

Preface

The work reported herein was conducted as part of the Upper Mississippi River-Illinois Waterway (UMR-IWW) System Navigation Study. The information generated for this interim effort will be considered as part of the plan formulation process for the System Navigation Study.

The UMR-IWW System Navigation Study is being conducted by the U.S. Army Engineer Districts of Rock Island, St. Louis, and St. Paul under the authority of Section 216 of the Flood Control Act of 1970. Commercial navigation traffic is increasing and, in consideration of existing system lock constraints, will result in traffic delays which will continue to grow into the future. The system navigation study scope is to examine the feasibility of navigation improvements to the Upper Mississippi River and Illinois Waterway to reduce delays to commercial navigation traffic. The study will determine the location and appropriate sequencing of potential navigation improvements on the system, prioritizing the improvements for the 50-year planning horizon from 2000 through 2050. The final product of the System Navigation Study is a Feasibility Report which is the decision document for processing to Congress.

The work for this interim effort was conducted as part of Environmental Work Unit 10, Effects of Navigation Traffic on Aquatic Plants, of the Upper Mississippi River-Illinois Waterway System Navigation Study. The work specifically addresses Task I, Resistance to Uprooting and Fragmentation. The study was monitored by Mr. Dan Wilcox, U.S. Army Engineer District, St. Paul, and Mr. Richard Fristik, U.S. Army Engineer District, Rock Island, with technical oversight by Dr. John W. Barko, Director, Center for Aquatic Plant Research and Technology, U.S. Army Engineer Waterways Experiment Station (WES), Vicksburg, MS, and Scientific Technical Director, National Biological Service, Environmental Management Technical Center, Onalaska, WI.

Principal Investigator for this study was Mr. Robert M. Stewart, Ecosystem Processes and Effects Branch (EPEB), Environmental Processes and Effects Division (EPED), Environmental Laboratory (EL), WES. The report was

prepared by Mr. Stewart, with contributions from Ms. Dwilette G. McFarland, EPEB, Mr. Donald L. Ward, Coastal Structures Branch (CSB), Navigation and Harbors Division (NHD), Coastal and Hydraulics Laboratory (CHL), WES, and Ms. Sandra K. Martin, Navigation Branch, NHD, CHL. Assistance with plant culture and conduct of the flume study was provided by Messrs. David Reid, ASaI Corporation, Vicksburg, MS, and Robby Godwin, WES. Meses. Mary E. McGregor and Sue Fox, ASaI Corporation, provided analytical assistance. Mr. Homer Greer, Operations Branch, Instrumentation Services Division (ISD), WES, provided materials and technical assistance for within-flume measurements of tensile loads on test plants, and Mr. David Daily, also of ISD, provided routine technical assistance with flume operation and instrumentation. Technical reviews were provided by Dr. John D. Madsen and Mr. John Skogerboe, EPEB.

This effort was performed under the general supervision of Dr. Richard E. Price, Chief, EPED, and Dr. John Harrison, Director, EL.

At the time of publication of this report, Director of WES was Dr. Robert W. Whalin. Commander was COL Robin R. Cababa, EN.

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