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Water Level Management Update

Decision for a second year drawdown is a go
Recommendations for 2002

The 2001 drawdown was scheduled to take place from mid-June to mid-September. A water level reduction of 18" at Lock and Dam 8 was planned with a maximum reduction of 6" at La Crosse. However the project was delayed by a prolonged spring flood and was cut short by the effects of a drier than normal summer. Hence, the 2001 Pool 8 drawdown only lasted 40 of the prescribed 85-90 days.

As a result, river resource managers from the Minnesota and Wisconsin Department of Natural Resource, U.S. Army Corps of Engineers, U.S. Geological Survey and the U.S. Fish and Wildlife Service recommend a second year drawdown. This follow-up drawdown will help the aquatic plants that sprouted in 2001 develop more vigor and build energy reserves in their root systems which will allow these plants to persist over time and survive re-flooding.

This recommendation was brought before the public through a series of public meetings and the previous water level management newsletter, which solicited comments from readers. Both methods were utilized to determine the public reaction to a second year drawdown.

Public reaction was generally favorable. The information in the table below does not represent a scientific poll but it does provide an indication of what the public thought about the first year drawdown and a possible second year drawdown.

Based on recommendations from river resource managers and general acceptance from the public, the 2002 drawdown will be implemented if flow and channel conditions are favorable

Details of the Recommended Drawdown for 2002

The recommendation for the water level reduction in 2002 is less than what was planned for the 2001 drawdown. The group recommends:

- A maximum reduction at the La Crosse gage of 3-inches (4.45 on the gage) or half of the reduction from last year.
- The depth of the reduction at the dam will depend on the amount of flow in the river and the condition of the nine-foot navigation channel. A reduction between nine inches and eighteen inches at the dam at Genoa, WI will be attempted. A Corps of Engineers survey crew will survey the depth of the channel in April or May and determine the condition of the main channel.

The drawdown in Pool 8 should begin on June 17 and refilling of the pool will begin around September 16, 2002.

Comments	*Positive*	*Negative*	*Neutral*	*Total*
Written comments from meetings	8	0	0	8
Written comments from newsletter	7	3	3	13
# of attendees at public meetings	53	7	4	64

Projected Water Level Reduction at Different Locations in Pool 8

Similar to last year the drawdown will be most noticeable in the lower end of the pool, particularly from Lawrence Lake and Goose Island south to the dam at Genoa (See Map of Pool 8 below).

Higher flows will produce less of an effect in the upper portion of Pool 8. This is what you can expect for a water level reduction at different locations in Pool 8, under different levels of flow in the river

Location	River Mile	9-inch Drawdown	12-inch Drawdown	18-inch Drawdown
Lock and Dam 8	679.4	9"	12"	18"
Stoddard	685.0	8"	10"	15"
Brownsville	689.0	7"	8"	12"
Root River	693.7	4"	5"	6"
La Crosse Gage	696.9	3"	3"	3"
La Crosse RR Bridge	699.8	2"	2"	2"
I-90 Bridge	701.8	1"	1"	1"

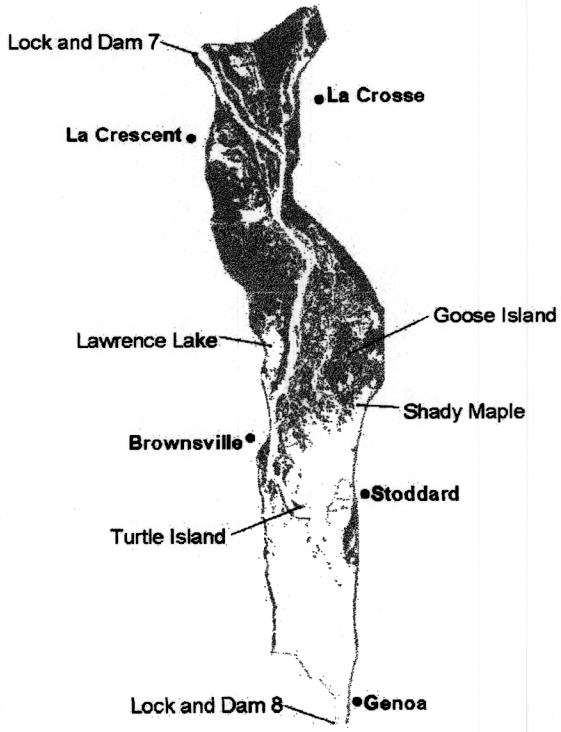
The different levels of reduction will be undertaken based on the flow in the river and condition of the navigation channel in Pool 8. At flows above 30,000 cfs the 18" drawdown will be pursued, at flows from 27,000 to 30,000 cfs the 12" drawdown will be pursued, and from 22,000 to 27,000 cfs the 9" drawdown will be pursued.

River Gage

The malfunction at the La Crosse gage last summer created problems for boaters so a number of changes have been put in place to minimize the risk of any such problem occurring again.

