Chara – An Algae Native to Saskatchewan

The 'aquatic plant' of concern in Crystal Lake is actually a *Chara sp.* more commonly called a stonewort. The algae was identified by a botanist with CanNorth. Charas are not a true vascular plant but instead a macro algae masquerading as a plant. This is an important distinction as algae and true vascular plants may react very differently to various control methods and/or water quality issues.

The species in question is native to Saskatchewan and fisheries biologists who work in the area are familiar with, and have seen, Chara is in other nearby lakes (ie Madge Lake). This macro algae is a functioning part of many aquatic systems - it is used as food for waterfowl as well as spawning beds and cover for fish and aquatic insects. This must be kept in mind when considering its control or removal.

As has been observed, the algae appears to be spreading across the lake bottom near the Point. This may be occurring for a variety of reasons including but not limited to:

- removal of previously existing vegetation by cabin owners - the removal of bullrush, sedge, and cattail that used to line the shoreline and littoral zone has potentially created 'room' for the *Chara* to flourish - 'room' in the sense of nutrient availability and the creation of a niche void.

- nutrient loading - Crystal Lake's close proximity to intensive agriculture and the continued and increased use of fertilizers has likely added more nitrogen and phosphorous to the system than would have historically been present. These two elements act as fertilizer in aquatic systems leading to increased growth of both algaes and vascular aquatic plants. In addition, possibly leaking septic tanks in the area would add more nutrients to the lake water.

- Raking of aquatic vegetation - with some plant or algae species mechanical removal can be a means of propagation. As vegetation is mechanically removed small pieces of stem, leaf, etc., break off and can start to grow a new plant or algae. This could be possible with Chara.

There are a few links below containing information on Chara/stoneworts as well as a possible control methods including using 'lake mats'. Some caution would be warranted when discussing control with mats as any sort of massive die off of the algae will lead to, at the very least, a distinct lack of dissolved oxygen in the immediate area of the mat with the potential to kill fish and other organisms. When searching 'control of Chara' on the internet, reference to a variety of herbicides and the use of various copper compounds will be found. Currently, there are no herbicides legal for use on or near water in Canada. Any use of copper, commonly called 'blue stone', would require permits from provincial and possibly federal government agencies.

Any action taken that alters the bed, bank, or boundary of any wetland (including a lake) or watercourse is not permitted under the provincial *Environment Managment and Protection Act, 2010*. Any action that impacts fish or fish habitat is an area of federal jurisdiction under the *Fisheries Act.*

Water sampling, soil sampling, and isotope tracking in fish flesh, are a few of the methods which could be used to determine it nutrient loading is occurring and where it is coming from. A consultant could be hired to determine this.

Weed Report: Chara-Nitella.pdf

Guide to Aquatic Nuisances: http://www.saskh20.ca/DWBinder/epb47.pdf

Lake Weed Control: https://www.lakemat.com

Submitted by the Hamlet Board