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# MVEIRB Public Hearing Taltson Hydroelectric Expansion Project

*Fisheries and Oceans Canada*

January 14 & 15, 2010  
Dettah, NWT



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# Overview

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# DFO Mandate

Responsible for the management and protection of fish and marine mammals and their habitats.



## Relevant Sections of the *Fisheries Act*

Section 22 – Sufficient water flow for the passage of fish

Section 30 - Fish guards and screens

- E.g. water withdrawals for winter road construction

Section 32 - Destruction of fish by means other than fishing

- E.g. use of explosives, turbine entrainment/impingement, fish stranding

Section 35 – Harmful alteration, disruption or destruction (HADD) of fish habitat

Section 36 - Prohibits the deposit of deleterious substance into fish bearing waters (administered by Environment Canada)



## Basis of Technical Submission

### **Focused review for potential impacts to fish and fish habitat:**

- Trudel Creek Fish and Fish Habitat Effects Assessment Report – March 2008 and supporting documents
- Dezé Energy's April 29, 2009 response to DFO's informal information request from November 13, 2008
- Developer's Assessment Report
- Technical meetings with Cambria Gordon Ltd., consultant for Dezé Energy



## Basis of Technical Submission (cont.)

- Submitted 40 requests for information on July 15<sup>th</sup>, officially read into record during technical session days on October 1<sup>st</sup> and 2<sup>nd</sup>, 2009
- Continued discussions on outstanding concerns with Cambria Gordon Ltd.
- Four meeting reports resulted from October 2009 discussions:
  - 1) Entrainment
  - 2) Fish Stranding during Ramping Events
  - 3) Flow change effects on water temperature
  - 4) Weighted Habitat Exceedance Curves





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# Potential Areas of Concern and Recommendations



# Access Roads and Trails

## Concerns

- Erosion of stream banks- sediment released into streams
- Removal of riparian vegetation
- Impacts from water withdrawal
- Impacts from ice bridge construction





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# Access Roads and Trails

## Recommendations

- Consult with DFO during the finalization of the Erosion and Sediment Control Plan.
- Follow the DFO Freshwater Intake End-of-Pipe Fish Screen Guidelines and DFO Protocol for Winter Water Withdrawal in the NWT
- Follow the DFO Operational Statement for Ice Bridges and Ice Snowfills.
- Consult with local aboriginal peoples on restrictions to access trails to ensure traditional use of area is not impeded



# Transmission Line Construction

## Concern

- Improper crossing techniques impacting fish and fish habitat.





# Transmission Line Construction

## Recommendations

- Follow the DFO Operational Statement for Overhead Line Construction.
- 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.





# Use of Explosives

## Concern

- Injury/ death of fish due to Instantaneous Pressure Change (IPC)



# Use of Explosives

## Recommendations

- Monitoring be developed and implemented to ensure the 50 kPa IPC threshold is not exceeded and confirm fish in habitats adjacent to the point of detonation are protected. 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 measures should be included in the Proponent's Drill and Blast Management Plan





# Nonacho Lake Drawdown

## Concern



- Potential impacts to fish, particularly Lake Trout spawning and incubating eggs, from one time drawdown during construction and fluctuating water levels during operations.



# Nonacho Lake Drawdown

## Recommendations

- The Proponent proceed with the two phased pre-construction assessment of lake trout spawning habitat in Nonacho Lake identified in the draft monitoring plan.
- The Proponent involve the Nonacho Lake Fishing Camp in this study as their lodge relies on a healthy lake trout population. Potentially affected Aboriginal groups should also be included in these discussions.



# Entrainment

## Concern

- Potential for fish to go through turbines





## Entrainment

# Recommendations

- 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 or if modifications need to be made.
- The Proponent utilize turbines with the least number of blades, if technically feasible, to further reduce the risk of fish mortality.





## Entrainment

# Recommendations

- 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.
- The Proponent investigate the use of trash racks at the entrance of the intake canal to decrease use of the canal by larger bodied fish.



## Zone 1 and Zone 2

### Concern

- Under the 36 MW scenario, flow at Tronka Chua Gap would regularly cease (flowing 65% of the time) while under the 56 MW scenario, flow would only be expected during wetter than average years, or 30 % of the time.
- To date, no baseline data has been collected for wetlands, aquatic resources, fish and fish habitat, ice structure or DO levels in Zone 2. Limited baseline data was provided for Zone 1. The Proponent has relied heavily on modeling and assumptions to make a determination regarding effects.





## Zone 1 and 2 cont.

# Recommendations

- The Proponent investigate the potential cost/benefits of maintaining flow through Tronka Chua Gap throughout the year 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 pre-construction 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 as well.
- The AEMP developed for Zones 1 and 2, as for other aspects of the project, must include adequate baseline data and be complemented with a detailed and action oriented adaptive management plan.



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# Trudel Creek





# Trudel Creek

## Concern

- Severe reduction in flow can result in potential impacts to fish populations, benthics, and the riparian/ littoral vegetation community.
- Minimum flow of  $4\text{m}^3/\text{s}$  could cause a flat hydrograph for an extended period in low flow years.
- Impacts from ramping events could include fish stranding and delay the re-establishment of riparian vegetation.



# Trudel Creek

## Recommendations

- In order to address the need for variable flow to protect fish and fish habitat in Trudel Creek, DFO recommends as an interim measure 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.





# Trudel Creek

## Recommendations

- 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.
- Dezé Energy 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.



# Trudel Creek

## Recommendations

- Dezé Energy minimize ramping as much as possible in Trudel Creek in order to allow the system to re-establish under the reduced flow conditions.
- The Proponent investigate options for maintaining the existing pool sucker habitat near South Valley Spillway.
- Dezé Energy use the reduced flows for the year between construction of the Nonacho Lake control structure and operations to refine model predictions and mitigation strategies.





## Additional Info Required

*Flow requirements can be refined with additional information being obtained such as:*

- The completion of additional cross section surveys with attention paid to habitat breaks and where habitat diversity can be captured within Trudel Creek to increase the level of detail/ accuracy of the model.
- A fish tagging study which would establish baseline conditions regarding fish movements and connectivity.
- Riverine WUA data extracted from the revised WUA analysis, as the inclusion of the less severely impacted lake systems may hide areas of habitat within the river system that could be more severely impacted. Currently only “Lake Data” is split out.



## Additional info required cont.

- Specific details of fish habitat use including sensitive areas that require greater protection such as the location of whitefish spawning areas.
- Wetted area versus discharge plots for the lake and river reaches of Trudel Creek.
- Dissolved oxygen data in areas that are most likely to be impacted by lower flows, both in lake and stream sections of the Trudel Creek system.



## Conclusion

***Based on the available information, DFO is of the opinion that the project can move to the regulatory phase with the following understanding:***

- A flow regime that meets the ecological needs of Trudel Creek still needs to be agreed upon.
- Comprehensive AEMP and Adaptive Management Program will be implemented with adequate baseline information.
- An adequate fish habitat compensation plan to offset project-specific adverse impacts to fish and fish habitat will be developed by Dezé Energy and approved by DFO.



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# Questions?

