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Your file *Voire référence*  
EA0708-007

Our file *Notre référence*  
YK-07-0104

January 29th, 2010

Alan Erlich  
Mackenzie Valley Environmental Impact Review Board  
#200 Scotia Centre  
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**Via e-mail to:**  
aerlich@reviewboard.ca

Dear Mr. Erlich ,

**RE: DFO's Response to Taltson Public Hearing Undertaking**

Fisheries and Oceans Canada (DFO) is pleased to respond to the Mackenzie Valley Environmental Impact Review Board (MVEIRB) undertaking directed to DFO at the January 14<sup>th</sup> and 15<sup>th</sup>, 2010 public hearing on the Taltson Hydroelectric Expansion Project to "submit a clear indication, in writing, for each recommendation, indicating whether or not it can be addressed by DFO in its own regulatory processes."

On behalf of the Government of Canada, DFO is responsible for developing and implementing policies and programs in support of Canada's scientific, ecological, social and economic interests in relation to sea, coastal and inland fisheries, and oceans in general. As an intervener in the environmental assessment of the Taltson Hydroelectric Expansion Project, DFO provided advice to the MVEIRB on matters for which the department has jurisdiction and expertise.

As a regulatory authority for the Project, DFO may issue authorizations under section 32 of the *Fisheries Act*, which prohibits the destruction of fish by means other than fishing unless authorized by the Minister, and/or subsection 35(2) of the *Fisheries Act* which prohibits the harmful alteration, disruption or destruction (HADD) of fish habitat unless authorized by the Minister.

DFO provides the following clarification regarding its regulatory role with respect to its recommendations from its December 11<sup>th</sup>, 2009 Technical Review Comments to the MVEIRB.

- **Recommendation #1:**  
*DFO recommends that the Proponent consult with DFO during the finalization of the Erosion and Sediment Control Plan.*

DFO cannot obligate the Proponent to undertake consultation on the Erosion and Sediment Control Plan as part of its regulatory process. Should any works or activities cause an unauthorized HADD of fish habitat from the release of sediment as a result of inadequate or ineffective erosion and sediment control measures, the Proponent would be in violation of subsection 35(2) of the *Fisheries Act* and could be subject to enforcement measures, including prosecution. DFO would like to be able to review the Erosion and Sediment.

Control Plan in order to identify areas of potential concern and to contribute to the development of adequate fish habitat protection measures.

- **Recommendation #2:**  
*DFO recommends that the Proponent follow the DFO Freshwater Intake End-of-Pipe Fish Screen Guidelines.*

Under Section 30 of the *Fisheries Act*, every water intake, ditch, channel, or canal in Canada constructed or adapted for conducting water from any Canadian fisheries waters for activities such as power generation must provide for a fish guard or a screen, covering, or netting over the entrance or intake so as to prevent the passage of fish into such water intake, ditch, channel or canal if the Minister deems it necessary. The objective of the *DFO Freshwater Intake End-of-Pipe Fish Screen Guidelines* is to provide a National standard-of-practice and guidance for end-of-pipe fish screens at freshwater intakes to prevent potential losses of fish due to entrainment or impingement during temporary water withdrawals.

If impingement or entrainment of fish occurred at water intakes sites, the proponent would be in violation of Section 32 of the *Fisheries Act* and could be subject to enforcement measures, including prosecution. If issued, a Section 32 *Fisheries Act* authorization for the Project could include a condition a requirement to follow the DFO Freshwater Intake End-of-Pipe Fish Screen Guidelines.

- **Recommendation #3:**  
*DFO recommends that the Proponent consult with local Aboriginal Peoples to ensure that restricting use of the access trails and roads to construction traffic only does not impede traditional use of the Project, or surrounding, areas.*

DFO cannot obligate the Proponent to consult with local Aboriginal Peoples on the restriction measures for the access trails and roads. This recommendation can therefore not be addressed within DFO's own regulatory process.

- **Recommendation #4:**  
*DFO recommends the Proponent collect baseline information on aquatic resources in a representative number of fish-bearing waterbodies along the transmission line to form the basis of a scientifically defensible monitoring program.*

The Proponent has committed to using DFO's *Overhead Line Construction* operational statement during the construction of the transmission line. DFO's operational statements outline measures and conditions for avoiding the HADD of fish habitat. As such, Proponents are not required to submit works or activities addressed by operational statements for review by DFO or obtain a *Fisheries Act* authorization when they incorporate the measures and conditions outlined in the operational statements into their plans. As such DFO would not have a regulatory role in relation to the construction of the transmission line and thus would have no instrument to require a monitoring program of waterbodies along the transmission route. However, should any works or activities cause an unauthorized HADD of fish habitat, the Proponent would be in violation of subsection 35(2) of the *Fisheries Act* and could be subject to enforcement measures, including prosecution.

