Water Quality in SSI Drinking Water Lakes
Why our Lakes Have Algal Blooms

Another beautiful Salt Spring summer approaches. An important part of this summer is swimming, boating, and fishing in our lakes and the use of their waters in our homes and gardens. Recreation in the form of swimming, boating and fishing depend on healthy lakes. Resorts around our lakes depend on their health and beauty. Property values depend on the availability of good drinking water and the beauty of the island. Businesses and the hospital in Ganges require safe drinking water.

But the quality of the water in our lakes is not guaranteed and is a serious issue we as Salt Springers must face. The primary problem of water quality is due to the growth of algae and bacteria. Phosphorus, like oxygen, is necessary for life. However, an overabundance of phosphorus in our lakes is a major factor leading to the excessive growth of algae and bacteria. The resulting algal blooms and bacterial growth can lead to serious health problems. The decay of the algae, if severe, can lead to a decrease in oxygen in the water and to the death of fish and other aquatic plants and animals.

Water temperature is another factor affecting the growth of algae and bacteria: the warmer the water, the more quickly algae and bacteria grow. Since our summers are predicted to become longer and hotter, it is likely the algal blooms will worsen. Unable to control our weather, control of phosphorus in our lakes is the key to healthy lakes.

Eighty percent of the water we drink on Salt Spring comes from St. Mary, Cusheon, Maxwell and Weston lakes. St. Mary and Cusheon lakes have been studied in detail (St. Mary and Cusheon Watershed Management Plans). Phosphorus levels in St. Mary Lake are high and the algal blooms have become so serious that two expensive aerators have had to be installed in the lake. These aerators process the phosphorus at the bottom of the lake making it unavailable for algae and bacteria. Cusheon Lake has had algal blooms since the 1970's. The most serious of these was accompanied by a cyanobacterial bloom in 1999 and again in 2003. Cyanobacteria, under the right conditions, can produce a liver damaging toxin which cannot be easily removed from water.

These conditions and the deaths in Walkerton, Ontario ten years ago have led to the upgrade (not yet complete) of water treatment facilities on Cusheon, St. Mary, and Weston lakes. However, the amount of treatment these facilities must perform depends on the quality of the water in the lakes. The poorer the quality of the water, the more treatment needed to make the water safe.

The good news is we can control the algal and bacterial blooms in our lakes but only if we control the amount of phosphorus in them. The major sources of phosphorus in our lakes are soil erosion and surface runoff, septic system seepage and regeneration of phosphorus from the lake bottoms. With 53% of the phosphorus in Cusheon Lake due to erosion and surface runoff, controlling erosion in this watershed is the most important step that can be taken. In the case of St. Mary Lake, if the aerators are successful in controlling phosphorus from the lake bottom, septic systems will be the major contributor of phosphorus.

Water quality is linked to water quantity. Each year, the rains of the fall, winter and spring refill our lakes. After the lakes have been refilled, the excess water flushes some of the phosphorus and algae of

the previous summer down the rivers to the ocean. This yearly event is necessary for the health of our lakes.

Both Cusheon and St. Mary watersheds now have management plans to address the issue of water quality. These plans suggest steps to control the levels of phosphorus in our lakes. One important step, not previously mentioned, is to protect existing vegetation along the shores of our streams and lakes or, where the plants have been removed, to replant the stream and lake sides with naturally occurring vegetation. This vegetation not only catches phosphorus before entering our lakes and streams but also encourages a healthy biodiversity.

The health of our lakes and the beauty of our island can be assured if we - the various levels of government, the water companies, other businesses and the public - collaborate and take the steps necessary to control the levels of phosphorus in our lakes.

Authored by Cusheon Lake Stewardship Committee

Endorsed by Beddis and Cusheon Area Residents Association