



Impact Assessment Agency of Canada (IAAC/CEAA)
National Resources Conservation Board (NRCB)

Delivered by email

Attention: Laura Friend (NRCB)
Jennifer Howe (IAAC / CEAA)

February 17, 2021

Re: SR1 Project and Fish

Our comments address CEAA's draft conditions of January 4, 2021 along with Package 4-Technical Review Round 2, March 23, 2020 and July 2020, and the Proponent's land-use plan from October 2020 (Question 4-05) among other items from the Proponent's prior submissions. We have not had the opportunity to adequately review the most recent December 18, 2020 Project Design given the holidays and requirement to comment on CEAA draft conditions by February 3, 2021. We remind regulators that we are community volunteers who spend inordinate amounts of time keeping up to date with submissions. We also express dismay that the NRCB Pre-hearing took place before the latest design was released. We did not have any indication that this updated design was imminent and it has created additional work for our volunteers. Additionally, the February 3, 2021 deadline for CEAA comments on conditions proposed on January 4, 2021 does not allow adequate time for robust review and comment. The CEAA deadline should at least include the expert evidence that arises at the NRCB hearing. To omit this evidence may result in missed-opportunities to improve Project outcomes.

Regarding the CEAA proposed conditions, it appears that the various agencies have commented on their particular areas of expertise. In some cases, it appears that these conditions are at odds with one another. For instance, grading the reservoir for fish drainage is at odds with preserving traditional uses such as plant harvesting.

"No Project" Comparisons

The baseline comparison for the Proponent is the "no project" or "without the project" scenario, which was never contemplated. Regarding fish, we ask Regulators to require a discussion of the MC1 alternative vs SR1. Fish would not be stranded at MC1. Fish would not need to sit in warm, sediment-laded water in a closed system at MC1. At MC1, fish ladder technology, which is continually evolving, could be used to effectively transport fish. Matt Wood from Stantec told Springbank residents in September 2020 residents that MC1 was bad for fish because they would have to go through a 300m

conduit. Is this assertion that MC1 is “bad for fish” even backed up with expert research? Not that we have seen. However, we point out that there is a 212m conduit at SR1 that fish must travel through in deteriorating water quality, after being diverted 4.5km through gates, down waterfall-type energy dissipation blocks into the reservoir and out of the reservoir. These false equivalents by the Proponent are damaging when there was never a true alternative of impacts on fish between the two alternatives. Additionally, the area of MC1 was flooded in 2013 and will be again. Fish will presumably be stranded in the greater Allen Bill pond area in a flood situation specifically because SR1 is chosen. Is this mentioned anywhere? Is there fish rescue planned upstream because the SR1 project was chosen over MC1? Should this be mentioned in the SR1 documents as a consequence of this decision?

General Comments

CEAA Report

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The Agency acknowledges fish mortality, although it has never been estimated or quantified what that mortality might be. 5%, 10%, 25%, 50% of the population – where are the estimates? Then the Agency concludes “*the Agency is of the view that the Project is not likely to cause significant adverse effects on fish and fish habitat or fish population.*” How can it be concluded that unknown and un-estimated fish mortality will not impact the fish population?

Meanwhile, AEP has identified the following in the EIA Complete letter¹:

Given the above noted items, AEP- FM is of the opinion that this project, as proposed, will present a high risk to fish populations in this reach of the Elbow River. Additionally, it is also of the opinion that Bull Trout may eventually become extirpated from this stream reach given the unique life history characteristics of Bull Trout in the Elbow River (i.e. documented use from Elbow Falls to Glenmore Reservoir and their late age to maturity) given the frequency of operation.

This project may put the local population of Bull Trout at high risk and may lead to extirpation in this reach of the Elbow River. If this population declines as a result of this project, this would represent a trade-off for fish populations in this reach. It should be further noted that fluvial life history strategies of large Bull Trout only reside in 2 reaches of the Elbow River; upstream of Elbow Falls, and downstream of Elbow Falls. Any plans to offset these losses should be carefully considered as it is unclear whether Bull Trout could persist sustainably in this reach of the Elbow River with the flood diversion operational over the long term. If deemed as an acceptable trade-off by regulatory agencies, alternative offsets should be pursued in consultation with Fisheries and Oceans Canada and other regulatory agencies in alignment with AEP-FM fisheries management objectives (FMOs).

