

INTERNATIONAL RAINY-LAKE OF THE WOODS WATERSHED BOARD

EIGHTH ANNUAL REPORT

to
MARCH 2021

TABLE OF CONTENTS

1	SUM	IMAR'	Y	1
	1.1	Over	view of Key Watershed Issues	1
	1.2	High	lights of Board Activities	1
	1.3	Inter	rnational Rainy-Lake of the Woods Watershed Board Work Plan (2020-2021)	2
2	INT	RODU	CTION	2
	2.1	Inter	national Rainy Lake of the Woods Watershed Board	2
	2.2	Basiı	n Description	3
3	BOA	RD M	EMBERSHIP	4
4	INT	ERNA'	ΓΙΟΝΑL RAINY-LAKE OF THE WOODS BOARD ACTIVITIES	7
	4.1	Wate	er Levels Committee	7
	4.2	Adap	otive Management Committee	8
	4.3	Aqua	tic Ecosystem Health Committee	8
	4.4	Enga	gement Committee	9
	4.5	Boar	d Meetings	. 10
	4.6	Inter	national Watershed Initiative (IWI) Projects	. 10
	4	.6.1	Aquatic Invasive Species Coarse Scale Risk Assessment Project	. 10
	4	.6.2	2021 State of the Basin Report (SOBR)	. 10
	4	.6.3	Objectives and Alerts Project	11
	4	.6.4	Project WET (Water Education for Teachers)	11
	4	.6.5	Wild Rice Mapping Project	11
5	ADV	'ISOR'	Y GROUP ACTIVITIES	. 12
	5.1	Com	munity Advisory Group (CAG)	. 12
	5.2	Indu	stry Advisory Group (IAG)	. 12
6	WA	ΓER LI	EVEL CONDITIONS	. 13
7	WA	ΓER Q	UALITY CONDITIONS	17
	7.1	Annı	ıal Aquatic Ecosystem Health Report	17
	7.2	Inter	national Rainy-Lake of the Woods Watershed Forum	17
8	BAS	IN-WI	DE WATERSHED AND DEVELOPMENT ACTIVITIES	. 18
	8.1		tional Approach to Address Nutrients and Harmful Algal Blooms in the Lake of t ds	
	8.2	Wate	ershed Disturbance Vulnerability Assessment	. 19
9	REL	ATED	ACTIVITIES: INTERNATIONAL WATERSHED COORDINATION PROGRAM.	.20
10	APP	ENDI	CES	. 21
	10.1	Appe	endix 1 – Board Work Plan 2020-21	. 21

1 SUMMARY

1.1 Overview of Key Watershed Issues

While global attention in 2020-21 was focused on the COVID-19 pandemic, the International Rainy Lake of the Woods Watershed Board adapted to the new normal and continued work to implement the Board's mandate. Board, Committee and Advisory Group and public meetings were held virtually this year. Restrictions on fieldwork and in-person access to workplaces resulted in adjustments being made to continue the work of the Board. The Board is looking forward to a time when in-person gatherings will be permitted to continue strengthening relationships and enhancing local engagement on issues of importance in the watershed.

From a water quantity perspective, water levels for both lakes remained within the rule curves during the period covered by this report. As of March 10, 2021, the Water Levels Committee determined that the standard rule curve will be used this spring to direct the operation of the dam at the outlet of Rainy Lake.

Excess nutrients and harmful algal blooms continue to be a priority water quality issue for the Board. The Board continues to track agency efforts to determine objectives and next steps to address harmful algal blooms in the basin. Responding to the IJC's recommendation to develop binational targets for phosphorus reduction continues to be a high priority for the board.

Preparedness and response to environmental emergencies also garnered a significant amount of attention from the Board this year. During this reporting period, the Board received agency updates on the response and enforcement actions related to the Sulfuric Acid Spill from the Boise Paper Mill in 2017 and later learned about the response to the pink foam incident that occurred on the Rainy River on March 5, 2021. The Community Advisory Group heard from agencies about the steps taken to address the train derailment that took place near Emo, Ontario on February 18, 2020 and formed a small task team to review the draft Environment Emergency Preparedness and Response Protocol. Recommendations from the CAG to the Board on improvements to the protocol are anticipated later in 2021.

1.2 Highlights of Board Activities

In 2020-21, the Board, its Committees and its Advisory Groups continued to benefit from the involvement of diverse and knowledgeable members from both Canada and the United States. Ongoing leadership was provided by Canadian Board Co-Chair Michael Goffin of Environment and Climate Change Canada, and U.S. Co-Chair Colonel Karl Jansen of the U.S. Army Corps of Engineers.

There were several membership and support staff changes that took place during the reporting period. Matt Myers and Doug Franchot were appointed as new Board members and the Cochairs of the Community Advisory Committee in the Spring of 2020. The Board also welcomed Karen Cederwall as the new Canadian Co-chair of the Engagement Committee in February 2021. Wellsley Hamilton joined as the new Canadian Secretary in May 2020. The Board wishes to thank Pamela Finlayson for her contributions as the interim-Canadian Secretary.

Erika Klyszeko formally stepped down as the Co-chair of the Water Levels Committee. The Board would like to thank her for service and excellence in the role. Megan Garner, from

Environment and Climate Change Canada, has taken on the role of interim Canadian Co-chair of the Water Levels Committee. In addition, Andrew Liddiard, from the Lake of the Woods Control Board Secretariat, took on the role of interim Canadian Engineering Advisor while Matt De Wolfe was on an assignment.

Finally, the Board would like to thank Wayne Jenkinson, the Canadian IJC Advisor to the Board, for his long-standing engagement and contribution to the Board. The Board wishes Wayne well on his new assignment.

A significant activity included the formal appointment of members to the Board's new Adaptive Management Committee in the spring of 2020. Teika Newton and Ryan Maki were named the Canadian and U.S. Adaptive Management Committee Co-chairs respectively. The Committee has since developed their first formal work plan and submitted a paper on An Update Report on Climate Change Assessment Activities for the International Rainy - Lake of the Woods Watershed Board.

Also notable was the Board's first virtual public meeting, held on October 2, 2020. The COVID-19 pandemic travel restrictions and other public health recommendations had an impact on Board operations including the ability to host an in-person public meeting this year. The IRLWWB public meeting was therefor held virtually using Zoom with facilitation and technical support from Stratos Consulting in Ottawa. 76 people participated in the meeting. The presentation from the meeting and a copy of the 'What we Heard Document' from the meeting can be found on the Board's website: Watershed Board - Public Meeting and Agency Update October 2020 International Joint Commission (ijc.org).

1.3 International Rainy-Lake of the Woods Watershed Board Work Plan (2020-2021)

Each year, the Board develops a work plan that aligns with the mandate that it is provided by the International Joint Commission. The work plan guides Board activities and is designed to monitor progress of Board actions related to assigned roles and responsibilities. A copy of the Board's 2020-2021 work plan can be found under Appendix 1 of this report. As usual, a new work plan will be developed for the upcoming period of April 1, 2021 to March 31, 2022.

2 INTRODUCTION

2.1 International Rainy Lake of the Woods Watershed Board

The Board's mandate is to monitor and report on the ecological health of the Lake of the Woods and Rainy River boundary waters aquatic ecosystem, including water quality, and to assist the IJC in preventing and resolving disputes regarding the boundary waters of the Rainy-Lake of the Woods watershed. With respect to water regulation, the Board's mandate is to coordinate the management of water levels and flows on Rainy and Namakan Lakes. The Water Levels Committee has the authority to act independently of the Board to regulate water levels of Rainy and Namakan chain of lakes within the rule curves for those lakes.

The Board's work is supported by four standing committees. A new Adaptive Management Committee was formalized and started its work in the spring of 2020. The four committees

monitor issues and coordinate activities relevant to binational management of the international waters in the basin so that the Board can provide information and recommendations to the International Joint Commission.

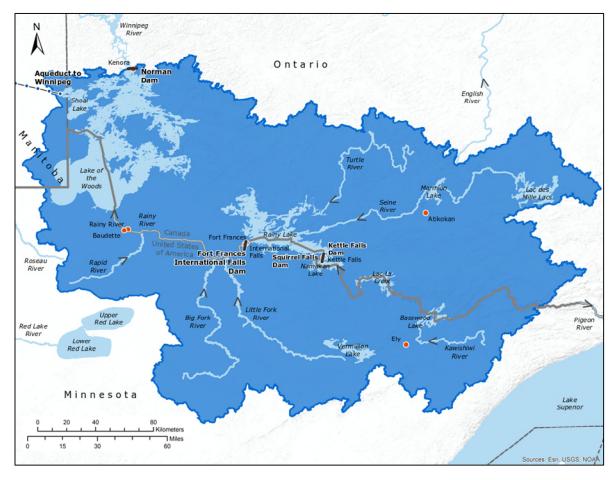


Structure of the IRLWWB, Committees and Advisory Groups.

The Board receives local insight and advice to accomplish its mandate through a diverse membership including representation from First Nations, Métis and Tribal communities, and a variety of non-government and government members. The Board aims to encourage the development of local and regional capacity and promotes public engagement through public meetings and through regular consultation with both a Community Advisory Group and Industry Advisory Group.

2.2 Basin Description

The Rainy-Lake of the Woods watershed covers an area of 27,000 mi² or 70,000 km². This boundary watershed is situated within the Canadian provinces of Ontario and Manitoba and the U.S. State of Minnesota. See map on next page.



