



Fisheries and Oceans Canada Pêches et Océans Canada

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May 29, 2019

Ms. Lesley Griffiths, Panel Chair
Ms. Isobel Heathcote, Review Panel Member
Mr. William G. McMurray, Review Panel Member
c/o Panel Manager
Canadian Environmental Assessment Agency
160 Elgin Street, 22nd Floor
Ottawa, ON K1A 0H3

Subject: Fisheries and Oceans Canada's Submission to the Review Panel for the Milton Logistics Hub Project

Dear Ms. Griffiths:

Thank you for your April 25, 2019 letter inviting Fisheries and Oceans Canada (DFO) to participate in the public hearings and present its review of the Milton Logistics Hub Project in relation to DFO's expertise and mandate.

DFO is providing a written submission for the Milton Logistics Hub Project. The submission includes the Department's views on the potential adverse environmental effects of the Project, the predicted effectiveness of proposed mitigation measures, the appropriateness of the proposed follow-up programs, and recommendations.

Further, DFO would like to formally confirm its attendance at the topic specific hearings on fish and fish habitat scheduled for June 28, 2019 in Milton, ON.

If you have any questions, please contact Tara Schweitzer by telephone at <contact information removed>
email at <email address removed>

Yours sincerely,
<Original signed by>

Stephanie Martens
A/Regional Manager, Regulatory Review

Attachment: *Submission of Fisheries and Oceans Canada to the Review Panel for Canadian National Railway Company Proposed Milton Logistics Hub Project*

Canada



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**SUBMISSION OF FISHERIES AND OCEANS CANADA
TO THE REVIEW PANEL
FOR CANADIAN NATIONAL RAILWAY COMPANY
PROPOSED MILTON LOGISTICS HUB PROJECT**

<Original signed by>

**Scott Gilbert
Regional Director General
Ecosystems Management
Central and Arctic Region
Fisheries and Oceans Canada**

May 29, 2019

Canada

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SECTION 1.0 Fisheries and Oceans Canada – Regulatory Setting, Mandate and Responsibilities

Section 91(12) of the *Constitution Act, 1867* assigns to the federal government exclusive authority for “Sea Coast and Inland Fisheries”. The federal government has jurisdiction to set the fishing rules in non-tidal waters while the provinces have the jurisdiction to decide who may fish. The federal government retains the right to legislate with respect to the management, protection and conservation of fish (which includes marine mammals as defined in the *Fisheries Act*) and their habitats. As the jurisdiction over fisheries in non-tidal waters is shared in many provinces, federal administration has been delegated to provincial authorities to facilitate the management of the fisheries and to avoid duplication.

The Minister of Fisheries and Oceans Canada is accountable to Parliament for the administration and enforcement of the *Fisheries Act* and regulations thereunder. On behalf of the Government of Canada, Fisheries and Oceans Canada (DFO) is responsible for developing and implementing policies and programs in support of Canada’s scientific, ecological, social and economic interest in relations to oceans, sea, coastal and inland fisheries.

The *Fisheries Act* and, more specifically, the fish and fish habitat protection provisions, establish authorities for the protection of commercial, recreational and Aboriginal fisheries. This includes the prohibition against *serious harm to fish*, which applies to fish and fish habitat that are part of, or support, a commercial, recreational or Aboriginal (CRA) fishery. Serious harm is defined in the Act as the “death of fish or any permanent alteration to, or destruction of, fish habitat”. Other legislation including the *Oceans Act*, the *Species at Risk Act* and the *Canadian Environmental Assessment Act 2012* consider fish and fish habitat. The Minister of Fisheries and Oceans is a competent minister under the *Species at Risk Act* for listed aquatic species including fish as defined under section 2 of the *Fisheries Act*.

The Fisheries Protection Policy Statement, October 2013, provides guidance on the application of the fisheries protection provisions of the *Fisheries Act* and applies to any works, undertakings or activities that are likely to result in impacts to fish that are part of, or support, commercial, recreational or Aboriginal fisheries. The goal of the DFO in applying this policy is to provide for the sustainability and ongoing productivity of commercial, recreational and Aboriginal fisheries and to achieve this in a consistent manner through regulations, standards and directives. DFO defines commercial, recreational and Aboriginal fisheries as follows:

Commercial, in relation to a fishery: means that the fish is harvested under the authority of a license for the purpose of sale, trade or barter.

Recreational, in relation to a fishery: means that the fish is harvested under the authority of a licence for personal use of the fish or for sport.

Aboriginal, in relation to a fishery: means that fish is harvested by an Aboriginal organization or any of its members for the purpose of using the fish as food, for social or ceremonial purposes or for purposes set out in land claims agreement entered into with the Aboriginal Organization.

Section 35 (1) of the *Fisheries Act* states “No person shall carry on any work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery”. Project proponents are responsible for avoiding and mitigating the serious harm to fish that are part of, or support, commercial,

recreational or Aboriginal fisheries that may result from their works, undertakings, or activities. After efforts have been made to avoid and mitigate project impacts, any residual serious harm to fish must be addressed through offsetting. Proponents are responsible for requesting a Paragraph 35 (2)(b) authorization under the *Fisheries Act*.

Before recommending specific regulations and before exercising certain powers including the issuing of section 35(2)(b) Authorizations, the Minister must consider the four factors set out in section 6, including:

- a) The contribution of the relevant fish to the ongoing productivity of commercial, recreational or Aboriginal fisheries;
- b) Fisheries management objectives (FMO's);
- c) Whether there are measures and standards to avoid, mitigate or offset *serious harm to fish* that are part of a commercial, recreational or Aboriginal fishery or that support such a fishery; and
- d) The public interest.

Further consideration with regards to each of the factors are included below.

Contribution of the relevant fish:

The contribution of the relevant fish speaks to the role of the fish and fish habitat affected by the project in the overall productivity of the commercial, recreational or Aboriginal fishery. Note that the proponent is responsible for documenting and providing information in order to assist in the analysis of the potential impact a project may have on the relevant fish. This analysis has the potential to inform the amount and type of offsetting required.

