

**BRITISH COLUMBIA  
MINISTRY OF FORESTS**

# **Tree Farm Licence 41**

**held by**

**Skeena Sawmills Ltd.**

## **Rationale for Allowable Annual Cut (AAC) Determination**

**Effective September 10, 2024**

**Albert Nussbaum, RPF  
Deputy Chief Forester**

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## **Objective of this document**

This document is intended to provide an accounting of the factors I have considered and the rationale I have employed as deputy chief forester of British Columbia (BC) in making my determination, under Section 8 of the *Forest Act*, of the allowable annual cut (AAC) for Tree Farm Licence (TFL) 41. 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 Coast Mountains Natural Resource District (CMNRD) and the Forest Analysis and Inventory Branch (FAIB). I am also grateful to the First Nations, local residents, individuals and companies 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 TSAs and TFLs. Section 8 of the *Forest Act* is reproduced in full as Appendix 1 of this document.

## **Description of the TFL**

TFL 41 is located in the north-western portion of British Columbia, approximately 100 kilometres east of Prince Rupert on the lee side of the Coast Mountains and 40 kilometres south of Terrace. The TFL land base encompasses a portion of the Kitimat Ranges, the upper headwaters and major tributaries of the Kitimat River and drainages adjacent to the western boundary of the District of Kitimat, as well as an area surrounding Clio Bay at the entrance to Kildala Arm. The total area of the TFL is 201 792 hectares.

The forested areas of TFL 41 are predominantly within the wetter subarctic Coastal Western Hemlock (CWHws) biogeoclimatic subzone to the north and the very wet maritime Coastal Western Hemlock (CWHvm) biogeoclimatic subzone to the south. The CWH zone is bounded in the upper elevations by the Mountain Hemlock (MH) biogeoclimatic zone.

The majority of the TFL area is extensively forested. The dominant tree species in forest stands is western hemlock with stands containing a significant component of amabilis fir. Western redcedar is a significant minor species throughout the TFL, and mountain hemlock occurs at the higher elevations. Other minor species include Sitka spruce, yellow-cedar and lodgepole pine. The TFL is home to several important wildlife species, including grizzly bear, black bear and moose.

The traditional territories of the Haisla Nation, the Lax Kw’alaams Band, the Office of the Wet’suwet’en, the Skin Tyee Nation, and the Gitga’at, Metlakatla, Kitselas, Kitsumkalum, Wet’suwet’en First Nations overlap with the TFL.

TFL 41 was first awarded in 1966 to Eurocan Pulp and Paper Company Ltd. (Eurocan). In 1981, West Fraser Mills Ltd. (West Fraser) acquired a major share in Eurocan, and in 1993, the TFL transitioned to full ownership by West Fraser. In April 2011, Skeena Sawmills, a wholly owned subsidiary of West Fraser, became the licence holder. On July 19, 2011, Roc Holdings Ltd. acquired the outstanding shares of Skeena Sawmills. The timber supply analysis supporting this determination was prepared on behalf of Skeena Sawmills (the licence holder). In September 2023, assets of Skeena Sawmills were placed under receivership.

On May 1, 2024 Kitsumkalum First Nation purchased the assets of Skeena Sawmills including the sawmill, pellet mill, and associated lands. The Kitsumkalum First Nation also submitted a Request for Approval of an Intended Transfer of the forest licences held by Skeena Sawmills to be transferred to the Kitsumkalum First Nation. This request is currently under review.

The TFL is administered by the Ministry of Forests Coast Mountains Natural Resource District office located in Terrace, B.C.

## **History of the AAC**

The original area of TFL 41 was 1 019 740 hectares with an initial AAC of 382 320 cubic metres. Under Working Plan No. 1 for the years 1970 to 1974, an AAC of 883 500 cubic metres was established. Working Plan No. 2 for the period between 1975 and 1979 established an AAC of 567 400 cubic metres while a forest inventory was being completed. In 1981 the chief forester established an AAC of 629 000 cubic metres for the period of Management and Working Plan No. 3 from 1980 to 1984. In 1985 the AAC was revised to 629 000 cubic metres, the increased AAC from 1980 to 1985 reflects the completion of a new logging and reforestation plan.

From 1986 to 1993 the AAC for the TFL was determined to be 430 000 cubic metres, except for 1990 when a temporary increase in AAC to 500 000 cubic metres was established to facilitate construction of the Kitimat to Kemano transmission right-of-way.

Under *Management Plan No. 5* from 1994 to 1998 the AAC for TFL 41 was determined to be 400 000 cubic metres, this included an onshore partition of 180 000 cubic metres and offshore partition of 220 000 cubic metres.

The creation of the Kitlope Heritage Conservancy in 1996, the removal of two lots and the addition of Schedule A and Schedule B lands to the TFL in 1997 resulted in a decrease in total area of 315 993 hectares, and a decrease in operable area of approximately 5067 hectares.

On June 11, 1999 under *Management Plan No. 6* (1999-2004) the AAC for TFL 41 was determined at 400 000 cubic metres, this included the onshore and offshore partition as well as a 34 000 cubic metre partition attributed to areas accessible using non-conventional harvest methods.

On November 29, 2003, the AAC determination was postponed under Section 8(3.1) of the *Forest Act*.

On September 14, 2011, an area totaling 478 016 hectares was deleted from the TFL as part of the actions under the *Forestry Revitalization Act*. This area included the offshore portion of the TFL as well as an area in Walzl and Hirsch Creeks. The AAC was reduced to 122 926 cubic metres under the Allowable Annual Cut Administration Regulation.

The last AAC determination for TFL 41, made on January 31, 2012, set the AAC at 128 000 cubic metres.

## **New AAC determination**

Effective September 10, 2024, the new AAC for TFL 41 is 128 000 cubic metres, unchanged from the AAC in place prior to this determination. As permitted under Section 8(5) of the *Forest Act*, this AAC contains two partitions:

1. A maximum harvest of 76 800 cubic metres (60 percent) of the AAC from stands on slopes of less than 50 percent; and,
2. A maximum of 12 800 cubic metres (10 percent) of the AAC from any cedar species.

This AAC will remain in effect until a new AAC is determined, which must take place within 10 years of this determination.

### **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.

### Reconciliation with Indigenous people

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 the 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 adaptation 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 forecasts 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 a number of 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 projection 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 projection 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 41**

The timber supply analysis was completed by Forsite Consultants on behalf of the licence holder using Patchworks, a harvest scheduling optimization model developed by Spatial Planning Systems in Ontario and approved for use in timber supply reviews by Forest Analysis and Inventory Branch.

Patchworks 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 FAIB staff, as well as my own experience, I am satisfied that Patchworks provides an appropriate projection of timber supply.

The base case projection for TFL 41, which used a start date of January 1, 2020, projects an initial harvest level of 194 660 cubic metres per year that can be maintained for 10 decades before increasing in a series of four steps to the long-term level of 280 770 cubic metres per year, achieved 15 decades into the analysis planning horizon.

Several assumptions were used to schedule stands for harvest in the modelling. Of the harvested volume within any five-year period in the projection:

- at least 60 percent must be from stands with volumes of at least 500 cubic metres per hectare;
- no more than 40 percent could be from stands on slopes greater than 50 percent;

- no more than 90 percent could be from hemlock-leading stands;
- no more than five percent could be from marginally economic stands (hemlock leading, less than 400 cubic metres per hectare and on slopes greater than 50 percent); and,
- no more than five percent could be from stands within the Mountain Hemlock BEC zone.

In addition to the comprehensive set of harvest criteria used to schedule stands described above, the key differences in the assumptions between the previous timber supply analysis and the one completed to support this AAC determination are a larger assumed operable land base and correspondingly, a larger timber harvesting land base (THLB) and higher assumed natural stand yields and higher site indices used for managed stand yield projections.

The short-term harvest level in the base case is 58 percent higher than in the previous timber supply analysis, and the long-term level is 26 percent higher.

In my determination, I have also considered several sensitivity analyses which were prepared to provide information about how changes in assumptions affect projected timber supply for TFL 41. These analyses are helpful as I make specific considerations and reasoning in my determination, as documented below in subsequent sections.

I am satisfied that the base case and the other analyses noted represent the best available information respecting various aspects of the current timber supply on TFL 41 and as such they are suitable for reference in this determination. I will discuss my considerations of the various analysis assumptions under the relevant factors, below.

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

I have reviewed the information for all of 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.

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.

Table 1. List of accepted factors

<i>Forest Act</i> section and description	Factors accepted as modelled
8(8)(a)(i) Composition of the forest and its expected rate of growth	<ul style="list-style-type: none"> <li>• Non-Crown lands</li> <li>• Non-forest and non-productive areas</li> <li>• Other industry infrastructure</li> <li>• Existing roads, trails and landings</li> <li>• Provincial parks, protected areas and ecological reserves</li> <li>• Old growth management areas</li> <li>• Non-merchantable stands</li> <li>• Wildlife tree retention</li> <li>• Isolated areas</li> <li>• Operational adjustment factors</li> <li>• Managed stand yield estimates</li> <li>• Silviculture management regimes</li> <li>• Genetic gain</li> <li>• Minimum harvestable ages</li> </ul>
8(8)(a)(i) Existing Forest Inventory	<ul style="list-style-type: none"> <li>• Forest Inventory</li> </ul>
8(8)(a)(ii) Expected time that it will take the forest to become re-established following denudation	<ul style="list-style-type: none"> <li>• Backlog and not satisfactorily restocked areas</li> </ul>
8(8)(a)(iii) Silvicultural treatments to be applied	<ul style="list-style-type: none"> <li>• Silviculture systems</li> <li>• Cutblock aggregation</li> <li>• Incremental silviculture</li> </ul>
8(8)(a)(iv) Standard of timber utilization and allowance for decay, waste, and breakage	<ul style="list-style-type: none"> <li>• Utilization</li> <li>• Decay, waste and breakage</li> </ul>
8(8)(a)(v) Constraints on the amount of timber produced by use of the area for purposes other than timber production	<ul style="list-style-type: none"> <li>• Higher level plans and other planning documents</li> <li>• Scenic resources – visual quality objectives</li> </ul>
8(8)(a)(vi) Other information	<ul style="list-style-type: none"> <li>• Natural disturbances and non-recoverable loss</li> <li>• Minister’s letter</li> <li>• Summary of public input</li> </ul>
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	<ul style="list-style-type: none"> <li>• Economic and social objectives expressed in the Minister’s letter</li> <li>• Summary of public Input</li> </ul>
8(8)(e) abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area	<ul style="list-style-type: none"> <li>• Unsalvaged losses</li> </ul>

***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 total land and water area of TFL 41 is 201 792 hectares. Of this total area, about 53 percent, or 106 170 hectares is classified as productive forest, otherwise known in the timber supply analysis as the analysis forest land base (AFLB). Reductions to the AFLB to account for areas unavailable for timber harvesting for various reasons result in a THLB of 43 973 hectares or 22 percent of the total area of the TFL.

