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Wildsight Comments On The Kootenay Lake Discussion Paper

Overall the base case scenario for the Kootenay Lake TSA sets too high an AAC. The base case does not incorporate or adequately address many management factors such as the old growth deferrals, current old growth deficits, the protection of community watersheds, precautionary and realistic management for adjacency, unsalvaged losses, climate change, and wildlife-urban interface management. For these reasons the annual allowable cut must be dramatically reduced.

First Nations

In November of 2019, the BC legislature passed *the Declaration on the Rights of Indigenous Peoples Act*. While many variables remain, the passage of this legislation has meant that Indigenous Nations have the right to free, prior and informed consent when it comes to resource extraction within their territories. Under the current TSR process there is no clear pathway for the province to begin its alignment and implementation of UNDRIP. In addition it is unclear how and to what extent feedback and comments from Indigenous Nations will be implemented and meaningfully addressed in the TSR. We strongly urge the province to align itself with *The Declaration Act* and meaningfully incorporate Indigenous Nations comments and feedback into the TSR and subsequent AAC determination.

The Ktunaxa Nation has developed their Ktunaxa Forest Standards Document which applies specific standards and proposed management regimes that should be incorporated and modelled into the TSR and fully incorporated into the AAC determination.

TSR Process Limitations

The TSR process has for far too long shielded itself from legitimate input and concerns by saying the process only models what is being implemented. This approach is contrary to a professional and accountable process. Where the law is not being met, where biodiversity risk is threatening ecosystems, or where assumptions are flawed, the TSR process must reflect this and ensure sufficient consideration of these issues in the AAC calculation.

Site Index

The PSPL data may not be reliable at smaller scales. [In a 2015 assessment](#) on the PSPL layer the authors wrote a damning conclusion: “*Equivalence testing was used to validate the site productivity layer, which as a whole and by model type passes the validation. However, when the layer is divided into smaller strata, many of the individual strata do not pass the validation test. In most cases, the individual strata are validated in terms of overall bias but do not pass the validation test for correspondence between the predicted and actual site indexes.*”

This means that at the provincial level the data may be accurate, but a subset, for example, the PSPL data in a single TSA, many of the individual data do not pass the equivalence test. The report went further suggesting that Douglas fir and subalpine fir stands, both of which make up large parts of the Kootenay TSA, are wildly out of sync with observed vs PSPL derived site index. The report went on to illustrate that SIBEC units with small samples should be rejected as being too biased. In the Kootenay Lake TSA only 10 local YSM plots are validating PSPL data. These samples are further stratified (five species) so presumably only two plots per species are validating the layer. Kootenay Lake is one of the most diverse TSA's in the province, mostly transitional but true wet-belt in places like the Duncan River and NDT4 at Creston. There are at least 12 commercial species and 17 Biogeoclimatic zone variants in the TSA.

The report went on to conclude that there are several error sources that can plague PSPL data which are relevant in this TSR:

Error 1 and 3; actual measurements do not correspond to model induced error in SIBEC or biophysical models.

Error 4. The model is dependent on TEM or PEM data.

What is the error and accuracy in the Kootenay Lake TEM data?

Error 5 SIBEC and biophysical not suitable for small scale use.

It's unclear what small scale use is defined as, but many of the individual data do not pass equivalence testing and could be unreliable. Douglas fir and subalpine fir stands; both of which make up large parts of the Kootenay TSA are wildly out of sync with observed vs PSPL derived site index.

Error 6 The SIBEC model predicts the identical site index for each species/site series combination, so no within-site series variability is captured by this model.

This is extremely problematic because there is huge variability and diversity amongst different site series.

All of these potential error sources can plague PSPL data and can make the data unreliable and overestimate site index.

It's unclear why the Ministry used the 2020 YSM report to justify the use of the PSPL layer. There is a new and updated 2023 YSM report which was released several months prior to the public discussion paper. On page three of the 2023 report the analysis branch states that

there are not enough observations to do an analysis of the PSPL vs ground site indices. They state that there needs to be at least 10 paired observations per species. In the Kootenay Lake TSA there were ten ground samples in total (roughly 2 per species).

The PSPL data is likely unreliable at this scale and could overestimate site index. There is likely significant uncertainty at the species level. In the case of uncertainty about the reliability of data and unverified confidence intervals, the province should rely on the data on the observed site index which has more field based verification. This issue results in significant downward pressure on timber supply in the short, medium and long term.

History of AAC - Table 2 Comments

Since 1981, there has been a 43 percent reduction in THLB. Changes in Annual Allowable Cut are roughly proportional to changes in area for which the cut is calculated on. One would expect that a reduction in THLB would roughly correspond to a similar AAC level reduction, but since 1981 there has only been a 29 percent reduction in AAC. The current THLB is 16 percent smaller than in the last determination which represents a significant downward pressure on timber supply in the short, medium, and long term.

