



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

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November 10, 2008

#3865

Mayor David Cieslewicz
City-County Building, Room 403
210 Martin Luther King, Jr. Blvd.
Madison, WI 53703-3345

Subject: Review of Yahara Lakes Water Level, City of Madison Resolution #RES-08-00766

Dear Mayor Cieslewicz:

We are in receipt of the Madison City Council's resolution requesting that the DNR review and revise, if necessary, the established water levels for Lakes Mendota and Monona. As you know, changing water levels is a multi-faceted issue in which many will want to participate. To get an understanding of this for the Madison lakes, I asked my staff to provide background on the local situation and the water level review process. I've attached a summary of that information for you.

Before we can begin the review process, we will need the City, as petitioner for the change, to request a specific desired water level regime as a starting point. Before requesting a specific water level regime, we believe that an initial round of information gathering and intergovernmental consultation is essential to a successful process. In addition, petitioners have the responsibility to gather and analyze data, help identify the issues, and meet with affected parties to build consensus. I've directed my staff to meet with your designee to identify the information needed to assemble a petition that will give us a basis to proceed.

As your letter noted, a water level change will affect a large number of local governments, property owners and lake users - residents of at least ten towns, cities and villages plus Dane County lands. A change in Mendota or Monona will affect water levels in the entire Yahara chain of lakes because they are physically connected. In order to gain the greatest possible level of consensus, we need a commitment that City staff will actively participate at the necessary advisory and informational sessions as well as provide City data that you believe warrant the desired change. Willingness on the part of other municipalities to participate is also essential; without it our experience is that the solution that is best for the lakes and the surrounding communities will not be implemented. The decision about whether to change Yahara lakes water levels, and if so how, requires careful scientific analysis and thorough public participation - which can't realistically be completed and implemented by June 2009.

I understand the urgent desire to avoid flooding and wetland damage as extreme storm events become more frequent. My staff has suggested measures (see attachment) that will help reduce flooding, some of which could be put into operation by next spring.

With these aspects of the situation in mind, we would like to meet with you to develop a timetable that allows short-term action to reduce flooding and does not compromise the various agencies' commitments to and timetable for the Yahara CLEAN agreement. With a timetable in mind, we would next seek commitments from affected municipalities to participate in the review process.

Sue Josheff, Lower Rock River Basin Leader, and her team will lead our review of this petition. You can call Sue at 608.275.3305 or email her at Susan.Josheff@wisconsin.gov. To facilitate communication and coordination of this project, I request that you designate a City of Madison representative to meet with us before proposing a specific water level regime and with whom DNR staff will communicate about data and analysis needs, meeting arrangements and attendance – as well as ways to advance immediate flood damage reduction measures.

We will continue, as you started, to copy all correspondence to neighboring communities. We look forward to working with you on this challenging issue.

Sincerely,



Matt Frank
Secretary

Attachment: Yahara Water Lake Levels – Specific Issues and Review Process

cc: City of Madison Common Council
Alder Michael Schumacher, 18th AD
Mayor Kurt Sonnentag, City of Middleton
Patricia Amble, City of Middleton Clerk
Mayor Robb B. Kahl, City of Monona
Joan Andrusz, City of Monona Clerk
Mayor Helen Johnson, City of Stoughton
Luanne Alme, City of Stoughton Clerk
John Van Dinter, Town of Westport
Stacy Soderholm, Village of Maple Bluff
Mark Sundquist, Village of Shorewood
Mike Harried, McFarland Village President
Ed Minihan, Town of Dunn
Richard Green, Town of Pleasant Springs
Kathleen Falk, Dane County Executive
Kevin Connors, Department of Land and Resources
Brett Husley, Dane County Lakes and Watershed Commission
Sue Jones, Dane County Lakes and Watershed Commission
Lloyd Eagan, South Central Region Director
Ken Johnson, South Central Region Water Leader
Sue Josheff, SCR, Lower Rock Basin Leader

Yahara Lakes Water Levels – Specific Issues and Review Process

Affected Parties

The City of Madison has requested review and possible revision of the water levels of Lakes Mendota and Monona. The review and any revision will affect at least ten local governments as well as riparians and lake users. DNR staff are not aware of any effort to build consensus prior to resolution. Even in this high lake level year, DNR staff has already started receiving calls in opposition to any change to the lake levels.

