**Annex 1 Questions on Valued Components identified by IAAC for which DFO has expertise**

IAAC is seeking a detailed expert opinion on the following valued components:

- Fish and fish habitat, including species at risk[1]
- Current use of lands and resources for traditional purposes by Indigenous Peoples

The following questions will enable DFO to guide its expert opinion on these valued components.

**Existing environment and baseline conditions**

1) **Is the baseline condition of each valued component adequately and sufficiently described and documented? Please explain your answer and identify any gaps or areas where uncertainties remain. Explain to what extent these may influence the environmental analysis.**

Response:

All the information provided on the characterization of fish habitat, the associated functions, and the fish species present is sufficient to assess the project's impacts on fish and fish habitat. The sources provided are relevant and include the various fish inventories and habitat characterizations conducted by the proponent for this project and for the Timiskaming Dam (Ontario side) reconstruction project authorized in 2015, as well as by Indigenous organizations and various public and government agencies.

**Potential environmental effects**

2) **Have the potential environmental effects on each valued component been adequately identified and documented by the proponent (for example, the effects of rebuilding the dam downstream of the existing one, replacing the flow system with vertically rising gates, etc.)? Please explain your answer and identify any gaps or areas where uncertainty remains. Please describe any potential environmental effects that were poorly identified or not identified.**

Response:

Overall, the project's environmental effects have been adequately identified and documented by the proponent and are sufficient for DFO to conduct a detailed analysis of the project's impacts on fish and fish habitat and to provide this opinion. The various follow-ups required from the proponent upon the completion of the work will make it possible to validate the accuracy of the effects described by the proponent. Corrective measures or modifications to the offsetting work

[1] Species with special status include species at risk under the *Species at Risk Act* and species that have a status designated by the Committee on the Status of Endangered Wildlife in Canada.

may be required after the work, in the event of significant differences between the anticipated effects and what is observed.

**Mitigation measures**

3) **Among the mitigation measures proposed by the proponent, please identify those you consider to be key measures[2]. Please propose corrections (if necessary) or recommend any other measures you consider essential to avoid or mitigate environmental effects that were not proposed by the proponent**

Response:

The proponent proposes implementing various general measures to avoid or mitigate certain impacts on fish and fish habitat. The proposed measures specifically involve the timing of the work, the management of sediment input and transport during the work, fish scaring (deterrence) and relocation, and the implementation of a revegetation plan.

DFO cannot provide a complete list of mitigation measures, as the proponent's work methods will have to be verified by DFO once they have been finalized by the proponent. In general, some of the mitigation measures that could be required for the issuance of an authorization under the *Fisheries Act* (FA) and the *Species at Risk Act* (SARA) are outlined below on a preliminary basis. Discussions with the proponent will be required when the project reaches this stage.

*Project schedule*

- Perform in-water interventions 30 days after the water temperature has reached 18 °C, in order to promote the full development of lake sturgeon larvae until their downstream migration. Other dates covering specific sensitive periods may be required once the work methods are better defined.

*Erosion and sediment transport control*

- Minimize forest clearing both above and below the high water mark and conserve the vegetation cover for as long as possible prior to the start of construction.
- Strictly limit stripping, excavation, earthwork and levelling in the work areas.
- Implement effective measures to minimize sediment inputs from the work site to the aquatic environment and maintain such measures (e.g. sediment barriers, berms, sediment traps, sedimentation ponds, temporary slope stabilization, diversion of water to vegetated areas). The measures must remain effective during periods of flooding, heavy rain and frost.

[2] Key measures: mitigation measures that are essential to avoid or mitigate environmental effects and that could be translated into conditions under CEAA, 2012.

- Keep excavated materials above the high water mark. If required, confine or stabilize these materials (e.g. waterproof tarps, sediment barriers) to prevent sediment inputs to the aquatic environment.
- When work must be carried out in the water, isolate the work area so that the work can be performed under dry conditions, or limit sediment inputs to the aquatic environment (e.g. by using cofferdams, diking and pumping, temporary diversion, turbidity curtain).
- Encourage the use of turbidity curtains to enclose the work area and confine suspended sediments. Deploy the curtain in a manner that will limit fish entrapment inside the enclosure.