I have reviewed the information regarding the total area, the analysis forest land base, and the assumed THLB of TFL 41 for this determination. I accept the information provided, except where noted and discussed in the factors below.

*- future roads, trails, and landings*

Estimates were made in the analysis to account for the future loss of productive area from the construction of roads and trails to access areas that have not previously been harvested.

To estimate the impact of future roads and trails, the percentage of the previously harvested THLB that is occupied by existing roads was calculated to derive a percentage to extrapolate to the previously unharvested THLB. It was determined that 6.2 percent of the previously harvested THLB was occupied by existing roads.

The portion of the THLB without logging history is 26 476 hectares. It was observed that this area, although not previously harvested, contained some existing roads that traversed unharvested areas to access harvested areas. After accounting for other land base reductions, it was determined that 81 hectares of the THLB without logging history is already occupied by access roads. This area was deducted from the area assumed to be occupied by future roads.

The resulting calculation to account for the loss of productive area to future roads on the unharvested THLB was 5.9 percent or 1569 hectares. In the base case, this was applied as an equivalent yield table reduction for future managed stands of 5.9 percent.

I have reviewed the information about the accounting for future roads, trails and landings in the timber supply analysis. I am aware that past harvesting in the TFL has typically occurred in stands that are easier to access and on lower slopes, and I anticipate that future harvesting activities are likely to be located, at least in part, in more difficult to access terrain. In my experience, construction of roads in steeper slopes and more difficult terrain results in greater loss of productive forest area. Therefore, I expect access to these more challenging areas would require a greater loss of productive area through the road construction than assumed in the analysis in order to effectively access the timber.

In considering this information, I accept that there is an unquantified and small reduction to mid- and long-term timber supply as a result of underestimating the future loss of productive forest during construction of roads in steeper terrain. I will take this into consideration in this determination, as discussed under '**Reasons for Decision**'.

*- environmentally sensitive areas and unstable terrain*

In timber supply analysis, reductions are made to account for areas of unstable terrain within the THLB that are not expected to be harvestable.

Terrain stability mapping has been completed for the majority of the THLB on TFL 41, and this information was used to identify and exclude 80 percent of areas of unstable class V terrain and 10 percent of potentially unstable class IV terrain that had not previously been harvested.

For areas where terrain stability mapping has not been completed, the older environmentally sensitive area (ESA) mapping was used to identify areas of unstable terrain. ESA mapping identifies areas potentially susceptible to disturbance (e.g., difficult to reforest, avalanche hazard, and water values). Using this information, 100 percent of Ea (avalanche), 90 percent of Es1 (very sensitive to disturbance) and 20 percent of Es2 (moderately sensitive to disturbance) classified areas with no harvest history were excluded in the derivation of the THLB.

In total, 11 336 hectares were excluded from the THLB to account for unstable terrain. The licence holder for TFL 41 did not provide operational data to confirm the reduction percentages assumed in the timber supply analysis.

I have reviewed the information provided about the reductions to account for unstable terrain on TFL 41. I am aware that the ESA mapping was completed in 1985, and therefore outdated and potentially questionable in its accuracy. Staff note that a review of the accounting for unstable terrain during the timber supply review process in other management units near TFL 41 including the Pacific and Cascadia timber supply areas demonstrates higher exclusions in those units, in particular for terrain class V areas.

In consideration of the assumptions used to exclude unstable and sensitive areas from the THLB, and my knowledge of the terrain and geographical characteristics of the area, I believe that the reductions applied in the base case may underestimate the amount of unstable area on the THLB. Therefore, I will take into account that throughout the projection timber supply may be overestimated by a small unquantified amount as a result of the potential for greater amounts of unstable terrain than assumed in the base case, and I will discuss this further in my '**Reasons for Decision**'.

I request that the licence holder for TFL 41 conduct ground reconnaissance of unstable areas, in particular in relation to harvesting operations, and provide operational data to support the analysis assumptions prior to the next determination, as discussed in '**Implementation**', below.

*- recreation sites and trails*

TFL 41 contains a number of recreation sites and trails, which are spatially delineated in the data used in the timber supply analysis. To account for recreation sites, the portions which overlapped with the analysis forest land base were excluded from the THLB. To account for recreation trails, a 10-metre buffer was applied on either side of trails and excluded from the THLB. After overlaps with other reductions THLB were accounted for, a total of 17.5 hectares was excluded from the THLB to account for recreation sites and trails.

The Metlakatla First Nation provided input regarding the assumptions for recreational features, noting that in their view the 10-metre buffer along recreation trails was inadequate, given visual quality and recreation experience impacts as well as safety implications. The Metlakatla recommended a buffer of 100 metres be applied to recreation areas to better protect sites and user experience. They further recommended that a visual impact assessment be completed for those sites or trails where visual quality is an important component of the recreation experience.

Ministry staff note that the 10-metre buffer is the standard minimum buffer applied to meet legal objectives associated with the orders establishing the trails. Measures to address wind throw as well as considerations for visual quality objectives are addressed at the operational level in accordance with the licence holder's Forest Stewardship Plan. Staff agree with the Metlakatla that visual impact assessments would be expected to be completed as part of operations where visual quality objectives are a concern.

I have considered assumptions used to account for the recreational features of sites and trails in the base case, and the input received from the Metlakatla First Nation. At the operational level, I recognize that there may be greater stand retention around recreation areas and trails when the licence holder is planning harvest, to accommodate the concerns of First Nations or the public, than what was assumed in the analysis. However, given the small area associated with these features, even the application of the 100-metre buffer suggested in the input would not be expected to have an appreciable impact on timber supply. Therefore, I will make no adjustments on this account.

I encourage the licence holder for TFL 41 to work closely with First Nations when planning harvest near recreational features, engaging them early in the process to ensure values are maintained. Should any timber supply implications arise as a result of the management for these features, I will account for them in a future determination.

*- areas considered inoperable*

Inoperable areas are those portions of the land base where harvesting is not feasible due to terrain limitations, access limitations or unfavourable economic conditions for timber harvesting. These areas are assumed to not be available for timber harvesting and are excluded during the derivation of the THLB.

Operability mapping for TFL 41 was completed in 1998. Following release of the *Information Package* for the timber supply analysis, the licence holder for the TFL reviewed the 1998 operability information and concluded it no longer reflected current practices. The licence holder compared recent harvest performance to the 1998 operability information and noted that approximately 20 percent of area harvested since the previous timber supply review and 38 percent of area planned for harvest in the next three years was classified as inoperable under the 1998 operability assumptions.

In 2021, new core operability information was developed by the licence holder. A new operability layer was established using parameters of slope, species composition, volume per hectare and elevation that, in their assessment, more accurately reflects recent and anticipated harvest performance. Modelling thresholds for each of these parameters were set to be aligned with the harvest performance over the past 10 years.

The 2021 operability classification resulted in a decrease in inoperable area from 156 841 hectares in 2011 to 136 253 hectares in 2021. Staff have reviewed the new information and note that the additional THLB is primarily upslope from the 1998 operable land base and overall includes a higher percentage of steeper slopes and area within or above unstable terrain. They also note that some marginally economic stands previously part of the THLB are no longer considered operable under the new parameters, primarily as a result of the minimum volume per hectare criteria.

Ministry staff have reviewed the criteria and thresholds used by the licence holder in developing the 2021 operability assumptions. Forest Analysis and Inventory Branch staff note that the information provided on the past 10 years of harvest also included data for three years of planned harvest at various stages of development.



To further assess the operability of more recently harvested areas, FAIB staff reviewed the provincial consolidated cutblock data from the BC Geographic Warehouse, which confirmed that 20 percent of area harvested since the previous timber supply review has been in areas classified in 1998 as inoperable.

A key factor in determining operability is consideration of economic information such as the net value of stand harvest relative to cost and the implications of market fluctuations. Ministry staff note that the 1998 operability classification did consider the type of harvesting system required, stand quality as well as economic criteria, and was supported by the district manager when it was completed. However, I am concerned this information is now outdated, as shown by the licence holder's recent review. I am also mindful that the 2021 operability classification defined by the licence holder does not include an evaluation of the economic considerations and may therefore overestimate the operable land base.

Staff note that assumptions around inoperable areas has significant implications for the derived land base that contributes to timber supply in the analysis. The gross area assumed to be inoperable based on the 2021 assumptions is 20 588 hectares less than that using the 1998 operability assumptions, and the net area excluded during the derivation of the THLB is 16 573 hectares less than with the 1998 assumptions.

Overall, the assumed THLB of 43 973 hectares is 34 percent larger than the 32 881 hectares identified in the 2011 analysis. This THLB increase is largely due to the decrease in area classified as inoperable.

Staff compared the slope distribution for the new larger THLB with the assumed stand contributions in the timber supply projection and in current practice. Approximately 33 percent of the new THLB is on slopes steeper than 50 percent, with 19 percent on slopes steeper than 60 percent. Over the first 25 years of the model projection, stands on slopes greater than 50 percent are expected to contribute 40 percent of the total harvest volume, with stands on slopes exceeding 60 percent projected to contribute 25 percent of the volume. However, Ministry staff indicate that a review of current performance shows that only six percent of harvested area is on slopes steeper than 60 percent.

District staff noted that some of the area now considered operable under the new assumptions includes areas where the licence holder had ceased development in the past due to terrain stability issues. They further note that the new operable area contains considerable overly steep, hazardous and slide prone terrain, with high road construction costs and other impediments to economical harvesting operations.

A sensitivity analysis was completed to illustrate the timber supply projection when using the 1998 operability information. The results show short-term and mid-term harvest levels of 143 235 cubic metres per year, or 26.4 percent lower than in the base case. The transition to the long-term harvest level of 220 850 cubic metres per year, or 21.3 percent lower than in the base case, begins 25 years earlier in that scenario.

The Haisla Nation and the Metlakatla First Nation requested clarification and further information regarding the decreased inoperable land base and the THLB increase. The Haisla Nation also requested information regarding monumental cedar retention and recruitment, in relation to the increase in the size of the THLB.

I have considered the information regarding the new operability classification and the implications of these assumptions to the THLB and consequently timber supply on TFL 41. I note that although harvest performance information from the past 10 years does substantiate some performance outside the 1998 operable land base, the performance in the higher slope classes (over 60 percent) is not proportional to the assumed contribution from those stands in the

base case. The review of harvest performance indicates the majority of harvest over the past 10 years has been in conventionally accessed harvest areas, with slopes of less than or equal to 50 percent.

