BRITISH COLUMBIA
MINISTRY OF FORESTS

Tree Farm Licence 23

held by
Interfor Corporation

Rationale for Allowable Annual Cut (AAC) Determination

Effective July 18, 2024

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Deputy Chief Forester

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Objective of this document

This document provides an accounting of the factors I have considered and the rationale I have employed in making my determination, under Section 8 of the *Forest Act*, of the allowable annual cut (AAC) for Tree Farm Licence (TFL) 23. This document also identifies where new or better information is needed for incorporation in future determinations.

Acknowledgement

For preparation of the information, I have considered in this determination, I am indebted to staff of the B.C. Ministry of Forests (the 'ministry') in the Selkirk Natural Resource District (SNRD) and the Forest Analysis and Inventory Branch (FAIB). I am also grateful to the First Nations, local residents, individuals, and Interfor Corporation who contributed to this process.

Statutory framework

Section 8 of the *Forest Act* requires the chief forester to consider a number of specified factors in determining AACs for Timber Supply Areas (TSAs) and TFLs. Section 8 of the *Forest Act* is reproduced in full as Appendix 1 of this document. For the purposes of this AAC determination in accordance with Section 23(3) of the *Interpretation Act* the deputy chief forester is expressly authorized to carry out the functions of the chief forester (including those required under Section 8 of the *Forest Act*).

Description of the TFL

TFL 23, prior to the creation of the Incomappleux Valley Conservancy, occupied a gross area of 389 359 hectares, of which 389 182 hectares are Crown land and 177 hectares are private land. The TFL is divided into nine discrete units. The TFL is located south of Glacier National Park and north of Gladstone National Park and is adjacent to the Goat Range, Monashee, Syringa, and Valhalla Provincial Parks. TFL 3, also held by Interfor Corporation, is located on the southern boundary of TFL 23.

Biogeoclimatic zones in the TFL include the Interior Cedar Hemlock, Engelmann Spruce-Subapline Fir, and Interior Mountain-heather Alpine biogeoclimatic zones. The main conifer species at lower elevations within the TFL are Douglas-fir, larch, cedar, lodgepole pine, and hemlock. At higher elevations spruce and balsam are the major tree species.

The TFL 23 administrative boundary overlaps the traditional territories of the Adams Lake Indian Band, Ktunaxa Nation Council, Lower Similkameen Indian Band, Neskonlith Indian Band, Osoyoos Indian Band, Okanagan Nation Alliance, Penticton Indian Band, Shuswap Band, Sinixt – Lakes Tribe of the Colville Confederated Tribes, Skwlāx te Secwepemcúl̓ecw, Splats'in First Nation, Upper Nicola Band, and Westbank First Nation.

The Selkirk Natural Resource District ('the district') administers the TFL from Nelson, Castlegar, and Revelstoke within the Kootenay-Boundary Region.

History of the AAC

TFL 23 was awarded to Celgar Development Company Ltd. in 1955. At that time the TFL covered about one million hectares between Mica Creek (north of Revelstoke) and Castlegar and had an AAC of 379 445 cubic metres.

Before being acquired by Interfor Corporation in 2008, the TFL was sold five times. Between December 1955 and January 2023, the TFL area was amended 136 times. The most significant land removals were related to the creation of Valhalla Provincial Park, the subdivision of TFL 23

into TFL 55 and TFL 23, the creation of the Cascadia Timber Supply Area (TSA) under the *Forestry Revitalization Act*, and the creation of the Incomappleux Valley Conservancy. As a result of these deletions, the gross area of TFL 23 is now 313 788 hectares. The last deletion, in 2023, occurred following the completion of the timber supply analysis, as discussed in '*Incomappleux Valley*'.

The last AAC determination for TFL 23, made on November 30, 2010, set the AAC at 626 503 cubic metres, including a 25 000-cubic metre partition attributable to stands in the "aerial" operability class. Effective, September 14, 2011, the AAC was reduced by 176 503 cubic metres to 450 000 cubic metres under the *Forestry Revitalization Act*. On April 15, 2020, the AAC determination was postponed to a date on or before March 30, 2023.

Following the deletion of the Incomappleux Valley from the TFL, the AAC was reduced under the AAC Administration Regulation to 413 700 cubic metres, effective January 20, 2023.

At the time of this determination, the effective AAC for TFL 23 is 413 700 cubic metres, including a 25 000-cubic metre partition attributable to stands in the "aerial" operability class.

New AAC determination

Effective July 18, 2024, the new AAC for TFL 23 will be 382 800 cubic metres.

In making this AAC determination, I specify, under Section 8(5)(a) of the *Forest Act*, three partitions:

1. Old forest: A maximum of 19 100 cubic metres (five percent of the AAC) may be harvested from old forest. "Old forest" is defined as stands older than 250 years in less frequently disturbed ecosystems (NDT 1, 2, and 4) and stands older than 140 years in more frequently disturbed ecosystems (NDT 3).
2. Not old forest: A maximum of 363 700 cubic metres (95 percent of the AAC) may be harvested from stands that are not old forest. "Not old forest" is defined as stands younger than or equal to 250 years in less frequently disturbed ecosystems (NDT 1, 2, and 4) and stands younger than or equal to 140 years in more frequently disturbed ecosystems (NDT 3).
3. Slopes less than 50 percent: A maximum of 306 200 cubic metres per year (80 percent of the AAC) can be harvested from stands on slopes less than 50 percent.

This AAC is approximately seven percent lower than the AAC in place prior to this determination and will remain in effect until a new AAC is determined, which must take place within 10 years of this determination. If additional significant new information is made available to me, or major changes occur in the management assumptions upon which I have predicated this decision, then I am prepared to revisit this determination sooner than the 10 years required by legislation.

Role and limitations of the technical information used

Section 8 of the *Forest Act* requires the chief forester, in determining AACs, to consider biophysical, social and economic information. Most of the technical information used in determinations is in the form of a timber supply analysis and its inputs related to inventory, growth and yield, and management. The factors used as inputs to timber supply analysis have differing levels of uncertainty associated with them, due in part to variation in physical, biological and social conditions. The AAC determination is a strategic-level decision for which the Crown maintains a duty to consult and accommodate, as necessary, those First Nations for whom it has knowledge of claimed Aboriginal Interests that may be impacted by a proposed decision. The

chief forester must consider the information provided by First Nations through engagement and the consultation process.

Computer models cannot incorporate all the social, cultural, and economic factors that are relevant when making forest management decisions. Technical information and analysis, therefore, do not necessarily provide the complete answers or solutions to forest management issues that must be considered when making decisions such as AAC determinations. Such information does provide valuable insight into potential impacts of different uncertainties about or changes to resource information and management practices, and thus forms an important component of the information I must consider in AAC determinations.

In determining this AAC, I have considered the technical information provided, including any known limitations.

Guiding principles for AAC determinations

Given the substantial number of periodic AAC determinations required for B.C.'s many forest management units, administrative fairness requires a reasonable degree of consistency of approach in addressing relevant factors associated with AAC determinations. In order to make my approach in these matters explicit, I have considered and adopted the following body of guiding principles, which have been developed over time by B.C.'s chief foresters and deputy chief foresters. However, in any specific circumstance in a determination where I consider it necessary to deviate from these principles, I will explain my reasoning in detail.

When considering the factors required under Section 8, I am also aware of my obligation as a steward of the forests of British Columbia, of the mandate of the Ministry of Forests ("the Ministry") as set out in Section 4 of the *Ministry of Forests and Range Act*, and of my responsibilities under the *Forest Act, Forest and Range Practices Act* (FRPA), and the *Professional Governance Act*.

AAC determinations should not be construed as limiting the Crown's obligations under court decisions in any way, and in this respect, it should be noted that AAC determinations do not prescribe a particular plan of harvesting activity within the management units. They are also independent of any decisions by the Minister of Forests with respect to subsequent allocation of timber supply.

These guiding principles establish a framework for AAC decision-making with consideration to the following: advancing reconciliation with Indigenous people; responding to uncertainties; the incorporation of forest landscape planning information (including any legal orders associated with forest management), cumulative effects, and climate change.

<u>Reconciliation with Indigenous people</u>

The Government of B.C. has committed to true and lasting reconciliation with Indigenous people. The *Declaration on the Rights of Indigenous Peoples Act* of 2019 (the '*Declaration Act*') creates the path forward for aligning provincial laws with the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). Recognizing that reconciliation and changes to policies, programs, and legislation take time, any interim processes undertaken for AAC determinations should be responsive to the information and issues raised by Indigenous people to the extent possible within the existing legislative framework for AAC determinations. Interim collaborative engagement processes will seek to move beyond the legal duty to consult, align with relevant agreements between First Nations and the Province (including commitments regarding stewardship or resource management), promote capacity building within Indigenous communities, and provide a clear and transparent understanding of the decision-making process.

Where the nature, scope and geographic extent of Aboriginal rights and title have not been established, the Province has a constitutional obligation to consult with First Nations in a manner proportional to the strength of any claimed Aboriginal rights (including title) and the degree to which they may be affected by the decision. The Province also has an obligation to consult with First Nations regarding their treaty rights. In this regard, when making an AAC determination I will give consideration to the following information:

(i) information provided to First Nations to explain the timber supply review process and analysis results;

(ii) information, including Indigenous Knowledge, brought forward through consultation or a collaborative engagement process with respect to Aboriginal Interests, and how these interests may be impacted by an AAC decision;

(iii) any strategic level plans, operational plans, or management information that describe how Aboriginal Interests are addressed through specific actions and forest practices;

(iv) existing relevant agreements and policies between First Nations and the Province; and,

(v) other information regarding the potential impact of an AAC decision on the ability of Indigenous communities to meaningful exercise of Section 35 rights as recognized in the *Constitution Act* (1982), such as information about cumulative effects.

Aboriginal Interests that may be impacted by AAC decisions will be addressed consistent with the scope of authority granted to the chief forester under Section 8 of the *Forest Act,* and with consultation obligations defined in court decisions. When information is brought forward that is outside of the chief forester's scope of statutory authority, this information will be forwarded to the appropriate decision makers for their consideration. Specific considerations identified by First Nations in relation to their Aboriginal Interests that could have implications for the AAC determination are addressed in the various sections of this rationale where it is within the statutory scope of the determination.

The timber on established Aboriginal title lands (meaning Aboriginal title declared by a court or defined under an agreement with necessary federal and provincial implementation legislation), Treaty Settlement Lands or Indian Reserves, is no longer provincial timber. Consequently, it does not contribute to the AAC of the management unit overlapped by those lands. Prior to establishment of Aboriginal title, it is not appropriate for the chief forester to speculate on how potential establishment of Aboriginal title in an area could affect timber supply, given uncertainties about the scope, nature and geographic extent of title. Unless land has been established to be Aboriginal title land, Treaty Settlement Land or reserve land it remains as provincial land managed by the Province and will contribute to timber supply. However, where there is clear intent by government to recognize lands as title land that are yet to be finalized, I will consider information that is relevant to the decision in a manner that is appropriate to the circumstances. The requirement for regular AAC reviews will ensure that future determinations address ongoing changes to the land base.

Information Uncertainty

Given the complex and dynamic nature of forest ecosystems coupled with changes in resource use patterns and social priorities there is always a degree of uncertainty in the information used in AAC determinations. The following are two ways of addressing they uncertainty of information available to support an AAC determination:

(i) undertaking analyses to evaluate the significance of uncertainties associated with available information and assessing the social, economic, and environmental risks associated with a range of possible decisions; and,

(ii) re-determining AACs regularly to ensure they incorporate current information and knowledge, and greater frequency in cases where projections of short-term timber supply are not stable and/or substantial changes in information and management are occurring.

In considering the several factors that Section 8 of the *Forest Act* requires the chief forester to take into account in determining AACs, it is important to reflect those factors that (as closely as possible) are a reasonable extrapolation of current practices. It is not appropriate to base decisions on proposed or potential practices that could affect the timber supply but are not consistent with legislative requirements and not substantiated by demonstrated performance.

It is not appropriate to speculate on timber supply impacts that may eventually result from land-use designations not yet finalized by government. Where specific protected areas, conservancies, or similar areas have been designated by legislation or by order in council, these areas are deducted from the land base supporting timber harvesting and are not considered to contribute harvestable volume to the timber supply in AAC determinations, although they may contribute indirectly by providing forest cover that helps meet resource management objectives such as biodiversity.

Where appropriate, the chief forester will consider information regarding the types and extent of planned and implemented silviculture practices as well as relevant scientific, empirical and analytical evidence on the likely magnitude and timing of their timber supply effects.

I acknowledge the perspective that an alternative strategy for dealing with information uncertainty is to generally reduce AACs in the interest of caution. On its own, this precautionary approach is not a complete framework for decision making under uncertainty. It is one tool that could be used to address the risk of serious harms in situations of deep uncertainty or significant deficiencies in information. However, the precautionary approach does not consider the full spectrum of values or extensive range of research and information utilized by the chief forester. For these reasons, AAC determinations more appropriately follow a decision process utilizing analyses of current land and management practices and the exploration of the potential effects of uncertainties, rather than relying on an overriding precautionary approach.

In making a determination, allowances may need to be made to address risks that arise because of uncertainty by applying judgment as to how the available information is used. Where appropriate, the social and economic interests of the government, as articulated by the Minister of Forests, can assist me in evaluating this uncertainty.

Forest Landscape Planning

In addressing the factors outlined in Section 8 of the *Forest Act*, I will consider relevant available information on timber and non-timber resources in the management unit, including information on the interactions among those resources and the implication for a sustainable timber supply.

AAC determinations will be made in the context of new forest landscape plans and legal orders that establish forest management expectations. These plans and orders direct forestry activities and guide the stewardship of B.C.'s public land and resources, have been established with an understanding of the relationships among the various components of forest management systems, and follow deliberative processes and laws designed to achieve a balance of natural resources values and benefits.

As is the case for land use and management planning in general, it is beyond my statutory authority to speculate on final outcomes where there are preliminary but not yet finalized and formalized land use zones or management objectives. If the timber supply implications of final designations are substantial a new AAC determination prior to the legislated deadline may be warranted.

In some cases, even when government has made a formal land-use decision, it is not necessarily possible to fully analyze and immediately account for the consequent timber supply impacts in an AAC determination. Many of government's land-use decisions must be followed by detailed implementation decisions requiring, for instance, further planning or legislated designations such as those provided for under the *Land Act* and FRPA. In cases where government has been clear about the manner in which it intends land-use decisions to be implemented, but the implementation details have yet to be finalized, I will consider information that is relevant to the AAC in a manner that is appropriate to the circumstance. The requirement for regular AAC reviews will ensure that future determinations address ongoing plan implementation decisions.

