Crissy Lake Dam Project: Frequently Asked Questions

Dam Overview

1. Who owns the dam?

The State of Minnesota, through the DNR Ecological and Water Resources Division, operates and maintains Crissy Lake Dam and is therefore considered the owner according to MN Rule 6115.0320 Subp.10. The City of Morris owns the park area surrounding the lake.

2. Why is it being called "Crissy" when the dam is known as "The Mill Dam"?

The dam is listed on the National Inventory of Dams and the MN DNR Dam Index as "Crissy Lake Dam." The name "Crissy" comes from the official lake name as "Crissy Lake," seen on the first Minnesota Inventory of Lakes in 1968. Though it is spelled different, the name could be from Stevens County's 1933-1938 State Representative, A.D. Crissey. Pomme de Terre Park was initially acquired during Crissey's term in 1936.

3. What issues are the dam causing?

- Barrier to Aquatic Life: The dam acts as a significant barrier to passage by aquatic organisms including up to 15 fish species and eight mussel species.
- Stream Stability Problems: Stream stability issues related to sediment filling in the upstream reservoir as well as scour and erosion occurring downstream of dam.
- Safety Hazards: The current structure presents a safety risk associated with low head dams known as a "Hydraulic Roller" or "Drowning Machines."

Project Overview

4. Why are we replacing the dam?

We are trying to proactively address aging infrastructure and mitigate safety risks associated with outdated structures. The current dam was built in 1939 and is 86 years old. The designed life span of dams is generally 50 years.

5. When is the dam going to be replaced?

At earliest, the dam could be replaced in the Fall/Winter of 2026-2027. The Get Out MORE funding is available until June 30, 2029.

Work on dam replacements usually takes place in the fall or winter seasons. This is the time with the lowest water levels; lowest risk of a weather event to drastically raise the water levels; and has the least impact to fish and other aquatic organisms that use these areas.

6. Who is involved?

The project partners include the Minnesota DNR, Pomme de Terre River Association, and City of Morris. Houston Engineering has been hired by the Pomme de Terre River Association to lead the project management. Several other entities have also been advising on the project including the Stevens Soil and Water Conservation District, the MN Pollution Control Agency, Stevens County Highway Department, and more.

7. Have other projects been done like this?

Yes. Converting dams to rock arch rapids has been done in 90+ locations in Minnesota. The closest similar project is the modification of the dam on the Pelican River in Pelican Rapids, MN. This dam was converted to a rock arch rapids, while lowering the upstream water levels. This project was completed in 2023.

Funding

8. Who is funding the project?

The project is fully funded by the DNR through the Get Out MORE initiative. This was a one-time initiative enacted by the 2023 Minnesota Legislature. Included in the initiative is $10 million targeted to projects that are barriers to fish and aquatic organism passage on streams. This includes 10 dam removal/modification projects and five culvert replacements. Three of these dam modifications are on the Pomme de Terre River. The other two dams that were funded are the Perkins Lake dam, and Pomme de Terre Lake Dam (near Elbow Lake). More information about the "Restoring streams and water-related infrastructure" portion of the Get Out More Funding can be found here: https://www.dnr.state.mn.us/aboutdnr/get-out-more/restoring-streams.html

9. Who approved the funding for the Crissy Lake Dam project?

DNR staff met with the Stevens County SWCD, Pomme de Terre River Association, and the City of Morris over the winter of 2023-2024 to discuss the possibility of working on a project at the Crissy Lake Dam. An application was submitted through the Pomme de Terre River Association with a letter of support from the City of Morris to fund a potential project.

The project was scored through the DNR's Stream Restoration Priority List, and was the top scoring applicant that met the criteria for the Get Out MORE funding. Funding became available on July 1st, 2025.

10. What are the requirements of the funding?

As part of the application the approach listed was to convert the dam to a rock arch rapids. Ideally, the height of the rapids would be lower than the dam to match the height of the accumulated sediment upstream. Rock arch rapids are the most common way dams are being modified in Minnesota to address safety, aquatic organisms passage, and reduce

maintenance. Rock arch rapids have been successfully used at over 90 dam locations within Minnesota.