I acknowledge the input received from the Haisla Nation and Metlakatla First Nation regarding the implications of the reduced inoperable land base, as well as the concerns expressed by district staff. Given the information available, I conclude that the 2021 operability classification assumptions have not been demonstrated in current performance and given the information from district staff, may overestimate the THLB.

I commend the licence holder's effort to more accurately determine operability for TFL 41, and I encourage continued work in this regard, such as monitoring performance in the inoperable areas in comparison to the 1998 operability information and examining if the 500 cubic metres per hectare minimum volume threshold is supported by operational practices. Conducting a review of economic operability for the TFL would provide better information for the long term. Adjacent management units have information regarding economic operability which may be helpful in determining conditions applicable for TFL 41.

For this determination, I conclude that the 1998 operability information provides the best estimation of the inoperable land base for this TFL. As such, I consider the THLB derived from that 1998 operability information is more appropriate than the new, larger THLB derived from the 2021 operability classification assumptions.

The implication of reverting to the 1998 operability information is that short-term timber supply has been overestimated by 26.4 percent in the base case, and mid- to long-term timber supply overestimated by 21.3 percent. I will discuss this further in my '**Reasons for Decision**'.

*- dead potential volume and grade 4 credits*

Dead potential refers to dead trees that contain at least 50 percent sound wood by volume.

Prior to April 2006, a log was assessed according to whether the tree it originated from was alive or dead when harvested. Grade 3 and Grade 5 logs were from trees considered dead at harvest and these were not accounted for in the inventory nor charged to the AAC.

As of April 1, 2006, log grades are based on the log's size and quality when scaled regardless of whether the tree was alive or dead when harvested. In order to provide a better accounting of all harvested volume, logs of all grades including Grades 3 and 5 are now charged to the AAC. Thus, the volume from the dead component of stands, known as dead potential, must be accounted for in AAC determinations.

Natural and managed stand yield curves do not include projected volume from dead potential trees in timber supply analyses. Therefore, the base case did not assume a volume contribution from dead potential trees.

Inventory audit plots suggest that dead potential volume in TFL 41 is approximately 5.5 percent of the green volume of trees over 60 years of age on the forested land base. Ministry staff indicate that this represents the maximum amount of dead potential volume that could be harvested on the TFL.

A review of the Harvest Billing System (HBS) data to assess dead volume in actual performance was conducted in support of the previous timber supply analysis for TFL 41. Harvest data from 1995 to 2004 for the TFL showed four percent of the volume harvested was from Grades 3 and 5 logs.

I have reviewed the information regarding dead potential volume from Grade 3 and 5 logs. Given that the base case did not include assumed volume contribution from dead potential trees, I accept

that the short-term timber supply has been underestimated. I recognize that the data from the inventory audit plots, which suggests this underestimation might be in the range of 5.5 percent, reflects the maximum dead potential volume available whereas the review of data from the HBS which suggests a four percent underestimation is based on the actual values over a 10-year period. In consideration of these two information sources, I consider the actual volumes to be the best available information and accept timber supply could be underestimated by up to four percent, as a result of not accounting for dead potential volume.

I will discuss my considerations of Grade 3 and 5 volume (dead potential) in '**Reasons for Decision**'.

Grade 4 is a grade of logs that are low quality from live stems that are included in waste and residue assessments as well as cut control calculations. These logs can be used in sawmills and secondary processing facilities depending on the quality of the logs and market demand. Grade 4 volume is included in both natural and managed stand yield projections and therefore the volume is part of the contribution to timber supply analysis projections.

On April 1, 2019, amendments were made to the *Provincial Logging and Waste Measurement Procedures Manual* to have all residual Grade 4 volume charged against the AAC for a TFL. Section 17(6) of the provincial Cut Control Regulation allows licence holders to apply to have Grade 4 volume that is delivered to non-sawlog facilities excluded from cut control calculations. This provision was put in place with the intention of supporting the utilization of low-quality logs, rather than having the volume left as residue in harvested areas. This provision is administered by the licence holder applying for Grade 4 credits to Ministry regional tenures staff.

On TFL 41, Grade 4 credits for the 10-year period between 2010 and 2019 averaged 6142 cubic metres annually which is 7.0 percent of the volume harvested during the period. This volume was not attributed to the AAC because the licence holder received Grade 4 credits.

The base case did not account for future Grade 4 harvest volume not charged to the AAC. HBS data review indicates this volume to be 7.0 percent of harvest volume. I therefore consider this represents a 7.0 percent overestimation of timber supply and will discuss this in '**Reasons for Decision**'.

- *site index*

Site index is used in timber supply analyses to estimate the growth of stands regenerating on sites following harvest of the existing natural stands. It is generally accepted that the site index values in the forest inventory underestimate potential site indices for managed stands regenerating on sites following harvest.

A Predictive Ecosystem Mapping (PEM) project was completed for TFL 41 in 2004. However, at the time this project was determined to not meet the provincial minimum accuracy assessment percentages for use in timber supply analyses. A report *Kalum TSA PEM Accuracy Assessment Results* from 2007 found that the PEM polygons did not predict actual forested ecosystem units within acceptable provincial accuracy levels, which are 65 percent or higher. The percent agreement scores were 48 percent across all subzones.

In his 2012 determination, the chief forester encouraged the licensee to improve the site index information and monitor second-growth stands in order to reduce the uncertainty regarding site productivity. However, no work has yet been done in this regard for the stands on TFL 41.

For the 2022 analysis, Forest Analysis and Inventory Branch staff reviewed the site index information and determined that the PEM project data provided the best available information and was more appropriate for use in the base case than the inventory site index, which is known to significantly underestimate potential regenerated stand site index. Therefore, the PEM data

was used with site index estimates by BEC site series (SIBEC) for managed stand yield tables in the current analysis.

The 2012 base case analysis for TFL 41 used data from a local 1997 old-growth site index (OGSI) study, which showed that harvested hemlock-leading stands older than 140 years of age in the CWH biogeoclimatic zone with site indices of between 8 and 19 metres according to the inventory could regenerate to stands with 10 metre higher site indices. A sensitivity analysis completed as part of this timber supply review that used the same assumptions as the 2012 base case for these stands showed the short- and mid-term harvest levels 7.1 percent lower and long-term level 14.0 percent lower than the base case which used the PEM information.

No sensitivity analysis was completed to assess timber supply implications of over- or underestimations of site index derived from the PEM information in the base case harvest projection. However, a sensitivity analysis completed to examine the implications of a 10 percent decrease in managed stand yields compared to the base case values showed a four percent decrease in short-term timber supply.

The Haisla Nation commented on the site productivity assumptions in the analysis. The Haisla Nation questioned why the site index work requested in the 2012 timber supply review was not completed, and the implications of using the unapproved predictive ecosystem mapping. The Metlakatla First Nation requested clarity on the licence holder's plans to monitor site productivity and second-growth stand performance on the TFL.

I have considered the information presented regarding the site index assumptions in the analysis and I note that a high level of uncertainty still exists around this information which has not yet been addressed for TFL 41. I am disappointed that progress has not been made to improve the available information about site indices on TFL 41 and the growth potential of managed stands through stand monitoring. I acknowledge that the timber supply review program is intended to address uncertainties in information through redetermining AACs frequently, and as better information becomes available it is used in future determinations.

From the information presented to me for TFL 41 and my experience with the use of PEM data tied to site index estimates for managed stand across the province, I conclude that the base case assumptions reflect a closer approximation of managed stand yields than the inventory site index. I therefore accept the site index estimates used in the base case and make no adjustments to the base case as a result. I note the uncertainty, however, that timber supply may be overestimated if the assumptions of site index for managed stands are overestimated. I request the licence holder undertake work prior to the next determination to improve the certainty around site indices for the stands on TFL 41, as mentioned in '**Implementation**', below.

*- forest inventory*

I have reviewed the information regarding the base case assumptions around the forest inventory, and I accept that the best available information was used. However, noting that the inventory was completed in 1998, I encourage the licensee to work with Forest Analysis and Inventory Branch to develop a plan to assess its accuracy, and if necessary to complete a new inventory of the TFL. I mention this under '**Implementation**', below.

*- natural stand yield estimates*

Yields for natural stands were projected in the base case using the Variable Density Yield Projection model (VDYP) version 7. Age, height, crown closure, stems per hectare where available, and species composition data from the inventory were inputs into the VDYP model to generate yield curves for the base case.

Because planting began in 1973 on TFL 41, and seedlings planted are assumed to be two years old when planted, all stands older than 49 years of age at the start of the analysis horizon were assumed to be natural stands, and their yields projected using VDYP. Stands established after 1973 had yields projected using Table Interpolation Program for Stand Yields (TIPSY) version 4.4, a model developed to project managed stand yields.

Stands were grouped into analysis units using a combination of biogeoclimatic zone and leading site series to generate the yield tables used in the analysis. Hemlock, balsam and cedar-leading stands over 140 years of age had volumes reduced by localization factors derived for those stands on the TFL, as described in the *Report of the Re-Inventory of Tree Farm Licence 41*.

Sensitivity analyses completed to assess the implications to timber supply of uncertainty in natural stand yields show that short- to mid-term timber supply is sensitive to projected yields from natural stands. When natural stand yields are decreased by five percent, short- to mid-term harvest levels are decreased by 3.7 percent. When natural stand yields are decreased by 10 percent, short- to mid-term harvest levels are reduced by 23 percent.

Forest Analysis and Inventory Branch staff reviewed the sensitivity analysis results and note that the comprehensive harvest priority rules applied in the base case as part of the assumed operability criteria influenced the results, in particular the criteria requiring at least 60 percent of the harvest from natural stands of at least 500 cubic metres per hectare. The base case harvest projection relies heavily in the short term on stands with volumes around that threshold, and thus any changes in assumptions that reduces the existing stand volumes below that 500 cubic metres per hectare threshold impacts short- to mid-term timber supply because a proportion of stands no longer meet the minimum volume threshold and remain unharvested. This minimum stand volume criteria also results in a lack of sensitivity in the short term to changes in assumed minimum harvestable ages.

I have reviewed the information and note that the short-term harvest levels projected in the base case are sensitive to the yield estimates for natural stands, largely as a result of the harvest priority criteria assumed in the base case. Short-term timber supply projected in the base case is constrained on TFL 41 by the comprehensive rules directing the model about which stands can be harvested. My assessment of the ability of these criteria to describe current practice is discussed above under '*areas considered inoperable*' and the implications of relaxing some of these constraints point to more robust timber supply on TFL 41 than might be suggested by the sensitivity of the short-term harvest to natural stand yields.