*Management of debris*

- Do not discharge any debris into the aquatic environment. Any debris that is accidentally introduced into the water must be removed as quickly as possible.

*Temporary works*

*General measures*

- Limit the cumulative encroachment of temporary works to one-third of stream width at bankfull discharge, in order to limit any increase in current speeds associated with restriction of flow, and thus avoid hindering the free passage of fish or creating erosion issues.
- Ensure, at all times, the free circulation of water and a sufficient volume of water to maintain fish habitat functions (feeding, nursery, spawning) downstream of the work area. Take all necessary measures to prevent effects (e.g. flooding, dewatering, erosion, suspended solids) upstream and downstream of the work area.
- Design and stabilize the temporary works so that they can withstand possible flooding during the work period and avoid eroding the stream banks or bed.

*Cofferedams*

- Encourage the use of cofferdams that minimize encroachments into fish habitat (e.g. sheet piles, concrete blocks, sandbags).
- If rockfill cofferdams are used, they must be constructed using clean materials.
- Take all necessary measures to waterproof the cofferdams, thereby minimizing the volume of water to be managed.
- Encourage the use of work methods that improve the quality of water to be managed (e.g. line the bottom of excavations with stone, ditches and seeps, installing a blinding slab, etc.).
- Treat the water from the cofferdam enclosure before returning it to the aquatic environment to minimize sediment inputs (e.g. vegetation buffer area, settling basin, drainage ditch, Envirobags, spillway bowl, combination of several methods).

- Gradually restore the flow of water in the work area to allow the recomposed bed substrates to settle and overlap, thus ensuring the impermeability of the streambed. During this time, turbid water must be pumped out of the work area towards appropriate water management systems (pumping into vegetated areas, setting basin, etc.).

*Temporary jetties*

- Encourage the use of jetties that minimize encroachments into fish habitat.
- Use clean granular materials to construct temporary jetties (including running surfaces).

*Temporary watercourse crossings*

- If crossing is deemed necessary, encourage the use of temporary bridges or crossing structures to minimize encroachments into fish habitat and ensure the free passage of fish.
- Use clean granular materials to construct temporary diversion routes, excluding the running surface and portions of the route located above the high water mark. During dismantlement, remove all material that was installed.

*Machinery*

- Do not operate machinery in the water.
- If work needs to be carried out below the high water mark during the dewatering period, confine and limit the movement of machinery.

*Pile driving*

- When installing piles, allow pump water to settle before returning it to the body of water, and recover and dispose of drill mud in the terrestrial environment.
- Promote the use of vibratory pile driving or drilling to install piles. Impact pile driving should be used only when no other techniques can be used.
- If possible, isolate the work site by implementing a sound attenuation system (bubble curtains, cofferdams, insulation blankets, etc.) to reduce the level of noise emitted into the aquatic environment.
- Begin the pile driving work using a phased approach to allow the fish to leave the immediate work area. The ramp-up procedure must start at the equipment's minimum power level and power must gradually be increased until the optimal level is reached.
- If a stoppage of more than 20 minutes is anticipated between two periods of pile driving, perform the ramp-up procedure again.

*Bank stabilization*

- Design the stabilization such that the end effect is minimized. To do so, the stabilization must gradually conform to the natural profile of the existing slopes on both sides of the work.

- To optimize fish habitat quality, incorporate a vegetative component into stabilization structures by using native overhanging shrub and herbaceous layers.

*Temporary work site closure*

- Temporarily stabilize and protect disturbed soils that present a risk of erosion and sediment transfer to the aquatic environment, using methods appropriate to the site, duration of site closure and time of year.
- Divert runoff before it reaches disturbed soils (e.g. use interceptor ditches and dissipation trenches to divert water into vegetated areas).
- Ensure that the measures put in place to minimize sediment inputs from the work site to the aquatic environment are working properly and that their maintenance is carried out before the site is closed

*Site restoration*

- Restore the streambed and banks in aquatic environments affected by the work to their original condition (substrate particle size, bed profile, vegetation, etc.) after the dismantling of the site, in all affected areas (temporary works, access, etc.).
- Gradually restore the flow of water in the work area to allow the recomposed bed substrates to settle and overlap, thus ensuring the impermeability of the streambed. During this time, turbid water must be pumped out of the work area towards appropriate water management systems (pumping into vegetated areas, setting basin, etc.).
- Minimize the use of shoreline riprap and do not exceed the high water mark; carry out revegetation to the lowest possible level on the bank, using recognized plant engineering techniques that prioritize the use of shrub strata and herbaceous overhangs, and the use of native species. Revegetation must be done as soon as possible after the work is completed and within a suitable time frame, so as to maximize vegetation establishment. Restore to their original condition any ditches damaged by machinery (damage to flow gradient, embankment shoulders, etc.).

