

Project Fact Sheet

Fountain Lake Restoration East Main Bay and North (Bancroft) Bay



Date: July 24, 2024

Subject: Shell Rock River Watershed District, Fountain Lake Restoration Project Fact Sheet

PROJECT FACTS

- A. **Fountain Lake is impaired for nutrients and fish bioassessment.** Phosphorus, the nutrient of concern, greatly exceeds the Minnesota standard (must reduce phosphorus by 69% - 71% to meet standards [MPCA, 2021]).
- B. Fountain Lake's water quality has been studied extensively with multiple lake models and watershed analyses concluding that internal loading is a significant source of the overall phosphorus level for the Lake (65% of phosphorus load pre-dredging [Draft TMDL, 2012]).
- C. **Fountain Lake will not meet the Minnesota state water quality standards for nutrients if internal loading of phosphorus is not completely addressed.**
- D. Dredging in North (Bancroft) Bay will reduce internal phosphorus loading to Fountain Lake by removing deposited bottom sediments. The reduction in internal loading will lead to reductions in Fountain Lake's average and maximum summer total phosphorus concentrations; reduction in the magnitude of phytoplankton concentration; reduction in average chlorophyll-a concentrations; reduction in resuspended deposited sediments from wind driven waves, vessel driven propeller wash, and rough fish action; and increased average and maximum summer water clarity.
- E. During the Environmental Assessment Worksheet (EAW) formal comment period, the Minnesota Pollution Control Agency (MPCA) provided the following comment: **"Overall, this is a good project. The dredging will improve the Fountain Lake ecosystem by reducing internal phosphorus release into the water column from accumulated sediment as well as sediment resuspension through wind and wave action. In addition, the proposed project will restore lake depths and provide greater refuge for fish during increasingly hotter summer temperatures. No negative environmental effects are anticipated to result from this Project."**
- F. Sediment core data has been collected over multiple years across the entirety of Fountain Lake. The sediment cores were used to quantifying the phosphorus content and fractions within the lakebed sediment spatially across the Lake, the depth of deposited sediment over the natural Lake bottom, and the toxicity levels within the sediments to evaluate safety for removal and disposal.
- G. North (Bancroft) Bay had sediment cores that showed some of the **highest levels of mobile phosphorus (phosphorus released during conditions that favor internal loading)** of any sediment cores across the Lake.
- H. Feasibility studies evaluated multiple scenarios to accomplish water quality restoration goals and deemed **dredging as the only feasible and cost-effective approach.**

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- I. Multiple modeling approaches (Bathtub, Delft3D, FLUX32) and scenarios have been conducted by the state and multiple private consulting firms that all conclude internal loading is a critical driver in Fountain Lake's water quality impairment. Watershed versus internal lake phosphorus loading was evaluated in multiple scenarios within the completed water quality studies. These scenarios deemed reductions in internal phosphorus loads critical to Fountain Lake restoration efforts. Additionally, it was noted that watershed reductions in phosphorus can occur in parallel with in-lake efforts.
- J. The strategic top-down watershed restoration approach has implemented numerous projects over 20 years to promote water clarity and ensure success and longevity from dredging. To date, **monies spent on upland practices to reduce pollutant runoff and in-lake treatments equal \$37,607,800, with an additional \$2,259,700 spent on studies and water monitoring.**
- K. North (Bancroft) Bay is where a majority of native aquatic vegetation is found currently in Fountain Lake. However, it is predominantly coontail. Fountain Lake is not designated as a MNDNR Wildlife Lake, MNDNR Migratory Waterfowl Feeding and Resting Area, or a MNDNR Lake of Biological Significance which indicates the current habitat condition is not of high quality. Temporary impacts for the proposed dredge project will occur to approximately **41%** of North (Bancroft) Bay where the most phosphorus-rich sediments are located. The SRRWD will continue to study the Lake post-dredging and implement an adaptive management plan, as needed, to restore more desirable native aquatic vegetation and fish habitat within the areas temporarily impacted to enhance the quality and richness of the North (Bancroft) Bay.
- L. Blanding's turtles may be present in the project area with the most recent unverified sighting occurring in 2009. The SRRWD expects to implement a Blanding's turtle avoidance plan to meet permit conditions while also offering staff an observer during dredging operations in North (Bancroft) Bay. Dredging in the summer rather than winter reduces risk because Blanding's turtles are active and frequent upland areas. **Additionally, previous phases of this Project that successfully obtained MNDNR permits included dredge areas closer to more recent confirmed Blanding's turtle sightings than what is found in North (Bancroft) Bay.**
- M. The Shell Rock River Watershed District will work with Freeborn County Sheriff's Water Patrol to make North (Bancroft) Bay a **no-wake zone** with signs and markers posted. Post-dredging water depths will average 4-6ft. in a majority of the North (Bancroft) Bay Project area. This will not be conducive to a noticeable increase in motorboat traffic. The City of Albert Lea owns much of the land around North (Bancroft) Bay with other areas not zoned for residential or commercial development.
- N. Dredged materials will be disposed of in the CDF which drains back to Fountain Lake, therefore there is no water usage or withdrawal within the scope of this Project.