Design and Construction

11. Why is a rock arch rapids being built instead of just replacing the dam with a new dam?

Rock arch rapids are widely recognized as an effective dam alternative in Minnesota, offering:

- Natural passage for fish and aquatic organisms.
- Spawning habitats for gravel-spawning fish.
- Elimination of the dangerous hydraulic roller effect of low-head dams.
- Safe passage for canoes and kayaks during moderate to high flows.
- Minimal maintenance needs.

12. Why are there two rock arch rapids being built instead of just one where the current dam is?

- **Structural Integrity:** The existing dam and embankment are 86 years old. Keeping the current dam, or dam location at this embankment does not address concerns with the aging embankment, of unknown stability. Optimally the dam embankment would not have trees established on it. Their root systems create a pathway for water to seep through and weaken the embankment, potentially leading to failure. Another issue is that the river channel runs right along this embankment both up and downstream of the dam. This is another potential failure area that this project is trying to address.
- **Engineering Constraints:** The dam's current 10-foot height exceeds the capacity of safe rock arch rapid design. Dividing the drop into two 6-foot or less rock arch rapids reduces the risk of failure and material costs while improving hydraulic stability.

13. Why lower the water level?

When the DNR surveyed the lake in spring 2024, the elevation was 1080.48 ft, with most of the reservoir being less than 1.5 ft deep. Lowering the water level will reduce the long-term risk associated with the project and help restore the channel to its natural form before the dam was built. The higher the water level, the higher the risk of failure of the rock arch rapids is. Lowering the water level will also provide more room for canoes and kayaks to pass below the Hwy 10 bridge.

14. What about sediment? Will there be an increase if there isn't a dam holding it back and won't it just cause a problem somewhere else?

With any of the proposed options, most of the sediment currently held in the upstream reservoir will be stabilized in place. Additional sediment coming downstream the Pomme de Terre River may be deposited in the river's floodplain; fill in the remaining reservoir upstream; or move through the rock arch rapids. These are all normal processes that happen in river systems.

Sediment naturally moves through river systems. Dams slow stream flow causing sediment to drop out of the water in the upstream reservoir. Downstream waters are often sediment deprived, resulting in excess erosion of the streambed and streambanks below dams. The upstream reservoir is very shallow and will continue to fill in as sediment comes down the river. Over time, the reservoir upstream will fill in and a river channel will form through it.

Once a design plan for the project is finalized, there will be extensive modeling done using FEMA Floodplain mapping system and Houston Engineering's various hydraulic and hydrologic systems to ensure this issue is addressed.

15. How much sediment is there?

Looking at the initial plans for the dam from 1935, it was stated that the average water depth was going to be 6-7' deep in the reservoir. Currently most of the reservoir is less than 1.5' deep, with no river channel to be found upstream of CR 10. This filling in of the reservoir and old river channel are due to sediment settling out over the decades.

16. What actions are being taken to address sediment during construction?

Construction will take place during the fall or winter during low flow. This will reduce the amount of sediment that is mobilized. Additional sediment control will take place downstream that could include the current dam and/or silt curtains.

17. Who will be responsible for the maintenance of the new greenspace?

The land would be a part of the Morris City Park, and the city would be responsible for taking care of the area.

Part of the current funding with this project includes a budget for planting the exposed land. This likely would include native grasses, shrubs, trees or pollinator habitat. The funding could be utilized by the Stevens County SWCD, who has the equipment and experience to help establish and maintain these plantings before the current funding runs out.

18. Who will be responsible for maintenance of the rock arch rapids?

DNR would remain responsible for the operation and maintenance of the rock arch rapids into the future. DNR staff will keep an eye on the rock arch rapids in the first two to three years after the rock arch rapids is constructed to make sure there are no issues taking place that need to be addressed.

There is usually an Operation and Maintenance Plan that is created as part of these projects to guide any maintenance long term. DNR's Dam Safety still does regular monitoring of the rock arch rapids structures as they are still a water control structure, and this monitoring will occur every eight years.