Cumulative Effects

Cumulative effects (CE) are changes to environmental, social and economic values caused by the combined effect of past, present and potential future human activities and natural processes. In the context of AAC determinations, I am aware of the mandate provided by the Minister of Forests (FOR) which tells me to ensure that my AAC determinations continue to incorporate the best available information on the CE of multiple activities on the land base. Where the CE of timber harvesting and other land-based activities indicate a risk to natural resource values, my determinations should identify those risks for consideration in land-use planning. I am also asked to consider ways in which my AAC determinations could encourage actions or practices to mitigate risks to natural resource values.

Section 8 of the *Forest Act* only authorizes the chief forester to make decisions on allowable harvest levels, not to change or institute new management regimes for which other statutory decision makers have specific authority. However, cumulative effects information can highlight important issues and uncertainties in need of resolution through land use planning which I can note and refer to those responsible for such planning.

Where a cumulative effects assessment has suggested that an important value is at risk and that a reduced harvest level or implementation of an AAC partition could help to reduce that risk, I will appropriately factor these into my AAC determination. I may also identify actions or implementation instructions that would mitigate risk or accommodate potential impacts to Aboriginal Interests. In this case, I will include expectations that Ministry staff work with relevant interests to address the issues identified and encourage forest licensees to follow the recommendations of CE assessments.

As with all management issues, additional information and any changes can be incorporated into subsequent AAC determinations.

Climate Change

One key area of uncertainty relates to climate change. There is substantial scientific agreement that climate is changing and that the changes will affect forest ecosystems. Forest management practices will need to be adapted to the changes and can contribute to climate change mitigation by promoting carbon uptake and storage. The potential rate, amount, and specific characteristics of climate change in different parts of the province are uncertain. This uncertainty means that it is not possible to confidently predict the specific, quantitative impacts on timber supply.

When determining AACs, I consider available information on climate trends, potential impacts to forest ecosystems and communities that depend on forests and related values, and potential management responses. As research provides substantiated predictions on climate change and its effects, I will incorporate the new information in future AAC determinations. Where forest practices are implemented to mitigate or adapt to the potential effects of climate change on forest resources, or where monitoring information indicates definite trends in forest growth and other dynamics, I will consider that information in my determinations.

I note, however, that even with better information on climate change, in many cases there will be a range of reasonable management responses. For example, it is not clear if either increases or decreases to current harvest levels would be appropriate in addressing potential future increases in natural disturbance due to climate change, which are likely in some areas. Hypothetically, focused harvests in at-risk forests could forestall losses of timber and allow for planting of stands better adapted to future conditions. Conversely, lower harvest levels and the use of partitions in my AAC decisions could provide buffers against uncertainty. The appropriate mix of timber supply management approaches is ultimately a social decision.

Due to the uncertainty surrounding impacts on the AAC from climate change, it is important to encourage dialogue to develop climate change mitigation and adaption strategies and remain open to new opportunities for forest management. Deciding on the preferred management approach will involve consideration of established climate change strategies, and available adaptation and mitigation options together with social, economic, cultural, and environmental objectives. The timber supply analysis is a useful tool to determine the potential changes to the frequency, intensity, and scope of natural disturbances under climate change; and for exploring options and trade-offs. Any management decisions about the appropriate approach and associated practices will be incorporated into future AAC determinations. The requirement for regular AAC reviews will ensure continuous improvement of the information and knowledge on climate change and ensure the development of a responsive decision-making process to emerging natural resources issues.

The role of the base case

In considering the factors required under Section 8 of the *Forest Act* to be addressed in AAC determinations, I am assisted by timber supply projections provided to me through the work of the Timber Supply Review (TSR) program for TSAs and TFLs.

For most AAC determinations, a timber supply analysis is carried out using an information package including data and information from three categories: land base inventory, timber growth and yield, and management practices. Using this set of data and a computer simulation model, a series of timber supply projections can be produced, reflecting different starting harvest levels, rates of decline or increase, and potential trade-offs between short- and long-term harvest levels.

From a range of possible harvest projections, one is chosen in which an attempt is made to avoid both excessive changes from decade to decade and significant timber shortages in the future, while ensuring the long-term productivity of forest lands. This is known as the “base case”, and it forms the basis for comparison when assessing the effects of uncertainty on timber supply. The base case is designed to reflect current management practices.

Because the base case represents only one in several theoretical projections, and because it incorporates information about which there may be some uncertainty, the base case is not an AAC recommendation. Rather, it is one possible projections of timber supply, whose validity – as with all the other projections provided - depends on the validity of the data and assumptions incorporated into the computer simulation used to generate it.

Therefore, much of what follows in the considerations outlined below is an examination of the degree to which all the assumptions made in generating the base case are realistic and current, and the degree to which any adjustments to its projections of timber supply must be made, if necessary, to more properly reflect the current situation.

These adjustments are made on the basis of informed judgment using currently available information about forest management, and that information may well have changed since the original information package was assembled. Forest management data are particularly subject to

change during periods of legislative or regulatory change, or during the implementation of new policies, procedures, guidelines or plans.

Thus, in reviewing the considerations that lead to the AAC determination, it is important to remember that the AAC determination itself is not simply a calculation. Even though the timber supply analysis I am provided is integral to those considerations, the AAC determination is a synthesis of judgment and analysis in which numerous risks and uncertainties are weighed. Depending upon the outcome of these considerations, the AAC determined may, or may not, coincide with the base case. Judgments that in part may be based on uncertain information are essentially qualitative in nature and, as such, are subject to an element of risk. Consequently, once an AAC has been determined, no additional precision or validation would be gained by attempting a computer analysis of the combined considerations.

Base case for TFL 23

The timber supply analysis for TFL 23 was conducted by Forsite Consultants Ltd. using PATCHWORKS^{TM}, which is approved by FAIB for use in timber supply reviews. PATCHWORKS^{TM}, is a spatially explicit forest estate model used to project timber harvesting activities following current management practices including objectives for non-timber values such as biodiversity, wildlife habitat, cultural heritage resources, recreation, and visual quality. Based on the review by ministry staff, as well as my own experience reviewing results from similar models, I am satisfied that PATCHWORKS^{TM} can provide an appropriate projection of timber supply.

In addition to the use of the PATCHWORKS^{TM} model, major changes from the 2009 timber supply review include: use of a new Phase I Vegetation Resource Inventory, adjustment of the TFL boundary to accurately reflect areas transferred to the Cascadia TSA, adjustment of stand ages for areas moderately and severely impacted by the 2021 catastrophic fires, alignment of the land base and forest management assumptions with those used for Interfor's adjacent TFL 3 tenure, use of updated Ministry growth and yield models for both natural and managed stands, and revised silviculture regimes for managed stands.

The current estimate of the productive forest land base (PFLB) is 14.4 percent larger than in the 2009 timber supply analysis, due to changes in the TFL boundary as well as changes in the inventory. The future timber harvesting land base (THLB) was not reported in the 2009 timber supply analysis; however, it is estimated to be 2.4 percent smaller than the THLB used in this timber supply analysis.

The inventory used for the analysis was updated and projected for growth and disturbance to January 1, 2022. The base case begins in 2022 and the harvest levels are reported for 300 years.

The harvest flow objectives used for the base case were to achieve a long-term harvest level close to the long range sustained yield (LRSY), ensure the THLB growing stock during the last 100 years of the projection is stable, and limit any increases or decreases in the projected harvest levels to 10 percent in a 10-year period.

The base case shows an initial harvest level of 450 430 cubic metres per year can be maintained for 80 years before transitioning over a 20-year period to a long-term harvest level of 554 300 cubic metres per year. The base case, sensitivity analyses, and alternative harvest projections are all net non-recoverable losses and include natural disturbances outside of the THLB.

The base case was selected prior to the removal of the Incomappleux Valley Conservancy area from TFL 23. The results of an alternative harvest projection prepared to examine the timber

supply impacts associated with removing this area from the TFL are discussed under '*Incomappleux Valley Conservancy*'.

In a second alternative harvest projection, increasing the initial harvest level to 472 080 cubic metres per year or five percent higher than the current AAC, has no impact on the mid-term harvest level. However, the transition to the long-term harvest level does not begin until year 116 of the projection. The long-term harvest level of 616 814 cubic metres per year, the same level as in the base case, is not reached until year 125 of the projection.

Although the alternative projection shows it is possible to increase the initial harvest level by five percent above the current AAC, this projection was not chosen as the base case because achievement of the long-term harvest level is delayed by 25 years. In addition, Interfor notes that increasing the initial harvest level above the level of the current AAC does not reflect the uncertainty surrounding future forest management in TFL 23, including the increased recognition of First Nations interests and increased focus on old growth.

I have considered the proposed base case and alternative projections and I agree with Interfor that increasing the initial harvest level above the level of the current AAC does not account for the level of uncertainty regarding future forest management in the TFL and consequently is not appropriate for use as the base case.

In my determination, I have also considered several sensitivity analyses. A sensitivity analysis examines how changes in base case assumptions affect the projected timber supply. These analyses have been helpful as I made specific considerations and reasoning in my determination as documented in the following sections. I am satisfied that the base case, and the other analyses as noted and described, represent the best information available to me respecting various aspects of the current projection of the timber supply in this TFL, and as such they are suitable for reference in this determination.

First Nations engagement

The Crown maintains a duty to consult with, and accommodate as necessary, those First Nations for whom it has knowledge of claimed Aboriginal rights and/or title (Aboriginal Interests) that may be impacted by a proposed decision, including strategic-level decisions such as AAC determinations. The AAC can affect various resource values and therefore the ability of Aboriginal Peoples to meaningfully exercise their Aboriginal rights or interests. Information gained through consultation with potentially affected First Nations has been considered in this determination.

TFL 23 overlaps with the traditional territories of 13 First Nations, including: the Adams Lake Indian Band, Ktunaxa Nation Council, Neskonlith Indian Band, Shuswap Band, Sinixt - Lakes Tribe of the Colville Confederated Tribes (Sinixt), Skwlāx te Secwepemcúl̓ecw (Skwlāx), Splats'in First Nation, West Bank First Nation, as well as the Okanagan Indian Band, Lower Similkameen Indian Band, Osoyoos Indian Band, Penticton Indian Band, and Upper Nicola Band, who are all members of the Okanagan Nation Alliance.

The licensee shared a *Draft Information Package, Management Plan,* and *Analysis Report* with potentially impacted First Nations. In a parallel process, Ministry of Forests district staff led the consultation process for the various TSR phases.

Pre-consultation engagement for the TFL 23 *Management Plan* First Nation began on November 30, 2021. Consultation on the draft *Information Package* was initiated on May 5, 2022, and ended on July 5, 2022. Consultation on the draft *Management Plan* was initiated on April 4, 2023, and ended on September 8, 2023.

Ktunaxa Nation Council

The Ktunaxa Nation Council (KNC) consists of four Kutenai bands in B.C. These include: the ʔakisq̓nuk (Columbia Lake First Nation), Yaq̓it ʔa·knuqƛ̓it (Tobacco Plains Indian Band), ʔaq̓am (St. Mary's First Nation) and Yaqan nu?kiy (Lower Kootenay Indian Band).

KNC have several agreements with the Province, including the Ktunaxa Economic, Community and Development Agreement; Forest Consultation and Revenue Sharing Agreements (FCRSA); and Forest Tenure Opportunity Agreements (FTOA). ʔaq̓am is part of the Sixteen First Nations Clean Energy Commitment, which is shared with 15 other First Nations throughout B.C. KNC also has a Strategic Engagement Agreement with the Province, which was signed in 2010 and expired on March 31, 2024. KNC has been in treaty negotiations with the Province since 1993. In the fall of 2021, KNC suspended treaty negotiations under Stage 5 of the B.C. Treaty process, and the member bands continue to review options for self-determination and their future governance structure.

The KNC did not respond during the consultation periods for the TFL 23 TSR. However, the KNC's interests and concerns have been communicated to the Province through the KNC TSR Working Group and the KNC Forestry Standard Document.

Since 2020, the Ministry and KNC have been collaborating on TSRs for the following management units: Golden Timber Supply Area (TSA), Kootenay Lake TSA, Revelstoke TSA, and TFL 56. To date, the working group's focus has been on the Kootenay Lake TSA TSR, which was concurrent with this timber supply review.

In March 2020, KNC released the *Ktunaxa Forestry Standards Document* (*FSD*) *for Forestry Within ?ama?kis Ktunaxa* ("Ktunaxa Territory"). The KNC prepared the *FSD* due to concerns that current forest management practices are degrading lands and waters, and cumulative developments interacting with accelerating climate change are putting forest biodiversity at unacceptable levels of risk. KNC think that significant reductions in AAC are needed.

KNC provided Interfor with their *FSD* prior to the release of the *Information Package*. Input received from this engagement was incorporated into the draft *Information Package* prior to public review. Interfor also conducted several sensitivity analyses. These include two scenarios, one in which the *Ktunaxa FSD* riparian and wildlife tree retention requirements were applied and another in which the *Ktunaxa FSD* riparian and wildlife tree retention requirements were applied without minimum block size restrictions (see '*riparian areas*' and '*wildlife tree retention'*).

Although ministry staff did not provide a response to KNC because they did not comment directly on the TFL 23 TSR process, I have the considered the relevant comments provided by the KNC through the KNC TSR Working Group and the *Ktunaxa FSD* in making this determination.

Okanagan Nation Alliance and Member Bands

The Okanagan Nation Alliance (ONA) is a tribal council representing several member bands. ONA bands whose territories overlap TFL 23 include: the Penticton Indian Band, Lower Similkameen Indian Band, Okanagan Indian Band, Osoyoos Indian Band, Upper Nicola Band, and West Bank First Nation. Apart from the Upper Nicola Band, all members of the ONA have FCRSAs. The Penticton Indian Band has been working with Interfor at an operational level to incorporate its standards for protecting cultural values in cutblock and road development. This cooperative work has been occurring within the Penticton Indian Band area of responsibility in all Interfor tenures. Except for the Westbank First Nation, who are at Stage 4, none of the ONA member tribes are engaged in the B.C. Treaty process. Ministry staff work with non-treaty ONA member bands through engagement and economic agreements, working groups, and other non-treaty processes.

Although several meetings were held in early 2021 to discuss ways to participate in TSR, no responses were received from the ONA during the engagement and consultation periods.

