

Spring 2013

"News You Can Use"

Mailing Address:
WWMC
Box 1005
Wabamun, Alberta
T0E 2K0

Web Site:
www.wwmc.ca

Email:
info@wwmc.ca

Telephone:
780-953-2695

Meetings
3rd Wednesday of each
month, 6:30 p.m.
Contact WWMC for
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Lakescape

newsletter of the



WABAMUN WATERSHED MANAGEMENT COUNCIL

The Problem with Blue-green 'Algae'

by Don Meredith
photos courtesy of © Ron Zurawell

On March 19, I attended a seminar at the University of Alberta on the "Health Impacts of Blue-Green Algae Blooms", presented by Dr. Ron Zurawell of Alberta Environment and Sustainable Resource Development. The event was sponsored by Alberta Lake Management and the North Saskatchewan River Keeper societies. It was a sobering presentation that made you realize just how fragile prairie lake water is in Alberta, in terms of being healthy for fish, wildlife and people.



Cyanobacterial bloom on Pigeon Lake in 2006.

The first thing I learned from the seminar was that the name "algae" is a misnomer. The microscopic organisms are actually a form of bacteria, cyanobacteria (cyan = blue-green) to be exact. Cyanobacteria contain chlorophyll and thus can make their own food as do algae and other green plants. The problem with them is they can soon dominate the environment of a lake: messing beaches; fouling boats, motors, ropes and nets; sickening and killing

fish, wildlife, livestock, pets and people; and generally ruining a summer day at the lakeshore. Many species form mucilage mats that block the sun from penetrating the water. But the toxins cyanobacteria produce are what create the real danger.

Cyanobacteria prefer water rich in nutrients and Alberta's prairie recreational lakes, of which Wabamun is one, offer ideal conditions. They are situated in glacial basins rich in nutrients, such as phosphorous and bicarbonate. There is intense development of the watersheds surrounding the lakes, increasing nutrient loading into the lakes.



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Volume 3, No. 2.

Editor: Don Meredith
(wwmc@donmeredith.ca)

Submissions

Lakescape welcomes contributions from WWMC members and others who wish to inform members about issues or events in the Wabamun area. Please keep submissions brief and to the point. All submissions are subject to editing for length and clarity. For more information, contact the editor: Don Meredith
wwmc@donmeredith.ca

Deadline for the summer edition is July 15, 2013.

The Toxins

It turns out these bacteria produce many toxins, depending on the species. The toxins can be broken down into three groups based on how they affect animals: **dermatotoxins** that attack the skin, **neurotoxins** that attack the nervous system, and **hepatotoxins** that attack the liver.

Dermatotoxins can cause mild to severe reactions in humans, including irritations to eye, ear and throat; rashes and skin lesions. For example, late summer "swimmer's itch" is most likely caused by a cyanobacteria dermatotoxin. Cyanobacterial

neurotoxins can cause paralysis, seizure and death, depending on the amount of toxin consumed. Many deaths of dogs, other pets and livestock along lakeshores in late summer can be attributed to the ingestion of cyanobacterial neurotoxins from lake water. **Hepatotoxins** can also be quite deadly, as they attack an animal's liver, whether that animal be fish, fowl or person. One such toxin, Microcystin is very persistent, able to survive boiling or freezing. Dr. Zurawell, who has been



Mucilage mats of cyanobacteria on Pigeon Lake.

Fortunately, Wabamun has not yet reached that point. If we work together now, we can keep it that way.



Cyanobacterial bloom fouling shoreline at Gregoire Lake

showed that the occurrence of Microcystin in Alberta lakes has been increasing over the years.

Health Precautions

Not only threats to fish, wildlife and pets, these toxins can also affect the health of humans. All algal/bacterial blooms should be treated with caution. Affected lake water should not be used for domestic purposes, such as drinking, cooking or bathing/showering. Don't swim in such water. Keep pets and livestock away, and provide alternative drinking-water sources. Don't eat fish from such water.

