



Coordinated Aquatic Monitoring Program

Annual Activity Report

2019/2020

Submitted to:
Minister of Agriculture and Resource Development
Minister of Conservation and Climate
President of Manitoba Hydro

Submitted by:
MOU Working Group

May 2023



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1.0 Executive Summary

The 2019/20 Coordinated Aquatic Monitoring Program (CAMP) marks the twelfth year of monitoring since implementation in 2008/09. The program was initiated to address comments received from communities and the Clean Environment Commission (CEC) about the need for system-wide monitoring to better understand the effects of hydroelectric operations on the aquatic environment. In 2006, Manitoba and Manitoba Hydro signed a Memorandum of Understanding (MOU) and the CAMP partnership was established. The MOU outlines the objectives of the program and requires an annual summary of activities, which is provided in this report.

CAMP is an ecosystem-based monitoring program that samples key biological/chemical/physical parameters at different levels of the food web. These variables, along with hydrometric data are used to describe the ecological condition and status of aquatic ecosystem health in the waterways in which Manitoba Hydro operates. The selected parameters were determined based on the best advice of scientists and regulators that participated in annual CAMP workshops that started in November 2007. Attendees included representatives from Manitoba Conservation and Water Stewardship, Manitoba Hydro, Fisheries and Oceans Canada, University of Manitoba, Environment Canada and North/South Consultants Inc.

The program is assessed annually and adjusted to ensure it maintains scientific credibility and is in scope for meeting the objectives of the Memorandum of Understanding.

The past year was successful and most of the fieldwork was accomplished, as planned and the program goals were met, overall.

Recent developments to the program include:

- Increasing communication products and plain-language documents
- Review of the 6-Year Summary Report by the International Institute for Sustainable Development
- Exploration of the addition of shoreline health monitoring

Additional items to be developed over the next few years include:

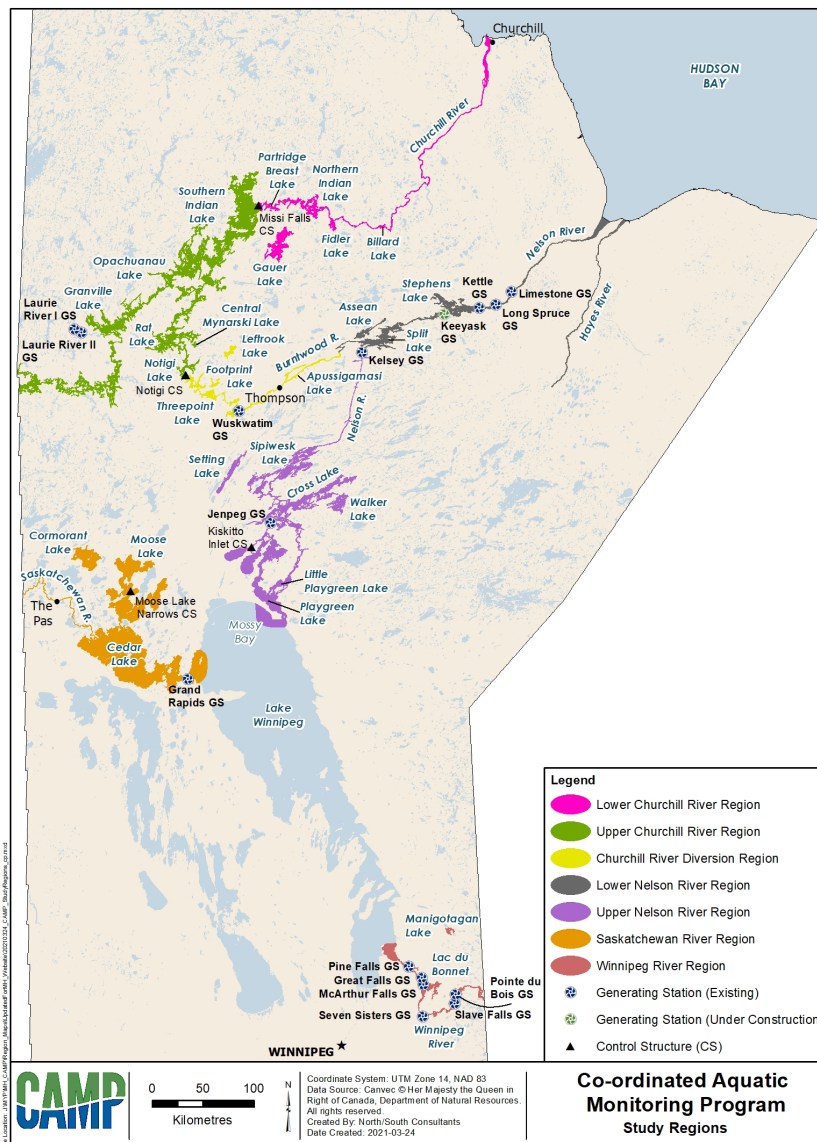
- Development of a pilot program for shoreline health monitoring
- Continuation of community participation
- Investigating opportunities for citizen science to complement CAMP data
- Increasing communications

