



LICA
ENVIRONMENTAL STEWARDS

Winter Newsletter

2018-19



2012 Photo Contest - Spencer Stupka



2018 Photo Contest - Cathy Olstad



2008 Photo Contest - Silke Skinner

Vermicomposting



Food waste is a hot topic at the moment and a very pressing issue. LICA is helping to offset some of our food waste by hosting Vermicomposting 101 workshops in our region. Landfills are great at keeping our garbage in one place and out of our environment, however they are not great at decomposing organic matter. The closed system of a landfill creates an anerobic environment, cutting off oxygen from reaching our garbage which is needed for decomposition. This anaerobic environment affects the way food decomposes making the process very slow and releases methane gas as a biproduct, which is a greenhouse gas 28x stronger than carbon dioxide. A *CBC Special, The Passionate Eye: Wasted! The story of food waste*, stated that it could take up to 25 years for a head of lettuce to decompose in the landfill.

Vermicomposting – composting with worms – removes most fruits & vegetables from our food waste and we are able to turn our food waste into natural fertilizer. At this workshop we explore the benefits of vermicomposting, learn about red wigglers and how to properly care for them. We even build our own vermicompost bins and give out reg wiggler worms to everyone in attendance.

We had great success in both St. Paul and Cold Lake. With growing interest in helping our environment through vermicomposting it is likely there will be more workshops in the near future. Stay tuned by following us on Facebook @infoLICAonline

NTS

VISION: The environment in the LICA region is ecologically healthy & sustainable.

Family Fun Day



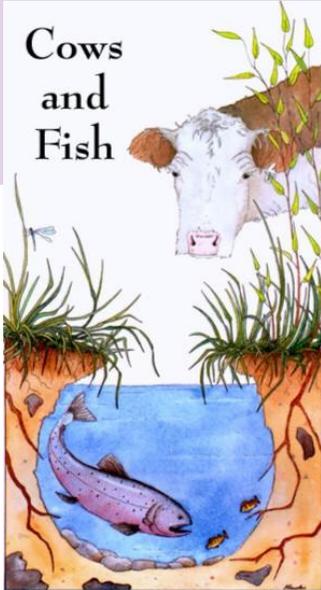
Once again LICA partnered with the Bonnyville Oilmen's Society and Bonnyville Oil Ladies Society to put on this wonderful family event.

Great family fun activities were offered to the community, including; ice skating, curling, snacks, ice fishing, sleigh rides and a cozy bonfire. Many people braved the cold to enjoy this free event.

The Jr. Pontiacs even came out to join the festivities. Thank you to all of the hard-working volunteers and those who supplied donations to Family Fun Day.



Beavers in Our Landscape



LICA partnered with Cows & Fish to deliver the well attend workshop of Beavers in Our Landscape.

Cows & Fish gave great presentations on beaver basics, beaver challenges, case studies, next steps and generated a lot of beaver banter.

Cows & Fish certainly opened our eyes to how clever beavers can be at damming up water, sharing that beavers will even cover up a tape recorder that plays the sounds of running water with sticks and mud.



Beavers can certainly be a pain to us as humans and our property, but beavers provide a lot of benefits to our water and local ecosystems.

Beavers help increase the water quality of water passing through its beaver pond. The beaver dam slows down the flow of the water, resulting in the sediment falling to the bottom of the water body. This is beneficial because too much sediment in the water can cause harm to fish and can increase the temperature of the water, resulting in less oxygen in the water. Low levels of oxygen limit the amount of life that water body can support.



Aside from removing beaver dams, Cow & Fish have an alternate solution, pond levellers.

Essentially a pond leveller is a pipe that runs through the beaver dam allowing water to pass through without fully removing the dam or lowering the water level too much.

Pond levellers allow for beavers and humans to coexist with each other.

To learn more about pond levellers visit the Cows & Fish website www.cowsandfish.org under the "What's New" tab.

MISSION: LICA collects, shares, and acts upon credible data, Traditional Knowledge & information relevant to the environment. This will be achieved through scientific study, community engagement, & meaningful partnerships.

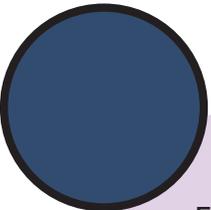
School Programs

LICA—Environmental Stewards teaches students about our Airshed & Watershed and all about those who live in it. We give students an inside look on how we use the environment and how we can help protect it. Each module is designed to provide hands-on learning while promoting environmental awareness. Each program links specifically to the Alberta curriculum.

These FREE programs are available year round!
Contact outreach@lica.ca or call (780) 812-2182 to book your classroom presentation.

