

A call for action from the public:

- Adopt a 20% phosphorus reduction target
- Set binational phosphorus targets
- Ensure ongoing core monitoring
- Act without further delay

What We Heard

Summary from Environment &
Climate Change Canada's 2021
Public Engagement on
Ecosystem Objectives and
Phosphorus Reduction
Scenarios for Lake of the
Woods

August 30, 2021

Contents

Executive Summary.....	1
Engagement At a Glance.....	2
Background	3
Who We Heard From.....	4
What We Heard	6
Desired Ecosystem Outcomes and Phosphorus Reduction Scenarios.....	6
Measuring Progress: Response Indicators.....	6
Establishing Targets	6
Achieving Phosphorus Reductions.....	7
Knowledge Gaps and Scientific Uncertainty.....	7
Final Thoughts.....	7

Executive Summary

During winter and spring 2020-2021, Environment and Climate Change Canada (ECCC) participated in an engagement process to solicit public input and discussions on a set of proposed lake ecosystem objectives and phosphorus reduction scenarios to inform its next steps to improve water quality of Lake of the Woods.

The Lake of the Woods Water Sustainability Foundation (LOWWSF), supported by a Contribution Agreement from ECCC, organized a variety of engagement opportunities (web, direct mail, email, town-hall webinars) for the public, local authorities, and other stakeholders to engage directly with the policy team at ECCC responsible for Lake of the Woods.

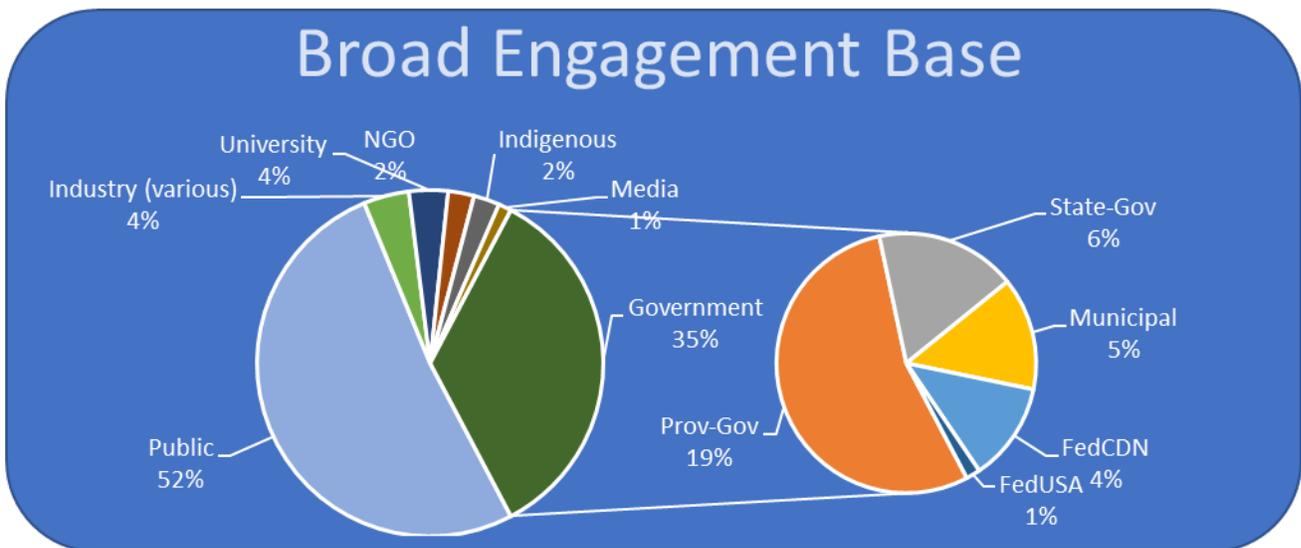
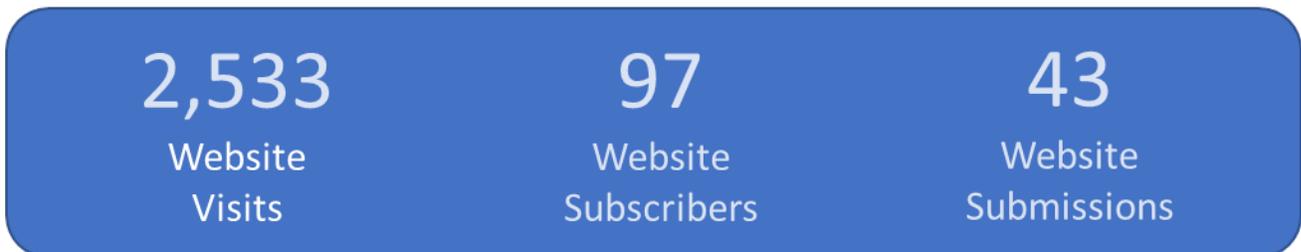
During these sessions, ECCC presented results of its science and watershed-lake modeling and outlined expected responses of the lake to three potential scenarios for overall phosphorus reduction to Lake of the Woods (5%, 20%, and 30%). ECCC did not identify specifically where or how the reductions could be achieved.