2.0 Background

The purpose of this report is to provide the signatories of the “Memorandum of Understanding about the Program of LWR/CRD Monitoring Activities (MOU)” with a summary of the 2019/20 Coordinated Aquatic Monitoring Program. The MOU, signed in 2006 by the Province of Manitoba and Manitoba Hydro (Appendix 1), outlines the need to develop a system-wide aquatic monitoring program to address concerns related to potential effects associated with Manitoba Hydro operations.

The Coordinated Aquatic Monitoring Pilot Program (CAMPP) was developed and implemented in 2008/09 and operated for the first three years to test sampling methodologies. This 2019/20 annual activity report represents the ninth year of a fully implemented, post-pilot phase, Coordinated Aquatic Monitoring Program (CAMP).

CAMP Study Regions



3.0 Program Management

CAMP is a large program that has a broad geographic and topic scope. It comprises waterways across Manitoba (from the Winnipeg River to the Churchill River) and a multitude (hundreds) of monitoring parameters that are sampled on an annual or rotational basis. To accomplish the goals of the program, many different groups (i.e., Manitoba government, Manitoba Hydro, environmental consultants, technical experts, lab technicians and community members) perform various duties to:

- Plan and direct the work
- Manage and budget effectively
- Acquire resources
- Conduct field sampling
- Ensure legislative compliance
- Process and analyze results
- Report results and progress in various formats
- Manage data
- Ensure safety
- Communicate, share information, and receive feedback
- Collaborate and develop relationships
- Strive for continuous improvement

CAMP supports Water Power Act licensing, and a Working Group composed of individuals from Manitoba Hydro and Manitoba Sustainable Development oversees the program.

Smaller subcommittees, with subject matter experts from Manitoba Hydro, Manitoba Agriculture and Resource Development, Fisheries and Oceans Canada, Environment and Climate Change Canada, environmental consultants, and other research scientists, are also brought together occasionally to address specific topics and issues. Day to day administration, budgeting, and management of the program are conducted by Manitoba Hydro. Monitoring activities (i.e., data collection and fieldwork) are performed by Manitoba Hydro, Manitoba Agriculture and Resource Development, and North/South Consultants Inc. (on behalf of Manitoba Hydro). The Lake Winnipeg Research Consortium performs CAMP water quality sampling in a few locations in the north basin of Lake Winnipeg from their large research vessel, The Namao.

More detailed information about the program, sampling parameters, monitoring sites, and results can be found on the website at www.campmb.com.



3.1 Working Group

On May 22, 2019, a draft workplan for the 2019/20 program was presented to the MOU Working Group, which is the oversight committee identified in the MOU. Items that were presented and discussed at the meeting include:

- Review of the 2018/19 CAMP
- Update on CAMP reporting and data management (i.e., updates on the 6-Year Report, the Data Integration Strategy, website, plain language documents, Communications Strategy)
- Review of the research and development project that is sponsored by CAMP, called Photons to Fish
- Presentation and discussion of proposed 2019/20 CAMP workplan (i.e., ecosystem monitoring schedule, sedimentation monitoring plans)
- Update on community dialogue efforts and development of the shoreline monitoring program

No significant concerns or issues were raised by the Working Group members and the 2019/20 workplan was subsequently accepted as presented. A summary of CAMP meetings is provided in Appendix 2.

3.2 Subcommittee

The subcommittee is composed of groups of technical experts from Manitoba Hydro, Manitoba, North/South Consultants Inc., and other experts as needed for each of the specific parameters sampled in CAMP. There were no specific technical subcommittee meetings during 2019/20.

3.3 Annual Workshop

Usually one CAMP workshop is held annually to review the past year's fieldwork, and address any specific topics of relevance. External subject matter experts and others are occasionally invited to participate in the workshop, as appropriate. This year, the Working Group met to review the successful field season and discuss upcoming plans (i.e. organizing for the shoreline development program, how CAMP fits in and supports Broad Area Planning, progress of the new StarLIMS database system, and initiatives for implementing the Communications Strategy).

