

SEIS Review Comments Keyways Generation Project

Comment Number	Department	Volume / Document	Page	Topic	Context / Preamble e.g. provide applicable background/preamble for providing the comment	Specific Department Comment / Request for Additional Information:	Proponent Response	Government Disposition
1	CEAA	RE SV 1	1-8, 1-27	Aquatic Environment	1.2.2.4 - selection of VECs - Considering the importance of the benthic community to fish populations, should it be included as a VEC?	Please confirm.	CEAA-0001	Proponent response indicates rationale for exclusion of benthic invertebrates as a specific VEC and notes areas of the ES where the assessment included information on benthic invertebrates. Proponent also commits to including benthic invertebrates within the Aquatic Effects Monitoring Program.
2	CEAA	RE SV 2	4-21	Aquatic Environment	Changes to trophic levels in Stephen's Lake area, aquatic macrophytes. Page 4-33 states aquatic plants and attached algae downstream of coffee dam and excavation areas may be somewhat negatively affected. Page 4-24 then states based on a low rate of deposition, downstream sedimentation is not expected to have a measurable effect on vegetation.	Please clarify the potential down stream effects to vegetation by ISS.	CEAA-0002	Proponent response addresses information request.
3	CEAA	RE SV 3	6-29	Aquatic Environment	6.4 Project Effects - In the list of potential effects it appears the following are missing: disruption of rearing and feeding habitat, and disruption of movement between Gull Lake and Stephen's Lake.	Please provide a rationale why these project effects were not included in the list. Consider adding to project effects list.	CEAA-0003	Proponent response addresses information request.
4	CEAA	R-ES Guidelines	7-30	Terrestrial	Cumulative Effects Assessment - Linear Feature Density discrepancy between Section 7.2.2.2.3 Mammals and Section 7.2.2.3.1 Habitat, Ecosystems and Plants	On page 7-30 linear feature density is not expected to change. However on page 7-32 under Inaccess Linear feature density will increase in the regional study area. These statements are contradictory. Please clarify.	CEAA-0004	Proponent response addresses information request.
5	CEAA	Map Figure 50a	Map 4-10	Terrestrial	Biophysical Environmental Mitigation Areas Map - A potential high quality wetland area identified on the map will be fragmented by the south access road development. The road location has the potential to impact the wetland mitigation.	Please provide a rationale for developing the wetland mitigation in an area that is also identified for the development of proposed south access road corridor.	CEAA-0005	Given that the road will be located through the wetland area, what measures will be in put place to create a suitable buffer area between the road and the wetland? Please describe the mitigation measures that will be employed to protect the new 'potential high quality wetland' from impacts due to the presence of or operation and maintenance of the proposed road and water control structures, including erosion and sedimentation from the road surface.
6	CEAA	R-ES Guidelines	4-33		Sequencing of Project Phases Figure - Figure 4-5 is not presented in the ES document as stated (relates to timing sequences).	Please provide or refer the reviewer to the location of the figure in the ES.	CEAA-0006	Proponent response addresses information request.
7	CEAA	R-ES Guidelines	4-6		There is no consideration of a "No GO scenario" as required in the ES Guidelines.	Please provide justification or refer the reviewer to the relevant section of the ES.	CEAA-0007	Proponent response addresses information request.
8	CEAA	R-ES Guidelines	1B-1	Approvals	Applicable Legislation - The Canadian Environmental Assessment Act has applicability to the entire project as proposed. It is not clear what the "Town Centre Complex Project" is referring to. There is no mention of the Federal Species Act Risk Act or the Federal Migratory Birds Convention Act and its applicability to the project.	Please be aware of the applicable federal legislation.	CEAA-0008	Proponent response addresses information request.
9	CEAA	R-ES Guidelines		Assessment of Accidents and Malfunctions - There is no assessment of the effects of accidents and malfunctions as required in the ES Guidelines. There is little discussion on contingency and emergency response procedures developed in the event of an accident or malfunction. The ES does not include a list of emergency response plans to be developed and implemented over the life of the project.	Please provide this information.	CEAA-0009	Proponent has identified a number of potential accidents and malfunctions; however, the assessment of the potential adverse environmental effects resulting from these occurrences has not been adequately described. As stated in the ES guidelines, the potential consequences of accidents and malfunctions including the environmental effects, must be considered and described in the ES documentation. The proponent must consider the significance of the potential environmental effects as a result of accidents and malfunctions using the significance criteria described in section 9.4 of the guidelines (magnitude, geographic extent, timing, duration and frequency; reversibility; ecological and social context; level of confidence and probability; and existence of environmental standards, guidelines or objectives for assessing the impact).	