Map of the Rainy-Lake of the Woods watershed. Image courtesy of the International Joint Commission.

3 BOARD MEMBERSHIP

The Board is comprised of ten members from Canada and ten members from the United States representing government agencies at all levels, indigenous communities, and local community interests. From April 2020 to March 2021, Board membership continued to evolve and appointment of new members is ongoing.

The following table lists current Board members as of March 26, 2021.

CANADIAN MEMBERS (9)	UNITED STATES MEMBERS (10)
Michael Goffin (Board Co-Chair, Aquatic Ecosystem Health Committee Member) Environment and Climate Change Canada	COL Karl Jansen (Board Co-Chair, Water Levels Committee Co-Chair) St. Paul District, United States Army Corps of Engineers

CANADIAN MEMBERS (9)	UNITED STATES MEMBERS (10)
Karen Cederwall (Board Member, Engagement Committee Co-Chair, CAG Member) Metis Nation of Ontario, Region 1 Kenora, ON	Matthew Gouin (Public Board Member, Engagement Committee Member, CAG Member) Rainy Lake, International Falls, MN
Greg Chapman (Board Member, IAG Co-Chair) Ontario Ministry of Natural Resources and Forestry Fort Frances, ON	Nicole Blasing (Board Member, Aquatic Ecosystem Health Committee Member) Minnesota Pollution Control Agency Alternate: Amy Adrihan Minnesota Pollution Control Agency
Vacancy Alternate: Megan Garner (Interim Water Levels Committee Co-Chair) Environment and Climate Change Canada	Mike Hirst (Board Member, IAG Co-Chair, Aquatic Ecosystem Health Committee Co-Chair) Lake of the Woods Soil and Water Conservation District
Mark Lee (Board Member, Aquatic Ecosystem Health Committee Member) Manitoba Conservation and Water Stewardship	Doug Franchot (Public Board Member and CAG Co-chair) International Falls, MN
Chief Brian Perrault (Board Member, Engagement Committee Member, CAG Member) Chief, Couchiching First Nation Fort Frances, ON Alternate: Lucas King Territorial Planning Unit Grand Council Treaty #3	Al Pemberton (Board Member, Aquatic Ecosystem Health Committee Member, Engagement Committee Member, CAG Member) Red Lake Department of Natural Resources Red Lake, MN Alternate: Joshua Jones Red Lake Department of Natural Resources

CANADIAN MEMBERS (9)	UNITED STATES MEMBERS (10)						
Trina Rawn (Board Member, Aquatic Ecosystem Health Committee Member) Ontario Ministry of the Environment, Conservation and Parks Kenora, ON	Kelly Sjerven (Public Board Member, Engagement Committee Co-Chair) International Falls, MN						
Todd Sellers (Public Board Member, Aquatic Ecosystem Health Committee Co-Chair, Engagement Committee Member, CAG Member) Minaki, ON / Winnipeg MB	Jim Stark (Board Member, Aquatic Ecosystem Health Committee Member) Minnesota State Legislature						
Kiley Shebagegit (Public Board Member, Water Levels Committee Member, Engagement Committee Member, CAG Member) Nestor Falls, ON	Patty Thielen (Board Member) Minnesota Department of Natural Resources Grand Rapids, MN						
Matt Myers (Public Board Member, CAG Co-Chair, Aquatic Ecosystem Health Committee Member) Fort Frances, ON	Pam Tomevi (Public Board Member, Water Levels Committee Member, CAG Member). Koochiching Soil and Water Conservation District						
ENGIN	NEERS						
Andrew Liddiard (Interim) Lake of the Woods Control Board Secretariat	Scott Jutila St. Paul District Army Corps of Engineers						
SECRETARIES							
Wellsley Hamilton Environment and Climate Change Canada	Scott Jutila St. Paul District Army Corps of Engineers						

4 INTERNATIONAL RAINY-LAKE OF THE WOODS BOARD ACTIVITIES

4.1 Water Levels Committee

During 2020-21, the Water Level Committee (WLC) focused its efforts on ongoing development of two products:

- 1. Operational Guidelines that outline best practices for maintaining water levels within the Rule Curve. The guidelines are a living document that are periodically updated.
- 2. A two-dimensional model of the Rainy River above the International Falls Dam to better manage water levels on Rainy Lake during drawdown conditions, while avoiding emergency conditions at the Boise Paper Mill.

Following a wet start to 2020, basin conditions turned dry and remain so throughout the year and into 2021. The water levels for both lakes remained within the rule curves during the period covered by this report and are currently in the middle of the respective Rule Curve bands.

Under the 2018 Order for Rainy and Namakan Lakes, the WLC is required to make an annual decision by 10 March whether to implement the High Flood Risk Rule Curves for Rainy Lake. On 3 March 2021, the WLC held a pre-spring engagement webinar to inform basin stakeholders about conditions in the basin. The webinar participants were asked to provide comments on basin conditions and concerns for spring flooding.

After consulting with stakeholder representatives, the WLC decided not to implement the High Flood Risk Rule Curves in the spring of 2021. The WLC continues to monitor basin conditions and will direct the dam owners and operators to adjust their operations as necessary.

- The committee is working on development of a communications protocol with U.S. and Canadian Forecast agencies to improve notification and communication of flow changes at the International Falls Dams
- Operational Guidelines which outline best practices for maintaining water levels within
 the Rule Curve is a living document which is posted on the IJC website and is periodically
 updated. The National Research Council Canada (NRC) wrote a report titled "Numerical
 Modelling Investigation of Low-Water Levels at the PCA Mill Intake, Upper Rainy River."
 Recommendations from the NRC report on the PCA intake presents an out-of-cycle
 revision opportunity. The WLC will coordinate proposed changes with the operators and
 aims to update the Operational Guidelines by the end of this calendar year.
- Formation of a Flood Forecast Advisory Group has stalled since a workshop in 2018. The WLC will reinvigorate this effort by reaching out to the workshop participants in the future and has developed path forward.
- The WLC will prepare a scope for a Review of Data Sources to Support Inflow Forecasting within the next 1-2 months that will guide a study effort that identifies gaps in forecasting data points or opportunities for improvement.
- The WLC will collaborate with the Adaptive Management Committee regarding bank erosion in the International Falls neighborhood of Shorewood Drive. Among the several

variables involved, rapid water level changes may influence the situation which may threaten private residences in the future.

4.2 Adaptive Management Committee

The Adaptive Management Committee (AMC) is the newest committee of the Board. In 2017, the International Rainy and Namakan Lakes Rule Curves Study Board recommended to the IJC that a formal adaptive management process for long-term evaluation of rule curves be established. For a period of six months, a Task Team consulted with basin experts on the key components of an adaptive management approach and made recommendations back to the Board to establish an AMC to develop a workplan and identify priority projects.

The following year, the IJC signed a Supplementary Order that included an endorsement for application of an adaptive management approach to:

- monitor and objectively understand how the changes to the rule curves affect Namakan Lake, Rainy Lake and Rainy River; and
- support an objective review of the rule curves in the future.

In September 2019 the AMC Directive was approved by IJC Commissioners. Members were formally appointed to the AMC in the Spring of 2020.

In addition to work on formalizing the AMC's first workplan, in 2020-21 the AMC worked with the IJC to alleviate the lack of modeling capacity to support various adaptive management projects. The IJC worked with Environment and Climate Change Canada (ECCC) to increase modeling capacity by adding a new modeler to the team. Access to the Integrated Ecosystem Response Models for Rainy Lake / Namakan Reservoir and for Rainy River is integral to advancing AMC's workplan going forward.

Co-chair Teika Newton worked on integrating the IJC's Climate Adaptation Framework by speaking with other IJC boards about the ways they are approaching this work. This helped to identify some priority actions and needs for the IRLWWB to consider. The draft report summarizing climate change assessment activities is currently being reviewed.

The first AMC workplan is due in April 2021. The previous draft was included in the IRLWWB's August 2020 workplan. The workplan activity going forward will be based on the timing of the increased modeling capacity.

4.3 Aquatic Ecosystem Health Committee

The Aquatic Ecosystem Health Committee (AEHC) provides advice and makes recommendations to the Board about water quality and aquatic ecosystem health monitoring, reporting, objectives and alerts, and other activities assigned to them by the Board.

Over the last year the AEHC met on September 17, 2020 and December 18, 2020. In addition, there were numerous meetings of the Co-chairs and IWI project leads, and numerous meetings with IJC Board engineering advisors to discuss the active IWI projects and proposals including:

- The AIS Coarse Scale Risk Assessment (started Sept 2020; completion Apr 2021)
- The Cumulative Impacts of Mining partnership with HPAB (proposal under review)
- Phase II of the Objectives and Alerts Project (P II planning underway)
- The State of the Basin Report Update (in contracting; start-up early April)

Details of IWI projects are reported under Section 4.8 International Watershed Initiative (IWI) Projects.

Other items discussed at meetings included: updates to membership list, formalization of regular AEHC meeting schedule, Wheeler's Point Gauge, Trent University's Canadian Tributary Research Monitoring Presentation, and the AEHC Annual Report.

4.4 Engagement Committee

The Engagement Committee continues its work to involve the public in the issues of water quality and quantity in the basin, working both internally and with other groups. The committee met only via email in 2020 to address necessary tasks. The Engagement Committee is led by U.S. Co-chair Kelly Sjerven. Karen Cederwall joined as the Canadian Co-chair on February 5, 2021.

