prairierivers network

UMR Current

A publication on the Upper Mississippi River by Prairie Rivers Network
The Illinois Affiliate of the National Wildlife Federation

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Introducing the new Prairie Rivers UMR Current

A newsletter covering Upper Mississippi River Restoration work and other river topics

This is the initial volume of our newsletter covering Upper Mississippi River topics and PRN's new River Restoration Program. If you would like to subscribe to the newsletter or contribute to its content please contact Brad Walker: River Restoration Program Coordinator at bwalker@prairierivers.org.

We hope that you enjoy the newsletter.❖

Mississippi River at Grafton

Inside This Issue

The Prairie Rivers Network River Restoration Program

The Mississippi River is one of the most noticeable and important landforms of North America. It is a huge natural feature that has imposed itself upon the landscape for millennia, especially during frequent periods of flooding, providing incalculable benefits to the watershed. The river has also had immeasurable influence upon the development of the United States since Europeans began to explore, exploit resources, and colonize the middle areas of the continent. Providing reliable navigational access to the river to support resource extraction has been an important criterion for this development. In the middle of the 19th century the task to manage the river, primarily for navigation purposes, was given to the US Army Corps of Engineers (Corps) and the Corps has spent a significant portion of their available resources performing this mission. The most imposing component of this management is the lock and dam system built within the Upper Mississippi River System (UMRS) primarily during the 1930s and 1940s which turned this portion of the naturally flowing river into a series of relatively static lakes or pools.

Unfortunately, this century-long focus of river management to support commercial navigation, along with confining the channel with levees, and watershed pollution have all had detrimental affects upon the river system ecology. Concerns about these ecological problems have existed nearly since the start of the river system exploitation, but serious efforts to attempt to stem the tide of degradation did not begin until the late 1960s when a greater focus on environmental protection developed and national pollution laws were established. Efforts to address specific degradation caused largely by Corps engineered impoundment structures began in the middle 1970s and were formalized through the establishment of the Environmental Management Program (EMP) in 1986. The EMP, also managed by the Corps, has been implementing restoration projects along the river since then, spending about $15 million per year.

Despite 20 years of EMP restoration efforts on the UMRS most experts believe that the river is not

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River Restoration – what is it & why is it important?

Rivers are naturally dynamic landscapes; they change seasonally in flow, depth and content because of watershed precipitation often causing flooding within the river's floodplain. Occasionally, if the flooding is excessive, the meandering course of sections of the river can change dramatically, even abandoning entire pieces of the river to become new lakes. Over the course of time the river's ecosystems including backwater, wetland, marsh, and forest areas and the flora and fauna that live within these areas have adapted to the natural ebb and flow.

Humans have altered this natural dynamic state for centuries but more recently in very profound ways, causing significant degradation to the river ecosystems. The primary direct cause is the impoundment of rivers by dams. However, other significant but less direct causes that occur within the watershed include the conversion of natural land to human-developed land uses, urban pollution and agricultural runoff.

The issue of river restoration is highly complex primarily because of a general lack of knowledge about how best to proceed. Much of the current efforts are experimental with long-term monitoring being essential to determine their effectiveness.

The symptoms of a degraded river can be obvious but are also often very subtle. Because degradation typically occurs over a long period of time, generally over decades, it may be difficult for the average person who is not familiar with the natural aspects of the river to really notice the change. Also, some of the symptoms are either seemingly invisible because they are under the water surface or actually invisible because the affected species literally disappear. Some of the specific symptoms are:

- Decline in species biodiversity - both types & populations
- Sedimentation accumulation in the river
- Loss of backwater & side channels
- Habitat destruction or degradation:
  - Forests
  - Wetlands
  - Marshes
  - Lakes
  - Floodplains
- Floodplain disconnection
- Water quality degradation
- Altered hydrological levels – impoundment (dams)

Biologists, foresters, engineers and other experts have for the last few decades been developing and experimenting with restoration methods in the Upper Mississippi River (UMR) to rehabilitate or at least minimize the above symptoms that have been caused primarily by a series of locks and dams along the river. Because there are inadequate or incomplete historical records of the pre-existing ecosystems in the UMR basin prior to the construction of the dams in the 1930s much research time has been required to establish an understanding of this baseline period. Because of current conditions, especially the existence of the dams, in some instances it will be extremely difficult if not impossible to return portions of the UMR to the pre-existing baseline conditions. Therefore research and experimentation must be done to find effective restoration methods that mimic the important aspects of the pre-existing conditions within the existing altered conditions. The methods developed can be expensive and require time and resources to monitor the results, which can make the evaluation of their success difficult.