Secwepemc Nation/Shuswap Nation Tribal Council

The Secwepemc Nation/Shuswap Nation Tribal Council is an association of 10 of the 17 Secwepemc bands. Qwelminte Secwepemc, which is part of the tribal council, is comprised of six member bands. Of these, the Adams Lake Indian Band, Skwlāx, and Splats'in First Nation were identified for consultation on this timber supply review. The Adams Lake Indian Band is part of the Sixteen First Nations Clean Energy Commitment with the Province. Skwlāx has an FCRSA, FTOA, and First Nations Clean Energy Business Fund Revenue Sharing Agreement with the Province. None of the Qwelminte Secwepemc bands are engaged in the B.C. Treaty process.

Neskonlith Indian Band, Skwlāx, and Splats'in First Nation

Along with the Adams Lake Indian Band, Skwlāx, and Splats'in First Nation, the Neskonlith Indian Band (NIB) is a member of the Secwepemc Nation Tribal Council. These four bands comprise the Pespsellkwe or Lakes Division of the Secwepemc Nation.

The NIB has an FCRSA, an FTOA, and an Economic Benefits Agreement with the ministry. The NIB is not involved in the B.C. Treaty process.

During the Skwlāx provided several comments during the consultation period for the draft *Management Plan*. These comments and ministry responses have been addressed in the relevant factors in this document.

Splats'in First Nation requested an extension on the review period for the *Management Plan* due to capacity issues and complications related to wildfires. This request was granted, and the consultation period was extended to September 8, 2023.

Shuswap Band

Members of the Shuswap Band are descendants of the Secwepemc who travelled throughout the Upper Columbia River to hunt and fish, and eventually settled in the region in the early to mid-1850s. The Shuswap Band has an FCRSA and FTOA. The Shuswap Band is not engaged in the B.C. Treaty process.

Sinixt – Lakes Tribe of the Colville Confederated Tribes

The asserted territory of the Sinixt spans from north of Revelstoke along the Columbia/Arrow and Slocan to northern Washington State. On April 23, 2021, the Supreme Court of Canada released its decision on the Desautel case and found that the Lakes Tribe of the Colville Confederated Tribes – a modern day successor of the Sinixt – are an "Aboriginal Peoples of Canada", who have an Aboriginal right to hunt in Canada under Section 35 (1) of the *Constitution Act* of 1982.

During the initial engagement, Sinixt indicated they were very interested in the methodology used to determine the AAC, and how climate change is considered. The ministry responded by providing them with a copy of the *TSR Information Pamphlet*, an overview of the TSR process, and a link to the FAIB website. No further comments were provided by Sinixt.

In reviewing the First Nations consultation process with district staff, I conclude that the First Nations whose territories overlap with TFL 23 were consulted in accordance with current provincial guidance, applicable case law, and the signed agreements held by the affected First Nations. I am satisfied that these consultations have been carried out in good faith and the Crown's process of seeking to understand potentially outstanding issues and impacts was reasonable.

Summary of public input

The public review strategy for *Management Plan #11* was approved by the Regional Executive Director of the Kootenay-Boundary Natural Resource Region on December 8, 2021.

The review period for the draft *Information Package* occurred from March 15, 2023, to May 15, 2023. Operational comments were referred to Interfor operational staff for resolution. Comments related to the timber supply review are summarized below.

Within the scope of my authority under Section 8 of the *Forest Act*, I have considered the concerns expressed during the public consultation processes and the responses provided by Interfor and/or ministry staff, as discussed under the relevant factors in this determination. I conclude that Interfor has followed all the actions specified in its approved public review strategy. As such, I conclude the public review has been completed to the expected standard for a timber supply review.

Consideration of factors as required by Section 8(8) of the *Forest Act*

I have reviewed the information for all the factors required to be considered under Section 8 of the *Forest Act*. Where I have concluded that the modelling of a factor in the base case is a reasonable reflection of current legal requirements, demonstrated forest management and the best available information, and uncertainties about the factor have little influence on the timber supply projected in the base case, no discussion is included in this rationale. These factors are listed in Table 1.

Table 1. List of accepted factors

Forest Act **section and description**	**Factors accepted as modelled**
8(8)(a)(i) the composition of the forest and its expected rate of growth on the area	• *Non-forest and non-productive forest* • *Existing and future roads* • *Hydro line right-of-way* • *Environmentally sensitive areas* • *Non-merchantable stands* • *Wildlife habitat areas* • *Archaeological sites* • *Cultural heritage resources* • *Recreation sites and reserves* • *Live volume estimates for existing stands* • *Dead potential volume*
8(8)(a)(ii) the expected time that it will take the forest to become re-established following denudation	• *Silvicultural management era* • *Genetic gain* • *Non-satisfactorily restocked areas* • *Regeneration assumptions*
8(8)(a)(iii) silviculture treatments to be applied to the area	
8(8)(a)(iv) the standard of timber utilization and the allowance for decay, waste, and breakage expected to be applied with respect to timber harvesting on the area	• *Timber utilization standards* • *Decay, waste, and breakage for existing natural stands* • *Deciduous volume* • *Minimum harvest criteria* • *Cutblock aggregation*
8(8)(a)(v) constraints on the amount of timber produced by use of the area for purposes other than timber production	• *Visual quality* • *Community and domestic watersheds*
8(8)(a)(vi) any other information that, in the chief forester's opinion, relates to the capability of the area to produce timber	
8(8)(b) the short and long term implications to British Columbia of alternative rates of timber harvesting from the area	
8(8)(d) Economic and social objectives of the government, as expressed by the minister, for the area, for the general region and for British Columbia	• *Reference to Minister's letter*
8(8)(e) abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area	• *Non-recoverable losses*

For other factors, where more uncertainty exists or where public or First Nations' input indicates contention regarding the information used, modelling, or some other aspect under consideration, this rationale incorporates an explanation of how I considered the essential issues raised and the reasoning that led to my conclusions.

***Forest Act* Section 8 (8)**

In determining an allowable annual cut under this section the chief forester, despite anything to the contrary in an agreement listed in section 12, must consider

(a) the rate of timber production that may be sustained on the area, taking into account

(i) the composition of the forest and its expected rate of growth on the area

Land base contributing to the timber harvest

- general comments

The timber harvesting land base (THLB) is an estimate of the land where timber harvesting is considered both available and economically feasible, given the objectives for all relevant forest values, existing timber quality, market values and applicable technology. It is a strategic-level estimate developed specifically for the timber supply analysis and as such could include some areas that may never be harvested or could exclude some areas that may be harvested.

The total area of the TFL prior to the establishment of the Incommapleux Valley Conservancy and protected areas (see '*Incomappleux Valley'*) was 389 359 hectares, of which 299 306 hectares were classified as productive forest land base (PFLB). The THLB used in the base case was 139 266 hectares - or 35.8 percent of the total TFL area prior to removal of the conservancy and 46.5 percent of the PFLB. After accounting for future roads, the future THLB is 136 823 hectares or 45.7 percent of the PFLB.

A member of the public expressed concern about the TFL 23 boundary being adjacent to Gladstone, Monashee, and Syringa Provincial Parks, and Glacier National Park, and the importance of protecting wildlife corridors within the TFL. Interfor and district staff note that the park areas are not included in the TFL land base and there are no parks or established wildlife corridors within the TFL.

- Incomappleux Valley

The Incomappleux Valley is one of nine areas where harvesting was immediately deferred in September 2020, when the *Old Growth Strategic Review* was released. Following this deferral, the Nature Conservancy of Canada, Interfor, and the Province worked with First Nations to protect the ecological values of the valley. As a result of this work, on January 25, 2023, the Province of B.C. announced the creation of the Incomappleux Valley Conservancy. In addition to the conservancy, the Province announced that additional area in the southern part of the valley would be protected from forestry activity.

The establishment of the conservancy and protected areas resulted in a 75 556 hectares area deletion from TFL 23 or a decrease of 19.4 percent.

The Incomappleux Valley Conservancy and protected areas had not been established at the time the base case was prepared. Consequently, these areas contributed to the land base used in the timber supply analysis.

In an alternative harvest projection, the removal of the Incomappleux Valley area resulted in an initial harvest level of 416 100 cubic metres per year or 7.6 percent lower than in the base case. The long-term harvest level of 526 790 cubic metres per year is reached after 100 years.

Compared to the base case, the PFLB in the alternative projection is reduced by 31 066 hectares (10.4 percent) and the THLB is reduced by 5972 hectares (4.3 percent).

Based on this information, I conclude the base case short- and long-term harvest levels have been overestimated by 7.6 percent and 5 percent, respectively. I will account for this in my determination as discussed in '**Reasons for Decision**'.

Forest composition and growth

- *forest cover inventory*

The VRI is a photo-based, two-phased vegetation inventory. In Phase I, stand attributes are based on the interpretation of aerial photography. In Phase II, ground sample plots are used to adjust the stand age, height and volumes from Phase I.

In response to an implementation instruction in the *2010 AAC Rationale*, Interfor completed a VRI Phase I inventory using 2011 aerial photography.

For this timber supply analysis, the Vegetation Resource Inventory (VRI) data was updated for depletion and growth to January 1, 2022.

A VRI Phase II ground sample audit has not been completed for this inventory. A comparison of the VRI Phase I inventory volumes to cruised and scaled harvest volumes was completed for 418 cutblocks harvested between 2015 to 2022. The results show that the cruise and harvested volumes are higher than the inventory volumes. Since developed blocks represent a biased sample, the results were not extrapolated to the entire inventory.

Since 2015, the annual VRI update adjusts stand basal area, crown closure, and the number of stems per hectare based on burn severity mapping. However, stand age is not adjusted for burned areas, and this may affect forest cover requirements for other resource values that are age based (e.g., old growth).

Projected stand yields do not account for regeneration and some fire-impacted stands may never reach the minimum merchantable volume criteria in the timber supply model, effectively removing them from the THLB, even though they will likely recover at some point in the future.

For the analysis, the stand age for fire-impacted stands were reset to reflect a seven-year regeneration delay based on burn severity, slope, operability classification, site index, and the requirement to reach minimum merchantable stand volumes. Using this approach, 279 hectares of "high" burn severity area and 558 hectares of "medium" burn severity area were reset to ages representing regenerating stands. In addition, inventory attributes for 79 hectares in areas burned between 2012 and 2018 were adjusted to reflect depletion.

TFL 23 was severely impacted by two catastrophic fires in 2021: the Michaud Creek fire on the west side of Arrow Lake, which impacted about 13 840 hectares; and the Octopus Creek fire on the east side of Arrow Lake, which impacted about 21 220 hectares.

Based on field work and the Ministry's burn severity mapping information, Interfor estimates 33 990 hectares of PFLB was impacted by fire. Not all the area within fire impacted stands is burnt. Of the fire impacted non-THLB, 8728 hectares are classified as "burned" and 6608 hectares are "unburned". Of the fire impacted THLB, 8090 hectares are classified as "burned" and 9697 hectares are "unburned". Of the fire impacted THLB, 2765 hectares are assumed to be potentially salvageable, with a corresponding total salvage volume of 637 892 cubic metres, which represents about 1.4 years of harvest at the current AAC.

Salvage cutting permits totaling 298 hectares have been issued within fire perimeters since 2021. This represents about 14 percent of the total area harvested within TFL 23 over the same period as the cutting permits.

Areas confirmed for salvage have been incorporated in the base case. Salvage blocks and burned THLB stands were available for harvest in the model in the first five-year period, up to a maximum of 350 000 cubic metres, which is the maximum burnt wood volume Interfor can process in its facilities. Stand that are not harvested during this period will be regenerated to a young stand with a seven-year regeneration delay. The attributes of fire-impacted stands in the non-THLB were also adjusted to ensure that a reasonable proportion of the non-THLB would be reset to resemble younger stands in the model.

The analysis results indicate that salvage areas represent about 17 percent of the total harvest volume in the first five years of the base case. This corresponds to a total volume of 75 573 cubic metres per year.

I accept the use of an unadjusted Phase I inventory is reasonable, and the methodology used to update the inventory to account for timber harvesting and fire disturbance is appropriate. For this determination, I conclude that the best currently available information was used in the timber supply analysis and forms a reasonable basis for this determination. However, as indicated in '**Implementation**', I expect the licensee to work with FAIB to undertake an inventory audit, the results of which can be incorporated in the next timber supply review.

With respect to salvage, it is uncertain at this time to what extent the volume within fire-impacted stands will be harvested. Given this volume contributes to the base case harvest levels, this uncertainty could affect timber supply sustainability within TFL 23. Consequently, I expect Interfor to report on its harvest performance in fire-impacted stands, as indicated in '**Implementation**'.

- steep slopes

In TFL 23, slopes greater than 80 percent are generally not harvested and unless there was evidence of previous harvesting these areas were removed from the THLB. Slopes greater than 80 percent occupy a total area of 39 509 hectares, of which a net area of 3359 hectares was removed from the THLB.

In the first 30 years of the base case projection, slopes greater than 50 percent account for about 25 percent of harvest volume. Slopes between 35 and 50 percent contribute about 30 percent of the projected harvest volume. Slopes less than 35 percent contribute about 45 percent of the projected harvest volume.

A summary of the proportion of THLB by slope class and harvested areas, provided by Interfor shows that to date, most of the harvest was conducted on slopes less than 35 percent. Interfor's harvest performance is also evaluated in the *Provincial Timber Management Goals, Objectives, and Targets for TFL 23* report. A comparison of the slope class profile of the harvested cutblocks reported in the Ministry's Harvest Billing System (HBS) for the 12-year period from 2010 to 2022 to the slope class profile of stands older than 60 years in the VRI shows that about 11 percent of the harvested volume originated from slopes greater than 50 percent (steep slopes) and about 67 percent originated from slopes less than 35 percent.

The summary analysis, past performance and the base case show that for the next 30 years, harvesting will need to shift towards slopes greater than 50 percent.

In a sensitivity analysis, limiting the harvest from slopes greater than 50 percent to 20 percent reduces the short-term harvest level by 1.4 percent, or 6230 cubic metres per year.

Based on my review of harvest performance on steep slopes and the results of the sensitivity analysis, I conclude the base case short-term harvest level has been overestimated by 1.4 percent and I will account for this in my determination as discussed in '**Reasons for Decision**'.

Recognizing the risk to timber supply sustainability if harvesting on steep slopes does not increase above current levels, I am instituting a partition in the AAC. This partition limits the harvest from stands on slopes less than 50 percent to a maximum of 80 percent of the AAC. This partition is defined in '**Reasons for Decision**'.

In addition, I expect Interfor to monitor and report annually on its harvest performance by slope class, operability class (see '*inoperable areas*') and terrain stability class ('*terrain* stability'), as described in '**Implementation**'.

- *inoperable areas*

The amount of productive forest land that is economically accessible by forestry operators using conventional and non-conventional harvesting systems is a key consideration in determining the available timber supply for TFL 23.