ECCC proposed three potential Ecosystem Objectives and related Response Indicators focused on maintaining appropriate levels of primary productivity in various regions of the lake, minimizing harmful or nuisance algal conditions, and minimizing low dissolved oxygen conditions in the shallow, southern basin of Lake of the Woods.

During these engagements, the main points that we heard from participants were:

- Consensus on the 20% phosphorus reduction scenario as it met most objectives, was aligned with Minnesota's target (17.3%), and was considered achievable.
- Binational targets should be set; achieving them is a shared responsibility of all levels of government, individuals, and industry in both countries.
- There is a strong desire to "get on with it" and take steps to reduce phosphorus loads based on best available knowledge and without further delay.
- Needed is a collaborative approach – Some asserted strongly that targets, monitoring, and reporting on progress should be coordinated by the IJC.
- Adaptive management is supported – called for was a commitment from governments to a systematic and sustained monitoring program to support adaptive management.
- Scenarios were too high-level and lacking information from a management standpoint that could inform actions. Desired are details of where the Canadian sources of phosphorus are, how much they should be reduced (source targets), and where or if there are any practical actions that can be taken.
- Perception that federal and provincial governments in Canada are lagging behind the U.S. on this issue and that Minnesota's study is further along to the level of identifying sources and assigning specific targets and starting actions.
- Consensus that there is enough information to act without further delay to reduce phosphorus pollution.

Engagement At a Glance



Background

Environment and Climate Change Canada (ECCC) completed a 4-year nutrient and algae research program in Lake of the Woods in March 2020. Based on this, ECCC developed a set of [proposed lake ecosystem objectives and phosphorus reduction scenarios](#) to support public discussions and to inform potential next steps to improve water quality and aquatic ecosystem health of the Lake of the Woods.

LOWWSF organized an engagement process, supported by a Contribution Agreement from ECCC, to provide opportunities for the public, local authorities, and other stakeholders to engage directly with the policy team at ECCC responsible for Lake of the Woods. Although this process was open to Indigenous participation, ECCC undertook and continues to develop separate dedicated processes to engage directly with Indigenous peoples and organizations. The purposes of the engagements were for ECCC to communicate its knowledge of the science and ecosystem conditions related to nutrients and algal blooms, and for the public to provide input and advice on the proposed ecosystem objectives and phosphorus reduction scenarios / options.

LOWWSF developed a broadly based stakeholder awareness process to publicize the engagement opportunities (October 2020 through March 2021, utilizing advertisements and placed articles in traditional print and electronic media, radio interviews, a national podcast, direct mail to lake users, website and social media postings and targeted e-news blasts). Audiences targeted included the general public, lake associations, tourism organizations and resorts, municipalities / townships, non-governmental organizations, and industries.