10	CEAA	R-ES Guidelines		Physical Environment	ES Guidelines required the proponent to provide the present mercury and methylmercury data and analysis in soil. This is very little detail provided.	Please provide this information.	CEAA-0010	Proponent indicated that total mercury, along with other metals and nutrients, were analysed in soil samples from the flooded area; however, the ES indicates that the report documenting this work has not been completed. Please provide the data and analysis to support the assessment.
11	CEAA	PI SV	p. 2-6, P. 2-8	Public Involvement	The ES refers to materials that will be submitted at a later date, either as part of a supplemental filing, (e.g. material that will be related to Round Three of the Public Involvement Program) or other information that may be collected in future (e.g. study on use of the area by the Metals, under negotiation). There is some uncertainty about the information that will be available for public review and for review by regulators before the completion of the environmental assessment.	Besides the responses to information requests arising from this initial review of the ES, list all other studies, information, or reports that the proponent is planning to include as part of supplemental filing before the conclusion of the ES review phase, and the estimated date of filing this information.	CEAA-0011	Proponent has described the information that will be available, and timing of availability, as requested in the IR. Information from Round 3 of the IR will not be available until the second quarter of 2013. Information on use of land by Metals and/or Cross Lake First Nation is not identified as available during the EA unless it is identified through the Public Involvement Program. (see also response to CEAA 0004)
12	CEAA	PI SV	B-1 and follow	Public Involvement	The tables list the events held and the comments received from groups during workshops, open houses, and meetings. Other meetings or contact with Cross Lake/Inchikamuk First Nation are not included in this listing, presumably because the information about the Keyways project occurred in a slightly different context (CLFN/PCV - Article 3 discussions under the NFA). Although this was provided in a different context, it would be helpful to have the relevant information also included in the summary table, for the purpose of sorting and comparing.	Include the CLFN/PCV information from currently noted in Appendix 4) and other groups in the table for sorting and comparison purposes.	CEAA-0012	Proponent response addresses information request.

13	CEAA	PI SV	Appendix 1C	Public Involvement	Table 1 is sorted alphabetically by group, Table 2 is sorted alphabetically by issue.				
14	CEAA	SE-RU-18 SV	p.1-7	Socio-Economy	CEAA requires consideration of environmental effects, including the effects of changes to the environment on the current use of lands and resources for traditional purposes by Aboriginal persons. The EIS notes that the effects on domestic resource use are predicted for KCM communities only, and therefore the primary mitigation involves the effective implementation of the Adverse Effects Agreement (offsetting program) (see as an example p.1-27 s.1.2.4.1.1 Domestic Fishing Construction Phase Effects and Mitigation) which apply only to the KCM communities and members. Use in the local Study Area by other Aboriginal groups has not been identified through the Public Involvement Program; however, the EIS also acknowledges that this information may be outstanding. In that there are ongoing discussions with the MME and CLN/CN regarding how the resources are used by those communities. Further notes from the PIP meetings with Shumtawa indicate that this community believes that their treaty rights may be impacted. Implying effects to resource use. Finally, the proponent acknowledges that contact with some potentially affected Aboriginal groups has not been completed. The extent of hunting and fishing by Aboriginal groups or persons other than the KCM communities or members is not identified to date.				
1	DFO		3-2	Aquatic Environment	Biological components of the aquatic habitat were based on the period during which field studies conducted in the area, generally between 1997 and 2006. This period included both high and low flows, and therefore would indicate interannual variability related to flows."	Detailed background reports to support statements regarding interannual variability have not been provided in the EIS. These should be made available for review.	DFO-0001	Requested reports not provided.	Propponent response addresses information request.
2	DFO		3-2	Aquatic Environment	"No analysis of trends in aquatic habitat was conducted, since the water regime was established in 1977 and has been operated within set bounds since that time."	However, has aquatic habitat and changes in fish stocks changed since 1977, despite apparent consistency in water regime? Moreover, habitat changes were not actually assessed to support this claim. Can the existing environment be adequately portrayed if not assessed/sampled? This also does not account for natural changes in habitat with flow events outside of regulation. For example, a flow/ice event approximately 10 years ago changed the flow patterns at Gull Rapids, creating a new channel that flows northeast to Stephens Lake. Please consider the entire period of record for analyses.	DFO-0002	No additional information provided.	
3	DFO		3-2	Aquatic Environment	"Substrate composition could not be determined immediately upstream, within, or downstream of rapid sections due to safety concerns."	Please define "Immediately". Substrate composition should be confirmed in the dewatered areas in Gull Rapids prior to any construction. Resolution should be similar to that already conducted in the vicinity of Gull Rapids. This information is crucial for proper accounting of habitat destruction in the rapids.	DFO-0003	Physical area "immediately" downstream of Gull Rapids is not defined.	
