

**BRITISH COLUMBIA
MINISTRY OF FORESTS, LANDS AND
NATURAL RESOURCE OPERATIONS**

Tree Farm Licence 57

held by

Ma-Mook Natural Resources Limited

Rationale for Allowable Annual Cut (AAC) Determination

Effective September 14, 2016

**Diane Nicholls, RPF
Chief Forester**

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Objective of this document

This document provides an accounting of the factors I have considered and the rationale I have employed as chief forester of British Columbia in making my determination, under Section 8 of the *Forest Act*, and Section 4 of the Tree Farm Licence Area-based Allowable Annual Cut Trial Program Regulation, of the allowable annual cut (AAC) for Tree Farm Licence 57 (TFL 57). 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 thank licensee staff, and staff from BC Ministry of Forests, Lands and Natural Resource Operations (FLNRO) in the South Island Natural Resource District and the Forest Analysis and Inventory Branch (FAIB). I am also grateful to the First Nations, the public, and the licensees who have provided input.

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. Section 4 of the Tree Farm Licence Area-based Allowable Annual Cut Trial Program Regulation provides the chief forester with additional considerations specific to area-based AACs.

Description of the Tree Farm Licence

TFL 57 is located on the west side of Vancouver Island. It lies completely within the area covered by the provincial government's 1993 Clayoquot Sound Land Use Decision (CSLUD). TFL 57 is held by Ma-Mook Natural Resources Limited (Ma-Mook) ('the licensee') which is owned by the Ahousat, Tla-o-qui-aht, Hesquiaht, Toquaht and Ucluelet First Nations. Prior to May 27, 2016, the licence was held Iisaak Forest Resources Ltd.

The Clayoquot Sound area is a complex of mountains, valleys, oceans, inlets, lakes, rivers, islands and forests. The 1993 CSLUD followed many years of public participation and consultation regarding land and resource use planning in the area. The CSLUD designated portions of Clayoquot Sound as protected areas, special management areas (for recreation, wildlife, or scenic corridors) and general integrated resource management areas. Under the CSLUD, the general management areas were intended to include timber harvesting as a major use.

TFL 57 totals just over 87 000 hectares, approximately 32 percent of the total area under the CSLUD. The TFL consists of 21 geographically separate blocks interspersed with parks, protected areas as well as TFL 54. Most of TFL 57 is in the Coastal Western Hemlock (CWH) biogeoclimatic zone, and the primary commercial tree species are western hemlock, western redcedar, and amabilis fir (balsam). Minor amounts of Sitka spruce, Douglas-fir, yellow-cedar, and lodgepole pine also occur on the TFL.

The area of TFL 57 has been managed for some time under a special innovative and complex regime. The Scientific Panel for Sustainable Forest Practices in Clayoquot Sound (the Scientific Panel) was formed in 1993 and tasked with reviewing the forest practices standards in effect in Clayoquot Sound at that time, and recommending changes to ensure that the practices would be sustainable for the values in the area. On May 30, 1995, the Scientific Panel submitted to government a three-volume report containing a total of 124 specific and 91 general recommendations on forest practices and First Nations issues in Clayoquot Sound, which were accepted in full by the provincial government.

The area of Clayoquot Sound has an extensive First Nations cultural history. TFL 57 includes traditional territories claimed by several First Nations represented by the Nuu-chah-nulth Tribal Council. In March 1994, a two-year Interim Measures Agreement between the provincial government and hereditary chiefs of the Nuu-chah-nulth Central Region Tribes led to the establishment of the Clayoquot Sound Central Region Board (CRB) as part of a joint management process between First Nations and provincial government appointees, to oversee development in Clayoquot Sound, including implementation of the CSLUD and the recommendations of the Scientific Panel. In April 1996, the agreement was extended for a three-year period as the Interim Measures Extension Agreement (IMEA). After being extended to March 2000, a new agreement, the Interim Measures Extension Agreement: a Bridge to Treaty was signed for a term of five years or the effective date of a treaty, whichever was to occur first. The IMEA expired in 2010 and was never renewed. The CRB is no longer operating, but decisions for Clayoquot Sound continue to be guided by the same principles.

The licensee manages operations in the TFL from Ucluelet, and the TFL is administered by FLNRO from its South Island Natural Resource District Office in Port Alberni.

History of the TFL and the AAC

Harvesting and sawmilling have occurred for over a century in the area now covered by TFL 57. In 1955, Forest Management Licenses (FML) No. 20 (Tofino) and 21 (Alberni) were awarded to MacMillan Bloedel Limited's predecessor companies. These FMLs were later renamed as Tree Farm Licences.

In 1984, the two TFLs were combined to form TFL 44. In October 1999, TFL 44 was subdivided and most of the Clayoquot Sound portion of the TFL became TFL 57. TFL 57 was transferred to Isaak Forest Resources Ltd. on October 27, 1999.

In 2000, an AAC of 123 800 cubic metres was determined for TFL 57, of which 110 390 cubic metres were available to the licensee and 13 410 cubic metres to BC Timber Sales.

In 2005, an area-based AAC of 381 hectares was determined for TFL 57. Of this area, 92 hectares was attributed to even-aged harvesting operations and the remaining 289 hectares to uneven-aged harvesting operations.

New AAC determination

Effective September 14, 2016, the new area-based AAC for TFL 57 is 222 hectares.

This AAC will remain in effect until a new AAC is determined, which must take place within 10 years of this determination unless significant new information becomes available or the trial program is terminated under Section 7 of the Tree Farm Licence Area-based Allowable Annual Cut Trial Program Regulation.

Information sources used in the AAC determination

- *Tree Farm Licence 57, Management Plan No. 2*, Isaak Forest Resources Ltd., prepared by Forsite Consultants Ltd., September 2014 (not approved yet);
- *TFL 57 Management Plan #2 Proposed Referral and Public Review Strategy*, submitted May 2013 and accepted June 2013;

