

**Water Level Decision for Lake Koshkonong and
the Indianford Dam on the Rock River
in Rock County**

**(Docket 3-SC-2003-28-3100LR
(Dam Water Levels
(**

FINDING OF FACT

1. The Indianford Dam is located on the Rock River in the NW¹/₄ of the NW¹/₄ of Section 21, T4N, RI2E, (Town of Fulton) in Rock County.
2. The Rock River and Lake Koshkonong are navigable water bodies under the laws of the State of Wisconsin.
3. The Rock-Koshkonong Lake District ('The District') owns and operates the Indianford Dam.
4. Lake Koshkonong is a natural widening of the Rock River, located about 6 miles upstream of the dam, which has been raised by the Indianford Dam. Lake water levels are read at a US Geological Survey gage #05427235 at Bingham Point Estates, about 10 miles upstream of the dam. The lake surface area is approximately 10,460 acres.
5. The Wisconsin Territorial Legislature granted original authorization for a 4-foot dam at this site in 1843. In 1851, the Wisconsin State Legislature modified the authorization to allow the dam's height of 6 feet above the normal river level and clearly stated that the flowage of private lands without owner's consent was not authorized. The original dam at this site was constructed in the 1850's.
6. Between 1900 and 1919, the dam was modified several times. In 1900, eight 5 x 5-foot gates were permanently closed to become a spillway at 775.65 msl. Abutments were added to the dam that narrowed the river channel. In 1915, the remaining spillway was reconstructed to 775.08 msl, where as the former spillway varied from 773.65 to 774.72 feet msl, and bolts were added to allow for the placement of flashboards. Each of the modification decreased the dam's spillway capacity resulting in higher lake levels.
7. Between 1900 and 1919, several administrative appeals to the Wisconsin Railroad Commission and judicial reviews to the circuit court and the Wisconsin Supreme Court were filed by the affected property owners for increased flood damages. As a result of the appeals and suits, the dam operator was required to remove the flashboards, all six gates be fully opened and remain open whenever the water elevation at the dam exceeded 775.64 msl. Today, dam operations are based on water levels at the lake, not at the dam. The adjustment for 775.64 measured at the dam is approximately 775.94 measured on the lake. The current water level order requires that all gates be opened at 776.33, or about 0.4 feet higher, as measured at the lake.
8. In 1939, one hundred and thirty six property owners in the vicinity of Lake Koshkonong petitioned the Public Service Commission of Wisconsin to raise the water levels held by the Indianford Dam by a minimum of 6-inches over the existing normal level. Owners of low-lying land and farmers appeared at the hearing and objected to any increase citing flood damage and agricultural lands drainage. After investigation by Commission staff, US

Geological Survey and the US Corps of Engineers, the Commission dismissed the request in 1939 (2-WP-461) generally citing its lack of authority to require that the owner of the dam usurp private property rights by flowing land which at least periodically had not been flowed before.

9. In 1982, the department issued an order reestablishing water levels and operating procedures for the dam as a result of lake users' complaints. The order was appealed and affirmed by Jefferson Circuit Court. The order to affirm was appealed to District IV of the Wisconsin Court of Appeals. The Court of Appeals remanded the case back to the department for hearing. The department held meetings with involved parties resulting in the compromise that became Lake Koshkonong Dam's water levels order 3-SD-82-809 dated April 25, 1991.
10. On April 21, 2003, the Rock-Koshkonong Lake District filed a petition with the department to amend water level order 3-SD-82-809 as follows:

	<u>3-SD-82-809</u>	<u>The District's</u> <u>Petition</u>	<u>Increase</u>
	<u>MSL</u>	<u>MSL</u>	
Summer (May 1-Oct. 31) target level	776.2	776.8	0.6' (7.2")
Summer maximum when all gates must be open	776.33	777.0	0.67' (8")
Summer – when all gates can be closed	776.10	776.4	0.3' (3.6")
Winter maximum level (Nov. 1- Apr. 30)	775.77	777.0	1.23' (14.8")
Winter minimum level	775.00	776.4	1.4' (16.8")
Minimum flow from the dam	64 cfs	64 cfs	0