4	DFO		3-5	Aquatic Environment	"For the purposes of predicting habitat conditions in the post-project environment and quantifying areal changes in habitat area between the pre and post-project environments, conditions at 50th percentile flow (pre-project) and full supply level (FSL) in the reservoir post-project were used."	This analysis is incomplete. While the 50th percentile accommodates the majority of flows, changes in fish habitat at lower flows are not shown and may be more crucial. Moreover, the 50th percentile flow will be relatively uncommon. The 50th percentile would represent a more normal flow condition and changes in this habitat are not presented. Please provide the results of this analysis which includes the 5th and 50th percentile flows.	DFO-0004	Results of percentile flows not provided. As further clarification to the proponent, request pertains to the period of record.	
5	DFO		3-5	Aquatic Environment	"Intermittently-exposed zone" is in the forebay, below the GS or both. There is no mention of study of the effects of water control on dewatering and re-wetting areas below the GS and whether habitat losses and fish kills will occur as a result of this.	Please confirm whether the "Intermittently-exposed zone" is in the forebay, below the GS or both. Please also provide an analysis of the effects of water control on dewatering and re-wetting areas below the GS and whether habitat losses and fish kills will occur as a result of this.	DFO-0005	Requested information not provided.	

6	DFO	3-6	Aquatic Environment	Section 3.2.1.1.2	Is the habitat classification in Section 3.2.1.1.2 related to suitability for fish habitat? Its use for fish Community Assessments (Section 3) is challenged as the methodology is unproven and thereby likely unacceptable. The use of habitat-based CPUE modeling was not supported by DFO, due to: 1) the high interannual and spatial variation in CPUE, often requiring several years of trend through time data, 2) only one published example of this method was provided and it was from a marine environment and 3) very small sample sizes that do not account for variation. Can the proponent provide additional published support for this methodology and/or provide a sensitivity analysis which confirms that changes observed in CPUE are linked to changes in habitat and not other variation (e.g. natural annual variability)?	DFO-0006	Information requested was not provided. Specifically, published support for the use of CPUE data in this context (littoral or open water environment) for habitat classification. Type III curve development (based on CPUE) is more common in marine environments. Moreover, use of CPUE required standardization of gear and effort. Information provided in this section will not be used for a quantitative assessment of impacts to fish habitat in review of the EIS or subsequent approvals.
7	DFO	3-8	Aquatic Environment	Depth Zones Section	In reviewing methods for aquatic habitat assessment in Appendix 3A, while the bathymetric surveying was very detailed, the validation of sonar data does not appear to be structured and repeated such that there is statistical confidence in the results obtained. There is no description of a comparison between the results expected and results observed and therefore the fidelity of the observations. Can the proponent present this sensitivity analysis or point the reviewer to the report which document this? Alternatively, can a study be proposed to test repeatability of bathymetric data collection (test areas beyond the survey area could be tested in the upcoming field season)?	DFO-0007	Question may not have been clear. Was direct substrate sampling conducted for each point of sonar data? If not, for areas modelled or extrapolated, how was "modelled" substrate confirmed. Areas of high habitat value are important, but its unclear how this would be known a priori (that is, before sampling)?
8	DFO	3-25	Aquatic Environment	"The main effects on habitat availability are losses due to dewatering, and disruption to available lotic habitat due to diversion."	Given that the impacts will extend for several consecutive years, impacts to fish habitat in the Nelson River and Stephens Lake can be considered as permanent and not as a temporary disruption. Please make this correction in the EIS.	DFO-0008	Habitat loss will be viewed as permanent for purposes of HADD calculations and compensation.
9	DFO	3-25	Aquatic Environment	"Substrate quality will also be disrupted due to erosion, transport, and deposition of bank and cofferdam materials into the downstream area primarily due to river staging in the Gull Rapids area."	Loss in some cases is expected to be permanent, at least in part (e.g. sand bars below Gull Rapids). As such, part of this impact needs to be described in the context of permanent loss. Please make this correction in the EIS.	DFO-0009	DFO concludes loss of sand habitat as permanent.
10	DFO	3-25	Aquatic Environment	"New lotic habitat will be created below the south dam, but will vary in area due to inflows and construction activity, until the spillway construction is complete."	The spillway is expected only to be operated every four years, so the "new" habitat will be of limited use. Please account for this lower productivity in this section of the EIS (habitat value and compensation).	DFO-0010	DFO concludes the creation of lotic habitat as low habitat value for the purposes of compensation.