4.0 Ecosystem Monitoring

The following summary documents the major activities undertaken by CAMP in 2019/20 (i.e., April 1, 2019 to March 31, 2020).

Water quality, sediment quality, benthic macroinvertebrates (BMI), and fish community were sampled in up to 30 lakes (or areas of lakes) or riverine reaches (21 on-system and 9 off-system) during the 2019/20 CAMP. In addition, water quality was sampled at the



outlets of Lake Winnipeg (Two-Mile Channel and the upper Nelson River near Warren Landing). Mercury in fish monitoring was conducted in 2019/20 at 26 sites. No aquatic habitat (bathymetry and substrate type) surveys were undertaken in 2019/20.

Overall, the program goals were achieved; however, a few sites were missed or changed, mainly due to inclement weather.

4.1 Changes

Due to changes in provincial water quality sampling programs in 2019, CAMP water quality sampling was conducted at all sites by North South Consultants in spring and fall in 2019, including sites sampled previously by the Province of Manitoba during these periods. Manitoba retained their regular summer sampling program under CAMP.

Fish sampling and associated Benthic Macroinvertebrate (BMI) sampling were not conducted at the lower Churchill River at the Little Churchill River site in 2019 due to a sampling concern expressed by a Tataskweyak Cree Nation (TCN) councillor.

No other substantive changes were made to the program.



4.2 Aquatic Habitat

Characterizing the aquatic habitat of a waterbody helps inform our understanding of the ecosystem components, such as fish and invertebrates. CAMP aquatic habitat surveys have been conducted using boat based hydroacoustic equipment to produce lake bathymetry and substrate/bottom typing. Surveys have been conducted in different waterbodies to build an inventory of maps over time to assist with interpreting monitoring results.

No aquatic habitat surveys were conducted in 2019/2020 as efforts were placed on analyzing previously collected habitat data and producing products to communicate the information (e.g. maps and posters).

4.3 Water Quality

CAMP has two programs that contribute to water quality monitoring – one is covered under the Physical Environment umbrella and the other is covered by the Ecosystem umbrella. Manitoba's Agriculture and Resource Development Department, and North South Consultants on behalf of Manitoba Hydro, collect the Ecosystem water quality data (which includes in situ (i.e. on site) data and a suite of lab analytes). The Physical



Environment water quality data are collected by Manitoba Hydro and include discrete samples for temperature, total suspended solids, conductivity, and pH. In addition to discrete samples, continuous monitoring sensors are used year-round to acquire water quality data every few minutes.

Discrete water quality sampling on the Ecosystem side occurs four times a year in annual and rotational water bodies. Three samples are collected during the open-water season (spring, summer, fall) and one is conducted during winter, under ice conditions. Samples are collected using a float plane with floats in open water or skis for ice conditions. Over 50 parameters are analyzed in the water quality samples through in-situ or lab analysis. With a few exceptions, water quality sampling was completed at all sites as planned in 2019/20. Sampling site locations were adjusted at some sites over the course of the sampling program due to inclement weather/site conditions, such as high wind or unsafe landing conditions, these sites and times included:

- Spring:

- o Cedar Lake - southeast and Lake Winnipegosis (Site 3) sites adjusted due to pilot concerns with distance from shoreline; and
- o The Hayes and Saskatchewan river sites relocated due to pilot concerns with turbid conditions.

- Fall:

- o Cedar Lake – southeast and Lake Winnipegosis – Site 3 relocated (to established alternate locations) due to high wind/waves.

- Winter:

- o Cormorant Lake site relocated due to access issues (overcast skies);
- o The Hayes River site relocated due to access issues (i.e., slush and thin or frazzil ice conditions); and
- o Split Lake site relocated due to unsafe ice conditions.

In addition, two sites were not sampled in winter (2020):

- Threepoint Lake site could not be sampled due to presence of slush ice; and
- Eaglenest Lake site could not be sampled due to slush ice and unsafe ice conditions.

Manitoba Agriculture and Resource Development experienced some interruptions to collection of in situ data at Lake Winnipeg outlet sites resulting from equipment malfunctions in Spring 2019, where vertical profile data normally collected with a handheld sonde (temperature, specific conductance, dissolved oxygen concentration and saturation, pH, and turbidity) were not collected. Several of these parameters were still measured in the laboratory analysis of surface water at Warren's Landing, Two Mile Channel inlet, Two Mile Channel outlet, Site 22, and Big Mossy Point.