Climate Change & Fish

With regard to fish, climate change is still an outstanding item that has not been well-considered by CEAA and NRCB. We are concerned that the impacts on fish will be exacerbated by climate change.

¹ https://www.nrcb.ca/download_document/2/83/10713/20210203-aep-eia-to-nrcb-re-eia-complete-letter
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Warming of temperatures, drought and more frequent/intense flood scenarios are all negative for fish in SR1 operations. Climate change impacts should not just be considered for flood size, but also reservoir temperatures and release rates along with flood frequency.

In the 2014 AMEC report, the following statement is made:

“Martz et al. (2007) assessed the impact of climate change on surface water supply in the SSRB. Their study indicated that temperatures could increase between 1.5°C and 2.8°C in this region by 2050, which would increase evaporation and evapotranspiration levels. This would lead to potential changes in annual flow of the rivers, with potentially significant declines in flow during the summer season. This is important as the large majority of water demand occurs during this season. The study showed that in-stream flows could decrease by an average of 8.4% across all basins (Figure 4.5):

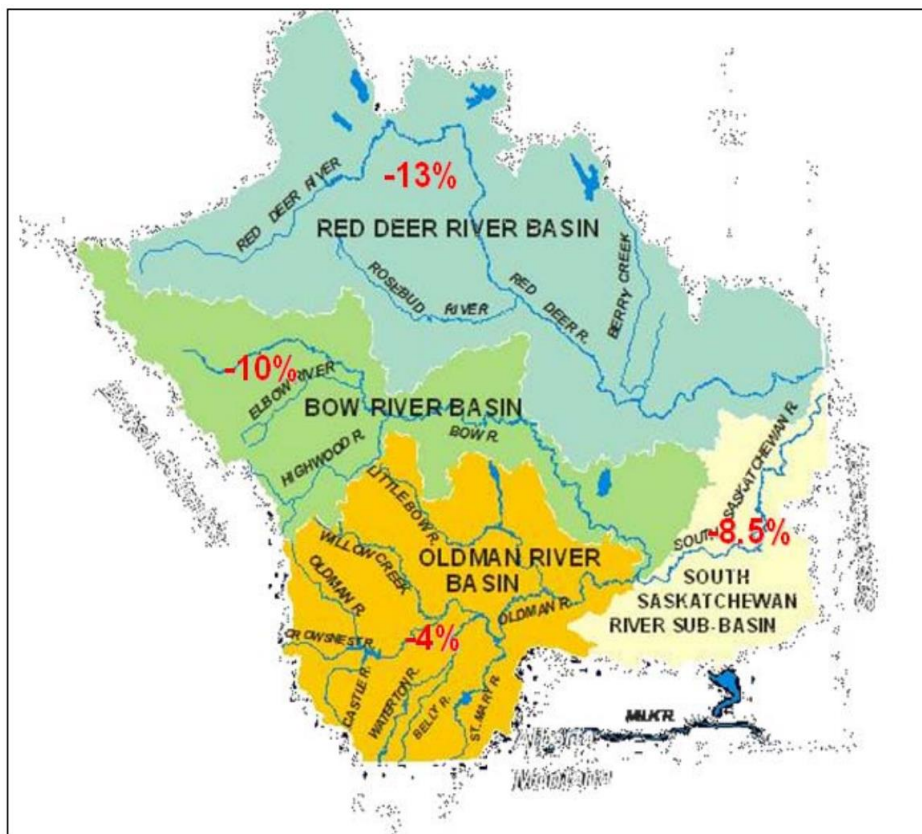


Figure 4.5: Projected Flow Reductions in the SSRB with Climate Change

The reductions in stream flows due to climate change are concerning because fish will be released from SR1 in the month of July into a low-stream flow Elbow river. If floods become more frequent and temperatures warmer, SR1 fish outcomes deteriorate. SR1 waters released will reasonable be expected to be a larger percentage of the declining river flows. Alternatively, SR1 release rates must be reduced to maintain a reasonable percentage of discharge relative to the river flow thereby increasing reservoir retention times. We do not see discussion of this outcome from climate change.