11	DFO	3-26	Aquatic Environment	"The total area dewatered during Stage I of construction is estimated to be 131.5 ha, inclusive of the Project Infrastructure that accounts for about 30.6 ha (Table 3-6, Map 3-24). The total area dewatered during Stage II of construction is estimated to be 123.9 ha, of which the Project Infrastructure accounts for about 29.2 ha (Table 3-6, Map 3-24). Note that in Map 3-24, the Infrastructure that is permanently flooded in Stage II of construction (i.e. substrate alteration) is shown within the dewatered areas for Stage I."	With reference to Table 3-6 and Map 3-24, given that areas will be dewatered and coffer dams in place for at least three years (Stage I) and 1-3 additional years (Stage II), each of these impacts should be defined as permanent losses, not as disruptions. Much or all the area in the dewatered area will be utilized as borrow and/or river bed re-shaping (blasting) to facilitate flow to the new OS and spillway - as such current habitat function permanently destroyed. Moreover, neither the table or map (or text) account for the change in habitat use (and therefore value) from limited spawning habitat to, at best, feeding areas. Please revise estimates of habitat loss in the EIS taking into account these considerations.	DFO-0011	Areas dewatered as defined in Table 3-6 and Map 3-24 will be deemed as permanent losses.
12	DFO	3-28	Aquatic Environment	"The construction of two temporary causeways will be built to access the N-2 and G-3 borrow areas.....for about seven years during the construction period."	This would be considered a permanent loss of fish habitat. Please make this correction in the EIS.	DFO-0012	Footprint of causeways and associated Infrastructure will be considered permanent habitat losses.
13	DFO	3-28	Aquatic Environment	"3.4.1.6 Loss/Alteration of Habitat at South Access Road Stream Crossings."	Any loss of habitat (grazing, stream bed, etc.) will be permanent (this is not clear currently in the EIS). Also, there is no mention of stiling culverts to maintain 30D fish passage for fish that contribute to an aboriginal, recreational or commercial fishery. Please make the correction on HADD in the EIS. Please provide requested information on flows and passage (30D) for proposed crossings.	DFO-0013	Footprint of watercrossings and associated Infrastructure will be considered permanent habitat losses.
14	DFO	3-34	Aquatic Environment	Pages 3-34 to 3-36	Dispositional areas and changes described on pages 3-34 to 3-36, but does not talk about changes to specific habitats. Please provide details on how, specifically, proposed disposal will impact fish habitats and how this will be monitored.	DFO-0014	HADD description and accounting as requested was not provided.
15	DFO	3-43	Aquatic Environment	"A detailed monitoring plan will be provided in the Aquatic Effects Monitoring Plan"	When will this be provided? Should be in the EIS.	DFO-0015	Proponent response addresses information request.
16	DFO	3-43	Aquatic Environment	"This monitoring plan will be implemented during the construction phase of the Project, and will continue into the operational phase."	Should be provided in the EIS and must be provided prior to issuance of regulatory decision. Providing input on monitoring frequency is impossible without seeing detailed monitoring plan.	DFO-0016	Proponent response addresses information request.

17	DFO	6-4	Aquatic Environment	Information on movements through Gull Rapids was used to help determine whether fish passage might be required for the Keapik Project. Lake Sturgeon habitat use in the existing environment was described in part by calculating gillnet catch per-unit-effort (CPUE) in various habitat types.	CPUE is, in general, a very limited metric for estimating population size and even more limited to describe habitat use. Description of CPUE needs to be interpreted with caution. Comparison of CPUE between years requires that sampling is standardized and/or an unbiased sample design is employed. Sampling usually needs to be conducted over several years to account for interannual bias. Variation in any metric such as CPUE needs to be reported. Please provide results of analyses of variation in CPUE and how natural variation was accounted for. Please provide the specific reports which examine the fish community for DFO review.	DFO-0017	Proponent response addresses information request.
18	DFO	6-5	Aquatic Environment	6.2.4 Assessment Approach "Habitat Suitability Index models were developed in consultation with Fisheries and Ocean Canada...."	While suitability indices were agreed to, the use of these in habitat modelling was not. Please make this clarification in the EIS.	DFO-0018	Proponent response addresses information request.
