

Water Level Management Update

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Pool 6 Drawdown Planned for 2008

A pool-scale drawdown of Pool 6 located near Winona, Minn. is being proposed for the summer of 2008 by the Water Level Management Task Force of the Upper Mississippi River Resources Forum.

The depth of drawdown would be a maximum of 1.0-foot at Lock and Dam 6, and a maximum of 0.5-foot at the Winona gage. The final level of drawdown will be set in the spring of 2008 based on main channel conditions, recreational access and agency and public input.

The drawdown of Pool 6 was originally planned for 2003 and again for 2004, but issues related to recreational access could not be resolved in time to conduct the drawdown.

At that time, an Environmental Assessment was prepared, and several public meetings were held in the area. A Finding of No Significant Impact (FONSI) was signed, in compliance with applicable environmental regulations.

Four years have elapsed since the original report was ap-

proved; therefore, the U.S. Army Corps of Engineers will update the report and request additional approval prior to implementing the drawdown in 2008.

Again, public meetings will be held to obtain public input on the drawdown plans. It is anticipated that public meetings will be held in the fall of 2007 and again in the spring of 2008. Meetings will be held in both Minnesota and Wisconsin, and will be advertised through local media outlets.



An important issue is the potential impacts on freshwater mussels. Therefore, an extensive mussel monitoring program is planned for 2007 and 2008 in Pool 6.

Issues to be Addressed for Pool 6 Drawdown

One important issue to be addressed in the updated Environmental Assessment concerns potential impacts on freshwater mussels which may result from a drawdown in Pool 6.

In 2005, during a similar drawdown of Pool 5, a mussel monitoring study documented possibly significant mussel mortality. The next step is to be able to assess the level of mussel mortality in relation to the total population of mussels.

Therefore, in Pool 6 an extensive mussel monitoring program will be conducted in 2007 and 2008. The 2007 work will seek to establish a pool-wide mussel population estimate with a focus on mussels found in shallow water which may be most vulnerable during a drawdown. Moni-

toring work during 2008 will be designed to estimate total mussel mortality during the drawdown. Together, these studies will enable us to evaluate any mussel mortality observed during the drawdown in terms of the entire population of mussels in Pool 6.

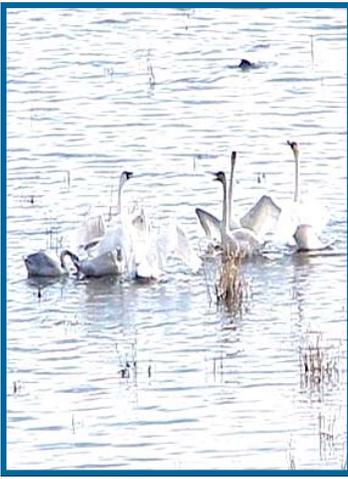
Another important issue concerns providing reasonable river access for recreational boats during the drawdown. Surveys to estimate the water depth will be conducted at lower Straight Slough near the main channel and at PlaMor Campground on the lower end of the pool. These were areas of concern during planning for the proposed 2003 drawdown. Other recreational access locations will be surveyed, if

needed. Coordination with river users will aid in developing an acceptable recreational access plan.

The main channel will be surveyed in the spring of 2008 to ensure that conditions are adequate to allow commercial navigation during the drawdown.

Pool-scale drawdowns in Pool 8 and Pool 5 have shown that a robust vegetation response is achievable, which can significantly improve river habitat. We expect a drawdown in Pool 6 will have the same positive result.

Water Level Management Program Wins Prestigious Award



Waterfowl, shorebirds and other fish and wildlife have responded to the improved habitat which has increased opportunities for hunting, fishing and bird watching.

The Water Level Management Program received the prestigious 2007 Seven Wonders of Engineering Award, sponsored by the Minnesota Society of Professional Engineers. This award is given annually to projects based on complexity, engineering methods utilized, advancement of the engineering profession and significance to society.

This program, managed by the Water Level Management Task Force (WLMTF), has been responsible for several small-scale drawdowns and four pool-scale drawdowns in the past 10 years, all of which have resulted in a dramatic vegetation response and improved habitat on the Upper Mississippi River System. Waterfowl,

shorebirds and other fish and wildlife have responded to the improved habitat which has increased opportunities for hunting, fishing and bird watching.

Drawdowns are challenging because of the necessity to accommodate a variety of river uses, including commercial navigation and recreational boating, as the level of the river is lowered. Public support for drawdowns has grown stronger over the years as outstanding ecological benefits have been achieved while impacts on other river uses have been effectively managed.

Successful water level management demonstrates that, with careful planning and implementation, multi-purpose use

of large river systems is achievable.

The Seven Wonders Award was presented at an awards banquet at the Sofitel Hotel in Bloomington, Minn., on Feb. 23, 2007. The award was accepted on behalf of the WLMTF by the St. Paul District Corps of Engineers and the U.S. Fish and Wildlife Service.

Handsome plaques were awarded to the Wisconsin, Minnesota, and Iowa departments of natural resources, the U.S. Fish and Wildlife Service and the St. Paul District Corps of Engineers. This recognition is a result of an outstanding team effort. Congratulations and thanks to all who contributed.