13. On June 6, 2003, the department requested that the Rock-Koshkonong Lake District complete an Environmental Impact Report (EIR) pursuant to administrative code NR 150.25 to evaluate the proposed water level increases. The purpose of an EIR was for the department to gain further information about the proposal and the environment, and to assist with the preparation of an Environmental Assessment pursuant to administrative code NR 150. The Rock-Koshkonong Lake District's initial response is dated October 28, 2003, with a second response dated April 22, 2004, which was amended in May 2004.
14. On December 14, 2004, the department released the draft Environmental Assessment (EA) for the proposed water level increases. The department is required by Administrative Code NR 150.03 (8) (f) 7. b. to complete a Type II action, which is an EA to determine if an Environmental Impact Statement is required. The public was asked to comment on the contents of the EA by February 2, 2005. A public meeting was held at the Fort Atkinson

High School on January 19, 2005, to present a summary of the draft EA information and to have department staff available to answer questions. About 150 people attended the meeting.

15. The Environmental Assessment process was completed on March 18, 2005 and it was determined that an Environmental impact Statement was not required.
16. Increased water levels would result in some navigational benefits on Lake Koshkonong. The District estimates that the increase of navigable area of Lake Koshkonong due to the proposed increase in water levels is 50 to 100 acres or less that 1% of the lake's current surface area. Further, some piers along the shoreline could be shortened if water levels were increased.
17. Increased water levels will have no effect upon water clarity and the frequency of algal blooms.
18. Increased water levels will have no beneficial effect on the abundance and diversity of the submerged aquatic vegetation.
19. The negative impacts likely to occur from the proposed increased water levels include: reduced aerial coverage and diversity of the emergent macrophyte community, increased wave erosion on unprotected wetland shorelines, more access to shallow marshes by roughfish, shallow marshes becoming more like open lake areas resulting in reduced emergent macrophytes, reduced aquatic insect populations and not achieving sediment compaction in shallow marsh over winter.
20. Lake Koshkonong has experienced significant wetland loss since the Rock River was impounded. The District reports that there was a 57-acre loss of shallow water wetlands between 1950 and 1969 and 76 acres between 1969 and 2000. Using the District's reported total wetlands, there has been a 4% loss of riparian wetlands around Lake Koshkonong over the past 50 years.
21. Thirty-eight percent of Lake Koshkonong's wetlands are partially protected by small rock 'breakwater' structures that are subject to flow-through, overtopping and ice deterioration.
22. The accelerated wetlands' loss and degradation due to the proposed increased water levels will make Lake Koshkonong less attractive to waterfowl for staging and local production and furbearers desiring high quality wetland habitat.
23. Increased water levels will degrade the high-quality floodplain forests, wet, wet-mesic prairies and sedge meadows and the Newville Carr which are home to numerous rare plant and animal species.
24. Increasing summer water levels will negatively affect amphibians and reptiles due to habitat loss. Loss of habitat will be a greater impact on the amphibians and reptiles than the impacts of the winter draw down.
25. Granting the District's petition to raise water levels could result in a change in the ordinary high water mark (OHWM).