The operability classification for TFL 23, completed in 1998, identified four operability classes: "accessible", "aerial", "inaccessible", and "immature above operability line". The latter refers to individual stands of immature timber that will be available for harvest in the future using existing harvesting systems, i.e., helicopter or long-line yarding. Previously harvested areas within the "inaccessible" class were considered accessible and were included in the THLB.

In the *2010 AAC Determination Rationale* for TFL 23 and the *2020 AAC Determination Postponement Order*, the chief forester asked the tenure holder to monitor and report on the distribution of harvesting in conventional and alternative areas. In response to this request, Interfor provided a summary of the harvest by operability class for the 12-year period from 2010 to 2022.

In TFL 23, a total area of 182 923 hectares is classified as "inaccessible". Of this area, a net area of 102 856 hectares was removed from the THLB. Approximately 94 percent of the THLB is classified as "accessible" and about 92 percent of the area harvested since 2010 is from this operability class. The remaining eight percent of the area harvested is from areas classified as "inaccessible" and "aerial/immature". Approximately 4.4 percent of the total area harvested is from the "inaccessible" operability class and 3.4 percent of the total area harvested is from the "aerial/immature" operability class.

From 2010 to 2022, 150 139 cubic metres or four percent of the total volume harvested, came from the "inaccessible" operability class. This volume represents about 2.6 percent of the AAC for the period. It is unknown whether the volume from the "inaccessible' operability class was harvested using ground-based or conventional yarding equipment (i.e., "accessible" operability class) or helicopter or long-yarding equipment (i.e., "aerial" operability class). Although some areas considered inaccessible contributed to the base case harvest levels, I conclude they were correctly removed from the THLB.

The current AAC of 413 700 cubic metres includes a partition of 25 000 cubic metres (5.6 percent of the AAC) attributable to the "aerial" operability class. In the base case, the "aerial" operability class contributes an average of seven percent of the overall harvest levels. In the short term, the contribution is about 10 percent.

The harvest summary by operability class information provided by Interfor shows that a total of 132 850 cubic metres was harvested within the "aerial/immature" operability class. This represents an annual average harvest of 10 219 cubic metres per year or about 2.3 percent of the

current AAC. This is notably lower than the level of the AAC partition for the "aerial" operability class.

A review of the overlap between operability classes and slope classes shows that the "alternate" operability class (aerial/immature/inaccessible) area is evenly divided between the "less than 50 percent slope" class and "greater than 50 percent" slope class.

Given there is some harvest performance in the "aerial" operability class and the significant overlap with slopes greater than 50 percent, which I have already accounted for in my decision, I will make no further adjustments to the base case to account for the disproportionately low level of harvest performance in areas requiring non-conventional harvesting systems.

As indicated in '**Implementation**', I expect Interfor to monitor its harvest performance by slope class, operability class and terrain stability class and report this information annually to the district and FAIB.

- unstable terrain

Terrain Stability Mapping (TSM) has been completed for the TFL 23 operable land base. Areas identified as unstable (class "U") or potentially unstable (class "P") are assessed prior to timber harvesting or road construction. Based on the results of these assessments some, but not all, of the mapped areas are excluded from harvesting.

In the base case, 50 percent of the PFLB in class "U" terrain and eight percent in class "P" terrain are removed from the THLB. These percentages are based on those used in the analysis for the previous timber supply review.

In the base case, a total area of 122 764 hectares is classified as unstable or potentially unstable. Of this area, a net area of 3479 hectares was removed from the THLB.

In the *2010 AAC Determination Rationale for TFL 23*, the chief forester concluded that the base case underestimated the deductions required for terrain stability, and this resulted in a three-percent overestimation of the timber supply. The chief forester asked the tenure holder to review the terrain stability mapping for the TFL to ensure its currency and to ensure the reduction factors reflect operational conditions.

In response, Interfor indicated that most of the area classified as "P" is harvested and that road construction was the main concern in areas classified as "U". Interfor also provided a summary of harvest by terrain stability class for the period from 2010 to 2022 using information from the Ministry's RESULTS database. The total opening area identified in RESULTS for the period is 12 012 hectares. Of this area, 975 hectares or eight percent overlap with terrain stability classes "U" and "P". On this basis, Interfor concluded the analysis assumptions used in the previous timber supply analysis were appropriate for use in the current timber supply analysis.

Total opening areas reported in RESULTS do not correspond to harvested area (or net area to be reforested) as they include roads, riparian areas, and wildlife tree patches. Therefore, some areas classified as "U" and "P" may not have been harvested.

Using information provided by Interfor following release of the *Draft Management Plan*, a comparison was made between the level of demonstrated harvest performance on areas of the THLB with terrain stability classifications and the level of harvest performance in these areas assumed in the base case. The results show that the THLB area used in the base case was overestimated by 2.2 percent. Based on an extrapolation of the results of a sensitivity analysis in which the size of the THLB was decreased by 10 percent, a THLB reduction of 2.2 percent would decrease the base case harvest levels by 2.5 percent.

I have considered the terrain stability class information and agree that taken on its own the level of demonstrated performance in areas classified as unstable or potentially unstable is lower than assumed in the base case. However, given the interplay between steep slopes, areas requiring alternative harvesting methods, and terrain stability, I find it likely that a significant proportion of this impact is accounted for in the base case adjustment for steep slopes. On this basis, I will make no further adjustment to the base case. As indicated in '*steep slopes*', and '*unstable terrain*', and in '**Implementation**', I expect Interfor to monitor its harvest performance by slope class, operability class, and terrain stability class and report this information annually to the district and FAIB.

- *riparian areas*

Riparian areas are transition zones between aquatic areas, such as streams, wetlands and lakes, and drier upland areas. Riparian areas provide habitat for various plant and animal species and provide habitat connectivity.

Riparian classes and the corresponding riparian reserve zones (RRZ), where harvesting is not allowed, and riparian management zones (RMZ), where harvesting is restricted, are specified by the Forest Planning and Practices Regulation (FFPR). These requirements are reflected in Interfor's approved FSP, along with minimum basal area retention commitments for riparian management areas (RMA), which are a combination of the RRZ and RMZ.

For the base case, lakes and wetlands were identified from both the vegetation inventory and the Fresh Water Atlas, and classified using the FPPR definitions. Streams were identified from Interfor's stream database. About 75 percent of the streams in Interfor's stream database are classified based on field survey information and the FPPR definitions. Classified streams occur mainly at low elevation, are larger in size, and fish-bearing. For unclassified streams, stream classes were estimated based on slope and the assumption that streams on slopes greater than 25 percent were non-fish bearing.

Based on the length and buffer widths of classified streams, streams predicted to be fish-bearing were assigned a weighted buffer width of 23.3 metres. Unclassified drainages, and stream classes S5 and S6 were assigned a weighted buffer width of 6.1 metres.

The riparian reductions applied in the timber supply analysis for the adjacent TFL 3 use the same buffer widths applied in the TFL 23 analysis but with a higher level of retention - 50 percent for TFL 3 compared to 25 percent for TFL 23. The lower level of retention used in TFL 23 represents the average retention for areas within the Penticton Indian Band (PIB) territory (50 percent) where 50 percent retention is applied, and areas outside of the PIB territory where the level of retention was assumed to be lower. The higher level of retention in PIB territory both within TFL 3 and 23 reflects changes to riparian management that have resulted from joint field reviews between PIB and Interfor.

District staff indicate that Interfor's riparian retention practices are the same throughout TFL 23 and consequently the riparian retention modelled in the base case should have been 50 percent, rather than 25 percent.

In the TFL 23 base case, application of a 25-percent retention factor to all RMAs resulted in a THLB reduction of 5707 hectares. Increasing the retention level to 50 percent results in a THLB reduction of 8413 hectares, which is 2706 hectares more than in the base case. Extrapolating from the results of a sensitivity analysis, the higher THLB reduction reduces the base case short-term harvest level by 2.2 percent.

After receiving the *Ktunaxa FSD*, Interfor agreed to conduct sensitivity analysis on the *FSD* riparian and wildlife tree retention standards. This analysis is discussed in '*wildlife tree retention*'.

Based on my discussions with staff and the information provided by Interfor, I conclude that although the riparian area retention assumptions used in the base case exceed the minimum FPPR and FSP requirements, they do reflect Interfor's commitments to the Penticton Indian Band which are evident through demonstrated performance. However, given riparian management practices within TFL 23 are the same throughout the TFL, the riparian area retention reduction of 50 percent should have been applied to the entirety of TFL 23. This results in a 2.2 percent overestimation of the base case short-term harvest level, which I will account in my determination, as described in '**Reasons for Decision**'.

- *wildlife tree retention*

The legal requirements for wildlife tree retention are specified in the FPPR and reflected in Interfor's approved FSP. The FPPR stipulates that wildlife tree retention areas (WTRA) must be present over a minimum of seven percent of the total area of cutblocks harvested annually. The FPPR also requires WTRA on a minimum of 3.5 percent of each cutblock area.

Information from Interfor's forestry management system and the Ministry's RESULTS data base shows that existing WTRAs occupy a total area of 3153 hectares. After accounting for overlaps with areas already excluded to account for other resource values, a net area of 2402 hectares was removed from the THLB.

To estimate future WTRA in the base case, the expected future wildlife tree retention of seven percent was adjusted using the proportion of net THLB area in WTRAs to gross THLB area in WTRAs (0.772) in existing and planned cutblocks. This resulted in an aspatial netdown factor of 5.4 percent. Application of this factor to stands older than 29 years, except for those in planned cutblocks or subject to aspatial netdowns for environmentally sensitive areas, resulted in the removal of a net area of 4934 hectares from the THLB.

According to information in the RESULTS database, the average long-term retention percentage since Interfor acquired TFL 23 in 2013 is 10.2 percent.

Assuming that future retention practices are the same as Interfor's current practices would result in an aspatial netdown of 7.9 percent (10.2 percent * 0.772), which is equivalent to a THLB reduction of 7218 hectares. This is 2284 hectares or 1.6 percent higher than in the base case. Based on the results of a sensitivity analysis in which the size of the THLB was reduced by 10 percent, a THLB overestimation of this magnitude decreases the base case short-term harvest level by 1.8 percent.

The *Ktunaxa FSD* requires additional riparian protection and recommends that 10 percent of harvested areas be retained for wildlife, and that the WTRA does not overlap with riparian management areas. When applied together, the combined effect of increased riparian protection and wildlife tree retention would reduce the THLB by 9.4 percent, of which 8.04 percent is attributable to increased riparian protection and 1.36 percent is attributable to the higher future wildlife tree retention.

Following receipt of the *Ktunaxa FSD*, Interfor prepared two sensitivity analyses to examine the effect of the increased riparian and wildlife tree retention.

In the first sensitivity analysis, increasing riparian buffers and increasing the aspatial reduction for future wildlife tree retention from 7 to 10 percent reduced the short-term harvest level by 10.8 percent or 48 460 cubic metres per year. The long-term harvest level was reduced by 8.1 percent.

Based on the results of this sensitivity analysis, the impact of just the increased riparian retention on the base case short-term harvest level is 9.2 percent, and the impact from WTRA alone is 1.6 percent.

Interfor notes it is difficult to estimate the incremental THLB reduction from implementing the *Ktunaxa FSD* requirements because it is not known how WTRA placement strategies may change in the field to take advantage of co-location opportunities outside of the wider riparian management area buffers. Ministry staff agree with Interfor that it is difficult to estimate the incremental THLB reduction of implementing the *FSD* wildlife retention requirements and note that the sensitivity analysis includes more than one change to the assumptions used in the base case.

Valkyr Adventures made suggestions for using selective logging for basal canopy and stand retention at different elevation bands within their tenure. At 1500 - 1700 metres retain 30 stems per hectare, 1700 - 1900 metres retain 50 percent basal canopy, and at elevations greater than 1900 metres retain 75 percent basal canopy. They also provided comments regarding wildlife corridors, old growth preservation, visuals around tourist lodges, access to ski terrain, and deactivation of roads and bridges.

In response Interfor noted that for the 1500 - 1700 metres band, retention of 30 stems per hectare were included in the WTRA allowance. For elevations greater than 1700 metres, no additional analysis was completed because of the very small amount of the total THLB area in this band, in addition to the fact that these higher elevation stands are probably less productive than the TFL average.

Based on my review of the wildlife tree retention information, I conclude that the assumptions for existing WTRAs reflect current management and were correctly applied in the base case. However, Interfor‘s current wildlife tree retention practices do not support the lower level of future wildlife tree retention modelled in the base case. Consequently, the base case harvest levels have been overestimated by 1.8 percent. I will account for this in my determination as indicated in my ‘**Reasons for Decision**’.

With respect to the *Ktunaxa FSD*, I understand the Province is currently engaging with the Ktunaxa about their forest management expectations. And in this regard, the sensitivity analysis provided by Interfor for TFL 23 will provide valuable technical support for these discussions. Any changes to riparian area and wildlife tree retention that may result from these discussions will be incorporated in subsequent timber supply reviews. In the interim, Interfor’s current riparian retention exceeds the minimum FPPR requirements and commitments in its FSP. Interfor’s current retention practices are similar to the 10 percent recommended in the *Ktunaxa FSD*.

- *mountain caribou*

TFL 23 provides habitat for the Central-Selkirk population of the southern mountain caribou sub-population and I am aware that the Southern Mountain caribou, which is listed as threatened under the federal *Species at Risk Act* (SARA), depend on large, undisturbed areas of primarily mountainous terrain.

A Government Actions Regulation (GAR) Order was issued on February 19, 2009, for the protection of mountain caribou habitat. The order restricts timber harvesting and road construction within designated caribou areas.

A total area of 55 169 hectares of the caribou ungulate winter range identified in the order is within TFL 23. After accounting for areas removed from the THLB to account for other resource values, a net area of 10 502 hectares were removed from the THLB.

I am aware that through the Provincial Caribou Recovery Program, work is currently underway to develop and implement a combination of habitat and population management actions to further support the conservation and recovery of the Southern Mountain caribou.

Additional conservation measures resulting from the Provincial Caribou Recovery Program and implemented through legislative requirements prior to the next AAC determination will be accounted for either through the AAC Administration Regulation or by a re-determination of the AAC prior to the 10-year period specified in Section 8 of the *Forest Act*.

I conclude the current legal requirements for mountain caribou habitat management in TFL 23 were modelled correctly in the base case.

- *northern goshawk*

The interior sub-species of the northern goshawk is identified as a 'vulnerable' ('blue-listed') species in *B.C.'s Identified Wildlife Species* list and does not have formal protection requirements beyond the best management practices published in 2012 (*A Scientific Basis for Managing Northern Goshawk Breeding Areas in the Interior of British Columbia: Best management Practices*). Best management practices include locating alternative nest sites when a nest site has been located and providing a 200-metre buffer (12.6-hectare buffer area) around identified nest sites, where applicable. While an effective breeding area can range from 30 to 100 hectares across the province, low impacts to occupancy rates occur with reserves greater than 75 hectares in the B.C. interior.

