

CAMP

Coordinated Aquatic Monitoring Program

Annual Activity Report

2012/2013

Submitted to:
Minister of Conservation and Water Stewardship

President/CEO Manitoba Hydro

Submitted by:
MOU Working Group

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1.0 Summary

The 2012/13 Coordinated Aquatic Monitoring Program (CAMP) marks the fifth year of monitoring since implementation in 2008/09. The program was initiated owing to concerns over the lack of system-wide monitoring and the need for understanding potential effects of hydroelectric operations throughout Manitoba Hydro's system. CAMP was designed using an ecosystem-based approach using key biological/chemical parameters and hydrometric data to describe the ecological condition of the hydraulic system. The parameters selected are scientifically based and were developed from "best advice" obtained from workshops held each year since November 2007 that includes representation from Manitoba Conservation and Water Stewardship, Manitoba Hydro, Fisheries and Oceans Canada, University of Manitoba, Environment Canada and North/South Consultants Inc.

To date, the program has been assessed annually and adjusted accordingly to ensure it maintains scientific credibility and is on scope for meeting current objectives. Recent developments to the program include creation of a website for annual reporting and to provide general information to the public and stakeholders, completion of a data management strategy which recommends an approach for how to best store and access the large volume of data collected by the program, and drafting of a sediment and erosion monitoring component to be initiated as a pilot phase on Playgreen Lake in summer 2013. Additional items to be developed over the next few years include development of scientifically relevant ecosystem health indicators, implementation of the preferred data management option, completion of the data presentation portion of the CAMP website and broader implementation of sediment and erosion component.

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 2012/13 Coordinated Aquatic Monitoring Program. The MOU, signed in 2006 by the Province of Manitoba and Manitoba Hydro (Attachment 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 as a pilot program in order to test sampling methodologies. This 2012/13 annual activity report represents the second year of a fully implemented, post-pilot phase Coordinated Aquatic Monitoring Program (CAMP).



3.0 Meetings

3.1 Working Group

On March 15, 2012, a draft workplan for 2012/13 program was presented to the MOU Working Group which is the oversight committee identified in the MOU (see Attachment 2). Additional items that were presented and discussed included: 1) review of the 2011/12 CAMP; 2) update on CAMP data management and reporting framework; 3) present and discuss 2012/13 CAMP workplan; 4) discussion on CAMP and aquatic ecosystem research; and 5) update on community dialogue efforts. No significant concerns or issues were raised by the Working Group members during the meeting or the two week review period and the 2012/13 workplan was subsequently accepted as presented.

3.2 Subcommittee

The Subcommittee met on November 29, 2012 to review the status of the 2012/13 open water sampling program and develop agenda items for the 2012/13 CAMP Workshop. Additional items that were discussed included updates on the CAMP website and pilot program summary report, discussion of aquatic ecosystem health indicators, and a number of technical related items (see Attachment 2).

3.3 Annual Workshop

The annual CAMP Workshop was held on March 7, 2013 and was attended by approximately 30 people representing federal and provincial agencies, private consultants and Manitoba Hydro staff. The main agenda items included presentation and discussion of options for a proposed erosion and sedimentation component for CAMP, an update on the CAMP data management strategy, an overview presentation of the pilot summary report and recommendations, an update on phase 2 of the CAMP website, a discussion on how to utilize CAMP for describing ecosystem health and a number of technical program items (see Attachment 2).

4.0 Summary of Activities

The following summary documents the major activities undertaken by CAMP in 2012/13.

4.1 Field Program

A total of 29 sites (20 on-system and 9 off-system) were sampled for water quality, phytoplankton, benthic invertebrates, and fish community during the 2012/13 CAMP. Water quality was also monitored at two additional sites (Warren Landing in Lake Winnipeg and the Burntwood River at the inlet to Split Lake) and the fish community was also sampled at three sites in Lake Winnipeg under CAMP in 2012/2013. Fish mercury was monitored in Threepoint, Leftrook, and Playgreen lakes and Stephens Lake south in 2012/13. Additional sampling of water quality, benthic invertebrates, and phytoplankton is conducted by MCWS in the north basin of Lake Winnipeg, outside of CAMP. A list of sample sites and associated field parameters is included in Attachment 3 and a map showing the waterbodies sampled is included in Attachment 4.