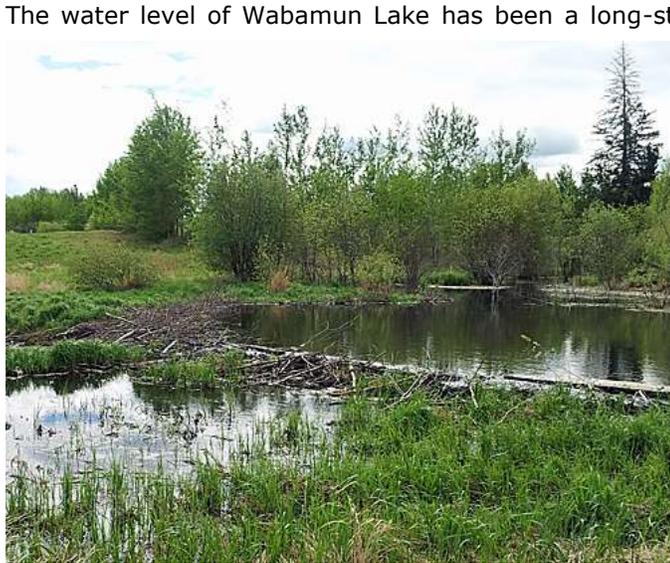
Prevention

Although the eutrophication of our prairie lakes is a natural occurrence, it can be slowed if watershed development is managed. Once the tipping point is passed where conditions are ripe for the production of cyanobacteria blooms, it is very difficult to go back. Many Alberta lakes have passed that point, where blooms are a common occurrence.

State of the Watershed Report

Concerned about the nutrients in Wabamun? Watch for the release of the new State of Watershed report later this summer. It will provide more detail regarding the levels of nutrients in the lake.

A Beaver Dam and Lake Water Level



The water level of Wabamun Lake has been a long-standing issue with lake residents and others. According to the Schindler report (2004), the outlet stream “has been repeatedly and illegally modified and vandalized since 1912 by different groups wishing to regulate lake levels at either very high or very low levels.” In the last few years, the water has once again reached the level of the weir, and in the last couple of years it has risen above the weir (see table below).

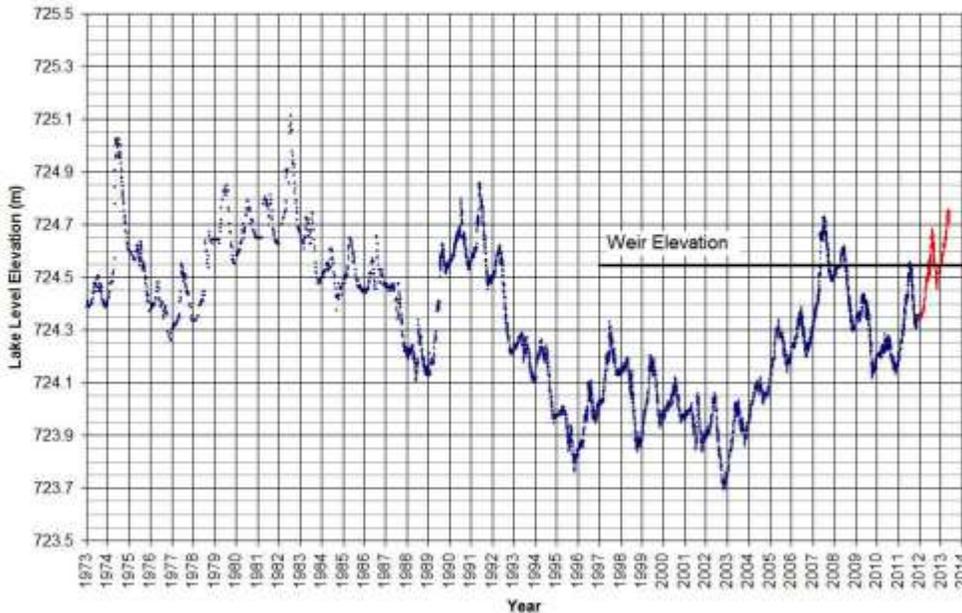
Alberta Environment and Sustainable Resource Development is well aware of the lake level issue at Wabamun Lake—with a large run-off this spring and a beaver dam downstream of the outlet weir, lake levels are approximately 15 cm higher than the weir level of 724.55 m (with some additional beaver activity at the mouth of the old steel weir). The weir and the beaver dam of concern are on Paul First Nation land, and ESRD has been in negotiations with the Paul First Nation to remove the dam in a controlled fashion that will draw down the lake as quickly as possible without causing flooding downstream.

Beaver dam raising water level above weir.

remove some beaver dams further downstream that would impede flow, leading to the removal of the main beaver dam. Even with removal of the dam, estimates from ESRD hydrologists indicate that it will take most of the summer to draw down the lake to the weir level.