*Control of aquatic invasive species*

- In an area well away from any bodies of water, inspect and clean all equipment (machinery, barges) that will be used during the work.
- Remove all traces of mud, aquatic plants or other debris, and dispose of the waste in the garbage or in a landfill.

*Fish relocation*

- If required, move fish away from areas that will be dewatered y using deterrent techniques (such as sound emissions, disturbance, seine netting, etc.) and block access to these areas before lowering water levels or confinement.

- Carefully remove all fish that are trapped in confined or isolated sections of the work site and immediately return them to the aquatic environment, in an area conducive to their survival, to prevent any fish mortality.
- Ensure real-time monitoring of fish mortality by the team responsible for fish relocation and notify DFO as soon as any mortalities are observed.
- Ensure optimal conditions for the survival of relocated fish throughout the entire relocation process.
- Provide a report documenting the details of the fish relocation.

**Residual environmental effects**

4) **Have the residual environmental effects (after implementation of mitigation measures) for each valued component been adequately identified and documented by the proponent? Please explain your answer and identify any gaps or areas where uncertainty remains. Please describe any residual environmental effects that were poorly identified or not identified.**

Response:

DFO is of the opinion that the proponent has identified all of the residual effects. However, some uncertainties remain over the area of fish habitat to be dewatered, which will depend on the type of cofferdam to be used. The unavailability of these dewatered habitats during part of the work has the potential to adversely affect the many fish species using these habitats, particularly in terms of recruitment. However, the size of these habitats will be specified as part of the regulatory process under the FA and SARA. Other uncertainties also remain over potential flow modifications downstream of the new structure caused by the changes to the gate system.

However, DFO believes that carrying out appropriate follow-ups and corrective measures as necessary, as well as undertaking offsetting measures (enhancements), will make it possible to offset the permanent and temporary losses, taking into account the uncertainties surrounding the impacts and effects on fish habitat associated with the reconstruction of the dam-bridge.

5) **In DFO's opinion, what are the project's residual environmental effects on each valued component?**

Response:

Based on current information, the reconstruction of the new dam-bridge downstream of the existing structure will cause the disruption of approximately 3,900 $m^2$ of fish habitat and the destruction/harmful alteration of approximately 9,300 $m^2$ of fish habitat. Many species of fish use these habitats to complete a number of their life cycle functions. The time lag between the start of the work and the implementation of offsetting habitat enhancement measures will also cause

a temporal impact, as the spawning sites in the area inside the cofferdam will potentially be unavailable during part of the work.

Given the location of the reconstruction work and the habitat offsetting projects planned, offsetting cannot be carried out prior to the work. In addition, some spawning grounds located near the downstream cofferdam could be adversely affected by the flow modifications caused by the diversion of the flow on the Ontario side during the work.

6) **Do the mitigation measures, including the monitoring plans proposed by the proponent (if applicable), address the remaining uncertainties? Please explain your answer and propose any other measures you consider essential to avoid, mitigate, monitor or follow up on residual environmental effects.**

Response:

The proponent is proposing a work sequence, work methods, and various mitigation measures and follow-ups that will make it possible to mitigate a significant portion of the impacts that the project will have on fish and fish habitat.

However, the cofferdam will have impacts on downstream spawning grounds and will disrupt spawning sites—or possibly make them inaccessible—for a period of one to three years, which will have adverse effects on fish and fish habitat. The impacts or effects associated with these uncertainties must be integrated into the offsetting plan that the proponent will be required to submit. Discussions with the proponent about this have begun in order to adequately offset the residual environmental effects that cannot be avoided or mitigated.