4.1.1 Hydrometrics

Hydrometric information associated with hydro developments on Manitoba's waterways is captured in an annual report prepared by Manitoba Hydro, entitled: "Water Power Act Licences Annual Water Levels and Flows Report 2012 Calendar Year", (In Prep). Copies of this report will be forwarded to the Minister of Conservation and Water Stewardship once completed. Current and past editions of the report are posted on the Department's website.

4.1.2 Aquatic Habitat

An aquatic habitat (bathymetry and substrate) survey was completed at Playgreen Lake in summer 2012.

4.1.3 Water Quality

Water quality sampling was completed at all sites as planned with the exception of Apussigamasi Lake in winter which could not be accessed due to poor ice conditions.

4.1.4 Benthic Invertebrates

Benthic invertebrate sampling was completed and samples were collected at all sites except at the following locations: Hayes River and the Lower Nelson River (downstream of Limestone GS). Samples have not been successfully collected from the Hayes River offshore habitat since CAMP was initiated due to lack of adequate fine sediments. Samples could not be collected at the Lower Nelson River site in 2012 due to high velocities and compact substrate.

4.1.5 Phytoplankton

Samples for phytoplankton analysis were not collected from three (Cross, Setting, and Split lakes) annual monitoring sites in the summer sampling period. All other scheduled phytoplankton sampling was completed in 2012/13.

4.1.6 Fish Community

All scheduled fish community sampling was completed in 2012/13.

4.1.7 Mercury Content in Fish

All four waterbodies (Threepoint, Leftrook, and Playgreen lakes and Stephens Lake south) scheduled for collection of fish muscle for analysis of mercury in 2012 were sampled. The full target sample size of Lake Whitefish was not obtained at Threepoint and Stephens lakes, and of Northern Pike at Threepoint Lake. No one-year old Yellow Perch were obtained for mercury analysis from any of the lakes sampled in 2012. In addition to the four regularly sampled fish species, accidental mortalities of Lake Sturgeon from the Winnipeg River (Slave Falls reservoir, seven fish) and Stephens Lake south (one fish) were analysed for mercury.



4.2 Community Meetings

Manitoba Conservation and Water Stewardship presented and discussed CAMP at a variety of community meetings in 2012/13. A list of these community meetings is provided in Attachment 5.

4.3 Reporting Framework

A draft of the first 3-year report was prepared in 2012/13. Once finalized, this document will provide a detailed summary of the first three years of monitoring under the pilot program and set the stage for transitioning to a fully implemented CAMP.

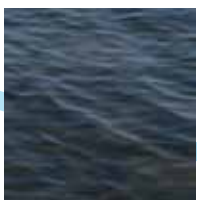
5.0 Emerging Items

5.1 Data Management Strategy

Golder Associates Ltd. is finalizing the data management strategy they were contracted to complete and in doing so, have identified a preferred option to address the CAMP data concerns. The next phase of this project is currently being evaluated and will likely include development and implementation of the preferred solution.

5.2 Annual Reporting via CAMP Website

A preliminary CAMP website containing general information about the program was launched in February 2012 as an externally managed site. Phase 2 work on the website was initiated in mid-2012 to develop a data presentation section that would serve as the program's annual reporting component.





Attachment 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.

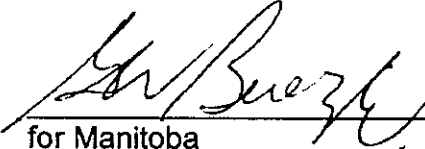
It is intended that the nature and scope of activities will be developed starting in Fiscal Year 2006-07 (starting April 1, 2006) and will continue until Manitoba and Manitoba Hydro agree to no longer proceed with a program of activities.