In an agreement with ESRD, the Paul First Nation will start removal work on Friday, May 31st. They will initially

Wabamun Lake at Wabamun(05DE002)
Recorded Lake Levels for the Period 1973 to Present*



* Red points (2012-2013) considered preliminary data. Data source: Water Survey of Canada. Chart produced by Water Policy Branch, AESRD.

WWMC at Central Alberta Recreation Lakes Forum

story and photo by Glenn Gustafson

A gathering of the major recreational lakes in Central Alberta took place on May 4th at the Lake Isle Hall in Lac Ste. Anne County. Approximately 50 people attended to learn about recent issues and concerns relative to lake health and management. The morning of the Forum was devoted to updates from various government and lake related groups. These informative presentations included information on blue-green algae, invasive aquatic species, lake monitoring, beach monitoring and a review of preliminary results from the provincial Water Conversation. The afternoon was set aside for a report from each to the lakes in attendance to provide an update on what was new at each lake or what each lake group was working on.



For more information on CARL—go to the following link:

<https://external.sp.environment.gov.ab.ca/CR-RecLakes/default.aspx>

More Invaders Coming

As if we don't have enough to worry about with cyanobacteria and invasive plants taking over our lakes, here comes another concern: Zebra and Quagga mussels. As outlined in an article prepared for the Association of Summer Villages by Gavin Berg and Kate Wilson of Alberta Environment and Sustainable Resource Development, these mussels are hitching a ride on boats, trailers and other aquatic equipment and spreading themselves from east to west across the continent. It is believed they originally came from Europe in the ballast tanks of ships that were flushed in the St. Lawrence River. They have since invaded water bodies in much of the eastern U.S. and Canada and our now in lakes and reservoirs in the American southwest.

So, what is the problem? As described by Berg and Wilson, "Imagine your beach having so many shells on it that you had to wear water shoes to prevent your feet from being cut when you go in the water (not to mention the smell of rotting shells). Imagine taking your dock out each year only to find it caked with mussels. Imagine your boat hoist being unusable because the mussels on the pipes prevent the hoist from going up and down."

So far, there have been no occurrences of either mussel in Alberta waters. However, several boats coming in from other jurisdictions have been found to be fouled with the mussels. So if measures aren't taken to prevent these animals from entering our water, it is just a matter of time before they dominate our waters.

In their article, Berg and Wilson stated, "The Alberta Government is initiating a program to fortify our borders from the threat of these invasive species. In the summer of 2013, boat inspection stations will be set up at some of our most vulnerable border crossings and a monitoring program will be initiated to ensure that our lakes have not already been infested. In addition, we will have an emergency response in place that will enable us to respond to situations where mussel-fouled boats can be intercepted and properly decontaminated before launching in Alberta lakes."

Here's what you can do to prevent transferring these and other animals from one water body to another:

- **CLEAN** your equipment. Before you leave the access area or dock, remove any plants, mud or debris. When you get home, soak your gear in a 2% bleach solution (20 ml of bleach per 1L of water) for one minute. Wash your boat with warm soapy water.
- **DRAIN** all the water from your boat and equipment (coolers, live wells, bilges, buckets and ballasts) before leaving the boat launch area.
- **DRY** your gear completely between trips and allow the wet areas of your boat to air dry.

For more information on invasive species, visit www.protectyourwaters.net

Become a Member

Worried about your lake? If you haven't already, become a member of the WWMC. Go to www.wwmc.ca and download a membership application. We can use the support and there will be a lot of opportunities to volunteer your time and expertise to help with projects keeping Wabamun healthy and the beautiful lake it is.

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The WWMC thanks the following businesses and organizations for partnering with the WWMC as corporate members and helping the council to achieve its goals.



Camp Oselia Society, Falher Drugs, Kokanee Springs RV Park, Seba Beach Ice Cream Stop, Shoreside Management Ltd., Summer Village of Point Allison, Wabamun & District Lions Club, Wabamun & District Seniors Centre, Wabamun Lakeside Liquor

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. Corporate members will be acknowledged at WWMC functions, in each newsletter and elsewhere. For more information contact Kelly Aldridge by e-mail, ktammaa@hotmail.com or telephone, (780) 953-2695.

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

Watershed Report Sponsors

The WWMC thanks the following sponsors for providing funding for the creation of the state-of-the-watershed report:

