

Via Email

September 2, 2020

EnviroMak File Reference # 01-04

To the Residents of Summerside

RE: Summerside Lake Environmental Update

We at EnviroMak Inc. are a team of biologists, ecologists, agrologists and qualified environmental specialists that have been providing environmental services in Alberta since 1998 with a specialty in aquatic biology, limnology and water, fisheries and wetland science. When the concept of Summerside subdivision was in planning phases over 20 years ago, EnviroMak worked with the developer and engineers to provide environmental input into the design and management of the lake community which was a unique Edmonton concept at that time. Following the filling of the lake, EnviroMak worked with the developer and newly formed Resident's Association to develop a lake management plan, fish stocking and management plan, implement a long-term water quality and aquatic monitoring program and provide information and recommendations with respect to specific concerns and issues. From a pencil sketch to a hole dug in the ground to the thriving recreational community it is today, the original vision of Summerside Lake community has truly been achieved.

Maintenance and operation of this dynamic lake continues to require diligence and adaptability. In 2020, the Resident's Association (SSRA) have been proactive in optimizing maintenance, analyzing efficacy of and selecting strategies for the improved operation of the lake for the purposes of recreational use and overall user satisfaction in 2020. There have been both positives and some challenges that have been met with response in 2020. A few key positives noted so far this year include the below.

1. Cyanobacteria (blue-green algae) were monitored this year for presence through visual observation and microscopic investigation, and water sampling and laboratory analysis were conducted to tangibly quantify blue-green algae toxin concentrations (microcystins). Blue-green algae are algae that can produce toxins that are harmful, and in some cases deadly, to humans, pets and wildlife. The water analysis determined the levels to be acceptable for continued enjoyment and safety of recreational users. Aeration of the lake was increased in frequency and duration in 2020 as a management strategy to prevent and combat this potential ecological risk.

The current operational approach of the lake appears to continue to be successful in addressing arguably this most significant potential ecological risk for the lake and its users. At the time of the writing of this update, Alberta Health Services had at least 32 advisories out for lakes in Alberta for the presence of toxic blue-green algae including lakes such as Pigeon Lake, Hawrelak Park and Lac Ste. Anne, and this does not include many lakes that have occurrences of blue-green algae but are not tested by Alberta Health Services. Blue-green algae blooms are a frequent issue in Alberta lakes. One of the most important measures to prevent blue-green algae blooms in Summerside Lake is the prohibition of the use of fertilizers and removal of grass clippings from lawns around the lake.

2. Water quality for recreational use and protection of aquatic life continues to be monitored. The results of the annual monitoring will be provided in the 2020 Summerside Lake Limnological Monitoring Report which is under production following the most recent August 2020 sampling for which results are not yet available. However, results of water samples in the recent past continue to reflect acceptability for both humans and fish per the respective guidelines.
3. Mechanical removal of aesthetically displeasing aquatic vegetation was optimized in 2020 with increased diver activity and improved mechanical methods. Tracking of vegetation removal was conducted. This “mining” of vegetation from the lake has both the effect of improving aesthetics as well as removing nutrients from the lake to slow the ageing of the lake. Further, the improved mechanical methods allow for increased disruption of snail habitat (discussed further below).

Some aspects of the lake environment delivered challenges in 2020. As the lake ages, moving into its 20's, added with the variables of climatic changes and considering the overall complexity of aquatic ecosystems, some concerns are not unexpected. However, we understand these concerns need response. Optimal future response should be diligent, planned, effective and mutually beneficial for all users as possible.

Some increase in abundance and diversity of aquatic vegetation has appeared to occur over the past several years. In early 2020, the Lake Manager proactively requested EnviroMak to review some potential operational and treatment approaches to inform decision-making related to continued water quality safety and improved aesthetics of the lake. Numerous lake treatment products are marketed. Some are very effective for specific concerns but have known impacts for bioaccumulation in the environment, potential effects on humans and wildlife and require regulatory permitting which is not always granted for use. Some treat specific concerns such as toxic blue-green algae (which has not historically been abundant in Summerside Lake and was not in 2020) but do not treat other concerns or may in fact worsen other concerns such as aesthetically displeasing green algae. Some products have little scientific evidence to support their efficacy and are sometimes applied as a knee-jerk reaction with a perceived improvement that may really be the result of seasonal changes in the water

body versus the product itself. The review provided comment on some of these products and methods with consideration of the specific concerns and monitoring data of Summerside Lake to assist in developing an effective diligent longer-range treatment action plan as well as to help avoid unintended consequences of knee-jerk reactions or financial cost of misapplied treatments and to achieve continued regulatory compliance. The review did identify increased aeration and mechanical vegetation removal with management tracking and evaluative monitoring as a lake-safe strategy that was implemented in 2020. Some chemical and microbiological products were identified for possible application while acknowledging that their effectiveness is not predictable. Some of the possible identified products are better suited to spring application timing and some may require regulatory permitting. As such, the lake-safe aeration and mechanical vegetation removal was undertaken and continues to be undertaken in 2020 while the appropriate due diligence is being applied prior to use of chemical and/or microbiological products in the lake.

Presence of Swimmer's itch was communicated to us this summer, and we worked to support the SSRA for informed response throughout the season. Incidence of Swimmer's itch is generally short in duration; however, severity and duration are affected by a complexity of factors including air and water temperature which are not practically controllable. The parasite that causes the Swimmer's itch can overwinter in the snails and reoccur with the help of bird hosts which are needed to complete the life cycle. Effective chemical treatment for Swimmer's itch is limited generally to copper sulphate that is known to bioaccumulate in the environment and, therefore, is considered a last resort treatment and a treatment that is not suitable in many instances. Chemical application to kill the snails was not applied this year in light of these potential health and ecological risks. As the parasite that causes Swimmer's itch is part of a life cycle that includes host snails and birds and following reports of presence this summer, an effort was made to remove snails from the beach area as well as disrupt and remove snail habitat from various areas of the lake. In 2021, for greatest efficacy, this effort would start at the beginning of the open water season and be combined with effort to deter birds for multiplied impact on the life cycle. Discussions with the SSRA regarding new procedures and optimal execution of these processes are already underway. Substantial vegetation removal is expected to occur yet this fall 2020 prior to freeze up to target and remove potential snail habitat prior to next summer.

The 2020 Summerside Limnological Monitoring Report will provide more details on data gathered and trends occurring in the lake as well as information on the fishery which was not provided in this update to make it more concise.

We, at EnviroMak, are very appreciative to have witnessed the birth of this lake approximately 20 years ago and to have the opportunity to continue to monitor it to support the Resident's Association in caring for and managing this complex environment. With a multitude of users with different uses and a dynamic natural environment, we believe that the ~20-year history of Summerside Lake is one that reflects mutual respect of people with each other and their environment and is something to be proud of.

As the owners and users of the lake, you all play an important role in caring for the health of this asset. Please continue to prohibit fertilizer use around the lake (this is so very important to slow the aging of the lake, reduce vegetation and keep the lake water clear for all). And, please continue to make sure everyone is aware that dumping of invasive species or pet fish into the lake must be prohibited. Thank you for taking the time to read this update.

Sincerely,



Kyla Walker-Makowecki, M.Sc., P.Biol., RT(Ag), QAES, CPESC, EP
Principal, EnviroMak Inc.