- *Timber Supply Analysis Information Package for Tree Farm Licence 57 - Management Plan No. 3*, August 2013;
- *Tree Farm Licence 57 – Management Plan #2 Timber Supply Analysis Report*, September 2014;
- *Revised Area-Based Timber Supply Analysis for TFL 57*, submitted Sept 2014;
- *Timber Supply Analysis Information Package for TFL No. 57*, accepted June 27, 2002;
- *Volume-Based Timber Supply Analysis for TFL 57*, submitted December 30, 2002;
- *Volume-Based Timber Supply Analysis for TFL 57 Addendum*, submitted August 28, 2003;
- *Area-Based Timber Supply Analysis for TFL 57*, accepted June 16, 2004;
- *Existing stand yield tables for TFL 57*, accepted by FLNRO Forest Analysis and Inventory Branch as part of the Information Package review, August 2013;
- *Managed stand yield tables and site index curves*, accepted by BCFS Research Branch, August 13, 2003;
- *Summary of Public Input solicited by the licensee regarding the contents of Management Plan No. 2*, June 2013;
- *Letter from the Minister of Forests to the chief forester*, stating the Crown's economic and social objectives regarding Clayoquot Sound, September 17, 1996;
- *Letter from the Deputy Ministers of Forests, and Environment, Lands and Parks*, conveying government's objectives regarding the achievement of acceptable impacts of biodiversity management on timber supply, August 25, 1997;
- *Landscape Unit Planning Guide*, BCFS and MELP, March 1999;
- *Order Establishing Provincial Non-Spatial Old Growth Objectives*, June 30, 2004;
- *Forest Act*, current to August 24, 2016;
- *Tree Farm Licence Area-based Allowable Annual Cut Trial Program Regulation*, current to December 14, 2007;
- *Forest Practices Code of British Columbia Guidebooks*, BCFS and MELP;
- *Forest and Range Practices Act*, current to August 24, 2016;
- *Forest Planning and Practices Regulation*, current as of February 29, 2016;
- *Identified Wildlife Management Strategy*, BCFS and MELP, February 1999;
- *Sustainable Ecosystem Management in Clayoquot Sound: Planning and Practices (Report 5)*, Scientific Panel for Sustainable Forest Practices in Clayoquot Sound, 1995;
- *Bedingfield Watershed Plan*, Clayoquot Sound Technical Planning Committee, October 2003;
- *Cypre Watershed Plan*, Clayoquot Sound Technical Planning Committee, October 2003;

- *Flores Island Watershed Plan*, Clayoquot Sound Technical Planning Committee, October 2003;
- Technical review and evaluation of current operating conditions through comprehensive discussions with staff of the Ministry of Forests, Lands and Natural Resource Operations, including the AAC determination meeting held in Victoria on March 24, 2016;
- *Economic Operability Analysis for TFL 57*, Timberline Natural Resources Group, April 2009;
- *Area-Based Allowable Annual Cut Determination Recommended Information Requirements for Tree Farm Licences*, November 2002;
- *Defining the Boundary and Content of a Disturbance*, BC Forest Service, January 2003;
- *Order Establishing Land Use Objectives for Clayoquot Sound*, Ministry of Agriculture and Lands, May 28, 2008;
- *Protected Areas Forests Compensation Act* [SBC 2002] Chapter 51, May 30, 2002;
- *Protected Areas of British Columbia Act* [SBC 2000] Chapter 17, June 29, 2000;
- *Ecological Reserve Act* [RSBC 1996] Chapter 103, 1996;
- *Chief Forester Order* Respecting an AAC determination for Tree Farm Licence 57, December 15, 2009;
- *Watershed Planning in Clayoquot Sound*, Volume 1, Principles and Processes, Clayoquot Sound Technical Planning Committee, July 2006.

Role and limitations of the technical information used

Section 8 of the *Forest Act* and Section 4 of the Tree Farm Licence Area-based Allowable Annual Cut Trial Program Regulation requires the chief forester, in determining AACs, to consider biophysical, social and economic information. Most of the technical information used in determinations is presented in a timber supply analysis, information package and accompanying reports. These inputs are concerned primarily with biophysical factors—such as the extent and characteristics of forest cover in the area and the definition of the land base considered available for timber harvesting—and with management practices.

The analytical techniques involved the use of computer models to project the development of timber supply over time and, necessarily, are simplifications of the real world. Many of the factors used as inputs to timber supply analysis are uncertain, due in part to variation in physical, biological and social conditions. Ongoing scientific studies of ecological dynamics will help reduce some of this uncertainty.

Furthermore, computer models cannot incorporate all of 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 decisions such as AAC determinations. Such information does provide valuable insight into potential impacts of different resource-use assumptions and actions, and thus forms an important component of the information I must consider in AAC determinations.

In determining this AAC for TFL 57 I have considered the known limitations of the technical information provided. I am satisfied that the information provides a suitable basis for my determination.

Guiding principles for AAC determinations

Section 8 of the *Forest Act* requires the chief forester to consider particular factors in determining the AACs for timber supply areas and tree farm licences.

Given the large number of periodic AAC determinations required for British Columbia'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 BC's 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 mindful of my obligation as a steward of the forests of British Columbia, of the mandate of the Ministry of Forests, Lands and Natural Resource Operations as set out in Section 4 of the *Ministry of Forests and Range Act*, and of my responsibilities under the *Forest Act* and *Forest and Range Practices Act* (FRPA).

Integrated decision making

One of the key objectives of the Ministry of Forests, Lands and Natural Resource Operations is to take an integrated approach to all resource management decisions that consider all resource values. In considering the factors outlined in Section 8 of the *Forest Act*, I will continue to consider all available information on timber and non-timber resources in the management unit, and all available information on the interactions of the management of those resources on timber supply.

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.

Two important ways of dealing with this uncertainty are:

- (i) managing risks by evaluating the significance of specific uncertainties associated with the current information and assessing the various potential current and future, social, economic and environmental risks associated with a range of possible AACs; and
- (ii) re-determining AACs frequently, in cases where projections of short-term timber supply are not stable, to ensure they incorporate current information and knowledge.

In considering the various 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, as closely as possible, that 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 substantiated by demonstrated performance or are beyond current legal requirements.

In many areas, the timber supply implications of some legislative provisions remain uncertain, particularly when considered in combination with other factors. In each AAC determination, this uncertainty is taken into account to the extent possible in the context of the best available information.

It is not appropriate to speculate on timber supply impacts that may eventually result from land use decisions not yet finalized by government, nor is it possible at this time to speculate about the possible effect on timber supply that could result from possible eventual legal proof of aboriginal title. However, where specific protected areas, conservancies, or similar areas have been designated by legislation or by order in council, these areas are deducted from the timber harvesting land base (THLB) and are not considered to contribute any harvestable volume to the timber supply in AAC determinations, although they may contribute indirectly by providing forest cover to help in meeting resource management objectives such as for biodiversity.

In some cases, even when government has made a formal land use decision, it is not necessarily possible to fully analyse and account for the consequent timber supply impacts in a current AAC determination. Many government land use decisions must be followed by detailed implementation decisions requiring, for instance, further detailed planning or legal designations such as those provided for under the *Land Act* and *FRPA*. In cases where there is a clear intent by government to implement these decisions that have not yet been finalized, I will consider information that is relevant to the decision 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.

Where appropriate, information will be considered 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 alternate strategies for dealing with information uncertainty are to delay AAC determinations or to generally reduce AACs in the interest of caution. However, given that there will always be uncertainty in information, and due to the significant impacts that AAC determinations can have on communities, I believe that no responsible AAC determination can be made solely on the basis of a response to uncertainty.

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

Climate change

One key area of uncertainty relates to climate change. While some controversy appears to remain on the causes of climate change, there is substantial scientific agreement that climate is changing, that the changes will affect forest ecosystems, and that forest management practices will need to be adapted. Nevertheless, the potential rate, amount, and specific characteristics of climate change in different parts of the province are uncertain. As research provides more definitive information on climate change, I will consider the findings in AAC determinations. Where forest practices are implemented to mitigate or adapt to the potential effects of climate change on forest resources, I will consider related information in my determinations.

In addition, vulnerability assessments can provide information on the potential risks associated with climate change, and could be useful in defining how to consider climate change in different AAC determinations. Such assessments could also highlight key topics in need of research that could improve climate change considerations for future determinations.

I note, however, that even with better information on climate change there will be a range of reasonable management responses. Considerations of how to respond in anticipation of uncertain, potential future impacts and risks differ from those related to responding to known or ongoing processes such as the recent mountain pine beetle (MPB) infestation. 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. Conversely, the present forest conditions resulting from the MPB infestation provide a clearer circumstance to which to respond.

To some extent, decisions on the preferred management responses to potential future risks, including potential changes to allowable timber harvests, are appropriately informed by broad discussion among interested parties. I will monitor such discussions and consider them insofar as they are relevant to AAC determinations. In general, the requirement for regular AAC reviews will allow for the incorporation of new information on climate change and its effects on forests and timber supply as it emerges.

First Nations

Aboriginal Title Lands and other areas, such as Treaty Lands or Indian Reserves, are not provincial Crown land. Consequently, the timber on these lands does not contribute to the AAC of the timber supply area or tree farm licence with which they overlap. For other areas, where aboriginal title has not been legally proven, the Crown has a legal obligation to consult with First Nations regarding their asserted rights and title (aboriginal interests) in a manner proportional to the strength of their aboriginal interests and the degree to which the decision may impact these interests. In this regard, full consideration will be given to:

- (i) the information provided to First Nations to explain the timber supply review process;
- (ii) any information brought forward respecting First Nations' treaty rights or aboriginal interests, including how these rights or interests may be impacted; and
- (iii) any operational plans and/or other information that describe how First Nations' treaty rights or interests are addressed through specific actions and forest practices.

Treaty rights or 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*. When information is brought forward that is outside of the chief forester's jurisdiction, 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 and the AAC determination are addressed in the various sections of this rationale.

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, Lands and Natural Resource Operations with respect to subsequent allocation of wood supply.

Area-based Allowable Annual Cut Trial Program

TFL 57 is a management unit with an area-based AAC. With respect to determining an area-based AAC under the Tree Farm Licence Area-based Allowable Annual Cut Trial Program, I am aware that the trial program is focused on testing the efficacy of regulating harvest levels by area rather than volume. The timber supply analysis and my considerations in this AAC determination are consistent with the direction from the Tree Farm Licence Area-based Allowable Annual Cut Trial Program Regulation.

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 forecasts provided to me through the work of the Timber Supply Review Program (TSR) 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 model, a series of timber supply forecasts can be produced to reflect 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 forecasts, 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* forecast and forms the basis for comparison when assessing the effects of uncertainty on timber supply. The base case is designed to reflect current management practices, demonstrated performance and legal requirements.

Because it represents only one in a number of theoretical forecasts, 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 forecast of timber supply, whose validity - as with all the other forecasts provided - depends on the validity of the data and assumptions incorporated into the computer model used to generate it.

Therefore, much of what follows in the considerations outlined below is an examination of the degree to which all the assumptions made in generating the base case are realistic and current, and the degree to which resulting predictions of timber supply must be adjusted to more properly reflect the current and foreseeable 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.

Timber supply analysis

The timber supply analysis for TFL 57 Management Plan No. 2 (MP #2) was prepared for the licensee by Forsite Consultants Ltd. using Forest Planning Studio (FPS) version 6.0.2.0. I am familiar with this computer model and I am comfortable that its output provides a sound basis for AAC determinations.

Similar to the previous management plan for TFL 57, MP #2 includes an area-based analysis which was conducted following the recommendations in the document, *Area-Based Allowable Annual Cut Determination: Recommended Information Requirements for Tree Farm Licences*. These recommendations were made to maintain the credibility and rigour of the AAC determination process while simplifying the requirements for information and analysis that support area-based AAC determination. In an area-based analysis the following information is typically reduced or omitted.

- Growth and yield estimates for clearcut and partial harvesting systems;
- Estimates of decay, waste and breakage;
- Estimates of endemic losses due to insects and disease;
- Stand-level volume reductions (e.g., tree retention);
- Timber volume adjustments;
- Utilization standards;
- Volume of unsalvaged losses.

The MP #2 timber supply analysis included assumptions based on the licensee's assessment of the best available information on current forest management and the land base available for timber harvesting for the TFL. These assumptions are discussed in the information package and in the timber supply analysis documentation, which form integral components of the management plan.

The base case projection for in MP #2 is an even-flow harvest level of 222 hectares per year. This is the maximum amount of THLB that can be harvested every year from the entire TFL 57 when current practices are applied. Since it is an area-based analysis, the base case did not project the volume of timber harvested annually.

This base case harvest level is 42 percent below the AAC set in the previous determination. FAIB staff indicate that the base case harvest level is reduced from the previous analysis because the THLB is smaller than assumed in the previous management plan.

Consistent with the Tree Farm Licence Area-based Allowable Annual Cut Trial Program Regulation, the AAC I determine is based on the whole areas subject to harvesting no matter how many trees are left standing.

Unlike the previous management plan for TFL 57, this analysis does not partition the sustainable harvest projection by silviculture systems (even-aged and uneven-aged). This is because current practice in the TFL is to apply variable retention in all harvest blocks using a range of tree retention levels.

In making my determination, I am mindful that the absence of harvest volume estimates and growth and yield information in this analysis creates uncertainty with respect to the influence of a number of factors, including merchantability criteria and rotation age. I will address this uncertainty under the appropriate factors in this document.

Where I have concluded that an assumption was appropriately modelled in the base case, I will not discuss my considerations of it in this document, other than to note my agreement with the approach that is already documented in the licensee's analysis. Conversely, I will explain my consideration of any assumption that concerns me for any reason, such as lack of clarity in the analysis report, apparent divergence from current management practice, or a high level of public input.

As discussed throughout this rationale, and in consideration of the items described above, I am satisfied that base case forecast presented in MP #2 provides an adequate basis from which I can assess the timber supply for TFL 57 in this determination.

Consideration of factors as required by Section 8 of the *Forest Act*, as varied by Section 4 of the Tree Farm Licence Area-based Allowable Annual Cut Trial Program Regulation

I have reviewed the information for all of the factors required to be considered under Section 8 of the *Forest Act* and as varied by Section 4 of the Tree Farm Licence Area-based Allowable Annual Cut Trial Program Regulation. Where I have concluded that the modelling of a factor in the base case appropriately represents current management or the best available information, and uncertainties about the factor have little influence on the timber supply projected in the base case, no discussion is included in this rationale. These factors are listed in Table 1.

