



Short Ears, Long Tales

Courte Oreilles Lakes Association

Issue #25 Dec. 1, 2017

Striking a balance: the dam water's too high, the dam water's too low

By Kevin Horrocks
COLA President

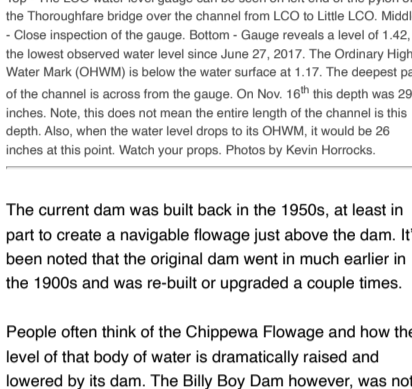
If you live on a lake there is nothing else more talked about—except perhaps the weather—than the water level of the lake.

Here's the truth about the water level of Lac Courte Oreilles and Little LCO: it does go up and it does go down. Beyond that fact there is lots of room for interpretation.

When the water levels are on the high side people notice waves lapping at their shoreline and washing away dirt and sand, maybe even exposing plant roots and cutting into the shore. If the property is low and somewhat flat; if there is insufficient shoreline buffer it becomes more noticeable and people ask, "Why don't they open the dam and get the water down to where it's supposed to be?"

When the water levels are on the low side boaters are reminded when their props hit rocks. They wonder if they need a longer dock; they see more exposed shore at the water's edge; and boating between the lakes becomes more of a challenge. Their question, "Why don't they close the dam until the water rises?"

Either way, high or low, only one group of people is going to be happy at any one time. The Billy Boy Dam tends to get blamed by both sides. The blame is misplaced, and the suggested solutions aren't practical.



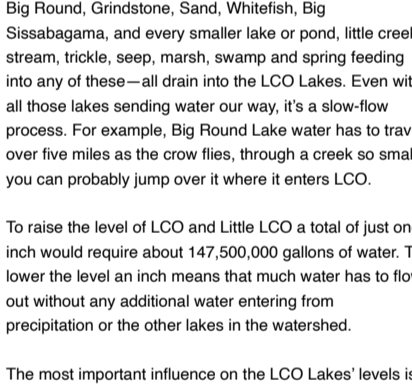
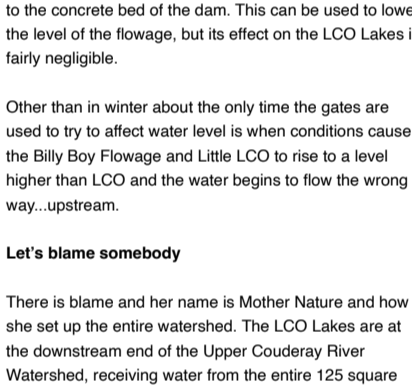
Top - The LCO water level gauge can be seen on left end of the pylon of the Thoroughfare bridge over the channel from LCO to Little LCO. Middle - Close inspection of the gauge. Bottom - Gauge reveals a level of 1.42, the lowest observed water level since June 27, 2017. The Ordinary High Water Mark (OHWM) is below the water surface at 1.17. The deepest part of the channel is across from the gauge. On Nov. 16th this depth was 29 inches. Note, this does not mean the entire length of the channel is this depth. Also, when the water level drops to its OHWM, it would be 26 inches at this point. Watch your props. Photos by Kevin Horrocks.

The current dam was built back in the 1950s, at least in part to create a navigable flowage just above the dam. It's been noted that the original dam went in much earlier in the 1900s and was re-built or upgraded a couple times.

People often think of the Chippewa Flowage and how the level of that body of water is dramatically raised and lowered by its dam. The Billy Boy Dam however, was not designed or intended to perform great feats of raising or lowering the water levels, but to maintain an acceptable range of water level. At that point the water would flow over the dam and continue to maintain the Couderay River. If necessary, the dam gates can be opened to continue suitable flow of the Couderay River. If there is water going over the top of the dam then the water level is within the normal range of the lakes' level.

