USGS

Ecological Status and Trends of the Upper Mississippi River System 1998

A Report of the Long Term Resource Monitoring Program

On the Cover

Aerial photographs taken in 1998 by staff of the Environmental Management Technical Center. Top to bottom, the Upper Impounded Reach, Lower Impounded Reach, and Unimpounded Reach of the Upper Mississippi River and the Lower Reach of the Illinois River. The photos illustrate some defining characteristics of each of the four reaches described in this report. In the top photo, extensive floodplain forest and braided channels typically found in the Upper Impounded Reach are shown. The next photo, of the Lower Impounded Reach, shows less floodplain forest and more cultivated land behind a prominent levee. The floodplain forest of the Unimpounded Reach, as seen in the third photo, is reduced even more and agriculture dominates both sides of the river. In addition to a levee, wingdams are evident—typical channel control structures in this reach. The bottom photo shows drastically reduced floodplain forests, restricted for the most part to narrow bands that border the narrow channel of the Illinois River and extensive cultivation behind agricultural levees.

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Dear Reader:

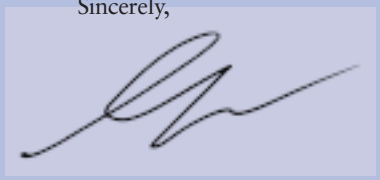
The Upper Mississippi River is valued as a natural, historical, cultural, commercial, recreational, and transportation resource. It is the only river system in the United States formally recognized by Congress as a nationally significant ecosystem and a nationally significant commercial navigation system. As part of this recognition, Congress mandated in the Upper Mississippi River Management Act of 1986 (33 USC 652), a Long Term Resource Monitoring Program. This *Ecological Status and Trends of the Upper Mississippi River System 1998* report is a milestone toward development of the science gathering recommendations of that Act.

The river supports a tremendous diversity and abundance of wildlife while providing for many economic and social needs. All too often, however, serving these needs has been at the expense of wildlife and a clean environment. As a result of the Clean Water Act, we have made steady progress in such things as reducing regulated point source pollutants to the river system. As this report points out, however, we still are faced with complex river management-related environmental problems. Habitat loss, sedimentation, and competition from nonnative species are disrupting the ecological conditions of the Upper Mississippi and Illinois Rivers. The effects of river regulation and modification to the river system watersheds and floodplains create challenges to the ecological health of the system. The great flood of 1993 vividly demonstrated that the river retains the ability to "reclaim" what we have borrowed.

To chart a course that ensures the opportunity for a high quality of life for river users, we must understand the progress made and the problems that remain. This report compares river health criteria with measured observations and, in the final chapter, conveys this comparison by a series of gauges that reflect stable, declining, or improving conditions. Accompanying the river assessments are a series of river forecasts. Despite the need for varying degrees of rehabilitation, the ecological potential of the river system remains high.

If we are going to preserve the river for future generations we must do more. The scientific evidence provided in this report suggests the river needs continuing attention if the current ecological benefits are to be maintained and degraded conditions restored. An ongoing effort to document environmental trends and monitor ecological health is crucial to making sound decisions in managing the river. I hope the data in this report serves as a foundation for long-term efforts in managing this important resource. I hope it also serves to stimulate further discussion and leads to informed solutions for a healthier river system and economy for the public we serve.

Sincerely,



Robert L. Delaney
LTRMP Program Director

Public Law 99-662 defined the Upper Mississippi River System (UMRS) as the commercially navigable reaches of six floodplain rivers above Cairo, Illinois, excluding the Missouri River. This figure shows the floodplains of the UMRS (blue) and relative land contours (enhanced by gray shading) within the basin.

The Environmental Management Program (EMP) for the Upper Mississippi River System (UMRS) was authorized by Congress under the Water Resources Development Act of 1986. A major element of the EMP is the Long Term Resource Monitoring Program (LTRMP), the mission of which is to supply information essential to maintaining the UMRS as a viable large river ecosystem with multiple uses. Since its inception, the LTRMP has been implemented by the staff of the Environmental Management Technical Center, now part of the Upper Midwest Environmental Sciences Center, a U.S. Geological Survey Science Center.

Analysis and reporting of ecological status and trends information for the Upper Mississippi River System is the primary function of the LTRMP. Ecological data are collected through a variety of field, laboratory, and remote-sensing methods at the USGS Science Center and its six field stations, each operated by staff of UMRS states: Illinois, Iowa, Minnesota, Missouri, and Wisconsin.

This "Ecological Status and Trends Report of the Upper Mississippi River System 1998" is a milestone in the history of the LTRMP. For the first time, data collected since the start of the LTRMP are summarized in one report alongside historical observations and other scientific findings.

The report serves as background material for the U.S. Army Corps of Engineers' Report to Congress that provides recommendations for future environmental management of the UMRS. In addition, this report provides a timely assessment of river conditions as river stakeholders consider future collaborative action.

Subsequent "Status and Trends Reports" will be written at six-year intervals or as necessary to describe river ecosystem disturbances or support major river management decisions. Annual state of the river summaries will be prepared to supplement these regular status and trends reports.

For the first time, data collected since the start of the LTRMP are summarized in one report alongside historical observations and other scientific findings.

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