To learn more about LICA's programs visit www.lica.ca

All Grades: Vermicomposting
Kindergarden & Grade 1: Wildlife Discovery
Grade 2 & 3: Creepy Crawlies
Grade 4 : Waste Water - Boreal Forest - Airshed
Grade 5: Wetland Ecosystems - Airshed
Grade 6: Trees & Forest
Grade 7 & 8: Ecosystem
Grade 9: Biodiversity
Grade 9,10, 11 & 12: X-Stream Science



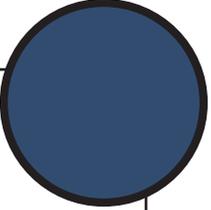
2018 LakeWatch

For the 11th year in a row LICA has sampled ten lakes within the LICA region with the Alberta Lake Management Society's (ALMS) LakeWatch Program.

ALMS takes five water samples at each of the listed lakes during the summer months.

Measuring the lake's turbidity, phosphorous, nitrogen, chlorophyll, microcystin, temperature, pH, dissolved oxygen and presence of invasive mussels.

The tested lakes in 2018 were Moose Lake, Jessie Lake, Crane/Moore Lake, Beaver Lake, Hilda Lake, Laurier Lake, Minnie Lake, Stoney Lake, and Skeleton Lake North & South.

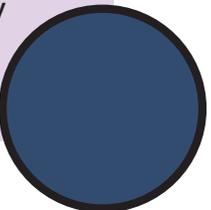


The best way to look at the data is not to compare lakes to each other, but to compare lakes with themselves. We have tested many lakes over the years which allows us to make these comparisons between various years.

Reports from previous years can be found on our website www.lica.ca/resources or on the ALMS website www.alms.ca/reports

Our volunteers take out the LakeWatch Technicians on their personal motor boats to collect water samples from their local lake. Each trip out onto the lake takes ~3 hours to complete the sampling.

The LakeWatch technician samples the lake with the volunteer five times through out the summer. If this sounds like the volunteer opportunity for you please contact our program manager at watershed@lica.ca



ALMS

Below are the summary results of Chlorophyll-a from our 2018 LakeWatch. Chlorophyll-a is found in plants and algae to allow them to photosynthesize.

This is a good way to test the levels of algae in a body of water since chlorophyll-a is found in all green algae.

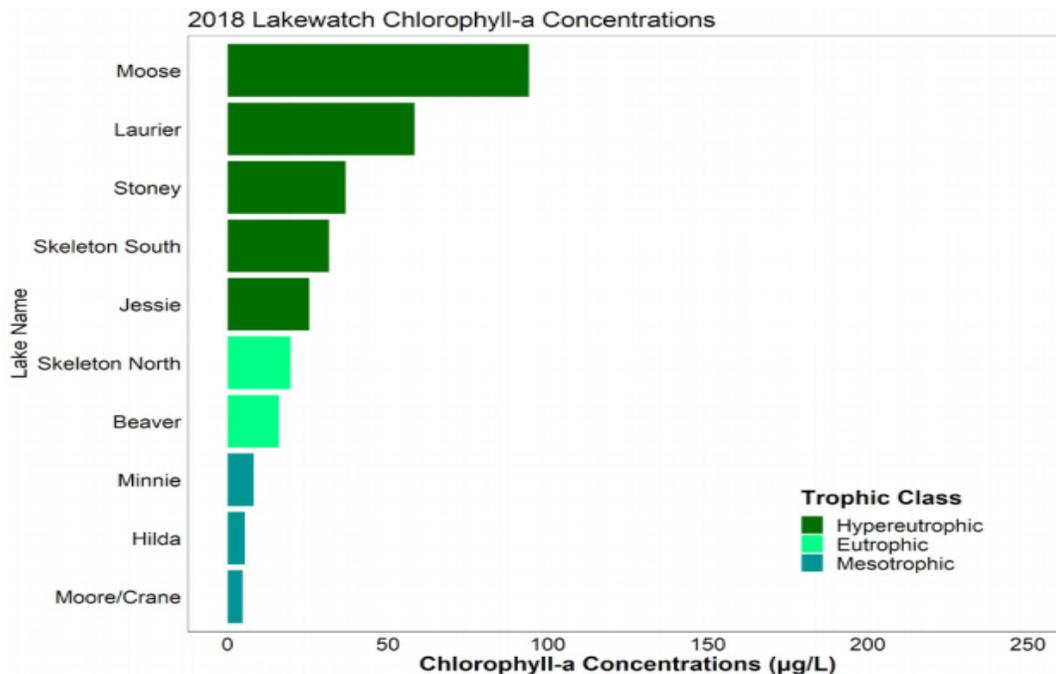


Figure 4: Average chlorophyll-a values measured at 10 LICA lakes during the summer of 2018.

