Lakescape

newsletter of the

WABAMUN WATERSHED MANAGEMENT COUNCIL

Box 1005, Wabamun, Alberta, T0E 2K0

Web Facebook Twitter Email

No. 23 **Spring 2020**

Adjusting to the "New Normal"

Neil Fleming, WWMC Chair

While in lock down due to the current pandemic, I would like to update everyone that your WWMC executive still remains active in our stewardship role for Wabamun Lake. While we have temporarily suspended our monthly meetings, our executive has been holding virtual meetings to discuss how we can best move forward with our agenda. Being a very small group of active board members, we have come to appreciate that we simply don't have the resources to commit unwaveringly to our long-term goals. We find that we must adapt our efforts to what we are faced with at any point in time. The Ridge Water Resort development, the ice heave, the algae bloom and now the pandemic are examples of how our group is forced to change gears to accommodate things beyond our control. Despite these diversions, we did have a very productive year that, among other things, saw us update our website, courtesy of a lot of hard work by Don Meredith. I strongly encourage you to resource it at wwmc.ca to answer virtually any question you may have about the lake and its watershed.

Sue Evans, CAO for Seba Beach, displaying fertilizer/herbicide ban sign.

As a volunteer board with no authority, we continue to work behind the scenes with our partners to ensure their decisions are made with the overall health and viability of the lake as their first priority. Those partners include the Government of Alberta, Parkland County, the Village of Wabamun, the 5 Summer Villages, TransAlta, Nature Alberta, North Saskatchewan Watershed Alliance (NSWA), Alberta Lake Management Society (ALMS), Land Stewardship Centre, the many businesses in the watershed and of course, the individual landowners. Last summer, we began participating with ALMS to conduct water and biological analysis throughout the year. These reports will be very beneficial in determining trends and possible actions required to maintain the health of the lake. The results of those reports are available on the website and summarized in the article below.

Our primary objective for this spring and summer season was to begin an engagement process with the stakeholders around the lake to educate them on the details and goals of our comprehensive Watershed Management Plan. Thanks to Petra Rowell and the NSWA that plan is very close to completion and with the help of grant funding from the Land Stewardship centre we were prepared to begin hosting open houses to inform the public. Unfortunately, we have been forced to delay or rethink how that will happen. We will keep you updated through these mailouts and our Facebook page.

In the meantime, as lake season approaches, there are many things we as individuals can do to safeguard our lake. The SVs of Seba Beach, Betula and Lakeview have all instigated fertilizer and herbicide bans for their communities. I would hope those residents and others from around the lake would see the value in these measures to reduce the nutrient load on the lake. In addition, the following are 10 suggested guidelines to maintain a healthy lake. Hopefully, it won't be long before we can all get out again and enjoy the privilege of our precious lake.

...2

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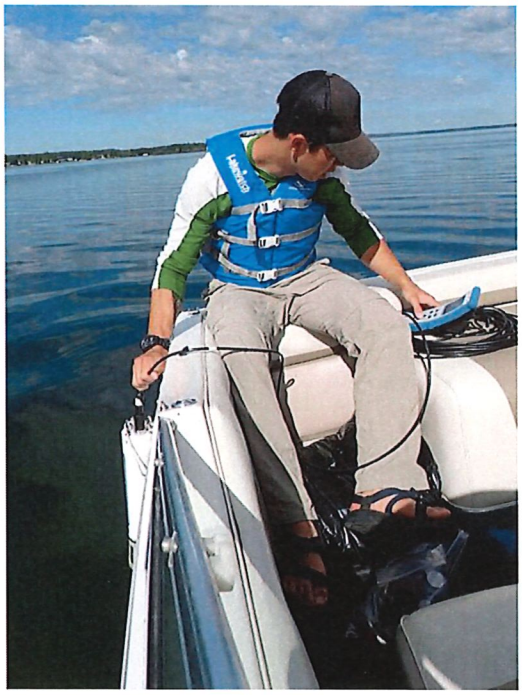
Ten Tips for Maintaining a Healthy Lake