Public Meetings are scheduled for :
Winona State University
Kryzsko Commons Dining Rooms C & D
Tuesday, Sept. 25
6-9 p.m.

Trempealeau Village Hall, Community Center
Wednesday, Sept. 26
6-9 p.m.

Public Meetings Scheduled for September to Discuss Proposed Pool 6 Drawdown

The U.S. Army Corps of Engineers, St. Paul District, will host two public meetings in September to solicit public opinion regarding the proposed 1.0-foot drawdown (water level reduction) of Pool 6 of the Upper Mississippi River in the summer of 2008.

The first meeting will be held **Tuesday, Sept. 25, 2007, at Winona State University – Kryzsko Commons Dining Rooms C & D.**

The second meeting will be held **Wednesday, Sept. 26, 2007 at the Trempealeau Village Hall Community Center**, located at 24455 Third Street, Trempealeau, WI. Both meetings will be from **6-9 p.m.**

The meetings will begin with an open house, followed by a formal presentation at 7 p.m.

There will be time for questions, answers and discussion after the presentation.

Federal and state agency representatives will be available to discuss the plan under consideration, and to take public comments.

Drawdown Summary Reports Now Available

The Water Level Management Task Force of the River Resources Forum recently completed two new reports documenting the results of the Pool 8 and Pool 5 drawdowns on the Upper Mississippi River. These reports are entitled "Upper Mississippi River Pool 8 Drawdown Results" and "Summary of Results of Pool 5 and Pool 8 Drawdowns on the Mississippi River."

The first report presents scientific

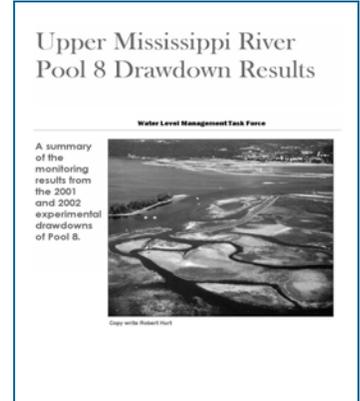
results of the monitoring and operational information of the Pool 8 drawdowns, while the second report is an overview and summarizes the monitoring results of the drawdowns in both Pool 5 and 8. It is also written for a general audience.

Copies of these two reports are available to interested groups and the public.

To receive a copy of one or both reports, please contact:

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A brief summary of the results for the Pool 8 and Pool 5 drawdowns can be seen below.



Summaries of the Pool 5 and Pool 8 drawdowns now available.

A Brief Summary of Pool 8 and Pool 5 Drawdowns

Pool 8 Drawdowns

A drawdown of Pool 8, located near LaCrosse, Wis., was conducted in the summer of 2001 and then repeated in the summer of 2002. This was the first pool-scale drawdown conducted by the Water Level Management Task Force.

Vegetation

More than 50 species of moist soil, perennial emergent and aquatic species of plants were found on the exposed areas. Many of these species are a valuable source of food and cover for wildlife. A shift was observed from a plant community dominated by annuals the first year of the drawdown to one dominated by perennials the second year. Following the drawdowns, a substantial expansion of aquatic plant communities in the lower third of the pool was recorded, as well as a comparable reduction in open water habitat. The perennial plants grown on the sand and mudflats during the drawdowns have persisted for five years in some areas.

Fish

Overall, there were no negative short-term trends or differences in fish catch rates that could be attributed to the drawdown. An increase was observed in catch rates for the forage fish group surrounding the drawdown period which may warrant further investigation during a future drawdown. No fish kills were observed in the backwaters.

Freshwater Mussels

While a large scale monitoring of the effect of the drawdowns on freshwater mussels was not conducted, a pre-drawdown survey conducted in 1999 indicated that limited numbers of mussels were in the drawdown zone. An informal survey was conducted during a volunteer mussel rescue effort in July 2001. The survey indicated more mussels than expected on exposed sites, possibly due to the effects of the extended flood in spring 2001. The Pool 8 experience showed the need for more comprehensive monitoring of the effects on mussels in future drawdowns.

Shorebirds

In 2002, the number of shorebirds observed during weekly monitoring surveys in Pool 8 nearly doubled from the 2001 season. The 2001 data suggests that the water level reduction in Pool 8 created vital feeding habitat for migrating shorebirds as indicated by the number of shorebirds and the increased number of different species observed.

Waterfowl

There was a positive response by waterfowl to the improved habitat which resulted from the drawdowns, most noticeably by tundra swans. Diving duck use days also increased steadily in the years following the drawdowns. However, any trends in waterfowl use on a pool or refuge basis and the cause of these trends need to be evaluated with some caution.

Pool 8 continued

Commercial Navigation

Pool 8 is generally described as a pool that is difficult to navigate under normal pool operation. During the drawdowns, navigating the pool by the commercial navigation industry seemed a bit more difficult according to tow pilot comments; however, the pool was still navigable.