- The gage was fixed and will be checked closely prior to the beginning of the drawdown.
- A computer program has been developed to alert lock and dam operators of readings that remain the same more than 6 times in row. If the gage is functioning properly this type of occurrence should not happen.
- Finally, two gages will be visible to the public at the footbridge in Houska Park and Municipal Boat Marina. A bold, black line on the gages will indicate the lowest level of the drawdown, based on a maximum 3" reduction at the La Crosse gage.

Map of Pool 8



Results of Monitoring Activities

Vegetation Response

Researchers monitored the development of vegetation on exposed substrates along transects at 13 sites throughout Pool 8 (south of Root River). We found more than 50 species of moist soil, perennial emergent, and aquatic species. Rice cut-grass, broadleaf arrowhead, water stargrass, nodding smartweed, chufa flatsedge, false pimpernel, and teal love grass were the dominant species that developed on exposed substrates. Many of these species are a valuable source of food and cover for wildlife. Growth progressed well despite the later-than-scheduled drawdown and hot, dry conditions during much of July. Plant density was related to the duration of substrate exposure, with higher plant densities and more plant development occurring on substrates exposed for a good portion of the growing season (i.e., mid-pool sites that remained exposed through mid-September) and low plant density on those substrates that were re-inundated in mid-August. For example, plant density ranged from less than 5 plants per m^2 on substrates exposed in the lower end of the pool to more than 100 plants per m^2 in other areas (e.g., north of Turtle Island and Shady Maple). Similarly, arrowhead tuber production ranged from none on substrates exposed in the lower end of the pool to 30 tubers per m^2 in other areas (e. g., Shady Maple, Stoddard Island Project Area).

Pool 8 vegetation coverage mapped from air photos taken in August 2001 was compared to the vegetation coverage in 2000. The analysis indicated an increase in the following vegetation classes: deep marsh annual (357 acres), mud (81 acres), sand bar (160 acres), shallow marsh annual (102 acres), shallow marsh perennial (347 acres), submersed aquatic vegetation (116 acres), wet meadow (221 acres), and wet meadow shrub (104 acres). A significant reduction was noted in the extent of the open water community (-1259 acres). The drawdown and/or spring flooding likely contributed to these changes.

Submersed Aquatics

Personnel from the Wisconsin Department of Natural Resources collected data from June 15th to July 30th, 2001, at 670 sites in Pool 8 through the Long Term Resource Monitoring Program. Overall, submersed vegetation was recorded at about the same number of sites in 2001 (47.7%) as 2000 (47.5%). In 2001, 15 species were recorded while 16 species were recorded in 2000. During the drawdown, personnel did observe submersed vegetation exposed in dewatered areas.

Swan Use of Pool 8 during Migration

During fall migration, tundra swans concentrated in large numbers within the Wisconsin Islands Closed Area located on the west side of Pool 8 near Brownsville, MN. During the last aerial waterfowl survey on December 21, there were over 25,300 swans on the river, and 12,000 or almost half of the total swans counted were still in this area. Typically after duck season is closed, the swans move out into other backwater areas to feed, using them on a daily basis. Although duck season ended on November 27, swans continued to use the closed area in large numbers probably due to ample food resources. The swans left only when ice-up was imminent, which was late December.

The pattern of spring migration is much different. Birds push north, staying only for short periods of time. Swans were using Pool 8 as of mid-March and were observed in large concentrations in the shallow area between Turtle Island and Goose Island, an area that remained largely untouched by swans last fall. Very few were observed in the WI Islands Closed Area this spring, which was expected due to the heavy use which occurred last fall. As of April 10, many swans have moved north.

Nitrogen Cycling and Water Level Management

Water level management has the potential to affect significant changes in nitrogen cycling and reduce the accumulation of potential harmful ammonia in highly organic backwater sediments. Ideally, a drawdown will dry and oxygenate organic sediments, increasing the oxidation of accumulated ammonia to nitrate. Upon rewetting, sediments again become anaerobic, and nitrate is removed through the natural process of bacterial denitrification (converted to inert nitrogen gas and released to the atmosphere). This process requires anaerobic conditions, highly organic sediments, and nitrate - all conditions provided by drying and rewetting of backwater areas.

Researchers measured sediment characteristics and bacterial processes before, during and after the drawdown of Pool 8. Their work showed significant, but short-lived loss of ammonia nitrogen as a result of sediment drying and rewetting. Their studies of other drawdown sites (e. g., Swan Lake, Two Rivers National Wildlife Refuge, Lower Illinois River) showed significant, long term changes of sediment nitrogen concentration, compaction, organic matter accumulation.

(Continued on the back page.)

Water Level Management Update
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(Nitrogen Cycling continued)
Researchers believe repeated, sustained drawdown of Pool 8 and other navigation pools on the UMR could result in significant removal of nitrogen from backwater lakes and wetlands. These areas are currently sites of significant accumulation of sediment ammonia, organic nitrogen, and little active removal of nitrate-nitrogen (due to a lack of connectivity with main channels).

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