There is no information about how or if grade 4 harvesting credits have been included in modelling assumptions and applied in the base case. It's unclear how much grade 4 has been harvested and how many grade 4 credits have been distributed in the Kootenay Lake TSA, this information was not included in the discussion paper or data package. It's our understanding that no specific modelling assumptions around grade 4 credits will be applied in the base case. grade 4 harvesting and credits should count towards the cut and be applied to all base case and modelling assumptions. This represents a downward pressure on the AAC and the base case.

Figure 3

Figure three demonstrates that there is an unhealthy age class distribution in the THLB. We have highgraded too much of the landscape and there is way too much early seral.

Figure 4

Figure 4 demonstrates that we are high-grading low-elevation productive fir and cedar-hemlock forest which disproportionately account for much more of the harvest than they do within the THLB.

Growth and yield.

Many of the post-free growing stands around the province are not growing as well as expected. This is shown by data from the Stand Development Monitoring plots carried out by the FREP program. Plantations are not growing as fast as predicted by TIPSYS and PSPL which corroborates the FREP findings.

Silviculture management regimes

It appears that the TSR is only modelling clearcut silviculture regimes. Throughout the region partial cutting systems are also used. Partial cutting is used in areas with high deciduous content, UWR polygons, and areas with high wildlife values. This is likely to create a significant downward pressure on the AAC as growth and yield results for partial cutting systems may not reflect the same growth rates and harvest yields as clearcut silviculture systems.

More Accurate Road And Permanently Disturbed Area Estimates

Since the last TSR, the province's inventory of roads, linear features, and permanently disturbed areas has improved, the past inventory lacked upwards of 150,000 km of resource roads (BC FPB 2015, BC 2017). More recent mapping (the *Digital Roads Atlas*) has proven to be more accurate. The province's *Digital Roads Atlas* provides a more accurate estimate of roads and permanently disturbed areas (landings, in-block roads) which in many areas of the Kootenay Lake TSA region make up 3-7% of certain landscape units. In some areas licensees are approaching max permanent access structures; this represents a major uncertainty and results in additional downward pressure on the base case and AAC.

Cutblock adjacency, forest cover and green-up:

One of the largest uncertainties in this TSR appears to be cutblock adjacency, forest cover and green up. This is due to the fact that aspatial modelling of these factors does not reflect on the ground realities and has little resemblance to an operationally feasible pattern of cutblocks on the landscape. A new AAC determination, future base cases and modelling must address this factor as it is likely a significant downward pressure on the short, mid, and long term timber supply. This is particularly relevant as the Ktunaxa Forest Standards Document provides a blueprint for modelling adjacency and green-up and sets a much higher standard than what is currently being modelled in the TSR.

Unsalvaged Losses

The base case severely underestimates the future amount of unsalvageable timber that is lost to wildfire, insects, and blowdown within the THLB. Year after year we have seen an incredible uptick in the amount of fire and insects in the Kootenay Lake TSA. Many of these areas that do experience fire and insect infestations do not get harvested due to economic, social, and environmental factors. In addition, with climate change already impacting fire behaviour and insect infestations, the Chief Forester's determination must account for and forecast large burns and insect infestations which will greatly affect assumptions and certainties around timber supply and the AAC. This factor is not adequately addressed in

the base case and represents a downward pressure on the base case and the short, medium, and long-term timber supply.

TSM and Potentially Unstable Polygons

The base case relies heavily and disproportionately on harvesting in unstable and potentially unstable polygons and steep slopes. This does not match up with what is occurring on the ground and current harvest practices. Figure 16 clearly demonstrates that the base case is unrealistic and that steep slopes over 50 percent should be removed from the THLB and the base case. The figure shows a clear pattern of licensees in the Kootenay Lake TSA highgrading. This was also acknowledged in the Selkirk reallocation process with licensees underperforming on slopes greater than 40 percent.

Old Growth

As of August 18, 2022, no new cutting permits are being approved in old growth deferral areas and old growth deferrals are being implemented in the Kootenay Lake TSA. There are 62,055 hectares of old growth deferral within the Kootenay Lake Timber Supply Area. Of that, 54,914 hectares are within the analysis forest land base, and 6,461 hectares are within the THLB. The province must remove these polygons from the timber harvesting landbase.

The old growth deferrals are being observed and it is current management practice to not harvest within deferral areas. It's unacceptable to not take this factor into account. As page 12 states the base case was designed to reflect current management practices and legal requirements. This policy decision is current management practice and it's unacceptable to not take this factor into account. The base case should fully remove old growth deferral areas from the THLB as it is current practice by licensees to avoid harvest in these areas. If the deferral polygons are not factored into the AAC it will result in a major overinflation of timber supply.