Interfor works with a professional biologist to identify the appropriate measures when goshawk nests are found. In general, a 400-metre radius buffer (approximately 50 hectares) is established around identified nests, but this can vary depending on past harvesting history, terrain, or other factors.

In the base case, "no-harvest" buffers were established around four goshawk nests for a total area of 268 hectares (approximately 67 hectares per nest site). Of this total area, a net area of 223 hectares was removed from the THLB.

I accept the known goshawk nests were correctly modelled in the base case, and I note that the buffers associated with the known goshawk nests exceed the published best management practices. I commend the work done to protect the known goshawk nests in TFL 23 and I expect Interfor will continue to work with professional biologists to identify goshawk nests and ensure that best management practices are implemented.

- *site productivity estimates*

Site index is a measure of forest site productivity based on the relationship between tree height and age. In British Columbia site index is usually expressed as height at age 50 years.

For this analysis, site indices for natural stands are based on the VRI. The average area weighted VRI site index for natural stands is 18.5 metres.

In the last AAC determination, the chief forester recommended the licensee undertake site productivity studies to improve site index estimates. Interfor did not complete any formal site productivity studies because there is insufficient young stand monitoring (YSM) data available for TFL 23, where only nine YSM plots have been established. Consequently, Interfor used site indices based on the provincial site productivity layer (PSPL).

For TFL 23, the PSPL site index values are based on the biogeoclimatic classification (SIBEC). The average area-weighted SIBEC value is 21.1 metres.

During the review of the managed stand yield tables, FAIB recommended using field data to access the reasonableness of the SIBEC estimates. In the absence of YSM data, Interfor analyzed growth intercept site index information collected during silvicultural surveys completed in TFL 3 and TFL 23. Overall, the PSPL site indices used in the analysis are 0.68 metres or about 3.4 percent lower than the site indices obtained from the growth intercept method.

I have considered the site productivity information used to generate the managed stand yields used in the analysis. I accept that the PSPL SIBEC values represent the best currently available information and will not adjust the base case on this account. Prior to the next determination, I expect the licensee to work with FAIB to establish a YSM program for TFL 23. This instruction is summarized in '**Implementation**'.

- managed stand yields

Managed stands are those for which forest management treatments (e.g., planting, spacing, use of improved planting stock, etc.) have been implemented to improve the regeneration and growth of the stand. In the analysis, stands currently 60 years of age and younger are considered managed. To reflect the evolution of forest management over time, the period between 1960 – 2021 was divided into six silviculture eras. Three additional eras were used, one for naturally regenerated burned stands, one for planted (managed) stands, and one for future managed stands. The ministry's Table Interpolation Program for Stand Yields (TIPSY) model, version 4.4 was used to project the growth and yield of each managed stand in each era.

Yield tables for the 1960-1986 era were generated with TIPSY, using the natural regeneration function. This is a departure from current standards which use the ministry's Variable Density Yield Projection model (VDYP) for stands established prior to 1987 without a silvicultural history record (i.e., it does not have an opening identification) in the RESULTS database. Consequently, there was some concern the use of TIPSY may overestimate the growth and yield of stands established in the 1960-1986 era.

All TIPSY projections of volume yields for managed stands are initially based on ideal conditions, assuming full site occupancy and the absence of pests, diseases, and significant brush competition. However, certain operational conditions, such as a less-than-ideal distribution of trees, the presence of small non-productive areas, endemic pests and diseases, or age-dependent factors such as decay, waste and breakage, may cause yields to be reduced over time. Two operational adjustment factors (OAFs) are therefore applied to yields generated using TIPSY, to account for losses of timber volume resulting from these operational conditions. OAF 1 is designed to account for factors affecting the yield curve across all ages, including small stand openings, uneven tree distribution, endemic pests, and other factors. OAF 2 accounts for factors whose impacts tend to increase over time such as decay, and waste and breakage.

The TIPSY model inputs were reviewed by FAIB staff, who concluded the methodology used to identify analysis units, create volume tables, and the volume tables used were reasonable for use in the timber supply analysis.

Based on my review of the information summarized above, I conclude the best available information and accepted methodologies were used to generate the managed stand yields used in the analysis. I note the concern that the growth and yield of stands established in the 1960-1986 era many be overestimated but believe this risk is small. Consequently, I will make no adjustments to the base case on this account. As indicated in '*site productivity*', I expect the licensee to work with FAIB to establish a Young Stand Monitoring (YSM) program for TFL 23. The information obtained from the YSM plots will reduce the uncertainty associated with a variety of factors, including OAFs. This instruction is summarized in '**Implementation**'.

- silviculture systems

A silvicultural system is a planned program of silvicultural treatments designed to achieve specific stand structure characteristics to meet site objectives during the whole life of a stand.

Clearcut with reserves, which was modelled using a THLB reduction, is the predominant system used in TFL 23. In a clearcut with reserves silviculture system, some older forest is retained to support non-timber resources, such as wildlife and riparian values. The assumptions used in the base case are consistent with information in the ministry's RESULTS database.

Skwlāx commented that it appears the analysis assumes logging will be completed via clearcut with reserves. Given recommendation number 12 of the *Old Growth Strategic Review*, silvicultural systems other than clearcuts should be considered in timber supply analysis, e.g., large scale partial cuts and/or single tree harvesting.

Currently, the B.C. government is engaging with First Nations across the province on how recommendations from the *Old Growth Strategic Report* will be implemented within the context of a provincial strategy for the management of old forests.

The Province is also replacing the forest stewardship plans (FSP) prepared by licensees with forest landscape plans (FLP). FLPs will provide greater opportunities for First Nations and the public to engage with licensees to better address ecological and cultural values, in addition to timber values. The FLP development process will provide opportunities for First Nations and stakeholders to review forest management practices, including the use of alternative silvicultural systems.

I conclude application of a clearcut with reserves silviculture system reflects current management and I will make no adjustments to the base case on this account.

With respect to the input received from Skwlāx, I note that changes to management practices that may arise from implementation of the *Old Growth Strategic Review* recommendations will be reflected in future timber supply reviews. If major changes occur in the management assumptions on which this decision is predicated, I am prepared to revisit this determination sooner than the 10 years required by legislation. Changes in land use designations that result in area deletions from the TFL can be accounted for through the AAC Administration Regulation, or through determination of a new AAC early than the 10 years required under the *Forest Act.*

Section 8(8)(a)(ii) the expected time that it will take the forest to become re-established on the area following denudation

As noted in Table 1, I have considered factors related to genetic gain, non-satisfactorily restocked areas, and regeneration assumptions and I find them to have been appropriately accounted for in the base case, with no further comment required.

Section 8(8)(a)(iii) silviculture treatments to be applied to the area

As noted in Table 1, I have considered a factor related to silviculture assumptions. This factor has been appropriately accounted for in the base case, and no further comment is required.

Section 8(8)(a)(iv) the standard of timber utilization and the allowance for decay, waste and breakage expected to be applied with respect to timber harvesting on the area

As noted in Table 1, I have considered factors related to timber utilization, and decay, waste and breakage. These factors have been appropriately accounted for in the base case, and no further comment is required.

Section 8(8)(a)(v) the constraints on the amount of timber produced from the area that reasonably can be expected by use of the area for purposes other than timber production

Integrated resource management objectives

The Ministry is required, under the *Ministry of Forests and Range Act,* to manage, protect and conserve the forest and range resources of the Crown; and to plan the use of these resources so that the production of timber and forage, the harvesting of timber, the grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation, and other natural resource values are coordinated and integrated. The *Forest and Range Practices Act* (FRPA) and other legislation provide for, or enable, the legal protection and conservation of timber and non-timber values. Accordingly, the extent to which integrated resource management objectives for various forest resources and values affect timber supply must be considered in AAC determinations.

The Kootenay-Boundary Higher Level Plan Order issued in 2002, established legal land use requirements in the region, including TFL 23. This order has been fully implemented in the Kootenay-Boundary Region.

Old growth

In 2019, the Government of B.C. embarked on a new approach to old forests, commissioning an independent panel to engage British Columbians and collect their views on the importance and future of old growth in the province. After extensive engagement with First Nations, industry, stakeholders and communities, the independent panel released a report in April 2020, entitled, *A New Future for Old Forests*: *A Strategic Review of How British Columbia Manages for Old Forests within its Ancient Ecosytems* (*Old Growth Report*). In its report the panel recommends a shift from a management approach focused on timber supply to managing for multiple values, recognizing that a shift to prioritize ecosystem health is necessary if forests are to continue to provide essential benefits, such as clean air, clean water, carbon storage, conservation of biodiversity and a sustainable supply of timber. Government has adopted all the report recommendations and implementation is currently underway.

- *old growth management areas*

"Non-legal" Old Growth Management Areas (OGMA) are OGMAs that have not been established by a legal order issued under the *Land Act*.

For TFL 23, spatial OGMAs have been identified to meet the old growth requirements in the Kootenay-Boundary Higher Level Plan (KBHLP) Order. Interfor's approved FSP specifies that timber harvesting will not occur within the non-legal OGMAs, except in defined circumstances. Any modified OGMAs must be replaced with an equivalent area, so that there is no net loss.

OGMAs occupy a total area of 66 876 hectares. After accounting for areas already excluded to account for other values, a net area of 9819 hectares was removed from the THLB.

Although no First Nations comments related to OGMAs were received during the timber supply review process, the Ktunaxa Nation Council (KNC) in its draft *Ktunaxa Forestry Standards Document* (*FSD*) and ongoing discussions with government has expressed a desire to see improvements in the management of old forests within the Kootenay-Boundary Region. These recommendations include OGMA co-location with management zones for other resource values, strengthening of FSP commitments related to OGMA replacement, and ensuring third-party validation of areas selected for OGMA replacement. In addition, KNC does not support harvesting in an OGMA for the purposes of road construction or salvage.

In the base case and sensitivity analyses, spatial OGMAs remained static throughout the projection; incursions and subsequent replacements were not modelled. Interfor notes that this is consistent with the *Ktunaxa FSD*.

I conclude non-legal OGMAs were modelled correctly in the base case. With respect to the KNC concerns and recommendations for the management of old forests in the Kootenay-Boundary Region, including TFL 23, I understand the Kootenay-Boundary Region has established a working group on old forest management to investigate potential areas for improvement, as stated in the *Ktunaxa FSD*. With respect to the requirements included in the *FSD*, I note that I do not have the legal authority to establish or modify land use requirements. However, any changes in old growth management, including OGMAs, that result from this work will be reflected in subsequent timber supply reviews.

- *landscape-level biodiversity*

The KBHLP Order (2002) specifies the minimum mature plus old- and old-seral stage retention requirements by landscape unit/biogeoclimatic ecosystem variant, natural disturbance type and biodiversity emphasis option (BEO). For landscape units assigned a low BEO, the order allows for a temporary reduction ("drawdown") of the old forest minimum retention requirements by up to two-thirds. The full retention targets must be met by the end of the third rotation, or 240 years from the date the order was issued, along with the requirement to meet two-thirds of the full targets by the end of the second rotation, or 160 years from the date of the order.

Where old seral requirements are not being met, the order allows for the development and implementation of strategies to retain mature stands. The order also requires preferential allocation of the seral requirements within established connectivity corridors. Only stands on slopes less than or equal to 80 percent can contribute to meeting seral requirements within connectivity corridors.

In the base case, the seral requirements specified in the KBHLP Order were modelled, as were the provisions for "drawdown" in low BEO landscape units. The model was also configured to achieve the seral-stage retention percentages specified in the order within connectivity corridors as well as in the entire landscape unit.

About 74 percent of the THLB is within landscape unit/BEC variants that are initially below the targets for old seral, and three landscape units (N510, N511, and N518) were impacted by the 2021 wildfires.

While the drawdown allows for reduced retention levels in low BEO landscape units, the application of the old-seral drawdown should not further reduce the area of old forest. In the base case analysis, although the target retention in some low BEO landscape units were below existing levels of old seral the projected levels of old forest retention were not further reduced.

In a sensitivity analysis, applying the full old-seral requirements (no "drawdown" scenario) in landscape units assigned a low biodiversity emphasis option resulted in a short-term harvest level 2.9 percent lower than in the base case. The long-term harvest level was unchanged. In this scenario, the minimum amount of forest older than 250 years required varies from 9 to 19 percent for the entire projection period.

Skwlāx asked that I consider that some First Nations are opposed to logging in old growth forests. Skwlāx asked for a timber supply scenario in which stands older than 250 years, or eight percent of the old forest, are reserved from harvest and younger stands are retained so they can grow into old growth forests. Consequently, the sensitivity analysis described above addresses the Skwlāx request for an alternative scenario in which eight percent of old forest is retained.

The *Ktunaxa FSD* includes a broad suite of recommendations, including a requirement that FSP holders meet the full seral requirements without the use of drawdowns. And in landscape units that do not meet the full seral stage requirements, the tenure holder should prepare a recruitment strategy to meet the full requirements for old- and mature-plus old forest in the shortest possible time, based on verified old growth identified in the 2021 Technical Advisory Panel mapping and existing OGMAs. KNC does not support the contribution of old- and mature-seral targets being met in parks and protected areas.

In considering the management of old forest, I am mindful that although the KBHLP Order allows for reduced old-seral retention levels in low BEO landscape units, the B.C. government has committed to implementing the *Provincial Old Growth Report* recommendations. These include a recommendation that the management of old forests be brought into compliance with existing provincial targets and guidelines for maintaining biodiversity. With this in mind, I encourage Interfor to accelerate the recruitment of stands to meet the full seral-stage requirements as soon as possible.

- Old growth deferral areas from the Technical Advisory Panel

In June 2021, government convened an independent Old Growth Technical Advisory Panel (TAP) to identify at-risk old growth ecosystems and prioritize areas for temporary deferral from harvesting. The TAP identified 2.6 million hectares of B.C.'s most at-risk old growth forests for deferral, including priority old forest with large trees (1.7 million hectares), ancient forest (400 000 hectares), and rare forest (500 000 hectares).

In August 2022, the Kootenay-Boundary Region received unanimous support for the implementation of at-risk old growth forest deferrals from all First Nations with traditional territory in the region, including TFL 23. Currently, approximately 18 700 hectares have been identified as at-risk old growth forest by the TAP for deferral, this represents nearly all old growth forest within the TFL. Of this area, 5300 hectares are in the THLB.

