Reset Questionnaire

LAKE MANITOBA
LAKE ST. MARTIN

OUTLET CHANNELS PROJECT

Aquatic Effects

Monitoring Program Questionnaire

General Information (Please provide your contact information)

Name*

Community*

Mailing Address*

Phone Number*

Email*

*Required

Do you wish to self-identify as an Indigenous Person in Canada, such as First Nations, Métis or Inuit?

- ◯ Yes
- ◯ No

Manitoba welcomes responses from all to this questionnaire, including Indigenous individuals. Manitoba remains committed to meaningful and respectful Crown-Indigenous Consultation with Indigenous groups.

In addition to your responses, your personal information is being collected to be able to contact you for follow up if needed. Your responses will be collected and used to help support the provincial and federal environmental assessment process for the Lake Manitoba and Lake St Martin Outlet Channels Project and will inform the Crown-Indigenous Consultation process. Responses and information collected through this questionnaire will be protected by Manitoba Infrastructure but may be shared with other provincial and federal regulatory bodies to meet environmental regulatory requirements.

Overview of Aquatic Effects Monitoring Plan and Questionnaire

The Aquatic Effects Monitoring Plan presented during consultation and engagement is considered draft and will not be finalized until input is obtained from potentially affected Indigenous groups and other stakeholders. The Aquatic Effects Monitoring Plan will be finalized once applicable feedback has been received, final design details are determined, and environmental regulatory approval conditions are available.

This questionnaire is intended to be completed after reviewing the Aquatics Effects Monitoring Plan. It is recommended that the report is read as a whole, so that sections or parts are not read out of context.

The purpose of the Aquatic Effects Monitoring Plan is to document changes to water and fish, determine if predictions are correct, and identify if additional mitigation measures are needed for the Project. The objectives of the Aquatic Effects Monitoring Plan are to:

- Verify predicted effects through monitoring of the aquatic environment (i.e., water, fish, fish habitat)
- Determine the effectiveness of mitigation measures
- Assess the need for additional mitigation measures if initial measures are not adequate
- Determine the effectiveness of any additional/adaptive mitigation measure(s)
- Confirm compliance with regulatory requirements

Please note that the frequency of water quality monitoring outlined in the Aquatic Effects Monitoring Plan has been determined based on monitoring recommendations typically authorized by the Department of Fisheries and Oceans Canada.

A. Introduction

1. What water bodies do you currently use in the Project area? Select all that apply:

- ☐ Lake Manitoba
- ☐ Lake St. Martin
- ☐ Lake Winnipeg
- ☐ Dauphin River
- ☐ Fairford River
- ☐ Other: _____

What activities do you undertake in these areas? Please

2. Aquatic monitoring studies will include several parameters to assess surface water quality at various study locations. The Canadian Council of Ministers of the Environment and Manitoba Water Quality Standards, Objectives and Guidelines provide guidance for what parameters should be monitored for water quality:

Table 1: Surface Water Quality Parameters			
Water Temperature	**Dissolved Oxygen**	**Hardness**	**Chlorophyll**
pH	Total Suspended Solids	Total nitrogen	*E. coli*
Conductivity	TDS	Total phosphorus	Fuel
Mercury			

Are there any additional parameters that you would like to see included?

Please explain:

B. Mitigations

Construction of any project will result in some disturbance to land and potential effects to the environment. These effects may be temporary in nature or permanent due to the presence of the project. Mitigation measures are means to prevent, reduce, or control these adverse environmental effects that occur from the project.

3. Please review the following Project effects and proposed mitigations outlined below in Table 2. Identify in part (a) and (b) if you agree with the effectiveness of the proposed mitigation measures or advise if additional mitigation activities should be considered:

Table 2: Summary of Mitigations

Project Effect	Mitigation	a) Do you feel this mitigation will be effective?	b) Are there any additional mitigations that you would like considered?
Water Quality			
Change in sediment concentrations	During construction, implementation of control measures is expected to minimize the amount of sediment that will be mobilized. The channels are also being designed to minimize erosion.		
Effects to Fish Habitat			
Change in habitat due to construction of Outlet Channels and concurrent re-alignment, isolation or dewatering of drains and headwater streams	The Outlet channels will provide approximately 172 ha of fish habitat. The LMOC will be 24.1 km long with a wetted width of 30-60 m and depths of 4-8 m. The Lake St. Martin Outlet Channel will be 23 km long and 44 m wide with drop structures and pools at higher gradient sections and a till substrate. During non-operational periods the channels will provide year-round habitat for forage fish and juveniles of large-bodied fish. During operation for flood control, higher velocities at the outlets may be suitable for spawning by walleye and possibly other species.		
Change in habitat due to the deposition of sediment	During construction, implementation of control measures is expected to minimize the amount of sediment that will be mobilized. The channels are also being designed to minimize erosion.		

Table 2: Summary of Mitigations			
Project Effect	**Mitigation**	**a) Do you feel this mitigation will be effective?**	**b) Are there any additional mitigations that you would like considered?**
Change in flow patterns in rivers and streams	The inlets and outlets will be designed to support fish use that may occur, in particular if fish area attracted to spawn at the outlets during channel operation. Flow reduction at channel closure will be conducted such that fish are cued to leave the channels as flows are reduced at the end of operation periods.		
Change in Fish Passage			
Change in flow patterns in rivers and streams	Operation of the channels will be conducted to maintain suitable flow conditions in the Fairford and Dauphin Rivers.		
Effects to fish passage due to installation/replacement of culverts	Water crossings will be constructed to allow fish passage and not affect fish movements including use of clear span bridges and embedding and appropriate sizing of culverts.		
Change in fish movements between Lake Manitoba/Lake St. Martin/Lake Winnipeg due to creation of channels	Base flows in the Lake St. Martin Outlet Channel will also provide a corridor for downstream movement, but the volume of flow is much less than during flood operation. The design of the Lake Manitoba Outlet Channel will not allow passage past the water control structure during periods of non-operation and Lake St. Martin Outlet Channel will prevent upstream fish movement at the outlet. Fish will be able to return from Lake Winnipeg to Lake St. Martin via the Dauphin River and from Lake St. Martin to Lake Manitoba via the Fairford Fishway (large-bodied species only). Implementation of ramping rates when changing the flows in the channels to provide fish with cues that velocities are changing and enable fish to respond accordingly.		

Table 2: Summary of Mitigations			
Project Effect	**Mitigation**	**a) Do you feel this mitigation will be effective?**	**b) Are there any additional mitigations that you would like considered?**
Change in attraction flows to Fairford and Dauphin rivers	Changing flows in a specific manner to provide fish with cues the flows are decreasing so that they move out. Maintain adequate flows in the Fairford Fishway to maintain upstream fish passage in spring. Design the outlet of the Lake St. Martin Outlet Channel to prevent fish from moving into the channel from Sturgeon Bay.		
Change in Fish Health and Mortality			
Accidental release of deleterious substances	Standard environmental protection measures will be implemented.		
Introduction of sediment	The channels are also being designed to minimize erosion.		
Stranding of fish and fish eggs	Fish will be able to leave the Lake Manitoba Outlet Channel because it will be connected directly to Lake Manitoba and Lake St. Martin, upstream and downstream of the control structure, respectively. The Lake St. Martin Outlet Channel is being designed to allow fish to move downstream out of the channel during base flows; fish will not be able to enter from Sturgeon Bay. Design channels to contain pools that will provide over-wintering fish habitat.		
Increased fish mortality due to increased angling pressure	This increase will be managed via provincial fisheries regulations.		