Currently there are also major deficits in old growth forest management across the Kootenay Lake TSA. The province has yet to deal with the fact that the majority of Old Growth Management Areas (77 percent) in the Kootenay Lake are not composed of old growth forests. As well as the fact that 78 percent of OGMA's greater than two hectares in size are in the ESSF and alpine tundra.

In addition many of the landscape units across the TSA are in deficit. BEC 12 must be used to evaluate the state of old growth management as it is the best available information which is a tenant of timber supply review. It's our understanding that there are more than 48,000 hectares of deficit (LUxBEC) in the Kootenay Lake TSA when BEC 12 standards are applied.

Caribou

Healy, Hope Creek, and Lake Creek should be fully excluded from the THLB. These areas are core caribou habitat and should be fully removed from the THLB. Harvest in these areas

is not socially viable or acceptable due to the importance of these areas to the Central Selkirk caribou herd. This represents further downward pressure on the base case and AAC.

In addition, the current base case and the last Kootenay TSR determination failed to account for matrix caribou habitat management. Further deductions to the THLB should be made to account for matrix habitat management. In the Central Selkirks, the historic forest age class distribution differs greatly due to timber harvesting. Wilson et al estimated that the amount of early seral in the Central Selkirks was more than double what was expected under historic natural disturbance.

Climate Change

Climate change will result in more fires and flooding, increased regeneration delays, more extreme weather, and more beetle outbreaks. That means less wood available. It's unacceptable to state that we can't forecast the exact quantitative effects of climate change, so they pretend those effects don't exist. There is no circumstance in which climate change will result in more timber, only less. The Chief Forester must reduce cut levels to a precautionary level to account for climate change.

Periods of drought, increased fire frequency and increasing extreme weather events are more common and are predicted to continue to become more extreme. The increased frequency of recent fires and insect infestations are already having a substantial impact on timber supply in the TSA.

We are also already experiencing planting failures in places like the IDF in the region due to increased and abnormal weather and frosts. This represents a major downward pressure on the mid and long term timber supply.

Increased frequency of extreme weather events will result in extreme wind and blowdown events that will have a measurable effect on THLB on a year to year basis. A sensitivity analysis should be performed in order to account for an increase in blowdown events.

If climate change proceeds as predicted, planted stock that is well suited under the current climate will be growing in less than optimal conditions within the next 20 to 50 years (McKenney, Pedlar, O'Neill). This will affect mid and long term sustained yield.

Climate change represents a significant downward pressure on the short, mid, and long term timber supply. Currently it is not accounted for or addressed in the base case.

Watersheds

The current and projected AAC relies on harvesting community watersheds. Thirty percent of the Timber Harvesting Land Base is in community watersheds. We need a precautionary approach that excludes community watersheds from the Timber Harvesting Land Base. We have to protect our drinking water. Industrial logging in watersheds sends sediment downstream into our drinking water, reducing water quality. Logging large swaths of mature

forest in watersheds also makes floods in our communities more likely. [Recent literature](#) suggests that after 30% of a watershed is logged, what used to be a once-in-a-century flood comes around every 15 years.

Increased sediment delivery into streams which degrades water quality is a significant impact of industrial logging in [watersheds](#).

We request that the Ministry adopts a precautionary approach and excludes community watersheds from the Timber Harvesting Landbase.

Wildlife Urban Interface

Forests near communities or in the community wildfire interface zone should be fully removed from the timber harvesting landbase. Wildfire urban interface treatments rarely yield significant merchantable timber and these areas are the focus of future treatments and these areas are not focussed on growing timber. These stands are rarely the focus of industrial management. These treatments typically or ideally focus on leaving the largest diameter trees in the treatment area to create resilience. The vast majority of these areas must be removed from the timber harvesting landbase. At minimum risk class 1 stands should be fully removed from the THLB. This represents a significant downward pressure as it accounts roughly 16 percent of the THLB and is currently not taken into account in the base case.

Selkirk Forest Reallocation Process

Between 2006 and 2019 licensees in the region did not cut 296,887cm³ that was included in AAC levels in the Kootenay lake TSA. This “undercut” is a clear indication of an overcut determination. There has been a sustained undercut for a number of years in Kootenay Lake and this is a clear indication that AAC’s are far too high. In 2021 the province announced that they were launching a reallocation process for 243,000cm³ in Kootenay Lake. We have received no update as to where this process is at and whether many of the cut profiles such as “Balsam, Fir, Larch and Slopes greater than 40%” will be partially removed from the THLB because of a lack of performance by licensees.

These profiles should likely have never been included in the AAC in the first place. These profiles have artificially inflated the cut levels and the amount of THLB.

Moving Forward

Minimising risk and being precautionary is a key tenant of dealing with uncertainty in AAC determinations. The risks associated with the current management of forests in the Kootenay Lake TSA are high. We are requesting that the Chief Forester dramatically reduce the AAC in the Revelstoke TSA in order to reduce pressure on old growth, caribou, biodiversity, and community watersheds.