1. Leave your shoreline in a natural state or if cleared, replant it with native species. Shoreline vegetation intercepts nutrients in runoff water and stabilizes the shore. Spring is an excellent time to gather willow and other cuttings to plant along the shore (see 2018 Ice Heave and Shoreline Modification).
2. Do not wash vehicles, pets, or other items in the lake.
3. Do not cut/mow vegetation close to the water.
4. Trim down, rather than cut down obstructing trees and shrubs. You can still enjoy the lake with a natural shoreline.
5. Ensure your septic system is functioning properly and if you haven't already, upgrade to a holding tank/pump-out system.
6. Avoid the use of fertilizers and pesticides. Instead, use compost, mulch your cut grass and fallen leaves.
7. Keep your boat wake as small as possible near shore and wildlife. Boat wakes flood wildlife nests and stir up lake bottom, increasing water turbidity and releasing sequestered nutrients.
8. Clean, drain and dry your boat/watercraft before transport. Invasive species hitch rides on boats, trailers and gear.
9. Know what invasive species to watch for and report any sightings.
10. Join the WWMC and learn more about what you can do to protect your lake!

ALMS LakeWatch Report on Wabamun Lake

In April of this year, the Alberta Lake Management Society (ALMS) released its 2019 LakeWatch Report on Wabamun Lake. The report is based on the water and vegetation sampling ALMS and the WWMC did last summer (see the Fall 2019 Newsletter). The following is a brief summary of some of the findings. The full report can be downloaded from the WWMC website at Studies and Reports or from the ALMS website.



Pat Heney of ALMS lowering water sampling device in Wabamun Lake.

The study investigated the following water parameters:

- **Temperature at various depths.** Temperature is important in lake water as it determines how chemical reactions occur, which in turn determines water quality.
- **Dissolved oxygen.** Oxygen is crucial to life in a lake. It dissolves into the lake water at the surface as well as from green aquatic plants (including algae) that generate oxygen by photosynthesis.
- **Water chemistry.** Lake water contains many substances that are transported to the lake in runoff from rain, snow and ground water. These substances are either dissolved in the water or suspended as particles and affect water quality in a variety of ways.
- **Phosphorus and nitrogen** are important plant nutrients that at certain concentrations in lake water can support algal blooms.
- **Chlorophyll-a** is a pigment that green plants, including algae, use to convert sunlight into food energy (photosynthesis) that both plants and animals consume. It can be easily extracted in the laboratory from the algae collected in water samples. As such, chlorophyll-a is a good index of the density of algae in the water.
- **Trophic State.** The above information is used to establish the trophic state of a lake. The trophic state is a classification system based on the levels of fertility in a lake, determined by the amount of nutrients and algae in the water. The trophic states are: **oligotrophic** (very little nutrients and algae), **mesotrophic** (moderate levels of nutrients and algae), **eutrophic** (high levels of nutrients and algae) and **hypereutrophic** (very high levels of nutrients and algae). The trophic state of a lake indicates its ability to sustain biodiversity, including sport fish. In general, oligotrophic and mesotrophic lakes support the highest biodiversity and ability to support fish species. Biodiversity and fish species are diminished in eutrophic and hypereutrophic lakes.

...3

- **Total Dissolved Solids** (TDS) are minerals, salts and metals dissolved in water, and assessed together. Most dissolved solids are cations and anions of the substances. TDS values indicate the potability of water in terms of taste and scale formation in pipes and appliances, and can affect the lake food chain.
- **Secchi Disk Transparency.** A Secchi disk has an alternating black and white pattern that is observed while the disk is lowered into the water on a line. The depth at which the disk disappears from view is recorded and is an indication of the clarity of the water. The deeper the Secchi disk is observed, the clearer the water. Water clarity is an indication of how much algae is in the water as well as concentrations of suspended sediments.