The Billy Boy Dam

The Billy Boy Dam is about 30 feet across. It has four head gates and one 'draw-down' gate, each about five feet wide. All have chains fastened to wheels, which can be turned to raise the gates. The dam was designed for water to flow over the top when the gates are closed and at full height. So, raising the gates actually opens them below the surface of the water that releases greater volumes of water than that flowing over the top.



The Billy Boy Dam was designed for overflow across the width of the dam. Close up of raised center gate (bottom) on Nov. 16, 2017. This is the flow at the Billy Boy Dam when the lake level is about 3 inches over the OHWM. Photos by Kevin Horrocks.

During winter a couple of the gates may be opened as a precaution in preparation for the spring melt of snow and ice, which can bring in an enormous influx of water and subsequent high water problems. Even then gates may need to be open virtually all winter in order to release enough water to make any difference in the LCO lakes' volumes by spring.

The fifth gate is a 'draw-down' gate. This gate runs deeper to the concrete bed of the dam. This can be used to lower the level of the flowage, but its effect on the LCO Lakes is fairly negligible.

Other than in winter about the only time the gates are used to try to affect water level is when conditions cause the Billy Boy Flowage and Little LCO to flow to the level higher than LCO and the water begins to rise the wrong way...upstream.

Let's blame somebody

There is blame and her name is Mother Nature and how she set up the entire watershed. The LCO Lakes are at the downstream end of the Upper Couderay River Watershed, receiving water from the entire 125 square miles (about 70,000 acres) watershed.

Big Round, Grindstone, Sand, Whitefish, Big Sissabagama, and every smaller lake or pond, little creek, stream, trickle, seep, marsh, swamp and spring feeding into any of these—all drain into the LCO Lakes. Even with all those lakes sending water our way, it's a slow-flow process. For example, Big Round Lake water has to travel over five miles as the crow flies, through a creek so small you can probably jump over it where it enters LCO.

To raise the level of LCO and Little LCO a total of just one inch would require about 147,500,000 gallons of water. To lower the level an inch means that much water has to flow out without any additional water entering from precipitation or the other lakes in the watershed.

The most important influence on the LCO Lakes' levels is precipitation, whether directly into the lake from rain and runoff, or through the watershed, all draining its collected precipitation downstream.

The most critical aspect of the water exiting LCO is not the Billy Boy Dam. It is the LCO narrow, relatively shallow channel from LCO into Little LCO through which the entire watershed drains. The rise and fall takes a long time due to the sheer volume of water involved and the physical restriction on how fast it can leave the LCO Lakes...or how long it takes for a sufficient volume of water to find its way into LCO.

So, to raise the lakes' level the rate of inflow has to be fast and vast enough that the constriction at the channel to Little LCO essentially causes the hundreds of millions of gallons needed to be held back in LCO. The answers to lowering or raising the lakes' levels are precipitation, time and patience.

I can see it for myself

All of us on the LCO Lakes have observed when the water level is high or low. The catch is at any one time some of us think it's high and some of us think it's low, and some just don't know. It's in the eye of the beholder.

Sawyer County and COLA worked together and installed an official water level gauge in order to record a measured water level on specific dates. The gauge is bolted to the stone bridge pillar in the channel connecting Lac Courte Oreilles and Little LCO under Thoroughfare Road. The Public Service Commission of Wisconsin established the Ordinary High Water Mark (OHWM) for LCO in 1955. The OHWM is set at elevation 1289.27 feet NGVD-29 (above mean sea level). The gauge itself is marked in tenths of a foot, not in inches. So, a tenth of a foot is 1.2 inches. On the gauge the OHWM is at the 1.17 mark. The OHWM is the basic reference point for the measurements.

So a reading of 1.5 is .33 feet above the 1.17 OHWM. In inches that would be 3.96 or just as accurately, 4 inches above the OHWM. I say "just as accurately" because the water is fluid, in motion from flow, and from wind and waves usually coming off the big lake. Thus, rounding .04 inches makes it easier to follow. Even on a windless day the water has a subtle rise and fall.

