

Basin Society Investigating a New Approach to Milfoil Control

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While we were all concentrated on the issues of contaminated soil dumping, the dynamics of a deteriorating watershed continued unabated from multiple causes. The proliferation of milfoil in the lake is a visible symptom that is now demanding our full attention.

Invasive milfoil likely entered the lake from itinerant boats, carrying it here from other lakes. Once here, it is spread through natural seeding and fragmentation. Fragments, each of which can form another plant, are created and distributed by mechanical disturbance and shoreline wave action. It is now present throughout the shallow zone around the lake perimeter wherever the bottom substrate is favourable. Milfoil is extremely resilient and once established is nearly impossible to eradicate.

Milfoil has been in Shawnigan for many years but has recently exploded in abundance. The main driver of milfoil growth is the availability of the limiting nutrients, phosphorous and nitrogen. These nutrients are present in the lake sediments and can be taken up by the milfoil roots. Phosphorous comes into the lake from numerous sources, siltation arising from roads, dumping and logging in the uplands and from leaking septic fields that surround the lake. Conventional wisdom suggests that the annual flushing of the lake through winter runoff can deplete nutrients in the water and keep the lake in its historic nutrient-poor status, but the flushing does not remove nutrients accumulated in the sediment.

As copious shedding of milfoil detritus falls to the bottom of the lake it is decayed by bacteria using oxygen available in the water. Once that oxygen is depleted a zone of low to no oxygen can develop in the sediment layer. In oxygen rich environments phosphorous is bound to iron compounds in the sediment and becomes unavailable to plants. In oxygen poor environments phosphorous is released from the iron compounds and becomes available to plants. Ironically, this cycle is favourable to milfoil as it recycles the nutrients made available by the decay of its own detritus.

The Shawnigan Basin Society is investigating a milfoil control method that can alter the phosphorous binding and release system to affect milfoil growth. Traditional methods of milfoil control include herbicides, shading, rototilling the lake bottom when the water is coldest, mechanical harvesting and physical removal by divers. Poisons are obviously inappropriate for a drinking water supply, shading with fabrics and uprooting by divers are expensive and labour intensive and mechanical harvesting means are both expensive and, because of mechanical fragmentation effects, ultimately only cosmetic. Experience in Okanagan lakes and Christina lake in BC provide lots of information about costs and effectiveness for us to consider. Christina, for instance, requires a budget of \$300,000 a year for the work of divers, raised by tax levy from a single electoral area.

In the new year the SBS will conduct a scientific field trial of a nutrient cycle alteration method, the same strategy being proposed in the Capital Regional District for Elk and Beaver Lakes. It has the prospect of being relatively simple, less labour intensive and capable of being deployed by individual lake front owners or groups of owners at low cost. Stay tuned for announcements in the new year about the trial and public meetings to discuss design and trial locations.