19	DFO	6-8	Aquatic Environment	"Over-harvesting, both historical (primarily commercial) and at the time of publishing (domestic), were the biggest problems faced by the sturgeon stocks... Because of the time required for sturgeon to reach sexual maturity and catchable size, impacts of previous hydroelectric developments would be slow to appear in the population."	The historical loss and fragmentation of sturgeon habitats in the Lower Nelson River (e.g. spawning grounds) is not well addressed in the EIS. Impacts from, for example, from the loss of recruitment, may take decades to be realized in a long lived species such as sturgeon. Moreover, these comments do not completely agree with conclusions on impacts to and recovery potential of lake sturgeon in Designated Unit (Lake Sturgeon DU3 RPA - DFO 2010). Please address these deficiencies in the EIS by providing a more in-depth discussion of aquatic ecosystem change in the lower Nelson River.	DFO-0019	Proponent response addresses information request.
20	DFO	6-18	Aquatic Environment	"Four adults and 20 sub-adults were captured between Birthday and Gull Rapids during other Keapik gillnetting studies conducted during summer and fall of 1998-2009 (Table 6-6). The sub-adult catch (number) = 15(m) during the summer of 2009 index gillnetting program included ten relatively small sturgeon (139-250 mm total length) believe to have hatched in spring 2006. Based on these captures and the 15 YOY captured in 2008 it appears that there was relatively high recruitment in this reach in 2006."	These are very small sample sizes to derive any credible assumptions on any life history parameter. Fry tagging results are too generalistic to derive specific conclusions on life history patterns. Please provide the detailed reports which document sampling which was conducted, results and analyses.	DFO-0020	Proponent response addresses information request.
21	DFO	6-19	Aquatic Environment	"It is assumed most of the spawning lake sturgeon captured in or near the Gull rapids moved upstream from Stephens Lake as none of the sturgeon that were tagged upstream between Birthday and Gull Rapids were recaptured in spawning condition in the Gull Rapids vicinity (see Section 6.3.2.7)."	This claim is not supported for several reasons: 1) the capture rate of sturgeon (including spawning) was very low and therefore probability of catching a sturgeon from any given area is diminished; 2) unless fish movements are tracked over time, where they originate cannot be defined. While sturgeon may have originated from Stephens Lake, they may also have originated elsewhere in the Nelson River. Unfortunately, the data cannot provide this discrimination. Please provide detailed reports which examine lake sturgeon spawning and movement.	DFO-0021	Sample size for telemetry data is small.
22	DFO	6-15	Aquatic Environment	"Under the 5th, 50th, and 95th percentile flow scenarios, HSI models for lake sturgeon spawning habitat in the existing environment show that there is a WUA of between 13ha and 18ha within and at the base of Gull Rapids.... Under the 5th, 50th, and 95th percentile flow scenarios, HSI models for lake sturgeon spawning habitat in the existing environment show that there is a WUA of between 13 ha and 18 ha within and at the base of Gull Rapids. Two additional variables were added to the HSI model to account for observations made during egg deposition studies: 1) the direction of river flow, and 2) distance from the origin of white water and/or a hydraulic feature."	It is recognized that only in the spawning HSI model were additional parameters used in addition to the traditional parameters of depth, substrate and velocity. Also recognizing data in using these additional parameters in the WUA of lake sturgeon spawning habitat is greatly reduced (in most cases at 100 fold). Given the potential magnitude of these effects, please provide published examples of the use of the distance and direction parameter in other studies.	DFO-0022	DFO concludes that the use of the distance and direction parameter remain unproven. For example, the description of hydraulically significant features such as shear is available as part of hydraulic models developed by the proponent, providing a more quantitative method of developing additional suitability parameters. In 2010, DFO initiated the DFO-Melantha Hydro Habitat Quantification Working Group and has met several times with the proponent and consultants. DFO recommends the resumption of this collaborative effort. For the purposes of the EIS and future approvals, conclusions on habitat impacts will be based on the three parameter model (if conclusions are based on HSI instead of area).
23	DFO		Aquatic Environment	Lake Sturgeon Spawning HSI Modelling and commensurate maps	Please present WUA for all lake sturgeon spawning habitat for all presented flows using just the depth, substrate and velocity suitability curves.	DFO-0023	Proponent response addresses information request.
24	DFO		Aquatic Environment	Appendix 6D	Please present Habitat Units (HU's) for all tables in section 6D.	DFO-0024	Requested HUs not provided.
25	DFO		Aquatic Environment	Chapter 6	For all HSI maps, outline of existing environment (the shorelines of the Nelson River and Stephens Lake) should be shown in the post project environment maps. The additional aquatic area gained by creation of the torseby should be illustrated and given a suitability of 0, recognizing that this is terrestrial habitat that will undergo substantial change before it becomes productive aquatic habitat (EIS suggests at least 5 years). Please provide revised maps showing these changes.	DFO-0025	Revised maps not provided.