Further, the proponent does not know how long it will take for SR1 to dry out and how much of SR1 will dry out or be left with pools of standing water. Last year in Alberta, four lakes were subject to blue-green algae warnings. If these lakes have issues, what is the risk that standing water in the SR1 footprint has blue-green algae issues? It is evident that the Proponent is guessing about much of the post-flood state of the reservoir

Post-Flood Fish Rescue Operations

CEAA Draft Conditions (Section 3)

Who is responsible for monitoring fish impacts and are they an independent third party from AEP?

3.1.2: We request that these location and size of stockpile be identified on a map.

3.1.3: It is unclear where these silt fences will be installed in the project footprint and a map is requested. Additionally, are there any conflicts between these silt fences and wildlife accessibility? The cost of these silt fences (installation, inspection and repair/replacement) be included in a cost update.

3.1.4: We support this condition and ask that the cost (amount, type) of this riprap be included as part of a comprehensive cost update which will be included in the final report. In its response to CEAA conditions, the Proponent seems to be pushing back against this condition due to cost escalation of the Project. Our view is that cost should not be a factor in safety and risk mitigation. If this is the project that was selected, it should be done properly, regardless of cost.

Alberta Transportation's Recommendation Strikethrough = text removed Bold = text added	Rationale for Recommendations
install riprap material on in the diversion channel side-slopes outside curves, on the water face of along portions of the off-stream storage dam, and where the diversion channel enters the reservoir as proposed , to prevent future bank reduce risks of erosion;	Clarifying that riprap is not proposed over the entirety of the diversion channel and dam. Alberta Transportation has conducted a detailed scour analysis to determine the appropriate locations for riprap. If worded too broadly, the additional riprap would be a substantial cost for the project. Also clarifying that the role of riprap is to reduce the risk of erosion.

3.1.5: We are unclear on the specific operations of this condition and request that it be clarified further.

3.1.6 We request that the Proponent provide the schematics for these energy dissipation blocks be included in the design documents. We ask that the cost of this condition be identified by the Proponent.

3.7: We request that CEAA provide a specific list of sediment settling measures as we are unclear on what this entails.

3.8: We ask for clarity on the location and size of the substrate storage. What are the specifications surrounding this requirement? We support efforts that will improve the post-flood biodiversity of the footprint. However, further detail is requested: How much substrate will be preserved? The top 18", 3"? Additionally, we request that the cost of this new work be provided by the Proponent. Further, there would appear to be a cost for applying this substrate to the diversion channel post-flood and we request that this be included as well. The Proponent has requested the following change to this condition. This appears to be quite different than the intent of the condition and we ask CEAA to confirm the condition in detail.

The Proponent shall remove, ~~during dry operation~~ **during construction in a water body**, ~~the first layer of substrate in the diversion channel and store the layer for use at the beginning of the subsequent dry operation phase, to restore the diversion channel~~ **the top substrate from a wetted channel which will be stripped and stockpiled for later use as the top layer of reclaimed instream substrate.**

3.13: We ask that the cost of the rock v-weirs be included in an updated cost estimate.

3.15: This appears to be a significant element that deserves attention. Currently, the land is in its natural state of agricultural land with various water courses, shrubs and wetlands. It would not be considered at all graded in its current state and will drain poorly. Does this condition require that most of the 2000 acres of the reservoir area be graded during the construction phase to begin with? The Proponent suggests the following changes that indicate no grading prior to first flood:

The Proponent shall construct and maintain graded drainage areas within the reservoir during post-flood operations to prevent stranding of fish during release of stored floodwater from the reservoir. In doing so, the Proponent shall selectively re-grade the reservoir during post-flood operation as necessary to maintain reservoir functionality and reduce fish stranding.
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More clarity on this condition is required as the cost of the regrading and the associated cost of dust suppression, re-seeding, etc, will be new. Additionally, will all the shrubland be removed so that the land is effectively “barren” of its current vegetation? Or, will channels be dug in various locations for draining? If so, where are these located and what are their depths. We note that there are natural springs in this area, and we assume that these water bodies will not be graded, but it is most likely that fish will be stranded in these water bodies. How will this be addressed? If there will be drainage channels, their depth will be important to know prior to construction as the pipelines must be moved to an appropriate depth and may be impacted by this work. If this changes pipeline work, what is the cost?