Government Entities

Dane County	Village of McFarland
City of Madison	Village of Shorewood Hills
City of Middleton	Town of Westport
City of Monona	Town of Dunn
City of Stoughton	Town of Pleasant Springs
Village of Maple Bluff	

Other stakeholders, include but are not limited to:

Friends of Cherokee Marsh	Madison Fishing Expo
Yahara Lakes Association	Madison Metropolitan Sewerage District
Lake Waubesa Conservation	Capital Area Regional Planning Commission
Friends of Lake Kegonsa	UW – Limnology and Engineering
Lakeside Businesses	Four Lakes Bassmasters
Dane County Lakes and Watershed Commission	

Water Control Structures

Lake Monona levels are held by the dam at the outlet of Lake Waubesa so it will be necessary to include Lake Waubesa in the analysis. The Yahara River is extremely flat in this area. Dam operations at outlets of Lake Kegonsa and the Stoughton mill pond affect the outflow from the Lake Waubesa Dam so it makes hydraulic sense to include these reservoirs in a holistic analysis. The runoff from the Yahara River and its tributaries contribute to the lake flooding so the review will have to include the water levels and associated impacts for the entire chain from Lake Mendota to Stoughton.

Dane County owns and operates the upper three dams. The city of Stoughton owns the Stoughton Dam and leases it to a potential hydrogenerating company.

Lake Mendota (Tenney) Lock and Dam	Lake Kegonsa (Lafollette) Lock and Dam
Lake Waubesa (Babcock) Lock and Dam	Stoughton Dam

Water Level Analysis

Each lake has an authorized 6-inch summer operating range except for Stoughton Mill Pond which has a 1-foot range. During relatively small flood events, the Waubesa and Kegonsa Dams submerge and are not the limiting factor for flow out of the area. Lake Mendota and Stoughton millpond could be kept near their range by fully opening the dam gates, but significant flooding would occur downstream.

The surface area of Lake Mendota is about twice that of Lakes Monona and Waubesa combined so every inch held in Lake Mendota above the summer maximum, if released to Lakes Monona and Waubesa, causes the lower two lakes to rise about two inches. During the June-July 2008 flooding, Lake Mendota peaked at 2.2 feet over its summer maximum water level. By storing water in Lake Mendota, Lake Monona and Lake Waubesa's flood peak was limited to about 2.7 feet, significantly less than if the Mendota Dam was opened more.

Several flood flow constrictions affect lake levels. The railroad bridge between Lakes Monona and Waubesa caused a 10-inch difference at the peak of the June 2008 flood. Other constrictions include other railroad bridges, the Native American fishing weir near lower Mud Lake, and pipe crossings in Stoughton.

Proposed Process to Review Water Levels with Stakeholders

Any review must include all the required issues and affected parties and should build on the Yahara Lakes Advisory Group (YLAG) process that was completed in 2001. DNR suggests reconvening the YLAG with additional stakeholder representation. The advisory group would help design the process to gather information, data and public input. Need the City of Madison will commit its staff to participate at the stakeholder, informational and listening sessions and additionally provide data to support this effort.

Water Level Orders Revision Process

The fundamental legal process is as follows: To begin, a petitioner for water level change must provide a desired water level. DNR staff will prepare an Environmental Assessment or an Impact Statement depending on the depth of the issues resulting from the proposed change. As the requester of a change in water levels, the City of Madison would need to submit an Environmental Impact Report of the identified information needed for the environmental document to the DNR to support the water level change. The draft environmental document will be available to the public for comment. After completion of the EA or EIS, the DNR issues a written decision based on the available information. The DNR's decision can be appealed to an Administrative Law Judge and from there to circuit court and subsequent levels of judicial review.

In our experience, additional steps help advance the process. Prior to work on an environmental assessment document, we will do a preliminary assessment of the likelihood of benefit from and need for a water level change. Advisory involvement of affected units of government and other interests are key to identifying beneficial change and to avoiding prolonged litigation.