Table 1. List of factors for which base case modelling assumptions have been accepted

Forest Act section and description	Factors accepted as modelled
8(8)(a)(i) Land base contributing to timber harvesting	<ul style="list-style-type: none"> • Land ownership • Non-forest non-productive • Existing roads, trails and landings • Parks • Watershed plan reserves • Hydro-riparian • Terrain stability • Marbled murrelet • Recreation and tourism • Sensitive soils • Floodplains • Non-veg scrub and herb • Red- and blue-listed ecosystems • Non-merchantable species • Low site productivity • Wildlife • Cultural heritage • Meares Island • Future roads
8(8)(a)(i) Composition of the forest and expected rate of growth	<ul style="list-style-type: none"> • Forest inventory • Site index • Operational adjustment factors
8(8)(a)(ii) Expected time for the forest to be re-established following denudation	<ul style="list-style-type: none"> • Harvest species profile/sequencing • Regeneration delay • Impediments to regeneration • Regeneration regimes • Genetic gain
8(8)(a)(v) Constraints on the amount of timber produced by use of the area for other purposes	<ul style="list-style-type: none"> • Resource inventories • Summary of non-timber value modelling assumptions • Watershed rate of harvest • Scenic areas/visuals • Recreation • Landscape-level biodiversity • Stand-level biodiversity
8(8)(a)(vi) Other information	<ul style="list-style-type: none"> • Natural disturbance • First Nations considerations
8(8)(b) Short and long-term implications of alternative rates of timber harvesting from the area	<ul style="list-style-type: none"> • Alternative rates of harvest
8(8)(d) Economic and social objectives of the government	<ul style="list-style-type: none"> • Local objectives

The *Regulation*, Section 4 (1) states:

When determining the allowable annual cut for a trial management unit, the chief forester, in addition to the matters set out in section 8 (8) (b) to (e) of the Act, must consider the rate of harvesting, based on the amount of land from which timber is to be harvested annually, that may be sustained within the trial management unit, taking into account the following factors, which replace the factors set out in section 8 (8) (a) (i) to (vi) of the Act

- (a) **The composition of the forest within the trial management unit and its expected rate of growth**

Land base contributing to timber harvesting

As part of the process used to derive the timber harvesting land base (i.e., the land base estimated to be available for harvesting), a series of deductions was made from the productive forest land base. These deductions account for ecological, economic or social factors that effectively reduce the amount of productive forest area that is available and suitable for harvest.

The total area of TFL 57 is 87 143 hectares. Of this total area, 21 797 hectares are deemed to be available as the THLB after area deductions are applied for factors noted in this section and in Table 1 above. This THLB is 19 percent smaller than the THLB identified in the previous management plan. The major reasons for the smaller THLB were greater area set-asides in watershed plans and revised criteria for economic operability.

I have considered the deductions applied in the derivation of the THLB for TFL 57 for the base case. I accept the deductions applied to account for those factors listed in Table 1, above, and I will not discuss them further in this document.

- economic operability

In the previous determination for TFL 57, the chief forester requested that the licensee conduct an operability assessment to refine the definition of marginally uneconomic timber in the TFL. Completion of this review was particularly important for the licensee given the unique circumstances guiding harvest in the Clayoquot Sound area, including the amount of retention required in cutblocks and the need for monitoring of harvest rates on a watershed by watershed basis. The licensee contracted Timberline Natural Resource Group to assess the economically operable land base, and in 2009 the contractor provided the report, *Economic Operability Analysis for TFL 57* and corresponding maps. The economically operable land base for TFL 57 was defined as the subset of legally-harvestable stands that can be harvested with an overall positive financial return over the long term.

Financial return from harvesting (described in the operability assessment as the 'Value Index') was calculated for each stand as the estimated selling price of the timber less the cost of harvesting and delivering the timber to market. The assessment included a comprehensive consideration of local operating costs for multiple factors - access development, tree to truck, log transportation, sorting, silviculture, engineering, administration and stumpage - as well as current and historic timber sale prices and the available THLB by watershed in the TFL.

In the base case, stands were considered to be economically operable if their value index was greater than the marginal threshold of \$-10 per cubic metre, as it was assumed that other stands with positive values could, collectively, make up for the loss of negatively valued stands. As well, all stands that had been previously logged in the TFL were considered to be economically operable.

As a result of the assessment, 20 575 hectares were excluded from the THLB as economically inoperable after accounting for other land base reductions. FAIB staff note that the amount of land excluded as economically inoperable is about twice the area that was excluded as inoperable in the previous management plan for TFL 57.

Sensitivity analysis was conducted as part of the operability assessment to evaluate the implications of different assumptions about log prices and the marginal threshold. The base case used log pricing assumptions from 2008, which were higher than either the 5-year or 10-year historical average prices. The sensitivity analysis showed that if log prices were reduced to a level equal to historical averages, the size of the operable land base would decrease. The greatest reduction was from applying 5-year average price, which reduced the operable land base by 20 percent. The sensitivity analysis also showed that if the marginal threshold were decreased from \$-10 to \$-20 the operable land base would increase by 20 percent and if the marginal threshold were increased from \$-10 to \$0 the operable land base would decrease by 24 percent.

District staff who reviewed the assumptions in the operability assessment believe that silviculture and engineering costs may have been underestimated in the assessment. In particular, they note road costs in some areas of TFL 57 may be higher relative to other TFLs. If the actual average cost is \$10 per cubic metre higher than assumed in the base case, the reduction in the operable land base would be about the same as the sensitivity analysis that increased the marginal threshold from \$-10 to \$0 per cubic metre.

I have reviewed the information provided regarding the operability of stands on the TFL and discussed this information with ministry staff. I note that the size of the operable land base is difficult to estimate in any management unit and involves a certain level of uncertainty. I am aware that operations in TFL 57 are sensitive to changing assumptions about costs and the size of the operable land base. However, there is no information that confirms with any level of certainty that the operable land base should be smaller than that predicted by the operability assessment, and I further note that the new assessment has indicated a land base significantly smaller than that assumed at the time of the previous timber supply analysis for the TFL.

Having considered the information available, I accept that the operability assumptions applied in the base case for TFL 57 represent the best available information and I make no adjustments on this account. As indicated in '**Implementation**', I expect the TFL holder to collect harvest performance information in order to assess economic operability assumptions for the next timber supply review.

Expected rate of growth

The analysis prepared for management plan did not include growth and yield projections for natural stands (greater than 60 years old). Yield tables were developed for managed stands so that rotation ages could be determined.

Although not envisioned to be strictly required for the determination of an area-based harvest level, detailed yield information is not provided in the MP 2 analysis report. The lack of this information makes it very difficult for me to know the volume of timber currently on the land base or how that volume changes over the projection or is influenced over time as a result of factors that both increase and decrease growth. I make comments on this further under '**Reasons for Decision**', and I request under '**Implementation**' that the licensee include such information in the next timber supply review for TFL 57.

