

Future of Freeborn Lake

Freeborn City Hall on July 20, 2015 6:30 pm to 8:30 pm

Meeting Notes

After the initial Freeborn Lake meeting on April 14, 2015 there was a strong response to requests for people to volunteer to stay involved in a lake planning process. Those self-nominating were invited to a follow-up meeting held on July 20, 2015 to initiate a path forward. Rather than formalize any committee structure, for now monthly meetings will be held with this group acting as the citizen's advisory group. If needed in the future, elected officials from the City of Freeborn, Freeborn and Carlston Townships and Freeborn County would be called upon to act as voting representatives on a steering committee taking input for this group. The group discussed meeting goals and objectives, where we go from here, knowing the support for improved water quality and maintaining the interests in wildlife, fisheries, recreation and aesthetics.

After introductions of those in attendance, Jeanine Vorland, Department of Natural Resources (DNR), presented an overview of the Citizens Survey from the April meeting. For the Needs Improvement tally, water quality ranked highest, followed by recreation, fishing and wildlife then aesthetics. For the Most to Least Important tally, notably water quality was overwhelmingly supported as the most important. Twenty-five surveys were returned. Two of these had results from 2 respondents for a total of 27 surveys; however, not all respondents provided information in every category.

Rank	(A – E)	1 ←	2	3	4	→5
		Needs improvement ----- Couldn't be better				
A	Water Quality	Average rating = 1.09				
B	Wildlife	Average rating = 1.91				
B	Fishing	Average rating = 1.81				
C	Recreation	Average rating = 1.60				
C	Aesthetics	Average rating = 2.48				

A background image showing a sunset over a body of water, with the sun low on the horizon and its light reflecting on the water's surface.

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Ducks Unlimited (DU) staff recently completed the initial topographic survey of Freeborn Lake and the elevation data was displayed on two maps. Josh Kavanagh summarized the results. On the existing dam, the top of concrete elevation fluctuates some as the dam is not in a state of good repair. Top of a new structure would likely closely mirror the top of the existing dam around elevation 1215. The lake's deepest point surveyed on the lake was 1209.16 (or about 6.6 feet deep on that day) just west of Arrowhead Point in the County Park. At the time of the survey water levels were normal for the season with low water flows spilling over the dam. The DU survey work found a sandy bottom around the perimeter of the lake, but noted deep silts in the central part of the lake.

The results of this survey suggest a velocity culvert type fish barrier is feasible at the first road crossing downstream of the dam. A variable crest structure is also feasible as a replacement for the current fixed crest dam at the same location. The variable crest feature is needed to provide additional capacity for managing rough fish, improving water clarity and improving wildlife habitats. Further modeling and engineering will need to be completed.

Steve Kittelson with the DNR Shallow Lakes Program summarized the results of a lake vegetation survey including water clarity that had been conducted earlier in the day. The survey was a systematic sampling of a grid of GPS points covering the entire basin. Water clarity as measured with a Secchi disk averaged 6 inches or less and no rooted submersed vegetation was found at any of the sample stations. These results were similar to those from the last habitat survey conducted in 2012. The full habitat survey results will be available at a later date.

Freeborn County staff discussed the importance of addressing water quality in any projects involving the lake. Water quality sampling in recent years has identified the need and improvement strategies are also being developed through LeSueur River Watershed and County Water Planning.

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Water quality standards, how they are derived (are they realistic for Freeborn Lake?) and how to improve water quality was discussed. Improvement strategies fall into two categories: those addressing **internal** pollutant loads; and those designed to reduce impact from **external** loading. DNR/DU resource folks talked about **internal** loading on the lake, that there is an abundance of nutrients, specifically phosphorus and nitrogen already within the lake. Submergent and emergent vegetation utilizes these nutrients. Vegetation also protects the shoreline from wave action erosion and stabilizes the lake bottom sediments. Drawdowns are a mechanism to reestablish the seed beds. Drawdowns also help facilitate the management and removal of rough fish. Rough fish displace vegetation and continuously forage the lake bed further suspending sediment which impacts water clarity. Further rough fish management strategies being considered include rotenone treatment after drawdown and the installation of a velocity tube on the Cobb River at the intersection of CSAH 6. A velocity tube is a smooth walled culvert designed for faster flowing water and a steeper grade that prevents fish passage back into the lake. Certainly **external** loading from municipal and agricultural runoff will need to be addressed also via best management practices and buffers such as filter strips.

Department of Natural Resources staff explained the need and timing of a drawdown if pursued to improve water quality. The dam could be designed to be a variable crest dam and the DNR follows a lake management plan on what triggers a draw down event. Typically, the lake would be lowered as much as possible in the fall to promote a winter fish kill. Leaving the lake low over the spring and summer months promotes the establishment of desired vegetation before restoring the lake levels.

A show of hands indicated a consensus to replace the dam, but how to fund such a project was debated. Concern was expressed that inviting in the partnership with DU may bring too many strings focused on wildlife and eliminating the recreational boating opportunities on the lake. Technical resource folks from the DNR and DU highlighted other successful projects such as State Line Lake in improving water quality that benefits all interests. Josh Kavanagh relayed that DU cannot utilize their funding authority without commitment to improving wildlife habitat and water quality, which are directly related.

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There was a great deal of discussion on the vegetation: what type is expected and how to mitigate the types not desired such as the hybrid cattails; how far from shore would the vegetation extend and how would the vegetation impact recreation use. Further modeling can help answer these questions as the group works to develop a lake management plan for Freeborn Lake.

The feasibility of increasing the water depth in the lake was also discussed. Raising the water level by raising the dam is not feasible due to legal and other constraints. Dredging to deepen the lake and remove soft sediments and nutrients had been studied in the 1970s. It was noted that this practice is expensive. Department of Natural Resources staff indicated is not a solution to the water quality problems that would be pursued or funded by the DNR or DU. Dredging is expensive. While it can be used to remove nutrient rich sediments, there is a high degree of uncertainty that it would improve fish and wildlife habitats.

Other issues discussed included future lake access development. The DNR water access staff can attend a future meeting to better address these questions and concerns.

It was agreed to meet monthly on the third Thursday of the month at 6:30 pm at the Freeborn City Hall to create the lake management plan. Lake information and samples of other plans will be posted on the Freeborn County website at the following link: <http://www.co.freeborn.mn.us/367/Future-of-Freeborn-Lake>