Fact Sheet

LOWER PLATTE RIVER ICE JAM STUDY

PROBLEM

Recurring ice jams within the lower Platte River Basin, which includes the Loup River, the Elkhorn River, and the Platte River below Columbus, Nebraska, have resulted in severe flooding. The March 1993 ice jam flood event included several ice jams, most notably the Loup River in Columbus, and the Platte River below its confluence with the Elkhorn River. This event caused over $25 million in damages, including road closures, road failures, flooding of residential, agricultural, and industrial areas, and damage to levees, dikes, and other river training structures. At Ashland, two major levee breaks resulted in the flooding of 14,000 acres of farmland along the river. More than 74,000 acres were damaged by extensive sediment deposits during the flooding.

The 1993 event was the most damaging ice event since February 1978, when ice jam flooding resulted in one death and over $18 million in damages. Flooding was particularly severe in the Valley-Fremont area during 1978 as a result of a levee break that flooded 27,000 acres.

SOLUTION

A FEMA Interagency Hazard Mitigation Team review of the March 1993 ice jam flood event recommended that the Corps of Engineers undertake a comprehensive study of ice jams in the Lower Platte River Basin for the purpose of developing guidance on ice jam mitigation methods for the area. The Omaha District and CRREL performed the study for the State of Nebraska under a program authorized by Section 22 of the Water Resources Development Act of 1974, as amended.

RESULTS

The study provided a valuable collection of information on past ice events. This information will be helpful in dealing with future ice events. It also led to the development of an ice jam prediction model that will be tested and refined over the course of the next several years.

A network of ice observers was organized to feed data into a newly developed data collection system involving the State of Nebraska Natural Resources Commission and Civil Defense, the Omaha District, the USGS, and the National Weather Service. This system allows for consistent, real-time monitoring of the conditions that could lead to ice events, allowing emergency response personnel to take effective actions. Advance, emergency, and long-term ice jam mitigation options were described, and specific recommendations were made for several sites in the study area.

CONTACT

Ms. Kathleen D. White
603-646-4187
kwhite@crrel.usace.army.mil

June 1995

US Army Corps of Engineers
Cold Regions Research & Engineering Laboratory

CRREL, 72 Lyme Road, Hanover, NH 03755-1290