



Short Ears, Long Tales

Courte Oreilles Lakes Association

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Introducing Volume II of the Fourth National Climate Assessment

Risks, strategies, and adaptations for Wisconsin

By Allison Slavick
Contributing Writer

"Climate change will impact fisheries across the state. Those impacts may be positive or negative depending on what you're fishing for." - Dr. Madeline Magee, engineer and scientist whose research centers on climate change adaptation strategies for Wisconsin lakes.

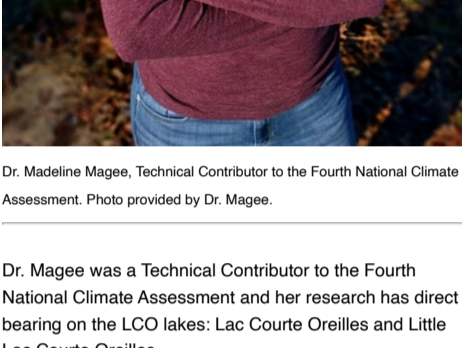
In November 2018, the Fourth National Climate Assessment, Volume II, was released by the U.S. Government. Volume I, released in 2017, is a Special Report with data, observations, and modeling. Volume II gets down to the nitty-gritty of real-world action, and covers impacts, risks, and adaptations.

Members of Courte Oreilles Lakes Association (COLA) will be interested in the climate change forecast for the Midwest, and the projected and potential impacts on LCO lakes and their fisheries.

Some background: In 1989, President George H.W. Bush initiated the Global Change Research Program, which Congress codified with the Global Change Research Act of 1990. This visionary and impressive Act is a law that requires research into global warming and a congressional report – every four years – on the consequences of climate change. It calls for "a comprehensive and integrated United States research program which will assist the Nation and the world to understand, assess, predict, and respond to human-induced and natural processes of global change."

Since then, dedicated scientists at no fewer than thirteen Federal agencies keep on keeping on by contributing to the Research Program on the environmental, economic, health, and safety consequences of climate change. Their dedication and behind-the-scenes work is evident in the 29 chapters of Volume II. The [report is infinitely interesting to read](#), but if you choose you can jump to [Chapter 21](#), which is devoted to the Midwest and offers six key messages related to agriculture, forestry, biodiversity and ecosystems, human health, and transportation and infrastructure.

Right here in Wisconsin, scientists have carried out research that informed the strategies and adaptations outlined in the report. One of those scientists is Madeline Magee, until recently a post-doctoral researcher at the Center for Limnology at the University of Wisconsin-Madison. Dr. Magee is a civil and environmental engineer who sometimes, in her words, poses as a limnologist. Limnologists study all aspects of freshwater lakes and ponds – their biology, chemistry, and physics.



Dr. Madeline Magee, Technical Contributor to the Fourth National Climate Assessment. Photo provided by Dr. Magee.

Dr. Magee was a Technical Contributor to the Fourth National Climate Assessment and her research has direct bearing on the LCO lakes: Lac Courte Oreilles and Little Lac Courte Oreilles.

"I became interested in climate change around 2010," said Dr. Magee, "especially its impact on lake temperature and ice cover. Long-term changes in water temperature influence the physics of a lake, and that leads to changes in water chemistry and changes in biological features such as fish habitat."

As a post-doctoral researcher, Dr. Magee applied her engineering savvy to couple physical, chemical, and biological models to predict losses of cold-water fish from inland lakes under climate warming. "Climate change will impact fisheries across the state. Those impacts may be positive or negative depending on what you're fishing for. For cold water fish, obviously climate change will be harmful, but some lakes will be resilient depending on the water depth and surface area."

Lac Courte Oreilles and Little Lac Courte Oreilles are dimictic lakes, which means the water mixes from top to bottom twice a year. For deeper lakes, like LCO, there will be some resiliency because the deeper, colder layer of water is bigger. The warmer, less dense layer stays on the surface, but wind speed is also important, because it can change the amount of stratification. A strong wind can very efficiently move warm surface water to lower layers of the lake, increasing overall lake temperature.

The effects of climate change make Lac Courte Oreilles especially vulnerable, as it's one of about 200 Wisconsin lakes that support both a cold-water fishery in its lower layer and warm-water species in its top layer. The Wisconsin Initiative on Climate Change Impacts (WICCI), a collaborative network of citizens, scientists, and public and private decision-makers, generates and shares information that can help lake managers, property owners, and citizens limit this vulnerability. Their publication, "Climate Wisconsin 2050: Scenarios of a State of Change," authored by Dr. Magee and released in April, 2019, offers guidance for preparation and a framework for adaptation to the climate change scenarios that lie ahead.