The graph at the bottom of this page shows the gauge readings taken through the summer and up to Sunday, Nov. 12. Other than rare occasions when ice breaks from LCO and can clog the channel for a day or two, the channel does not freeze over. The intention is to take readings through the winter as well as the boating season.

The talk has been about what a wet, rainy spring, summer and even autumn we've had in the area. This is certainly a factor, likely the factor, in the water level never dropping to the OHWM since the installation of the gauge.

The Water Level Readings graph will eventually be added to the COLA website and updated continuously.

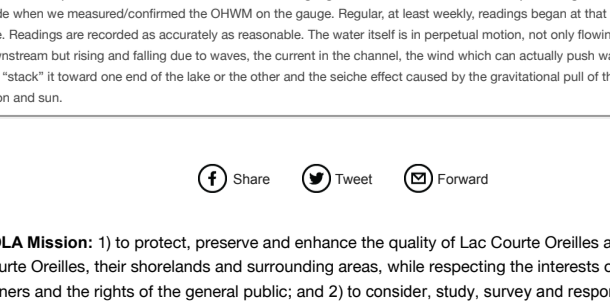
Not just our watershed

One last point about being part of a larger watershed: as much as we are hoping to, or have to plan to receive plenty of water from all the lakes and streams above the Billy Boy Dam, there is a responsibility and requirement that water continuously flow over or through the Billy Boy Dam as a critical part of the Couderay River. The LCO Lakes are at the tail end of our Upper Couderay Watershed. That also means we are at the head of the next watershed downstream and the water is not ours to keep at the cost of the Couderay River and the entire watershed to the south.

Perhaps Sawyer County Zoning and Conservation Director Dale Olson said it best:

"All I can say after is that after 20 years of dam operations we never make everyone happy. Low-lying lots of those with natural buffers want lower water; boaters or those with shallow frontage want higher water. The Billy Boy Dam does influence LCO but not to the extent people think it does. I've heard (people say), 'I can tell when you open the gates.' Well, no you can't. A lake like LCO may lose a couple inches a day in hot, windy conditions. It's always a balance and a guess at what future weather patterns bring."

LCO Water Depth Recorded at Thoroughfare Bridge Gauge



The OHWM was established in 1955 and is 1289.27 feet above mean sea level. At the water level gauge on the Thoroughfare bridge the OHWM is at 1.17 feet.

Note that the gauge and the chart readings are in tenths of a foot. That means 1/10 foot = 1.2 inches. So, from the highest measurement, 1.8, taken on Aug. 27 to the lowest measurement so far, 1.38, taken on Nov. 22, the water level has dropped .42 feet, or 5 inches.

This also means the water level, at the 1.38 mark on the gauge, is still about 2 1/2 inches above the OHWM.

Note: The first point on the chart, June 27, was when the gauge was first installed. The second point, Aug. 29, was made when we measured/confirmed the OHWM on the gauge. Regular, at least weekly, readings began at that time. 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.

Share Tweet Forward

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.

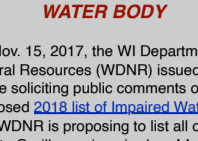
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Merry Christmas and Happy New Year!

It's been a great year for LCO. So many people have done so much to help the lakes and to make 2017 one of the most pleasurable and productive years in recent history. We're beginning to make real headway to preserve and improve LCO thanks to all of you. You deserve the very best of holidays. Enjoy the merriment!

And a special thanks to all of you who contributed time, interviews, expertise and love of the lakes to the writers of Short Ears, Long Tales. It makes this such a meaningful and interesting eNewsletter.



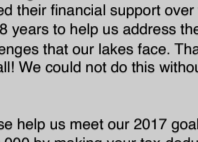
LAC COURTE OREILLES PROPOSED AS AN IMPAIRED WATER BODY

On Nov. 15, 2017, the WI Department of Natural Resources (WDNR) issued a notice soliciting public comments on its proposed 2018 list of Impaired Waters. The WDNR is proposing to list all of Lac Courte Oreilles as impaired—which is a good thing. But, they are proposing to list "low dissolved oxygen" (DO) as an indicator of that impairment without citing excess phosphorus as the cause of the impairment. (Here is the [full story](#).)