26	DFO	6-16	Aquatic Environment	Maps 6-48, 6-49	Under as to how sand/gravel habitat will be created post project in the torseby, particularly in years 1-5. Does this include compensatory measures proposed in Appendix 1A? Please provide detailed information/model which demonstrates the creation of sand post project.	DFO-0026	Requested details on sand habitat creation not provided.
27	DFO		Aquatic Environment	Chapter 6	HSI model verification for existing environment not conducted. Can model verification be conducted prior to construction? Can verification of physical environment be conducted prior to construction. Post project verification of HSI and physical models should be conducted.	DFO-0027	DFO notes that the proponent will not verify physical environment and weighted usable area models. As such, appropriate caution will be exercised in interpretation of model results.
28	DFO	6-19	Aquatic Environment	"The model also suggests that there is more spawning habitat available at the base of the rapids than within them, due to the prevalence of excessively high velocities within the rapids proper."	Is this a valid conclusion at all flows? How would spawning habitat distribution change without constraining the model by distance and flow direction?	DFO-0028	Proponent response addresses information request.

29	DFO		6-19	Aquatic Environment	"Currently, lake sturgeon spawn within Gull Rapids and three drift downstream low water velocity areas of the river of the western portion of Stephens Lake where an area of gravel/sand and sand has formed (Section 3). Lake sturgeon larvae have been reported to drift up to 50km downstream of the spawning site (Appendix G). Therefore, larvae spawned further upstream may also be drifting downstream through Gull Rapids and settling in these areas."	This statement does not reconcile with another conclusion in the EIS that movement through Gull Rapids is not required for lake sturgeon life history. Why?	DFO-0029	Proponent acknowledges that three drift through Gull Rapids will be lost due to construction of the project. DFO concludes that this migration habitat loss coupled with permanent loss of Y-O-Y rearing habitat near Caribou Island will result in the complete loss of Y-O-Y lake sturgeon rearing habitat for the Birthday Rapids and Long Rapids (no other rearing habitats have been defined). The only mitigation proposed for lost rearing habitat for Y-O-Y that would have drifted through Gull Rapids is stocking.
30	DFO		6-19	Aquatic Environment	Rearing	Did the condition of Y-O-Y lake sturgeon between various capture sites (Caribou Island, Stephens Lake, etc.) differ?	DFO-0030	Proponent response addresses information request.
31	DFO			Aquatic Environment	Overwintering	Overwintering habitat, use and movements not well documented in the EIS. Please provide detailed reports which examined this. If this work was not conducted as part of this EIS, please provide expected movements based on published information from similar systems.	DFO-0031	Proponent response addresses information request.
32	DFO		6-27	Aquatic Environment	Fish Movements - Importance of Movements.	Conclusions in this section that upstream or downstream movement of adult lake sturgeon are not spawning migrations do not agree with local traditional knowledge that Gull Rapids and Birthday Rapids are important spawning grounds for Stephens Lake sturgeon. Please speak to these discrepancies in the EIS or correct.	DFO-0032	Proponent response addresses information request.
33	DFO		6-27	Aquatic Environment	Fish Movements - Importance of Movements.	Acoustic and telemetry tagging clearly show movement of lake sturgeon through Gull Rapids. However, due to the limited number of telemetry data, conclusions on habitat use and the types of migration (e.g. spawning) are not precise. Please provide detailed reports showing movement.	DFO-0033	Detailed reports not provided
34	DFO			Aquatic Environment	Fish Movements - Importance of Movements.	Habitat impacts as a result of the loss of migration upstream and downstream through Gull Rapids (Stage I construction) should be recognized.	DFO-0034	DFO will apply appropriate risk in review of fish and fish habitat as this relates to the certainty and permanence of loss and the uncertainty of compensation.
35	DFO		6-29	Aquatic Environment	"Disruption of spawning activity due to disturbance by construction activity and habitat loss/alteration."	Spawning habitat loss for much of Gull Rapids will be permanent. Resumption of spawning may occur in the remaining natural (and constructed) spawning habitat, but this is uncertain. Please make this correction in the EIS.	DFO-0035	Proponent does not appear to have detail/reports that provide sufficient detail to address this question. As such, this will be viewed as a deficiency of the EIS.
36	DFO		6-31	Aquatic Environment	"The confederations will not affect lake sturgeon in the Nelson River upstream of Gull Rapids as those fish use habitat upstream of the rapids."	This is not a reasonable conclusion given the long term information on documented sturgeon habitat use and movement and no evidence of distinct populations (6.3.2) between Stephens Lake and Clark Lake. Please provide detailed reports which examine the impacts of protected inaccessibility to lake sturgeon spawning success.	DFO-0036	Proponent response addresses information request.
