



Sheyenne River Geomorphology Study

Several measures are being studied by the U.S. Army Corps of Engineers (St. Paul District) to alleviate flooding due to the lake level rise of Devils Lake in North Dakota. One of the measures under consideration is a diversion of water from Devils Lake to the Sheyenne River, a tributary to the Red River of the North.

WEST was tasked to examine the geomorphology of approximately 500 miles of the Sheyenne River and to infer how the river will behave under six future scenarios: two hydrologic conditions with three pumping schemes under each (including one no-pump future). Preliminary analyses prepared by the Corps were first reviewed and critiqued. Based on this review, additional analyses were identified for a full geomorphic study. Tasks identified and completed include aerial photograph and map interpretation, regime equation and stable channel design (including identification of dominant discharge), and determination of characteristics of the hydraulic geometry of stable stream channels. Effects of the hydrologic scenarios on riparian vegetation were analyzed. Channel geometry and erosion rates were predicted for key reaches of the Sheyenne River for each of the future scenarios.

The results of this study will help the Corps to assess the feasibility of proposed project options and to prepare environmental documentation.



Sheyenne River, North Dakota

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Completion Date: *December 2001*