Highlights for the 2020-21 year include:

- The first phase of an IJC IWI-funded project to engage students in the International Falls, Minnesota school system in Project WET focusing on development of a curriculum to complement the existing Ontario curriculum was partially completed. A new IWI proposal will be developed to create curriculum for the remaining grade levels.
- Welcomed a new Canadian Co-chair, Karen Cederwall, to the committee.
- Engagement Committee Co-chair Kelly Sjerven received training for the Board website, and can post announcements, calendar items, and other notifications for the board and committees.
- Reviewed, updated, and revised Board engagement materials, as necessary. In 2019, the EC began planning for comprehensive new communications and presentation resources for board members' use when designing public presentations. This was put on hold until both new co-chairs were in place and will be a priority for 2021-22.
- Discussion with Secretariat about training and information for new Board members.
- Continued tracking of all Board engagement activities.
- Completed annual updates to the Committee's work plan.

For the coming year, the Engagement Committee has on its agenda:

- Developing a communication pathway for other committees to more easily and systematically share information with the EC, and to request the development of supporting documents or Board website updates.
- Developing a shared documents and images gallery for use by all Board members in developing public communications and presentation materials.
- Preparing an IWI proposal for the second phase of Project WET and receiving a report on the first phase.

- Seeking out additional opportunities to engage the public in the basin in the issues of water quality and quantity.
- Continued engagement with other Board committees to further the development of the Board's approach to climate change work and the Objectives & Alerts project.

4.5 Board Meetings

From April 1, 2020 to March 31, 2021, the Board met on the following dates to fulfill its mandate. Due to COVID-19 public health restrictions on travel and in-person gatherings, all meetings were held virtually.

- June 18, 2020 Board meeting
- August 18, 2020 Board meeting and CAG-Board meeting
- September 17, 2020 Board meeting
- October 2, 2020 Public meeting
- October 20, 2020 IJC Semi-Annual Presentation of the Board
- February 5, 2021 Board meeting
- March 17, 2021 Board meeting and CAG-IAG-Board meeting

4.6 International Watershed Initiative (IWI) Projects

In 2020-21, the Board endorsed and participated in the implementation of the following International Watershed Initiative-funded projects.

4.6.1 Aquatic Invasive Species Coarse Scale Risk Assessment Project

The AEHC is working with the IMA on a project to address the potential risks and impacts of aquatic invasive species (AIS). The IMA is a binational collaboration of 11 agencies (federal, provincial, state, indigenous, county and non-governmental organizations) in the Basin. The IMA, when asked by the Board, provides technical advice to support the Board's activities. The first project is for a risk screening assessment to identify and prioritize AIS that pose the highest risk to the basin. This will help guide, focus and coordinate binational efforts for AIS prevention.

The IMA led initial development of this broad-scale proposal. AEHC co-chairs contributed extensively to review and refinements through the IWI approval process. This project started in September 2020 and is on track to be completed in April 2021.

The IMA and the AEHC had begun preliminary development of another AIS project proposal, to conduct a detailed assessment and analysis of the susceptibility of Basin waters for invasion by zebra and quagga mussels (Dreissenid species). Development of this proposal was started in 2019 but idled in 2020 pending outcomes and guidance from the risk assessment / prioritization project (above) started in 2020.

4.6.2 2021 State of the Basin Report (SOBR)

SOBR 2021 will build on the previous State of the Basin Reports and will utilize the newest science that has been used to assess the watershed from both the US and Canada.

Submission to the IJC's IWI program for partner co-funding was successful in late 2020. Contract development should be completed in early April 2021 with immediate project startup.

This Project is a partnership of Lake of the Woods Water Sustainability Foundation, Territorial Planning Unit of Grand Council Treaty #3, International Multi-Agency Arrangement, and the Board.

4.6.3 Objectives and Alerts Project

In the context of the Board's Directive, Objectives are International Objectives that are agreed to by both Governments. Alert Levels are Board adopted trigger thresholds, for advising the IJC of issues of potential concern, where there are no internationally agreed upon Objectives.

Phase 1 of the Objectives and Alerts Project was completed with a report in December 2019. Key recommendations for Phase 2 were to:

- Develop a set of International Objectives for Total Phosphorus with specific objectives for sub segments of Lake of the Woods and for sub segments of the Rainy River. All other priority issues could be handled with Board Alert Levels.
- Streamline existing Objectives and Alerts by removing outdated Objectives for the Rainy River and establishing Alert Levels for a priority list of routinely monitored substances.

The start of Phase 2, planned for spring 2020, was delayed due to COVID-19 restrictions, consideration of aligning timing for this work with schedules of agencies in both countries that are working on phosphorus issues on Lake of the Woods, and to ensure that all relevant agencies had opportunities to participate. The statement of work for Phase 2 is currently being revised to reflect the anticipated start in late spring, 2021.

4.6.4 Project WET (Water Education for Teachers)

Project WET is a fun, hands-on, inquiry learning based, water education program for use by both formal and non-formal educators to supplement existing Kindergarten to Grade 12 curricula. It is suitable for both indoor and outdoor learning environments. Project WET was originally designed for Canadian educators and objective of this project is to adapt the program for use by educators in Minnesota.

The Board's Project WET implementation was put on hold in 2019-20 while the State of Minnesota revised its education standards. The project was paused for an additional period in 2020-21 due to COVID-19. Based on renewed interest from State educators in early 2021 and completion of the updated education standards, the Engagement Committee will work with the educational leads in Minnesota over the next year and apply to the IJC's International Watershed Initiative to being a new phase Project WET in 2021-22.

4.6.5 Wild Rice Mapping Project

Wild Rice in Grand Council Treaty #3 Territory has long been impacted by the management of water levels and a changing climate. As a gift from the creator, wild rice is an integral part of Anishinaabe culture and way of life. The goal of this project is to develop resources to enhance wild rice growth across the Treaty #3 Territory.

The first portion of this project will inform the development of a communication protocol and partnership between First Nations and the IJC by mapping traditional wild rice areas. The initiative will identify key areas and how they are impacted by water level systems in the area. This information will provide resources to Treaty #3 communities and Grand Council Treaty #3

in water governance mechanisms and partnerships with the IJC to benefit the growth and access to wild rice crops on a yearly basis.

The Board was successful in securing International Watershed Initiative approval to move forward with this project in 2020-21. Due to COVID-19 the project implementation was delayed. The methodology for the project was revised to accommodate public health restrictions on field work and in-person meetings. It is anticipated that a contract will formally be put in place to move forward with phase one of this project in 2021-22.

5 ADVISORY GROUP ACTIVITIES

5.1 Community Advisory Group (CAG)

During the past year, the Community Advisory Group (CAG) met three times, in August, January and March. All meetings were held virtually using Microsoft Teams given the challenges that continue to be presented by the ongoing pandemic. The year saw the group undergo a membership and leadership renewal with two new co-chairs appointed in June 2020, two new members, and existing membership extensions.

In August, the CAG struck a 3-person task team to review the draft Environmental Emergency Planning Preparedness and response Review Document. The team found that the document does a good job of identifying agencies having a role in Emergency response within the watershed, but remains concerned about potential gaps in key areas including cross border communications to communities and the public and the coordination of emergencies in the shared jurisdictional areas.

The CAG has also been recently active in its review of the proposal being developed to assess the cumulative impact of mining in the basin. The proposal authors have found that there is insufficient data to assess actual impact and, as a result, have changed the objective to assessing the vulnerability of the watershed to mining. It is anticipated that this will lead to a catalogue of baseline data currently existing and recommendations of additionally data that should be developed. The CAG understands this modification in study objective and is supportive of it moving forward with some modification to the text and references in the proposal.

The CAG co-chairs have reconnected with the IAG co-chairs to share information and, where appropriate, coordinate activity. As a result, CAG co-chairs are attending IAG meetings and IAG co-chairs are attending CAG meetings.

The CAG has identified basin-wide emergency response planning, cumulative mining impacts, disparate shoreline regulations, potential impacts of agriculture on water quality and the current state of micro-plastic load within the basin as topics for pursuit in 2021.

5.2 Industry Advisory Group (IAG)

The purpose of the Industry Advisory Group (IAG) is to make the Board aware of industry perspectives on both sides of the United States-Canadian border. Current membership reflects a wide range of industrial interests in the watershed and includes hydroelectric power, paper production, agriculture, forestry, fisheries, mining, and recreation and tourism. Membership is being strengthened and is open to any industry operating in the Lake of the Woods-Rainy River watershed.

The IAG met three times during the reporting period: December 3, 2020, March16 and 17, 2021.