Progress is being made in setting criteria for success. M. A. Palmer in a 2005 Journal of Applied Ecology article outlined five restoration conditions that could help judge success, which are quoted below:

1. the design of an ecological river restoration project should be based on a specified guiding image of a more dynamic, healthy river that could exist at the site.
2. the river's ecological condition must be measurably improved.
3. the river system must be more self-sustaining and resilient to external perturbations so that only minimal follow-up maintenance is needed.
4. during the construction phase, no lasting harm should be inflicted on the ecosystem.
5. both pre- and post-assessment must be completed and data made publicly available.

It is hoped that striving for goals such as the above five conditions will help restoration project efforts be focus upon the necessary and desirable outcomes and help the very limited restoration funding currently available go as far as possible.

Ultimately, returning rivers to a more natural state and restoring ecosystems are important goals that will benefit humans as well.

This article has been an introduction to river restoration. More detailed information on the symptoms, restoration methods and problems encountered will be subjects of later restoration articles. ❖

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The Water Resources Development Act and UMR Restoration

The Water Resources Development Act (WRDA), first passed in 1986, is the law used to authorize the spending of billions in tax dollars for the building of major federally funded water resource related infrastructure projects. The federal government agency responsible for the development, design and management of these projects is the U.S. Army Corps of Engineers (Corps), whose primary domestic, non-military responsibilities have been to control flooding and maintain navigable channels within the country's major rivers. In the 1980s, Congress expanded the responsibilities of the Corps to include among other activities, environmental restoration within and near the areas where their projects have been built. New projects are authorized in WRDA usually every two years; however there has not been an enactment since 2000 and hundreds of projects that have been authorized over the years have yet to be funded.

Many projects of varying costs are typically authorized but often there are some very large projects that garner the majority of the focus and debate. During the 109th Congress which concluded in December 2006, the WRDA reauthorization included hundreds of additional projects totaling between $12 and $15 billion depending on whether you were looking at the House or Senate bill. The legislation also included authorization for three major projects: Everglades Restoration ($1.6 billion), Coastal Louisiana Restoration and Protection ($1.2 billion), and Navigation and Environmental Restoration Work on the Upper Mississippi River-Illinois Waterway ($3.6 billion).

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Calendar of Events

Quarterly UMRS Management Meetings

Sheraton Westport Lakeside Chalet, St. Louis, MO

February 22 – 24, 2007

UMRBA, NECC-ECC and EMP Meetings

Upper Mississippi River Conservation Committee Annual Meeting

Treasure Island Resort & Casino, Welch, MN

March 20 – 22, 2007

Annual meeting of the UMRS conservation professionals

Please advise us of important upcoming Upper Mississippi River events so we can include them in our Calendar of Events.

recovering but is instead continuing to degrade and will require significant increases in funding for restoration efforts to be successful. Over the last decade or so the Corps has been developing the Navigation and Ecological Sustainability Program (NESP), which has been promoted as a means to increase restoration funding to potentially $100 million per year, while also spending several billions on additional navigation improvements and lock expansions to accommodate projected increased commercial traffic. Because a projected increase in traffic is uncertain, major lock expansions and navigation upgrades have been the subject of intense debate, but authorization of this project has been delayed (see WRDA article).

Barge towed south of Missouri River confluence

PRN recently received funding from The McKnight Foundation and the National Fish and Wildlife Foundation to support our efforts to work with others in the UMR basin to improve and increase restoration efforts. The PRN River Restoration Program Coordinator, Brad Walker, is working within the UMRS and the state to promote an engaged and mobilized citizenry on behalf of the river system and restoration; to educate and seek the support of decision makers within the state; to seek increased funding to support restoration efforts; and to press for protection and restoration of wetlands, side channels, and wildlife corridors as the priority in forums where decisions regarding planning for and expenditure of restoration dollars are being decided.❖

Articles in Upcoming Issues

Articles we are planning for upcoming issues of the newsletter include: EMP projects in Illinois, ecosystems of a typical UMRS pool, ecological status of the UMRS, detailed coverage of individual pools, and restoration funding. We will also include reoccurring articles on restoration issues, tourism and the status of the PRN Program.

Submission of articles by readers is also welcomed; inclusion will be subject to content and length limitations.

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Arguably the most important project for Illinois, as well as the other states bordering the Upper Mississippi River, contained in that bill was the Navigation and Environmental Restoration Work on the Upper Mississippi River-Illinois Waterway. This project is typically called the Navigation and Ecological Sustainability Program (NESP) for the Upper Mississippi River System (UMRS) by the Corps. The $3.6 billion project covers a 15 year period and includes authorizations for $2 billion in navigation improvements and $1.6 billion for ecosystem restoration. This is less than half of the estimated total 50-year project cost of more than $8.1 billion.

