

LAKE MANITOBA LAKE ST. MARTIN

OUTLET CHANNELS PROJECT

SURFACE WATER

Includes regional flow and water levels, shoreline geomorphology, drainage patterns, ice processes, and surface water quality

Environmental Impact Statement—Summary by Valued Component (VC)

Why is Surface Water part of the Groundwater and Surface Water VC?

The Project is located in several important surface water areas of Manitoba. Surface water in the area is important to people and the environment for sustaining fisheries, as well as recreational and resource use activities.

What is the current state of Surface Water?

The water quality in Lake Manitoba, Fairford River, Lake St. Martin, Dauphin River, and Sturgeon Bay in Lake Winnipeg is moderately nutrient rich, low to moderately turbid (cloudy), slightly alkaline, very hard, and well oxygenated. Contaminants from human, industrial and recreational activities enter the waterways through runoff or as direct discharges.

The Fairford River is the only outlet for Lake Manitoba and its flow is regulated by the Fairford River Water Control Structure. Winter ice forms on the Fairford River upstream and

downstream of the control structure and along the Dauphin River. The Dauphin River is the only natural outlet from Lake St. Martin. Lake St. Martin is typically covered solid with ice in November, which remains until the following spring break-up in April or May.

What effects might the Project have on Surface Water?

The channels will increase the amount of time that Lake Manitoba and Lake St. Martin can be maintained within the desired lake levels, reduce peak flood levels and decrease flooding of low-lying areas around the lakes. The channels will increase the outflow capacity to allow the lake levels to be maintained at lower levels and decreasing flood risks around the lakes.

Less water will flow through the Fairford River and the Dauphin River during flood conditions. This decreased flow will reduce flooding along these rivers and in Lake Pineimuta.

Given that the distance between Lake Manitoba and Lake Winnipeg is more than 80 km, the Project would protect an area more than 15 km wide (1,200 km²).

Shoreline and channel geomorphology (shape and depths) may be affected during construction and operation as the lake bottoms are initially excavated and maintained at the desired level, and as scouring occurs during high flow events, which can alter wind, wave and ice action, sediment transport or beach forming processes.

Drainage patterns may be affected causing a reduction in flows to the Birch Creek and Buffalo Creek systems.

Valued components (VCs) are components of the natural and human environment that are considered by the proponent, public, Indigenous Peoples, scientists and other technical specialists and government agencies involved in the assessment process to have scientific, ecological, economic, social, cultural, archaeological, historical, or other importance.



Erosional and depositional processes may be affected from scouring during high flow events and reduction in erosion and deposition during low flow events, throughout Project operation, as well as temporary releases of sediment during Project construction.

Ice processes may be affected as operation of the channel could lead to slower formation of ice at the inlet and outlet and in the Buffalo Lake and Big Buffalo Creek systems.

Surface water quality may be affected as groundwater is pumped to surface water during depressurization of active wells during construction.

How will effects to Surface Water be addressed?

The Project is being designed as a mitigation project to modify regional flows and water levels in order to reduce flooding on Lake Manitoba.

Through an extensive review process Manitoba Infrastructure has developed operational guidelines for the outlet channels based on defined high-water events and forecasted conditions.

Engineering studies will be conducted to further understand how the operation will affect natural waterbodies and will optimize the design of the inlets and outlets on the channels to minimize environmental impacts.

Management procedures including Surface Water Management Plan, Environmental Management Program, Debris Management Plan and Sediment Management Plan will be used to reduce or prevent potential effects to surface water during Project construction and operation, including ice processes.

FOLLOW-UP AND MONITORING

Water levels and flows, as well as ice forming processes, will be managed and monitored by Manitoba Infrastructure in accordance with the Operating Guidelines developed for the Project. The Project will reduce peak flood levels, flooded areas, and increase the amount of time that Lake Manitoba and Lake St. Martin are within the regulated water level range.

An Aquatic Effects Monitoring Plan will continue to collect surface water for sampling and documenting existing surface water quality conditions prior to the commencement of clearing or construction of the Project. Ongoing monitoring of

watercourses and waterbodies in the Project region will continue during construction, operation or maintenance activities to generate data to provide information on the effectiveness of mitigation measures, aid in the validation of predicted residual effects, and provide data and results required for environmental regulatory approvals requirements.

CONCLUSIONS

The operation of the outlet channels will increase the outflows from Lake Manitoba and Lake St. Martin during flood conditions. This increased outflow capacity will allow the lake levels to be maintained at lower levels and decrease flood risks around the lakes.

Temporary increases in suspended sediments may occur in local waterways due to construction activities, or at the channel inlet and outlet areas during initial periods when channel control structure gates are open.

Local drainage will be altered where the channels will be located, but mitigation measures will limit the magnitude and extent of these changes.

Most of the changes to flows and lake levels due to operation of the Project will occur during peak flow periods in the open-water season after ice-out and will be managed in accordance with the applicable operating guidelines.

As such, the magnitude of the potential change to ice processes in regional waterways is predicted to be low to negligible. In the Birch Creek, Watchorn Creek and Buffalo Creek systems, it is expected that these areas would freeze to the bottom in most Manitoba winters, with or without the Project. Therefore, the magnitude of the potential change to ice processes in the surface water areas that will be affected by the Project is predicted to be negligible.

There are no adverse changes expected to overall surface water quality in the regional or local area waterways because the composition and volume of water being transported from Lake Manitoba to Sturgeon Bay is not altered by the Project construction or operation. That is, all flows from the Lake Manitoba basin will enter Sturgeon Bay, with or without the Project.

For more information or if you would like to share your concerns:

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