It is important to note that not all algae is blue-green algae which can be harmful. The LakeWatch program test levels of microcystin, a byproduct of blue-green algae, in the lake to determine the amount of blue-algae in the water. These results can be found in the full summary report on our website www.lica.ca/resources

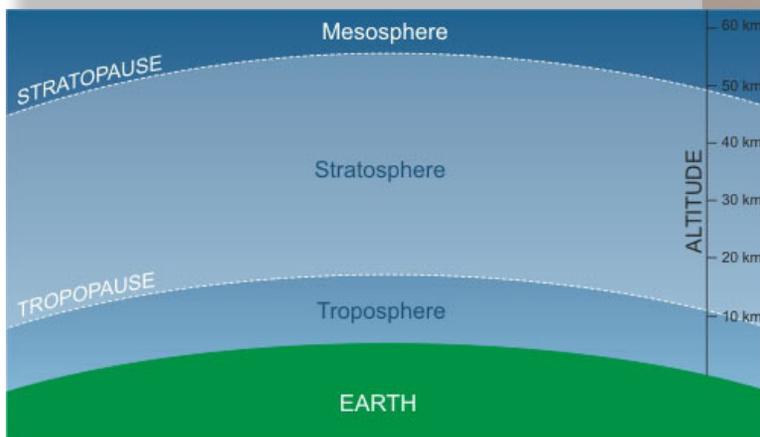
What is Ground Level Ozone?

The term “ozone” can be confusing. We have been told that the “ozone layer” is critical to life on Earth and in need of protection. However, while ozone in the upper atmosphere (stratosphere) plays an important role protecting life on the planet from harmful ultraviolet radiation, ozone produced near the surface of the earth (troposphere) has environmental, health and economic impacts. The latter is referred to as ground-level ozone.

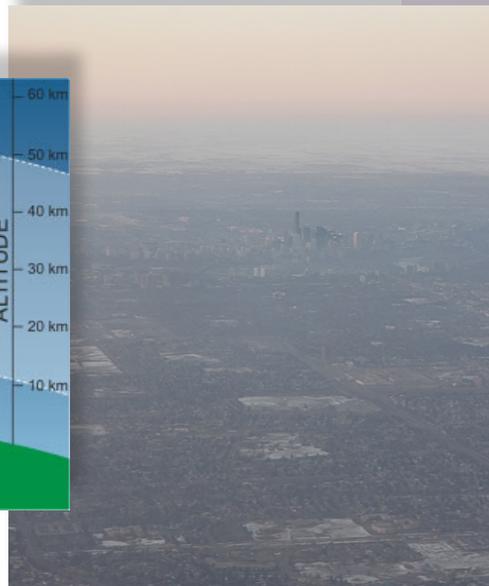
Ground-level ozone forms when nitrogen oxides (NOX) and volatile organic compounds (VOCs), the “precursor” chemicals, react in the presence of sunlight. Since sunlight is very important in the production of ground-level ozone, the highest levels are often observed during the summer. Ozone levels typically peak during the late afternoons of hot, sunny summer days with stagnant weather conditions.

Ground-level ozone can also peak in the spring. There are several explanations for the elevated springtime ozone phenomenon:

- 1) Rapid photochemical reactions in the springtime due to higher UV as daylight hours extend.
- 2) Ozone transport from Asia due to faster jet stream in the springtime.
- 3) Tropospheric mixing in the springtime.
- 4) Stratospheric intrusions – transport of air rich in ozone from the stratosphere.