Fisheries management objectives:

DFO considers fisheries management objectives where available. In the case where official management objectives do not exist, DFO will consider overarching strategies, provincial interests and policy objectives. Where objectives are available, proponents should consider and document how the impacts may affect those objectives. Inclusion of the objectives may also inform avoidance, mitigation and offsetting measures.

Measures to avoid, mitigate or offset serious harm to fish:

Proponents must demonstrate that they have made efforts to first avoid or prevent impacts to fish and fish habitat resulting from the proposed project. If avoidance is not possible, proponents must demonstrate the efforts applied to mitigate the impacts caused by the proposed projects. Following these actions, residual impacts must be addressed through offsetting.

Proponents are required to develop a plan to offset the residual serious harm to fish. The offsetting plan is required as per the *Applications for Authorization under Paragraph 35(2)(b) of the Fisheries Act Regulations*. The Department provides a guidance document on effective offsetting plans in the *Fisheries Productivity Investment Policy - A Proponent's Guide to Offsetting*.

Offsetting measures can take a variety of forms, ranging from localized improvements to fish habitat to more complex measures to address factors limiting fish production. In applying offsetting measures for fisheries protection, proponents should select measures that meet the following principles:

1. Offsetting measures must support fisheries management objectives or local restoration priorities;
2. Benefits from offsetting measures must balance project impacts;
3. Offsetting measures must provide additional benefits to the fishery; and
4. Offsetting measures must generate self-sustaining benefits over the long term.

When preparing an offsetting plan, proponents must characterize the residual serious harm to fish, select an offsetting measure and determine the amount of offsetting required. The Proponent should take into account that the offsetting:

- Should provide benefits that are proportional to the loss caused by the project;
- May need to be increased to account for uncertainty associated with the offset; and
- May need to be increased should there be a time lag between the impact and the time it takes the offsetting measures to become functional.

Monitoring and reporting conditions are required to be included in the offsetting plan as they are conditions of the *Fisheries Act* Authorization. Proponents are responsible for implementing and monitoring the offsetting plans and to provide a report on the results of this monitoring. If an offsetting measure is not properly designed or implemented, the proponent is responsible for the maintenance and/or repair of the offsetting measure under the contingency planning.

The public interest:

The Minister must also consider the public interest, which in most cases, is served through the consideration of the previous three factors. This factor permits the Minister to consider a range of issues outside of the established section 6 factors and proponents may wish to document any information relevant to a public interest decision.

Other relevant *Fisheries Act* sections

In addition, section 20 and 21 under the *Fisheries Act* pertain to the free passage of fish and section 36 prohibits the deposit of a deleterious substance into fish bearing waters. On behalf of the Minister of Fisheries and Oceans, the Minister of Environment and Climate Change administers section 36 of the *Fisheries Act*, as per the 2014 *Order Designating the Minister of the Environment Responsible for the Administration and Enforcement of Subsections 36(3) to (6) of the Fisheries Act*.

Section 37 speaks to the provisions that allow the Minister to request plans and specifications for projects, and allow the Minister to make orders to modify, restrict or close these projects. Section 38 describes the duty to notify an inspector, the duty to take corrective measures and provide written reports when occurrences may result in serious harm to fish.

Other Applicable Legislation

The federal *Species at Risk Act* (SARA) is intended to prevent wildlife species from becoming extirpated or extinct, to provide for the recovery of endangered or threatened species and to encourage the management of other species to prevent them from becoming at risk. The Minister of Fisheries and Oceans is one of two competent ministers under the SARA for listed aquatic species including fish (as defined in section 2 of the *Fisheries Act*), other than those individuals that are “in or on federal lands” administered by the Parks Canada Agency (PCA). The Minister responsible for the PCA is responsible for species in national parks, national historic sites or other protected heritage areas as defined in the *Parks Canada Agency Act*. The Minister of Environment and Climate Change is responsible for all other species.

Under the *Canadian Environmental Assessment Act 2012* (CEAA), DFO is participating in the environmental assessment by providing specialist or expert information to the Review Panel regarding the department’s regulatory and legislative mandate, specifically in relation to fish and fish habitat. DFO must also contribute knowledge to the Panel regarding the potential environmental effects of the Project, as listed in section 5 of the CEAA 2012, that fall within the Department’s expertise and mandate.

Furthermore, section 7 of the CEAA 2012 prohibits DFO from exercising any power or performing any duty or function under the *Fisheries Act* unless the Environmental Assessment decision statement with respect to the Project, issued by the Minister of the Environment and Climate Change, indicates that the Project “is not likely to cause significant adverse environmental effects” or “that the significant adverse environmental effects are justified in the circumstances”.

SECTION 2.0 Proposed Bill C-68

Proposed Bill C-68

As part of the Government of Canada’s Review of Environmental and Regulatory Processes, the Minister of Fisheries and Oceans and the Canadian Coast Guard was mandated in 2015 to review the changes made in 2012 to the *Fisheries Act*.

On February 6, 2018, the Government of Canada introduced Bill C-68, *An Act to Amend the Fisheries Act and other Acts in Consequence*.

The proposed amendments include:

- Protection of all fish and fish habitat;
- Restoring the previous prohibition against ‘harmful alteration, disruption or destruction of fish habitat’;
- Restoring a prohibition against causing the ‘death of fish by means other than fishing’; and
- A new requirement to make information on project decisions public through an online registry.

Bill C-68 will come into force in two phases. Many amendments will come into force on Royal Assent of the Bill. Other amendments, including the new fish and fish habitat amendments will

come into force on a day to be fixed by the Governor in Council. Fisheries and Oceans Canada is currently in the process of developing regulations, policies and other program instruments to support the modifications to the *Fisheries Act* should Bill C-68 receive Royal Assent. There is ongoing opportunity for public participation with provinces, territories, Indigenous peoples, partners, stakeholders and other Canadians on these amendments and regulations and others will continue in order to ensure that the proposed fish and fish habitat protection provisions of an amended *Fisheries Act* achieve the right balance. Upon Royal Assent, transitional provisions will be implemented for current applications under 35(2) *Fisheries Act* Authorization.