4.4 Sediment Quality

Sediment quality is monitored on a rotational basis every six years. 2019/20 was not a sampling year so no sediment quality data were collected. The next round of sediment quality monitoring will occur in 2023/2024.

4.5 Benthic Macroinvertebrates

Benthic macroinvertebrate (BMI) (i.e., bugs in the sediment) monitoring is conducted once per year at annual and rotational sites. BMI are often used as indicators of ecosystem health as they are a food source (i.e., lower trophic level) for higher-level consumers, such as fish. Some BMI are susceptible to environmental changes and can reveal trends that may be occurring in areas of a waterbody over time.

BMI sampling was not conducted at the lower Churchill River at the Little Churchill River site in 2019 due to a concern expressed by a Tataskweyak Cree Nation (TCN) councillor. The concern was related to Lake Sturgeon so fish sampling was cancelled at the site; BMI sampling is usually conducted at the same time as the fish monitoring so it consequently did not occur. BMI sampling was completed at all other sites as planned. Field crews also conducted zebra mussel veliger sampling at all sites for Manitoba Water Stewardship.

Additional time and effort were required during sampling to comply with Aquatic Invasive Species (AIS) regulations that require thorough decontamination of gear that is moved between waterbodies.



BMI samples were sorted, identified, and enumerated in the laboratory over the winter. To date, spiny waterfleas (an AIS) have been identified from nearshore samples in the Winnipeg River (Eaglenest Lake, Pointe du Bois forebay, and Lac du Bonnet), Lake Winnipeg (Mossy Bay), and Playgreen Lake; and from offshore samples in the Winnipeg River (Pointe du Bois forebay, and Lac du Bonnet), Lake Winnipeg (Grand Rapids and Mossy Bay), and Playgreen Lake. No new spiny waterflea findings were recorded for 2019; only three of the offshore samples in Lake Winnipeg (Grand Rapids) contained a very small number of this species.

4.6 Phytoplankton

Phytoplankton are microscopic, plant-like organisms in the water column that make up the base of the food web (i.e., they are primary producers). They are an important food source and provide oxygen in the aquatic environment. An over-abundance of phytoplankton (called blooms, which occur when nutrients are plentiful) can be a detriment to the environment; oxygen can be depleted from decomposition after they die, they can prevent sunlight from penetrating into the water column, or some (e.g., blue-green algae) contain toxins. Sampling for phytoplankton helps us understand how the primary producers are contributing to the health of the ecosystem, as well as how biota are responding to the nutrient levels in the water.

Samples for phytoplankton analysis (i.e., community composition and biomass) were collected from all sites during the open-water and ice-cover seasons; samples from the four routine annual monitoring sites (Cross, Setting, Split and Assean lakes) were submitted for analysis as planned. Over the open-water season, 16 samples were submitted for algal bloom monitoring, as chlorophyll a concentrations exceeded the threshold level of 10 µg/L. These samples included:

- Spring:

- o All four of the sites in the Winnipeg River Region, including the off-system lake (Eaglenest and Manigotagan lakes, the Pointe du Bois Forebay, and Lac du Bonnet); and

- o One site (the Saskatchewan River) in the Saskatchewan River Region (SRR).

- Summer:

- o Both of the on-system sites (Cedar Lake – Southeast and the Saskatchewan River) in the Saskatchewan River Region; and;

- o Two off-system lakes – Leftrook Lake in the Churchill River Diversion Region and Walker Lake in the Upper Nelson River Region.

- Fall:

- o The same four sites where the threshold was exceeded in summer (i.e., Cedar Lake – Southeast, the Saskatchewan River, and Leftrook and Walker lakes); and

- o Lake Winnipeg – Big Mossy Point, Footprint Lake, and the off-system Gauer Lake.

4.7 Fish Community

Fish community sampling is conducted once per year at annual and rotational sites. The intent of the analysis is to estimate fish abundance and diversity, and to collect information on fish condition (e.g., size, weight, condition factor, etc.). Ageing structures are also collected for target species (i.e., Walleye, Northern Pike, Lake Whitefish, Sauger and on any incidental Lake Sturgeon mortalities). Otoliths (ear bones) or cleithra (jaw bones) are collected and analyzed for age in a way similar to counting tree rings. Knowing the age of a fish and the abundance of that age class within a particular species provides information on fish growth and the relative strength of a particular year class.