26. The full extent of upstream area to be affected by the proposed increased water levels is unknown. These areas include at least 30 tributaries to Lake Koshkonong and reaches of the Bark, Crawfish and Rock Rivers.
27. The proposed increased lake levels' effects will raise groundwater levels up to 7.2 inches. However the spatial horizontal and vertical magnitude of the groundwater effects are not known.
28. The proposed increased water levels may increase erosion of significant archaeological deposits. Prior to any water level increase, the State Historical Society will have to have additional information to make a determination as to the disposition of affected areas and whether actions will be needed to protect the sensitive areas.
29. The Jefferson County Farm Drainage Board provided survey evidence to show that the proposed increase water levels will negatively affect Drain #39 and are opposed to any higher water level.
30. Reducing, eliminating or changing the timing of the winter drawdown would benefit winter hibernating herptiles by decreasing stranding and freezing mortality.
31. Reducing or eliminating the winter draw down would likely enhance ice fishing by reducing the number of fish that leave the lake during the winter. Improving the fish harvest rates of ice anglers will diminish the success rates of the open water anglers.
32. Reducing or eliminating the winter draw down would reduce the exposed lakebed during the winter, which will improve access to the ice.
33. During higher flow conditions as much as half the river flow passes through the wicket gates. However, the two wicket gates have been in a state of disrepair since at least the late 1980s and have only been able to release a fraction of their capacity. Both wicket gates are currently fully operable and can pass a significant portion of the flow of the Rock River as long as their trash racks are maintained in a trash free state.
34. Due to several conditions which include inoperable gates, poor maintenance, hydrologic conditions and failure to operate the dam, the winter draw down required in 3-SD-82-809 was not fully implemented or only partially implemented during most winters since 1991. Full winter drawdown as required in 3-SD-82-809 was achieved in 2002-03.
35. During the winter of 2002-03 there were several complaints concerning access from the landings to the lake for ice fishing and anecdotal information concerning the negative affect of the deep drawdown on ice fishing.
36. Reducing or eliminating the winter drawdown will increase wave action on the shorelines during the "open water" months of November and April.
37. Carp barriers exist on Mud Lake and Thiebeau Marsh to prevent adult carp from accessing the marshes as Lake Koshkonong is raised to its summer level.

38. The winter draw down to 775.75 msl will dewater Mud Lake, Thiebeau Marsh and other similar marshes to sufficient depth to cause fish, including carp, to emigrate out of these areas.
39. The current winter draw down has no impact on winterkill due to oxygen depletion.
40. Winter oxygen levels in the lake are more dependent upon river water quality and flows from the Rock River than they are from lake stage.
41. Fish kills have regularly occurred on Lake Koshkonong and have been documented since the 1930's. Fish kills during the winter will continue to occur from time to time regardless of lake stage. Historic fish kills have occurred from both oxygen depletion and super saturation of oxygen.
42. The winter draw down causes ice to form away from the shoreline, which reduces shoreline damage from ice expansion.
43. Reducing or eliminating the winter drawdown may expose offshore wetland protection barriers to additional destruction from ice.
44. Water levels have significantly increased through the years 1932-2003 during all seasons (spring, summer, fall, winter).
45. A comparison of the slopes of the time series among seasons indicates that water level increases during the summer and fall has been greater than those for spring and winter periods.
46. Average summer water levels of Lake Koshkonong (as recorded at Fort Atkinson) has increased by approximately 1.5 feet between 1932 and 2003.
47. In 1979 the department determination of the Ordinary High Water Mark (OHWM) elevation was 776.7 MSL. The 2003 OHWM elevation determination was 778.11 MSL. The OHWM has risen 1.41 feet over the period of time from 1979 to 2003. The most plausible combination of reasons for this increase are: 1) increased river flows into the lake; 2) a lack of operation of the spillway gates, including lack of maintenance of the trash racks and wicket gates, resulting in higher water levels; 3) implementation of order (3-SD-82-809) has resulted in raising water levels; and 4) interpretative error of the OHWM.
48. The State of Wisconsin has listed Lake Koshkonong under the Federal Clean Water Act under section 303(d) as an impaired water body. The listed impairments are eutrophication, sedimentation, and loss of habitat. Increased water levels during the open water seasons will cause more sedimentation into the lake from accelerated erosion and habitat loss from the destruction of riparian wetlands. It is the goal of the Federal Clean Water Act and the State of Wisconsin to remove impairments from water bodies that force the state to list it as impaired under Section 303(d). Increasing water levels will make it more difficult to remove Lake Koshkonong from the 303(d) list.
49. The most important ecological change for Lake Koshkonong has been the loss of wetlands

level is higher than 776.00 feet, MSL.”

This order shall not become effective until a public notice has been issued and if required a public hearing is required. The notice shall provide an opportunity for any interested persons to request a contested case hearing under Section 227.42 Wis. Stats., relating to this order, amendment. If a public hearing is requested, the existing order 3-SD-82-809 as amended December 14, 2004 shall remain in effect until there has been a final decision relating to this docket.

STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES

For the Secretary

By _____

Kenneth G. Johnson, PE
Lower Rock River Leader

Date: April 15, 2005