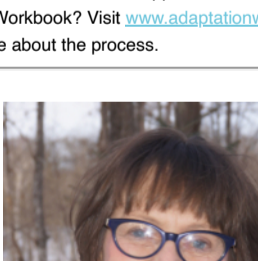
When it comes to lake levels, water quality, fisheries, and aquatic invasive species, proactive measures can be taken to protect the lake. Planning ahead will help, and adaptation strategies offer four ways to minimize and prevent harm. **Communication** about climate change will teach people about what could happen and get them to care about it. Negative impacts will not go away, and reasonable expectations need to be communicated. For example, 75 years from now some lakes in Wisconsin will not support walleye. Education about lake level fluctuations can shift cultural norms toward native landscaping and minimizing shoreline development. **Conservation practices** such as wetland restoration and incentives for better farming practices can protect water quality in many ways. **Engineering and technology** can stop invasive species, manage lake levels with dams, and design infrastructure that accommodates extreme events. And **local policy**, such as water level regulation, zoning laws to protect shorelines, and incentives for agricultural practices that minimize water use can aid in adaptation.

Dr. Magee is convinced that, in the big picture, anyone who likes lakes – that is, enjoys recreation, fishing, and wildlife, for example – wants to do what's best for the resource. Communicating the negative impacts of a warming climate and managing expectations will affect people's decision-making and can lead to a proactive carbon policy. At the landscape level, however, right here in the COLA community, best practices in communication, conservation, engineering and technology, and policy can have a major impact on how LCO responds to climate change.

How can COLA prepare for climate changes that will affect LCO and Little LCO? A helpful resource is the [Adaptation Workbook](#), a climate change tool for land managers and conservationists designed by the Northern Institute of Applied Climate Science (NIACS). The Workbook was developed using current, peer-reviewed and region-specific science. The Workbook leads users step-by-step through the process of developing local goals that align with adaptation actions, resulting in a customized adaptation plan. At the site, you can browse a growing community of demonstration adaptation projects.

Complementing the Workbook is the [Tribal Climate Adaptation Menu](#), available from the Great Lakes Indian Fish and Wildlife Commission. The Menu is mindful of tribal cultural practices when developing adaptation strategies, and was designed to work with the NIACS Workbook or as a stand-alone resource. These tools will help COLA address and adapt to climate change.

Are you interested in creating a climate change adaptation plan for the upper Couderay River watershed using the Northern Institute of Applied Climate Science's Adaptation Workbook? Visit www.adaptationworkbook.org to learn more about the process.



Allison Slavick works as a consultant to nonprofits all over the country, especially museums. For fifteen years she directed the Cable Natural History Museum, and previously worked as a scientist at the New York Botanical Garden and the Smithsonian Institution. She mountain bikes, skis, and picks berries near her home on Crystal Lake in southern Bayfield County. Questions, comments, or suggestions for future articles may be sent to her at allison.slavick@gmail.com.

[View this email in your browser](#)

PLEASE RENEW YOUR COLA MEMBERSHIP FOR 2019-2020

COLA membership is a pretty good deal. For only 25\$/year, you help COLA protect the LCO Lakes, are informed about issues involving the LCO Lakes, and you get a picnic in return!

[Renew your membership](#) today in one of Wisconsin's most active and respected lake associations.

Are your neighbors and extended family members of COLA? If not, please ask them to [join](#).

DATES TO REMEMBER

COLA ANNUAL MEETING

Saturday, June 15, 2019
St. Francis Mission

COLA MEMBERS' PICNIC

Saturday, July 13, 2019
Trails End Resort



ZEBRA MUSSELS ARE NEARBY

Close indeed - See linked lists for lakes/streams in WI and MN within a 150 mile radius of Lac Courte Oreilles.

[Wisconsin lakes and rivers](#)
[Minnesota lakes and rivers](#)

The Zebra Mussel is a serious invasive species and could destroy our lakes.

See the message from COLA President Kevin Horrocks [here](#).

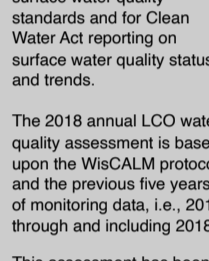


Photo provided by [USDA](#) and [USGS](#).

REPORT FROM THE CITIZEN LAKE MONITORING NETWORK

The Winter-Spring issue of The Monitor is available and features a recap of the 2019 Wisconsin Lakes Convention, including three CLMN volunteers that received 30-year monitoring awards this year. The announcements page includes a link to the 2019 satellite schedule and a summary of a newly published study that utilized CLMN water clarity data.

You can find the newsletter on the Citizen Lake Monitoring Network website or click [HERE](#) to go directly to it.

Also, watch for an announcement soon regarding the 2019 CLMN Lake Learning Day and aquatic plant identification workshops. Registration for these events will be available very soon.

2018 ANNUAL LCO WATER QUALITY ASSESSMENT

Wisconsin's Consolidated Assessment and Listing Methodology (WisCALM), from the WDNR, provides guidance on assessment of water quality data against surface water quality standards and for Clean Water Act reporting on surface water quality status and trends.