- **Recommendation #5:**

*DFO recommends that monitoring be developed and implemented to ensure the 50 kPa IPC threshold is adequately protective of fish species and lifestages in habitats adjacent to the point of detonation. Adaptive management measures to lower the IPC threshold should be developed should the 50 kPa prove to cause injury or mortality of fish. The monitoring and adaptive management program should be included in the Proponent's Drill and Blast Management Plan.*

DFO would not have any regulatory means to dictate the contents of the Proponent's Drill and Blast Management Plan. However, IPC thresholds and monitoring requirements could be conditions in a s.32 *Fisheries Act* authorization. If mortality of fish were to occur due to the use of explosives in or near water, the Proponent would be in violation of section 32 of the *Fisheries Act* and could be subject to enforcement measures, including prosecution.

- **Recommendation #6:**

*DFO recommends that the Proponent continue to proceed with the two phased preconstruction assessment of lake trout spawning habitat in Nonacho Lake identified in the draft monitoring plan. DFO is willing to assist the Proponent in developing the assessment plan, analyzing the results, and working together to refine drawdown scenarios in order to mitigate potential impacts.*

DFO would require the information that would be provided by a pre-construction assessment in order to conduct a fisheries review of the degree and extent of impacts to fish and fish habitat due to the construction and operational drawdowns of Nonacho Lake. Based on the results of this assessment, terms and conditions could be added to a ss.35(2) *Fisheries Act* authorization to reduce impacts to fish and fish habitat and be used to determine the amount of fish habitat compensation required to achieve no net loss of fish habitat.

- **Recommendation #7:**

*DFO recommends that the Proponent involve the Nonacho Lake Fishing Camp in this study as their lodge relies on a healthy lake trout population. Potentially affected aboriginals should also be included in these discussions.*

DFO cannot require the Proponent to consult with the Nonacho Lake Fishing Camp or potentially affected Aboriginal Peoples during the planning or conduct of the pre-construction lake trout impact assessment. DFO does intend to consult with both these parties on the fish habitat compensation plan that would be required by the Proponent as a term and condition of any *Fisheries Act* authorization for the Project.

- **Recommendation #8:**

*DFO recommends that the monitoring program for Tronka Chua Lake include a pre-operations bathymetric survey.*

DFO would likely require the information provided by a pre-operations bathymetric survey in order to conduct a fisheries review of potential impacts to fish and fish habitat in the Tronka Chua lakes system as a result of the proposed reduction in flow over Tronka Chua Gap. Should the reduction in flow over Tronka Chua Gap cause the harmful alteration, disruption or destruction of fish or fish habitat in the Tronka Chua

lakes system, a *Fisheries Act* authorization would be required and would likely include requirements for mitigating and monitoring impacts to fish and fish habitat.

- ***Recommendation #9:***

*DFO recommends that the Proponent investigate the potential cost/benefits of maintaining flow through Tronka Chua Gap throughout the year for the 56MW expansion scenario and/or the feasibility of diverting flow through the Tronka Chua Gap post-construction should the impacts to the Tronka Chua system be greater than was anticipated.*

The proposed reduction in flow over Tronka Chua Gap could result in the harmful alteration, disruption or destruction of fish habitat in the Tronka Chua lakes system (Zone 2). As such, the Proponent will likely require a subsection 35(2) *Fisheries Act* authorization, which would contain a requirement to mitigate and monitor impacts to fish and fish habitat. If impacts are expected to be greater than predicted, additional mitigation measures/ fish habitat compensation may be required in order to ensure the Proponent remains in compliance with terms and conditions of an authorization and the habitat protection provisions of the *Fisheries Act*.

- ***Recommendation #10:***

*To better inform the analysis in DFO's Recommendation #9, DFO recommends that the proposed assessment and monitoring program for Tronka Chua Lake be expanded to include Thekuthili Lake since flow over Tronka Chua Gap is its dominant source of flow. Baseline information will also be essential for determining whether impact predictions were accurate.*

DFO would likely require baseline information on Thekuthili Lake in order to conduct a fisheries review of the likelihood and extent of impacts to fish and fish habitat as a result of the reduction in flow over Tronka Chua Gap. If the harmful alteration, disruption or destruction of fish habitat was anticipated for Thekuthili Lake, any authorization issued for these works or activities would include a requirement for monitoring of impacts to fish and fish habitat. Monitoring of impacts to aquatic resources would also likely be included in the Proponent's AEMP, the development and implementation of which would not be required as a term or condition of a *Fisheries Act* authorization. DFO would provide advice to the Mackenzie Valley Land & Water Board on the AEMP as part of the water licensing process.