- rotation age

In the base case, a stand was considered eligible for harvesting once it had grown to a target rotation age that was 10 years younger than the age at which its annual timber volume growth was estimated to be at a maximum (the stand culmination age). The licensee assumed that this age will be the age at which a stand meets its minimum merchantability criteria. The licensee also noted that the average age of stands harvested during the last 100 years of the planning horizon (i.e., decades 10 to 20) in the base case is consistent with the target rotation ages as defined by the criteria described above.

The rotation ages applied in the base case are lower than those applied in the previous timber supply review; however at the time of the previous determination, it was noted that the assumed rotation ages may prove over time to be too high.

The age at which a stand is available for harvest is a highly influential factor in management units with area-based AACs. A sensitivity analysis in which the target rotation ages were reduced by 10 years showed an increase of 17 percent in the possible area-based harvest rate. Increasing the rotation ages by 10 years resulted in a similar decline in the harvest rate. However, the increase and decrease in area-based harvest rates that occurred from applying lower and higher target rotation ages do not directly translate into increases or decreases in the annual volume harvested in these scenarios. This is because the highest sustainable volume-based harvest rate is generally achieved when stands are harvested at culmination age.

I have considered the assumptions for rotation age applied in the analysis and discussed the information with staff. I am concerned about the assumption that stands meet rotation age at 10 years below the stand culmination age, as this does not consider whether stands have achieved a minimum merchantable volume at the time of harvest. In the absence of growth and yield information, the change in timber volume production that results from altering the target rotation ages is difficult to assess.

In my experience, a better assessment of the merchantability of stands for the purpose of establishing rotation ages would include the application of a minimum volume threshold rather than a criterion based only on a measure relative to culmination age.

I am aware that better information is not currently available about rotation ages in TFL 57, in particular given the lack of current growth and yield information for this TFL. As such, I accept the assumptions applied in the base case for this factor as adequate for use in this determination. However, as indicated in '**Implementation**', I expect that the licensee to compile and present information on the estimated merchantable stand volume at rotation age in the next timber supply review.

- (b) the expected time that it will take the forest within the trial management unit, excluding areas that no longer contribute to the productive forest land base, such as areas on which permanent access structure have been constructed, to become re-established after timber is cut, damaged or destroyed;**

Expected time for the forest to be re-established following harvest*- not satisfactorily restocked (backlog and current)*

District staff indicate that according to the Reporting Silviculture Updates and Land Status Tracking System (RESULTS), there are currently 217 hectares of not satisfactorily restocked (NSR) area on TFL 57, resulting from harvest between 2009 to 2012. These areas appear to have been planted yet do not currently meet stocking standards.

District staff note that the licensee has had some stands on TFL 57 declared as free-to-grow 'to the extent practicable' for special circumstances. The reasons for stands achieving less than ideal stocking are not fully known. Since every stand in the TFL is harvested using the variable retention silviculture system, there is overstory retention in most regenerating cutblocks which has the potential to affect the health and growth of the planted trees. Stands in the TFL have historically been subject to infestations of dwarf mistletoe, impacting the ability of some regenerating stands to meet minimum stocking standards.

District staff indicated that overall, there is limited information about the NSR areas on the TFL, including the factors affecting stand regeneration.

In the base case, it was assumed that stands would regenerate normally within expected regeneration time frames.

Having considered the information about not satisfactorily restocked areas, I accept that the information is the best available for this determination and make no adjustments on this account. However, as noted in '**Implementation**', I request that information be collected over the term of this determination to ensure more information is available on the extent of NSR areas, realized regeneration delays and the causal agents impacting regeneration for the next timber supply review.

- (c) **the silviculture systems and silviculture treatments to be applied within the trial management unit;**

Silvicultural systems

The Scientific Panel recommended that the variable retention silvicultural system be used for forest harvesting operations in the areas lying outside the reserve areas identified in watershed plans in Clayoquot Sound. This silvicultural system is an approach to forest planning and forest harvesting in which trees are retained throughout a harvested area for at least through to the next rotation to achieve specific management objectives. The approach utilizes a wide spectrum of retention with varying amounts, types and spatial patterns of living and dead trees.

The Scientific Panel recommendations for cutting units with significant values for resources other than timber or with sensitive areas are that at least 70 percent of the forest should be retained in a relatively uniform distribution. On cutting units without significant values for non-timber resources, or without sensitive areas, at least 15 percent of the forest should be retained. The panel also recommended that retention be tailored to the stand and site conditions, and that the appropriate amounts of retention be based on ecological sensitivity and forest values within the working unit.

In 2006, the Clayoquot Sound Technical Planning Committee provided further guidance that emphasized the importance of selecting from the full continuum of options provided by the variable retention silvicultural system, based on an analysis of site-specific values and objectives. The guidance maintained the recommendation for a minimum retention of 15 percent which was to be met in all cutting units regardless of site conditions and resource values.

Operationally on TFL 57, variable retention is implemented as a mixture of patch cuts and various forms of dispersed retention. The amount of retention varies based on site sensitivities identified during site assessments prior to harvest, and ranges operationally from 15 percent to 70 percent of the cutblock. The licensee indicates that a review of harvesting performance records confirms that on average 40 percent of area is retained and 60 percent is harvested. These retention levels are in addition to other areas reserved to account for non-timber values.

In the base case, the licensee assumed that during harvest, the trees covering 40 percent of each harvested area are permanently retained and the trees covering 60 percent are removed. The licensee also assumed that 33 percent of the retention is aggregate retention and 67 percent in dispersed retention.

I have reviewed the information regarding variable retention on TFL 57 in the context of the Scientific Panel recommendations and discussed the information and the modelling assumptions with staff. I am satisfied that the base case assumptions meet the requirements of the Scientific Panel recommendations and adequately provide for the non-timber resource values on the TFL, and I accept them as suitable for this determination.

The extent and nature of variable retention applied in operations is a critical factor regarding future timber supply in TFL 57. Although my determination will set an AAC based on the gross area harvested, information regarding the amount and distribution of tree retention left within harvested areas is an important consideration and, as noted under '**Implementation**', I request that the TFL holder to continue to monitor and report on this information in preparation for the next timber supply review.

- (d) the constraints on the amount of land available for timber harvesting that reasonably can be expected from use of the trial management unit for purposes other than timber production;**

Integrated resource management objectives

No factors considered under this section require additional comment.

- (e) any other information that, in the chief forester's opinion, relates to**
 - (i) the capability of the trial management unit to produce timber, or**
 - (ii) the suitability of areas within the trial management unit for timber harvesting.**

First Nations considerations

TFL 57 overlaps the traditional territory of three First Nations, as well the Maa-nulth Harvest Areas of the Maa-nulth First Nations. The licensee has shared a draft Information Package and Management Plan (including the timber supply analysis) with First Nations and the public. FLNRO also consulted First Nations on the TFL 57 allowable annual cut determination and management plan approval.