SECTION 3.0 DFO's Participation in the Environmental Assessment

The Milton Logistics Hub Project has been proposed by Canadian National Railway Company (CN). In July 2015, the Minister of Environment and Climate Change referred the Milton Logistics Hub Project to a joint review panel. The Review Panel has been mandated by the federal Minister of Environmental and Climate Change to conduct an environmental assessment on the potential environment effects of the Milton Logistics Hub Project (the Project). The Review Panel has also been mandated by the Chair of the Canadian Transportation Agency in considering whether to grant the approval under Section 98 of the *Canada Transportation Act* that CN requires to construct aspects of the Project. The Chair of the Canadian Transportation Agency and the Minister of Environment and Climate Change determined that a joint process be established for the review of the project under both the *Canada Transportation Act* and the *Canadian Environmental Assessment Act, 2012*. The Review Panel consists of three members, appointed by the Minister, one of whom is a Canadian Transportation Agency member.

The Review Panel requested the participation of Fisheries and Oceans Canada in the joint process in order that the Department's knowledge and expertise would be available to assist the Panel's deliberations.

DFO has reviewed the information provided by CN in the Environmental Impact Statement and in supplemental information requests that relates to fish and fish habitat, in relation to Project effects, mitigation and offsetting measures, and proposed monitoring and follow up programs. Additionally, DFO has provided technical information and responses to CN's assessments of potential effects to fish and fish habitat as part of the sufficiency review of the Environmental Impact Statement (EIS) and supplemental information requests (IR). DFO's responses and submissions are available on the CEAA Registry (<https://www.ceaa-acee.gc.ca/050/evaluations/proj/80100?culture=en-CA>).

The Review Panel requested DFO attend the public hearing to present the department's analysis to the Review Panel in relation to the proposed Project.

SECTION 4.0 Project Overview

CN proposes to construct and operate a new satellite intermodal terminal (the Terminal) that includes the construction of a new hub and the realignment and extension of the existing mainline train tracks. It is located in the Town of Milton, ON in the Region of Halton adjacent to the existing CN railway. The project intends to accommodate the growing demand for intermodal services and ensure service and fluidity through the Greater Toronto and Hamilton Area.

The project is situated within the drainage system of Indian Creek which is part of the Bronte Creek watershed. Indian Creek and Tributary A will require channel realignments to accommodate construction and operation of the Terminal, improve facility safety and increase the buffer between the development and the aforementioned watercourses. The realigned watercourses will be enhanced to improve existing fish habitat and revitalize riparian and floodplain areas. The project will result in an overall impact to fish and fish habitat in both Indian Creek, Tributary A, and Tributary C of approximately 14,127 m².

SECTION 5.0 Impacts to Fish and Fish Habitat and Mitigation Measures

Fish Habitat

The *Fisheries Act* defines fish habitat as *spawning grounds and any other areas, including nursery, rearing, food supply and migration areas, on which fish depend directly or indirectly in order to carry out their life processes.*

Development activities taking place in or near water may affect fisheries by adversely affecting fish or fish habitat. Proponents of these activities must:

- understand the types of impacts their projects are likely to cause;
- take measures to avoid and mitigate impacts to the extent possible; and,
- request authorization from the Minister and abide by the conditions of any such authorization, when it is not possible to avoid and mitigate impacts of projects that are likely to cause serious harm to fish.

Indian Creek

Fish species residing in Indian Creek include Blacknose Dace, Bluntnose Minnow, Brook Stickleback, Common Carp, Common Shiner, Creek Chub, Fantail Darter, Green Sunfish/Pumpkinseed hybrid, Johnny Darter, Largemouth Bass, Longnose Dace, Pumpkinseed, Rainbow Darter, Rock Bass, Smallmouth Bass, Spottail Shiner, Stonecat and White Sucker.

Indian Creek is considered a permanent watercourse with sections of intermittent reaches. The surrounding land use is primarily agricultural, resulting in anthropogenic inputs into the watercourse. Field investigations, including fish sampling, habitat assessments, benthic invertebrate sampling and water quality assessments generally indicate a degraded system. Indian Creek has been identified by Conservation Halton as the most anthropogenically

impacted watercourse in the Bronte Creek watershed, predominantly caused by agricultural activities with narrow, low and limited vegetated riparian buffers. The majority of Indian Creek consists of a run and riffle habitat, with silt and clay substrates. Indian Creek supports a variety of warmwater fish species. The cumulative effects from urban and agricultural impacts to the watercourse have resulted in an impaired aquatic ecosystem.

Field investigations in 2015 indicate that the main channel of Indian Creek is a permanently flowing watercourse, with occasional seasonal barriers to fish movement, with moderate quality spawning, rearing, foraging, and overwintering habitat for large-bodied and small-bodied fish. No significant obstructions to fish movement or migration were observed in Indian Creek. Potential enhancement opportunities as a result of the proposed Project were recognized in the Bronte Creek Watershed Study (Conservation Halton, 2002), which states, “the establishment of stormwater management facilities and naturalized creek blocks with appropriate stream morphology and enhanced riparian buffers will greatly improve the quality of Indian Creek”.

Tributary A

Fish species in lower reaches of Tributary A include Bluegill, Brook Stickleback, Largemouth Bass, Pumpkinseed, and White Sucker.

Based on the 2015 field work, Tributary A upstream of the CN tracks consists of two upper branches of predominantly low, wet areas in agricultural fields with ephemeral flows through dense cattails, bulrushes and grasses. Primarily undefined channels, with limited areas of straightened, channelized sections, the upstream reaches convey ephemeral flows to the downstream reaches and does not provide direct fish habitat.