Due to COVID-19 restrictions, all engagement sessions were virtual. An engagement portal website www.placespeak.com/lakeofthewoods hosted ECCC factsheets on the proposed phosphorus reduction scenarios and a discussion board for soliciting public free-form comment and answers to specific questions posed by ECCC. These questions focused on validation for:

- Desired outcomes / proposed ecosystem objectives.
- Phosphorus targets – community desire for establishing targets, support for specific levels, and unilateral vs. bilateral approaches.
- How phosphorus reductions might be achieved and who should be responsible.
- How to proceed in the face of knowledge gaps and scientific uncertainty.

LOWWSF hosted 10 town-hall style webinars (6 for the general public, and dedicated sessions for local government, the International Multi-Agency Arrangement (Basin science/resource management community), the International Rainy-Lake of Woods Watershed Board, and a special session at the International Rainy-Lake of the Woods Watershed Forum. At these town hall webinars, and through the engagement website, ECCC outlined the expected responses of the lake to three potential scenarios reducing phosphorus loads by 5 per cent (natural flushing over many decades), 20 per cent, and 30 per cent. ECCC did not identify where or how the reductions could be achieved. The 20 and 30 per cent scenarios included that 5 per cent natural flushing and included Minnesota's plan to cut phosphorus by 17.3 per cent. Potential Ecosystem Objectives and Response Indicators proposed were:

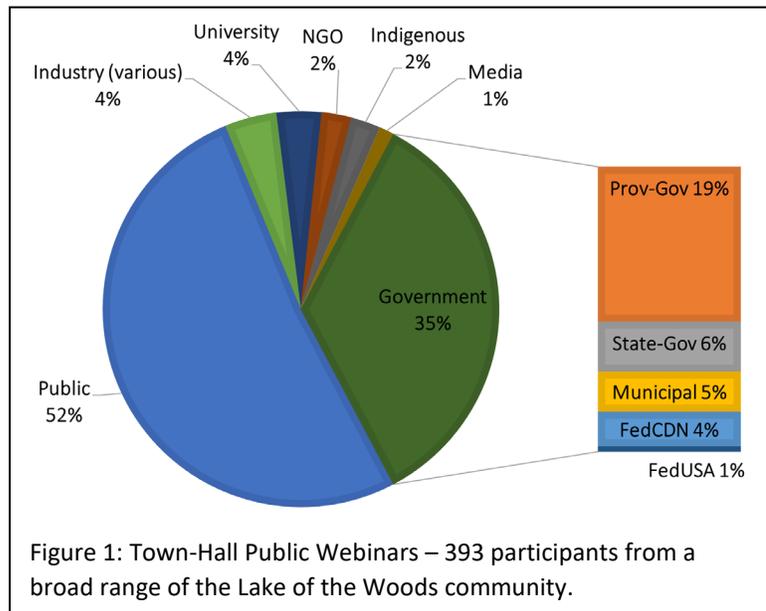
Ecosystem Objective	Response Indicators
1. Maintain the diversity of trophic status (lake productivity) for different areas of the lake	<ul style="list-style-type: none">• Total Phosphorus• Chlorophyll a
2. Maintain levels of algae below harmful and/or nuisance conditions	<ul style="list-style-type: none">• Bloom Severity Index (satellite tools)
3. Minimize hypoxia (low dissolved oxygen) in the southern Basin	<ul style="list-style-type: none">• Insufficient information to set an indicator

Who We Heard From

Over the 80 days of the engagement period, we heard from a broad base of the Lake of the Woods Basin Community. Despite being primarily a Canadian engagement, approximately 20% of participants were citizens of the USA, likely reflecting the binational base of seasonal and permanent residents and binational group of government agencies invested in the future health of Lake of the Woods.

The public comprised just over half of the 393 town-hall webinar participants, with additional participation from academics, non-governmental organizations, industry and members of Indigenous communities (Figure 1).