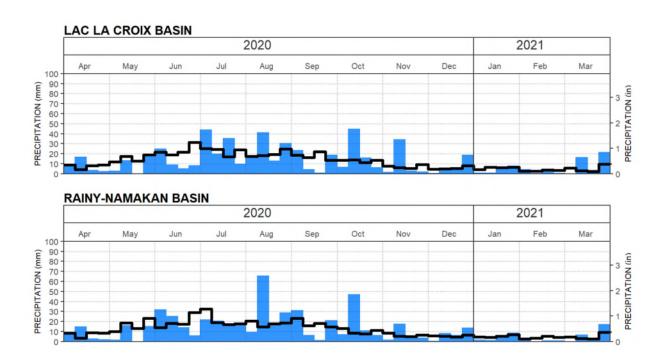
- At the December 3rd meeting, the IAG received presentations and updates from: The
 Water Levels Committee, the Engagement Committee, the CAG, the International
 Watershed Coordinator, and the Board's Aquatic Ecosystem Health Committee.
 Additionally, a description of the IWI Project, 'Assessing the Vulnerability of Waters to
 Mining in the Rainy River Lake of the Woods Watershed was provided'.
- At the March 10th meeting, the IAG received presentations and updates from: IJC staff, the Water Levels Committee, the Aquatic Ecosystem Health Committee, Community Advisory Group. In addition, a presentation was given regarding an Update on the Cumulative Impacts of Mining study, and a presentation regarding electron delivery on the by Mike Hanson of NorthStar Electric was given. There were no concerns brought forward by the IAG members.
- At the March 17th joint meeting with the CAG and the IRLWWB there were discussion and updates given. There were no new issues brought forward by the IAG to be addressed by the IRLWWB at this meeting.

6 WATER LEVEL CONDITIONS

For the reporting period April 1, 2020 to March 31, 2021 flows into Namakan Lake and Rainy Lake were in the low normal range through to early October 2020. From the beginning of May to early June and again from mid-August to late October, outflow from Rainy Lake was reduced to minimum due to dry conditions. The highest seasonal flows occurred during the freshet and again in June. Inflows were below the normal range for most of the reporting period for both lakes.

Minimum outflow from Rainy Lake was maintained during the summer months as inflow was below normal. The Companies were able to maintain water levels within the Rule Curve range on both lakes throughout the reporting period.

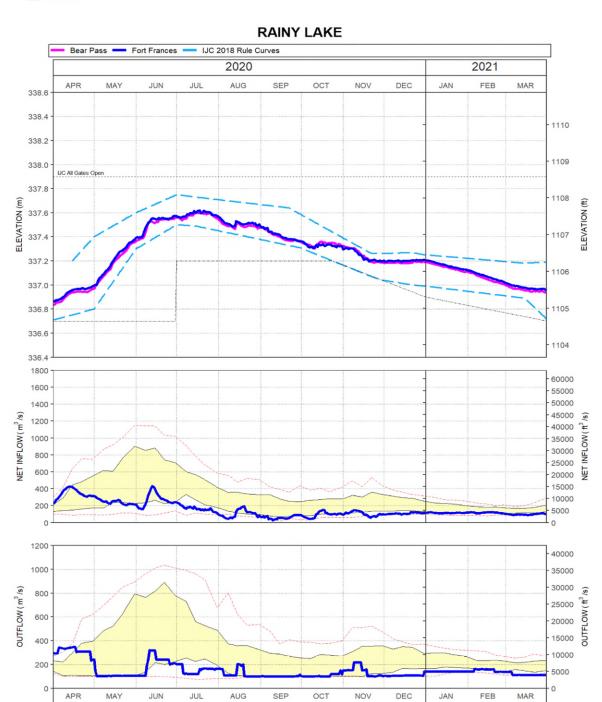
The following pages include graphical representations of precipitation totals for the Rainy-Namakan and Lac La Croix Basin as well as water level conditions in the Rainy and Namakan Lakes during the reporting period (April 2020 - March 2021).



Quarter-monthly precipitation totals for Lac La Croix and Rainy-Namakan basin for the reporting period.

In the figure above, the blue bars represent the actual data for a given quarter month and the black line represents the median from 1986-2015.



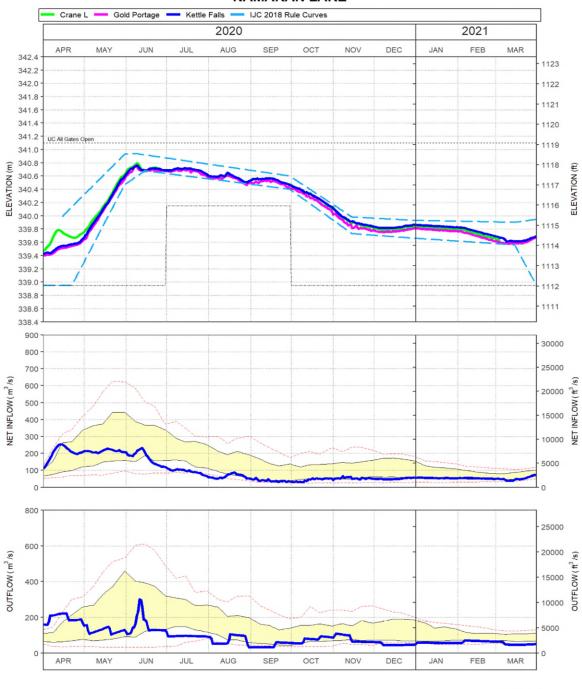


Water level conditions in Rainy Lake during the reporting period.

Plot Legend



NAMAKAN LAKE



Plot Legend

Water level conditions in Namakan Lake during the reporting period.

The preceding two figures illustrate water levels (top); net inflows (middle) and outflows (bottom) in separate panes. The blue and purple lines represent the actual data; the black dotted lines on the top panes represent the drought and all gates open levels; the blue dotted lines represent the upper and lower limits of the rule curves; and the red dotted lines in the lower two panes represent the 10% and 90% percentiles and the yellow band represents the normal range (25% -75% percentiles).

7 WATER QUALITY CONDITIONS

7.1 Annual Aquatic Ecosystem Health Report

The Aquatic Ecosystem Health Report is currently underway, with a request for data from agencies coming soon. This will include data up to the 2020 field season. The report is expected in fall 2021 and will focus on updates to phosphorus data for Lake of the Woods and the Rainy River and other priority issues where there have been recent changes in status

7.2 International Rainy-Lake of the Woods Watershed Forum

The International Rainy-Lake of the Woods Watershed Forum took place March 10-11 as a virtual online event for the first time in 18 years due to the ongoing COVID-19 pandemic. Over 180 attended the Forum, which included 19 presentations on Water Governance, Aquatic Invasive Species, Nutrients & Algae, Resource Regulation and Monitoring. Two focus sessions were also featured; a moderated town hall style discussions Aquatic Invasive Species and an Engagement session with Environment and Climate Change Canada to seek input on lake ecosystem objectives and options for reducing phosphorus from Canadian sources.

Priscilla Simard and Mona Gordon, Knowledge Keepers with the Women's Council of Grand Council Treaty #3 opened the Forum with a prayer and ceremony honouring Nibi (water). Their thoughtful words, reflecting on the need to work together to respect and protect Nibi in our watershed, got our meetings and discussions started in a good way. Welcome addresses focusing on the strong binational collaboration in our watershed were provided by Consul General Ariel Delouya, from the Canadian Consulate in Minneapolis and Consul Brian Koontz, from the U.S. Consulate in Winnipeg.

Colonel Jansen, U.S. Co-Chair of the Board, opened the Water Governance session with an update on contributions to binational water management from the Board and its committees. The Board's four committees have remained active this past year and the Colonel highlighted a number of initiatives, including: creation of a new Adaptive Management Committee, review of an investigation of low water levels at the PCA mill intake, plans to develop a flood forecast advisory group, plans to launch Phase II of the Objectives and Alerts project, a joint-project with the IMA to develop a risk assessment for aquatic invasive species that will be completed this spring, and the update on the Rainy-Lake of the Woods State of the Basin Report starting in spring of 2021 in partnership with the Lake of the Woods Water Sustainability Foundation, the Territorial Planning Unit of Grand Council Treaty #3, and the IMA.

Details of the research presented at the Forum is available at the Lake of the Woods Water Sustainability Foundation website: <u>Watershed Forum (lowwsf.com)</u>

8 BASIN-WIDE WATERSHED AND DEVELOPMENT ACTIVITIES

The Board is charged with monitoring and reporting on the ecological health of the Lake of the Woods and Rainy River boundary waters aquatic ecosystem, including water quality. Over the past year, the Board has kept informed on the development of the following initiatives in the basin.

8.1 Binational Approach to Address Nutrients and Harmful Algal Blooms in the Lake of the Woods

Persistent and significant harmful algal blooms have been a key water quality concern in the Rainy-Lake of the Woods basin for some time. For the last decade blooms in the summer and fall have covered up to 70% of Lake of the Woods. There is no evidence that bloom severity and extent are diminishing. The southern portion of Lake of the Woods is considered impaired for aquatic recreational use due to eutrophication, and algal blooms have been observed in other lakes upstream of the Rainy River.

Harmful algal blooms (HABs) can pose significant threats to lake water quality, as well as to the communities who rely on the lake for recreational, subsistence and commercial purposes, as they can produce a variety of dangerous liver, skin, and neurological toxins that can be debilitating or even fatal to fish and wildlife, and may cause human illness or even death in extreme cases. Algal blooms also affect recreational usage of the lake; alter population densities of commercial and subsistence fisheries; can threaten drinking water supplies and can cause undesirable taste and odour of drinking water.

Based on a recommendation from the Board, The IJC Commissioners wrote to Governments on May 3, 2018 recommending development of a Canadian and/or binational Canada-United States phosphorus reduction target.

The Minnesota Pollution Control Agency (MPCA), Environment and Climate Change Canada (ECCC), and others, including the IMA's technical working group water quality subcommittee are coordinating efforts and working to improve understanding of the ecosystem health of the basin and to explore establishment of binational phosphorus reduction targets for Lake of the Woods.

