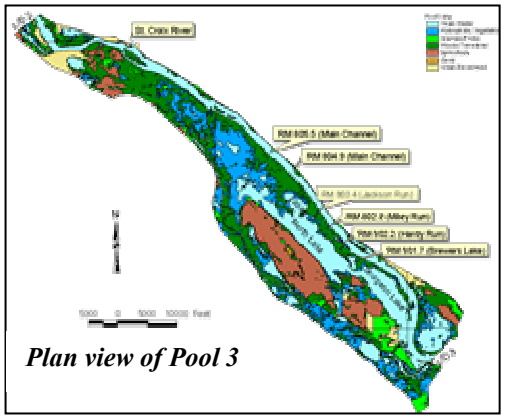
IDIQ for St. Paul Corps of Engineers

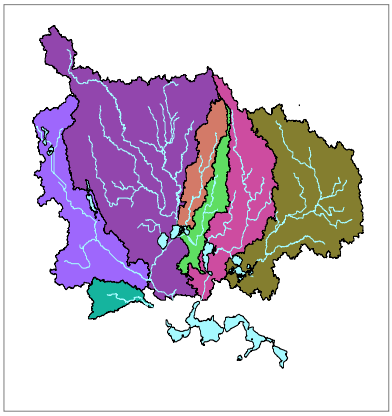
WEST has completed a variety of work orders for the St. Paul District of the Corps of Engineers IDIQ contract. They include (1) a 2-D model of Pool 3 on the Upper Mississippi River, (2) Devil's Lake Upper Basin Storage, (3) a 2-D model of the lower part of Pool 4, (4) a sediment study of the Sheyene River, (5) and basin studies of the Minnesota River and Red River drainages, using HMS. Two task order projects are described in detail,



Plan view of Pool 3

Pool 3 (River Miles 796.9 to 815.2) of the Upper Mississippi River requires annual dredging to maintain a navigable channel. WEST Consultants, Inc. performed a two-dimensional numerical modeling study to identify river modifications that would optimize navigation channel maintenance, improve fish and wildlife habitat, and enhance recreational opportunities.

The work performed for the U.S. Army Corps of Engineers, St. Paul District, consisted of developing a two-dimensional hydrodynamic model (RMA-2) of the existing conditions in Pool 3, from Lock & Dam 2 (L&D2) to Lock & Dam 3 (L&D3). The District, in consultation with natural resource agencies, developed three preliminary design alternatives to be simulated using the two-dimensional hydrodynamic model. Each alternative could contain several river modifications, assuming that river modifications made in one sub reach do not affect conditions in other areas of the Pool. This allowed one model simulation to evaluate up to three river modifications considered for the Pool. District staff then examined output from the three preliminary alternatives, and one final alternative was developed and simulated with the model.


Upper Basin of Devil's Lake, ND

Devils Lake is a terminal lake in the Prairie Pothole region of eastern North Dakota with 3,810 square miles of contributing watershed area. A rapid increase in water surface elevation at the lake since 1993 has caused significant flooding in the nearby community. WEST Consultants, Inc., is conducting a hydrologic modeling study to determine the effect of upper basin storage alternatives on lake water surface elevation. The first phase of this work for the U.S. Army Corps of Engineers, St. Paul District, included a familiarization study to obtain and review previous studies and meet with knowledgeable agency representatives. Meetings were held to receive input from the U.S. Geological Survey, the U.S. Fish and Wildlife Service, the North Dakota State Water Commission, the State Geological Survey, the U.S. Bureau of Reclamation, and other agencies and university professors.

The second phase of this study is the development of a physically-based hydrologic model to evaluate the effect of restoring drained depressions on the water surface of Devils Lake under various hydrologic simulations. At issue in this region is the conflict between competing land uses for the depressions, either agricultural or traditional wetland use. The utility of the modeling being conducted by WEST Consultants, Inc., is that it presents a fair representation of the hydrologic processes involved, including storage, evaporation, evapotranspiration, infiltration, and runoff from the depressions. Both rain and snowmelt make up the precipitation in this region. The extensive use of digital elevation models, Geographic Information System (GIS), and hydrologic modeling is included in this study.

Project Owner: ***Completion Date:*** *2002*

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