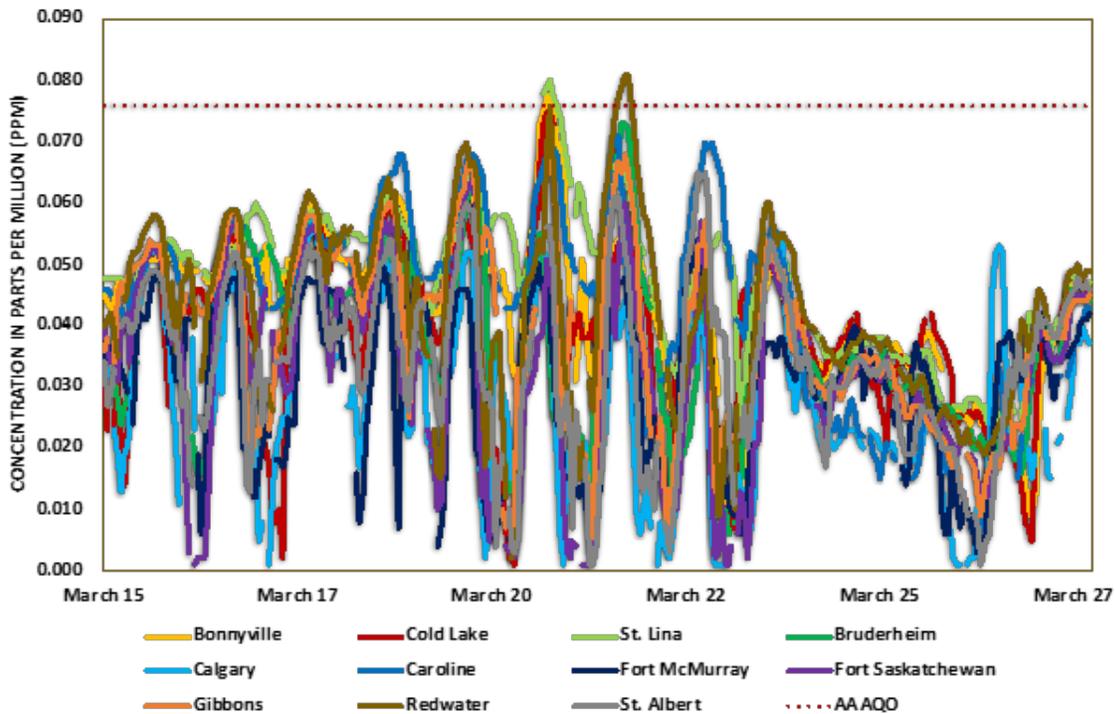


Layers of the atmosphere. [Credit: skepticalscience.com]



Tall buildings in downtown Edmonton poking through the blue-like haze caused by ground-level ozone blanketing the region on March 22. (Photo: Michael Bisaga)

Ground-Level Ozone Concentrations in Alberta 1-Hour Average Measurements, March 15 - March 27, 2019



In mid-March, ground level concentrations of ozone across Alberta began to rise with peak concentrations occurring around March 20th. The Air Quality Health Index (AQHI) was in the moderate to high health risk range at several locations due to these elevated concentrations. We often associate Province-wide air quality events in this range with the poor air quality that occurs during forest fire season, however in March the culprit was ground-level ozone. Given the wide-spread nature of the event, the cause of the event was likely a combination of the above explanations for springtime ozone phenomenon. When ozone concentrations are elevated, the environment around you often appears to be blanketed in a blue-like haze.

The chart above shows 1-hour average ground-level concentrations of Ozone at locations across Alberta. The dotted red line indicates the 1-hour Alberta Ambient Air Quality Objective (AAAQO) for ozone of 0.076 parts per million. Air pollution can worsen chronic respiratory conditions and the AQHI can help you understand the health risk associated with local air quality conditions. To learn more about the AQHI you can visit our website www.lica.ca where you can find our region's AQHI values and resources to learn more about air quality.

Note: You should always consult your doctor concerning medical issues.

References:

Alberta Environment and Parks, 2019. *Alberta Ambient Air Quality Objectives and Guidelines – Ozone*. AEP, Air Policy, 2019 No. 1.

Health Canada, 2011. *Canadian Smog Science Assessment of Fine Particulate Matter and Ground-Level Ozone. Volume 2: Health-Related Chapters*.

U.S. Environmental Protection Agency, 2013. *Integrated Science Assessment for Ozone and Related Photochemical Oxidants*. EPA 600/R-10/076F

VALUES: We connect stakeholders & promote community involvement.

We provide timely, defensible & accessible data. We educate the community, advocating for environmental stewardship.

We responsibly manage our resources to achieve our vision & mission.

Upcoming Events

BONNYVILLE OIL AND GAS SHOW

LICA will have a booth at the Bonnyville Oil & Gas Show on June 19-20th, 2019

Curious as to what LICA does? Stop by our booth to learn all about us, get involved as a volunteer and pick up some great swag!

See you there!

STREAM OF DREAMS

LICA will be delivering the Stream of Dreams Program to a school in our community this spring.

We are looking forward to doing this amazing program once again.

Look for the beautifully painted dream fish of the teachers and students in our watershed soon!

You can also check out our latest fence at Duclos school along 54 Ave in Bonnyville.

For more information on any of our upcoming events visit our website www.lica.ca/education/

Or get in touch with our Education & Outreach Coordinator outreach@lica.ca or call 780-812-2182

Spring



2019 EARTH DAY WRITING CONTEST

ALL GRADE 4-9 STUDENTS WITHIN THE LICA REGION ARE INVITED TO SUBMIT A ~200-600 WORD ESSAY ABOUT "WHAT SMALL CHANGE COULD EVERYONE MAKE TO POSITIVELY IMPACT THE ENVIRONMENT?"

1st Place \$100 - 2nd Place \$75 - 3rd Place \$50



SUBMIT BY WEDNESDAY, MAY 1ST, 2019

Please include the student's name, phone number, teacher, grade and school with their essay.

There will be two prize categories of Grade 4-6 and Grade 7-9.

Send essays to outreach@lica.ca or mail them to LICA, PO Box 8237, 5107 50 Street, Bonnyville, T9N 2J5

WWW.LICA.CA

Thank you for your support



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