The State of Minnesota has nearly completed their Phosphorus Total Maximum Daily Load study, which is in final review stage with USEPA. The TMDL study <u>public comment</u> <u>period</u> recently ran from February 22 through <u>March 24, 2021</u>. The outcome of the TMDL work is expected in the coming year.

The findings of the ECCC 4-year Rainy River-Lake of the Woods Science Program were presented at the at the 2020 Rainy-Lake of the Woods Watershed Forum. The findings were reviewed by the Canadian Federal-Provincial Working group and a Science–Based Task Team to determine the feasibility for establishing phosphorus reduction targets for the Canadian portion of the Lake. In March 2021 ECCC presented proposed lake objectives and phosphorus reduction at the 2021 virtual Rainy-Lake of the Woods Watershed Forum. ECCC's online consultation period on the objectives and scenarios ends on April 30th.

The Board continued to monitor and provide input on these efforts in 2020-21 through updates from agency leads at Board meetings. The Board also collaborated with agencies to facilitate public engagement on these issues by coordinating time for agencies to present on their efforts to address harmful algal blooms following the Board's annual public meeting on October 2, 2020. On February 5th, 2021 the Board received a presentation by the International Red River Board Co-chairs on their efforts to establish phosphorus reduction targets for the Red River system. Further examples of target setting approaches in other watersheds will be explored by the Board in the upcoming year.

8.2 Watershed Disturbance Vulnerability Assessment

A basin-wide vulnerability assessment of potential land and water disturbances, such as residential development, mineral-resource extraction, or forestry, is of interest in both Canadian and U.S. portions of the watershed. Interest is due, in part, to potential impacts on water quality, aquatic life and environmental health that land disturbances can have at various stages of development life cycles. These environmental effects can be both individual and cumulative. Recent evaluations, in the watershed in northeastern Minnesota, serve as an example of what is needed in the entire watershed (add—with respect to mineral development).

Recently, three IJC Boards have each identified an interest in mining activities in adjacent regions: Great Lakes Water Quality Board, the Health Professionals Advisory Board, and the IRLWWB. The IJC has flagged the issue and has placed emphasis on understanding the cumulative impacts land disturbance on watersheds that cross the international border.

The IJC is working through the Health Professional Advisory Board (HPAB), to pilot an effort in the Rainy-Lake of the Woods watershed. The goals of the pilot are to produce an on-line data base and interactive maps that summarizes the impacts of mining activities, and other land-disturbance activities, based on available information from federal, provincial, state, tribes/First Nations and non-governmental sources.

The database, and derivative maps, include information about minerals being mined, including copper, silver, iron, gold, uranium, zinc and other metals. It also includes other earth materials such as rock, aggregate, and sand and gravel. The database is capable of including other extraction activities that could impact waters across the entire international border. The information includes the extent of mined areas, years of operation, and mine discharges that have occurred, or may occur, as well as specific drainages that have, or could be, affected.

The database is site-specific but has the ability to display overlays of the watersheds and rivers. It also includes mineral processing activities such as smelters, and related facilities. It can be used to identify possible sources of metal pollution from either historical or current mines, or to identify information gaps in specific watersheds. The HPAB will release a project summary along with maps identifying the database resources used and gaps that currently exist during 2021.

The IRLWWB has long placed importance on understanding the cumulative impacts of mining on waters in the Rainy - Lake of the Woods Watershed. The LJC database effort is a significant first step. The board should consider collaboration with similar binational groups in the Lake Superior Basin and seek additional funding to expand this effort to fully understand the impacts of land disturbances. A next step would be assessment of habitat and water quality conditions in areas of the watershed that are or could be the subject of mineral extraction. *An IWI proposal:*

"Assessing the Vulnerability of Waters to Mining in the Rainy River-Lake of the Woods Watershed" currently is being considered by the Board.

The IRLWWB continues to track mining projects. This includes a mine proposal project in Minnesota, federal leases for exploration near the Boundary Waters Canoe Area Wilderness, and existing projects in Canada.

9 RELATED ACTIVITIES: INTERNATIONAL WATERSHED COORDINATION PROGRAM

The International Watershed Coordination Program (IWCP) continued to provide binational coordination and communication of research, management and citizen engagement for the basin throughout 2020. The IWCP was established in 2012 by the Lake of the Woods Water Sustainability Foundation (LOWWSF) as a multi-agency partnership in the basin. During 2020, along with LOWWSF, supporting partners included the IJC, the Minnesota Pollution Control Agency, through the Koochiching Soil and Water Conservation District, and Environment and Climate Change Canada.

The IWCP Coordinator, Kelli Saunders, took on the role of Project Manager/Coordinator for the IJC's newly established Adaptive Management Committee. Establishing priority projects, assessing resource needs, developing the first workplan and developing a report on climate change assessment activities across all IJC boards were the focus of the AMC's work this past year.

The IWCP Coordinator continued to provide secretariat support to the International Multi-Agency Arrangement (IMA), its Technical Advisory Committee and its subcommittees. Working with the IMA's Aquatic Invasive Species Subcommittee to continue work on communication efforts and the coarse scale risk assessment project have been a focus throughout the year. The IWCP provides an ongoing linkage between the IMA and the IRLWWB and served as a mechanism for informing the Board's CAG and IAG of activities delivered through the program.

The IWCP Coordinator continues to work closely with the Minnesota Pollution Control Agency, local Soil and Water Conservation Districts and lake associations in the basin to promote binational civic engagement in water stewardship. Highlights of the past year include:

- *Watershed website* —showcasing the local stewardship work that is ongoing in the basin, including the work of the IJC, at www.rainylakeofthewoods.org.
- Watershed News this regularly distributed newsletter was produced in April, August and November of 2020 to a wide audience throughout the basin as a way to highlight the watershed stewardship initiatives at the international, regional and local level.
- Lake Association Network Event the third lake association event took place virtually in September 2020, bringing together lake association and NGO staff from around the watershed to discuss programming successes and challenges and to compare notes on outreach activities, motivating members and social media strategies.

• Binational Civic Engagement Workshop — this annual workshop was offered virtually on March 31, 2021 and continues to be a way to "train the trainer" by providing a learning forum and networking opportunity for staff who deliver civic engagement leadership. This year, guest speakers joined in to inform participants about invasive species and communicating science to the public.

10 APPENDICES

10.1 Appendix 1 – Board Work Plan 2020-21



International Rainy-Lake of the Woods Watershed Board (IRLWWB)

DRAFT WORK PLAN 2020-2021

[for period April 2020 to March 2021]

BASED ON: April 1, 2013 Directive to International Rainy-Lake of the Woods Watershed Board.

MANDATE OVERVIEW: The Board's mandate is to ensure compliance with the Commission's Order pursuant to the Rainy Lake Convention, to monitor and report on the ecological health of the Lake of the Woods and Rainy Lake boundary waters aquatic ecosystem, including water quality, and to assist the Commission in preventing and resolving disputes regarding the boundary waters of the Lake of the Woods and Rainy River watershed. The Board shall accomplish its mandate by exploring and encouraging the development of local and regional capacity to prevent and solve problems locally, applying the best available science and knowledge, and maintaining an awareness of the needs, expectations and capabilities of residents of the Lake of the Woods and Rainy River watershed.

DIRECTIVE	WHAT WE HAVE BEEN DIRECTED TO DO	LEAD	WHAT WE ARE GOING TO DO TO CARRY OUT THIS DIRECTION	ACTIONS TO DATE	STATUS
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Maintain an awareness of the needs, expectations and capabilities of residents of the Lake of the Woods and Rainy River watershed. EC 1. Hold public meetings in during Basin Week. 2. Meet with the public, associations and interest on various issues, as req or needed.	and public meetings were not able to occur due to circumstances related to the global pandemic of COVID-19. Where possible virtual meetings
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4.a	Recommend, as appropriate, water quality and/or aquatic ecosystem health objectives for the boundary waters of the Lake of the Woods and Rainy River watershed.	AEHC	 1. Request relevant agencies to provide recent water quality and ecosystem health monitoring information: analyze in relation to water quality objectives and trends 	Established AEH Report Working Group with participation of relevant IMA- TAC members.	1. Ongoing
	Maintain continuous surveillance over the quality of water and health of the Lake of the Woods and Rainy River boundary waters aquatic ecosystem (with particular focus on priority issues within the basin such as water quality, alien aquatic invasive species, climate change indicator and adaptation, and ground and surface water contamination, as identified by the International Lake of the Woods and Rainy River Watershed Task Force's Study).		 focus on priority issues assess and report to the IJC In cooperation with partner agencies develop a template for the annual aquatic ecosystem health report, submit to Board for review, revision and approval. In Fall 2021, submit Draft Aquatic Ecosystem Health Report to Board for review, revision, acceptance and submission to the IJC. 	 2. 2021 Report: Template developed; request AEH information from relevant agencies in summer 2021. New template to be developed with guidance from Objectives-Alerts P2. 3. Pending 	2. 2021 Report Pending New template pending completion of Objectives Alerts P2.3. Ongoing
			4. In cooperation with the Lake of the Woods Water Sustainability Foundation, development of an online, annual "water quality report card" workshop.	4. Pending outcomes of Objectives-Alerts Project and SOBR.	4. On hold pending outcomes of Objective-Alerts and SOBR.
			5. In collaboration with the Lake of the Woods Water Sustainability Foundation, provide oversight for the next State of the Basin Report (SOBR 3.0).	5. Funding has been secured in part by the LOWWSF and through IWI Funding. A SOW is being drafted in the spring of	5. Project funded and will be underway in 2021.