WATERSHED DISTRICT'S REQUEST

The Shell Rock River Watershed District (SRRWD) requests your support assisting the approval of the MNDNR Public Waters Work Permit (PWWP) to authorize the work within this Project. The outcomes of this Project are in direct alignment with the comprehensive list of existing studies completed by both the state and private entities. Activities defined within this Project are also directly aligned with the **SRRWD's state approved Comprehensive Watershed Management Plan (CWMP)** priorities and implementation actions. The SRRWD requests that the clearly established precedence from previous dredging in Fountain Lake and similar projects within the state of Minnesota be followed for this Project and that the permit be approved.

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BACKGROUND

The SRRWD is proposing to dredge phosphorus-rich sediments from Fountain Lake's East Main Bay and North (Bancroft) Bay to restore the water quality conditions of Fountain Lake (the "Project"). The Project is sponsored by the SRRWD and funded by Minnesota state bonding dollars (\$9 million) and a **local option sales tax**. This Project is the final phase of the Fountain Lake Restoration Project with earlier phases including the dredging of West Bay and East Main Bay which was completed in 2021.

The SRRWD was established in 2003 for the purpose of improving water quality in the Shell Rock River Watershed in southern Minnesota. The SRRWD has been effectively implementing numerous watershed restoration projects that address critical concerns impacting the water quality in this watershed. The watershed top-down approach has included creation and restoration of wetlands, stream restoration, rerouting public drainage to wetland management areas, individual sewage treatment (ISTS) upgrade program, rough fish barriers, cover crop incentive programs, street sweeping, adopt a drain program, public education, and working with partners, like the City of Albert Lea, on the former Edgewater Bay dump cleanup. Recently the SRRWD completed a Comprehensive Watershed Management Plan approved by the state's Board of Soil and Water Resources (BWSR) through their One Watershed One Plan program. Fountain Lake is a top priority in the Comprehensive Watershed Management Plan due to both its location within the watershed and its value to the public as a recreational and economic amenity in the area. Restoring Fountain Lake through watershed implementation and **in-lake projects** is a key target of the Comprehensive Watershed Management Plan.

The Project will remove approximately 650,000 cubic yards of phosphorus-rich deposited sediment via hydraulic dredging from Fountain Lake's East Main Bay and North (Bancroft) Bay. Dredged material will be disposed of in a Confined Disposal Facility (CDF) that was established as a part of the previous dredging efforts. SRRWD anticipates fulfilling permit conditions established for the first phases of dredging with notable efforts including water quality monitoring of the CDF outflow as well as a Blanding's turtle avoidance plan that includes obtaining an observer to be present during dredging efforts in North (Bancroft) Bay to help avoid the turtles.