Tributary A downstream of the CN tracks exhibited negligible canopy cover, low diversity of channel morphology, low diversity of substrate material, intermittent flow, and a silty substrate. The channel also provides low to moderate quality fish habitat for the performance of life functions such as spawning, overwintering, rearing and migration. This is the general location of the proposed channel realignment.

An existing online agricultural storage pond, downstream of the existing CN tracks, has provided permanent water levels that likely act as seasonal habitat for fish such as Largemouth Bass. However, the online ponds contributes to downstream thermal impacts, interferes with sediment movement and exhibits poor water quality. Although providing seasonal refuge for select fish, the online pond does not provide quality fish habitat and has been identified for removal and habitat enhancement that will result in a benefit the overall fishery.

Tributary B

Tributary B within the Project area has no defined channel and is a surficial drainage feature that does not support fish that are part of, or support a CRA fishery.

Tributary C

Based on the 2015 field investigations, Tributary C is an intermittent, straight, channelized watercourse that was assessed as providing low quality fish habitat for the performance of life

functions such as spawning, overwintering, feeding, rearing and migration. Water levels are too low to permit fish or water sampling. Tributary C may provide low quality fish habitat on a seasonal basis that supports a CRA fishery.

Impacts to Fish and Fish Habitat

Proponents are responsible for avoiding and mitigating serious harm to fish that are part of or support commercial, recreational or Aboriginal fisheries. When proponents are unable to completely avoid or mitigate serious harm to fish, their projects will normally require authorization under Subsection 35(2) of the *Fisheries Act* in order for the project to proceed without contravening the Act.

Serious harm to fish is the death of fish or any permanent alteration to, or destruction of, fish habitat. DFO interprets serious harm to fish as:

- the death of fish;
- a permanent alteration to fish habitat of a spatial scale, duration or intensity that limits or diminishes the ability of fish to use such habitats as spawning grounds, or as nursery, rearing, or food supply areas, or as a migration corridor, or any other area in order to carry out one or more of their life processes;
- the destruction of fish habitat of a spatial scale, duration, or intensity that fish can no longer rely upon such habitats for use as spawning grounds, or as nursery, rearing, or food supply areas, or as a migration corridor, or any other area in order to carry out one or more of their life processes.

DFO has concluded that the following work, undertaking or activity is likely to result in serious harm to fish:

- The destruction of fish habitat over approximately 11,503 m² within Indian Creek, and 2,594 m² within Tributary A as a result of the watercourse realignments, including the installation of twin box concrete culverts on Tributary A within the new watercourse realignment.
- The permanent alteration of approximately 30 m² as a result of the culvert installation on Tributary C.

The potential of the Project to cause a serious harm by death of fish is not likely due to the short term and incidental nature of any required fish captures and relocations. The proposed mitigation measures are aimed at minimizing the harm to fish during any activities the Project undergoes.

DFO acknowledges the importance of maintaining the free passage of fish throughout Indian Creek and its tributaries. Due to the intermittent nature of Tributaries A and C, the lack of a defined channel, and the absence of large-bodied migratory fish species, DFO is satisfied that the proposed culverts in these Tributaries will be designed and installed to provide for the maintenance of downstream flow and aquatic habitat connectivity.

DFO acknowledges there is an additional concern in regards to the stormwater management system. The proposed plans are to collect and treat all stormwater run-off prior to release to Indian Creek or Tributary A. The stormwater management ponds will be designed to meet the Ontario Ministry of the Environment's Stormwater Management Planning and Design Manual

(2003) guidelines. The proponent has proposed to follow standard guidelines and best management practices to ensure that the design and operation of the stormwater facility will not cause a serious harm to fish.

DFO acknowledges the importance of recognizing the cumulative impacts to fish and fish habitat in the watershed. It has been noted in the Project EIS that cumulative effects of past industrial and commercial development and agricultural conversion has cumulatively led to the degradation of the Indian Creek aquatic ecosystem. Given the overall existing low quality of fish habitat and water quality in Indian Creek, the proposed works as a result of the Project provide an opportunity to enhance aquatic habitat in the watercourse. Enhancement includes designated riparian buffers, redesigning stream morphology using natural channel designs and improving stormwater management.

Mitigation Measures

Activities near water will be carried out following the standard guidance for items such as timing windows, sediment and erosion controls, and instream work approaches as outlined in DFO's *Measures to Avoid Causing Harm to Fish and Fish Habitat* to reduce effects on fish and fish habitat including, but not limited to, the following:

- The new channel associated with Indian Creek and Tributary A will be constructed in the dry, while leaving earthen plugs in the connection points. Any in-water work associated with channel realignment activities will be conducted outside the restricted activity timing window.
 - Non-earthen berms should be used to prevent sedimentation into the watercourse during the Project. Earthen plugs are not be used to isolate the watercourse unless properly contained with an impermeable layer and inspected regularly for integrity.
- Conduct fish rescues by a qualified aquatic biologist, where required, in accordance with permit conditions. Release captured fish to areas within the same watercourse, outside of the work, where suitable habitat exists.
- Establish and clearly identify a riparian buffer before the start of clearing activities. Restrict disturbance in this area to activities associated with realignment, restoration and naturalization.
- Design and implement a sediment and erosion control plan to minimize site erosion and protect watercourses from sedimentation during construction.
- Construction monitoring will be completed by a qualified fluvial geomorphologist or stream design engineer, a qualified fisheries biologist and an environmental monitor.

DFO acknowledges the mitigation measures proposed by CN in the EIS and draft Environmental Protection Plan to be implemented throughout the project to avoid or reduce potential adverse environmental effects. DFO will include specific mitigation measures as conditions of the *Fisheries Act* Authorization in the regulatory approval process. CN has indicated that they will continue consultation with DFO to finalize the design and implementation of such measures specific to fish and fish habitat.