In assessing the base case assumptions, I am satisfied that they represent the best available information on which to project yields of existing stands and I make no adjustments in this determination.

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

*- regeneration delay*

Regeneration delay is the time between harvest of a stand and the establishment of a new stand on the site. Regeneration of stands on TFL 41 occurs from both naturally regenerating and planted trees. Differences between the regeneration delays assumed in the timber supply analysis and those occurring operationally have implications for timber supply contributions from managed stands, thus typically affecting mid-term to long-term timber supply.

In the analysis for TFL 41, regeneration delays were assigned to analysis units based on the biogeoclimatic zone, species composition, and whether the stand was expected to be planted or

naturally regenerated following harvest. Regeneration delays were 0, 1 or 2 years depending on the regeneration method.

I have reviewed the information regarding the assumed regeneration delays for stands in the base case analysis and find some of the regeneration delays optimistic relative to what is indicated by data and reported in the *2023 Provincial Timber Management Goals, Objectives and Targets* report for TFL 41 and what I typically see assumed in other adjacent management units.

Given that timber supply is shown to not be highly dependent on the contributions from managed stands in the short term for TFL 41, I make no adjustments for this determination. I request, however, that the licence holder review and confirm the regeneration assumptions for the next timber supply analysis.

As well, given the importance of cedar species, in particular to First Nations, I am also interested as part of any ongoing monitoring data collection about cedar survival rates in plantations.

**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**

*- archaeological sites*

Archaeological sites refer specifically to sites governed under the *Heritage Conservation Act*, which provides protection and conservation of archaeological sites that contain evidence of human habitation or use before 1846. Archaeological sites are excluded during the determination of the THLB in timber supply analyses.

An Archaeological Overview Assessment (AOA) was completed for TFL 41 in 1998 and identified known protected archaeological sites. In the base case analysis, a 50-metre buffer was established around each site and the area was excluded in the derivation of the THLB. The total area excluded after accounting for other deductions was 3.3 hectares.

The licence holder for TFL 41 provided further analysis to better quantify the impact of known archaeological sites on timber supply. Their analysis indicated that 4070 cubic metres or 0.5 percent of the 10-year harvest for the TFL was not harvested on account of archaeological site management.

Forest Analysis and Inventory Branch staff note that information in the archaeological sites layer shows additional archaeological sites. An analysis was completed to assess the impact on the THLB from excluding all sites identified in this layer with a 50-metre buffer. This assessment indicated an additional exclusion of 353 hectares; adjusting for other land base reductions results in net reduction of 236 hectares (0.53 percent) to the THLB, equating to a 0.57 percent reduction in short-term harvest level.

The Haisla Nation, the Lax Kw'alaams Band, and the Gitga'at and Metlakatla First Nations provided comments about the exclusions applied for archaeological sites. In summary, it was noted that the 1998 AOA information is outdated and does not reflect the presence of all archaeological values and sites on the TFL land base. They noted that many archaeological values are underrepresented or absent in the AOA, such as raised beach sites, clam gardens and plant harvesting locations, as well as culturally modified trees, hollowed cedar and wildlife stumps. The Gitga'at suggested a value of five percent might be a more appropriate reflection of necessary area retention around archaeological sites. The Haisla Nation noted that culturally modified trees should be retained for their inherent value and not only if they also provide wildlife value.

I acknowledge the interests expressed regarding all cultural and archaeological values of importance to First Nations on TFL 41. I will discuss archaeological sites not protected through the *Heritage Conservation Act* under ‘*cultural heritage resources*’ below in this document.

I have considered the information about the accounting for identified archaeological sites in the timber supply analysis. I am aware that the *Heritage Conservation Act* is currently under revision to better reflect current management practices to protect archaeological values and as the updated legislation becomes available, any implications for timber supply will be incorporated into future timber supply reviews. I appreciate the input from First Nations regarding the values present on TFL 41 and given the extensive historical use by First Nations on the area, I anticipate there will be further identification of sites within future AOAs. After discussions with staff, I am aware that most of the sites identified in the archaeological sites layer occur in stands at lower elevation on more gradual slopes, and I expect this trend will continue.

For this determination, I consider that as a result of additional identified archaeological sites not reflected in the base case assumptions, the short-term timber supply THLB has been overestimated by 0.57 percent. I also consider that mid- to long-term timber supply has been overestimated by a small, unquantified amount as a result of accounting for archaeological sites identified in the future. I will discuss my considerations further under ‘**Reasons for Decision**’.

- *cultural heritage resources*

A cultural heritage resource under the *Forest Act* refers to ‘an object, a site or the location of a traditional societal practice that is of historical, cultural or archaeological significance to British Columbia, a community or an aboriginal people’.

Under the *Forest and Range Practices Act* (FRPA), the objectives set by government for cultural heritage resources are to conserve, or, if necessary, protect cultural heritage resources that are the focus of a traditional use by an aboriginal people that is of continuing importance to that people, and not regulated under the *Heritage Conservation Act*.

The licence holder notes that post-1846 culturally modified trees and other cultural heritage resource sites have been identified within the land base, and more sites may be identified in the future. The licence holder also states that operationally many of these sites are left unaltered within riparian reserves, riparian retention areas or within wildlife tree retention areas.

In addition to known archaeological sites regulated under the *Heritage Conservation Act* (discussed under ‘*archaeological sites*’, above) there are a number of identified sites with culturally modified trees on TFL 41. Many of these occur within riparian reserves, riparian retention areas and wildlife tree retention areas and during harvesting operations are left unaltered. The licence holder notes that more of these sites may be identified in the future. Some culturally modified tree sites can be harvested under permit following archaeological impact assessments. Ministry staff indicate that management of sites for culturally modified trees has not significantly impacted timber supply in the past.

No specific land base exclusions were applied in the base case to account for cultural heritage resources.

Several First Nations expressed concern about archaeological sites, culturally modified trees, old growth forests and cedar. Comments included that it should not be assumed that cultural heritage resources can always be co-located in wildlife tree patches, as the cultural heritage resource may not represent the appropriate wildlife value. Haisla Nation questioned the process for defining the analysis forest land base and the THLB, noting that the list of deductions to determine the THLB does not include areas identified for non-harvest to address concerns expressed by First Nations.

The Gitga'at First Nation expressed concern about the Jesse Lake Watershed, noting that in their view no further logging should occur in this watershed, and requesting that the watershed be excluded from the THLB for this timber supply review.

Staff indicate the Jesse Lake Watershed is of spiritual importance to both the Gitga'at and Haisla First Nations. The licence holder has been working with the First Nations to address concerns around harvesting in the watershed. A small area was harvested by the licence holder in the watershed in 2019 and the licence holder has committed to developing mutually acceptable terms for further development in the Jesse Lake area. The licence holder in correspondence to the Gitga'at further offered to defer operations in the area for two years to allow time to co-develop a strategy for the area or the watershed.

The Haisla Nation also expressed concern about harvesting in sensitive areas in Haisla territory. The First Nation noted that previous harvesting in Emsley Creek has impacted Emsley Creek and its salmon habitat. Jesse Lake, Miskatla, Foch and Giltoyes areas are important culturally to the First Nation for trapping, fishing and harvest of botanical forest products. Hunter Creek is also identified as supporting all five species of Pacific salmon and is culturally significant.

I have reviewed the information about cultural heritage resources on TFL 41 and discussed the information with staff. Although the nature of some cultural heritage resources near wetlands and valley areas does lead to co-location of the resource and protection in areas of other resource values, there are also some cultural features for which protection is best met through independent exclusions from the THLB and therefore there is an expected impact to timber supply.

With regard to the Jesse Lake watershed, Ministry staff inform me that the Jesse Lake watershed contains 1031 hectares or 2.3 percent of the assumed THLB on TFL 41. Hunter Creek, mentioned as of importance by the Haisla Nation contains 551 hectares or 1.3 percent of the THLB, and the combined Foch, Giltoyes and Miskatla watershed areas contain 926 hectares or 2.1 percent of the THLB.

In consideration of the areas associated with the Foch, Giltoyes, Hunter and Miskatla watersheds, I acknowledge the importance of these areas to First Nations. However, these areas are currently within the legislatively defined forest and the licence holder has demonstrated the ability to operate within these watersheds, it is therefore appropriate to consider their continued contribution to timber supply.

In terms of the implications for timber supply, as discussed under '*areas considered inoperable*', I will make adjustments to account for changes in the operable land base and these adjustments will provide some flexibility to address the importance of Foch, Giltoyes, Hunter and Miskatla watersheds, in this factor.

With regard to Jesse Lake, I acknowledge that the Jesse Lake watershed is of great importance to First Nations, and I accept that operations in that area are not occurring at this time. I believe it is unlikely that this area will contribute to timber supply in the near to mid term. A 2.3 percent reduction in the size of the THLB results in a 2.4 percent decline in the short-term timber supply.

I will discuss my considerations of the 2.4 percent additional reduction in short-term timber supply for the exclusion of Jesse Lake due to operational avoidance in '**Reasons for Decision**'.

- *wildlife*

TFL 41 supports several important wildlife species, including grizzly bear, black bear and moose. Species at risk and their critical habitat are protected under the federal *Species at Risk Act* and the *Migratory Birds Act* as well as through the provincial *Wildlife Act* and the *Forest and Range Practices Act* (FRPA). Under FRPA, identified wildlife species at risk are managed operationally



through the Forest Stewardship Plan, wildlife habitat areas, ungulate winter range and/or a general wildlife measure.

Management direction for Marbled Murrelet is contained within the *Indicators of the amount, distribution and attributes of Wildlife Habitat required for the survival of species at risk in the Kalum Forest District*. Northern Goshawk was elevated to a blue-listed species in 2017, and the licensee for TFL 41 in the past worked with the ministry on a project to develop long-term management strategies for the survival and stability of Goshawk.

The Kalum SRMP has specific requirements for grizzly bear and moose habitat that apply to TFL 41.

For grizzly bear habitat management, the Kalum SRMP describes requirements within the McKay-Davies Grizzly Bear Identified Watershed. In that watershed, no more than 30 percent of the forested land base, excluding hardwoods, can be between 25 and 100 years old. In the base case analysis, this requirement was applied as a maximum threshold for the proportion of stands that could be between 25 and 100 years of age at any one time during the harvest projection period. The constraint was applied to 26 563 hectares, of which 12 827 hectares was THLB.