**Cumulative effects**

7) **Have cumulative effects[3] on each valued component for which a residual effect remains been adequately documented? Please explain your answer and identify any gaps or areas where uncertainty remains. Explain to what extent these may influence the environmental analysis**

Response:

The proponent has adequately documented the aspect of cumulative effects in the Environmental Impact Statement (EIS). As mentioned in the EIS, constructing a dam in a lotic system has lasting negative impacts on a portion of the fish community; these impacts are known and have been extensively documented in the literature. The once-abundant Lake Sturgeon population in the Ottawa River has been particularly affected by various anthropogenic factors that have built up

[3] Cumulative effects are changes to the environment caused by the project in combination with other past, present and reasonably foreseeable projects or activities.

over the years, notably the construction of a dozen dams, which have fragmented the system and created barriers to the passage of the species along its migratory routes.

However, this aspect does not influence DFO's analysis, given that the project involves the replacement of a barrier that has already been in place for several decades, rather than the addition of a new barrier. Therefore, it will have no additional residual effects on fish passage. In fact, the possibility of adding a fishway creates an opportunity to restore the free passage of fish and thereby mitigate one of the cumulative effects observed in the Ottawa River.

8) **Are the mitigation measures proposed by the proponent to avoid or mitigate cumulative effects adequate and sufficient? If not, please explain and propose other measures.**

Response:

DFO is of the opinion that the mitigation measures proposed by the proponent, as well as the ongoing discussions on the development of offsetting measures, will make it possible to avoid and mitigate the cumulative effects of the project. An important component of this project is the potential addition of a fishway, which will reduce the impact of cumulative effects by restoring the free passage of fish across one of the many barriers in the Ottawa River. See Response 9 for more details.

9) **Among the mitigation measures proposed by the proponent to reduce cumulative effects, please identify those you consider to be key measures. Please propose corrections (if necessary) or recommend any other measures you consider essential to avoid or mitigate cumulative effects that were not proposed by the proponent.**

Response:

Following the construction of the dam in 1930, a number of key sites for the spawning of many species were naturally created downstream of the structure. These sites, considered to be of high quality, provide suitable conditions for spawning, particularly for Lake Sturgeon. They represent the only known spawning grounds for this population, which is confined between the Timiskaming dam-bridge and the Otto Holden Dam, which is located nearly 50 km downstream. The project will cause the harmful alteration, destruction and/or disruption of a number of these sites. One measure that will enable cumulative effects to be avoided, which has been deemed essential to the project, is the creation of spawning habitats of at least the same quality and quantity downstream of the new dam-bridge. The implementation of various follow-ups will be crucial in assessing the success of these enhancements and in carrying out corrective measures if required. Discussions with the proponent on this subject are underway. This aspect will also be an important topic of discussion in the consultations with the Indigenous communities involved during DFO's regulatory phase.

In terms of the fishway, as mentioned in the response to question 8, this project is an opportunity to restore free passage to fish in order to reduce the cumulative impacts on the latter, particularly Lake Sturgeon.

The magnitude of the work in a system like the Ottawa River has the potential to generate large amounts of suspended solids (SS) in the water column and adversely affect large areas of downstream habitats. The proposed work methods and work sequence—in particular the diversion of flows along the west side of Long Sault Island through Timiskaming Dam (Ontario side) for the entire duration of the work and the installation of a cofferdam upstream—are important in allowing work in the dry to be carried out, which will help to optimize the control of SS dispersion.

**Monitoring and follow-up programs**

10) **Does the monitoring program allow for verification and control of the implementation of mitigation measures and ensure that they are appropriate to reduce, avoid or mitigate environmental effects on each valued component? Please justify your answer.**

Response:

DFO is of the opinion that the monitoring and follow-up program proposed by the proponent in the EIS should make it possible to accurately document the effectiveness of the mitigation measures, the compliance of the work, and the impacts potentially observed on fish and fish habitat during and after the work. During the regulatory phase, the proponent will be required to submit a detailed follow-up plan to DFO for validation in order to verify that the objectives related to the completion of the offsetting work have been achieved and in preparation for the potential addition of a fishway.