SECTION 6.0 Offsetting

Proponents are responsible for implementing offsetting plans and monitoring their effectiveness, as well as for reporting on implementation and the results of monitoring. Monitoring must be designed to confirm that the offsetting measures have been effective in counterbalancing the serious harm to fish and may identify the need for contingency measures should deficiencies be found.

Offsetting is more likely to successfully balance losses when benefitting the specific fish populations in the Indian Creek subwatershed. With an “in-kind” approach to offsetting, the habitat that is destroyed or permanently altered is replaced by the same or higher quantity and quality of the same type of habitat, with additional habitat offsetting required to account for uncertainty and time lags.

Should an offsetting measure not be properly designed and/or implemented, then the proponent is responsible for the maintenance or repair of the offsetting measures. The requirement for adjustments and contingencies will be included in the conditions of the authorization.

The Bronte Creek Watershed Study (Conservation Halton 2002) identified opportunities in Indian Creek to improve and enhance existing conditions along the watercourse that include:

- Increasing the existing riparian habitat to improve water quality and thermal regime;
- Enhancing and protecting forest habitats to increase corridors and linkages;
- Improving stream morphology where a stream is or will be altered;
- Removing or retrofitting on-line ponds;
- Ensuring there is no impact on flood plain storage or flood conveyance;
- Implementing stormwater management for quality and quantity;
- Matching the pre- and post-development rising limbs on the flow hydrographs to minimize erosion; and,
- Protect the downstream stream morphology.

The creation of new channels containing features that enhance fish habitat, improve flows and passage, mitigate anthropogenic impacts, and restore riparian habitat will result in an overall net benefit to the Indian Creek subwatershed.

CN’s offsetting plan includes newly created natural channel designs with enhanced fish habitat features that will support several different fish species and seasonally connect to wetlands that will serve as potential spawning and rearing habitat. The offsetting plan also includes significant areas of riparian and floodplain enhancements that will contribute to overall fish habitat quality. The overall offsetting plan has been designed to replicate and enhance existing habitat features that will improve the productivity of the fishery.

DFO will conduct and participate in Indigenous consultation as part of DFO’s regulatory review process should the project proceed. Informing the development of offsetting and monitoring plans, which are requirements of a *Fisheries Act* Authorization, would be the focus of

consultation should the project proceed. DFO supports CN's commitment to participation of Indigenous groups in monitoring.

DFO's Position

DFO considers, where available, fisheries management objectives (FMO's). In the absence of FMO's, best management practices based on the available science are used in identifying restoration priorities. The conceptual fish and fish habitat offsetting plan has been designed to benefit the fish populations that exist in the watershed that is being impacted by the proposed Project, and is also in alignment with DFO's goal to provide for sustainability and ongoing productivity of the CRA fisheries.

DFO is of the opinion that the direct and indirect impacts to fish and fish habitat associated with the proposed project can be offset with the proposed offsetting plan. The offsetting plan aims to maintain and enhance the productivity of the fishery in the project area, in addition, the plan and enhancements are generally well understood and have been demonstrated as technically feasible and beneficial to fish and fish habitat in certain circumstances. Should the offsetting habitat not meet with requirements of DFO or the objectives and principles of DFO's Fisheries Productivity Investment Policy, CN will be required to provide additional habitat offsetting measures. Any deviations from the proposed offsetting plan will be undertaken in consultation with DFO and Indigenous communities.

Recommendation 1: Fisheries and Oceans Canada recommends that the Review Panel's report include a recommendation to CN to complete a detailed design and implement the Fish and Fish Habitat Offsetting Plan. This plan should meet the provisions of the Fisheries Protection Policy Statement, October 2013 and the Fisheries Productivity Investment Policy: A Proponent's Guide to Offsetting, November 2013. The plan should include feedback received during Indigenous consultation and describe how the information was considered. CN should also be prepared to explore and investigate additional offsetting measures in Indian Creek as contingency.

SECTION 7.0 Monitoring and Follow-up

CN proposes to design and implement monitoring and create follow-up plans to confirm the efficacy of mitigation measures, confirm predictions related to Project effects on fish habitat productivity, the effectiveness of the fish habitat offsetting works, and provide recommendations for remediation where mitigation or offsetting are not functioning as intended. CN has also indicated that adaptive management would be inherent to the design of the follow-up programs and that this program would be to ensure that the monitoring elements remain valid, meet regulatory requirements and are responsive to evolving objectives.

CN has determined that adaptive management is a systematic process for continuously improving environmental management practices through adjusting the outcomes to target successful features. By implementing the monitoring program, any identification of an issue, either during the review of monitoring results or through compliance evaluation, the offsetting will be assessed and evaluated and the appropriate corrective actions will be completed through an adaptive management approach. This process will allow for monitoring results to better inform best practices.

Post-Construction Monitoring and Follow-Up

CN has indicated that post construction monitoring will be implemented for a minimum of three years following completion of the channel realignment construction. The monitoring program outlines the frequency of monitoring, review of the results, and the thresholds to which monitoring results would be compared. In addition, a contingency plan will include the strategy for modification of the plan if results are indicated as unexpected.

The monitoring program CN has proposed for the offsetting measures related to the fish habitat destruction and channel realignments includes geomorphic monitoring of the channels, aquatic fish productivity and habitat monitoring, and vegetation assessments. The overall plan is to meet intended objectives of compliance reporting for offsetting works and habitat effectiveness monitoring.

DFO's Position

Proponents are responsible for implementing monitoring plans to demonstrate the effectiveness of mitigation and offsetting measures. This monitoring must demonstrate that the offsetting measures have effectively counterbalanced the serious harm to fish.

Monitoring needs to be undertaken for a period of time sufficient to allow for:

- Biological or physical changes to be reflected in the data collected;
- Possible adjustments to monitoring to estimate changes in fishery productivity; and
- The offset habitat can reach full ecological functionality (supports fish reproduction, growth and survival).