As well, under the Kalum SRMP specifications within Grizzly Bear Identified Watersheds, reduced stocking standards are to be implemented for certain rich and wetter site series considered to be high value grizzly bear habitat. These stocking standards ranged from 400 to 600 stems per hectare at the stand free-growing state. In the base case, these stocking standards were applied to the high value habitat areas in the McKay-Davies watershed, totalling 492 hectares of the THLB, by the applicable site series.

A Wildlife Habitat Area (WHA) #6-287 on TFL 41 is a designated no harvest area for the management of grizzly bear habitat. This area totalling 4998 hectares after other deductions was excluded in the derivation of the THLB in the analysis.

A WHA #6-067 for coastal tailed frog was established within TFL 41 in April 2006. The general Wildlife Measures (GWM) specify no harvesting within the core area, and that harvesting within the special management zone employ a silvicultural system to maintain 70 percent residual stand volume and evenly disbursed attributes of the natural stand structure.

TFL 41 contains important moose habitat within the Kitimat Moose Winter Range Area. Under the Government Actions Regulation (GAR), order #u-6-009 became effective May 21, 2015, and specifies GWM for the management of moose habitat. GWM 6 states that 30 percent of the area within each moose winter range management unit must be retained as mature-plus old forest to support snow interception and thermal cover. GWM 7 allows for variances from this order while working toward the 30 percent target, if there are timber supply impacts of immediately setting the 30 percent target.

In the base case for TFL 41, a cover requirement was applied, wherein at least 20 percent of the analysis forest land base within each of the 17 moose winter range management units was retained as old plus seral forest at the start of the analysis horizon. This requirement was increased to 30 percent over a period of 50 years. The requirement was applied to 4025 hectares of analysis forest land base and 1804 hectares of the THLB.

Staff reviewed the analysis assumptions and note that at the start of the analysis horizon, the mature-plus old seral cover requirements exceeded 30 percent of the area in six of the 17 management units. The area exceeded 20 percent in another four managements units. The remaining seven management units with less than 20 percent of the area in mature-plus old seral cover totalled only 232 hectares of analysis forest land base and 110 hectares of THLB.

A sensitivity analysis was conducted to evaluate the effect of implementing the full mature-plus old retention targets for moose winter range in all management units throughout the timber supply projection horizon. The results of this sensitivity analysis indicate that the timber supply is not sensitive to the full immediate implementation of the seral targets.

I have reviewed the information regarding species at risk on TFL 41 and discussed it with Ministry staff. I am satisfied that management for species at risk occurs at the operational level on the TFL with no significant implications for the timber supply projected in the base case.

I acknowledge the concerns expressed by First Nations about the importance of the wildlife species on TFL 41. I expect that my considerations under ‘*areas considered inoperable*’, above, may allow for a higher degree of wildlife protection than is reflected in the base case projections. I accept that the accounting for wildlife in the analysis was based on the best available information and encourage the licensee to continue to work with local First Nations to address any concerns operationally.

As well, I have reviewed the information regarding grizzly bear habitat and moose habitat and the reflection of the legal requirements that guide management on TFL 41 in the base case. I am satisfied that grizzly bear habitat requirements were appropriately modelled, and I make no adjustments in this regard. With respect to the modelling of moose habitat requirements, I am aware that the base case analysis did not appropriately model the retention targets for moose as intended by the GAR order. Under the GAR specifications, in areas where full mature-plus old targets are not able to be initially achieved, the “variance (reduced target) is to be limited to no more than necessary”. To meet the intent of the GAR instructions, the targets applied initially should be the greater of the current retention level or the allowed variance of 20 percent minimum. Review of the sensitivity analysis results demonstrate that timber supply would not be affected had the full retention requirement of 30 percent been applied at the start of the analysis horizon. Therefore, the full retention requirement of GWM 6 should have been applied in the base case.

I accept that there are no timber supply implications that result from this slight misrepresentation of the GAR order in the base case, and I make no adjustments. I do, however, request that future timber supply analyses follow the GAR instructions more closely.

- *riparian management areas*

Riparian management areas are adjacent to water bodies with the purpose of protecting riparian values and can consist of riparian management zones and riparian reserve zones. Harvesting is fully excluded within a riparian reserve zone, if identified for the water feature, directly adjacent to the water body. Harvesting is restricted within a riparian management zone through minimum basal area retention requirements.

Reductions are made in the derivation of the THLB to account for management for riparian values in timber supply analyses.

For TFL 41, lakes and wetlands were identified in the inventory file and buffer zones were calculated based on their classification and management requirements under the Forest Practices and Planning Regulation.

Limited stream classification information is available for the streams in TFL 41. A combination of data from different available sources was used to provide accounting for riparian management in the base case, including spatial data for two watersheds as well as a small area adjacent to the Kitimat River, known fish observation point data from Data BC, a 1998 Triton Environmental Consultants report on fish habitat for the Davies/Hoult watershed, and the provincial freshwater atlas stream network.

For lakes, wetlands and streams, equivalent riparian management areas were calculated using reserve widths and management zone widths multiplied by the basal area retention percentages to determine area exclusions. These areas were excluded from the THLB.

Lax Kw'alaams Band expressed concerns about management of watersheds and riparian areas, noting that current forestry practices have not adequately protected riparian values on TFL 41. They note the Lakelse Lake Watershed is of particular concern given its importance for species at risk, grizzly bear and fisher habitat, salmon and wildlife connectivity. They make note of additional retention and management zone requirements that in their view should be implemented operationally.

Metlakatla First Nation expressed concern about the preservation of wetlands, noting that in their assessment, wetlands are not adequately captured in older datasets and requesting information about how these water features were identified in the analysis.

Ministry staff is working with the Ministry of Water, Land and Resource Stewardship as well as First Nations on the assessment and establishment of the Lakelse Lake Watershed as a Fisheries Sensitive Watershed. They anticipate that additional management requirements will be put in place, such as increased width of riparian reserve zones, increased basal area retention in riparian management zones, and a reduced limit on equivalent clearcut area. The timing of establishment of the Lakelse Lake area as a Fisheries Sensitive Watershed is currently not known.

I have considered the information regarding the assumptions used in the timber supply analysis to account for management for riparian values on TFL 41 and the input received. I am aware of the concerns expressed by First Nations regarding riparian area retention levels and in particular within the Lakelse Watershed. I note that the appropriate management of riparian features is expected at the operational level in accordance with the commitments made by the licence holder in the Forest Stewardship Plan, which are consistent with the requirements under the legislation.

Once the Lakelse Lake Watershed process is complete, any implications to the assumptions for the riparian features in that area can be captured in the next timber supply review. For the purposes of this determination, I accept that the base case has incorporated the best available information regarding the management for riparian values on the TFL and I make no adjustments on this account.

*- landscape-level biodiversity*

Conserving landscape-level biodiversity values involves maintaining forests with a variety of patch sizes, seral stages and forest stand attributes and structures across a variety of ecosystems and landscapes. In the delineation and formal designation of landscape units for establishing biodiversity management objectives, three biodiversity emphasis options, or BEOs, are identified, 'lower', 'intermediate' and 'higher'. Each option is designed to provide a different level of natural biodiversity and a different level of risk to the maintenance of elements of natural biodiversity when finding an appropriate balance between biodiversity and timber supply in establishing the objectives.

The *2004 Order Establishing Provincial Non-Spatial Old Growth Objectives* specifies the minimum old growth retention requirements by BEO, natural disturbance type, and biogeoclimatic ecosystem classification variant. For landscape units assigned a lower BEO, the Order allows for a temporary reduction or drawdown of the old forest minimum retention requirements by up to two-thirds to the extent necessary to address timber supply impacts.

The *Kalum Sustainable Resource Management Plan (SRMP)* established Old Growth Management Areas (OGMAs) that meet the old-seral requirements consistent with the *2004 Order Establishing Provincial Non-Spatial Old Growth Objectives*.

The SRMP also delineates minimum percentages of the analysis forest land base to be covered in mature-plus old seral and old-seral forests, by landscape unit and BEC subzone. Additionally, it defines targets for the maximum coverage of early-seral forests, by landscape unit and BEC subzone. The SRMP includes less restrictive transition measures for implementation of early, mature-plus old, and old-seral stage targets to minimize the impacts on timber supply.

The SRMP also defines specific old-seral requirements for undeveloped watersheds, which are identified as the Jesse and Emsley Watersheds on TFL 41.

In the analysis, the Kalum predictive ecosystem mapping layer was used to determine the site series to model the seral targets and thresholds outlined under the SRMP. Full targets, for all BEO and landscape unit combinations, in both old- and mature-plus old were appropriately applied in the base case. For early seral, the base case assumed applied the transition thresholds for the first 30 years of the planning horizon, after this period the more restrictive thresholds were applied for the remainder of the time horizon.

In the base case, full old-seral targets were met at the start of the analysis horizon in all but two landscape unit and BEC combinations, the CWHvm1 in the Kitimat and the CWHws1 in the Hirsch landscape units. The total THLB area within these two units totals 274 hectares and staff indicate these shortfalls in meeting the full old-seral target are not expected to impact timber supply.

For the mature-plus old-seral targets, there was an initial shortfall at the start of the base case projection in the CWHws1 variants within the Hirsch and Wedeene landscape units. The area within the Hirsch watershed is very small, and staff indicate this shortfall is not expected to impact timber supply significantly. However, within the Wedeene Landscape Unit, the CWHws1 encompasses 4000 hectares of THLB. Based on modelling results indicating an initial shortfall in achieving the mature-plus old-seral retention targets, timber supply contributions from the area are expected to be constrained for the next 40 years.

In the base case, for early seral, there are two landscape units (Hirsch and Lakelse) in the CWHws1 where the first decade exceeds the longer-term threshold. The total THLB in these units is 373 hectares. Staff note that allowing the threshold to be exceeded for the first 30 years in the base case was not consistent with the intention of the Kalum SRMP, given that the analysis results show that timber supply was not constrained by the full requirement. Given the small area of THLB and that there was no timber supply impact, I will make no adjustment for this in my decision.

To approximate natural disturbances for areas outside the THLB a disturbance regime was modelled, wherein a constant amount of area was assumed to be disturbed annually within each landscape unit. This was intended to ensure that the stands on the non-THLB was not assumed to continually age in the modelling and consequently fulfill an unrealistic portion of the old- or mature-plus old forest cover requirements for non-timber resource values. The area of disturbance varied based on the biogeoclimatic variants present and their associated natural disturbance intervals and old-seral definitions as outlined in the *Biodiversity Guidebook*. Across the non-THLB, approximately 142 hectares (0.25 percent) were assumed to be disturbed each year in the base case.