The Crown has a duty to consult with, and accommodate as necessary, those First Nations for whom it has knowledge of the potential existence of aboriginal interests that may be impacted by a proposed decision. I must therefore consider information arising from the consultation process with First Nations respecting aboriginal interests and treaty rights that may be affected by my AAC determination. As well, I will consider other relevant information available to the ministry regarding aboriginal interests, including information gathered during other consultation processes.

Maa-nulth First Nations

The Ucluelet First Nation, Toquaht First Nation, Huu-ay-aht First Nation, Ka:yu:k't'h'/Chek'tles7et'h' First Nation and the Uchucklesaht First Nation are signatories to the Maa-nulth Final Agreement, which establishes rights to harvest fish and aquatic plants, harvest wildlife, harvest migratory birds and gather plants within Parks and Protected Areas. Harvesting rights are held by each Nation throughout the harvesting areas for food, social and ceremonial purposes. Important Harvest Areas are delineated throughout the Maa-nulth Harvest Areas where site level engagement may be required under the Maa-Nulth First Nations and

British Columbia Reasonable Opportunity Agreement (ROA), which came into force in March 2015. The Maa-Nulth Treaty Harvest Areas have a 258 hectare overlap with TFL 57.

Under the ROA, no engagement is required for the timber supply review process for TFL 57. However, the engagement on the TFL 57 timber supply review began before the ROA came into force, and the MFA signatory First Nations were engaged as per the Maa-nulth engagement procedures at the time.

Ahousaht First Nation

The Ahousaht First Nation traditional territory overlaps significantly with TFL 57. The consultation with the Ahousaht for the TFL 57 timber supply review was in accordance with the existing Forest Consultation and Revenue Sharing Agreement (FCRSA).

On July 18, 2016, the provincial government and Ahousaht signed the Ahousaht Protocol, an agreement to work together to improve the Ahousaht economy, to develop a collaborative approach to natural-resource management and permitting within Ahousaht traditional territory.

Hesquiaht First Nation

The Hesquiaht First Nation territory overlaps with a small northern portion of TFL 57. The consultation with the Hesquiaht First Nation was conducted in accordance with the FCRSA.

Tla-o-qui-aht First Nation

The traditional territory of the Tla-o-qui-aht First Nation overlaps with a large portion of the TFL. The Tla-o-qui-aht First Nation now have a FCRSA; however, at the time of the engagement for the timber supply review, the FCRSA was not yet in place. As a result, consultation was conducted at the normal level of the consultation spectrum outlined in the Supreme Court of Canada Haida decision.

The Province did not receive a written response from any of the First Nations consulted on the TFL 57 timber supply review.

District staff indicate that, when planning operations in TFL 57, the licensee is effective in engaging First Nations whose interests lie in the area. In Clayoquot Sound, watershed plans provide a high level of protection to values of importance to First Nations, including those associated with fishing, hunting and cultural heritage resources. The watershed plans for the twelve watershed units in TFL 57 require the involvement of First Nations in any site level development committed to in the licensee's Forest Stewardship Plan.

I have considered the information regarding the First Nations consultation done by both the licensee and district staff. I am satisfied that consultation was conducted appropriately and that there are no issues that impact this determination. My consideration of the 'Undeveloped' watersheds' areas is discussed below.

Undeveloped watersheds

I note that certain watersheds in the TFL are currently unlogged or have had limited harvesting activity some time ago and were not designated as protected areas under the CSLUD and are not fully protected by watershed planning reserves. These undeveloped areas occur in six major watershed units and contain approximately 25 percent of the THLB in TFL 57.

Watershed plans required under the CSLUD were completed in 2006. The watershed plan for the Clayoquot River watershed, identified as one of the undeveloped watersheds, indicated that 37 percent of the forested land base was harvestable.

District staff recently conducted an aerial reconnaissance of two of the watersheds, the Ursus River and Clayoquot River watersheds. Staff noted that both of these watersheds appeared to be unharvested and that there were multiple factors within them that may present significant challenges to operations, including steep terrain, unstable soils and extensive riparian areas.

In their comments on MP #2, submitted December 3, 2013, the Clayoquot Sound Conservation Alliance suggested that pristine watersheds be removed from THLB.

The licensee has indicated that it intends in time to harvest the THLB within the undeveloped, consistent with the retention levels and protection for values outlined through the CSLUD.

I have considered the information about undeveloped watersheds in TFL 57 and discussed it with district staff. I am aware that at least 25 percent of the THLB for the TFL lies within these areas, and the completed watershed plans suggest that portions of them are harvestable. These areas contain THLB and therefore contribute to the area-based harvest in the base case projection. If, over time, some of these areas remain undeveloped or are shown to be not suitable for harvesting, it may be appropriate to exclude them from contributing to the harvest in future timber supply analysis.

I discuss my consideration of this factor further under '**Reasons for Decision**'.

Difference between AAC and actual harvest

In 2005, an area-based AAC of 381 hectares was determined for TFL 57. Of this, 92 hectares was attributed to even-aged harvesting operations and the remaining 289 hectares to uneven-aged harvesting operations. Operationally, these partitioned areas correspond approximately to the IRMA and SRMA areas of the TFL.

Cut control for TFL 57 is defined by Section 3 of the Tree Farm Area-based Cut Trial Program Regulation. Ministry staff indicate that the compilation of cut control information for TFLs with area-based AACs has been difficult. A process for producing annual harvest reports for TFLs with area-based AAC was developed in 2010. This process relies on information provided by the ministry's information systems and by the TFL holder. It was applied to generate reports for 2010, 2011 and 2012 which showed that the average annual area harvested for these years was 130 hectares. Staff note that the licensee's accounting of harvested area differs from that of the ministry, and that their data indicates an average of 160 hectares per year were harvested in the same three-year period.

FAIB staff also reviewed records from the Reporting Silviculture Updates and Land status Tracking System (RESULTS) database for the years 2010 through 2014. This review showed the average annual gross-area harvested over that period was 169 hectares. This result together with the annual reports for the years 2010 through 2012 suggest the licensee may be undercutting the AAC on TFL 57 by a significant amount.

I have reviewed the information regarding the difference between the AAC and the actual rates of harvest, and discussed it with district staff. I am mindful that the rate of harvest achievable on the TFL has been less than determined during the previous timber supply review and provides an assessment of the variables and conditions affected operations on the TFL. I will discuss this further under '**Reasons for Decision**'. Under '**Implementation**', I have requested that the TFL holder and Ministry staff collaborate to develop an accurate and responsive area-based harvest reporting system.

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

Alternative rates of harvest

The TFL holder provided two forecasts showing alternative rates of harvest where the initial harvest level was set above the base case level. In both cases the projected harvest level decreases over time to levels below the base case and then increases above the base case level.

A third alternative projection showed that base case level could increase to 140 hectares per year in the seventh decade of the projection and then maintained at that level for the remainder of the harvest projection.

I have considered the information about alternative rates of harvest, and discussed this information with FLNRO staff. I accept that the base case harvest flow has provided an acceptable representation of timber supply available on the TFL into the long term.