38	DFO		6-32	Aquatic Environment	"Habitat changes in the reservoir due to changes in water levels and flow that will result in the loss or alteration of existing habitat (riverine channels in Gull Lake...and the creation of new habitat..."	The creation of "new" habitat in the forbay should be discounted to half that of the current riverine environment. Recognizing that the forbay will not stabilize ecologically for a number of years, As a result, WQVs for all post project fish analyses should be calculated in consideration of this change in productivity over time using a defensible methods approach. This approach would discount the value of habitat in the post project environment for the number of years required for the full productivity of the new forbay to be realized. At a minimum, this appears to be 5 years, but could be indefinite ("...downstream emigration was documented for lake sturgeon moving out of the [new] Limestone reservoir within the first five years after impoundment (NSC 2012). Over time, some lake sturgeon that move upstream may return downstream to the reservoir.") This suggests that not only will usable habitat be lost in the reservoir, but the loss of a natural population this area may occur as well. While conservation stocking is proposed to mitigate this, there is no proof that the stocked sturgeon will remain in the new forbay either.	DFO-0038	Proponent has not sufficiently addressed this question. DFO will apply the correction as described to ongoing review.
39	DFO		6-32	Aquatic Environment	"Alteration of habitat in the river channel between Gull Rapids and Stephens Lake."	Much of the habitat in this reach will be permanently destroyed with only small portions undergoing alteration. Please revise in the EIS to show permanent loss.	DFO-0039	See DFO-0038
40	DFO			Aquatic Environment	6.4.1.2.7 Net Effects of Construction with Mitigation	Given information presented in this EIS, it is highly uncertain that permanent loss of Gull Rapids as spawning, migration and rearing habitat for lake sturgeon (and several other species) can be mitigated. This is due to: 1) lack of detailed information for the proposed lake sturgeon stocking program and uncertainty regarding the acceptability of this program (see comments on stocking), 2) questionable representation of the amount and value of spawning habitat currently in and around Gull Rapids and 3) lack of understanding of the importance of maintaining migration through Gull Rapids and the evidence of habitat fragmentation in the Nelson River. Please speak to this uncertainty in the EIS.	DFO-0040	DFO notes, notwithstanding proponent's response, significant uncertainty remain unaddressed. No new information is provided. As such, this uncertainty will be incorporated in risk assessment of project effects.

41	DFO	6-35	Aquatic Environment	"The majority of lake sturgeon captured in these reservoirs are taken in the upper, more riverine areas. Researchers on the Winnipeg River have also found that sturgeon are most abundant in the upper reaches of the reservoirs where conditions are more characteristic of riverine conditions."	This contradicts the conclusions elsewhere in the EIS that the new forebay will create highly suitable habitat for all life stages of lake sturgeon. Please address explain and address this discrepancy.	DFO-0041	Statement of "high habitat suitability" in the forebay taken from several arguments made in Section 6, including proposed compensation.
42	DFO	6-35	Aquatic Environment	"The existing environment HSI model for lake sturgeon spawning habitat indicates that there is a WUA of between 9 and 12 ha from Clarke Lake to Gull Rapids."	As previously mentioned (6-35), the method of calculating spawning habitat WUA's will need to be revisited as the estimate of 9 to 12 ha is likely a substantial underestimate.	DFO-0042	See DFO-0022
43	DFO	6-37	Aquatic Environment	"The majority of the lake sturgeon captured in the Long Spruce and Limestone reservoirs are taken in the upper end of the reservoirs where conditions are more characteristic of riverine habitat (NSC 2012). These observations suggest that, while the amount of usable foraging habitat (i.e., WUA) upstream of the Keeyask GS will be higher in the post-project environment, not all this habitat may be selected by either sub-adult or adult fish."	This suggests that post the project environment WUA for these life stages may need to be modified using this system specific observations. Please consider these changes in the WUA tables and discuss this in the EIS.	DFO-0043	WUA, in practice, is the combination of suitability.
44	DFO	6-40	Aquatic Environment	"To compensate for the loss of spawning habitat, several areas will be developed to provide suitable spawning habitat"	All proposed compensation works should have relevant suitability curves applied and commensurate WUA and HV's calculated.	DFO-0044	DFO will require confirmation that methods/analysis for delineation of HAD's are commensurate with the proposed compensation (i.e. HSI or area based descriptions).