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


for Manitoba Hydro

Oct. 16, 2006
Date

06 09 06
Date

Attachment 2

Summary of 2012/13 CAMP Meetings

MOU Working Group Meeting – March 15, 2012

AGENDA

- Review of the 2011/12 CAMP.
- Update on CAMP data management and reporting.
- Present and seek endorsement for the 2012/13 CAMP workplan.
- Discussion on CAMP and aquatic ecosystem research.
- Update on system-wide community dialogue efforts.

Subcommittee Meeting – November 29, 2012

AGENDA

- Review of 2012 open water sampling.
- CAMP website update.
- Update on pilot program summary report.
- Discussion of CAMP and aquatic ecosystem health.
- Miscellaneous technical items:
 - phytoplankton QA/QC,
 - fish ageing QA/QC,
 - Lake Winnipeg data sharing, and
 - erosion & sedimentation

Workshop – March 7, 2013

AGENDA

- Presentation and discussion of draft erosion & sedimentation plan.
- Update on CAMP data management strategy.
- Pilot program summary report overview and recommendations.
- Miscellaneous technical items
 - phytoplankton QA/QC,
 - Hg in fish field protocol and QA/QC,
 - Lake Winnipeg data sharing, and
 - lower Churchill River site relocation
- Ecosystem health discussion.



Attachment 3 2012/13 Sampling Parameters and Waterbodies

Region	Site	On-system	Off-system	Fish Community	Water Quality	Benthic Invertebrate	Hg in Fish	Phytoplankton Community
Upper Churchill River	Southern Indian Lake (Area 4)	X						
	Granville Lake		X					
Churchill River Diversion	Southern Indian Lake (Area 1)	X						
	Notigi Lake	X						
	Threepoint Lake	X						
	Leftbrook Lake		X					
	Apussigamasi Lake	X						
Lower Churchill River	Northern Indian Lake	X						
	Churchill R. at Little Churchill R.	X						
	Gaver Lake		X					
Winnipeg River	Partridge Breast Lake	X						
	Upstream of Pointe du Bois	X						
	Lac du Bonnet	X						
	Manigotagan Lake		X					
	Cedar Lake (Area 1)	X						
Saskatchewan River	Cormorant Lake		X					
	South Moose Lake	X						
Upper Nelson River	Cross Lake - West basin	X						
	Setting Lake		X					
	Playgreen Lake	X						
Lower Nelson River	Split Lake	X						
	Assean Lake		X					
	Nelson R. Mainstem - d/s Limestone GS	X						
	Hayes River		X					
	Stephens Lake - north arm	X						
Lake Winnipeg	Stephens Lake - south	X						
	Burntwood R. @ inflow to Split Lake	X						
	Lake Winnipeg	X						
	Lake Winnipegosis		X					