(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,

Economic and social objectives

The Minister of Forests and Range (now Forests, Lands and Natural Resource Operations) has expressed the economic and social objectives of the Crown in several letters to the chief forester.

The first letter is dated July 4, 2006 (attached as Appendix 4). In this letter, the Minister asked for consideration, during AAC determinations, of the importance of a stable timber supply in maintaining a competitive and sustainable forest industry while being mindful of other forest values. As well, the Minister suggested that the chief forester should consider the local social and economic objectives expressed by the public and relevant information received from First Nations.

With respect to the 2006 letter, I note that in the base case, a primary objective has been to attain a stable, long-term harvest level.

The Minister has also expressed the social and economic objectives of the Crown specifically for the Clayoquot Sound area in a letter to the chief forester, dated September 17, 1996 (attached as Appendix 5).

In consideration of the more specific nature of the objectives for Clayoquot Sound as expressed by the Minister, I have placed more weight on these specific objectives than on the general expressions for the province in the other document.

In the memo regarding Clayoquot Sound, the Minister stated that government recognizes the complex and unique circumstances and history surrounding the development of forest management policy for the Clayoquot Sound, and has accepted the recommendations of the Scientific Panel. The Minister confirmed government's intentions that timber harvesting continue to be one of the forest management objectives for the Clayoquot area and that management of the area be carried out in accordance with both the Forest Practices Code and the recommendations of the Scientific Panel. The Minister specifically expressed the Crown's intention that these objectives should be taken into consideration in AAC determinations for areas which include portions of Clayoquot Sound.

During my consideration of the factors required under Section 8 of the *Forest Act* as well as Section 4 of the Tree Farm Licence Area-based Allowable Annual Cut Trial Program Regulation, I have been mindful of both the local objectives as well as the objectives of First Nations. I have also reviewed the public consultation process undertaken by the district and considered the input received in making my determination. On this basis, I am satisfied that this determination accords with the objectives of Government as expressed by the Minister.

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

Unsalvaged losses

I have considered the information presented regarding the accounting for unsalvaged losses in the TFL and I accept them as appropriate for this determination.

Reasons for Decision

In reaching my AAC determination for TFL 57, I have considered all of the factors presented above and have reasoned as follows.

I have reviewed the licensee's base case described above, and I accept it as an adequate basis from which to assess timber supply for this AAC determination. The licensee projected in its base case that a harvest level of 222 hectares per year that could be maintained over the long term on TFL 57.

As noted earlier in this document, the lack of current growth and yield information presented in the management plan makes it difficult for me to know the expected volume of timber over time, and to assess timber flow dynamics and how they are influenced by various management factors. In particular, it is difficult for me to assess the impact of the projected or actual harvest ages, if younger than culmination ages, on the productivity of stands over time. Although I am satisfied that practices in TFL 57 do not compromise the sustainability of various resource values - due to the required levels of retention and the extensive protections provided for other values - I am concerned that the full benefit of the available timber producing capacity in the context of meeting these other values is not being accessed.

I am also aware that the actual harvest levels in the TFL have been significantly lower than the AAC. This further highlights the concern that the economic opportunities possible on the TFL are not being realized. Or, alternatively, that it is not possible to maintain an economically viable operation within the comprehensive set of management constraints on the TFL.

In addition, I am aware that the pristine watershed areas comprise 25 percent of the THLB and that no harvesting operations have occurred or are planned for the areas in the future. Although the rate of harvesting that could be sustained within these areas is less than within the portions of the land base classified as IRMA, the lack of expected harvesting in a portion of the land base contributing to the timber supply projections poses a significant risk to the ability of the licensee to realize the AAC over time. I am aware that the levels of retention being practiced in the current operating areas of the TFL - largely within area delineated as IRMA - may be than required under the CSLUD and assumed in the base case.

These considerations in summation suggest that the current operating practices in the TFL may over the long term affect licensee's ability to sustain an economically viable harvesting operation at the level projected in the base case.

Given that the base provides an assessment of an even-flow harvest level over the entire forecast horizon, I consider that there is no risk at the current time to a sustainable harvest level in the TFL as a result of setting the AAC at or near the base case projection. However, I strongly caution the licensee to closely monitor practices. In particular, the ability to realize economic return on the TFL will depend on careful planning of harvest over the entire land base, within the context of meeting the management objectives and allowed levels of disturbance outlined under the CSLUD.

Determination

I have considered and reviewed all the factors as documented above, including the risks and uncertainties of the information provided. It is my determination that a timber harvest level for the TFL 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, is 222 hectares per year.

This determination is effective September 14, 2016, 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 or the trial program is terminated under Section 7 of the Tree Farm Licence Area-based Allowable Annual Cut Trial Program Regulation.

If additional significant new information is made available to me, or major changes occur in the management assumptions upon which I have predicated this decision, then I am prepared to revisit this determination sooner than the 10 years required by legislation.

Implementation

In the period following this decision and leading to the subsequent determination, I encourage the licensee to work with FLNRO staff to undertake the tasks and studies noted below. I recognize that the ability to undertake these projects is dependent on available time and funding. These projects are, however, important to help reduce the risk and uncertainty associated with key factors that affect the timber supply in the TFL:

- *economic operability* – I expect the TFL holder to collect harvest performance information to assess economic operability assumptions for the next timber supply review;
- *growth and yield and rotation ages* - I expect the TFL holder to compile and present information on growing stock volume and on the estimated volume at rotation age for TFL 57 in the next timber supply review;
- *silvicultural systems* – I expect the TFL holder to monitor the impact that variable retention is having on timber availability, including the productivity of regenerating stands;
- *not satisfactorily restocked areas* - I expect the TFL holder to collect information on not satisfactorily restocked areas and realized regeneration delays for the next timber supply review; and,

- *harvest reporting* – I request that the TFL holder and ministry staff collaborate to find ways of improving the accuracy and responsive of harvest reporting process for TFL 57.

I expect that during the term of Management Plan No. 2, the licensee will continue to work closely with South Island Natural Resource District staff to ensure that all timber harvesting in the Clayoquot Sound area is a result of, and conforms to, appropriate local planning and forest practices as recommended by the Scientific Panel.



Diane Nicholls, RPF
Chief Forester

September 14, 2016



Appendix 1: Section 8 of the *Forest Act*

Section 8 of the *Forest Act*, Revised Statutes of British Columbia 1996, c. 157, (consolidated to August 24, 2016), 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 tree farm licence areas, community forest agreement areas and woodlot licence areas, 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 determining an allowable annual cut under subsection (1) the chief forester may 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.]

(6) The regional manager or district manager must determine an allowable annual cut for each woodlot licence area, according to the licence.

(7) The regional manager or the regional manager's designate must determine an allowable annual cut for each community forest agreement area, in accordance with

(a) the community forest agreement, and

(b) any directions of the chief forester.