The 2018 annual LCO water quality assessment is based upon the WisCALM protocol and the previous five years of monitoring data, i.e., 2014 through and including 2018.

This assessment has been prepared for each of the last 6 years by LimnoTech Inc.

See the assessment [here](#).
[See more details about WisCALM on the WDNF website.](#)

NEW 700 FT SETBACK REQUIREMENTS FOR ENHANCED BOAT WAKES

A new enhanced boat wake ordinance became effective on November 12, 2018. To view the ordinance [click here](#). The essential elements are as follows:

"No person shall operate a motorboat ... on the waters within the Town of Bass Lake, Sawyer County in a manner to enhance an elevated wake for over 50 feet in length closer than 700 feet from any shoreline, dock, pier, raft or other restricted area(s) within the Town of Bass Lake, Sawyer County. An elevated wake is a trail of disturbed water left by the passage of a watercraft in excess of 24 inches. Such prohibited operation shall apply to wake enhancement watercraft by the use of ballast, mechanical hydrofoil(s), uneven loading or operation at transition speed. Transition speed means the speed at which the boat is operating at greater than slow-no-wake speed, but not fast enough so the boat is planning."



A higher resolution map is provided [here](#).

A LAKESIDE COMPANION

The University of Wisconsin Press has recently published "A Lakeside Companion," by Ted J. Ruliseh.

According to Michael Engleson, executive director, Wisconsin Lakes, the book "Delivers the magic of lake living while conveying water science topics in a clear and engaging way. Whether you are on the lakeshore or far away, it will bring you back to the waters you love. A great read."



IMPERVIOUS SURFACES

Controlling runoff is important, and WDNR has provided some guidance on how to handle impervious surfaces. [More information.](#)

THE LAC COURTE OREILLES LEGACY FUND

Many families have enjoyed LCO's pristine beauty for generations. Your generous donations have helped preserve the lake and remain the essential funding for current activities. But now we have another opportunity to protect the lake far into the future by putting the Lac Courte Oreilles Foundation into your estate plans.

The LCO Foundation teamed up with the Eau Claire Community Foundation to create the [Lac Courte Oreilles Legacy Fund](#). Endowment gifts include: planned gifts such as a bequest in a will, charitable remainder trust, or outright gifts, such as of cash, or stock.

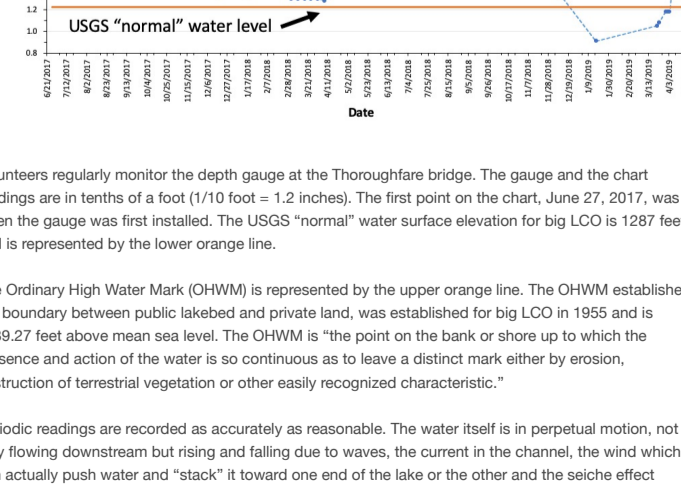
SPREAD THE GOOD NEWS

If you have friends or family on nearby lakes who would enjoy Short Ears, Long Tales, [let us know](#).

Help COLA by sharing this newsletter with friends.

[ARCHIVED ISSUES OF SHORT EARS, LONG TALES](#)

LCO Water Depth Recorded at Thoroughfare Bridge Gauge



Volunteers regularly monitor the depth gauge at the Thoroughfare bridge. The gauge and the chart readings are in tenths of a foot (1/10 foot = 1.2 inches). The first point on the chart, June 27, 2017, was when the gauge was first installed. The USGS "normal" water surface elevation for big LCO is 1287 feet and is represented by the lower orange line.

The Ordinary High Water Mark (OHWM) is represented by the upper orange line. The OHWM establishes the boundary between public lakebed and private land, was established for big LCO in 1955 and is 1289.27 feet above mean sea level. The OHWM is "the point on the bank or shore up to which the presence and action of the water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation or other easily recognized characteristic."

Periodic readings are recorded as accurately as reasonable. The water itself is in perpetual motion, not only flowing downstream but rising and falling due to waves, the current in the channel, the wind which can actually push water and "stack" it toward one end of the lake or the other and the seiche effect caused by the gravitational pull of the moon and sun.

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COLA Mission: 1) to protect, preserve and enhance the quality of Lac Courte Oreilles and Little Lac Courte Oreilles, their shorelands and surrounding areas, while respecting the interests of property owners and the rights of the general public; and 2) to consider, study, survey and respond to issues deemed relevant by COLA's membership.

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