11) **Please identify in the monitoring program the essential measures to verify and control the implementation of mitigation measures and ensure their appropriateness. Please propose corrections (if necessary) or recommend any other measures you consider essential.**

Response:

As indicated in the response to question 10, the project's residual impacts must be offset. The follow-ups associated with the offsetting measures still need to be defined by the proponent during DFO's regulatory phase and the offsetting plan is still being developed. However, some of the elements of the monitoring program that will be essential in verifying the effectiveness of the measures to avoid and mitigate the environmental effects are outlined below. These elements are addressed by the proponent in the EIS.

1. Monitoring of the use of the spawning grounds near the project by spawners of different species. The data obtained will be compared with those from previous follow-ups, making it possible to more accurately assess the work's impact on the various spawning grounds near the work site.
2. Implementation of the bank revegetation follow-up plan. It should be noted that the proponent's revegetation plan is still being prepared and must be submitted to DFO for approval, among other things.
3. Follow-up on the effectiveness and use of the fishway and monitoring of the various offsetting projects that will be implemented. The protocols submitted by the proponent must be developed with the help of DFO and include the participation of the Indigenous communities involved. The objectives must be clear and well defined, and the data obtained from the follow-ups must make it possible to confirm the fishway's effectiveness or determine whether adjustments are needed.

**12) Will the follow-up program allow verification of the accuracy of the environmental assessment or determination of the effectiveness of measures implemented to mitigate the project's environmental effects? Please justify your answer.**

Response:

See responses to questions 10 and 11.

**13) Please identify in the follow-up program the measures that will verify the accuracy of the environmental assessment or determine the effectiveness of mitigation measures implemented to mitigate the project's environmental effects. Please propose corrections (if necessary) or recommend any other measures you consider essential.**

Response:

See response to question 11.

**Effects on the current use of lands and resources for traditional purposes by Indigenous Peoples**

**14) Based on your mandates and expertise, which fish species of interest (subsistence fishing, traditional and cultural purposes, etc.) to Indigenous Peoples are likely to be affected by the project?**

Response:

The Ottawa River ecosystem has high fish diversity, with over 35 species identified in the study area. All of these species are important in varying degrees to the Indigenous communities that use this territory. During the proponent's Indigenous consultations, the following species in

particular were identified as being of interest: Lake Sturgeon, Walleye/Sauger, Northern Pike, Smallmouth Bass, Lake Whitefish, Lake Trout, Brook Trout, Brown Bullhead, Rainbow Trout, Longnose Sucker/White Sucker, Yellow Perch, bivalves including the Hickorynut, and some carp species. The American Eel also appears to be a species of interest, although all evidence points to this species no longer being able to reach this far upstream in the Ottawa River due to the presence of numerous barriers to migration. Additional details may also be obtained during the Indigenous consultations that will take place during DFO's regulatory phase.

15) **How might the construction or operation of the project impact traditional activities related to fish and fish habitat for these Indigenous Peoples?**

Response:

As part of the consultations with the Indigenous communities affected by the project that must take place during the regulatory phase, the impacts of the project on their traditional and contemporary rights and activities must be discussed in greater depth.

16) **Have Indigenous Peoples' concerns related to "fish and fish habitat" been taken into account by the proponent? Please explain your answer.**

Based on DFO's current understanding, several concerns of Indigenous peoples related to "fish and fish habitat" have been taken into account by the proponent and the latter has undertaken the necessary measures to accommodate the concerns raised. The Indigenous consultation process during the regulatory phase is underway and will allow DFO to confirm that all Indigenous Peoples' concerns related to "fish and fish habitat" have been taken into account by the proponent and have been adequately addressed.

**Annex 2 Questions on other effects to be considered**

**Accidents and malfunctions**

1) **Has the proponent identified sensitive environmental components (biophysical and human) that could be affected by potential accidents and malfunctions? Based on your expertise and available information, are there other sensitive environmental components that should have been identified? Please specify these components and describe the uncertainties related to their exclusion.**

2) **Have the environmental effects of accidents and malfunctions been adequately documented by the proponent? Please explain your answer. If applicable, please identify any gaps or areas where uncertainty remains and describe any residual effects that were poorly identified or not identified.**

3) **Does DFO have concerns regarding the project's environmental effects caused by potential accidents or malfunctions that may result?**