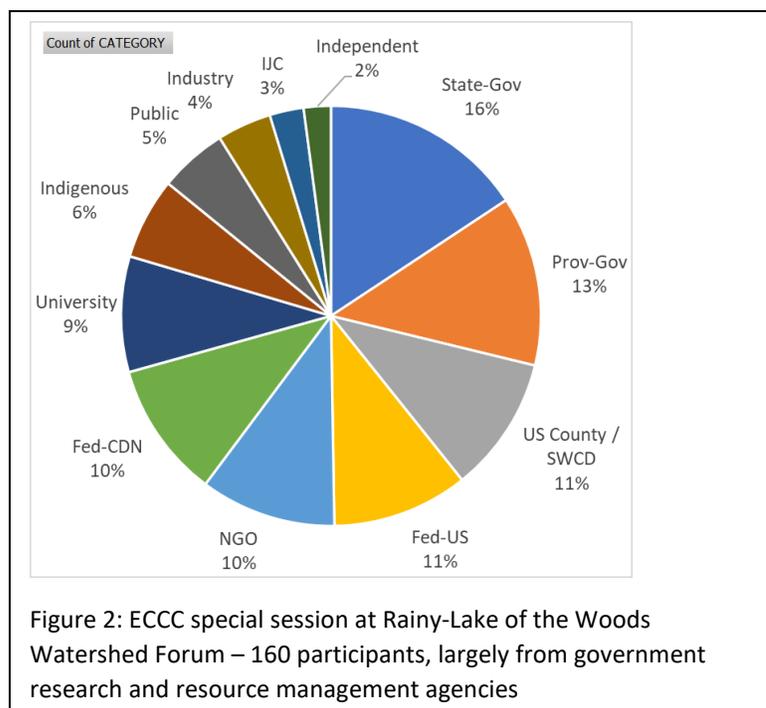
During these public sessions, about 35% were government agency employees, from both sides of the border, despite there being dedicated sessions for members of the International Multi-Agency Arrangement, the IJC watershed Board, and a session at the annual Rainy-Lake of the Woods Watershed Forum.



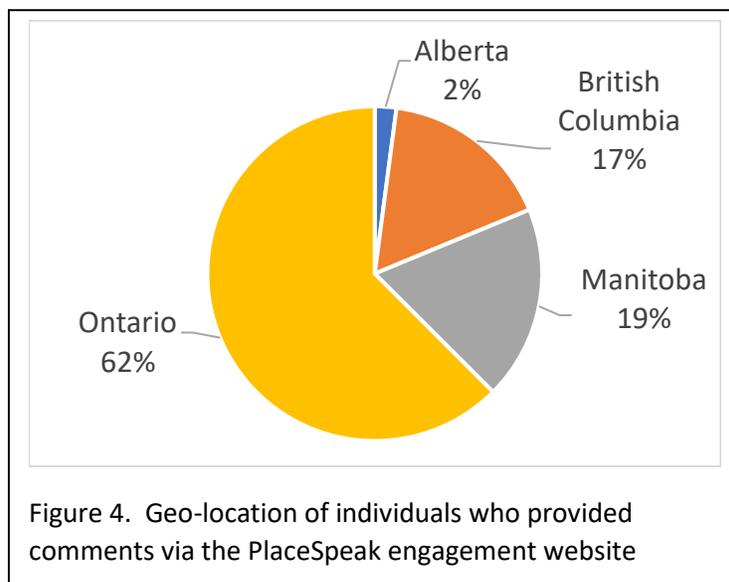
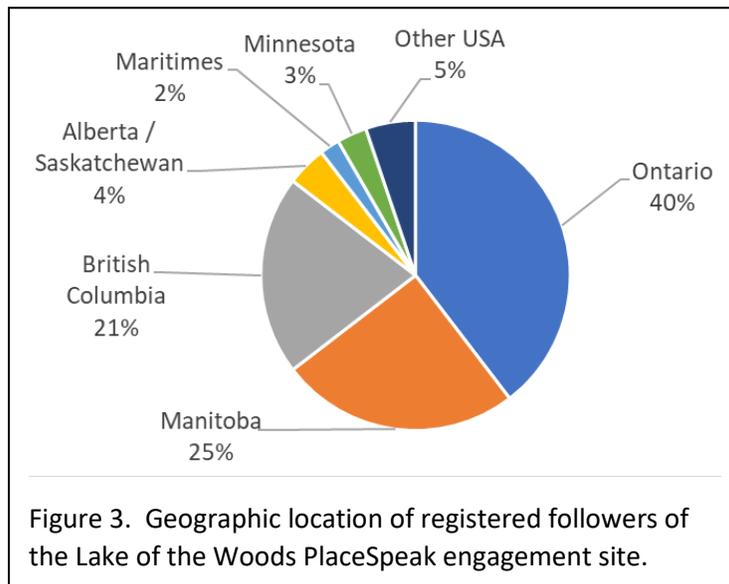
Based on questions at the public webinars, the general public were well-informed about nutrient and algae issues on the lake. Additionally, with the agency participation, the town hall questions tended to be technical in nature.