I have reviewed the information regarding the assumptions for seral targets and thresholds to provide for landscape-level biodiversity values and I am satisfied that the base case has appropriately accounted for these values. I accept that the modelling of the early-seral targets was slightly inconsistent with the Kalum SRMP objectives; however the implications to timber supply are insignificant, and no adjustments are required on this account.

I also note that the land base of TFL 41 has a large proportion of old growth forest which provides some flexibility for how the area is managed to meet objectives.

- *green-up/cutblock adjacency*

Cutblock adjacency requirements are designed so that the structural characteristics left after harvest are consistent with the temporal and spatial distribution of stand openings that would result from natural disturbance. The Kalum SRMP has objectives for cutblock adjacency, with the intention of proponents planning harvest activity to attain a landscape pattern that reflects natural disturbance patterns.

A patch is an area of forest with uniform age class or uniform seral stage, surrounded by forests that are either younger or older or by non-forest.

The base case analysis included harvest rules to shift the current patch size distribution toward the desired future condition as expressed in the Kalum SRMP. Patch size targets were used to regulate the distribution of early-seral stands (less than 40 years of age) within each landscape unit and natural disturbance type combination. Early-seral stands within 200 metres of one another were considered a single patch of early seral in the modelling. The licence holder notes that the modelling targets may take some time to achieve, and in some cases may not be possible, and in consideration of this the relative priority of this objective was set to encourage achievement of the targets rather than applying them as a strict requirement.

Some landscape unit and natural disturbance type combinations less than 1000 hectares in size were too small to demonstrate meaningful results. Ministry staff have reviewed the modelling assumptions and confirm that the patch size distributions for the largest units approached the desired range as stated in the Kalum SRMP over time.

I have reviewed the information about patch size and adjacency as modelled for TFL 41, and I note that the analysis results suggest that meeting desired patch size distribution over time is achievable on the land base. I am satisfied that the harvest projections provided in the base case account for the intention to meet adjacency and patch size requirements over time as outlined in the Kalum SRMP.

- *old growth deferral areas*

In 2021, the 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). As long-term measures have not yet been identified for old growth, the TAP polygons contributed to the THLB in the base case. TFL 41 contains approximately 69 560 hectares of old forest, of which 22 417 hectares are within the THLB assumed for this analysis. Approximately 6073 hectares (27 percent) of old forest are identified as priority at-risk old growth forest located within the THLB.

I recognize that a paradigm shift in old forest management in the province has begun with the TAP identifying priority at-risk forest. Implementation of long-term measures for old forest management, including TAP polygons and other old forest, is expected to occur through other processes, in collaboration with First Nations and input from the public. During that transition I expect that some of the old forest in TFL 41 may be deferred from harvest.

Noting that there is a large area of old forest excluded from the THLB, as well as the large area of old forest within the THLB, I do not expect the projected rate of harvest to affect the implementation of long-term measures for the protection of old forest. The base case did not make any explicit adjustments to account for old growth deferral areas.

I have reviewed the information regarding old growth deferral areas and discussed it with staff. Based on my review of that information as well as my knowledge of the forests in TFL 41, I note there is flexibility in this TFL to identify long-term measures for old forest, including deferral areas in the future without significant implications to timber supply on this account.

I am mindful that my considerations of the operability information used in the base case has implications for the THLB on TFL 41 and consequently there may be changes in the amount of old forest on the THLB as compared to the base case assumptions.

**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**

Other information

- *climate change*

As I discuss in my '*Guiding principles for AAC determinations*', above, climate change is a key source of uncertainty in timber supply reviews. It is predicted to impact forest ecosystems in different ways, including a general increase in temperatures, altered precipitation patterns and increases in the frequency and severity of disturbances resulting from wildfire, flood, landslide, insects and disease. The magnitude of these changes, their timing and geographic distribution remains uncertain, and consequently so does the impact to timber supply.

To assist with understanding these uncertainties in the context of timber supply reviews such as this one for TFL 41, the Pacific Climate Impact Consortium meteorology for northwest North America dataset was reviewed and examined for current temperature trends between 1942 and 2012. Annual and seasonal trends were calculated for mean temperature, extreme minimum and extreme maximum temperature, and total precipitation.

For the TFL 41 land base, the review indicated no significant change in mean annual precipitation and no significant precipitation trends over the reviewed time period. Mean annual temperature was shown to have increased significantly by 1.1 degrees Celsius, with winter temperatures increasing the most at 2.1 degrees Celsius. Extreme annual maximum temperatures did not increase significantly, although extreme annual minimum temperatures did significantly increase by 3.2 degrees, with the greatest increase of 2.6 degrees in the winter.

Future climate change projections for the period from 2041 to 2070 were also analyzed using ClimateBC v7.21 model and using a baseline period from 1961 to 1990. This review suggested minor annual increases in precipitation, with autumns being wetter and summers being drier. Mean annual temperatures may increase by 3.0 degrees Celsius and extreme annual maximum and minimum temperatures may increase by 2.8 and 4.3 degrees Celsius, respectively.

Staff note that although summer precipitation is not projected to decrease greatly, the warmer temperatures, in particular summer maximum temperatures, increase risks for both wildfire and drought on TFL 41.

Additional analysis suggested annual precipitation falling as snow may decrease by 43 percent over the 2041 to 2070 period, in particular during spring and summer. Growing degree days and frost-free periods may consequently increase; however, the analysis also suggested the possibility of a 16.5 millimetre increase in climate moisture deficit.

Ministry staff note that current climate trends of warmer winters are more conducive to forest pest overwinter survival, and potential declines in snow and a shortened snow season may increase the risk of frost damage and increase the risk of impact or mortality to a variety of tree species from drought.

Local public interest groups and members of the public requested the licence holder consider including a climate change objective supported by climate change modelling in the management plan. There was no specific accounting in the base case for the implications of climate change to TFL 41 forests.

I have reviewed the information regarding the implications of climate change for the management of TFL 41 forests and discussed the information with Ministry staff. I commend the work completed to better understand the specific implications of climate change for the TFL land base and note that using available and evolving models to increase our understanding is helpful in my decisions. In my assessment of the projected changes in precipitation and temperature and the corresponding implications for drought, wildfire risk, insect and disease outbreaks on TFL 41, timber supply is likely to be less than what was projected in the base case.

Thus, I accept that as a result of climate change impacts to forests on TFL 41, the harvest levels projected in the base case have been overestimated by an unquantified amount across all time horizons. I will discuss this further under ‘**Reasons for Decision**’.

*- cumulative effects*

As noted above in ‘*Guiding principles for AAC Determinations*’, cumulative effects refers to changes to environmental, social and economic values caused by the combined effect of past, present and potential future human activities and natural processes.

The Skeena Sustainability Assessment Forum (SSAF) and the North Coast Regional Stewardship Forum (North Coast ESI) are currently undertaking cumulative effects projects in the Skeena Region, in partnership with multiple First Nations and the Province of BC under the Environmental Stewardship Initiative (ESI). The North Coast ESI area of focus overlaps all of the TFL, and the SSAF boundary overlaps TFL 41 only slightly on the very eastern edge.

The SSAF has developed state of value reports for grizzly bear, fish, fish habitat and wetlands. The report for grizzly bear is based on the provincial interim assessment protocol for grizzly bear and applies to TFL 41. Within TFL 41, grizzly bear has moderate conservation concern ranking. The Bulkley-Lakes Grizzly bear population unit partially overlaps TFL 41 and has been identified as priority for monitoring and evaluating population, distribution and connectivity.

The North Coast ESI is undertaking two projects: one to support habitat restoration, and the other to conduct assessment and monitoring of estuaries, food security and access to resources, and salmon. No assessment reports are yet available through the North Coast ESI.

The base case did not include any specific assumptions to account for cumulative effects.

I have considered the available information regarding cumulative effects as they apply to TFL 41, and commend the projects underway to better understand, quantify and mitigate the impacts of cumulative effects on the land base. I look forward to the information as it becomes available and its ability to support timber supply review processes.

With respect to the state of value information available on grizzly bear through the work of the SSAF, I acknowledge the moderate conservation concern for the Bulkley Lakes Grizzly bear population. I am aware that in the timber supply analysis, protections for grizzly were incorporated into the assumptions, as discussed in more detail under ‘*wildlife*’. I am also aware that TFL 41 has a high proportion of the land base undisturbed which provides further assurance that the grizzly bear population will be managed for appropriately at the operational level.

For this determination, while I accept that the implications of cumulative effects is a source of uncertainty for timber supply, it is not yet clear what the implications will be nor how they will impact timber supply in the future. Therefore, I will make no adjustments on this account to the

timber supply projected in the base case. As better information becomes available, I will consider the implications in future determinations.

*- harvest performance*

The *2023 Provincial Timber Management Goals, Objectives and Targets* report for TFL 41 shows the licence holder has operated in stands of all slope categories under 80 percent slope. However, staff note that the greatest proportion of harvest has occurred in stands on slopes between 20 and 50 percent. Harvest in stands in steeper slope categories as well as in balsam- and hemlock-leading stands is under-represented in harvest performance when compared with the contribution of those stands to the inventory shown in the forest inventory data.

In addition, staff note that approximately 24 percent of the HBS scaled volume harvested in the past five years has been cedar, which is substantially greater than the total cedar volume of seven percent within THLB stands older than 60 years of age, reported in forest inventory data. I also note that based on a comparison of HBS data to the forest inventory data, cedar volumes tend to be underestimated for TFL 41. This may indicate that the disparity between proportion of cedar reported in the forest inventory to harvest profile may be smaller than indicated.

The base case analysis for TFL 41 did not include any specific modelling assumptions for the management of cedar. Review of the base case harvest projections showed that cedar volume contributed 8.3 percent to the short-term harvest projection.

Several First Nations commented on cedar in TFL 41. Both western redcedar and yellow-cedar are a component of the forests of TFL 41 and are species of great interest to First Nations. The Haisla Nation asked about the retention and recruitment of monumental cedar. District staff note that tight grained cedar wood is important to First Nations for cultural uses, and tight grained wood is produced by cedar species growing on sites that support slow growth conditions on the TFL.

The Coast Mountains Natural Resource District has started a Cedar Management Strategy in collaboration with First Nations. The work is in its early stages but is expected to develop future strategies specifically for the management of monumental cedar on TFL 41.

I commend the district's work on the Collaborative Cedar Strategy, and I look forward to additional information that will be helpful as we monitor cedar harvest moving forward. In particular, given the importance of the cedar species, I am interested in further information about cedar survival rates in plantations on the TFL and monitoring the performance of the cedar species as stands mature past free growing.