The goal of the Fish and Fish Habitat Protection Program of DFO is to maintain or improve the productivity of the commercial, recreational or Aboriginal fishery. When determining an appropriate offsetting plan, several uncertainties are considered including the prediction of the habitat destruction or permanent alteration, the design and implementation of the offsetting, and natural variability in the ecosystem. With habitat creation, there is uncertainty with lag time between when the habitat destruction or permanent alteration is incurred and when the created offsetting habitat is functional.

Adaptive management is a process that involves learning from previously implemented management activities, utilizing the results of monitoring to target successful practices and modifying regulatory approvals. Where uncertainty exists, monitoring of outcomes and targets can inform adaptive management options and the information can be used to improve best practices.

Proposed offsetting measures must meet the principles outlined in the DFO's *Fisheries Productivity Investment Policy* and include clear benchmarks and/or targets for measuring success. DFO will require in any *Fisheries Act* authorization provided to CN, a monitoring program to ensure predictions made in the environmental assessment regarding the impacts to fish and fish habitat are accurate and that offsetting goals are achieved. DFO will also require as

a condition of any *Fisheries Act* authorization that CN verify the effectiveness of mitigation measures and offsetting measures. DFO requires financial security, in the form of an irrevocable Letter of Credit, to ensure that the conditions of the authorization are implemented as it relates to offsetting and monitoring.

DFO is of the opinion that CN has designed an appropriate monitoring and follow up plan and supports the use of adaptive management throughout the project. This plan aims to confirm the efficacy of mitigation measures, confirm predictions related to Project effects on fish habitat productivity, the effectiveness of the fish habitat offsetting works, and provide recommendations for remediation, in addition to meeting regulatory requirements.

Recommendation 2: Fisheries and Oceans Canada recommends that the Review Panel's report include a recommendation that CN complete a detailed monitoring plan to monitor and report on the effectiveness of mitigation and offsetting measures. The plan should include but not be limited to the following:

- **monitoring and reporting requirements to demonstrate that the offsetting measures have been effective in counterbalancing the impacts to fish and fish habitat over a timeframe of a minimum three years, up to five years;**
- **report on mitigation measures applied, the effectiveness of those measures and any changes to the mitigation measures;**
- **any corrective actions or contingency measures utilized to ensure further habitat destruction or permanent alteration to habitat does not occur;**
- **develop and implement, if necessary, an adaptive management strategy to monitor and update plans related to mitigation strategies and offsetting plans; and**
- **how feedback received during Indigenous consultation and other stakeholders, on the plan has been considered or incorporated, as appropriate.**

SECTION 8.0 Conclusion

The Indian Creek drainage area, including the tributaries, contain and contribute to commercial, recreational and Aboriginal fisheries. The direct effects of the project, the destruction of fish habitat associated with the channel realignments, will cause a serious harm to fish and fish habitat. CN has presented mitigation and offsetting measures to offset the loss of fish habitat associated with direct and indirect effects of the Projects.

DFO is of the opinion that the description of existing fish habitat features and values in Indian Creek and Tributary A watercourses are adequately characterized by CN. DFO also agree that CN's characterization of the direct project footprint resulting from the Project is accurate.

It is DFO position that, with the application of appropriate mitigation measures, finalization and implementation of offsetting plans, and with follow up and monitoring programs, the productivity of the fisheries can be maintained.

Should the Project proceed to the regulatory stage, DFO would ensure that any *Fisheries Act* Authorization issued to CN will contain conditions to ensure that:

- mitigation measures for the protection of fish and fish habitat are implemented;

- monitoring and follow-up studies are undertaken to address the effectiveness of mitigation measures; and that
- adequate offsetting is provided for identified habitat losses.

Failure to comply with a conditions established by the Minister of Fisheries and Oceans constitutes an offence under subsection 40(3)(a) of the *Fisheries Act*, and is punishable on summary conviction to a fine. In addition to any fines being imposed, a person convicted of an offence under the Act could also be ordered by the court to take any action to remedy or avoid any further harm to fish or fish habitat that resulted from or that may result from the commission of the offence. Further, pursuant to section 38 of the *Fisheries Act*, there is a *Duty to Notify* DFO when serious harm to fish has occurred, or is about to occur, that was not authorized under the Act.

In accordance with DFO's mandate, and in an effort to sustain ongoing productivity of fisheries, DFO will remain engaged throughout the life of the Project with specific emphasis on the offsetting measures.

DFO recognizes the significance of the decision facing the Review Panel in its consideration of the Project. DFO will continue to work cooperatively with all stakeholders, including the proponent, to ensure that its interests in the protection of fish and fish habitat are addressed.

SECTION 9.0 Summary of Recommendations

Recommendation 1: Fisheries and Oceans Canada recommends that the Review Panel's report include a recommendation to CN to complete detailed design and implement the final Fish and Fish Habitat Offsetting Plan. This plan should meet the provisions of the Fisheries Protection Policy Statement, October 2013 and the *Fisheries Productivity Investment Policy: A Proponent's Guide to Offsetting*, November 2013. The plan should include feedback received during Indigenous consultation and describe how the information was considered.

Recommendation 2: Fisheries and Oceans Canada recommends that the Review Panel's report include a recommendation that CN complete a detailed monitoring plan to monitor and report on the effectiveness of mitigation and offsetting measures. The plan should include but not be limited to the following:

- **monitoring and reporting requirements to demonstrate that the offsetting measures have been effective in counterbalancing the impacts to fish and fish habitat over a timeframe of a minimum three years, up to five years;**
- **report on mitigation measures applied, the effectiveness of those measures and any changes to the mitigation measures;**
- **any corrective actions or contingency measures utilized to ensure further habitat destruction or permanent alteration to habitat does not occur;**
- **implement, as necessary, an adaptive management strategy to monitor and update plans related to mitigation strategies and offsetting plans; and**
- **how feedback received during Indigenous consultation and other stakeholders, on the plan has been considered or incorporated, as appropriate.**

APPENDIX

Tara Shweitzer CV
Marek Janowicz CV

Tara Schweitzer
Senior Fish and Fish Habitat Protection Biologist
Fish and Fish Habitat Protection Program
Fisheries and Oceans Canada
103, 1800 11th Avenue
Regina, SK S4P 0H8

Curriculum Vitae

SUMMARY

Ms. Schweitzer is a Senior Fish and Fish Habitat Protection Biologist with the Fish and Fish Habitat Protection Program in the Central and Arctic Region with Fisheries and Oceans Canada. Ms. Schweitzer was a Fish Habitat Biologist with Fisheries and Oceans Canada from 2001-2017. Her current role in the Linear Development Group includes regulatory review and follow-up processes of linear development projects in Alberta, Saskatchewan, Manitoba, Ontario and the Northwest Territories. The role also includes preparing regulatory action recommendations consistent with Departmental policies and legislation, and providing science based regulatory advice to proponents, other regulatory agencies and Indigenous groups.