In addition to agency participation in the town-hall webinars, we heard from both managers and technical staff of government research and resource agencies at dedicated sessions for the IMA, the IJC watershed board, and at the Rainy-Lake of the Woods Watershed Forum.

As might be expected, participation in these latter town hall sessions targeting the research and resource management community was largely government research and resource agency focused, for example with the Forum, just about equal splits among federal, provincial and state agencies and universities of both Canada and the USA.



Over 2500 viewed the PlaceSpeak Lake of the Woods engagement website during its 80 engagement days (February 23 to May 14, 2021). Ninety-six individuals registered to follow and participate on this website, from all regions in Canada and a few in the United States. As might be expected, most were from Ontario and Manitoba, however there was representation from across Canada, and a few in the USA. Forty-three comments were received addressing the specific questions posed by ECCC, along with a couple of free-form postings to the site notice board. The majority of comments came from individuals located during the consultation period (February to May) in Ontario, followed by Manitoba and British Columbia (Figure 4).



What We Heard

Desired Ecosystem Outcomes and Phosphorus Reduction Scenarios

- Proposed Ecosystem outcome #1 (maintaining the diversity of trophic status for different areas of the lake) is not very useful. Given the scale of the phosphorus reductions contemplated, mostly from the Rainy River, likely nothing could be done to alter distinct (or appropriate) trophic status categories of the basins: southern basins will remain high mesotrophic to eutrophic; north basin will remain mesotrophic; and for isolated basins with cold water species there will be little to no effect at all. The indicator thresholds proposed for total phosphorus (TP: south $\leq 30\mu\text{L}$; central-north $\leq 30\mu\text{L}$; isolated bays $\leq 15\mu\text{L}$) is a more useful measure, connected to a narrative, qualitative objective for each sector.
- Consensus on the 20 per cent reduction scenario as it met most objectives, was aligned with Minnesota's plans to cut phosphorus, and was likely achievable. The 5% option was considered an undesirable "do nothing option" that could be a step backwards if effects of climate change or increased development continue over the decades to come. The 30 percent option was desired by a few, although its achievability and potential costs were questioned.
- In addition to the high-level reduction scenarios presented, information was wanted from Canada, similar to the details in Minnesota's Total Maximum Daily Load Study (TMDL), that identifies and sets targets for phosphorus reduction for each identified source.
- Concerns expressed that the ECCC phosphorus loading estimates were not directly comparable to Minnesota's numbers in its detailed TMDL study.
- Suggestions that fish and other levels of the food web should be considered along with algae.