(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 Tree Farm Licence Area-based Allowable Annual Cut Trial Program Regulation

Section 4 of the Tree Farm Licence Area-based Allowable Annual Cut Trial Program Regulation, (current to December 14, 2007) reads as follows:

Section 8 of the Act is varied

- 4**
- (1) When determining the allowable annual cut for a trial management unit, the chief forester, in addition to the matters set out in section 8 (8) (b) to (e) of the Act, must consider the rate of harvesting, based on the amount of land from which timber is to be harvested annually, that may be sustained within the trial management unit, taking into account the following factors, which replace the factors set out in section 8 (8) (a) (i) to (vi) of the Act:
 - (a) the composition of the forest within the trial management unit and its expected rate of growth;
 - (b) the expected time that it will take the forest within the trial management unit, excluding areas that no longer contribute to the productive forest land base, such as areas on which permanent access structures have been constructed, to become re-established after timber is cut, damaged or destroyed;
 - (c) the silvicultural systems and silviculture treatments to be applied within the trial management unit;
 - (d) the constraints on the amount of land available for timber harvesting that reasonably can be expected from use of the trial management unit for purposes other than timber production;
 - (e) any other information that, in the chief forester's opinion, relates to
 - (i) the capability of the trial management unit to produce timber, or
 - (ii) the suitability of areas within the trial management unit for timber harvesting.
 - (2) Despite subsection (1), if the rate of harvesting referred to in that subsection is based in part on the volume of timber that is to be harvested annually, the chief forester must take into account the factors set out in section 8 (8) (a) (i) to (vi) of the Act, to the extent the chief forester determines they affect the volume of timber that may be harvested annually from the trial management unit.
 - (3) In determining an allowable annual cut under subsection (1) the chief forester,
 - (a) in the case of an allowable annual cut, or part of an allowable annual cut, that is based on the amount of land from which timber is to be harvested, may specify a different amount of land for different parts of the trial management unit, for different silvicultural systems, or for different types of timber or terrain, and
 - (b) in the case of an allowable annual cut, or part of an allowable annual cut, that is based on the volume of timber that is to be harvested, may specify a different volume for different parts of the trial management unit, or for different types of timber or terrain,and section 8 (5) of the Act is varied accordingly.

Appendix 3: Section 4 of the *Ministry of Forests and Range Act*

Section 4 of the *Ministry of Forests and Range Act* (current to August 24, 2016) reads as follows:

Purposes and functions of ministry

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

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

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

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

(d) encourage a vigorous, efficient and world competitive

(i) timber processing industry, and

(ii) ranching sector

in British Columbia;

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

Appendix 4: Minister's letter of July 4, 2006



JUL 04 2006

Jim Snetsinger
Chief Forester
Ministry of Forests and Range
3rd Floor, 1520 Blanshard Street
Victoria, British Columbia
V8W 3C8

Dear Jim:

Re: Economic and Social Objectives of the Crown

The *Forest Act* gives you the responsibility for determining Allowable Annual Cuts—decisions with significant implications for the province's economy, communities and environment. This letter outlines the economic and social objectives of the Crown you should consider in determining Allowable Annual Cuts, as required by Section 8 of the *Forest Act*. This letter replaces the July 28, 1994 letter expressing the economic and social objectives of the Crown, and the February 26, 1996 letter expressing the Crown's economic and social objectives for visual resources. The government's objective for visual quality is now stated in the *Forest Practices and Planning Regulation of the Forest and Range Practices Act*.

Two of this government's goals are to create more jobs per capita than anywhere in Canada and to lead the world in sustainable environmental management. The Ministry of Forests and Range supports these objectives through its own goals of sustainable forest and range resources and benefits. In making Allowable Annual Cut determinations, I ask that you consider the importance of a stable timber supply in maintaining a competitive and sustainable forest industry, while being mindful of other forest values.

The interior of British Columbia is in the midst of an unprecedented mountain pine beetle outbreak. Government's objectives for management of the infestation are contained in British Columbia's Mountain Pine Beetle Action Plan. Of particular relevance to Allowable Annual Cut determinations are the objectives of encouraging long-term economic sustainability for communities affected by the epidemic; recovering the greatest value from dead timber before it burns or decays, while respecting other forest values; and conserving the long-term forest values identified in land use plans.

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Minister of
Forests and Range
and Minister Responsible
for Housing

Office of the
Minister

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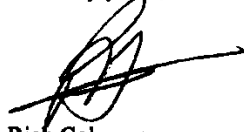
Jim Snetsinger

To assist the province and affected communities in planning their responses to the beetle infestation, it would be best to have realistic assessments of timber volumes that can be utilized economically. Therefore, in determining the best rate of harvest to capture the economic value from beetle-killed timber, I ask that you examine factors that affect the demand for such timber and products manufactured from it, the time period over which it can be utilized, and consider ways to maintain or enhance the mid-term timber supply.

The coast of British Columbia is experiencing a period of significant change and transition. In making Allowable Annual Cut determinations I urge you to consider the nature of timber supply that can contribute to a sustainable coast forest industry, while reflecting decisions made in land and resource management plans.

You should also consider important local social and economic objectives expressed by the public during the Timber Supply Review process, where these are consistent with the government's broader objectives as well as any relevant information received from First Nations.

Sincerely yours,

A handwritten signature in black ink, appearing to be 'RC', with a long horizontal stroke extending to the right.

Rich Coleman
Minister

Appendix 5: Minister's letter of September 17, 1996



File: 10100-01

September 17, 1996

Larry Pedersen
Chief Forester
Ministry of Forests
595 Pandora Avenue
Victoria, British Columbia
V8W 3E7

Dear Larry Pedersen:

Re: Social and economic objectives of the Crown in the Clayoquot Sound area

The government of British Columbia recognizes that the circumstances and history surrounding the development of forest management policy for the Clayoquot Sound area are complex and unique in British Columbia. In particular, government has accepted the recommendations of the report of the Scientific Panel for Sustainable Forest Practices in Clayoquot Sound.

Since these circumstances are specific to the Clayoquot Sound area, it is appropriate to express social and economic objectives of the Crown for this area specifically, in addition to the more generally applicable objectives expressed in the letter dated July 28, 1994, and the memo dated February 26, 1996, from the Minister of Forests to the Chief Forester.

In that respect, first, I confirm that it is government's intention that timber harvesting continue to be one of the forest management objectives for the Clayoquot area. Second, it is government's intention that management of the area be carried out in accordance with both the Forest Practices Code and the recommendations of the Scientific Panel for Sustainable Forest Practices in Clayoquot Sound.

Province of
British Columbia

Minister of
Forests

.../2

Parliament Buildings
Victoria, British Columbia
V8V 1X4

—f— —

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Larry Pedersen
Page 2

These intentions should be read as an expression of the socio-economic objectives of the Crown for the Clayoquot Sound area, for consideration in the determination of allowable annual cuts for those management units which include parts of Clayoquot Sound.

Yours truly,

A handwritten signature in cursive script that reads "David Zirnelt".

David Zirnelt
Minister of Forests