4. The Aquatics Effects Monitoring Plan (Sections 4 to 7) describes the effects of the Project on fish and fish habitat and proposed mitigations. Based on the information provided, please indicate if you have concerns about your ability to continue with the following activities:

   - ◯ Subsistence fishing
   - ◯ Recreational fishing
   - ◯ Commercial fishing
   - ◯ All of the above

   Please explain what concerns you have and indicate how you see the Project affecting your use of the area:

5. Based on the potential Project effects and proposed mitigations, do you see the Project affecting health and socio-economic activities (e.g., economy and culture) along lakes, rivers, creeks, and shorelines in the area? Please explain:

6. Based on the potential Project effects and proposed mitigations, do you see the Project affecting traditional use activities along lakes, rivers, creeks, and shorelines in the area? Please explain:

7. The Project is not expected to substantially alter chemical concentrations in surface water or fish, and therefore is not anticipated to impact the human health risks currently associated with the consumption of fish harvested from the area. Given this information, do you see the Project affecting health and socio-economic conditions (e.g., economy and culture) along lakes, rivers, creeks, and shorelines in the area? Please explain:

C. Study Information

8. The following monitoring studies have been developed based on potential Project effects on the aquatic environment. Proposed scheduling and the location of Aquatic Effects Monitoring Plan monitoring studies is outlined in a summary table below (Section 8).

Monitoring Study	Construction	Non Operation	Operation	Post Operation	Area	How well do you think the plans will work at understanding the potential impacts of the Project? Are additional monitoring locations required?
1. Surface Water[1] Quality Monitoring		x	x	x	Lake Manitoba, Fairford River, Lake St. Martin, Lake Winnipeg, Birch Creek	
2. Dissolved Oxygen[1] Monitoring		x			LMOC, LSMOC, Birch Creek and Buffalo Creek	
3. TSS Monitoring[1]		x	x	x	Lake Manitoba, Fairford River, Lake St. Martin, Dauphin River, LMOC, LSMOC	
4. Aquatic Habitat Monitoring				x	LMOC, LSMOC, inlets and outlets	
5. Fish Community Monitoring (Lake St. Martin)	x			x	Lake St. Martin and Sturgeon Bay	
5. Fish Community Monitoring (Sturgeon Bay) [1]	x	x	x	x		
6. Downstream Fish Movements			x		LMOC and LSMOC	

Monitoring Study	Construction	Non Operation	Operation	Post Operation	Area	How well do you think the plans will work at understanding the potential impacts of the Project? Are additional monitoring locations required?
7. Larval Fish Movements	x		x		Fairford River, Dauphin River, LMOC and LSMOC inlets/outlets	
8. Fish Stranding at the LSMOC				x	LSMOC	
9. Fish Mortality in the LMOC [2]		x			LMOC	
10. Lake Whitefish Egg Incubation [3]	x	x			Lake St. Martin	
11. Fish Utilization of the LMOC and LSMOC			x		LMOC and the LSMOC	
12. Lake Whitefish Spawning in Lake St. Martin and Dauphin and Fairford River	x		x	x	Dauphin River, Fairford River, Lake St. Martin, LMOC and LSMOC inlets/outlets	
13. Fish Use of Birch Creek and Buffalo Creek	x	x			Birch Creek and Buffalo Creek systems	
14. Mercury in Fish Flesh	x	x		x	Lake Manitoba, Lake St. Martin and Lake Winnipeg	

[1]Water quality studies conducted during construction phase are described in Surface Water Management Plan.

9. The Aquatic Effects Monitoring Plan (Section 6.1) describes the effects of the Project on fish movement. In addition to the proposed monitoring studies, commercial harvest records for Lake St. Martin, Lake Manitoba, and Sturgeon Bay will be used to understand potential changes to fish communities from the Project. Based on the information provided, do you feel this is robust enough to monitor or understand the effects of the Project?

   ○ Yes

   ○ No

   If no, please identify how you would change this approach or list any concerns you may have:

10. The Outlet Channels will not change natural connectivity between the lakes; however they will provide additional outflow capacity. As such, these systems share similar water quality characteristics and the overall water quality is not expected to change. As outlined above, water quality monitoring will occur at key points along the outlet channels and in existing waterways. Do you feel this is robust enough to monitor or understand the effects of the Project?

    ○ Yes

    ○ No

    If no, please explain what concerns you have and indicate how you see the Project may affect your use of the area:

11. Please identify if you have seen Lake Sturgeon in the following water bodies:

    ○ Lake Winnipeg

    ○ Lake St. Martin

    ○ Lake Manitoba

    Please feel free to use the attached maps by drawing the letters “LS” and include the date and time.