- ***Recommendation #11:***

*DFO recommends that the Proponent proceed with a monitoring program to inform an adaptive management approach, developed in consultation with DFO, to determine whether the predictions made in the EA regarding entrainment were correct (as per the October 6, 2009 entrainment meeting report).*

As per its December 11<sup>th</sup>, 2009 technical submission to the MVEIRB, DFO recommended that Proponent apply for a section 32 authorization under the *Fisheries Act* to address incidental mortality of fish through the Twin Gorges turbines and the Nonacho Lake Control Structure. Section 32 prohibits the destruction of fish by means other than fishing unless authorized by the Minister. A section 32 *Fisheries Act* authorization would include a requirement for monitoring of entrainment or impingement of fish to verify predictions and to ensure that mortality of fish does not exceed that permitted by the authorization.

- **Recommendation #12:**

*DFO recommends that the Proponent incorporate mesh on the penstock screens that is of a size that will mitigate impacts to fish species/ life stages that could be present in the intake canal and could be sent through the turbines.*

DFO would take into consideration project design for the intake canal, penstocks and turbines when determining likelihood and extent of impacts to fish as a result of the operation of Twin Gorges facility as part of its section 32 *Fisheries Act* review. If mitigation such as penstock screens were deemed necessary as a measure to prevent injury or mortality of fish, this could be included as a term or condition of a section 32 authorization.

- **Recommendation #13:**

*DFO recommends that the Proponent investigate the use of trashracks at the entrance of the intake canal to decrease use of the canal by larger bodied fish; DFO recommends the Proponent refer to Tsikata et al, 2009 to design a trash rack that protects fish but does not unduly impact hydroelectric power generation.*

DFO would take into consideration project design for the intake canal, penstocks and turbines when determining likelihood and extent of impacts to fish as a result of the operation of Twin Gorges facility as part of its section 32 *Fisheries Act* review. If mitigation such as the use of trashracks were deemed necessary as a measure to prevent injury or mortality of fish, this could be included as a term or condition of a section 32 authorization.

- **Recommendation #14:**

*DFO recommends that the Proponent utilize turbines with the least number of blades, if technically feasible, to further reduce the risk of fish mortality.*

DFO would take into consideration project design for the intake canal, penstocks and turbines when determining likelihood and extent of impacts to fish as a result of the operation of Twin Gorges and Nonacho Lake control structure facilities as part of its section 32 *Fisheries Act* review. However, direction as to the type of turbine to be used would not form part of the terms and conditions for any authorization issued under the *Fisheries Act*.

- **Recommendation #15:**

*DFO recommends that, once results from the monitoring program become available, the Proponent consult with DFO on mitigation measures that may need to be modified or added to ensure the protection of fish from entrainment or impingement.*

Section 32 *Fisheries Act* authorizations issued for the Twin Gorges or Nonacho Lake control structure facilities would include a requirement for monitoring of impacts to fish. Should monitoring indicate that mortality of fish exceeded that permitted by the section 32 *Fisheries Act*, the Proponent would be required to ensure the implementation of additional mitigation measures to ensure the protection of fish in order to remain in compliance with section 32 of the *Fisheries Act*. Non-compliance with section 32 could lead to enforcement measures, which may include prosecution.

- **Recommendation #16:**

*In order to address the need for variable flow to protect fish and fish habitat in Trudel Creek, DFO recommends that the proponent adopt a flow regime that incorporates the minimum flow release of 4 m<sup>3</sup>/s in conjunction with a variable 95% exceedance (5<sup>th</sup> percentile) baseline monthly flow hydrograph, where the greater of the two flows would define the minimum monthly flow release. The minimum monthly flow release could be refined with additional baseline information and analysis. DFO recognizes the need to balance the developers flow needs for an economically viable project with the minimum flow required to sustain the fish habitat in Trudel Creek for the target species in our flow recommendation.*

The project as proposed incorporated a minimum flow of 4 m<sup>3</sup>/s over the South Valley Spillway in Trudel Creek. As indicated by DFO at the public hearing for the Taltson Hydro Expansion project, the impact assessment conducted by the Proponent did not include an assessment of effects for dry periods where a flat 4 m<sup>3</sup>/s could be expected throughout the year for up to several consecutive years. DFO remains concerned that should the Taltson River experience consecutive low flow years and the Proponent is required only to supply a set minimum of 4 m<sup>3</sup>/s to Trudel Creek, significant adverse effects could be expected to fish and fish habitat of this aquatic ecosystem.

During the hearing proceedings, the Proponent committed to developing and ensuring a flow regime that included a seasonal hydrograph for Trudel Creek that was of a magnitude and frequency satisfactory to DFO, such that impacts to fish and fish habitat in Trudel Creek would be minimized. The 95% exceedance was recommended as an example of a seasonal hydrograph. If other options are presented that would maintain a suitable seasonal hydrograph on an annual basis, DFO would be willing to work with the Proponent to explore the acceptability of, and refine as necessary, the alternative regime.