EXPERIENCE

April 2019 – present

Senior Fish and Fish Habitat Protection Biologist, Linear Development, Fish and Fish Habitat Protection Program, Central & Arctic Region, Fisheries and Oceans Canada

- Management of regulatory reviews for linear development projects under the Fisheries Act including participating in environmental assessment under the Canadian Environmental Assessment Act in Alberta, Saskatchewan, Manitoba, Ontario and the Northwest Territories
- Management and mentoring of up to two staff members including performance management and career development
- Providing advice and guidance to staff related to fish and fish habitat, regulatory reviews, compliance and occurrence management and Indigenous consultation consistent with program policies and applicable federal legislation
- Providing advice on linear development works and the application of the Fisheries Act in meetings with proponents, other regulatory agencies, Indigenous groups and the public
- Collaboration with the provincial and municipal levels of government to establish clear project information requirements, including fish passage

June 2017- March 2019

Senior Environment Officer, Lands and Economic Development, Saskatchewan Region, Indigenous Services Canada

- Conduct environmental reviews in accordance with Indigenous Services Canada (ISC) Environmental Review Process, pursuant to s. 67 of the Canadian Environmental Assessment Act, 2012 for projects taking place on federal lands
- Providing expert procedural, technical guidance or critical review in relation to the environmental review of projects

- Working in a cross-cultural environment, specifically as it relates to Indigenous culture and values
- Providing science-based advice and recommendation, including mitigation measures, to minimize impacts to the environment
- Liaising with other federal or provincial jurisdictions on issues relating to environmental management and protection
- Leading Aboriginal Consultation activities related to large development projects on federal reserve lands in Saskatchewan
- Advise on ISC's Environmental Policy requirements as it pertains to Leasing activities on Indigenous reserve lands in Saskatchewan
- Attend meetings with legal counterparts, Indigenous representatives as well as ISC leasing experts to advise on requirements for Phase 1 Environmental Site Assessments and Environmental Assessments as they pertain to the federal reserve lands to be potentially leased
- Review and analyze Phase 1 and Phase 2 Environmental Site Assessments, conducted in accordance with the Canada Standards Association, and provide comment and/or feedback on those reports

Sept 2001 - June 2017

Fish Habitat Biologist, Habitat Management Program, Fisheries and Oceans Canada. Regina, SK (2001-2006, 2007-2017) and Inuvik, NWT (2006)

- Conduct regulatory reviews of linear development, as well as other various development projects and their impacts on fish, occurrences and monitoring reports pursuant to the Fisheries Act and Species at Risk Act. This includes review of proposed impacts, offsetting and monitoring plans.
- Prepare regulatory action recommendations consistent with Fisheries Protection Program policies and legislation, including the Fisheries Act and Species at Risk Act
- Plan and conduct site visits for the review of development proposal, occurrences and monitoring and compliance activities
- Represent the Department as part of the Federal Review Team on Canadian Environmental Assessment Act led environmental assessments
- Provide regulatory advice and communicate regulatory requirements including avoidance and mitigation measures, serious harm determinations, offsetting and monitoring requirements to proponents, and other regulatory agencies and Indigenous groups
- Undertook consultation with Indigenous groups in relation to project undergoing a review pursuant to the Fisheries Act
- Pre CEAA 2012, conducted and reviewed environmental assessments pursuant to the to the *Canadian Environmental Assessment Act*
- Participation in the development of regional tools, practices, guidance documents and standards related to regulatory review
- Participated in provincial fisheries initiatives including fish sampling and spawn camps, as well as various field works including various netting and trapping techniques for sampling fish, water quality sampling, and fish habitat assessments
- Organize and participate in multi-agency, multi-stakeholder resource management processes and local community stewardship groups to provide technical expertise on fish and fish habitat management issues
- Deliver presentations and had daily verbal and written communications with a variety of proponents, including the general public, landowners, Rural

Municipalities, stewardship groups, community groups, industry, consultants, local, provincial and federal governments

- Participated in co-management regimes by providing comments and consulting with the Inuvialuit Environmental Impact Screening Committee on issues relating to proposed development and potential impacts to freshwater and marine fish and fish habitat within the Inuvialuit Settlement Region.

Sept 2000-Sept 2001

Saskatchewan Program Coordinator, The Living by Water Project, Nature Saskatchewan

- Project leader responsible for delivery of shoreline conservation/education project
- Partnered with various governments, non-government organizations, and local community groups
- Developed resources, services, and products for waterfront residents and groups on how to minimize their environmental impacts on aquatic ecosystems
- Delivered presentation and led workshops to local community and stewardship groups

EDUCATION

Bachelor of Science, General Studies & Biological Sciences, University of Calgary, Calgary, AB, 2000

PROFESSIONAL DEVELOPMENT

- Sediment and Erosion Control Training
- Newbury Stream Restoration Hydraulics
- Environmental Monitoring for Construction Projects

CURRICULUM VITAE

Marek Janowicz, M.Sc.,

EDUCATION: Master of Science, Fisheries and Fish Biology, West Pomerania University, Poland, 1985.
Bachelor of Science in Environmental and Conservation Sciences, University of Alberta, 1996

OTHER SPECIAL QUALIFICATIONS AND TRAINING:

Thirty three years of experience as fish biologist, stock assessment biologist, fish habitat biologist in academia, private consulting and government.