The $2 billion navigation improvements are being proposed to accommodate the 1,200 foot-long barge tows that are now typically used by the barge industry on the river. They include the construction of new 1,200 foot-long locks, the extension of several existing 600 foot-long locks, as well as new barge moorings and switch boats used to move barges.

The substantiation for the navigation improvements is the contention that the 600 foot-long locks originally built during the construction of the dams are causing the barge industry delays. This is because the 1,200 foot-long barge tows must be split into two separate segments in order to fit through the locks. The splitting process adds time to the shipment of the commodities and thus increases the cost to the barge industries.

For decades the Corps has projected significant increases in barge traffic on the UMRS largely from the exporting of corn, which they contend will increase the towing delays. However, these projected traffic increases have not materialized and are unlikely to occur based upon current and foreseeable circumstances and particularly in light of new proposals to expand ethanol production in the Midwest.

The crux of debate on the navigation improvements ultimately is whether taxpayers should provide funds to build and expand the locks, from which the benefits will principally accrue to the barge industry. Further debate focuses on whether alternatives to lock and dam expansion have been adequately considered. Several National Academy of Sciences studies have recommended a series of alternatives to expansion that could cut down on barge travel time, but all have been dismissed by the industry.

The $1.6 billion for ecological restoration will be used for a diverse group of projects along the river and is primarily needed to repair the damage caused over the last 60 years by the construction of the dams. This would equate to about $100 million per year, significantly more than the approximate $20 million currently expended through the Environmental Management Program (EMP).

We must also mention that there is another major project in Illinois within WRDA that would provide at least $130 million for ecosystem restoration and recreation within East St. Louis, IL and vicinity.

Also being considered are significant revisions to the methods the Corps uses to develop projects due to concerns raised by the public over the last decade from documented inefficiencies and improprieties. The debate over the need and scope of possible reforms has been complex and very controversial with the Corps' acknowledged responsibility for flooding problems initiated by Hurricane Katrina adding considerable impetus for action. Although not entirely precise this debate is generally occurring between two factions; environmental and taxpayer organizations who favor extensive reforms and agriculture and navigation organizations who support less comprehensive reforms. The topics under debate include the methodology of cost-benefit analysis calculations, the extent of environmental restoration within projects, and the need for and scope of independent project review, the latter item having received the most attention.

The legislative process requires both the House and Senate to pass their own separate bills, which are then reconciled through a joint conference of a committee formed from members of both bodies. Because agreement between the House and Senate could not be reached in the 109th Congress, the WRDA bill under consideration failed to become law. Major stumbling blocks included the measures to reform the Corps project development, White House concerns over the cost of projects authorized in the bill and the existing backlog of unfunded or under-funded projects that have already been authorized in previous years that have not received adequate appropriations. Ultimately, before any of these projects can proceed funding must be approved through the appropriations process.

As a result, the new 110th Congress will have to begin the reauthorization process all over again in 2007. With increasing evidence that the current corn-to-ethanol trend will draw increasing volumes of corn from the export market, it is expected that the substantiation for the navigation improvements may be even more difficult than it was in 2005.

Regardless of whether the navigation improvements are ultimately authorized in WRDA, a significant increase in ecological restoration funding is essential for improving the degraded health of the UMRS. Prairie Rivers Network and others will work to ensure that ecological restoration efforts continue to move forward regardless of whether lock and dam expansion occurs.❖

Tourism and Recreation along the River

The Prairie Rivers UMR Current newsletter will focus principally upon the ecological services the Mississippi River provides and problems occurring within the basin caused by human exploitation of these services.

But we all know that the Mississippi River contains innumerable places that can provide important and enjoyable tourism and recreational experiences.

It is difficult for people to value and protect a place unless they have a connection to it. One of the best and most successful ways to establish a connection is to visit and enjoy a place, often creating a level of ownership for it within us, along with great life-long memories. Especially when we start these visits at an early age, returning to them can provide us with solace, smiles and a sense of security. The connections can also go beyond the physical place itself and include those people we have gone to the places with, allowing us to revisit them and the shared experiences from afar simply by mentioning it to them.

To help encourage this connection, we will include a re-occurring segment highlighting some of the wonderful places people can visit and the activities people can do along the river. We encourage readers to submit articles or suggestions for this segment. In addition, we will have a link to river opportunities on our website at http://www.prairierivers.org/Projects/Restoration/UMRS.html.

By the way, can anyone identify the location of the photo to the left? If you have the answer, send it to bwalker@prairierivers.org.❖

Yes, I want to help protect our rivers and streams.

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Prairie Rivers Network

Protecting Illinois' Streams

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