				2024	
				2021.	
4.a	International Watershed Initiative Projects addressing Directive 4.a	AEHC	AIS Coarse Filter Risk Assessment	Project to be completed by April 15, 2021. The IMA-TAC-AIS-SC will utilize this tool to further AIS efforts in the basin and will	Active. Completion targeted for April 15, 2021. A final report will be presented to
				collaborate with the IRLWWB.	

					the Board in April, 2021.
		AEHC	Wild Rice Mapping	Project methodology revised due to public health restrictions. IWI funding approved.	Responses to IWI funding conditions being discussed. Contracting and implementation to move forward in 2021.
4.a.i	Continue to carry out evaluations and assessments from time to time as the Board considers necessary or desirable to ascertain the extent to which existing water quality objectives, such as approved by the Governments for the Rainy River in 1965, are being met.	AEHC	 Where significant exceedances of relevant objectives identified, request relevant jurisdictions to indicate action taken: Assess adequacy of actions taken Upon completion of IJC's Water Quality Objectives Review, develop a strategy for the development of new Objectives 	 AEH Report in development. IWI Objectives / Alerts Project, 	 Delayed but ongoing. Phase 1 completed;
4.a.ii	Notify the Commission of instances where existing water quality objectives are not being met and of actions being taken by those responsible for sources of pollution and by the regulatory agencies to meet these water quality objectives.		and Alert Levels appropriate to the Rainy-Lake of the Woods basin.	Phase 1: completed / report submitted. Phase 2: Statement of Work developed.	Phase 2 pending contracting.

qu he re su ac ac ob	eview boundary waters water uality and aquatic ecosystem ealth from time to time and ecommend to the Commission uch amendments and dditions to water quality or quatic ecosystem health bjectives as might be ppropriate.	AEHC	1. Upon completion of IJC's Water Quality Objectives Review, develop a strategy for the development of new Objectives and Alert Levels appropriate to the Rainy-Lake of the Woods basin.	IWI Objectives / Alerts Project Phase 1: completed Phase 2: Statement of Work developed.	1. Phase 1 completed Phase 2: Pending contracting.
af to pl ot	t minimum, within one year fter completion of, or updates of, major water studies and lans, review existing bjectives and present a report of the Commission ecommending whether or not of establish new or adjusted bjectives, and any such bjectives and their levels, so the Commission can consider ringing them forward to overnments for approval. One example of a major water tudy or plan is a binational comprehensive basin water management plan for Lake of the Woods and Rainy River ratershed, which could have subsequent major updates, inticipated each decade.				

4.b	Select, determine, establish, and report on water quality and/or aquatic ecosystem health alert levels within the waters of the Lake of the Woods and Rainy River watershed in order to identify potential problems for boundary waters for which water quality objectives have not been established with particular focus on priority issues within the basin such as water quality (including nutrients, sediment and metals), alien aquatic invasive species, climate change indicators and adaptation, and ground and surface water contamination.	AEHC	 Upon completion of the IJC's Water Quality Objectives Review, develop a strategy for the development of new Water Quality Objectives and Alert Levels, as appropriate, for the Rainy-Lake of the Woods basin: Current IRLWWB Alert	1. IWI Objectives / Alerts Project Phase 1: completed Phase 2: Statement of Work developed.	1. Phase 1: completed Phase 2: pending contracting
4.b.i	Continue to identify water quality problems on the Rainy River through a process based on comparisons of monitoring data with alert levels selected by the Board as the most stringent water quality guidelines being used by local, state, provincial or federal agencies for such pollutants.				
4.b.ii	Establish alert levels for biological, physical and chemical				

	constituents the Board deems important within the Lake of the Woods and Rainy River watershed.				
4.b.iii	Thereafter, report annually to the Commission on alert levels, exceedances and implications, actions being taken by those responsible for drivers of exceedances, if any, and actions being taken by regulatory agencies, if appropriate.				
4.b.iv	Review alert levels from time to time and make such amendments and additions as might be appropriate.				
4.d	Keep the Commission informed of boundary waters aquatic conditions and plans, policies, and developments, actual or anticipated which have the potential to affect the quantity and quality of the water and the health of the Lake of the Woods and Rainy River watershed boundary waters aquatic ecosystem.	Board CAG IAG	 Board, IAG and CAG to bring forward relevant information standing item on all agenda: Watershed Coordinator to assist with advising the Board of developments in the watershed Board to identify items which require further investigation Board to develop recommendations as 	 Board meeting agendas include standing items for Roundtable and Update from Watershed Coordinator. A new standing item related to watershed issues of concern was added to Board agendas. Draft agendas were shared with Board members, including CAG and IAG co-chairs, for input and review prior to each meeting. IAG members identified issues with ice flow and build up that affected the 	Ongoing. July 2020 new CAG cochairs appointed by IJC.

appropriate for communication to the IJC	 intake at the power house An IAG co-chair attends CAG meetings and vice versa to enhance collaboration and awareness.
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4.e Maintain awareness of basin- wide developments and conditions which might affect water quantity and quality and ecosystem health, and the people living within the Lake of the Woods and Rainy River watershed, and recommend appropriate strategies to the	AEHC EC	1.	Assure dialogue with advisory groups re issues identified by their members.	1.	AEHC member attendance at CAG and IAG meetings. AEHC updates on Objectives/Alerts project and AIS project presented to advisory groups.	1. Ongoing.
Commission, if appropriate.		2.	Periodically conduct basin tours, agency resource meetings, and other education events for IRLWWB members.	2.	Resource agency presentations during Basin Week in August. Requested / received observer status at IMA meetings, including joint IMA WG / TAC meeting at Forum. Collaboration with IMA on Aquatic invasive Species Risk Assessment Project.	2. Ongoing.

ap ins or age oth cor wit cor Bo	propriate agencies and astitutions as may be needed or desirable, including intergency working groups and ther research groups and onducting sound science within the watershed, and possider designating specific pard members to liaise with pecific groups where useful.	SEC IWC	 With the assistance of the International Watershed Coordinator, Board Secretariat to liaise with agencies and institutions, and provide regular updates to Board. Hold meeting with resource agencies in August during Basin Week to exchange information as appropriate. 	 Completed Resource agency presentations during Basin Week in August. 	Ongoing
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Community Advisory (CAG) for the purpose keeping the Board aw water resource managissues that may arise i basin and providing feand input to the Board products and processe the Board's work plan	Group e of vare of any gement in the eedback d's es, such as	 Continue to maintain an active and vibrant CAG. Seek CAG assistance in identifying resource management issues. Consult with CAG on Board products and processes. Meet quarterly, with face-to-face meeting during Basin Week. Have programs that educate its members about significant issues in the watershed. Raise important issues of concern. Maintain a list of issues and status and update at each meeting. 	 IJC appointed US and Canadian Co-chairs in July 2020. Occurred at Board meeting with CAG-IAG mtgs. Consulted on vulnerability of mining IWI proposal in 2021. Meetings held virtually in 2020-21 due to COVID-19 restrictions. Guest presentations on mining, EERPR. CAG Co-chair attending IAG meetings to enhance collaboration. Secretariat engaged with new Co-chairs upon appointment and throughout the year. Occurred at Board meetings throughout the year. Reviewed at each meeting. 	1. Ongoing.
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4.h	Establish and maintain an Industry Advisory Group (IAG) for the purpose of making the Board aware of industries' perspectives.	IAG	 Seek IAG input on industries' perspectives. Consult IAG on Board products and processes. IAG to meet as appropriate. 	 Occurs at IAG meetings and joint IAG/CAG meetings with the IRLWWB Occurs at IAG meetings Meetings held Dec 3, 2020, March 16, 2021, and March 17, 2021 	1. On-going 2. On-going 3. Three meetings held. The March 2021 meeting, usually a face to face meeting, was held virtually this year due to COVID-19 restrictions.
4.j	The Board shall organize a joint meeting of the Board with the CAG and IAG once a year.	SEC	1. At the Advisory Committees' request, the Board will meet inperson once a year with the IAG in March (during the Forum week) and with the CAG in August. 1. At the Advisory Committees' request.	 August 2020 meeting to include joint Board-CAG meeting. March 2021 meeting will include both CAG, IAG and the Board 	 Board-IAG-CAG meeting held on March 17, 2021. Board-CAG meeting held on August 18th, 2020. Both meetings held virtually due to COVID-19 restrictions.

4.k	Involve the public in the work of the Board; facilitate	EC	1.	Conduct interactive presentations with public	1.	Virtual public meeting held on October 2, 2020 and	Ongoing.
	provision of timely and pertinent information on Board activities within the watershed in the most appropriate manner [].		2.	groups as requested. Respond to public, agency, and IJC information requests or letters and conduct on-line surveys as opportunities arise.	2.	presentation provided during March 2021 Forum. Ongoing collaboration throughout the year. Included updates from agencies as appropriate at Committee and	3. Work to be renewed in 2021.
			3.	Provide educational opportunities for students to learn about water quality and water quantity issues.	3. 4.	Board meetings. Put on hold due to COVID-19 restrictions. Website training completed for Secretariat and EC Co-chair.	
			4.	Continue to provide pertinent information for dissemination4 to be posted on Board website and SharePoint site.		Engagement of Secretariat and Board members in IJC IT requirement process. Completed IJC SharePoint intake	
			5.	Working with IJC staff, develop media releases and/or IJC newsletter articles for new members of the Board and to announce Water Board	5.	requirements form. Media releases and communications posted in relation to virtual meeting and Water Level Rule Curve decision.	
				accomplishments, actions, reports, and other information, as needed.	6.	Achieved through public meeting presentation and via the March Forum.	
			6.	Communicate the research conducted by IWI projects in ways that are understood by researchers and the public.			