I am mindful that the harvest performance records indicate a higher proportion of cedar harvest operationally than was assumed to contribute to the harvest projection in the base case and than is reflected in the species profile for the TFL. This is a trend that is of concern to me, as it is expected that the species and stand profile of the TFL will be harvested proportionally over time. I place particular importance in TFL 41 on cedar as it is an important species to First Nations and overall, an important resource to manage sustainably. Because of this trend, I will implement a partition as part of the AAC determination that will allow no more than 10 percent of the AAC be harvested from cedar species. I will discuss my considerations and the implications of this information further in my '**Reasons for Decision**'.

*- unharvested volume*

In January 2018, the Ministry introduced a policy regarding the administration of unharvested volumes, uncommitted volumes and unused BCTS volumes (collectively referred to as accumulated volume). This policy provides guidance on the administration of accumulated volume for various forest tenures, including TFLs. The policy sets out a set of steps that includes



tracking of all accumulated unharvested volumes by area and regional tenures staff for TFL 41 so that I can consider the amount of unharvested volume when determining the AAC. The Minister, subsequent to my AAC determination, may under Section 75.8 of the *Forest Act*, issue tenures to make available this unharvested volume.

Ministry staff completed a review of the volume harvested on TFL 41 between 2012 and 2022, using data from the HBS. The review showed that on average over that period, the annual harvested volume was 88 percent of the AAC. For the five-year cut control period from 2010 to 2014, there was a total of 353 704 cubic metres of unharvested volume, and between 2015 and 2019, there was a total of 97 354 cubic metres of unharvested volume. This has resulted in a total of 451 058 cubic metres of unharvested volume on TFL 41 over that time period.

Ministry staff conducted an additional review of harvest performance for the cut control period from 2020 to 2024. This review showed an additional 321 088 cubic metres of unharvested volume. Staff note that the cut control period does not end until December 2024. Since the current cut control period is not complete I will not account for the 321 088 cubic metres of unharvested volume from the 2020 to 2024 cut control period in my determination.

It is the purview of the Regional Executive Director of the Skeena Natural Resource Region to re-allocate this unharvested volume as they consider appropriate. I am aware from discussions with staff that the unharvested volume from the past two cut control periods is likely to be redistributed through volume-based tenures in the future.

The base case assumptions for TFL 41 did not include any accounting for the past unharvested volume. Forest Analysis and Inventory Branch staff requested a sensitivity analysis to explore the implications to timber supply of disposition of the unharvested volume. In this sensitivity analysis, the short-term harvest level was increased by 45 106 cubic metres per year for the first 10 years of the analysis horizon, and there was no impact to the available timber supply demonstrated in the base case. The results demonstrated that the current level of merchantable growing stock supports disposition of the existing unharvest volume without an impact to timber supply.

I have considered the information provided regarding the unharvested volume on TFL 41 and discussed it with staff. I acknowledge that the sensitivity analysis results indicate that TFL 41 has a relatively robust timber supply and the harvest levels projected in the base case are not impacted by the redistribution of the undercut volume. That said, when I consider this in combination with the large adjustment to short-term supply discussed in ‘areas considered inoperable’, uncertainty is introduced. It is unclear whether this volume will be awarded by the regional executive director (RED), and because this is unknown, I believe there is an unquantified downward pressure on the short-term timber supply. I will discuss this further in my ‘**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 projections*

As part of the timber supply review for TFL 41, I have been presented with a number of alternative harvest projections completed as part of the timber supply analysis.

A maximum non-declining even-flow harvest projection showed a short- to mid-term harvest level of 208 320 cubic metres per year. In that harvest projection, the transition to the long-term harvest level of 280 750 cubic metres per year occurs in a series of three steps over 20 years, beginning in the thirteenth decade of the modelling.

Another harvest projection, called the ‘Pro-rated AAC’ projection in the analysis, increased the level of the current AAC proportionally by the percentage increase in the size of the assumed THLB since the 2012 analysis, or 34 percent. This projection showed an initial harvest level of 173 220 cubic metres per year which was maintained for eight decades before increasing in a series of six steps to a long-term harvest level of 280 610 cubic metres per year in decade 12.

I cautiously use these alternative harvest projections, given the substantial adjustment to short-term timber supply discussed in ‘areas considered inoperable’, in conjunction with other information to assess timber supply on TFL 41 and the implications of uncertainty in various assumptions made in the base case.

**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**

*- consultation, engagement and information sharing*

The Crown maintains a duty to consult with and accommodate, as necessary, those First Nations for whom it has knowledge of claimed Aboriginal Interests that may be impacted by a proposed decision, including strategic-level decisions such as AAC determinations. AAC determinations do not determine harvesting patterns and do not directly influence how timber is utilized or managed. An AAC determination sets the stage for other decisions such as AAC apportionment and disposition, which leads to the issuance of cutting authorities.

The AAC can affect various resource values and therefore the ability of Aboriginal Peoples to meaningfully exercise their Aboriginal rights. Information gained through consultation with potentially affected First Nations about Aboriginal Interests has been considered in the development of this determination.

Within TFL 41 there are nine First Nations, including the Haisla Nation, Kitselas First Nation, Lax Kw'alaams Band, Gitga'at First Nation, Metlakatla First Nation, Kitsumkalum First Nation, Skin Tyee Nation, Wet'suwet'en First Nation, and the Office of the Wet'suwet'en.

Consultation was undertaken with all First Nations who have traditional territory in TFL 41. Six of these nine First Nations, including the Haisla Nation, Kitselas First Nation, Lax Kw'alaams Band, Gitga'at First Nation, Metlakatla First Nation and Kitsumkalum First Nation have larger traditional territory overlaps with the TFL. The overlap for the territories of the remaining three First Nations was assessed to be largely high elevation areas in the TFL, and not inclusive of any THLB area; therefore, these First Nations were consulted via notification. Consultation with all Nations is consistent with the signed agreements held by the affected First Nations and the *Updated Procedures for Meeting Legal Obligations When Consulting First Nations and Haida Principles*.

As noted under ‘*Description of the TFL*’, the Kitsumkalum First Nation has purchased the sawmill, pellet mill, and associated lands of Skeena Sawmills, and is currently awaiting a decision regarding the approval of transfer of Tree Farm Licence 41.

In the spring of 2016, a Reconciliation Protocol was agreed to between the Province and Coastal First Nations including Metlakatla First Nation, Gitga'at First Nation and Haisla Nation. This agreement calls for “special engagement” for specified activities, including the timber supply review process. The special engagement process requires that a terms of reference for the consultation for the timber supply review be jointly developed. The Reconciliation Protocol was followed throughout the timber supply review process for these three First Nations.

Engagement with the above-listed six First Nations began in early 2020, with informal communication and collaboration via emails, phone calls, letters and meetings between the six First Nations, the licence holder and the Province.

In October 2020, the licence holder sent the *Information Package* along with a letter to all six First Nations. Formal consultation was completed for the *Information Package*, the *Timber Supply Analysis* and *Draft Management Plan 8*. The Province engaged with First Nations throughout two referral phases and beyond the closing dates.

Specific input and comments provided by each Nation on the *Information Package*, the *Timber Supply Analysis* report and the *Draft Management Plan* have been included under the various factors in this document where appropriate.

Prior to making my decision, I met separately with the Kitsumkalum First Nation and the Haisla Nation. At these meetings I listened to the concerns and issues raised by the representatives and have considered what I heard as I made my decision.

I have reviewed the First Nations consultation process and discussed it with Ministry staff. I conclude that the First Nations whose territories overlap TFL 41 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. I also accept the district staff conclusion that any potentially adverse impacts on the Aboriginal Interests of the relevant First Nations stemming from forest development activities that occur after the AAC determination can be appropriately mitigated through existing legislation and regulation, planning documents, and meaningful engagement at the operational level.

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

I have reviewed the information regarding the assumptions for unsalvaged losses on TFL 41 and I am satisfied that this was reflected appropriately in the base case.

**Reasons for Decision**

In reaching my AAC determination for TFL 41, I have considered all of the factors required under Section 8 of the *Forest Act* and I have reasoned as follows.

The base case projection for TFL 41 shows that a harvest level of 194 660 cubic metres per year can be maintained for 10 decades before increasing in a series of three steps to a long-term harvest level of 280 770 cubic metres per year, achieved 15 decades into the analysis horizon.

I am satisfied that the assumptions applied in the base case for the majority of the factors applicable to TFL 41 were appropriate, including the factors detailed in Table 1 or discussed above in this document. However, I have identified some factors which, considered separately, indicate that timber supply may be either greater or less than projected in the base case. Some of these factors can be readily quantified, and their implications for timber supply can be assessed with reliability. Other factors may influence timber supply by adding an element of risk or uncertainty to this decision but cannot be reliably quantified at this time.

I have identified one factor in my consideration as indicating that the timber supply projected in the base case may have been underestimated, to a degree that can be quantified:

- *Dead potential volume* – timber supply has been underestimated by 4.0 percent as a result of the lack of inclusion of volume contribution from dead potential trees (Grade 3 and 5) in the base case assumptions.

I have identified the following factors in my considerations as indicating that the timber supply projected in the base case may have been overestimated, to a degree that can be quantified:

- *Areas considered inoperable* – while I acknowledge that the older 1998 operability information is outdated, it remains the best available information to classify inoperable areas on the TFL, and thus short-term timber supply has been overestimated by 26.4 percent in the base case, and mid- to long-term timber supply overestimated by 21.3 percent.
- *Archaeological sites* - accounting for additional existing archaeological sites not reflected in the base case assumptions results in an overestimation of short-term timber supply by 0.57 percent.
- *Grade 4 credits* - the lack of accounting for the implications of Grade 4 credits received by the licence holder represents a 7.0 percent overestimation of the timber supply projected in the base case.
- *Cultural heritage resources* – recent harvest performance in the Jesse Lake Watershed indicates that the area is operationally unavailable for harvest resulting in a 2.4 percent decrease in the timber supply projected in the base case.

I have identified the following factors in my considerations as indicating that the timber supply projected in the base case may have been overestimated, to a degree that cannot be quantified:

- *Environmentally sensitive areas and unstable terrain* – the reductions applied in the base case may underestimate the amount of unstable area on the THLB resulting in the mid- and long-term timber supply being overestimated by a small, unquantified amount.
- *Future roads, trails and landings* – there is an unquantified small reduction to mid- and long-term timber supply as a result of underestimating the loss of productive forest from the construction of future roads in steeper terrain.
- *Future archaeological sites* – accounting for the impact of additional archaeological sites not yet identified indicates that mid- and long-term timber supply is overestimated by a small unquantified amount.
- *Climate change* – accounting for the implications of climate change on the forests of TFL 41 suggests an unquantified overestimation of timber supply across all time horizons.
- *Unharvested volume* – the uncertainty of future tenuring of outstanding unharvested volume results in an unquantified overestimation of timber supply in the short term.