Measuring Progress: Response Indicators

- Consensus on total phosphorus and chlorophyll-a as response indicators that are easily measured.
- Bloom severity indices based on satellite remote sensing tools for Chlorophyll-a hold promise and additional work is needed to integrate with the lake models. Concern expressed that at short time scales these indices can be confounded by weather.
- Dissolved oxygen in the south basin was not considered effective as an ecosystem objective, nor a response indicator as there are limited data and low DO is likely transient and strongly influenced by weather and thermal stability episodes in the south basin.

Establishing Targets

- Consensus that binational phosphorus targets are needed and collaboration on this is needed.
- A strong desire for governments to "get on with it" and take steps to reduce phosphorus loads.
- Belief that Minnesota's science is more detailed and is much further ahead in identifying objectives, and specific targets for implementing actions.
- Concerns expressed that water quality is international in scope; why separate approaches were underway in each country; and why objectives and targets were not being set and coordinated by the International Joint Commission. Suggested was that if the IJC did not have the mandate, governments should give it the mandate.
- Suggestion made that if Canada doesn't commit to move forward or doesn't have enough information, the IJC recommendation of 2018 for Canada to adopt Minnesota's plan and seek complementary actions should be revisited.

Achieving Phosphorus Reductions

- Reducing phosphorus is a shared responsibility: individuals, governments (local, county / municipal, provincial / state, federal), and industry. Watershed-based coordination by the IJC could help.
- Concerns that from a management standpoint, there was little in the results that could be used and there was not sufficient detail in the model scenarios presented; strong desire to know where the sources of phosphorus are and if, or where, there are any practical actions to reduce phosphorus.
- Concerns about vagueness of in-lake ecosystem outcome objectives “improved”, “mostly improved”. Minnesota has set a water quality objective (total phosphorus concentration) and a target reduction of 17.3% in phosphorus loads to achieve it.
- If Minnesota is doing 17.3% and is 60% of the load, aren’t we more than half-way there? At some point Canada will have to propose a reduction number and identify where this will be achieved.
- A range of strategies suggested to reduce phosphorus loads based on source type, including: improvements to septic regulations / systems / enforcement; best management practices on agricultural land / buffer strips etc.; phosphorus control technologies, and Green Infrastructure programs (e.g., for improving community wastewater systems).
- Desired: more stewardship programming and funding support for landowners, non-governmental organizations in northwestern Ontario to support local actions.
- More information was desired on contribution of forests to phosphorus loading and how can natural phosphorus loads from forests be balanced with establishing targets. Also, should consider how forestry activities and practices contribute to loads.
- Strong concerns expressed that forestry operation planning is running counter to objective of preserving lake water quality and protecting from phosphorus loading.
- Currently the Kenora Forest Management Plan is a significant concern to many in the Clearwater / Woodchuck / Echo / Ptarmigan / White Partridge complex of bays, much of which is subject to a provincial Restricted Area Order, restricting development on private land, aimed at protecting provincially significant lake trout habitat from effects of development-induced phosphorus loading – but that this protection is not being required of logging plans on public lands.

Knowledge Gaps and Scientific Uncertainty

- Consensus that there is enough information to act without further delay to reduce phosphorus pollution.
- Management decisions should be made now, based on best available knowledge. Information gaps, or uncertainty, particularly in Canada, should not be an excuse for inaction.
- Adaptive management is supported – get moving and adjust in future if need be. A systematic and sustained binational monitoring program is essential and must be implemented – this is how you manage uncertainty.

Final Thoughts

LOWWSF was encouraged to see the level and breadth of participation in the engagement on ECCC’s proposed ecosystem objectives and possible phosphorus reductions scenarios. This speaks to the importance of Lake of the Woods and its watershed to the people of Canada and the United States. We were equally encouraged to hear the strong messages from an informed public that it time to “get on with it”; establish international targets; address watershed management collaboratively which can be helped by the IJC platform in our watershed. The clear message to get on with a collaborative, common sense approach, without further delay, is fully supported by the LOWWSF.