4) **Among the measures proposed to reduce the risks of accidents and malfunctions or to minimize their consequences, please identify those you consider to be key measures. Please propose any other measures you consider essential to avoid or mitigate residual environmental effects that were not proposed by the proponent.**

Response:

DFO has insufficient expertise to discuss the topics addressed in questions 1, 2, 3 and 4 in detail. However, it is reasonable to assume that, in a large river system, any major incident, such as a cofferdam malfunction, could have adverse effects on fish and fish habitat within an area several kilometres downstream of the work. The main impact would be the generation of a substantial quantity of suspended solids (SS) and the sudden release of a large quantity of water, which would lead to large areas of erosion. The impacts would be difficult to quantify, as there is no detailed description of the habitats outside the study area, but they could be significant for fish and fish habitat due to the significant dimensions of the cofferdam that would be required for the work.

**Effects of the environment on the project**

5) **Based on your mandates and expertise, does DFO have concerns regarding the effects that the environment[4] could have on the project? If so, please explain your concerns and identify any gaps or areas where uncertainty remains.**

Response:

DFO does not have the expertise to address this issue.

**Annex 3 Questions related to the application of the *Species at Risk Act* (SARA) and the *Fisheries Act***

**Application of SARA**

**IAAC is requesting an expert opinion from DFO on the following questions pertaining to fish species at risk[5]:**

1) **Based on the information submitted by the proponent and your expertise, which fish species at risk under SARA or fish species with a status assigned by the Committee on**

[4] For the purposes of CEAA, 2012, the environment is defined as all the natural conditions and elements of the Earth.

[5] Species at risk: a wildlife species that is extirpated, endangered, threatened or of special concern.

**the Status of Endangered Wildlife in Canada are likely to be affected by the project? Please justify your answer.**

Response:

According to our information, three species with special status have the potential to be found on the site:

Lake Sturgeon (Great Lakes - Upper St. Lawrence populations) is designated Threatened by COSEWIC. The presence of the species has been confirmed at the work site itself. Sturgeon use spawning areas located directly in the footprint of the planned work and will be directly affected by the project.

The Hickorynut is listed as Endangered in Schedule 1 of SARA. The distribution of this species generally overlaps with that of Lake Sturgeon, which is its likely host for larval dispersal. On the Ottawa River, the bivalve has recently been observed more than 130 km downstream of the work site, although there are historical records of the species farther upstream, near Lake Timiskaming. However, given the absence of recent observations and the presence of numerous barriers to sturgeon migration (which would connect the southern Ottawa River populations to the population confined between the Timiskaming and Otto Holden dams), the possibility of the species being present at the work site is low, especially since the characteristics of the habitat that will be affected by the project do not generally correspond to the characteristics sought by the species.

Lastly, the American Eel must be mentioned, which has a COSEWIC status of Endangered and was abundant in the past. The species is no longer observed in the work area due to the presence of the numerous dams downstream, which prevent upstream migration along the Ottawa River.

2) **Has the proponent adequately and completely identified the harmful effects of the project on these species at risk and their critical habitats[6]? Please explain your answer and, if applicable, identify any gaps or areas where uncertainty remains. Describe any harmful effects that were poorly identified or not identified.**

Response:

The proponent is aware of the potential presence of Hickorynut at the work site and has committed to using divers to conduct inspections as water is removed from the work area, as well as to relocating Hickorynut individuals.

3) **Would the mitigation measures proposed by the proponent allow the effects to be avoided or reduced and controlled? Please explain your answer.**

[6] As defined in SARA.

Response:

DFO will provide the proponent with the specific Hickorynut detection and relocation protocol (Mackie et al. 2008) to serve as the basis for the proponent's relocation protocol. This protocol has been successfully used in other projects and will allow the proponent to mitigate adverse effects on the species. In addition, DFO will support the proponent in adapting the protocol from Mackie et al. 2008 to the current project.

4) **Are the mitigation, monitoring and follow-up measures proposed compatible with the best available information, including applicable recovery strategies, action plans or management plans, and do they comply with the requirements of SARA regarding the protection of individuals, residences and critical habitat of species at risk? Please explain your answer and, if applicable, identify any gaps or areas where uncertainty remains.**

Response:

The requirements of the permit that will be issued to the proponent for the relocation of individuals include the pre-identification of the relocation site(s). The conditions at the site(s) must be comparable to those at the site(s) where the individuals were collected and the proponent must conduct a relocation follow-up one and two years after relocation. These mitigation measures are consistent with the best available information and must comply with the conditions of SARA.