Fish community sampling was not conducted at the lower Churchill River at the Little Churchill River site in 2019 due to a Lake Sturgeon concern expressed by a Tataskweyak Cree Nation councillor. Fish community sampling was completed at all other locations and sites. Poor weather and the departure of the local assistant resulted in suspension of fish community sampling in Split Lake for approximately 1.5 weeks; Additionally, the lower Nelson River fish community sampling program was deferred due to the presence of fugitives in the Gillam area. Sampling was successfully completed at both of these locations. As per usual, fish ageing structures were collected during fish community sampling; those ageing structures were analyzed in the laboratory over the winter.

4.8 Mercury in Fish

Mercury in fish is monitored in CAMP waterbodies every three years, except for two sites that are monitored annually (Threepoint and Leftrook lakes). The fish mercury sampling program conducted in 2019 was relatively large as it represented the first year of the three year cycle.; a total of 22 waterbodies were scheduled for sampling in 2019. Fish tissue samples (i.e., muscle) were collected during fish community monitoring at 25 of the planned 28 waterbodies. Fish community sampling was not conducted at the lower Churchill River at the Little Churchill River site in 2019 due to a concern expressed by a Tataskweyak Cree Nation councillor. Mercury samples were inadvertently not collected from the two waterbodies in the Saskatchewan River Region (Cormorant Lake and Cedar Lake – southeast). After collection, mercury samples were submitted to a laboratory for analysis and laboratory analyses have been completed.

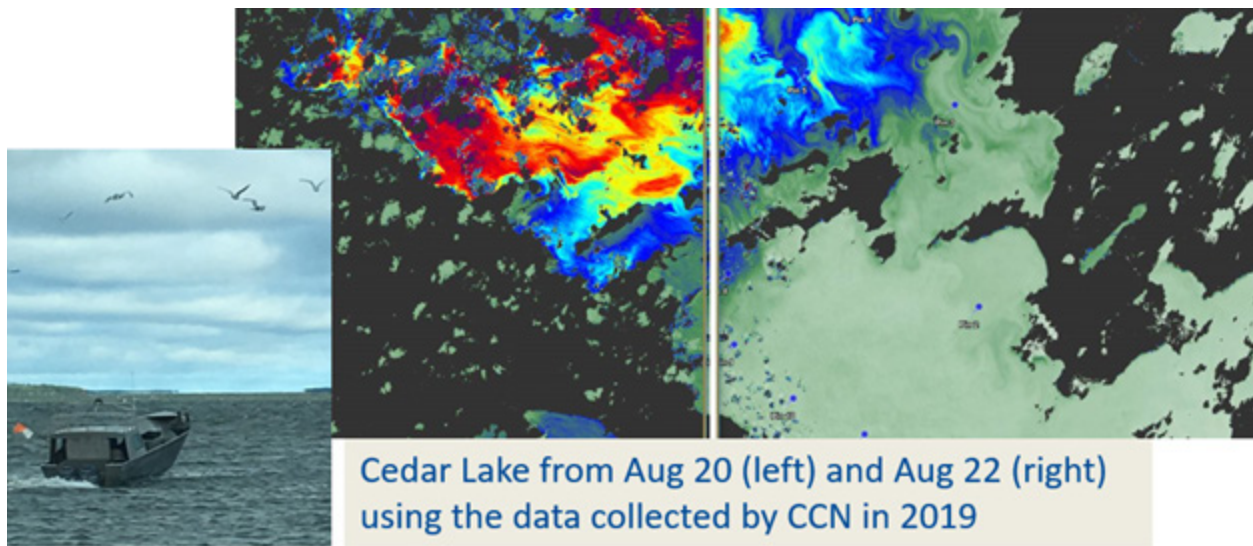
4.9 Physical Environment

4.91. Continuous Water Quality and Sedimentation Monitoring

In 2019, two additional permanent continuous water quality monitoring (turbidity, water temperature, dissolved oxygen and conductivity) instruments were installed; the sites included Pointe du Bois Generating Station and the Grand Rapids Generating Station. In 2018, four sites (Jenpeg GS, Wuskwatim GS, Limestone GS and Missi Control Structure) had continuous loggers installed and testing is ongoing to assess their performance

in different seasons and conditions. To date, promising results show that monitoring inside generating stations is possible by tapping into raw water supply lines.

