

LAKE MANITOBA AND LAKE ST. MARTIN OUTLET CHANNELS PROJECT
RESPONSE TO IAAC TECHNICAL INFORMATION REQUESTS

Question IAAC-34

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Abbreviations and Acronyms

AIS	aquatic invasive species
CEAA	Canadian Environmental Assessment Agency
CRA	commercial, recreational, or Aboriginal fisheries
DFO	Department of Fisheries and Oceans
EIS	environmental impact statement
EOC	emergency outlet channel
km	kilometre
RAA	regional assessment area

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EIS Guideline Reference: 7.5 Significance of Residual Effects

EIS Reference: 7.2.1.7 Significance Definition, 7.2.5 Determination of Significance; 7.2.5.1 Significance of Residual Environmental Effects from the Project; Table 16.2-1 Summary of Environmental Effects; Fish and Fish Habitat; Permanent alteration or destruction of fish habitat

Context and Rationale

Section 7.5 of the EIS guidelines requires that “the EIS provide a detailed analysis of the significance of the residual environmental effects that are considered adverse following the implementation of mitigation measures, using guidance described in Section 4 of the Agency’s Operational Policy Statement, Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under CEAA 2012” (<https://www.canada.ca/en/impact-assessment-agency/services/policy-guidance/determining-project-cause-significant-environmental-effects-ceaa2012.html>).

It is unclear in the EIS how the significance of residual effects to fish and fish habitat is characterized. Table 16.2-1 provides only a single residual effects characterization and significance determination for all fish and fish habitat residual effects.

It should be noted that under the Fisheries Act, a Fisheries Act authorization is required when the prohibitions against death of fish and/or the harmful alteration, disruption or destruction of fish habitat cannot be avoided or fully mitigated. This could be considered as a potential threshold of significance.

Information on the proponent’s assessment of significance is required to understand the conclusions drawn regarding the effects of the Project on fish and fish habitat.

Information Requests

- a) Discuss the potential for the Project to result in significant adverse effects to fish and fish habitat, and present a significance determination, applying the criteria and methodology described in the Agency’s guidance. Discuss the use of not fully avoided or mitigated death of fish or harmful alteration, disruption, or destruction of fish habitat as a threshold of significance.

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A summary of residual effects of the Project on Fish and Fish Habitat was provided in Volume 3, Table 7.2.9 of the environmental impact statement (EIS). Detailed discussions of those effects and associated mitigation were provided in Volume 3, Section 7.2.4 of the EIS.

The determination of significance of the residual effects was guided by the EIS guidelines and Canadian Environmental Assessment Agency’s (CEAA’s) guidance document Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under CEAA 2012. Each residual

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effect identified was assessed for magnitude, geographic extent, timing, duration frequency, reversibility, ecological and social context, and existence of environmental standards, guidelines or objectives. Ideally, significance is determined based on the exceedance of some measurable threshold, but this is not always possible for biotic communities. For this Project, a significant effect on fish and fish habitat was considered as one that results in any one of the following:

- a permanent alteration or destruction of fish habitat that is likely to result in an irreversible, measurable reduction in the annual production of commercial, recreational or Aboriginal (CRA) fish species in the regional assessment area (RAA).
- a permanent alteration of fish passage that is likely to result in an irreversible, measurable reduction of critical upstream or downstream movements (i.e., spawning runs) of CRA fish species and/or an irreversible, measurable increase in the distribution of aquatic invasive species (AIS) that is likely to reduce the annual production of CRA fish species in the RAA.
- a change in fish health or mortality that is likely to result in a measurable change in the abundance of any CRA fish population in the RAA.

These thresholds for significance of residual effects on fish and fish habitat were defined in consideration of prohibitions outlined in the *Fisheries Act* (2012) (i.e., subsections 35(1), 20(2), and 36(3)), guidance provided by the Fisheries Protection Policy Statement (DFO 2013), and fish species designated under Schedule 1 of the federal *Species at Risk Act* (i.e., section 79). In consideration of the *Fisheries Act*, a net loss of fish habitat would be assessed as a significant adverse effect (i.e., permanent alteration to or destruction of CRA fish habitat that cannot be offset).

In assessing effects to biological communities there is an inherent level of uncertainty. This is particularly true when there is uncertainty in assessing the level of physical effect that may be affecting the biotic component of the environment. Given this uncertainty, a precautionary approach was applied at all stages of the effects assessment. For example, effects to fish and fish habitat were identified that were linked to changes in groundwater flows. The level of physical effect in this case is somewhat uncertain, but the determination of the geographical extent of the effect on groundwater flows was conservatively estimated at 5 km. It is conceivable that this effect will be less than 5 km, but unlikely that it will be discernable relative to seasonal variations at distances more than 5 km.

It was assumed that groundwater could be a key factor in the suitability of lake whitefish spawning habitat within Lake St. Martin. This assumption was based on the known importance of groundwater to spawning for other salmonid species (i.e., brook trout, Arctic char), the reported prevalence of groundwater upwellings in Lake St. Martin by Indigenous peoples, and the large migration of lake whitefish migrating from Lake Winnipeg to Lake St. Martin. Although this linkage was assumed based on these facts, there may be no actual linkage. Again, a precautionary approach was applied. Once the linkage was established based on a precautionary approach, the nature of the effect was then determined based on what was assumed to be the geographical extent of the physical effect and what is known of the extent of lake whitefish spawning locations in Lake St. Martin. The determination of the potential nature of each effect was informed by previous experience with the emergency outlet channel (EOC) (particularly

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relevant to sediment transport and fish movement), the reversibility of the effect (particularly relevant for flow changes), the ability to apply adaptive management to reverse the effect in the unlikely event that an effect should occur, and the overall likelihood that the effect will occur (particularly relevant for the groundwater effects). After applying mitigation, the significance of the effect was then determined based on the thresholds identified above. This approach was taken for all the Project effects on fish and fish habitat that were identified.

The assessment approach led to conclusions that effects were either not significant (based on the criteria listed above) without mitigation or were not significant following mitigation. Steps to mitigate effects to fish and fish habitat are extensive and have been and will be incorporated at all stages of the Project, including design, construction and operation. With proposed mitigation in place, and based on risk and the likelihood of effects occurring, the assessment concluded that the death of fish or the harmful alteration, disruption or destruction of fish habitat as a result of the Project will not exceed the threshold criteria for significance. However, given the inherent uncertainty in how biological communities react to physical conditions, emphasis will be placed on follow-up and adaptive management. The follow up plans will include commitments to adaptively manage effects that deviate from predictions. Any unavoidable harmful alteration, disruption, or destruction of fish habitat will be counterbalanced in the offset plan that will be developed during *Fisheries Act* Authorization process.

References

Fisheries and Oceans Canada, 2013. Fisheries Protection Policy Statement. Catalogue Number: Fs23-595/2013E-PDF ISBN: 978-1-100-22885-3 DFO/13-1904. Ecosystem Programs Policy. Fisheries and Oceans Canada Ottawa, Ontario.