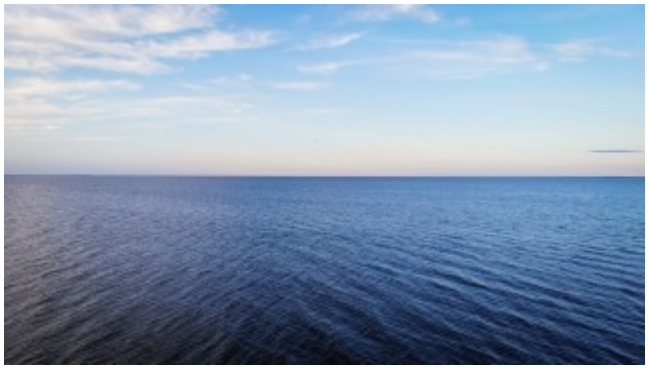
The path forward for Lake Winnipeg solutions

News
LWF
May 15, 2020
0



Last month, the governments of Manitoba and Canada jointly released the State of Lake Winnipeg report, 2nd edition. The report is presented as an update on its predecessor, published in 2011.

The 2nd edition provides information on the physical, chemical and biological condition of Lake Winnipeg from 2008-2016, including information on water quality, the lake's fisheries, aquatic invasive species and species at risk. This builds on the 1999-2007 data presented in the first edition.

At LWF, we're focused on phosphorus – the nutrient responsible for algae growth in freshwater lakes. Phosphorus levels in the lake and its tributaries are measured by Manitoba Agriculture and Resource Development, reflecting the provincial government's responsibility to manage the Lake Winnipeg ecosystem.

Unfortunately – yet perhaps unsurprisingly – phosphorus levels in Lake Winnipeg's south basin do not meet the provincial water-quality objective. In fact, phosphorus levels are, on average, twice as high (0.104 mg/L) as that objective (0.05 mg/L). The report does not tell us if conditions in the lake have been getting better or worse since the last edition was published in 2011. Instead, its message is simply that further analyses are required.

Looking to the tributary rivers that feed Lake Winnipeg, the picture is also bleak. As noted in the first edition of the State of Lake Winnipeg report, the Red River is the largest source of phosphorus to Lake Winnipeg, contributing 69 per cent of the total phosphorus load – despite contributing only 16 per cent of the water flow to the lake. Phosphorus contributions from the Red River vary considerably from year to year, dependent to a large degree on flow: in flood and high-flow years, the phosphorus load is higher.

On average, however, the Red River adds 5,070 tonnes of phosphorus to Lake Winnipeg every year. To put that number in perspective, the Manitoba government has set an annual loading target of 2,800 tonnes of phosphorus for the Red River. Once again, we're falling woefully short of provincial objectives.

For 15 years, LWF members have been concerned with changes they have observed at the lake, as algae blooms increasingly impact our experiences on the water. Data from the State of Lake Winnipeg report affirms what lake-lovers already know to be true – we are not succeeding at improving water-quality conditions on the world's 10th-largest freshwater lake.

Despite the challenges, the State of Lake Winnipeg report provides little in the way of tangible solutions to address the problem. It emphasizes the lake's enormous multi-jurisdictional watershed and the need to engage all sectors within this watershed. It highlights events and impacts seemingly beyond our control. It cautions us that change takes time.

At LWF, we believe we are not helpless in the face of this challenge. To improve the health of Lake Winnipeg, we must adopt a targeted, evidence-based approach – and we have the information at hand to get started. We need to begin with the biggest phosphorus sources, implement proven practices to reduce phosphorus loading, measure our impacts and work our way down the list until we see results.

And efforts are already underway. Our current focus is the Red River Valley – an area which contributes over two-thirds of the lake's phosphorus, from both municipal and rural sources. Within this smaller watershed, there are even smaller phosphorus hotspots – localized, concentrated phosphorus sources that demand our attention.

The first of these is wastewater treatment in the city of Winnipeg – yet another instance where provincial water-quality targets are not being met. Winnipeg's North End sewage treatment plant is in violation of its provincial operating licence. In 2019, effluent from the plant contained on average three times more phosphorus than the licence limit. (Notably, an update on Winnipeg wastewater's contribution is missing from the 2nd edition of the State of Lake Winnipeg report – but data from the first edition pegs this at 5 per cent of the annual load). In 2019, LWF and the International Institute for

Sustainable Development proposed an interim phosphorous-removal solution that would make use of the plant's existing infrastructure to reduce phosphorus at a fraction of the currently projected $1.8 billion cost. Both provincial and municipal governments have committed to interim phosphorus reduction, yet the timeline for action still remains unclear. If we want to meet water-quality targets for Lake Winnipeg, we need to start by meeting water-quality targets for Winnipeg's wastewater.

Phosphorus hotspots also exist in rural portions of the Red River Valley. Citizen volunteers, as part of the Lake Winnipeg Community-Based Monitoring Network (LWCBMN), are generating the most up-to-date and targeted information we have about phosphorus loading in agricultural landscapes. They have consistently identified rural phosphorus hotspots over the last four years, pinpointing the areas we need to focus on in order to meet targets and improve the health of our lake.

Reduced phosphorus loading observed by LWCBMN in 2018 – a naturally dry year – also points the way to effective action. If we can mimic low-flow conditions by holding water on the land, we can reduce flow-dependent peaks in phosphorus loading. While Red River floods have undeniably catastrophic impacts for Manitobans, we can counteract these, in part, by changing land-use practices to increase wetlands and water-retention infrastructure within phosphorus hotspots. And in doing so, we'll reap a double benefit – reduced flood damage and improved water quality.

For years, we've been told that Lake Winnipeg's challenge is a big one, a complex one, a daunting one. We hear all the reasons why we're not seeing improvement. We're told the situation is beyond our control.

We disagree. Lake Winnipeg's challenge is a big one – but most definitely, it is also solvable. If we're serious about restoring the lake – and about meeting our own provincial water-quality targets – then there is a clear path forward. Focus on phosphorus, pinpoint its sources, and implement proven solutions.

Tags:
2020