45	DFO	6-41	Aquatic Environment	"Lake sturgeon could also use habitat in the river below the spillway in years when the spillway is operating at sufficient discharges during the spawning and egg incubation part"	Please provide details on performance/success of lake sturgeon spawning habitat use and successful hatch from similar structures developed at the Grand Rapids and Limestone GS's.	DFO-0045	Experimental spawning habitat has been developed at Point du Bois generating station. Please provide the results.
46	DFO	6-41	Aquatic Environment	"The capture of 3 month old (approximately) YOY sturgeon over cobble/shoulder substrate along the south shore between the rapids and the lake, suggests that older YOY can survive in what is thought to be less than optimal habitat..."	Were YOY found to consistently utilize these habitats? If so, did they exhibit diminished condition or fitness?	DFO-0046	Proponent response addresses information request.
47	DFO	6-41	Aquatic Environment	"Because the number of lake sturgeon rearing downstream of Gull Rapids is considerably reduced compared to historic levels, a stocking program will be implemented to avoid possible effects of a temporary reduction in rearing habitat should occur"	Given the loss of known high quality YOY habitat north of Caribou Island (future forestry), the known YOY rearing habitat below Gull Rapids must be protected. What measures will be taken to ensure that this habitat will not change, both during construction and operation?	DFO-0047	The EIS describes, at best an expected small change in habitat composition at this location. At worst, predictions may be wrong and this critical habitat is lost
48	DFO	6-43	Aquatic Environment	"The phased approach to fish passage... will permit trial implementation of fish passages for lake sturgeon with minimal risk to the Stephens Lake population."	This is not to the Stephens Lake sturgeon population is not identified. Note, the proponent has been requested to investigate the cost/benefit of various fish passage designs, including cost, environmental cost/benefit, etc. The proponent has retained a consultant for this investigation, which has produced a preliminary report on this comparison. The detailed results of this report should be made available in the EIS for review.	DFO-0048	A detailed report on options and/or an agreement on post-project fish movement/behaviour have not been provided and/or concluded.
49	DFO	6-43	Aquatic Environment	"The phased approach to fish passage... will permit trial implementation of fish passages for lake sturgeon with minimal risk to the Stephens Lake population."	Trip and truck was identified as the fish passage option for Keeyask, this method has traditionally been used at high head dams and information behind the rationale for the selection of this option is required. What criteria will be used to determine if and when trap and truck should be implemented?	DFO-0049	While DFO has been provided a summary report on November 28th, 2012, this report has not (to DFO's knowledge) been made available to the federal review team or the public. Moreover, release of the full report on fish passage options at Keeyask would be ideal.
50	DFO	6-43	Aquatic Environment	"Sturgeon moving downstream from the Keeyask reservoir would need to pass either the spillway (when its in operation) or past the trash racks and turbines.... Although experimental studies of turbine effects have not been conducted with lake sturgeon, studies of fish movements in the Limestone reservoir have recorded downstream passage by lake sturgeon both over the spillway and past the turbines."	What is the survival of sturgeon that pass: 1) through the turbines and 2) over the spillway? How does this survival change with size? What provisions for safe downstream passage have been considered?	DFO-0050	Suggest providing literature values for missing size classes.
51	DFO	6-43	Aquatic Environment	"There is no information available on turbine mortality rates for sturgeon."	Mortality rate for sturgeon should be based on: 1) known mortality for species of a similar size (e.g. gills) for both spillway and turbine and 2) the number of individuals passing the turbines can be calculated based on fish passage studies (e.g. Mistal Falls) and a commensurate relative abundance estimates. Please provide detailed reports which describe this.	DFO-0051	Unclear as to why northern pike cannot be used as a surrogate for lake sturgeon - please clarify. Are mortality rates available for white sturgeon for comparable turbine designs?
52	DFO		Aquatic Environment	Appendix 68 Field Data Collection and Analysis	Given that aerial drift sampling described in Appendix 68 should be viewed as reconnaissance or "search" sampling. Sampling does not appear to be an index and therefore any statistics related to CRUE as an indication of population size or relative abundance should be viewed with caution. Please provide the detailed study reports.	DFO-0052	Proponent response addresses information request.
53	DFO		Aquatic Environment	Appendix 68 Field Data Collection and Analysis	With the exception of adult spring spawning data collection, other sampling periods are quite short. Please provide the detailed study reports.	DFO-0053	Proponent response addresses information request.
54	DFO		Aquatic Environment	Appendix 68 Field Data Collection and Analysis	Details on mark recapture information is lacking in terms of annual movements. Raw data used for population estimates should be made available.	DFO-0054	Proponent plan still in production and not available for review.
55	DFO	3-32	Project Description	Management Plans to be Developed	All clad management plans should be provided as part of the EIS submission.	DFO-0055	Proponent plans still in production and not available for review.