Fishing

19. What will happen with fishing?

Fishing in the vicinity of the dam will be different with any version of this project. Currently all fish species moving upstream on the Pomme de Terre River are blocked by the dam, and this creates a great place to target many of these fish right below the dam. After a project the fish will not be as concentrated. However, we still expect fish to gather below the rock arch rapids as they stage before ascending them. Moving up rock arch rapids is very energy-intensive for fish, so they often need to rest before attempting it. Still, it will not be the same as the complete blockage created by the current dam.

Currently the fish species blocked by the dam that are commonly caught or targeted by anglers include: Channel Catfish, Golden Redhorse, Lake Sturgeon, Quillback, and Silver Redhorse. Modification of the Crissy Dam, along with the Perkins Lake and Pomme de Terre Lake dams will open 61.5 miles of river for these fish species where they are currently absent. Channel Catfish and Lake Sturgeon in particular are very conducive to river shore fishing and would provide excellent fishing opportunities that currently do not exist upstream of the dam. So, while catch rates may decline immediately below the dam, it is important to keep in mind how fishing will benefit upstream, both right above the dam within the city park but also all the way into Otter Tail County.

Lastly, rock arch rapids are built with pool and riffle habitat in them. The riffles are often utilized by gravel spawning species (Walleye, Sucker, Redhorse, Lake Sturgeon) to lay their eggs on.

20. How will fishing change in the reservoir upstream of the dam?

With the project there will be additional areas on public land for anglers to fish. DNR Fisheries has funding to include shore fishing opportunities within the city park, some of which will be ADA-accessible. In addition, during construction of rock arch rapids, flat

rocks are sorted out and used to create easier areas for the public to access the shoreline of the rock arch rapids areas. So, there will be more fishing locations spread out along the river within the city park, rather than being focused on one location immediately below the dam.

21. What will happen with fishing downstream of the dam?

Fishing below the dam is currently done on private property, and we cannot control what happens on this property as part of this project.

22. Will shore fishing be part of this project?

With the project there will be additional areas on public land for anglers to fish. DNR Fisheries has funding to include shore fishing opportunities within the city park, some of which will be ADA-accessible. In addition, during construction of rock arch rapids, flat

rocks are sorted out and used to create easier areas for the public to access the shoreline of the rock arch rapids areas. So, there will be more fishing locations spread out along the river within the city park, rather than being focused on one location immediately below the dam.

23. Won't removing the dam allow invasive species such as carp to enter new areas on the river?

Common Carp are already found up and downstream of the Crissy Dam. Silver, Bighead and Grass Carp are currently blocked by the Granite Falls and Lac qui Parle Dam further downstream on the Minnesota River. Silver Carp especially like to move during very large floods. Silver Carp have faster swimming speeds and higher jumping abilities than any native fish – so they would pass the dam more easily during a flood than any of the native species. Freshwater Drum did pass this dam during the flood of 2012. Zebra Mussels have already been found in most of the upstream lakes in the watershed.

24. What should we know about Sturgeon moving upstream on the Pomme de Terre River?

Dams and commercial fishing decimated Sturgeon population worldwide. Lake Sturgeon almost disappeared from Minnesota in the early 1900's. Lake Sturgeon are native to the Minnesota River basin and have been caught in recent years below the Crissy Dam.

Sturgeon primarily eat aquatic macroinvertebrates, freshwater mussels, snails, crustaceans, and small fish. They are one of the few predators on Zebra Mussels – which also include Channel Catfish (Blocked by the Crissy Dam) and Freshwater Drum.

Lake Sturgeon are well established in some of the most popular Walleye Fisheries in the state. Including Lake of the Woods, Red Lake, St Croix River, Ottertail River system (Ottertail, Rush, Big and Little Pine Lakes). They have become a very popular gamefish, as it is the largest fish we have in Minnesota.

Other Questions

25. Where can I learn more about the project?

The Pomme de Terre River Association has a page on their website dedicated to the project: www.pdtriver.org/crissy-lake-dam-modification/

The webpage has links to recordings of previous presentations, examples of similar projects completed, information on rock arch rapids, and more.

26. How can I provide comments or ask additional questions?

The project partners will accept public input until March 20, 2025. Please submit all comments, questions, and concerns using the form on the Crissy Lake Dam Modification webpage: www.pdtriver.org/crissy-lake-dam-modification/