Eighteen years of experience in assessing impact of proposed development on fish, fish habitat and serious harm to fisheries

Participated as an expert witness in 6 Joint Review Panel hearings regarding major resources development in Alberta and Northwest Territories.

Co-authored 3 scientific papers.

Relevant Training:

- Stream Restoration Design by *British Columbia Freshwater Institute*
- Urban Erosion and Sediment Control by Vancouver Island University
- Environmental Monitoring for Construction Projects by Vancouver Island University
- Erosion and Sediment Control for Linear Construction Projects by Vancouver Island University.
- Stream Dynamics by Oregon State University
- Effects of Forestry on Stream Function and Structure by Forestry Renewal of BC
- Witness Training Course for Habitat Biologist, DFO.
- Environmental Field Procedures for Works in and About Water by Vancouver Island University;

DFO expert reviewing and providing advice on Major Proposed Projects in Alberta Oil Sands, Northwest Territories, Nunavut and Ontario.

EMPLOYMENT:

2019-present

Regional Manager, Regulatory Review, Mining, Oil and Gas North and South and Linear.

Fisheries Protection Program, Edmonton

Fisheries & Oceans Canada,

- Managing and operating team of biologists involving in reviewing major and minor projects across Canada to achieve regional and national Fisheries Protection Program operational goals and objectives;
- Mentors and provides scientific and technical advice to Fisheries staff on fish ecology and fish habitat protection, restoration and enhancement;
- Providing scientific, environmental and technical program advices relating to major mining projects and linear development, developing scientific investigations, monitoring plans and follow-up.
- Conducted on-site impact assessment of major resource projects and other kinds of developments on fish, fish habitat and serious harm to fish;
- Prescribed mitigation techniques and opinions related to development proposals affecting fish habitat
- Liaison and representation of the Fisheries Protection Program with industry, other governments, First Nations, and other stakeholders; developing and building relationships and working with various and multiple stakeholders to develop collaborative solutions to problems related to DFO mandate;
- Participated in the development and provided expertise for small and large scale compensation and offsetting proposals including developing new methods, techniques and approaches for protection and conservation of fish and fish habitat;
- Overseeing the consistent application of the Fisheries and Oceans Canada regulatory mandate.

2008-2019

Senior Environmental Assessment Analyst,

Oil Sands Major Projects, Edmonton

Fisheries & Oceans Canada, Habitat Management

- Reviewing major projects submissions and providing conditions and recommendations from a fish and fish habitat perspective on oil sands mines, SAGD oil developments, water withdrawals, and pipeline crossings for development activities in the oils sands area.
- Participation in departmental, interdepartmental and intergovernmental environmental assessment reviews of proposed development projects.
- Conducting pre and post-construction compliance and biological monitoring of development proposals to confirm impact assessment predictions and ensure the conditions specified by the department are implemented.
- Organizing and assisted with the collection of fish habitat inventories and

- assessment of development proposals on fish and fish habitat.
- Representing DFO on advisory, technical and multistakeholder groups.
- Participating as a DFO expert witness for the Shell Muskeg River Mine Expansion, Imperial Oil Kearl Oil Sands Mine, Total Joslyn North Mine, and Jackpine Mine Expansion joint review panels.
- Cooperating with senior management in DFO as well as other departments, and other levels of government on issues related to DFO's mandate;

2002-2008

Fish Habitat Biologist

Fisheries & Oceans Canada, Habitat Management

- Reviewing and providing conditions and recommendations from a fish and fish habitat perspective on proposals for a wide range of development activities including stream crossings, shoreline disturbances, water withdrawals, stream realignments, stream restorations, industrial spill reclamation, SAG-D oil developments, storm water management, and gravel extraction.
- Representing DFO as an expert witness during Joint Review Panel Hearings.
- Participating in departmental, interdepartmental and intergovernmental environmental assessments of various development projects.
- Representing the Department on various committees and working groups established to address Departmental, interdepartmental and intergovernmental environmental issues.
- Conducting pre and post-construction compliance monitoring and review biological monitoring of projects to confirm impact assessment predictions and ensure the conditions specified by the Department for fish habitat protection are implemented.
- Assessing impacts of unauthorized development projects on fish and fish habitat and participating in the development of recovery strategies.

1996-2002

Fisheries Biologist

Fins Consulting Ltd., Terrace, B.C.

- Collection and analysis of biological data for population assessments.
- Review of developmental projects affecting fish habitat and provide conditions and recommendations regarding fish habitat.
- Conducting field programs including fish population sampling.
- Conducting environmental assessment of fish habitat.
- Write professional reports outlining the findings of field assessments.

1996-2002

Fisheries Biologist, Principal

Bio-Aqua Environmental Consulting, Edmonton, AB

- Participate in various fish and fish habitat assessment for numerous studies.
- Determine fish species presence using electrofishing, seine nets, gill nets, minnow traps, trap nets, angling, and visual assessments.
- Assess and map fish habitat through the collection of field data, air photo interpretation, and aerial reconnaissance.
- Analyses of various biological parameters related to fish growth and benthos invertebrates.
- Provide advice related to fish habitat in waterbodies affected by industrial and infrastructure developmental activities.
- Contribute to and prepare a number of reports submitted to Ministry of Lands and Parks of BC.

1995-1996

Fisheries Technician,

University of Alberta, Biological Sciences, 1995-1996

- Determine fish species assemblage using electrofishing, seine nets, gill nets, minnow traps, trap nets, angling, and visual assessments in Alberta and Northwest Territories.
- Participate in the design of experimental streams in the Arctic;
- Analysed fish biology and ecology of Arctic grayling in the Northwest Territories;
- Analysed various biological parameters related to fish and benthos invertebrates biology;