In considering the above-mentioned influences, I find that the combined effect of accounting for the quantifiable factors represents a net overestimation of timber supply by about 32.4 percent. In addition, there were several factors mentioned above (*Environmentally sensitive areas and unstable terrain, Future roads, trails and landings, Future archeological sites, Climate change, Unharvested volume*) where I considered the impacts to the base case timber supply to be overestimated by unquantified amounts. I conclude that taken together, these unquantified overestimations add some uncertainty to the base case timber supply projection.

I note that the review of the licence holder's harvest performance for this determination shows that the greatest proportion of harvest in recent years has occurred in stands on slopes between 20 and 50 percent. The harvest performance in stands in steeper slope categories as well as in balsam- and hemlock-leading stands is under-represented when compared with the contribution of those stands to the THLB.

When making AAC determinations, I can specify portions of the harvest attributable to different timber types, geographic areas, or types of terrain. This is referred to as an AAC partition. The purpose of a partition is to ensure that the harvest attributable to certain types of timber, terrain,

or geographic areas of the TFL is not taken from another (potentially higher value) area or type of forest. A partition may also be applied to encourage use of the timber from different areas and timber types that may not be otherwise harvested.

My expectation is that over time, the profile of stands on the THLB of the TFL will be harvested proportionally to their contribution in the inventory, therefore I consider it appropriate to include a partition in my determination whereby a maximum of 60 percent of the AAC will be from stands on slopes of less than 50 percent. This aligns with the proportion assumed in the base case.

In addition, I am aware that collectively, yellow and western redcedar have contributed 24 percent of the volume harvested on TFL 41 over the past five years. This represents an overharvest of those species relative to their presence in the stands on the TFL as indicated by the stand composition in the forest inventory. Because of the importance of cedar to First Nations and the need to provide assurance of continued presence of these species, I will implement a partition as part of the AAC determination that will allow no more than 10 percent of the AAC be harvested from cedar species.

My determination of the appropriate harvest level for TFL 41 is 128 000 cubic metres, a level unchanged from the AAC in place prior to this determination. In addition, I am implementing two AAC partitions under Section 8(5) of the *Forest Act*. To avoid the disproportionate of harvesting from stands on slopes less than 50 percent I am instituting a partition limiting harvest from that profile to a maximum of 76 800 cubic metres (60 percent). To ensure that cedar species are not harvested at a rate disproportionate to their occurrence within the forest inventory I am instituting a partition limiting the harvest of cedar (any species) to 12 800 cubic metres.

## **Determination**

I have considered and reviewed all of 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 and that reflects current management practices as well as the socio-economic objectives of the Crown, can be best achieved in TFL 41 by establishing an AAC of 128 000 cubic metres, unchanged from the AAC in place prior to this determination.

As permitted under Section 8(5) of the *Forest Act*, I specify two partitions:

1. A maximum harvest of 76 800 cubic metres (60 percent) of the AAC from stands on slopes of less than 50 percent; and,
2. A maximum of 12 800 cubic metres (10 percent) of the AAC from any cedar species.

This determination is effective September 10, 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 predicated, 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 up to the subsequent determination, I expect Ministry staff as well as the staff of the licence holder to undertake and support the tasks and studies noted below, the benefits of which are described in the relevant sections of this rationale document.

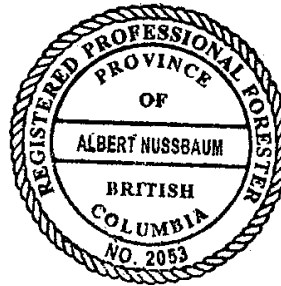
I recognize that the ability of all parties to undertake or support these projects is dependent on provincial priorities and available resources, including funding. However, these projects are important to reduce the risk and uncertainty associated with key factors that affect the timber supply on TFL 41. Prior to the next determination, I request the following be undertaken:

- *Terrain stability and environmentally sensitive areas* – the licence holder undertake work prior to the next determination to reduce the uncertainty around performance within terrain classes and environmentally sensitive areas.
- *Steep slopes* - the licence holder is to align its harvest performance on steep slopes to the slope profile of the TFL and to monitor and report annually to the Coast Mountains Natural Resource District and Forest Analysis and Inventory Branch on its harvest performance by slope class and operability class.
- *Site index* – the licence holder to work with Forest Analysis and Inventory Branch to compile appropriate data to improve the certainty around site indices for the stands on TFL 41.
- *Inventory* – the licence holder work with Forest Analysis and Inventory Branch staff to develop a plan to assess its accuracy, and if necessary to complete a new inventory of the TFL.



Albert Nussbaum, RPF  
Deputy Chief Forester

September 10, 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 14, 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 September 3, 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 sectorin 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.

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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](http://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 41 include the following:

### *Legislation*

- *Forest Act* and regulations, BC Government, current to July 14, 2024;
- *Ministry of Forests and Range Act*, BC Government, current to September 3, 2024;
- *Forest and Range Practices Act (FRPA)* and regulations and amendments, BC Government, current to July 14, 2024;
- *Forest Planning and Practices Regulation (FPPR)*; [Last Amended April 1, 2024 by B.C. Reg. 62/2024];
- *Forest Practices Code of British Columbia Act*, BC Government, current to September 3, 2024, and regulations and amendments;
- *Declaration on the Rights of Indigenous Peoples Act*, BC Government, current to September 3, 2024;
- *Land Act*, BC Government, current to September 3, 2024;
- *Environment and Land Use Act*, BC Government current to September 3, 2024;
- *Protected Areas of British Columbia Amendment Act, 2019*;
- *Species at Risk Act*, Government of Canada (S.C 2002, c29), current to June 19, 2024;
- *Forestry Revitalization Act*, BC Government current to September 3, 2024;
- *Heritage Conservation Act*, BC Government current to September 3, 2024;
- *Interpretation Act*, BC Government current to September 3, 2024;
- *Wildlife Act*, BC Government, current to September 3, 2024;
- *Biodiversity Guidebook*, Ministry of Forests and BC Ministry of Environment, Lands and Parks, 1995. BC Ministry of Forests, Lands and Natural Resource Operations.

### *Licence Holder Plans and Timber Supply Review Documents*

- *Tree Farm Licence 41 Management Plan #8*, including Information Package and Timber Supply Analysis, Skeena Sawmills Ltd. And Forsite Consultants, January 4, 2022;
- *TFL 41 Management Plan #8, Core Operable Area Rationale*, Mark Reiter RPF, Martin Deltombe RPF, December 15, 2021;
- *Tree Farm Licence 41 Rationale for Allowable Annual Cut (AAC) Determination*, Ministry of Forests, Lands and Natural Resource Operations. January 31, 2012;
- Letter from the Minister of Forests, Lands, Natural Resource Operations and Rural Development to the chief forester stating the economic and social objectives of the Crown. BC Government. October 30, 2017;
- *Procedures for Factoring Visual Resources into Timber Supply Analyses*, Ministry of Forests. March 1998;
- *Updated Procedures for Meeting Legal Obligations When Consulting First Nations – Interim*. Province of British Columbia. May 7, 2010;
- *Report on the Re-inventory of Tree Farm Licence 41 1996-1998*, Sterling Wood Group, 1999;

- *Tree Farm Licence 41 Timber Supply Review Information Package*, Timberline Natural Resource Group, 2011;
- *Management Plan 6, 199-2004, Kitimat Tree Farm Licence 31, West Fraser Mills Ltd.*
- Forest Stewardship Plan for TFL 41, Forest Licence A16885 and Forest Licence A16882, 2016-2021, Skeena Sawmills;
- 2023 Provincial Timber Management Goals, Objectives and Targets, TFL 41, Kitimat, Ministry of Forests, 2023;
- *Kalum TSA PEM Accuracy Assessment Results*, David W. Yole, March 15, 2007.

#### *Land Use, Forest Practices and other Documents*

- *Kalum Sustainable Resource Management Plan*. April 2006 and associated Legal Direction and Orders;
- *Identified Wildlife Management Strategy—Accounts and Measures for Managing Identified Wildlife Coast Forest Region*. Version 2004. Province of BC. 2004;
- Government Actions Regulation (GAR) Orders applicable to TFL 41;
- Approved Ungulate Winter Ranges, Ministry of Environment, 2016;
- Approved Wildlife Habitat Areas, Ministry of Environment, 2016;
- *A New Future for Old Forests, A Strategic Review of How British Columbia Manages for Old Forests Within Its Ancient Ecosystems*, Al Gorley, RPF, Garry Merkel, RPF, April 30, 2020;
- *Priority Deferrals: An Ecological Approach, Old Growth Technical Advisory Panel (TAP), and Old Growth maps*, October 2021;
- *OG TAP Old Growth Deferral: Background and Technical Appendices*, 2021;
- *1:20,000 Fish and Fish Habitat Inventory Davies/Hoult Watershed*, Triton Environmental Consultants Ltd. 1998;
- Coast Mountains Natural Resource District Forest Health Aerial Overview and Detailed Surveys, 2010 – 2019;
- *Summary of Dead Potential Volume Estimates for Management Units within Northern and Southern Interior Forest Regions*. March 2006;
- TFL 1 Climate Change Analysis. Vanessa Foord. October 1, 2020;
- Policy Regarding the Administration of Unharvested Volumes, Uncommitted Volumes and Unused BCTS Volumes. January 10, 2018. Ministry of Forests, Lands, Natural Resource Operations and Rural Development;
- Implementation Plan for the Recovery of Marbled Murrelet (*Brachyramphus marmoratus*) in British Columbia. Ministry of Forests, Lands, Natural Resource Operations and Rural Development. February 2018.

#### *First Nations*

- Updated Procedures for Meeting Legal Obligations when Consulting First Nations. May 7, 2010;
- *Haida Nation v. British Columbia (Minister of Forests)*, [2004] 3 S.C.R. 511, 2004 SCC 73;

- Tsilhqot'in Nation v. British Columbia, 2014 SCC 44, [2014] 2 S.C.R.;
- R. v. Sparrow, [1990] 1 S.C.R. 1075;
- Coastal First Nations Reconciliation Protocol Amending Agreement. 2017;
- Nisga'a Final Agreement, 2000;
- Skin Tyee Nation Forest Consultation and Revenue Sharing Agreement (FCRSA), 2018;
- Wet'suwet'en First Nation FCRSA, 2019;
- Lax Kw'alaams Band FCRSA, 2018;
- Gitxaala Nation FCRSA, 2020;
- Kitselas First Nation FCRSA, 2017;
- Kitsumkalum First Nation FCRSA, 2018.