Ongoing Activities to Lessen Flood Impact

DNR staff has been working with Dane County staff, University of Wisconsin engineering professors, and others to identify flow constrictions in the Yahara River system that may be affecting flooding. Dane County has taken the lead in discussions to enlarge the railroad bridge between Lakes Monona and Waubesa, let contracts to gather additional data, and worked with the University and consultants to move that project forward. DNR staff worked with the City of Stoughton to get an estimate to remove a flow constriction in the Yahara River.

Dane County has contracted for a dam failure analysis to evaluate the stability of the Lake Mendota Dam, especially since it is operated to hold back flood flow from Lake Monona/Waubesa.

Last fall, DNR staff provided Yahara River data to the National Weather Service (NWS) for possible flood prediction. NWS met with Dane County staff and then proposed to DNR and City of Madison defining bankful and other flood stages for more informed dam operation and better communication with the public.

Immediate Activities to Mitigate Flooding

Help identify, evaluate and finance downstream changes that may be needed to improve flow and help reduce flooding.

Apply for flood mitigation funds to buy out or flood-proof structures that are prone to flooding. Several types of funding can be applied for through DNR, WI Emergency Management and other sources.

Change building ordinances to prohibit basements in areas of high ground water such as filled wetland areas, in specific soils, or below normal lake elevations. If basements are necessary, prohibit areas with these characteristics from development.

Build infiltration basins in area parks and open spaces and encourage more home and business rain gardens. The less water that runs off the land, the less lake flooding we will have – and water quality impacts will be reduced.

Common Misconceptions about the Yahara Lakes System

DNR staff hears several misconceptions about water levels on the Yahara Lakes:

The dams need to be bigger to increase the flow through the dam.

The Yahara River Dams don't need additional hydraulic capacity. Lake Mendota and Stoughton Dams have large hydraulic capacities and can pass the 100-year flood and larger flows with hardly an increase in lake levels. Lake Mendota floods because floodwater is stored there to protect the downstream lakes' floodplain development. The area upstream of Stoughton Dam floods due to restrictions in the Yahara River between the Kegonsa and the City of Stoughton Dam. The Lake Waubesa Lock and Dam and the Kegonsa Lock and Dam (Babcock and LaFollette Dams) have been entirely open since August 2007 – over a year. There was no difference in the water level upstream and downstream of these dams until recently. Adding more gates to these dams will not increase the current hydraulic capacity of the river and will not reduce upstream flooding. Even if those dams were twice as big, no more water would flow out because there is no room in the downstream channel for that water to go. If downstream flow constrictions are found and removed, the Waubesa and Kegonsa Dams will need to be reevaluated.

Flooding would be eliminated if the dams were operated differently.

This is partially true – flooding could be eliminated in some areas but would be worsened in others. The only dams operated during the June-July 2008 floods were Mendota and Stoughton Dams. Mendota Dam could have been fully opened to eliminate Lake Mendota flooding but flooding downstream on Lakes Monona, Waubesa and Kegonsa would have been much more severe.

The federal floodplain maps are being changed based on the 2000 flood.

The floodplain maps for Dane County were updated based on a representative sample of storms for this area, not single extreme events. The floodplain study used the 1996 and 2000 floods for calibrations of the engineering models that were developed to represent the river system, but the 10, 50, 100 and 500-year floods were based on modeled results of the representative statistically-determined storms for this area. The study was completed for the Federal Emergency Management Agency by Black and Veatch consulting engineers in June 2003 and was incorporated into the new Dane County Flood Insurance Study. DNR has the study on file.

DNR should fine Dane County when the maximum lake level is exceeded.

DNR staff regularly enforce water level orders when they can practically be followed. However, fining Dane County for not opening the Lake Mendota Dam during high-flow periods, when opening gates would cause much more severe flooding on Lakes Monona and Waubesa, makes little sense. An alternative would be to establish a set of rules to be used during flooding conditions.

Cherokee Marsh has an annual wetland loss of seven feet.

Recent historic photo analysis suggests that the Cherokee Marsh is more stable than suggested in the Madison analysis. The Madison Common Council resolution on lake levels encourages attention to wetlands and wetland values, stating that annual wetland loss in Cherokee Marsh is seven feet. DNR shares the concern about wetland loss. The data need further review for a full understanding of the wetlands-water level relationship and the causes of wetland loss in the basin..