CAMP also worked with Chemawawin Cree Nation to collect suspended sediment water samples on Cedar Lake to assist in the development of a model to correlate suspended sediment data to satellite data. Using the data allows for mapping sediment concentrations across the entire lake as illustrated in the Figure below. Red represents higher levels of total suspended solids while blue represents lower levels.



5.0 Communications

Increasing awareness of CAMP and sharing information and results have become priorities for the program. The program has evolved from establishing the technical parameters of the program into now focusing more on communicating what we are learning from the data. CAMP data and information have been shared in several venues and formats and we are continuing to work to provide plain language documents and materials that are accessible to wider audiences.

5.1 Data Sharing

Requests for CAMP data continue to be received from the public. Eleven requests for data were received in 2019/20, and included universities, Indigenous communities, students, and consultants. Currently, data must be manually extracted from the database and forwarded to the requester. To streamline this process and make all the data available to the public on a self-serve basis, we are working on implementing a map-based interface on the website (i.e., ArcGIS Online).

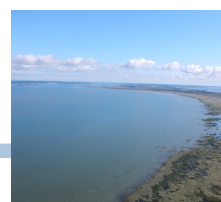
6.0 Conclusion

CAMP is a successful ecosystem monitoring program. It continues to grow and evolve and currently has a focus on increasing communications. Plain language documents, website updates, public meetings and easier data sharing are a few of the ways that CAMP information is becoming more accessible. The value of the program continues to increase as data are acquired; however, the true benefit lies in usage of the data and not just its collection.

The next monitoring milestone for CAMP is to establish a new component focusing on the shoreline. This will be a collaborative endeavour and will be developed with the inclusion of Indigenous communities, subject matter experts, regulators, Manitoba, and Manitoba Hydro.

CAMP will continue to provide information to support decision-making processes at various levels. Regulators use the information to contribute to licence conditions and recommendations, and CAMP data can be used to support provincial broad-area planning in the future (as recommended in the Clean Environment Commission's "A Review of the Regional Cumulative Effects Assessment" (2018).

Overall, CAMP is a positive, high-profile environmental monitoring project that is expected to continue to grow in usefulness and support decision making in the coming years.



7.0 Appendices

Appendix 1: Memorandum of Understanding

Memorandum of Understanding about Program of LWR/CRD Monitoring Activities, dated October 16, 2006.

The Government of Manitoba and Manitoba Hydro are committed to work together on matters relating to monitoring of hydrometric (water level and stream flow) and environmental data in certain areas in the Lake Winnipeg Regulation and Churchill River Diversion system.

Manitoba and Manitoba Hydro have the common objective of developing a program of activities ("the activities"), building on the existing monitoring program of Manitoba Hydro, that would provide objective information about hydrometric and environmental effects of hydro-electric development on agreed rivers and lakes comprising the Lake Winnipeg Regulation and Churchill River Diversion systems ("the system"). The information from the activities could be of benefit to Manitoba, Manitoba Hydro and other interested parties, including communities in the area of the Lake Winnipeg Regulation/Churchill River Diversion project. Objectives of the program of activities would include:

- (a) assisting in evaluating whether and to what extent the water regime in areas of the system is or will be affected by the addition of additional hydro-electric facilities;
- (b) assisting in identifying adverse effects and positive effects resulting from effects on the water regime; and
- (c) assisting in considering measures that may be undertaken to address any identified adverse effects.

Manitoba and Manitoba Hydro may establish additional objectives of the activities.

Manitoba and Manitoba Hydro recognize that Manitoba Hydro has made commitments to monitoring and follow up programs as part of the environmental licensing process for the Wuskwatim Generating Station. These commitments will be considered in developing the activities.

The program of activities will be reviewed each year and annual workplans will be developed by Manitoba and Manitoba Hydro to assist in achieving the program of activities. The agreed workplan for the fiscal year ending March 31, 2007 is attached as Appendix A to this Memorandum.

Manitoba and Manitoba Hydro will consider methods of making information from the activities available to interested parties.

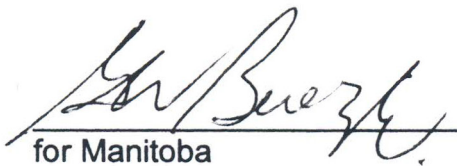
It is intended that the nature and scope of activities will be developed starting in Fiscal Year 2006-07 (starting April 1, 2006) and will continue until Manitoba and Manitoba Hydro agree to no longer proceed with a program of activities.