4.k	Meet publically at least once a year with invitations to First Nations, Métis, and Native Americans and all water users groups and stakeholders to seek advice and hear concerns, such as on a binational comprehensive basin water management plan or other issues. (Locations of such meetings shall be moved around the basin, generally alternating between locations in Canada and the United States.)	SEC EC	1. Arrange, as appropriate, a meeting or meetings with First Nation, Métis and/or Native Americans. 1. Arrange, as appropriate, a meeting or meetings with First Nation, Métis and/or Native Americans.	Replacements for in-person public meetings required due to COVID-19 restrictions.	Ongoing
4.k	International Watershed Initiative Projects Addressing Directive 4k.	EC	ProjectWET – support educators in the basin by providing training and curriculum materials on water quality and quantity issues.	1. Phase I was completed.	The EC plans to determine interest in a new IWI project to work on curriculum for the remaining grade levels.

4.1	Collaborate or carry out such other studies or activities as the Commission may, from time to time, request, including undertaking or facilitating the development of plans or studies[]	EC WLC/AM Task Team	1.	Participate in the IJC's Climate Change Guidance Framework 4- step process pilot project.	1.	AMC reviewed framework and drafted a report for Board consideration.	1. Ongoing
4.m	Submit a report covering Board activities annually to the Commission, at least three weeks in advance of the Commission's spring semiannual meetings, and submit such other reports as the Commission may request or the Board may desire.	SEC	1.	Coordinate development of annual report.	1.	Completion and publication of 2019-20 annual report delayed due to COVID-19.	1. 2020-21 report drafted
General	Inform the Commission in advance of plans for any meetings, or other means of involving the public in Board outreach.	SEC EC	1.	Place appropriate IJC staff on Board and Committee mailing lists. Invite IJC staff and Commissioners to meetings and teleconferences.	2.	Ongoing inclusion on e-mail lists and communication with IJC staff throughout the year. Invitations for all meeting shared throughout the year.	Ongoing.

General	Report to the Commission, in a timely manner, on these plans [for meetings] and any other presentations or representations made to the Watershed Board.	SEC EC	Develop a database to track public engagement activities.	Database not addressed in 2020- 21. Information on engagement captured in Annual report. Consider for 2021-22 workplan.
General	Provide support for Board members.	SEC EC	 Provide orientation for new members of the Board. Maintain and upgrade as appropriate Board web site. Produce and maintain materials for Board members and others to use for presentations. Provide for well-run meetings and timely meeting notes. 	 Secretariat provided orientation support by phone and email for new members appointed in July 2020. Website training completed July 2020 by IJC for Secretariat and EC co-chair. Materials produced and maintained through the year. Online meetings using various virtual platforms used throughout the year to facilitate well-run meetings. Secretariat provided support material sand opportunities to develop competencies using new technology. Meeting notes and action item lists provided in advance of subsequent meetings. Meeting notes posted on website following approval.



WATER LEVELS COMMITTEE DRAFT WORK PLAN 2020-2021

[for period April 2020 to March 2021]

MANDATE OVERVIEW: The Water Level Committee is a committee of the IRLWWB. The Water Levels Committee is delegated by the Board with the task of ensuring compliance with the terms of the 2001 Consolidated Order and the 2018 Supplementary Order in the matter of regulation of Rainy Lake and other boundary waters in the Rainy Lake watershed. The Board, through the Water Levels Committee, acts as a technical advisor to the Commission on the matter of water levels regulation in the Rainy Lake watershed.

DIRECTIVE	WHAT WE HAVE BEEN DIRECTED TO DO	LEAD	WHAT WE ARE GOING TO DO TO CARRY OUT THIS DIRECTION	ACTIONS TO DATE	STATUS
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4.c	Ensure compliance with the terms of the Order in the matter of emergency regulation of Rainy Lake and other boundary waters in the Rainy Lake watershed and act as technical advisor to the Commission on this matter.	WLC	1. The Water Levels Committee's Engineering Advisors will regularly monitor water levels and flows in the basin and evaluate compliance with the terms of the Order for the levels of Rainy Lake and Namakan Lake. The Committee and its advisors will provide technical advice to the Commission as requested, and as needed to keep the Commission apprised of any current or potential noncompliance with the terms of	 The Water Levels Committee monitored basin conditions throughout the 2020/21 year. Communications were maintained with the dam owners and instructions provided as necessary. The Water Levels of both Rainy and Namakan lakes were within the respective rule curves throughout the year. 	This is an ongoing requirement and will be carried forward to the next work plan.
			the Order.2. Obtain hydrologic/hydraulic data as necessary to monitor water levels and flows.	r	
			3. Support the proper functioning of the gauge network.4. Support the identification/resolution of equipment and data errors.		
			5. Analyze data, maintain communications with the dam owners, and provide advice/direction to dam owners as required.		
			6. Support studies to inform the assessment of the impact of the 2000 rule curve change on Rainy/Namakan Lakes.		

4.c.i Whenever, in the opinion of the Water Levels Committee, the terms of the Order are not being complied with, the Water Levels Committee shall so inform dam owners and operators and make such recommendations as it considers appropriate.	 The Water Levels Committee's Engineering Advisors will notify the Committee and dam owners and operators of any potential or existing non-compliance with the 2001 Consolidated Order and the 2018 Supplementary Order. In keeping with the directive, "At the earliest opportunity, the Water Levels Committee shall report to the Commission directly such apparent lack of compliance with the Order, the circumstances under which it occurred, the action taken by the Board, and the action, if any, taken by or on behalf of the dam owners and operators and 	the year. No non-compliance situations occurred.	This is an ongoing requirement and will be carried forward to the next work plan.
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4.c.ii	The Water Levels	WLC	1. The Water Levels Committee's	No action required in 2020/21.	This is an ongoing
	Committee may, on behalf		Engineering Advisors will		requirement and will be
	of the Commission:		monitor basin conditions on a		carried forward to the
	1. authorize the		regular basis, and advise the		next work plan.
	reduction of the		Water Levels Committee on		
	outflow from Rainy		recommendations to reduce		
	Lake for periods of up		outflows consistent with this		
	to ten days if necessary		directive.		
	to raise the headpond		2. The Water Levels Committee will		
	level at International		evaluate conditions and direct		
	Falls-Fort Frances to		the Companies as appropriate,		
	ensure an adequate		advising the Board of any actions		
	water supply for plant		it takes. The Committee Co-		
	fire protection		chairs shall inform the		
	purposes or to permit		Commission forthwith and as		
	the passage of		soon as practicable thereafter		
	watercraft from the		shall forward a written report to		
	headpond to Rainy		the Commission, describing the		
	Lake, provided the		circumstances in which such		
	outflow shall not be		action was taken. The report		
	less than the flows		shall be posted on the IJC		
	prescribed in		website following Commission		
	paragraph numbered		approval.		
	2(c) of the Order, and				
	2. authorize the				
	reduction of the				
	outflow from Rainy				
	Lake and/or Namakan				
	Lake for periods of up				
	to ten days if necessary				
	to meet emergency				
	conditions such as				
	machinery breakdowns				
	at the Kettle Falls or				

International Falls-Fort Frances dams, fires or other accidents, provided the outflow shall not be less than the flows prescribed respectively in paragraphs numbered 1(c) and 2(c) of the Order.			

4.c.iv	When, in the opinion of the Water Levels Committee, conditions either exist or are likely to occur which make it advisable to deviate temporarily from the strict application of the Order, the Board Co-chairs shall refer the matter to the Commission by the fastest practicable means, together with the Water Levels Committee's recommendation; the Commission will inform the Water Levels Committee of its decision as expeditiously as possible.	WLC	 The Water Levels Committee's Engineering Advisors will monitor basin conditions on a regular basis, and advise the Water Levels Committee on recommendations to deviate from the strict application of the Order. If, based on a review of basin conditions, the Water Levels Committee determines that a deviation from the strict application of the Order is advisable; it will notify the Commission by the fastest practicable means. Lead the coordination of participants in the Rainy River sturgeon spawning assessment protocol each spring as conditions warrant. 	1.	No such actions required during 2020/21.	This is an ongoing requirement and will be carried forward to the next work plan.
4.c.vi	The Water Levels Committee shall meet face-to-face with the operators of the dam at International Falls-Fort Frances annually to discuss water level issues that have occurred during the previous year and keep the Board informed of	WLC	The Water Levels Committee will carry out the annual meeting as described in the Directive.	1.	A face-to-face meeting with the dam operators was held in March 2020 in International Falls. The 2021 annual face-to-face meeting will be held in August or September of 2021. If a face-to-face meeting is not possible, a meeting with the dam operators will be held virtually.	This is an ongoing requirement and will be carried forward to the next work plan.

important issues discussed at the meeting.	3.	