Recreational Boating

Recreational boating activity did not appear to be significantly affected by the drawdowns. The drawdowns appear to have had little effect on the distribution of either active or beached watercraft on Pool 8 or on the adjacent Pools 7 and 9.

The Pool 8 report also addresses monitoring and effects on sediment consolidation and transport, nitrogen cycling, water quality, contaminants and cultural resources.

Pool 5 Drawdown

A drawdown of Pool 5, located near Minneiska, Minn., was conducted in the summer of 2005, and then repeated in the summer of 2006. The 2006 drawdown was limited to less than a month due to extremely low river flows and main channel conditions.

Vegetation response

Vegetation response on the 1,032 acres of exposed sand and mudflats in Pool 5 was excellent, with more than 70 plant species observed. Similar to Pool 8, there was a predominance of annual plants the first year, followed by a shift to more perennial species the second year. Submersed vegetation was not negatively impacted and has increased in some areas.

Water Quality

The lowest summer turbidity values ever measured at the outlet of Weaver Bottoms occurred in late summer 2005 and 2006. Although it is difficult to directly link the improved water quality in Pool 5 to the drawdown, it is well understood that increased aquatic vegetation generally leads to improved water quality.

Waterfowl

Use by dabbling and diving ducks and tundra swans in Pool 5 during 2006 was the highest recorded in 10 years.

Freshwater Mussels

In July 2005, monitoring of the effects of the drawdown on freshwater mussels in shallow water was conducted. The results indicated:

- mussel survival differed by species.
- survival was related to the initial water depth and the slope of the site. Mussels impacted the most included those located in one foot of water or those located on flat sites.
- large numbers of mussels may have perished on the exposed areas. However, this sampling effort was not designed to estimate pool-wide mussel mortality during the drawdown.

To better estimate the significance of mussel mortality, a comprehensive survey of mussel populations was completed in Pool 5 during the summer of 2006. The study design was meant to arrive at a statistically accurate estimate of the pool-wide mussel population. This study estimated there were approximately 189 million mussels in Pool 5 in 2006.

Recreational Boating

An extensive effort was made to minimize recreational boating impacts resulting from the Pool 5 drawdown, including formation of a Citizens' Advisory Committee and dredging to provide "reasonable" recreational access. Monitoring, including several aerial surveys, indicated there was no reduction in recreational boating activity as a result of the drawdown.

Commercial Navigation

Commercial navigation was somewhat more difficult than normal during the 2005 drawdown, but the nine-foot channel was in continuous operation and navigation concerns were effectively managed. In 2006, extremely low river flows during the summer, and marginal main channel conditions, caused a termination of the drawdown in mid July. The decision to terminate was made to ensure that commercial navigation would not be adversely impacted by continuation of the drawdown.

The Pool 5 report also contains information regarding fish, sediment transport and consolidation, wildlife and cultural resources.

An Adaptive Management Plan for Water Level Management

The Water Level Management Task Force is developing an Adaptive Management Plan for water level management.

“Adaptive management” is a term which describes a process of project implementation and monitoring, then adjusting the implementation of future drawdowns based on the new information and lessons learned.

This approach is designed to provide a long-term, coordinated, phased, scientifically-valid approach to conducting and evaluating drawdowns. It is currently being used as the monitoring results of Pools 5 and 8 are evaluated and used to make adjustments for the implementation of the next drawdown.

The Adaptive Management Plan was developed by the task force, and has been reviewed by persons experienced in water level management on large river systems, as well as nationally-recognized river biologists,

ecologists, engineers and scientists. However, the plan is continuing to evolve.

The adaptive management plan poses and seeks to answer a variety of important questions which are essential to the success and improvement of water level management practices.

Examples of the questions that need to be considered include:

1. How long do the benefits of drawdowns persist and at what frequency do they need to be implemented?
2. What would be the effects of varying the extent (depth) of drawdowns?
3. Do drawdowns have the same or similar results in other pools and/or river reaches?
4. What would be the effect of starting drawdowns earlier in the year (than mid-June)?

Each question has a number of potential strategies which could help answer these questions

For example, to determine how long the benefits persist, the following strategies could be considered:

1. Conduct drawdowns of ___ feet in Pool ___ annually
2. Conduct drawdowns of ___ feet in Pool ___ every ___ years
3. Establish a “trigger” value, i.e. conduct a drawdown when vegetation has degraded to a certain point (e.g. as a percentage of the optimal amount of vegetation)

Drawdowns of water bodies for habitat improvement have been conducted for decades and a literature search was

conducted prior to the first drawdown to review what was known about drawdowns

However, very few pool-scale drawdowns have been conducted on a large river system such as the Upper Mississippi River.

Consequently, the best way to answer these questions is to conduct as many drawdowns as possible and closely monitor and model the results. New information or practices would then be incorporated into future water level management activities.

Clearly, this plan will take time and resources. However, the final result should be a more beneficial, flexible, cost-effective and efficient water level management program.



The Raft Channel Area, located in lower Pool 8, during the 2001 drawdown. This area still supports luxurious beds of arrowhead five years after the drawdowns. The arrowhead beds attract thousands of tundra swans during the fall.

Water Level Mgmt Update
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