Should the Proponent and DFO come to agreement on an acceptable flow regime for Trudel Creek, this minimum flow regime could be incorporated as a term or condition of a *Fisheries Act* authorization issued for the harmful alteration, disruption or destruction of fish habitat or the killing of fish in Trudel Creek. These minimum flow requirements should be in agreement with those prescribed in the water licenses or other federal/ territorial permits applicable to the operation of the Project.

- **Recommendation #17:**

*DFO recommends that the Proponent develop a rigorous pre and post project monitoring program capable of determining changes in aquatic habitat to verify impact predictions and to determine if changes in operations are required.*

DFO would require monitoring of effects to fish and fish habitat as a term and condition of any section 32 or ss. 35(2) *Fisheries Act* authorizations. The development of monitoring programs would be conducted in consultation and collaboration with other regulatory authorities in order to reduce duplication of monitoring requirements for the Project, such as those required in AEMP. Monitoring of impacts to aquatic resources would likely be included in the Proponent's AEMP, the development and implementation of which would not be required as a term or condition of a *Fisheries Act* authorization. DFO would provide advice to the Mackenzie Valley Land & Water Board on the AEMP as part of the water licensing process.

- **Recommendation #18:**

*DFO recommends that the Proponent investigate options for maintaining the existing pool sucker habitat near South Valley Spillway.*

Should the proponent proceed with the project as proposed, the harmful alteration, disruption or destruction of fish habitat, such as the juvenile sucker pool habitat near the South Valley Spillway, would require an authorization under subsection 35(2) of the Act. In contemplating the issuance of an authorization, DFO would work with the Proponent and other stakeholders to ensure No Net Loss of fish habitat by developing and applying mitigation measures and offsetting unavoidable habitat losses with habitat compensation as conditions of a ss.35(2) authorization.

- ***Recommendation #19:***

*DFO recommends that the Proponent further refine and implement a monitoring program, in consultation with DFO, to verify model predictions for WUA, DO, temperature and implement adaptive management measures, including operational changes, where impacts were underestimated.*

DFO would require the monitoring of impacts on fish and fish habitat in the terms and conditions of any authorizations issued under the *Fisheries Act*. Monitoring of key indicators of aquatic resources health would also form the basis of the Proponent's AEMP. While DFO would ensure that monitoring requirements for fish and fish habitat under a *Fisheries Act* authorization would be consistent with those within the AEMP, the development and implementation of an AEMP would not form part of the terms or conditions of a *Fisheries Act* authorization. However, DFO would provide expert advice to the Mackenzie Valley Land & Water Board and the Proponent on the AEMP as part of the water licensing process.

- ***Recommendation #20:***

*DFO recommends that the Proponent develop and implement an active riparian/aquatic replanting program, in consultation with DFO, in order to expedite the successful re-colonization of vegetation along and within the new stream channel.*

The development and implementation of an active riparian/ aquatic replanting program could be included as a component of the fish habitat compensation plan to balance unavoidable habitat losses in Trudel Creek. The fish habitat compensation plan would form part of the terms and conditions of an authorization under ss. 35(2) of the *Fisheries Act* for the HADD of fish habitat in Trudel Creek resulting from the reduction in flows.

- ***Recommendation #21:***

*DFO recommends that Proponent reduce the frequency of ramping events as much as is technically feasible in Trudel Creek to allow the creek to stabilize and riparian/aquatic vegetation communities to become re-established.*

The project as proposed included a bypass spillway with a capacity of re-routing of 30m<sup>3</sup>/s from Trudel Creek during scheduled and unscheduled ramping events. It is recommended that the company investigate options such as increasing the capacity of the South Gorge Spillway to reduce ramping effects on Trudel Creek. However, this could not be a condition of a *Fisheries Act* authorization. It is possible that the timing of scheduled ramping events could be included as a condition in an authorization.

DFO trusts that this information will be useful to the Board in its decision regarding the Taltson Hydro Expansion Project. If you have any questions, please feel free to contact Nicola Johnson at (867) 873-3792, by fax (867) 669-4949, or email at [Nicola.Johnson@dfo-mpo.gc.ca](mailto:Nicola.Johnson@dfo-mpo.gc.ca).

Sincerely,



for

Beverley Ross  
Regional Manager, Environmental Assessment for Major Projects  
Central and Arctic Region  
Fisheries and Oceans Canada

cc      Bruce Hanna, Fisheries and Oceans Canada  
         Julie Dahl, Fisheries and Oceans Canada  
         James Elliot, Fisheries and Oceans Canada