Thank you for sharing this information. If possible, Manitoba Conservation and Climate, Fisheries Branch would like to gather additional details on this important species. Please identify if you consent to being contacted:

- ◯ Yes
- ◯ No

12. Please describe the importance of Lake Sturgeon to subsistence, commercial, or recreational fishing:

13. Walleye are an important component of commercial, recreation, and aboriginal fisheries in Lake Winnipeg, Lake St. Martin and Lake Manitoba. Have you noticed any changes to walleye populations since 2011?

- ◯ Increased
- ◯ Decreased
- ◯ No change

Please explain any changes that you've experienced and what water body these changes occur in:

14. Investigations will be carried out to determine the extent to which, if any, the reduction in flow would reduce the presence of fish in major channels of the Birch Creek drainage. How do you feel a potential reduction in flow will change the Birch Creek area? Please explain:

15. What species of fish have you observed in Birch Creek and Buffalo Creek since operation of the Emergency Outlet Channel in 2011 and 2014?

Buffalo Creek

Species	Season(s)	Year

Birch Creek

Species	Season(s)	Year

16. What species and at what times of year do you observe fish in the Fairford River between Lake St. Martin and the Fairford water control structure?

Species	Season(s)	Year

17. As described in Section 7.2.2 of the EIS, little is known about fish species in Pineimuta Lake. What species and at what times of year do you observe fish in Pineimuta Lake?

Species	Season(s)	Year

18. As methylmercury concentrations are not expected to measurably change with the Project, no potential adverse effects on the health of Indigenous peoples are predicted. However, monitoring in fish will occur through the Aquatic Effects Monitoring Plan (Section 7.3) to confirm these predictions. Do you feel this is robust enough to monitor or understand the effects of the Project?

- ◯ Yes
- ◯ No

If no, please identify how you would change this approach or list any concerns you may have:

19. Mercury monitoring will occur in Walleye, Northern Pike, and Lake Whitefish. Do you feel the selected species are robust enough to monitor or understand the effects of the Project?

- ○ Yes
- ○ No

If no, please identify other fish species and explain the importance of these species for traditional purposes, if applicable:

20. To reduce the spread of Aquatic Invasive Species, the Project requires compliance with provincial aquatic invasive species legislation and programs and will require machinery to be cleaned and decontaminated. At this time, project-specific monitoring programs are not anticipated, existing provincial monitoring programs coordinated through Wildlife and Fisheries Branch, AIS Department. Do you feel this is robust enough to monitor or understand the effects of the Project on aquatic invasive species introduction?

- ○ Yes
- ○ No

If no, please identify how you would change this approach:

Please identify any potential effects that may occur to Indigenous socioeconomic conditions, culture, and the current use of lands and resources for traditional purposes if the introduction and/or spread of aquatic invasive species from the Project were to occur:

D. Conclusion

21. A summary report for the above Aquatic Effects Monitoring Plan studies is anticipated to be prepared for each study on a yearly basis to document the methods and results. Manitoba Infrastructure is planning to share this information with community leadership and posted online. Do you feel this is sufficient?

    How else would you like to receive this information?

    - ○ Email
    - ○ Mail
    - ○ Newsletter
    - ○ Website
    - ○ All of the above

22. As Manitoba Infrastructure is working with a number of Indigenous groups and communities on the Project, how would you like to see communities involved in follow-up and monitoring for water quality and fisheries activities?

23. Was the information in the Aquatic Effects Monitoring Plan presented in a manner that is understandable?

    - ○ Yes
    - ○ No

    If no, please identify what information requires further clarification:

24. Do you have any general comments or questions on the Aquatic Effects Monitoring Plan?

- ◯ Yes
- ◯ No

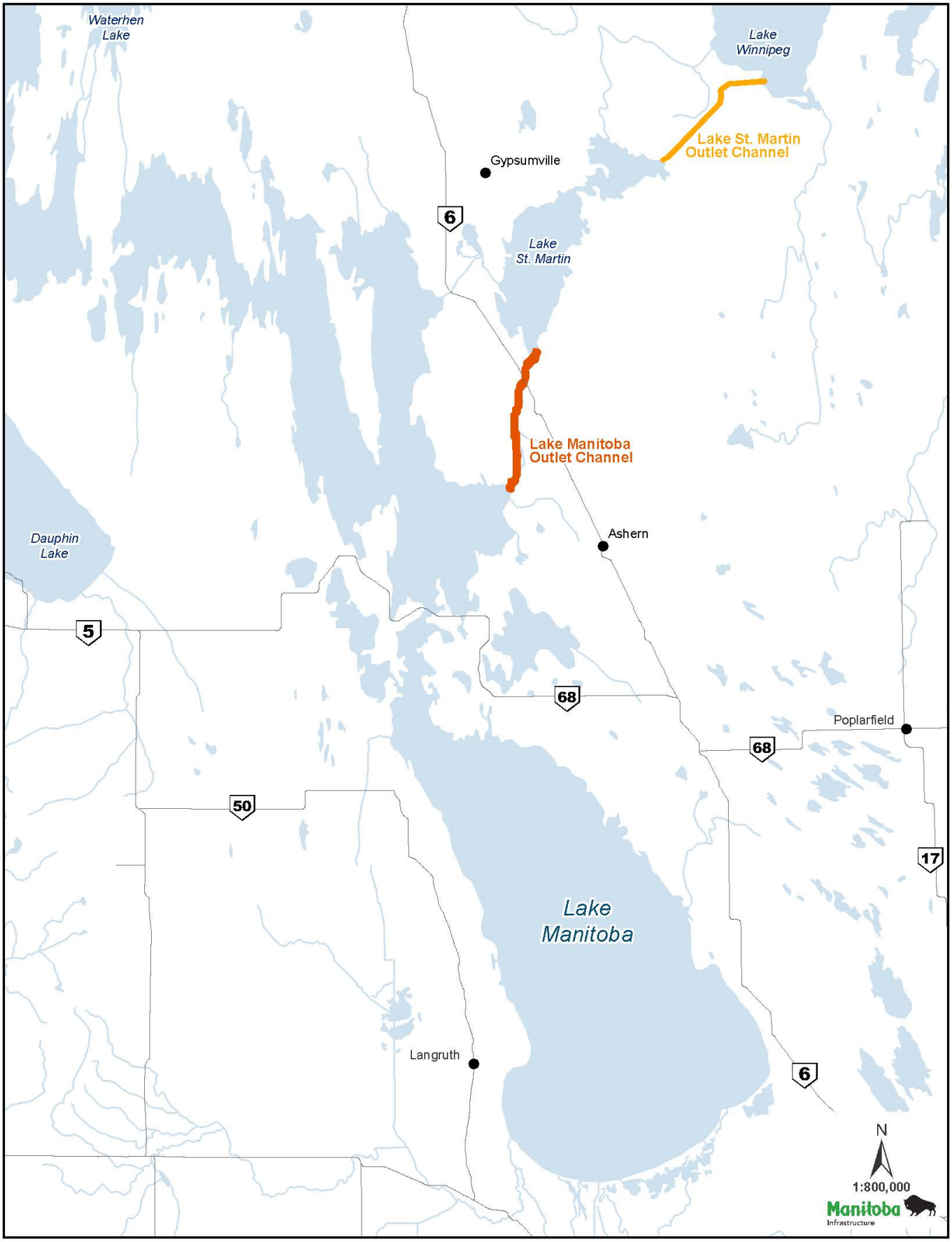
If yes, please explain:

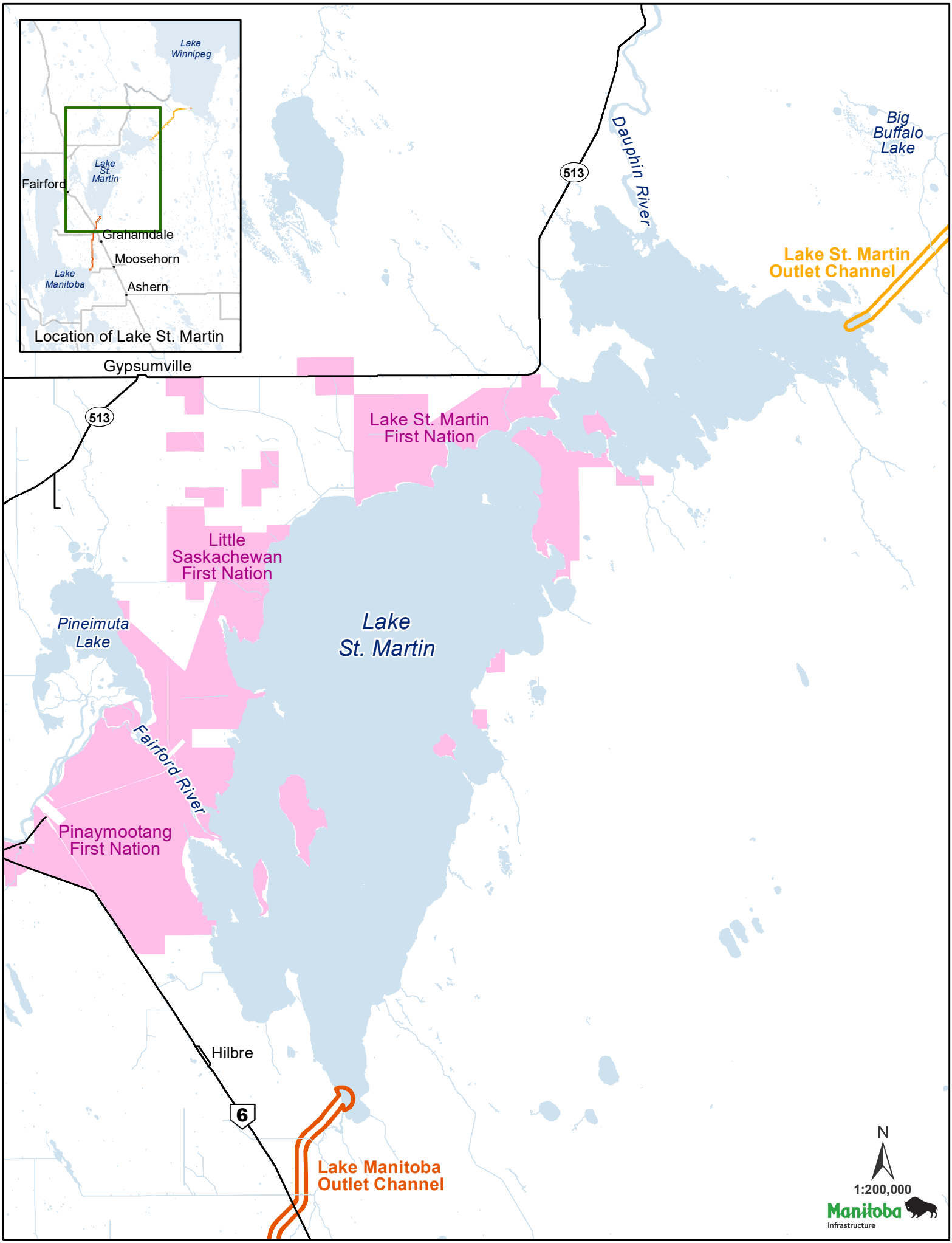
Thank you for your feedback. Please remember to complete the maps below before submitting your questionnaire.

SUBMIT AND EXIT THE QUESTIONNAIRE

We want to hear from you.
Share your thoughts by highlighting or adding sticky notes to the maps below.

Need help?