As part of the development of the annual program of activities, Manitoba and Manitoba Hydro will consider the resources each will provide in order to carry out the activities

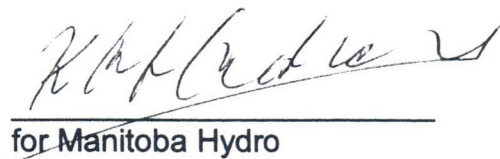
It is intended that Manitoba and Manitoba Hydro personnel will prepare an Annual Report to be delivered to the Minister of Water Stewardship and the Minister of Conservation, on behalf of Manitoba and to the President and CEO of Manitoba Hydro. Additional reports may be prepared as Manitoba and Manitoba Hydro determine to be appropriate. The Annual Report may include:

- a description of the activities for that year;
- a description of any information determined as a result of the activities;
- information about any circumstances where water levels or flows were outside of ranges provided for in licences;
- methods of making the information available to interested parties and to the public;
- any other matters that are considered appropriate. It is expected that Manitoba and Manitoba Hydro will make the Annual Reports available to the public.

Manitoba and Manitoba Hydro may amend this Memorandum from time to time by further Memorandum.


for Manitoba

Oct. 16, 2006
Date


for Manitoba Hydro

06 09 06
Date

Appendix 2: Summary of 2019/20 CAMP Meetings

Various meetings and workshops occur throughout the year to share CAMP information with different audiences. Regular administrative monthly meetings are held with CAMP participants from Manitoba Fisheries, Manitoba Water Stewardship, Manitoba Hydro, and consultants. The purpose of these meetings is to discuss day-to-day progress, planning, budget, and to address any issues that arise. In addition to the internal monthly meetings, Working Group meetings and workshops are held for specific purposes, as needed. Those meetings that occurred over the past year are described below.

Spring MOU Working Group Meeting – May 22, 2019

Objective: To discuss the proposed 2019/2020 work plan with the Working Group for comment and endorsement.

Attendees: CAMP Working Group (members from Manitoba Sustainable Development and Manitoba Hydro)

AGENDA

- Welcome and review of 2018 Working Group meeting minutes
- Review of the 2018/19 Program
- Discussion of proposed 2019/20 CAMP work plan
- Changes to MB water quality sampling budget impacts CAMP sampling. Working group to review options and determine next steps
- Data management & AGOL update
- Photons to Fish – Research project update
- Communications
 - o Communications Strategy
 - o 6-Year and 9-Year Reports
- Shoreline Monitoring Development – status and plans for community meeting
- Other Business

