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Improving Rush Lake's Water Quality: Campaign Progress Report

By David Cartwright, RLIA Vice President

This article is a ***progress report*** on recent developments, which have occurred since the Winter 2008 Rush Report, as a result of efforts by the RLIA to improve the water quality in Rush Lake.

Present Status of Rush Lake and Rush Creek

As reported in the Winter 2008 Rush Report, both Rush Creek and Rush Lake are listed on Federal Clean Water Act's 303(d) list of "impaired waters" based on data collected from these waters between 1997 and 2002. The impairment classification for Rush Creek is due to a "low Index of Biological Integrity (IBI)" [which is a measure of a stream's biological health] and, for Rush Lake, the impairment classification is a result of "elevated levels of Phosphorous & Chlorophyll-*a*". About 297 lakes were added to the MN impaired waters list in 2008 and, as is the case with Rush Lake, the primary lake contaminant in most of these lakes is Phosphorus accumulation from farming and/or residential fertilizer.

The MN state agencies responsible for lake and stream water quality [DNR, MPCA, SWCD] are concerned about the pollution in Minnesota's lakes, rivers, and streams that degrades the quality of life, and damages ecosystems and correcting the contamination problems is as high priority to them as it is to us. As previously reported, the first step to remedy any water body that is on the federal impaired waters list is to complete a Total Maximum Daily Load (TMDL) study [within 15 years of the date it was first identified as an impaired body] of all the pollutants that enter from the watershed.

A. The TMDL Study

In the period since the Winter 2008 Rush Report, the RLIA has completed a proposal specifically for the TMDL study for Rush Lake and Rush Creek and submitted that proposal to the MN Pollution Control Agency (MPCA). It is our understanding that this project has a relatively high priority within the Chisago County SWCD and MPCA and that it will be initiated as soon as there are sufficient state resources available, hopefully in 2009.

The key components of this TMDL project are to:

- (1) Perform a TMDL Study of the Impaired Waters of Rush Lake and Rush Creek and, if appropriate, prepare a Load Reduction Work Plan [i.e. reduce the volume of pollutants];
- (2) Study both bodies of water simultaneously because Rush Creek drains Rush Lake directly into the St. Croix river; and
- (3) Employ a cooperative approach in which the MPCA will assist Chisago County in its data collection and analysis programs, and the County will pursue administration of the TMDL Implementation Plans.

B. Opportunity to Evaluate the Effectiveness of Iron Compounds

As we know from personal experience, Curleyleaf pondweed [CLPW], present in lakes in at least 68 of the 87 MN counties, has a major negative impact on boating, fishing and recreation in the affected lakes. This invasive weed is also connected to the Phosphorous-algae cycle in that it grows during the winter, forms surface mats in the Spring, and then stimulates green algae growth by releasing Phosphorous when it dies back in early July (which is much earlier than native lake weeds).

The DNR, MPCA, and CC-SWCD also recognize that Phosphorus contamination and the invasive CLPW are major problems in MN lakes and, in a meeting held on July 8, 2008 at the DNR headquarters, these agencies outlined a sequence to be followed by the RLIA which could result in the financial resources necessary to conduct a foundation study on the use of “ferric iron” (e.g. iron filings) to address both the Phosphorus and CLPW problems.

Specifically, these agencies identified a State funding process by which the benefits and side effects associated with the application of “ferric iron” (e.g. iron filings) for both the sequestering of Phosphorous AND reducing the growth of CLPW could be thoroughly evaluated. This funding mechanism is the Legislative-Citizen Commission on Minnesota Resources (LCCMR), which is made up of 17 members. Specifically, 5 State Senators, 5 State Representatives, 5 citizens appointed by the governor, 1 citizen appointed by the Senate, and 1 citizen appointed by the House.

The function of the LCCMR is to make funding recommendations to the MN State legislature for special environment and natural resource projects, primarily from the Environment and Natural Resources Trust Fund, to maintain and enhance Minnesota 's environment and natural resources. The LCCMR developed from a program initiated in 1963 and, prior to June 1, 2006, over \$525 million has been appropriated to approximately 1,214 projects recommended to protect and enhance Minnesota's environment and natural resources. 1 October is the proposal deadline.

The RLIA Board intends to submit a proposal to the LCCMR to have the MN-DNR administer the appropriate study and plans to include endorsements as to the value of such a study from as many other MN Lake Associations as can be obtained prior to the submission date. This appears to be a wonderful opportunity for all MN Lake Associations, including the RLIA, because results from such a study are essential before any extended lake area could be treated to insure that no damage would be done to the fish and native vegetation.

C. The Rush Lake Pilot Project to Reduce CLPW

As was reported in the last Rush Report, the RLIA also intends to conduct a small Pilot Project to test the effectiveness of iron filings on reducing the density of CLPW. Although originally planned to be initiated earlier this calendar year, start-up of this Pilot Project has been delayed until later this year, or early in 2009, in order to prepare the LCCMR proposal and obtain their endorsements of the LCCMR proposal.

For those readers interested in technical details, it is noted here that the key chemical state of iron resulting from iron filings deposited in lake water appears to be “ferric iron” and, in principle, other compounds producing “ferric iron” could be used in place of iron filings. However, iron filings were used in the recent small-scale studies on altering the chemistry of local lake sediments to reduce the CLPW because it is relatively inexpensive and easily obtainable. The RLIA expects that iron filings will be the form we will use for our Pilot Project in 2008/9, for the same cost and availability reasons.

We will provide an update on all of these activities in the next Rush Report and at every RLIA Monthly Membership Meeting.