General	The Board shall conduct its public outreach activities in accordance with the Commission's public information policies.	WLC EC	1. Maintain communications as appropriate with the media and public, especially regarding water level and flow regulation. Issue public news releases and web site advisories, as needed, in keeping with the Commission's public information policies.	 A Pre-Spring Engagement webinar was held on March 3, 2021. A News Release was issued to the public on March 10, 2021 advising that the standard rule curve for Rainy Lake would be followed for the spring 2021 season. 	This is an ongoing requirement that will be carried forward to the next workplan. EC will help WLC with all of these items as requested.
			2. Meet with the public, associations and interest groups on various issues, as required.	3. A representative from the Water Levels Committee presented at both IJC appearances during 2020/21.	
			3. Maintain the Board's web-based data on lake levels and basin flows for use by the public.	4. Activities were limited this year due to the ongoing pandemic and shifting priorities of the Water Levels Committee Members.	
			4. Respond to public, agency, and IJC information requests or letters of complaint.	5. The work plan was updated and provided to the Secretariat.	
			5. Periodically conduct basin tours.		
			6. Appear before the IJC at its semi- annual meetings, as requested.		
			7. Annually update the Water Levels Committee Work Plan.		

2018 Supplementary Directive 1)	The WLC will endeavour to follow the procedures outlined in the Operational Guidelines, weighing the advantages and disadvantages to be accrued by stakeholders.	WLC	1.	The WLC will develop and maintain Operational Guidelines to include current best practices for maintaining water levels throughout the year within the established rule curves, to maximize the benefits to stakeholders.	Records of Water Level Committee Activities were maintained as required. Development of Operations Guidelines will be carried forward to the 2021/22 workplan.	Ongoing
			2.	The WLC will develop and maintain Operational Guidelines with input from resource agencies, the public, stakeholders, and indigenous communities, and is to be made public.		
			3.	The WLC shall record a summary of any operational decisions made by the WLC, along with a rationale for the decisions, to the IJC as part of the International Rainy-Lake of the Woods Watershed Board's annual report.		

2018 Supplementary Directive 2)	At a minimum the WLC will appoint two technical advisory groups: an Engineering Advisory Group to provide engineering support and a Flood Forecasting Advisory Group to provide climate, dam operations weather and flood forecasting information support.	WLC	 The WLC will engage with the dam operators and agencies responsible for flood forecasting in both the U.S. and Canada to establish the membership of the Flood Forecasting Advisory Group. The WLC will notify the IJC of any new technical advisory groups or membership changes of existing groups, and the WLC will post the details of the technical advisory groups on the IJC website. 		Ongoing
2018 Supplementary Directive 3)	Within one month prior to March 10, the WLC will hold at least one in-person Pre-Spring Engagement Meeting.	WLC	The WLC will host a Pre-Spring Engagement meeting during the week of the Rainy-Lake of the Woods Watershed Forum to take note of stakeholder observations and concerns.	The Pre-Spring Engagement meeting was held on March 3, 2021.	This is an ongoing requirement that will be carried forward to the next workplan.

2018 Supplementary Directive 5)	The WLC will work with flood forecasting agencies, and other involved agencies active in the basin to assist in the development of communications protocols to effectively disseminate emergency information,	WLC	The WLC will work with dam operators, resource agencies and the public to develop material to effectively communicate current basin conditions and operation strategies.	Ongoing
	leveraging those agencies' emergency alert and warning systems.		2. The WLC may hold public meetings, either in-person or via video- or teleconference, at any time during the year when the WLC is faced with a decision regarding changing target water levels within the Rule Curves.	



ADAPTIVE MANAGEMENT COMMITTEE DRAFT WORK PLAN 2020-2022

[for period July 2020 to March 2022]

BASED ON: June 6, 2019 Directive to International Rainy-Lake of the Woods Watershed Board. Directive requires a work plan within 8 months of committee appointment and typical work planning time frame for the Board.

MANDATE OVERVIEW: On March 1, 2018 the Commission signed a Supplementary Order in the Matter of Emergency Regulation of the Level of Rainy Lake and of other Boundary Waters in the Rainy Lake Watershed in which it endorsed the application of an adaptive management approach to i) monitor and objectively understand how the changes to the rule curves affect Namakan Lake, Rainy Lake and Rainy River; and ii) support an objective review of the rule curves in the future. The overall objective of the AMC is to consider information collected by resource agencies and others during the interim that may indicate the effect that changes to the 2018 rule curves have on water levels and flows and the impacts these have on the affected interests in the boundary waters of the Rainy River basin and make recommendations to the International Lake of the Woods Watershed Board. This includes reviewing available information to assist in the evaluation of 2018 rule curves related to i) their effectiveness in preventing the occurrence of emergency conditions in the Rainy River watershed; ii) how the system may be changing over time and whether any modifications to the rule curves may be warranted to address what is learned over time including emerging issues and/or to address changing conditions; and iii) other questions asked by the Watershed Board and/or Commission that may affect the Watershed Board's water management decisions over the long-term.

WHAT WE HAVE BEEN DIRECTED TO DO	LEAD	WHAT WE ARE GOING TO DO TO CARRY OUT THIS DIRECTION	ACTIONS TO DATE	STATUS/TIMELINE

	Complete indicator prioritization
	exercise & data gap analysis:
	Gather input from modellers to
	evaluate the technical feasibility
	criteria for indicator
	prioritization and determine
	what new indicators are
	needed; we will use information
	gained from two prioritization
Consider the configure magnitude	workshops and Adaptive
Consider the various monitoring programs, research projects and	Management Task Team and • Received advice from Bill Werick
models needed to identify and	AMC meetings in this process as to prioritization for IWI
assess the impacts of changes to	 Maintenance of core, existing proposal submission on this To be considered further in
Namakan Lake, Rainy Lake and	models needs to be done; new • Have contacted Jean Morin to fall/winter 2020 if modelling
Rainy River biological and	data needs have to be identified inquire about the availability of capacity is available
aquatic communities associated	and prioritized his team of modellers. Further
with the implementation of	progress pending confirmation of modellers' availability.
2018 rules curves	and prioritize short
	comings or gaps in existing
	monitoring programs required
	to lead to a scientifically defensible review of monitoring
	information collected by natural
	resource management agencies
	and others that may indicate the
	effect of changes contained in
	the Supplementary Order of
	March 1, 2018;

Integrate the IJC's Climate Change Guidance Framework with the adaptive management initiative Liaise with the Water Levels Committee to complete the 'Organize' phase and build on the previous work, such as the self-assessment questionnaire Identify the models and datasets to be used in the 'Analyze' phase connect with other Boards to see what they are doing first/see what works	Teika has reached out to other Boards and met with representatives of Columbia, Kootenay, Osoyoos (David Hutchinson), Lake Ontario - St. Lawrence (Marc Hudon), and GLAM (Wendy Leger) to learn about climate adaptation work done by these boards. GLAM's progress is most advanced to date and Wendy has shared details about the IPCC and GLAM models being used to assess changes and impacts to water flows and water levels.	Anticipate completing this work in fall/winter 2020
Work with the Aquatic Ecosystems Health Committee's Objectives and Alerts team leads to draft a 5-year strategy for the expansion of the AMC in support of water quality reporting within the Rainy-Lake of the Woods basin	No actions to date	Phase II of Objectives and Alerts is on hold

Assess the impact of water level regulation on medicinal plants	 Reviewing previous IWI proposal and research done to prepare for new IWI submission in future Identified by AMC as top priproject in June 2020 this project requires model capacity which is currently unreview 	ling
Improve the Digital Elevation Model for Rainy and Namakan by collecting bathymetry for the nearshore	 Review completed of IJC-funded project that provided nearshore bathymetric data for a portion of this system to prepare for new IWI submission in future Identified by AMC as top project in June 2020 this project requires a small amount modelling capacity which is currently under rev 	II
Verify walleye spawning areas on Rainy Lake	Identified by AMC as priorit project in June 2020	У
Enhance whitefish monitoring on the Canadian side of Rainy Lake and Namakan Reservoir	 Have reached out to MN DNR and OMNRF personnel to discuss feasibility of undertaking this work in fall / winter 2020; meeting pending Identified by AMC as priorit project in June 2020; currend discussion with AMC memb regarding feasibility of moving this forward in fall/winter 2020; 	ers ing
Develop adaptive management strategies for managing water levels and PCA intake needs	Reviewing NRC report Reviewing NRC report Identified as a possible future project for AMC	re

Identify the agencies, organizations, groups or individuals who are undertaking monitoring programs that may be best placed to fill the identified gaps or would have a role in doing so, including identifying resources they currently provide or could provide to this effort	Link in core monitoring inventory done by IMA-TAC in 2019		
Estimate the costs associated to overcome each identified gap or short-coming	 Based on input from various monitoring agencies, identify the in-kind contribution that can currently be leveraged to support AM in the basin consider linking monitoring needs for this to core monitoring being proposed by IMA for cost efficiency 	• no action to date	IJC put in request to governments for continuous AM; no answer yet

Outreach and engagement strategy	 decision made in March 2020 that public outreach strategy not needed regular updates to Board required 	 updates provided to Board at meetings on March 10, 2020 and June 18, 2020 AMC co-chairs and Project Manager met Board Secretariat on July 15 to discuss AMC workplan and integration into Board workplan AMC co-chairs and Project Manager met with IJC advisors July 28 to discuss the recommended priority projects, workplan and potential for upcoming AMC IWI proposals. 	update to Board has been prepared for August meeting
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