

Summary of the studies required to evaluate the RLIA proposal for a Water Level order change on Rock Lake, Jefferson County.

Received: December 22, 2023

Submitted by: Erin Cox, Water Management Specialist, WDNR

Summarized by: Susan Trier, RLIA

Purpose:

Healthy wetlands require periodic highs and periodic lows both within and between years. A proposed change in water levels has the potential to negatively impact the existing ecosystem as well as other surrounding waterways and native habitat. For example, an existing hard stem bulrush bed that provides excellent value to Rock Lake could begin to decline. A proposed change could also threaten a high-quality tamarack swamp to the west of Marsh Lake and convert currently vegetated wetlands to open water. These are a few examples of the types of conditions the department would need to evaluate with a water level order change.

In order to better understand the impacts that could occur with a prospective shift in the water level on Rock Lake, there are a few overarching questions that the department would need addressed, in order to make an informed decision. The department's goal is to pose some of those questions here, as well as some potential ways the questions could be analyzed through additional studies. The images that are provided here are for illustrative purposes only. The department is open to a qualified expert or consultant's opinion on best ways to gather information, or how to present data collected, as their professional opinion may differ from what is laid out here.

Study Area: (Outlined in red)



First Study: Land elevation to determine the steepness of the topography from the edge of the water/land interface (Original High Water Mark/OHWM) to 830-elevation. This can be done with simple survey data or available sub-foot LiDAR data. This study will seek to answer: *What wetland resources will be flooded earlier in the spring? At what level will we potentially see saturation all growing season?*

An example of how this could be accomplished:

Transects could be taken starting at the OHWM of the lake (where it appears cattails are located), taking elevation data along the transect radiating away from the shoreline. Elevation data should be gathered more frequently closer to the shoreline, then more sparsely further away from the lake. The department would envision the transects being approximately 400 linear feet apart from one another along the shoreline, going out perpendicular from the shoreline, and should be long enough to capture the 830-elevation. The actual distance from shoreline to the 830-elevation (aka the length of each transect) will likely differ around the study area.



A successful report out of this information would include a visual representation of the proposed summer high water elevation on a map, an 830-elevation line on a map, and the transects themselves.

Study Two: Community Extent Mapping which seeks to identify broad categories of wetland communities. This mapping would be done through 2023 (or most recent) aerials such as Google Earth Pro. This study will seek to answer: *What are the different wetland communities surrounding Rock Lake?*

The WDNR is confident, based on our review of available information, that there are a few wetland community types present surrounding Rock/Marsh Lake, including:

- i. Area of Common Reed (*Phragmites australis*)
- ii. Area where Cattail (*Typha latifolia*, *T. angustifolia*, and/or *T. X glauca*) is the dominant plant
- iii. Tamarack swamp (areas where tamarack is 10% areal cover or greater)
- iv. Native herbaceous dominated
- v. Native shrub dominated
- vi. Others as determined by wetland ecologist that do not fit into the categories above

Study Three: What is the floristic condition of the wetlands surrounding Rock Lake and Marsh Lake? In this study, the wetland plant community would be more closely assessed using the WDNR's Rapid Floristic Quality Assessment protocol. Implementing this protocol will require 20-30 in-person surveys. The location of these surveys should be determined in partnership with the WDNR after completing both the elevation study and the Community Extent Mapping. The surveys should be conducted between June 15th and September 1st 2024.

Note: RLIA has asked the WDNR to send the Rapid Floristic Quality Assessment protocol as soon as it is available.

Study Four: How far up Rock Creek, during high water conditions, would a change in water levels be discernible? The segment of Rock Creek to be studied exits Mud Lake and enters Marsh Lake. Using LiDAR data, the WDNR wants to try to discern at what point they would not see a hydrologic change south of Marsh Lake.

Optional (but very important) study: What is the current extent of the Hardstem Bulrush bed in Korth Bay? RLIA had wanted the survey done in 2022 or 2023, however, LWCD needed additional equipment to conduct it. This equipment has been procured, and the LWCD has committed to doing this survey in 2024. According to the 2018-2028 Rock Lake Management Plan, the hardstem bulrush survey was done in 1998, 2002, 2009, and 2011 by the WDNR and the LWCD. The density of the bed has increased over the survey years. Starting in 2022, the circumference of the bed was noted to determine if the size of the entire bed changes over time. Though the method can have some operator error, the size of the bed has appeared to have decreased by 1.2 acres in 2011 compared to the 2002, 2009 surveys. **Note:** One significant concern for the bulrush bed is the impact of enhanced wakes generated along its edge. The downward thrust of energy used to generate the enhanced wake would scour the bulrush bed which just edges the WDNR Sensitive Area and Slow No Wake Zone.

Committed Resources from the WDNR: Two days, two field trained staff
This staff could be used to train volunteers doing the vegetation surveys using the Rapid Floristic Quality Assessment protocol as well as conducting the surveys.

Committed Resources from Jefferson County Land & Water Conservation Dept. (LWCD): There is a commitment to provide resources, however, the extent is currently undefined. LWCD plans to outline their available resources during the 2/20th City Council Meeting.

Committed Resources from the City of Lake Mills: Unknown

Committed Resources from the Town of Lake Mills: Unknown. **Note:** According to Roberta Winebar, WDNR-Financial Assistance Senior Specialist, the Town of Lake Mills may use a portion of their boat launch fees for this study because the study is directly related to water level issues that have caused damage to the launches.

Updated: 2/1/2024