



Crystal Loon Mills CWP

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Crystal Loon Mills Clean Water Partnership

Upcoming Events

- **Take a Kid Fishing Festival, June 6th 9am-noon, Robinson Park, Lake Crystal.** Join us for a morning of fun-filled educational events, door prizes, & fishing in the afternoon. Preregister for your chance to win a rod & reel! Call or email Sarah to sign up.
- **CWP Fun & Games Booth @ Lake Crystal Duck Days Family Night, June 20th, Robinson Park.** Come visit us during Duck Days Family night for a chance to play some games & learn about water quality, fish, & other things that wriggle, flop & crawl around in water!

Fish & Water Quality: Guest Q & A w/Marc Bacigalupi, Part 2

Q: What is winterkill and how does it affect water quality? Winterkill is the name for an event when fish die due to the lack of dissolved oxygen in the water under the ice in winter. Winterkill events should be distinguished by their severity. Complete winterkills can be good for water quality by killing all fish including bottom-feeders and open-water feeders (see their effects in the previous answer). Partial winterkills can be negative for water quality because bottom-feeders and open-water feeder fish species are more tolerant to low oxygen conditions. Fish-eaters suffer the most in these partial

kills and a corresponding poor water quality response can occur. Gamefish are re-stocked after winterkills but their survival can be poor when faced with competition from an already established fish community.

Q: How does winter aeration affect water quality? Aeration systems positively affect water quality when they open up enough water to keep dissolved oxygen levels high enough to support gamefish populations (fish-eaters). They can work against good water quality when they perform poorly and only provide enough oxygen for bottom-feeders and open-water feeders but not fish-eaters. In another way, they have the positive effect of de-stratifying the layers of water in a lake. If a layer of oxygen-free water forms at the lake's bottom, phosphorus previously sunk in the sediments can re-suspend in the water through a natural chemical reaction. We know that too much phosphorus tends to grow green algae.

is it used to improve water quality? Rotenone is a compound found in the roots of certain plants. It can be harvested and ground into a powder or dissolved into a liquid formulation. It kills all fish by inhibiting their ability to use oxygen in their blood. A rotenone treatment is used to mimic the effects of a complete winterkill. Removing all the bottom-feeders and the open-water feeders improves water quality by the process described above. Gamefish can be re-stocked after a rotenone treatment.

Q: How would a lake draw-down affect fisheries in Crystal & Loon Lakes? Drawdowns stimulate aquatic plant growth and can create fish habitat and sediment stabilizing plant stems and roots. They can be used as a set-up for either winterkill or rotenone treatment, the effects of which were discussed above.

Marc B. is the Assistant Area Supervisor for the DNR Fisheries office in Waterville.



Announcing!!



Hey Folks! It's time to break out your cameras, sketch pads, & crayons again for the **2nd Annual CLM Viewers Choice Photo & Art Contest**. This contest is FREE & open to everyone — adults & kids! The due date for submissions will be in July & voting for winners to take place in August. Entries will be available for viewing online or in person at the CSU gallery at MSU. Votes can be cast online, by mail, or in person. Watch for more info regarding submission & award dates, prizes, & rules in upcoming newsletters and on our website.



Crystal Loon Mills Clean Water

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*Your partners for clean water in
the Crystal Loon Mills Watershed*

*Check out our NEW
website for more info &
upcoming community
events!*

[http://
mrbcd.mnsu.edu/org/
lakecrystal/index.html](http://mrbcd.mnsu.edu/org/lakecrystal/index.html)

Aquatic Plants & Water Quality: Guest Q & A w/Matt Ribikawskis

Matt is currently a graduate student at MSUM, working on his master's degree in biology with an emphasis in water quality & fisheries. Matt is also the graduate assistant for the CWP. We asked Matt a couple questions about his thesis project & the research he's doing on Crystal Lake.

Q: What is the subject of your thesis project?

Transplanting aquatic plants into Crystal Lake, to help remove phosphorus from the lake.

Q: What impact do you think your project may have on water quality on Crystal Lake?

We are hoping to provide some information on how to help remove phosphorus, which could reduce algae, and

increase water clarity. However, in order for the water quality to truly increase, aquatic plants are a necessity to help restore a lake like Crystal Lake.

Q: What are the cages for?

The cages are meant to protect the transplanted plants from fish, like carp, that can uproot and destroy the plants. Also, since there aren't many places for fish to hide from predators, we are hoping to provide some areas for smaller fish to hang out.

Q: Will the plants from your study spread to other parts of the lake?

They shouldn't. We are harvesting all the plants at the end of the year and plus this plant al-

ready grows in Crystal Lake, between Crystal and Loon lakes.

Q: Do fish have an impact on water quality?

Yeah. Some species, like carp and bullheads, can stir up the bottom and release sediment and phosphorus into the water column.