We just need a final push from COLA members to get that correct cause listed as well. The other 240 impaired waters have a cause listed, but not Lac Courte Oreilles.

Here is a [sample letter/email](#) to the WDNR to request that impairment—and attention for—our lake include excess phosphorus as a leading cause.

Public comments may be submitted by December 29, 2017, and can be emailed to WDNR at DNFImpairedWaters@wisconsin.gov, or sent by U.S. mail to Ashley Beranek, DNR, Water Evaluation Section (WY/3), Box 7921, Madison, WI 53707.



TIME TO CONSIDER AN END-OF-YEAR DONATION TO THE LAC COURTE OREILLES FOUNDATION

From the LCOFI Board of Trustees:

We are pleased to report that we continue to make terrific progress on our journey to preserve and improve the water quality of our lakes. This is evidenced by the financial support we've received from many homeowners over the years. In 2016 alone, 332 homeowners trusted us with donations. An even greater number of homeowners shared their financial support over the past 8 years to help us address the challenges that our lakes face. Thank you all! We could not do this without you.

Please help us meet our 2017 goal of \$100,000 by making your tax-deductible donation to the Lac Courte Oreilles Foundation. If you have already done so, thank you so much for your contribution! Your support makes a significant difference in preserving and improving the quality of our lakes.

THE LAC COURTE OREILLES FOUNDATION LEGACY FUND

Many families have enjoyed LCO's pristine beauty for generations. Your generous donations over the past eight years 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.



COLA'S WEBSITE REDESIGNED

COLA's website has been completely redesigned. Please let us know what you think of the new look.

LCO CREEL SURVEY REPORT MAY 7, 2016 TO MARCH 5, 2017

The Wisconsin Department of Natural Resources regularly conducts fishery surveys of area lakes and reservoirs to gather information on species composition, population size, reproductive success, size/age distribution, and growth rates. [Here are the recent results for LCO.](#)

WISCONSIN'S NATURAL RESOURCES BOARD HAS APPROVED WDNR'S SCOPE STATEMENT DEALING WITH LCO'S PHOSPHORUS STANDARD

Wisconsin's Natural Resources Board has now joined Governor Scott Walker in the approval of a scope statement submitted by the WDNR on that initiates the rulemaking process to establish a more protective water quality standard for LCO. The current phosphorus standard for the lake is set at 15 ppb by the state. COLA and the LCO tribe have asked that the limit be lowered to 10 ppm. Now its up to the WDNR to follow through with the rule making.

"LEGACY PHOSPHORUS" AND OUR WATERS"

A [new study](#) quantifies the need to reduce phosphorus in our soils—for the health of our lakes and rivers.

By Jenny Seifert, Grow - Wisconsin's Magazine for the Life Sciences, UW College of Agricultural and Life Sciences.

LAKESHORE PROPERTY OWNER GUIDES

These guides provide guidance on selection of native plants as well as simple and inexpensive best practices for lakeshore property owners.

[Healthy Lakes 350 ft2 Native Planting Companion Guide](#)

[2014-2017 Wisconsin's Healthy Lakes Implementation Plan](#)

PHASE 2 OF 3-PART LCO MUSKY RECOVERY PLAN

Phase 2 of 3 part LCO Musky recovery plan is underway - 3,900 extended growth Musky to be released Oct 11 -12 with pit tags. See [Issue #19 Short Ears Long Tales](#) for more information about the recovery plan. More coming.

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.



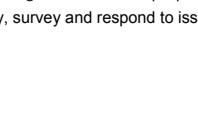
PLEASE RENEW YOUR COLA MEMBERSHIP FOR 2017!

COLA membership is a pretty good deal. For only 25\$/year, you help COLA protect LCO, 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](#).

FAREWELL TO THOSE MIGRELLING SOUTH SEE YOU NEXT SPRING



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