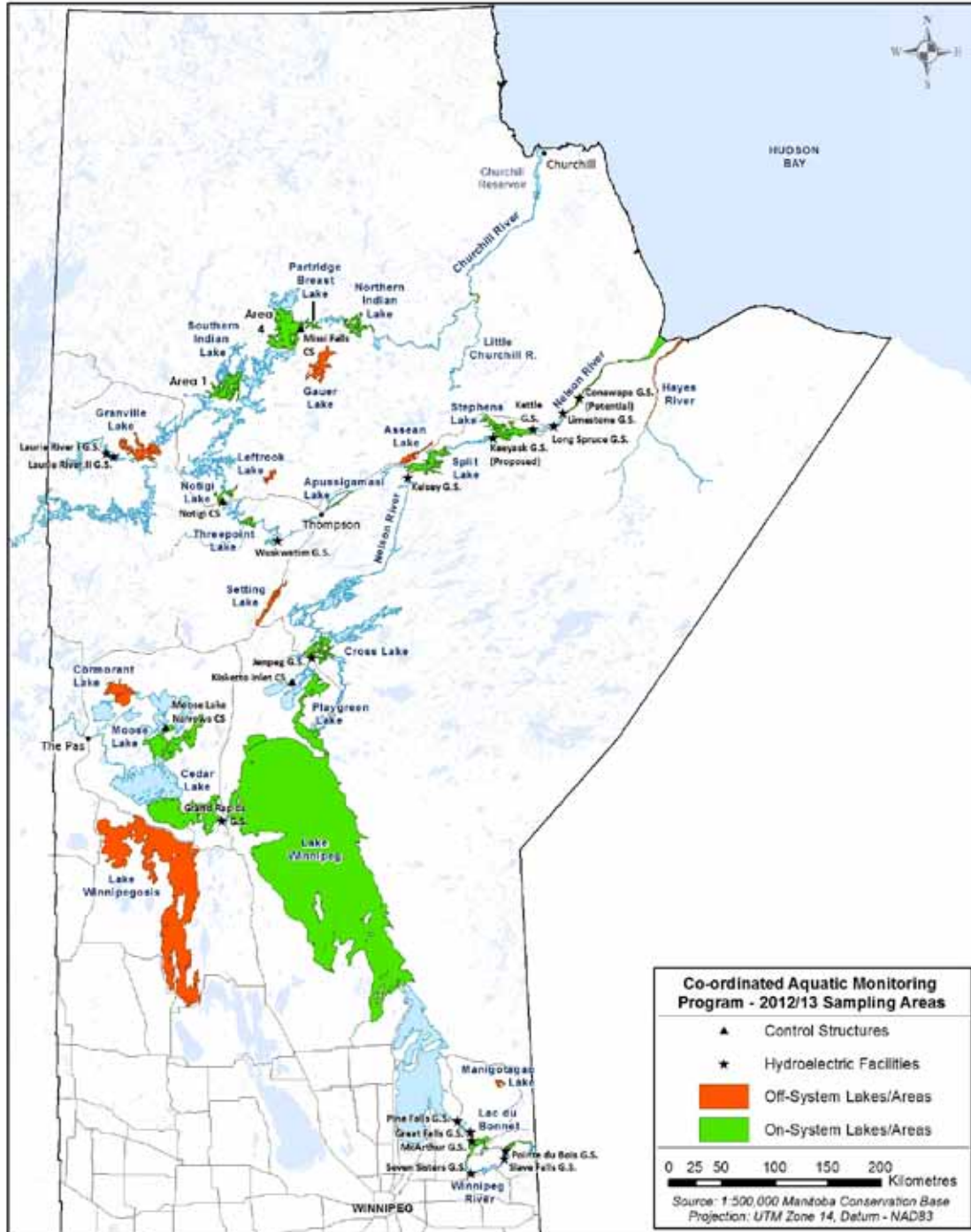
MCWS - Water Quality Section

MCWS - Fisheries Branch

Consultants

Attachment 4

Map of Waterbodies Sampled in 2012/13



Attachment 5

Listing of CAMP Community Discussions/Presentations 2012/13

Community/Resource Management Board (RMB) meetings where CAMP was discussed attended by Don Macdonald (Regional Fisheries Manager, Manitoba Fisheries Branch):

March 2, 2012. Southern Indian Lake Technical Committee.

March 15, 2012. Meeting with Hydro and Tataskweyak Cree Nation regarding low flows on the Lower Churchill River.

May 1, 2012. Southern Indian Lake Steering Committee.

May 15, 2012. Norway House Resource Management Board.

May 23, 2012. Norway House Commercial Fisherman's Association.

July 3, 2012 Norway House Resource Management Board.

July 4, 2012. Southern Indian Lake Technical Committee.

Nov. 14, 2012. Cedar Lake Resource Management Board.

Jan 8, 2013. Cedar Lake Commercial Fishman's Meeting.

Feb. 28, 2013. Norway House Resource Management Board.



CAMP

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