3.16: Fish rescue is a major element that requires more consideration. We point out that fish rescue would not be required in the MC1 project yet this was not considered in the decision analysis to choose SR1 over MC1. We contend that fish rescue plans are optimistic, rather than realistic and request that CEAA require a preliminary fish rescue plan prior to the final report. The Proponent needs to identify who fish rescue personnel are and where are they located. Will hotels be required? Will they be on standby during a flood? How many person-hours of rescue will be required under various flood conditions? What is the operational cost of this rescue effort (which should be a component of the Proponent’s cost estimate)?

3.16.2: This appears to be a necessary, if onerous, condition. What is the time required to rescue one fish, with this visual documentation? Are the fish placed in a bucket of water while they are being assessed?

3.16.3: The amount of silt deposited will be significant in many flood events. This silt will be saturated and difficult to traverse. Is the expectation that vehicles will access the pools of water or are fish

rescuers expected to park at one of the First Nations staging areas and walk (distances that could be greater than 1km in one direction)?

- If vehicles will access the site for rescue activities, will roads be created during construction? If yes, where and what is the cost of these roads? What is the impact of these new roads on the environmental conclusion reached by CEAA? If not, how will vehicles be expected to traverse what is likely a wet, uneven, boggy terrain?
- If rescue personnel are on-foot, what equipment will they carry to rescue fish and how many fish can be rescued by one person in the course of a rescue operation in these conditions and under these distances?

3.16.4: Fish must be transported in some sort of water. Where is this water sourced and how is it transported to the rescue site? Are fish carried in buckets to a waiting tank of some sort? What is the expected survival rate of fish? Is someone setting a target for number of fish rescued from the reservoir? Is there a target for mortality during transport? How will fish health be tracked once they are relocated to determine any long-term effects of retention in the reservoir? Are fish to be relocated 1km down river or 100km? Again, these details are necessary. There is far too much uncertainty at this point to evaluate whether fish rescue operations will be effective.

3.19: Monitoring – we support daily monitoring. With regard to water quality, it will vary depending on the depth of the water at various locations within the reservoir so this should be considered. We are concerned about the statements such as “implement modified or additional mitigation measures”. It should be clear what these are in advance, if they exist at all. What is the cost of this monitoring on an annual basis? Who is responsible for the monitoring? AEP or an independent expert? It is this lack of detail on the mitigation measures which concerns our community. What mitigation measures will be implemented? What are even some examples of mitigation measures that can be applied to manage water quality? The Proponent has added a qualifier to mitigation, which is concerning and we disagree with the addition of “where technically and economically feasible”. It is foreseeable that the Proponent will use this “economically feasible” moderator as a reason not to engage in mitigation.

19.5	if results of the monitoring conducted in accordance with condition 3.19.4 demonstrate warmer temperature or lower levels of dissolved oxygen from modelling predictions identified in Appendix 1-1 submitted in the Response to Information Request Round 2 Package 4 -01 to -04 (Canadian Impact Assessment Registry Reference Number 80123, Document Number 1311), implement modified or additional mitigation measures; and	if results of the monitoring conducted in accordance with condition 3.19.4 demonstrate warmer temperature or lower levels of dissolved oxygen from modelling predictions identified in Appendix 1-1 submitted in the Response to Information Request Round 2 Package 4 -01 to -04 (Canadian Impact Assessment Registry Reference Number 80123, Document Number 1311), implement modified or additional mitigation measures where technically and economically feasible ; and
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Once again, thank you for your consideration of our concerns.

Regards,

Karin Hunter

President, Springbank Community Association