Appendix 3: 2019/20 CAMP Sampling Schedule

Manitoba Hydro MSD - Water Quality Section MSD - Fisheries Branch		CAMP Sampling Schedule 2019/2020										CAMP
Consultant	Consultant & MSD	On-system	Off-system	Fish Community	Water Quality	Benthic Invertebrate	Hg in Fish (3-year)	Sediment Quality (6-year)	Phytoplankton Community	Sedimentation		
Region	Site											
Winnipeg River	Upstream of Pointe du Bois	X		Annual	Annual	Annual	19/20 & 22/23	23/24		Continuous (Pointe)		
	Lac du Bonnet	X		Annual	Annual	Annual		23/24				
	Manigotagan Lake		X	Annual	Annual	Annual	19/20 & 22/23	23/24				
	Eaglenest Lake		X	19/20 & 22/23	19/20 & 22/23	19/20 & 22/23						
Saskatchewan River	Pine Falls Reservoir	X		17/18 & 20/21	17/18 & 20/21	17/18 & 20/21						
	Cedar Lake - southeast	X		Annual	Annual	Annual	19/20 & 22/23	23/24		Continuous (Grand Rapids)		
	Cormorant Lake		X	Annual	Annual	Annual	19/20 & 22/23	23/24				
	Moose Lake	X		18/19 & 21/22	18/19 & 21/22	18/19 & 21/22						
Lake Winnipeg	Cedar Lake - west	X		17/18 & 20/21	17/18 & 20/21	17/18 & 20/21						
	Saskatchewan River	X		19/20 & 22/23	19/20 & 22/23	19/20 & 22/23						
	Lake Winnipeg - Mossy Bay	X		Annual	Annual	Annual	19/20 & 22/23	23/24				
	Lake Winnipeg - Site 22	X		Annual	Annual	Annual						
Upper Churchill River	Lake Winnipeg - Grand Rapids	X		Annual	Annual	Annual		23/24				
	Lake Winnipeg - Sturgeon Bay	X		Annual								
	Lake Winnipegosis		X	Annual	Annual	Annual		23/24				
	Southern Indian Lake (Area 4)	X		Annual	Annual	Annual	19/20 & 22/23	23/24		Continuous (Missi)		
Lower Churchill River	Granville Lake		X	Annual	Annual	Annual	19/20 & 22/23	23/24				
	Southern Indian Lake (Area 1)	X		18/19 & 21/22	18/19 & 21/22	18/19 & 21/22						
	Southern Indian Lake (Area 6)	X		19/20 & 22/23	19/20 & 22/23	19/20 & 22/23	19/20 & 22/23					
	Opachuanau Lake	X		17/18 & 20/21	17/18 & 20/21	17/18 & 20/21						
Churchill River Diversion	Northern Indian Lake	X		Annual	Annual	Annual	19/20 & 22/23	23/24				
	Churchill R. at Little Churchill R.	X		Annual	Annual	Annual	19/20 & 22/23	23/24				
	Gauer Lake		X	Annual	Annual	Annual	19/20 & 22/23	23/24				
	Partridge Breast Lake	X		18/19 & 21/22	18/19 & 21/22	18/19 & 21/22						
	Billard Lake	X		19/20 & 22/23	19/20 & 22/23	19/20 & 22/23						
	Fidler Lake	X		17/18 & 20/21	17/18 & 20/21	17/18 & 20/21						
Upper Nelson River	Churchill R. at Churchill Weir	X		17/18 & 20/21	17/18 & 20/21	17/18 & 20/21	17/18 & 20/21					
	Threepoint Lake	X		Annual	Annual	Annual	Annual	23/24				
	Leftrook Lake		X	Annual	Annual	Annual	Annual	23/24				
	Notigi Lake	X		18/19 & 21/22	18/19 & 21/22	18/19 & 21/22						
	Rat Lake	X		19/20 & 22/23	19/20 & 22/23	19/20 & 22/23	19/20 & 22/23					
	West/Central Mynarski Lake	X		17/18 & 20/21	17/18 & 20/21	17/18 & 20/21						
Lower Nelson River	Apussigamasi Lake	X		18/19 & 21/22	18/19 & 21/22	18/19 & 21/22						
	Wuskwatim	X								Continuous (Wuskwatim)		
	Footprint Lake	X		19/20 & 22/23	19/20 & 22/23	19/20 & 22/23						
	Cross Lake - West basin	X		Annual	Annual	Annual	19/20 & 22/23	23/24	Annual			
	Setting Lake		X	Annual	Annual	Annual	19/20 & 22/23	23/24	Annual			
	Playgreen Lake	X		18/19 & 21/22	18/19 & 21/22	18/19 & 21/22	18/19 & 21/22					
Lower Nelson River	Little Playgreen	X		19/20 & 22/23	19/20 & 22/23	19/20 & 22/23	19/20 & 22/23					
	Walker Lake		X	19/20 & 22/23	19/20 & 22/23	19/20 & 22/23				Continuous (Jenpeg)		
	Sipiweski Lake	X		17/18 & 20/21	17/18 & 20/21	17/18 & 20/21	17/18 & 20/21					
	Nelson R. d/s Sipiweski Lake to Kelsey GS	X		17/18 & 20/21	17/18 & 20/21	17/18 & 20/21						
	2-Mile Channel	X			Annual							
	Warren Landing	X			Annual							
Lower Nelson River	Split Lake	X		Annual	Annual	Annual	19/20 & 22/23	23/24	Annual			
	Assean Lake		X	Annual	Annual	Annual	19/20 & 22/23	23/24	Annual			
	Nelson R. Mainstem - d/s Limestone GS	X		Annual	Annual	Annual	19/20 & 22/23	23/24				
	Hayes River		X	Annual	Annual	Annual	19/20 & 22/23	23/24				
	Stephens Lake - north arm	X		18/19 & 21/22	18/19 & 21/22	18/19 & 21/22						
	Stephens Lake - south	X		18/19 & 21/22	18/19 & 21/22	18/19 & 21/22	18/19 & 21/22					
Lower Nelson River	Limestone Forebay	X		19/20 & 22/23	19/20 & 22/23	19/20 & 22/23	19/20 & 22/23			Continuous (Limestone)		
	Burntwood R. - First Rapids to Split Lake	X		17/18 & 20/21	Annual	17/18 & 20/21						





Coordinated Aquatic Monitoring Program

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