The TFL 23 base case includes at-risk old growth forest in the THLB. In a sensitivity analysis, not harvesting the at-risk old growth forest at any point during the projection decreases the size of the THLB by 3.8 percent, which results in a 4.8 percent - or 21 680 cubic metres per year - decrease in the short-term harvest level and a 2.7 percent - or 14 710 cubic metres per year - decrease in the long term.

I do not have the authority to make land use decisions regarding the amount of area protected for old growth management in the province. However, I mindful that there is unanimous support from all First Nations with traditional territory in the region for the implementation of at-risk old growth forests deferrals. I also am also aware that Interfor has voluntarily agreed to not harvest the at-risk old growth forest until final decisions on the management of these areas have been made. As such, I expect that there will not be any harvesting of the at-risk old growth forests identified for deferral in this TFL in the near future. Given the at-risk old growth forest contributes to the base case on which the new AAC is predicated, I am concerned the avoidance of harvesting in these areas may result in the over harvest of areas outside the deferred areas and negatively impact the timber supply sustainability of the TFL.

For the reasons described above, I am instituting two partitions in the AAC, as described in '**Reasons for Decision**'. The first partition is based on the sensitivity analysis described above and the KBHLP Order definitions of "old forest". (The KBHLP Order defines "old forest" as stands older than 140 years in more frequently disturbed ecosystems (NDT 3) and 250 years or older in less frequently disturbed ecosystems (NDT 1, 2, and 4)). The second partition is focused on stands that are "not old forest".

I acknowledge the unanimous support expressed by all First Nations for the implementation of at-risk old growth deferrals in the Kootenay-Boundary Region. However, it is outside of the scope of my authority under Section 8 of the *Forest Act* to make land use decisions. If following this determination there are significant changes in land use requirements, I am prepared to determine a new AAC earlier than the 10 years specified in Section 8. Changes in land use that result in the deletion of area from the TFL can be accounted for through AAC Administration Regulation.

- *ungulate winter range*

Ungulate winter ranges (UWR) and general wildlife measures for mule deer, white-tailed deer, Rocky Mountain elk, and moose were established under a Government Actions Regulation (GAR) Order issued in 2005. The UWRs are in low elevation areas (generally below 1200 metres) throughout the TFL and account for 13 448 hectares of the THLB. General wildlife measure requirements include measures for managing snow interception cover, early seral stands (less than 21 years of age), and forage areas across 22 management units within the TFL.

The timber supply analysis shows that at the beginning of the projection period, 1621 hectares of THLB are below the minimum snow interception cover (SIC) and this deficit continues for the first 80 years of the projection. The analysis also shows that there are initially 2776 hectares of THLB below the minimum early-seral threshold and it takes about 30 years for the model to retain sufficient replacement stands to grow beyond 21 years to meet the requirement.

Since no harvesting can occur within a management unit until the SIC and early-seral requirements have been met, the actual area affected by the deficits is the total THLB within all the impacted management units. Consequently, the total THLB constrained by the deficits is 7738 hectares.

Interfor contributes to annual compliance reporting tables (Selkirk Geospatial Centre, HLPO Reporting Suite) that provide snow interception cover, early seral, and forage surplus/deficits within each management unit and are used to monitor legal compliance and strategic planning within the TFL. A recent compliance report (July 2023) for TFL 23 identified 10 management units below the SIC threshold and 8 management units below the early-seral stage threshold. These reports include the impact of the 2021 wildfires and timber harvesting completed prior to the 2005 GAR Order.

I am mindful of the recommendations by Day et al., 2016 regarding the management of mule deer in the southern region of B.C., including effectiveness monitoring, increased extension/guidance for dry-belt fir practitioners, use of LiDAR to improve strategic planning, and an adaptive management research program to inform current practices.

A member of the public expressed concerns about the future of logging in the Valkyr Range and Mineral Ridge after fire salvage is completed. The respondent would like to see future logging in the area deferred for 30 to 50 years and standing timber left for ungulate winter range.

In its response Interfor noted that the impact of catastrophic fires on timber availability is accounted for in the timber supply model and future harvesting is subject to legal requirements, such as the SIC and early-seral requirements specified in the GAR Order.

I conclude that UWRs and the associated general wildlife measures were modelled correctly in the base case. I encourage Interfor to support the continued use of adaptive management practices aimed at maintaining/creating forest conditions that support UWR and mitigate the effects of climate change on mule deer.

- cutblock adjacency and green-up

Cutblock adjacency requirements ensure that the structural characteristics left after harvest are consistent with the temporal and spatial distribution of an opening that would result from natural disturbance. For TFL 23, cutblock adjacency, green-up height, stocking standards, and maximum cutblock size are specified in the FPPR and KBHLP Order.

The KBHLP Order specifies that a harvested cutblock must reach 2.5 metres in height before an adjacent block can be harvested. This requirement was modelled aspatially by ensuring no more than 25 percent of the THLB area that does not overlap areas constrained by other values (e.g., ungulate winter range, visual quality etc.), in each landscape unit is less than 2.5 metres in height throughout the entire projection period.

The FPPR specifies that the size of the net area to be reforested on a cutblock must not exceed 40 hectares. The FPPR also indicates that the maximum size limit does not apply in certain situations (e.g., to recover damaged timber, sanitation treatments) provided harvesting is consistent with natural disturbances. Maximum cutblock size was not modelled. Cutblock aggregation was used in the base case to prevent the model from harvesting "splinters" as this is more consistent with actual harvesting operations.

The Ktunaxa Nation Council (KNC) did not provide comments during the TFL 23 timber supply review consultation process. However, the *Ktunaxa FSD* indicates that green-up height should be five metres and no cutblocks should be larger than 40 hectares.

To assess the effect of the *FSD* requirements, Interfor conducted a sensitivity analysis in which no more than 25 percent of the THLB, which does not overlap with areas constrained by visual quality objectives or mule deer winter range, within each landscape unit could be less than five metres in height. In addition, cutblock size was limited to a maximum of 40 hectares. In the resultant harvest projection, the combined impact on the short-term harvest level is 1.5 percent lower than in the base case. The mid- and long-term harvest levels are unaffected.

I conclude the cutblock adjacency and green-up assumptions reflect current management and were correctly modelled in the base case using accepted procedures. Although maximum cutblock size was not explicitly modelled in the base case, the results of the sensitivity analysis indicate application of a 40-hectare maximum cutblock size has no significant effect on the base case harvest levels. With respect to the higher green-up height indicated in the *Ktunaxa FSD*, the sensitivity analysis results show there may be sufficient flexibility to increase green-up height to five metres with minimal effect on the projected timber supply for TFL 23.

Section 8(8)(a)(vi) any other information that, in the chief forester's opinion, relates to the capability of the area to produce timber

<u>Other information</u>

- climate change

As discussed under my '*Guiding principles for AAC determinations*', climate change is a key area of uncertainty for the TFL 23 timber supply review process. Climate change is predicted to impact forest ecosystems in several ways including: a general increase in temperatures, change in precipitation patterns, and an increase in the frequency and severity of disturbances including wildfires, floods, and landslides, and occurrences of insects and disease. While the trends are generally consistent, the specific magnitude of these changes, their spatial and temporal distribution, and impacts to timber supply are uncertain.

Utilizing the Pacific Climate Impact Consortium meteorology for northwest North America dataset, trends were evaluated by ministry staff for TFL 23 between the years of 1942 and 2012.

During this time, there was a significant change in mean annual precipitation in TFL 23, driven by exceptionally large increases in spring (66 percent) and summer (42.3 percent) precipitation. During the same period, mean annual temperatures increased by 0.9º C. For seasonal change in mean annual temperature, winter (1.6º C) and summer (0.8º C) have warmed the most.

Climate model projections for 2041 to 2070 for TFL 23, which were analyzed using Climate B.C. (version 7.21), show a six percent increase in annual precipitation, with spring increasing the most (13.2 percent). However, annual precipitation as snow is projected to decrease by 28.7 percent. It is projected that over this period, mean annual temperatures may increase by 3.2º C, with summer increasing the most (4.0 C), followed by fall (3.4º C), then spring (2.8º C) and winter (2.6º C).

Declines in snow and a shortened snow season can increase the risk of frost damage due to a lack of snow cover to protect trees from cold temperatures and soil moisture storage available to trees during the growing season.

Increases in growing degree days and frost-free period may mean some vegetation will see enhanced growth, however, the increased risk from drought may limit this potential. The potential for stressed trees due to hot dry conditions in the summer months will also limit natural defenses from other disturbances such as pests and wildfire, of which the climate projections are favourable for these to increase as well.

The document entitled, *Adapting Natural Resource Management to Climate Change in the Kootenay Boundary Region: Considerations for practitioners and government staff* was prepared by the regional ecologist for the Kootenay-Boundary Region in 2016. According to the report, for the Kootenay subregion, where TFL 23 is located, decreases in moisture availability are projected to shift drier Interior Cedar Hemlock and Interior Douglas-fir biogeoclimatic zones to grassland/steppe areas. At high elevations, the Englemann Spruce/Subalpine Fir biogeoclimatic zone, parklands and alpine areas are expected to decrease. Increasing winter temperatures and increasing precipitation in winter, spring and fall will likely shift the hydrologic regime from snowmelt-driven to hybrid rain/snow-driven, leading to more frequent rain-on-snow events and smaller spring snowpacks. These changes will affect peak flows, sediment loads, channel stability and low flows. The report includes adaptive management recommendations around hydrology, biodiversity and trees.

Ministry staff informed me that many of the recommendations from the *Adapting Natural Resource Management to Climate Change and in the Kootenay-Boundary Region* report are being implemented through stocking standards, the provincial forest health aerial survey program, existing land use plans, and riparian management practices. Interfor indicates that it is adopting a range of practices provided in the report to establish more resilient forests by planting a mix of tree species on most sites, promptly reforesting harvested areas, increasing the use of Ponderosa pine in the regeneration of drier sites, and increasing tree retention around riparian areas. The higher level of riparian protection may help to mitigate the stream flow changes associated with changes in precipitation and snow melt.

During consultation for the TFL 23 management plan, Skwlāx commented that given the recent trend of climate warming and drought should be considered as a factor limiting tree growth which could decrease timber supply.

In the *Ktunaxa FSD*, the Ktunaxa expressed concerns related to risks associated with accelerating climate change. These include risks to wildlife and biodiversity, wildfires, insects and diseases, rising temperatures and heat domes, prolonged summer droughts, wetter and warmer winters with more frequent and severe flooding, avalanches, windstorms, large hail events, and terrain stability.

New tools are currently being developed to account for ecosystem carbon and to assess the risks associated with drought and natural disturbances. As these tools are validated and as more information becomes available, they will be incorporated in future timber supply reviews. As timber supply analyses are conducted at least every 10 years, the forest inventory is regularly updated to reflect the most recent disturbances and silviculture practices. For TFL 23, establishment of a Young Stand Monitoring Program will provide valuable information on the effects of climate change on regenerating stands and provide opportunities for adaptive management practices.

Considering the changes in climate already experienced and projected changes described here, I expect that future timber supply will be reduced as the effects of climate change unfold. For this determination, as described under "**Reasons for Decision**", I will account for an unquantified long-term overestimation of timber supply in the base case harvest projection due to climate change.

- *cumulative effects*

Cumulative effects are changes to social, economic, and environmental conditions caused by the combined impact of past, present, and potential human activities or natural events. In the Kootenay-Boundary Region, which includes TFL 23, coal mining and forestry have historically been and continue to be the predominant industries. More recently, tourism, residential development, transportation infrastructure and recreational activities have increased within the region.

The Government of British Columbia has developed a Cumulative Effects Framework (CEF) for assessing cumulative effects on priority values, including aquatic ecosystems, old growth forest, grizzly bear, moose, and forest biodiversity. The CEF provides resource managers with procedures and tools to inform decisions that support sustainable management and the needs of many different users.

Cumulative Effects assessments are not currently available for TFL 23. However, a watershed hazard assessment has been completed for the province under the CEF. Hazard classes reflect the sensitivity of an identified value to further disturbance both natural (e.g., fire, drought) and human caused (e.g., road building, timber harvesting, urban and agricultural development, water extraction, mining etc.). For watersheds that overlap TFL 23, the overall hazard class for aquatic ecosystems is relatively high. The high flow hazard, which is based on equivalent clearcut area (ECA), and surface run-off indicators is relatively moderate. The sediment hazard, which is based on road density, is relatively high. The riparian hazard, which is also based on road density, as well as stream crossing density and riparian disturbance is also high.

Skwlāx asked whether the impacts from other industries were considered in combination with forestry, and land clearing associated with other industries.

In response, ministry staff noted that although CE assessments are not currently available for TFL 23, they are available for other parts of Skwlāx territory. These include stream flow rate and sedimentation hazard for the Kettle River watershed; aquatic ecosystems, old and mature forest, grizzly bear, and bighorn sheep for the Elk Valley watershed; and grizzly bear, watersheds, moose, and visual quality for the Thompson-Okanagan Region. A link to the available CE assessments was also provided.

I am mindful that there are many planning and management practices that may help to mitigate the negative effects of forestry. Such objectives that are reflected in the TFL 23 timber supply analysis and Interfor's current management practices include: the Kootenay-Boundary Higher Level Plan Order, the *Forest and Range Practices Act*, visual quality objectives, old growth requirements, cutblock adjacency, and riparian and wildlife tree retention. I also note that

Interfor's management practices have resulted in ECA thresholds that are higher than the minimum levels recommended in the KBLUP Implementation Strategy, and this may help mitigate the risk to aquatic resources.

I conclude that the base case reflects current management, the effects of past and present legal activity on the land base, and the legal objectives established by government for various non-timber resources.

- harvest performance

The current TFL 23 AAC is 413 700 cubic metres. Based on information from the Ministry's Harvest Billing System (HBS) for the period from 2010 to 2022, the average harvest volume has been 364 000 cubic metres per year or 81 percent of the current AAC.

The Ministry's Harvest Billing System (HBS) for the 12-year period from 2010 to 2022 to the slope class profile of stands older than 60 years in the VRI shows that about 11 percent of the harvested volume originated from slopes greater than 50 percent (steep slopes) and about 67 percent originated from slopes less than 35 percent.

In the base case, stands on steep slopes account for -25 percent the harvest volume for the first 30 years of the projection. In a sensitivity analysis, limiting the harvest contribution of steep slopes to a maximum of 20 percent, resulted in harvest levels 1.4 percent less than in the base case.