Lake Winnipeg
Lake St. Martin
Fairford
Grahamdale
Moosehorn
Lake Manitoba
Ashern
Location of Lake St. Martin
Gypsumville
513
513
Dauphin River
Big Buffalo Lake
Lake St. Martin Outlet Channel
Lake St. Martin First Nation
Little Saskachewan First Nation
Pineimuta Lake
Lake St. Martin
Fairford River
Pinaymootang First Nation
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6
Lake Manitoba Outlet Channel
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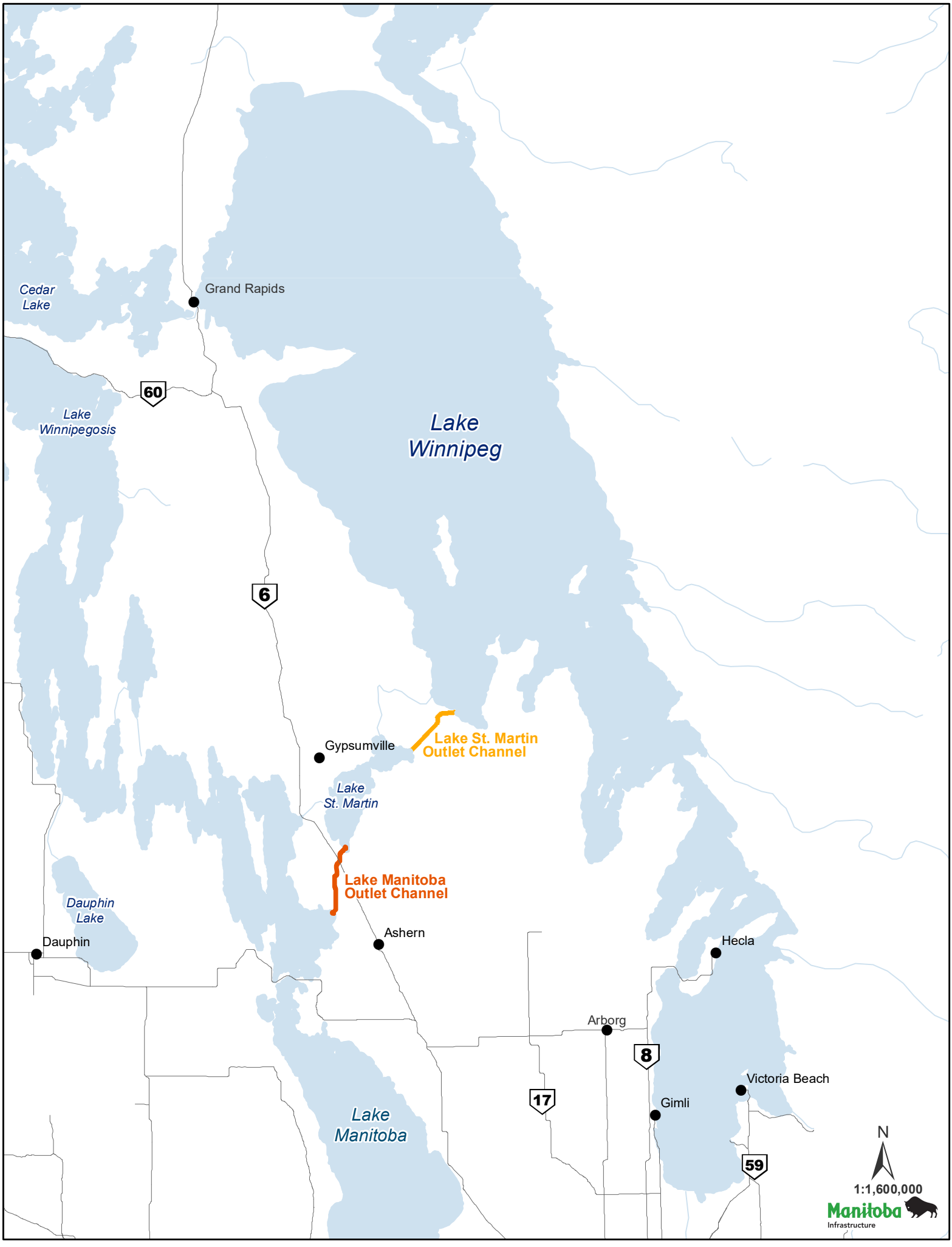
Cedar Lake
Grand Rapids
60
Lake Winnipegosis
Lake Winnipeg
6
Gypsumville
Lake St. Martin Outlet Channel
Lake St. Martin
Lake Manitoba Outlet Channel
Dauphin Lake
Dauphin
Ashern
Hecla
Arborg
8
17
Victoria Beach
Gimli
Lake Manitoba
59
N
1:1,600,000
Manitoba
Infrastructure