LWF LAKE WINNIPEG FOUNDATION

# REALIZING THE FULL POTENTIAL OF COMMUNITY-BASED MONITORING

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# COMMUNITY-BASED MONITORING (CBM)

is a source of credible and valuable water data, recognized by community practitioners, academic researchers, government scientists and policy-makers alike. However, CBM data are not yet effectively integrated into government programs, policy or decision-making. The full potential of CBM data can be leveraged to strengthen the federal Freshwater Action Plan, increasing the impact of regional Freshwater Ecosystem Initiatives including the Lake Winnipeg Basin Program.

## CBM is responsive to community concerns and supports better regional decision-making

CBM networks are developed by local communities in response to specific water concerns – challenges that are often experienced first-hand by monitoring participants. The guiding questions, chosen parameters, analysis and interpreted results of effective CBM are carefully designed to generate the evidence needed by regional decision-makers to address these challenges.

CBM IN PRACTICE: Harmful blue-green algal blooms on Lake Winnipeg are caused by excess phosphorus loading from the lake's watershed, negatively impacting water quality and drinking water, recreation and tourism, subsistence and commercial fisheries, lakeshore economies and ecosystem integrity. The Lake Winnipeg Community-Based Monitoring Network (LWCBMN) is a collaborative, long-term monitoring program designed to identify localized phosphorus hotspots where action is required to reduce phosphorus loading to Lake Winnipeg.

## CBM is necessary to fulfill the objectives of regional Freshwater Ecosystem Initiatives

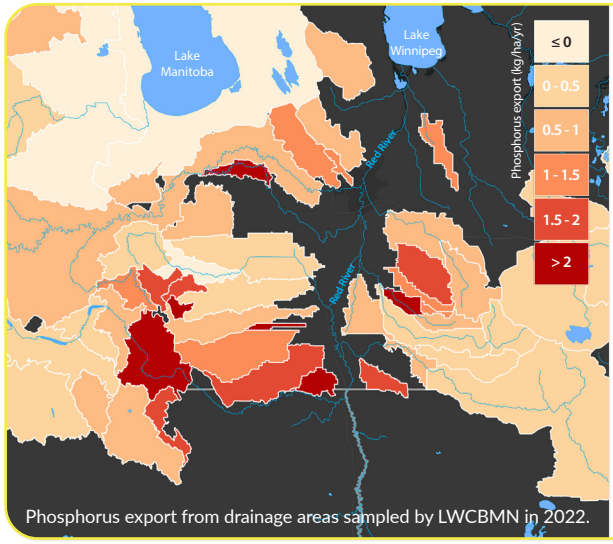
The community concerns that drive CBM are almost always aligned with regional water programs and policy objectives. In many cases, this alignment has resulted in successful long-term and large-scale CBM initiatives currently supported by existing federal programs; in turn, CBM-generated data can strengthen the design and delivery of freshwater programs, often filling data gaps not addressed by government monitoring programs.

CBM IN PRACTICE: LWCBMN's phosphorus data directly inform the science priorities of the Lake Winnipeg Basin Program by generating the high-resolution phosphorus data needed to target remedial action to phosphorus sources. The CBM methodology has been deliberately selected to enable frequent and responsive phosphorus monitoring. LWCBMN phosphorus data are interoperable with data generated by the federal Freshwater Quality Monitoring and Surveillance program, strengthening the evidence base available to support federal policy-making and funding programs.

## CBM must generate useful information, not just more raw data

The value of CBM is realized through data use, not solely through data collection. More data are not always better. Data must also be distilled into useful information to address community concerns and regional policy objectives. Focusing resources to ensure CBM networks have the capacity to analyze, interpret and disseminate information will ensure that CBM data get used to answer the questions that prompted their collection in the first place.

**CBM IN PRACTICE:** LWCBMN phosphorus concentration data are analyzed with water flow data (Water Survey of Canada) and drainage area data (Agriculture and Agri-Food Canada) to determine phosphorus exports – the amount of phosphorus exported from each hectare of land in a year. Phosphorus exports are then mapped to identify phosphorus hotspots – localized areas contributing more phosphorus to waterways than other areas. LWCBMN results are shared publicly, enabling targeted, impact-driven project planning by land managers, local governments, funders and researchers.



Phosphorus export from drainage areas sampled by LWCBMN in 2022.

**CBM IN PRACTICE:** Support for LWCBMN through the Lake Winnipeg Basin Program has generated the high-resolution phosphorus data necessary for modern water management in the Lake Winnipeg basin. Now, LWCBMN data must be used to strengthen the impact of the renewed Lake Winnipeg Basin Program, enabling the program to target phosphorus-reduction funding to known phosphorus hotspots in order to improve Lake Winnipeg's water quality.

Federal Freshwater Ecosystem Initiatives can immediately leverage CBM data to deliver results by effectively completing the data-to-impact cycle (Figure 1). These programs (e.g. Lake Winnipeg Basin Program, Great Lakes Freshwater Ecosystem Initiative, Lake of the Woods Freshwater Ecosystem Initiative, Lake Simcoe Freshwater Ecosystem Initiative, Wolastoq/Saint John Freshwater Ecosystem Initiative), have been continuously and collaboratively refined, adjusted and improved over decades, effectively linking community concerns and federal policy priorities.

Now, federal water policy can be strengthened using the robust and credible evidence generated by CBM, which points the way to effective and targeted solutions to this country's water challenges. CBM also provides the opportunity to empirically evaluate program outcomes, ensuring policy objectives are met and real impact is achieved for Canada's fresh water.


FIGURE 1. To effectively complete the data-to-impact cycle, phosphorus data from the Lake Winnipeg Community-Based Monitoring Network (LWCBMN) must guide the allocation of Lake Winnipeg Basin Program (LWBP) funding for improved water quality.

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The Lake Winnipeg Foundation (LWF) advocates for change and coordinates action to improve the health of Lake Winnipeg, now and for future generations. Combining the expertise of our science advisors and the commitment of our members, LWF is nationally recognized for our unique capacity to link science and action. Our goal is to ensure policy and practices informed by evidence are implemented and enforced.