Based on my review of harvest performance on steep slopes, I conclude the base case short-term harvest level has been overestimated by 1.4 percent and I will account for this in my determination as discussed in '**Reasons for Decision**'. While I understand Interfor is working to increase its cable harvesting capacity in the Kootenay-Boundary Region, including TFL 23, achieving the harvest levels projected in the base case requires a significant shift in both operational planning and timber harvesting methods. To avoid a concentration of harvesting in stands on slopes less than 50 percent, which could jeopardize the timber supply sustainability of TFL 23, I am instituting a partition in the AAC. This partition is defined in '**Reasons for Decision**'. In addition, it is my expectation Interfor to monitor and report on its harvest performance by slope class, operability class (see '*physical operability*' and terrain stability class ('*terrain stability*'), as described in '**Implementation**'.

- unharvested volume

In January 2018 the Ministry of Forests introduced a Policy Regarding the Administration of Unharvested Volumes, Uncommitted Volumes and Unused BCTS Volumes, collectively referred to as "accumulated volume". One of the purposes of the policy is to provide guidance on the administration of accumulated volumes for forest licences, TFLs and woodlot licences in accordance with Section 75.8 of the *Forest Act*. The policy requires that prior to the AAC determination for a TFL, I must be provided with information regarding the total net volume of unharvested volume. As deputy chief forester I must consider the amount of unharvested volume as one of the factors (e.g., a pressure on the standing inventory) when determining the AAC for TFL 23. The minister may, in accordance with Section 75.8 and the principles outlined in the policy, issue a tenure based on unharvested volume.

Regional tenures staff indicate that for the 10-year period from 2010 to 2019, there was an accumulation of approximately 1 303 047 cubic metres of unharvested volume.

On September 7, 2022, the Regional Director for the Kootenay-Boundary Region approved the disposition of 90 000 cubic metres of accrued volume ('undercut'). On January 1, 2022, a Non-Replaceable Forest Licence (NRFL) was issued to the Splats'in First Nation for a total of

90 000 cubic metres. The NRFL specifies 20 percent of the maximum harvestable volume must be from slopes equal to or greater than 20 percent.

The base case represents the maximum amount of volume projected to be sustainable to harvest annually over time. The inventory supporting the base case includes all the standing volume present in the TFL, including any accumulated unharvested volume. Annualized over the 10-year period the new AAC will be in effect, the disposition of 90 000 cubic metres of accumulated unharvested volume reduces the base case short-term harvest level by 9000 cubic metres per year, or two percent. I will account for this in my determination, as discussed in '**Reasons for Decision**'.

Section 8(8)(b) the short and long term implications to British Columbia of alternative rates of timber harvesting from the area

- *alternative harvest projection*

As described under '*Overview of the base case*', I was provided with two alternative harvest projections; one in which the Incomappleux Valley Conservancy area was removed from the TFL 23 land base, and a second in which the initial harvest level was increased by five percent above the level of the current AAC.

Section 8(8)(c) the nature, production capabilities and timber requirements of established and proposed timber processing facilities

This section of the *Forest Act* has been repealed [2003-31-2 (B.C. Reg. 401/2003)].

Section 8(8)(d) the economic and social objectives of the government, as expressed by the minister, for the area, for the general region and for British Columbia

As noted in Table 1, I have considered the economic and social objectives of government as they relate to the factors that I am required to consider under Section 8 of the *Forest Act* and have no further comments.

Section 8(8)(e) abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area

As noted in Table 1, I have considered a factor related to non-recoverable losses assumptions and I find it to have been appropriately accounted for in the base case, with no further comment required.

Reasons for Decision

In reaching my AAC determination for TFL 23, I have considered all the factors required under Section 8 of the *Forest Act* and I have reasoned as follows.

The base case shows that an initial harvest level of 450 430 cubic metres per year can be maintained for 80 years before transitioning over a 20-year period to the long-term harvest level of 554 300 cubic metres per year. The base case initial harvest level is similar to the level of the AAC prior to the deletion of the Incomappleux Valley Conservancy from the TFL.

I am satisfied that the assumptions applied in the base case, for most of the factors applicable to TFL 23, were appropriate including those detailed in Table 1 or as previously discussed in this rationale. However, I have identified some factors, which, considered separately, indicate that the timber supply may be either greater or less than that projected in the base case. Some of these factors can be readily quantified and their impact on the base case assessed with reliability. Others may influence timber supply by adding an element of risk or uncertainty to the decision but cannot be reliably quantified at this time.

I did not identify any factors that indicate a potential underestimation in the harvest levels projected in the base case.

I have identified the following factors that indicate a potential overestimation in the harvest levels projected in the base case:

- *Incomappleux Valley* - accounting for the deletion of the Incomappleux Valley Conservancy and protected area from the TFL decreases the base case short-term harvest level by 7.6 percent.
- *Steep slopes/Inoperable areas/Unstable terrain* - accounting for the disproportionately low level of harvest performance on slopes greater than 50 percent, the disproportionately low level of harvest performance in the alternative operability class, and the difference between the assumed and demonstrated performance in unstable and potentially unstable slopes, decreases the short-term harvest level by 1.4 percent.
- *Wildlife tree retention* - accounting for the higher level of wildlife tree retention decreases the short-term harvest level by 1.8 percent.
- *Riparian areas* - accounting for increased riparian retention decreases the base case harvest level by 2.2 percent.
- *Unharvested volume* - Accounting for the disposition of 90 000 cubic metres of unharvested volume decreases the base case harvest level by 9000 cubic metres - or two percent - for the first decade of the projection.

In total, these factors reduce the base case initial short-term harvest level by 15 percent to 382 865 cubic metres per year which is seven percent lower than the current AAC of 413 700 cubic metres.

I also identified one factor in my considerations as indicating that the timber supply projected in the base case may have been overestimated, but is not quantifiable at this time:

- *climate change* – As the effects of climate change unfold, I expect long-term timber supply to be lower than projected in the base case. Although the timing and extent to which climate change will impact timber supply is unknown, I am encouraged by work in the Kootenay-Boundary Region to implement climate adaptation measures. As our knowledge and tools around climate change develop I expect they will be incorporated in future timber supply reviews.

With respect to steep slopes, I am mindful that the timber supply sustainability of the TFL is contingent on increasing harvest performance on slopes greater than 50 percent to a level that is proportionate to their contribution to the THLB. Although Interfor indicates it is continuing to increase its cable harvesting capacity, increasing harvest performance on steep slopes still requires a significant shift in operational planning and timber harvesting methods. Therefore, to reduce the risks associated with a concentration of harvesting on slopes less than 50 percent, I am instituting a partition in the AAC such that a maximum of 80 percent of the AAC can be harvested from slopes less than 50 percent.

Old growth has been identified as an important value by First Nations and the public and the B.C. government has committed to changing the approach to old growth management in the province. First Nations with traditional territory in the Kootenay-Boundary region have given their unanimous support for the implementation of the at-risk old growth deferrals identified by the TAP. However, as I do not have the legal authority to make land use decisions, until the province and First Nations have decided on the management of old growth forest, these areas continue to contribute to the THLB, even though they are not currently being harvested.

Therefore, to avoid licensees relocating the harvest contribution associated with at-risk old growth (represents the majority of old growth within the THLB) to not old forest, I am instituting two AAC partitions based on the definitions of old forest provided in the KBHLP Order. In the first, a maximum of 19 100 cubic metres or five percent of the AAC can be harvested from "old forest". Old forest is defined as stands older than 140 years and younger than 250 years in more frequently disturbed stands (NDT 3) and 250 years or older in less frequently disturbed stands (NDT 1, 2, and 4). In the second, a maximum of 95 percent of the AAC - can be harvested from stands that are not "old forest".

With respect to old growth forests, once the province and First Nations have established new legal requirements for the management of old growth, including the at-risk old growth identified by the TAP, these changes will be incorporated in timber supply reviews. If significant changes occur, the AAC can be adjusted either through a determination earlier than required in legislation or by means of the AAC Administration Regulation.

Determination

I have considered and reviewed all the factors as documented above, including the risks and uncertainties of the information provided. It is my determination that a timber harvest level that accommodates objectives for all forest resources during the next 10 years, reflects current management practices, as well as the socio-economic objectives of the Crown, can be best achieved in TFL 23 by establishing an AAC of 382 800 cubic metres. This is about seven percent lower than the current AAC of 413 700 cubic metres.

In making this AAC determination, I specify, under Section 8(5)(a) of the *Forest Act*, three partitions:

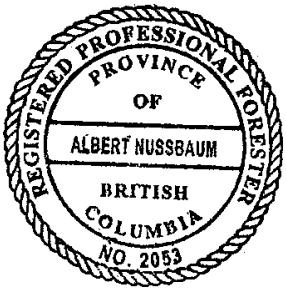
1. Old forest: A maximum of 19 100 cubic metres (five percent of the AAC) may be harvested from old forest. "Old forest" is defined as stands older than 250 years in less frequently disturbed ecosystems (NDT 1, 2, and 4) and stands older than 140 years in more frequently disturbed ecosystems (NDT 3).
2. Not old forest: A maximum of 363 700 cubic metres (95 percent of the AAC) may be harvested from stands that are not old forest. "Not old forest" is defined as stands younger than or equal to 250 years in less frequently disturbed ecosystems (NDT 1, 2, and 4) and stands younger than or equal to 140 years in more frequently disturbed ecosystems (NDT 3).
3. Slopes less than 50 percent: A maximum of 306 200 cubic metres per year (80 percent of the AAC) can be harvested from stands on slopes less than 50 percent.

This determination is effective July 18, 2024, and will remain in effect until a new AAC is determined, which must take place within 10 years of the effective date of this determination. If additional significant new information is made available to me, or major changes occur in the management assumptions upon which this decision is based, then I am prepared to revisit this determination sooner than the 10 years required by legislation.

Implementation

In the period following this decision and leading to the subsequent determination, I expect Ministry staff and tenure holder's staff to undertake or support the tasks and studies noted below, the benefits of which are described in appropriate sections of this rationale document. I recognize that the ability of all parties to undertake or support these projects is dependent on provincial priorities and available resources, including funding. However, these projects are important to help reduce the risk and uncertainty associated with key factors that affect the timber supply in TFL 23. Prior to the next AAC determination:

1. *Inventory* - I expect Interfor to work with FAIB to undertake an inventory assessment and validation.
2. *Monitoring Partitions and Reporting Annually*
    - *Steep slopes* - I expect Interfor to better align its harvest performance on steep slopes to the slope profile of the TFL and to monitor and report to the district and FAIB on its harvest performance by slope class, operability class, and terrain stability class.
    - *Old and not old forest* - I expect Interfor to work with District and FAIB staff to develop a monitoring protocol for the old and not old forest partition and to report performance annually.
    - *Fire impacted stands* - I expect Interfor to report annually on its harvest performance in fire-impacted stands.
3. *Site productivity* - I expect Interfor to work with FAIB to establish a YSM program, the results of which will improve site productivity estimates, and increase understanding of the effects of climate change on stand productivity.



Albert Nussbaum, RPF
Deputy Chief Forester

July 18, 2024

Appendix 1: Section 8 of the *Forest Act*

Section 8 of the *Forest Act*, Revised Statutes of British Columbia 1996, c. 157, (current to July 2, 2024), reads as follows:

Allowable annual cut

8 (1)The chief forester must determine an allowable annual cut at least once every 10 years after the date of the last determination, for

(a) the Crown land in each timber supply area, excluding the Crown land in the licence areas of area-based licences, and

(b) each tree farm licence area.

(2) If the minister

(a) makes an order under section 7 (b) respecting a timber supply area, or

(b) amends or enters into a tree farm licence to accomplish a result set out under section 39 (2) or (3),

the chief forester must make an allowable annual cut determination under subsection (1) for the timber supply area or tree farm licence area

(c) within 10 years after the order under paragraph (a) or the amendment or entering into under paragraph (b), and

(d) after the determination under paragraph (c), at least once every 10 years after the date of the last determination.

(3) If

(a) the allowable annual cut for the tree farm licence area is reduced under section 9 (3), and

(b) the chief forester subsequently determines, under subsection (1) of this section, the allowable annual cut for the tree farm licence area,

the chief forester must determine an allowable annual cut at least once every 10 years from the date the allowable annual cut under subsection (1) of this section is effective under section 9 (6).

(3.1) If, in respect of the allowable annual cut for a timber supply area or tree farm licence area, the chief forester considers that the allowable annual cut that was determined under subsection (1) is not likely to be changed significantly with a new determination, then, despite subsections (1) to (3), the chief forester

(a) by written order may postpone the next determination under subsection (1) to a date that is up to 15 years after the date of the relevant last determination, and

(b) must give written reasons for the postponement.

(3.2) If the chief forester, having made an order under subsection (3.1), considers that because of changed circumstances the allowable annual cut that was determined under subsection (1) for a timber supply area or tree farm licence area is likely to be changed significantly with a new determination, he or she

(a) by written order may rescind the order made under subsection (3.1) and set an earlier date for the next determination under subsection (1), and

(b) must give written reasons for setting the earlier date.

(4) If the allowable annual cut for the tree farm licence area is reduced under section 9 (3), the chief forester is not required to make the determination under subsection (1) of this section at the times set out in subsection (1) or (2) (c) or (d), but must make that determination within one year after the chief forester determines that the holder is in compliance with section 9 (2).

(5) In respect of an allowable annual cut determined under this Act, the chief forester may, at any time, specify that portions of the allowable annual cut are attributable to one or more of the following:

(a) different types of timber or terrain in different parts of Crown land within a timber supply area or tree farm licence area;

(a.1) different areas of Crown land within a timber supply area or tree farm licence area;

(b) different types of timber or terrain in different parts of private land within a tree farm licence area.

(c) [Repealed 1999-10-1.]

(5.1) The chief forester may, at any time, amend or cancel a specification made under subsection (5).

(6) The minister must determine an allowable annual cut for each woodlot licence area in accordance with the woodlot licence for that area.

(7) The minister must determine an allowable annual cut for

(a) each community forest agreement area in accordance with the community forest agreement for that area, and

(b) each first nations woodland licence area in accordance with the first nations woodland licence for that area.

(8) In determining an allowable annual cut under subsection (1) the chief forester, despite anything to the contrary in an agreement listed in section 12, must consider

(a) the rate of timber production that may be sustained on the area, taking into account

(i) the composition of the forest and its expected rate of growth on the area,

(ii) the expected time that it will take the forest to become re-established on the area following denudation,

(iii) silviculture treatments to be applied to the area,

(iv) the standard of timber utilization and the allowance for decay, waste and breakage expected to be applied with respect to timber harvesting on the area,

(v) the constraints on the amount of timber produced from the area that reasonably can be expected by use of the area for purposes other than timber production, and

(vi) any other information that, in the chief forester's opinion, relates to the capability of the area to produce timber,

(b) the short and long term implications to British Columbia of alternative rates of timber harvesting from the area,

(c) [Repealed 2003-31-2.]