The need for this Project is outlined in detail within the numerous studies completed by the SRRWD and state agencies over the last 30 years. In fact, removal of phosphorus-rich sediments was first evaluated in North (Bancroft) Bay as far back as the 1970's. More recent efforts were the result of the SRRWD's creation and focus on water quality and was cemented with the designation of Fountain Lake as impaired for nutrients on the state's 303(d) Impaired Waters List in 2008. Fountain Lake has been rigorously studied and modeled to determine an appropriate restoration approach which is highlighted by the following studies. These studies concluded that internal phosphorus loading is the largest source of phosphorus loading to the Lake and dredging to remove the phosphorus-rich sediments is the most feasible approach to address this issue. **This modeling shows that the internal phosphorus loading cannot be reduced enough to remove Fountain Lake off the impaired waters list without dredging.**

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STUDIES

- Proposal for the Restoration of Fountain Lake (Clean-Flo Laboratories, 1979)
- Lake Assessment (MPCA, 1993)
- Risk Assessment Report – Bancroft Bay Dredging Sediment Disposal (Wenck, 2006)
- Bancroft Bay Sediment Depth Investigation and Proposed Contour Plan (Wenck, 2006)
- Fountain Lake Sediment Dredging Assessment (Barr, 2009)
- Fountain Lake Dredging: Potential for Water Quality Benefits (Barr, 2012)
- Fountain Lake Restoration Preliminary Engineering Report (Barr, 2014)
- Modeling Fountain Lake Total Phosphorus Inflows and Outflows (Barr, 2017)

TIMELINE

The following table includes key dates in the effort to restore the water quality of Fountain Lake, with efforts associated with this Project are bolded.

Date	Activity
1979	First proposal to restore Fountain Lake
1993	MPCA Fountain Lake Assessment
2003	SRRWD established
2009	Bonding request for Lake dredging
2010	Albert Lea Lake Watershed Management Plan
2012	Draft Nutrient TMDL for Fountain Lake
2014	Preliminary Engineering Report (PER) for Fountain Lake Restoration and completion of Delft3D lake model
2014	SRRWD Second Generation Water Management Plan
2016	EAW + Negative Declaration
2017	MNDNR Permit Approved for Phase 1 and 2 Dredging
2018 - 2021	Dredging Operations in 3 of 4 bays in Fountain Lake
2021	Approved Nutrient TMDL for Fountain Lake
2022	Shell Rock River and Winnebago River Comprehensive Watershed Management Plan (CWMP)
6/1/2023	Bonding Approved for Project
4/3/2024	First Coordination Meeting with MNDNR Staff
5/14/2024	EAW + Negative Declaration
5/20/2024	MNDNR Public Waters Work Permit (PWWP Application Submittal
6/12/2024	Second Coordination Meeting with MNDNR Staff
7/17/2024	Third Coordination Meeting with MNDNR Staff

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MINNESOTA DNR CONCERNS AND REQUESTS

The Minnesota Department of Natural Resources (MNDNR) has communicated concerns with the Project during the two coordination meetings and within the comments for the 2024 EAW. To address these concerns, the MNDNR has made requests for additional information and studies. The concerns and requests include the following (responses follow):

- The overall project need.
 - See Project Facts A, B, C, and E.
- Validity of water quality models and study outcomes.
 - See Project Fact I.
- Request for project examples in similar watersheds with heavy agricultural land use.
 - See Project Fact I.
- Permanent impacts to and removal of habitat areas deemed critical in North (Bancroft) Bay.
 - See Project Fact K.
- Detrimental impacts to Blanding's turtles.
 - See Project Fact L.
- Increase in recreational boat usage within North (Bancroft) Bay.
 - See Project Fact M.
- Increased development around North (Bancroft) Bay.
 - See Project Fact M.
- Need for a water appropriation permit.
 - See Project Fact N.