5) **Among the mitigation measures proposed by the proponent, which are key measures to avoid or reduce harmful effects? Please recommend any other measures you consider essential that were not proposed by the proponent.**

Response:

See response to question 4, Annex 3.

6) **Among the monitoring and follow-up measures proposed by the proponent, which are necessary to monitor harmful effects? Please recommend any other measures you consider essential that were not proposed by the proponent.**

Response:

See response to question 4, Annex 3.

7) **Based on the information provided by the proponent, will DFO be required to issue a permit or agreement under SARA? Please specify, if applicable.**

Response:
As indicated in the response to question 1, Annex 3, the probability of occurrence of Hickorynut at the work site is low. However, we cannot state with certainty that the species is not present, given the absence of surveys, the lack of data on the species in the Ottawa River, and the presence of its host species, Lake Sturgeon, at the work site. In addition, the proponent has been asked to carry out inspections, which may lead to the relocation of individuals. Therefore, DFO must issue a SARA permit for the Hickorynut.

8) **Based on the information currently available to you, has the proponent considered all reasonable alternatives that could minimize the negative effects of the activity on the species' critical habitat and demonstrated that the best option was selected? Explain your answer.**

Response:

The dam is reaching the end of its life, and the proponent has no choice but to rebuild it. The dam reconstruction scenario will lead to several thousand square metres of encroachment in a habitat that remains unlikely to be frequented by the species, although its presence cannot be excluded with certainty. DFO is of the opinion that the proponent has considered all alternatives to the greatest extent possible.

9) **Based on the information currently available to you, has the proponent demonstrated that it will take all measures to minimize the negative effects of the project activities on the species' critical habitat, where applicable? Explain your answer.**

Response:

Regarding the SARA permit requirements mentioned in the response to question 4, discussions will take place between DFO and the proponent to support the latter in developing and implementing the Hickorynut relocation protocol (based on Mackie et al. 2008). DFO is of the opinion that this protocol will minimize the negative impacts on the species.

10) **In the event that a fish species at risk is incidentally affected by the project, or if there is a risk of affecting or destroying an element of that species' critical habitat, based on the information currently available, can measures be put in place to avoid jeopardizing the survival or recovery of the species? Please explain.**

Response:

Considering the low probability that the species will be found at the work site and the measures discussed in the responses to questions 3 to 9, DFO is of the opinion that the project will not jeopardize the survival or recovery of the species.

**Application of the *Fisheries Act***

11) **Based on the information provided by the proponent, will DFO be required to issue authorizations under the Fisheries Act? Please specify, if applicable.**

Response:

According to the information provided to DFO by the Agency and the proponent, the project will cause the harmful alteration, disruption, and destruction (HADD) of fish habitat, notably the spawning habitats used by many fish species, including Lake Whitefish, Walleye, Sauger, Mooneye, Lake Sturgeon, Trout-Perch, Northern Pike, White Sucker, and Smallmouth Bass. Consequently, an authorization under the *Fisheries Act* also acting as a permit under the *Species at Risk Act* must be issued.

12) **In the event that there is destruction, damage or disruption of fish habitat, is it compensable under the *Fisheries Act*? If so, will the preliminary compensation plan presented by the proponent be able to offset this destruction, damage or disruption of fish habitat? Please explain.**

Response:

Discussions are currently underway between DFO and the proponent to develop the finalized offsetting plan. The Indigenous communities involved are also invited to participate in formulating this plan as part of the Indigenous consultations. DFO and the proponent agree at this time that a significant part of the offsetting efforts should be devoted to creating multispecies spawning grounds downstream of the dam, particularly for Lake Sturgeon, to offset the adverse effects of the project. During the detailed assessment of the adequacy of the offsetting measures, DFO may ask the proponent to add other types of enhancements, in locations potentially outside the work area. No FA authorization will be issued until an offsetting plan is submitted to offset the entire HADD to the satisfaction of DFO.