(d) the economic and social objectives of the government, as expressed by the minister, for the area, for the general region and for British Columbia, and

(e) abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area.

(9) Subsections (1) to (4) of this section do not apply in respect of the management area, as defined in section 1 (1) of the *Haida Gwaii Reconciliation Act*.

(10) Within one year after the chief forester receives notice under section 5 (4) (a) of the *Haida Gwaii Reconciliation Act*, the chief forester must determine, in accordance with this section, the allowable annual cut for

(a) the Crown land in each timber supply area, except the areas excluded under subsection (1) (a) of this section, and

(b) each tree farm licence area

in the management area, as defined in section 1 (1) of the *Haida Gwaii Reconciliation Act*.

(11) The aggregate of the allowable annual cuts determined under subsections (6), (7) and (10) that apply in the management area, as defined in section 1 (1) of the *Haida Gwaii Reconciliation Act*, must not exceed the amount set out in a notice to the chief forester under section 5 (4) (a) of that Act.

Appendix 2: Section 4 of the *Ministry of Forests and Range Act*

Section 4 of the *Ministry of Forests and Range Act* (current to July 2, 2024) reads as follows:

Purposes and functions of ministry

4 The purposes and functions of the ministry are, under the direction of the minister, to do the following:

(a) encourage maximum productivity of the forest and range resources in British Columbia;

(b) manage, protect and conserve the forest and range resources of the government, having regard to the immediate and long term economic and social benefits they may confer on British Columbia;

(c) plan the use of the forest and range resources of the government, so that the production of timber and forage, the harvesting of timber, the grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation and other natural resource values are coordinated and integrated, in consultation and cooperation with other ministries and agencies of the government and with the private sector;

(d) encourage a vigorous, efficient and world competitive

(i) timber processing industry, and

(ii) ranching sector

in British Columbia;

(e) assert the financial interest of the government in its forest and range resources in a systematic and equitable manner.

Appendix 3: Minister's letter of November 24, 2021

Reference: 268022

November 24, 2021

Diane Nicholls, R.P.F.
Assistant Deputy Minister and Chief Forester

Dear Diane Nicholls:

The *Forest Act* gives you the authority to determine an allowable annual cut (AAC) for each timber supply area and tree farm licence in the province and specifies what you must consider when determining an AAC. Included in these considerations are the economic and social objectives of the government, which are provided below. These government objectives are to be considered as part of the comprehensive timber supply review process that your office has developed and implemented to ensure that your AAC determinations consider many forest management objectives and aligns with provincial statutes and regulations. They replace the objectives provided to you by the former minister, Doug Donaldson, on October 30, 2017.

British Columbians expect a government focused on building a strong sustainable economy that works for everyone, providing a path for lasting and meaningful reconciliation with Indigenous peoples, and developing strategies to address climate change. Government has committed to delivering on these priorities while recognizing that healthy, resilient forests are essential to the social, economic, and environmental interests of current and future generations. To advance these commitments, natural resource ministries, Indigenous partners, and stakeholders are collaborating to develop and implement forest management strategies and policies that will be relevant to your AAC determinations. I ask that you remain mindful of these commitments and as government approves related objectives, that you ensure they are fully considered within the timber supply review process.

The British Columbia (BC) government has committed to full and lasting reconciliation with Indigenous Peoples. As the provincial government implements the *Declaration on the Rights of Indigenous Peoples Act* and works toward aligning provincial laws with the United Nations Declaration on the Rights of Indigenous Peoples, I ask that your AAC determinations fully consider relevant outcomes of that work. For greater certainty, please continue to ensure that your AAC determinations are consistent with relevant agreements that are in effect between First Nations and the BC government, and court decisions that define Aboriginal title and rights. I expect you to continue to find ways to advance engagement and collaboration with Indigenous Peoples throughout the timber supply review process. In making your AAC determinations, I also ask that you continue to carefully consider Indigenous knowledge and other input that could have implications for your AAC determinations from First Nations and organizations whose traditional territories overlap the management unit under consideration.

Ministry of Forests, Lands, Natural Resource Operations and Rural Development
Office of the Minister
Mailing Address: PO BOX 9049 Stn Prov Govt Victoria, BC V8W 9E2
Tel: 250 387-6240
Fax: 250 387-1040
Website: www.gov.bc.ca/for

Diane Nicholls, Assistant Deputy Minister and Chief Forester

BC's forests provide fibre for forest products, habitat for plants, fish and wildlife, and many other benefits essential to diverse and resilient communities. The capacity of these forests to support economic and environmental sustainability and reconciliation with Indigenous peoples is challenged by insect infestations, increasing levels of wildfire activity and other risks related to climate change. As healthy forests are essential for a healthy industry and province, I ask you consider how your determinations may encourage economic recovery and forest revitalization, improve forest health, and support approved strategies to reduce wildfire.

Since a sustainable and resilient timber supply supports BC's goals for a better, cleaner future and environmental sustainability, your AAC determinations should continue to incorporate, as appropriate, the best available information on climate change and forest health. When making your AAC determinations, please consider ways to encourage management practices that reduce greenhouse gas emissions and support forest resiliency. Practices that are consistent with established climate change strategies, adaptation, and mitigation practices, including practices that result in better fibre utilization and sector diversity, should be explored.

As new land use policies are developed and implemented to support BC's goals for economic activity, environmental sustainability, and reconciliation with Indigenous peoples, I ask that your determinations continue to incorporate, as appropriate, the best available information on the cumulative effects of multiple activities on the land base. Where the cumulative effects of timber harvesting and other land-based activities indicate a risk to natural resource values, your determinations should identify those risks for consideration in land-use planning. I also ask that you consider ways in which your AAC determinations could encourage actions or practices to mitigate the identified risks to natural resource values.

Forests are essential to build a strong, sustainable economy that supports people, communities and competitiveness and this government is focused on transitioning the forestry sector from high volume to high value production. As part of the timber supply review process, I ask that you consider ways to foster and encourage the value-added sector and increase the use of fibre. Please identify timber types that may not be reflected in harvest choice, and in your AAC determinations, examine opportunities for these timber types to sustain clean-energy jobs and value-added products or enhance ecosystem health and resiliency.

In making your AAC determinations, I ask that you consider the needs of local communities as expressed by the public during timber supply review process. This includes input that contribute to the economic recovery and sustainability of communities and is consistent with the government's broader objectives. To ensure a sustainable future for BC's forest-dependent communities, I also ask that when faced with necessary reductions in AAC's that wherever possible those reductions be no larger than necessary to avoid significant longer-term impacts.

Thank you, Diane, for your service and your care and attention to these important matters.

Sincerely,

Katrine Conroy
Minister

Appendix 4: Information sources used in the AAC determination

The information sources considered in determining the AAC for TFL 23 include the following:

A Scientific Basis for Managing Northern Goshawk Breeding Areas in the Interior of British Columbia: Best management Practices. See https://a100.gov.bc.ca/pub/acat/public/viewReport.do?reportId=41162. (Accessed July 10, 2024).

Adapting Natural Resource Management to Climate Change in the Kootenay Boundary Region: Considerations for Practitioners and Government Staff. See https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/nrs-climate-change/regional-extension-notes/kbren160222.pdf (Accessed July 10, 2024);

Aerial Overview Surveys. Ministry of Forests, Lands, Natural Resource Operations and Rural Development. See https://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/forest-health/aerial-overview-surveys (Accessed July 10, 2024);

Approved Government Actions Regulation – Ungulate Winter Ranges. See http://www.env.gov.bc.ca/wld/frpa/uwr/approved_uwr.html (Accessed July 10, 2024);

Approved Legal Orders. Ministry of Forests, Lands, Natural Resource Operations and Rural Development. See https://www2.gov.bc.ca/gov/content/industry/crown-land-water/land-use-planning/regions (Accessed July 10, 2024);

Archaeology in British Columbia. Ministry of Forests, Lands, Natural Resource Operations and Rural Development. See https://www2.gov.bc.ca/gov/content/industry/natural-resource-use/archaeology (Accessed July 10, 2024);

Biodiversity Guidebook, Ministry of Forests. See Biodiversity Guidebook (Forest Practices Code of British Columbia, September 1995) (gov.bc.ca) (Accessed July 10, 2024);

Biogeoclimatic Ecosystem Classification Program. Ministry of Forests, Lands and Natural Resource Operations. See https://www.for.gov.bc.ca/hre/becweb/program/climate%20change/index.html (Accessed July 10, 2024);

British Columbia Geographic Warehouse. See https://www2.gov.bc.ca/gov/content/data/geographic-data-services;

Bulletin – Modelling Visuals in TSR III. Ministry of Forests. See https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/visual-resource-mgmt/vrm_modeling_visuals_bulletin.pdf (Accessed July 10, 2024)

Chief Forester's Standards for Seed Use, Amendments Established. See https://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/tree-seed/legislation-standards/chief-forester-s-standards-for-seed-use (Accessed July 10, 2024);

Cut Control Regulation. Victoria, BC. See http://www.bclaws.ca/Recon/document/ID/freeside/17_578_2004. (Current to March 26, 2024);

Day, K., Sullivan, T. and Peel, D. 2016. Effectiveness of Existing GAR Orders in Meeting Mule Deer Winter Range Needs.

Declaration on the Rights of Indigenous Peoples Act. See https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/19044 (Current to July 2, 2024);

Foord, V. 2023. Kootenay Lake TSA Climate Change Analysis. Prepared for TFL 3 AAC Determination;

Forest Act. See https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96157_00. (Current to July 2, 2024);

Forest and Range Practices Act. See https://www.bclaws.ca/civix/document/id/complete/statreg/02069_01 (Current to July 2, 2024);

Forest Planning and Practices Regulation. See http://www.bclaws.ca/civix/document/id/complete/statreg/14_2004 (Current to March 5, 2024);

Forest Practices Code Riparian Management Area Guidebook. Ministry of Forests, Lands, Natural Resource Operations and Rural Development. See https://www2.gov.bc.ca/gov/content/industry/forestry/managing-our-forest-resources/silviculture/silvicultural-systems/silviculture-guidebooks/riparian-management-area-guidebook (Accessed July 10, 2024);

Government Actions Regulation. See http://www.bclaws.ca/civix/document/id/complete/statreg/582_2004 (Current to July 2, 2024);

Haida Nation v. British Columbia (Minister of Forests), [2004] 3 S.C.R. 511, 2004 SCC 73. See https://decisions.scc-csc.ca/scc-csc/scc-csc/en/item/2189/index.do (Accessed July 10, 2024);

Harvest Billing System (HBS). Ministry of Forests. See https://www2.gov.bc.ca/gov/content/industry/forestry/competitive-forest-industry/timber-pricing/harvest-billing-system (Accessed July 10, 2024);

Heritage Conservation Act. Section 9. Heritage designation. See http://www.bclaws.ca/civix/document/id/complete/statreg/96187_01#section9 (Current to July 2, 2024);

Hugh Hamilton Limited and Atticus Resource Consulting Ltd. (1996). Operability Line Report for Tree Farm License 3, Slocan Forest Products Ltd.;

Kootenay-Boundary Higher Level Plan Order. See https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/kootenayboundary-region/kootenayboundary-rlup/kootenayboundary_rlup_fpc_26oct2002.pdf (Accessed July 10, 2024);

Land Act. See http://www.bclaws.ca/civix/document/id/complete/statreg/96245_01 (Current to July 2, 2024);

Landscape Unit Planning Guide. Ministry of Forests. See https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/natural-resource-use/land-water-use/crown-land/land-use-plans-and-objectives/policies-guides/lup_guide.pdf (Accessed July 10, 2024);

List of Wildlife Species at Risk, Schedule 1 (Subsections 2(1), 42(2) and 68(2)). See https://www.canada.ca/en/environment-climate-change/services/species-risk-act-accord-funding/listing-process/wildlife-schedule-1.html (Accessed July 10, 2024);

MacKenzie, W.H. 2012. Biogeoclimatic ecosystem classification of non-forested ecosystems in British Columbia. Prov. B.C., Victoria, B.C. Tech. Rep. 068. See www.for.gov.bc.ca/hfd/pubs/Docs/Tr/Tr068.htm (Accessed July 10, 2024);

Meidinger, D.V. Protocol for accuracy assessment of ecosystem maps. 2003. Res. Br., B.C. Min. For., Victoria, B.C. Tech. Rep. 001. See https://www.for.gov.bc.ca/hfd/pubs/Docs/Tr/Tr011.htm (Accessed July 10, 2024);

Ministry of Forests and Range Act. Section 4 – Purposes and functions of Ministry. See http://www.bclaws.ca/civix/document/id/complete/statreg/96300_01 (Current to July 2, 2024);

Ministry of Forests First Nations Consultation Report for TFL 3. January 16, 2024;

Old Growth Technical Advisory Panel – Background and Technical Appendices. See https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/stewardship/old-growth-forests/og_tap_background_and_technical_appendices.pdf (Accessed July 10, 2024);

Order for the Establishment of Visual Quality Objectives and Scenic Area for the Arrow Boundary Forest District. Ministry of Forests and Range. See https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/laws-policies-standards-guidance/legislation-regulation/forest-range-practices-act/regulations-supporting-frpa/government-actions-regulation (Accessed July 10, 2024)

Policy Regarding the Administration of Unharvested Volumes, Uncommitted Volumes and Unused BCTS Volumes. Ministry of Forests, Lands and Natural Resource Operations and Rural Development. See https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-tenures/timber-tenure-bulletins-policies-procedure/policy_regarding_the_administration_of_unharvested_volumes_uncommitted_volumes_and_unused_bcts_volumes.pdf (Accessed July 10, 2024);

Procedures for Factoring Visual Resources into Timber Supply Analyses (March 17, 1998). See https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/visual-resource-mgmt/vrm_procedures_for_factoring_timber_supply_analyses.pdf (Accessed July 10, 2024);

Provincial Caribou Recovery Program. See https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/wildlife/wildlife-conservation/caribou/recovery-program

Provincial Guide for the preparation of Information Packages and Analysis Reports for Area-based Tenures. Ministry of Forests, Lands, Natural Resource Operations and Rural Development. See https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/stewardship/forest-analysis-inventory/tsr-annual-allowable-cut/guide_area_based_tenures.pdf (Accessed July 10, 2024);

Provincial Logging Residue and Waste Measurement Procedures Manual. Timber Pricing Branch, Ministry of Forests, Lands, Natural Resource Operations and Rural Development. See https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-pricing/residue-and-waste/res_waste_interior_procedures_master_1a.pdf (Accessed July 10, 2024);

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