Wabamun is one of the most studied lakes in the province. As a result, ALMS was able to compare water quality data from 1980 to 2019. In summary, ALMS found over the 40-year period:

- "Significant decreasing trends" in concentrations of **Chlorophyll-a** and **Total Phosphorous**, and
- "significant increasing trends" in **Total Dissolved Solids**.
- The Secchi Depth trends observed over the 40 years did not significantly change.

Kelly Aldridge and Sarah Davis Cornet of ALMS sampling vegetation

What Does This Mean?
In terms of Trophic State, Wabamun Lake is classified as **mesotrophic** based on its moderate and decreasing levels of total phosphorous and algae. This is good news and suggests that the recent cyanobacteria (blue-green algae) bloom resulted from short-term conditions, triggered by a rain event that washed nutrients from the shore. It also bodes well for recovering fish populations.

The increase in Total Dissolved Solids over time is a concern and might reflect the effect of climate change in which hotter and drier summers have increased evaporation.

Vegetation Samples
On July 10, 2019, ALMS and WWMC volunteers sampled the vegetation present in the lake to assess the composition of the native plant community and determine the presence of invasive species (both plant and animal). From the 31 sites around the lake sampled:

- 13 unique species were identified, plus
- four additional genera that could not be identified to species, and
- aquatic moss.
- No invasive species were detected.

Overall, the lake is doing well given the amount of development, use and the effects of climate change. We trust that the increased awareness of lake users about the threats to the lake is helping maintain the lake environment. We must always be vigilant and continue to do our best to keep the lake clean and healthy.

Much more detailed information is in the report. Download and read it at the Studies and Reports page on the WWMC website. You also might find helpful the ***ALMS Guide to Trend Analysis of Alberta Lakes*** and ALMS' ***A Brief Introduction to Limnology*** that are linked on the report page. As well, all the LakeWatch reports for the province and the guides are available at the ALMS website.

Winter Water Sampling

On December 31, 2019, WWMC members David and Chris Ball, Neil Fleming, Stan Franklin and Don Meredith sampled the water below the ice at three locations near Sundance Meadows, Seba Beach and Fallis. The Alberta Lake Management Society provided the sampling kit, which included a probe to measure water temperature and dissolved oxygen content at 1 metre depth intervals. A water sample just below the ice was also taken to analyze for plankton and other content.

...4

The sampling was repeated on March 20. However, by that time the COVID-19 pandemic had ramped up and social distancing was an issue. Dave and Chris volunteered to do the sampling by themselves to reduce the risk. They sampled in the same areas and forwarded the data to ALMS. ALMS will look at the data from both trips and report back to us. Thanks to Dave and Chris for stepping up.

Watershed Management Plan

We had planned to showcase the latest draft of the Watershed Management Plan (WMP) at public open houses this summer where people could look at the plan and provide their feedback. However, like many such plans, our WMP public engagement plan has been put on hold until we can determine how the pandemic and associated social isolation plays out. In the meantime, the WMP Steering Committee is meeting online to approve the latest draft and the WWMC is developing alternate engagement plans that could include open houses in the late summer or fall. Stay tuned.

Corporate Members

The WWMC thanks the following businesses, governments and organizations for partnering with the WWMC as corporate members and helping the council achieve its goals. Please remember them during this crucial time.

Camp Oselia Society, Dairy Queen, Falher Drugs, Seba Beach Ice Cream Stop
Summer Village of Betula Beach, Summer Village of Point Allison, Wabamun & District Lions Club

If you own or represent a business or organization that is concerned about Wabamun Lake and would be willing to help maintain its health, become a corporate member of the WWMC for just $100 a year (go to Get Involved at www.wwmc.ca). Corporate members will be acknowledged at WWMC functions, in each newsletter and on the website. For more information contact Neil Fleming by e-mail, fleming.neil@outlook.com or telephone, 780-953-6345.

If you are already a corporate member and would like to see your logo here and on the WWMC website, please send a digital copy to Don Meredith at wwmc@donmeredith.ca