards, except after storm events.

“Neither land use nor riparian health appear to be driving the high sediment concentrations. Geology is the key,” said Joyce Williamson, a scientist with the U.S. Geological Survey in Rapid City.

The geology along the Little White River in Todd County changes from windblown sand deposits to the Ogallala Formation (a sandstone unit) in the reach between the Bennett/Todd County line and near but upstream from its confluence with Rosebud Creek. Sediment concentrations increase in both the Little White River and its tributaries in this reach. Sediment size also increases in this reach from fine silt to sand as a result of larger particle sizes in the Ogallala Formation.

Fecal coliform bacteria typically are not disease causing, but are correlated to the presence of several waterborne disease-causing organisms. This type of bacteria generally is found in the intestinal tract of humans and warm-blooded animals, and its presence in water indicates fecal pollution. “The sampling for this study did not attempt to distinguish the source of the fecal coliform,” Williamson said.

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Biological sampling of the Little White River was conducted at three sites along the Little White River in Todd County. The most upstream site was near the Todd/Bennett County line, the middle site was just upstream from the confluence of Rosebud Creek, and the most downstream site was near the Todd/Mellette County line. Sample results revealed that stream health generally decreased between the Todd/Bennett County line and the site upstream from Rosebud. Stream health generally increased between the sampling site upstream from Rosebud and the Todd/Mellette County line. Results generally followed the same pattern as sampling conducted by the Rosebud Sioux Tribe in 1996.

A copy of the USGS report describing the results of the sampling can be accessed at <http://pubs.usgs.gov/sir/2005/5267/> or can be purchased by calling 1-888-ASK-USGS.

Additional information about the USGS water-resources studies in South Dakota can be obtained by visiting the USGS South Dakota Water Science Center home page at <http://sd.water.usgs.gov/>.

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