BRITISH COLUMBIA
MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS

Soo
Timber Supply Area

Rationale for Allowable Annual Cut (AAC) Determination

Effective May 12, 2011

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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 chief forester of British Columbia in making my determination, under Section 8 of the *Forest Act*, of the allowable annual cut (AAC) for the Soo timber supply area (TSA). 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 Metro Vancouver–Squamish District and the South Coast Region and the Forest Analysis and Inventory Branch of the BC Ministry of Forests, Lands and Natural Resource Operations (FLNR). I am also grateful to the individuals, First Nations and companies who contributed to this process.

Statutory framework

Section 8 of the *Forest Act* requires the chief forester to consider particular factors in determining AACs for TSAs and Tree Farm Licences (TFLs). Section 8 is reproduced in full as Appendix 1.

Description of the TSA

The Soo TSA lies within the South Coast Region of the FLNR and is administered from the Metro Vancouver–Squamish District office in Squamish. The TSA closely corresponds to the drainages of the lower Squamish and Cheakamus Rivers, which flow into Howe Sound; and the Lillooet River, which flows into Harrison Lake. It is bounded on the west by TFL 38 and the Sunshine Coast TSA; on the north by the Lillooet TSA; and on the south and east by the Fraser TSA.

The total area of the Soo TSA is 909 519 hectares, of which 266 646 hectares are productive forest. The TSA includes many parks and protected areas, including nine new conservancies established since 2000 under the Sea-to-Sky Land and Resource Management Plan (LRMP). The terrain varies from rugged coastal mountains to the flat valley bottoms of the Lillooet River near Pemberton and the lower Squamish River. The major commercial tree species within the timber harvesting land base, in order of abundance, are Douglas-fir, amabilis fir (balsam), western hemlock, western redcedar, and Englemann spruce.

The mature forests of this TSA support about 130 wildlife species that depend on the characteristics of older forests, including two bird species at risk, the northern spotted owl and the marbled murrelet. Other species at risk that depend on or benefit from forests are the bull trout, coastal-tailed frog, red-legged frog, great blue heron, fisher, Pacific water shrew, Keen's long-eared myotis, grizzly bear, and wolverine. Besides the grizzly bear, other large mammal species such as the black bear, moose, elk, mule and black-tailed deer, mountain goat, cougar, and gray wolf also occur in the Soo TSA.

Four major river systems support salmon species (chinook, chum, coho, pink, and sockeye); other salmonids including bull trout, cutthroat trout, Dolly Varden, char,

kokanee, mountain whitefish, rainbow trout, and steelhead; and non-salmonids such as sculpin and stickleback. Although some important fish streams occur in the TSA, fisheries potential is limited in many drainages by rapid stream flow, extreme flow variation, and low temperatures and nutrients resulting from the climate and rugged terrain in the area.

The Soo TSA region has experienced one of the highest population growth rates in the province in recent years. Tourism is by far the largest employer; other important economic sectors include construction, forestry, and the public sector.

One of the most significant changes in the Soo TSA since the last timber supply review was the April 2008 approval by the provincial government of the Sea-to-Sky Land and Resource Management Plan (LRMP). The LRMP provides current and future direction and guidance for the development of the entire Metro Vancouver-Squamish District.

Seven First Nations have asserted traditional territory that includes all or a portion of the Soo TSA: the In-SHUCK-ch Nation, the Lil'wat First Nation, the Musqueam Indian Band, the N'Quatqua Band, the Squamish First Nation, the Stó:lõ Nation, and the Tsleil-Waututh First Nation. Recently the traditional territory of the Sts'ailes' First Nation, formerly the Chehalis Indian Band, has also been confirmed to overlap with the Soo TSA. Many First Nations' reserves and communities exist throughout the valley bottoms of the TSA.

History of the AAC

In 1980, the AAC for the Soo TSA was determined to be 669 635 cubic metres. An adjustment to the TSA boundary in 1982 resulted in an increased AAC of 700 000 cubic metres. In 1989, the AAC was further raised to 705 000 cubic metres to permit harvesting of some deciduous volume under a temporary licence. In January 1992, the AAC was reduced by 19 percent to 580 000 cubic metres. In January 1996, it was further reduced by 13 percent to 506 000 cubic metres. The 1996 AAC determination included 96 599 cubic metres allocated to the Small Business Forest Enterprise Program (SBFEP). In 2000, the AAC was reduced again to 503 000 cubic metres, which included a partition of at least 90 000 cubic metres to the helicopter-operable land base. This AAC excluded all volumes allocated to woodlot licences since the 1996 determination.

The harvestable volume for the area is currently apportioned by the Minister of Forests, Lands and Natural Resource Operations as follows:

Table 1. Apportionment of current AAC

Apportionment	Cubic metres per year	Percentage
Forest Licences – replaceable	231 579	46.0
Forest Licences – non-replaceable	93 771	18.6
BCTS Timber Sale Licence	105 197	20.9
Timber Sale Licences ≤ 10 000 cubic metres per year	19 076	3.8
Community Forest Agreements	45 000	9.0
Woodlot Licences	7 862	1.6
Forest Service Reserve	515	0.1
Total	**503 000**	**100.0**

New AAC determination

Effective May 12, 2011 the new AAC for the Soo TSA will be 480 000 cubic metres. This AAC will remain in effect until a new AAC is determined, which may take place within 10 years of this determination.

Information sources used in the AAC determination

Sources of data and information referenced for this AAC determination include the following:

- *Ministry of Forests and Range Act*, current to April 27, 2011;
- *Forest Act – Regulations and amendments*, current to April 27, 2011;
- *Forest and Range Practices Act – Regulations and amendments*, current to April 27, 2011;
- *Heritage Conservation Act – Regulations and amendments*, current to April 27, 2011;
- *Land Act – Regulations and amendments*, current to April 27, 2011;
- *Protected Areas of British Columbia Act and amendments*, current to April 27, 2011;
- *Resort Timber Administration Act – Regulations and amendments* current to April 27, 2011;
- *Wildlife Act – Regulations and amendments, ;*current to April 27, 2011;
- *Wildlife Management Areas (Squamish Estuary) Regulation,* 2007;
- Letter from the Minister of Forests and Range to the Chief Forester stating the economic and social objectives of the Crown, July 4, 2006;
- Memorandum from the Minister of Forests to the Chief Forester, dated February 26, 1996, stating the Crown's economic and social objectives for the province regarding visual resources;
- Letter from the Deputy Ministers of Forests and of Environment, Lands and Parks, dated August 25, 1997, conveying government's objectives regarding the achievement of acceptable impacts on timber supply from biodiversity management;

- *Procedures for Factoring Visual Resources into Timber Supply Analyses*, BC Ministry of Forests, Forest Practices Branch, 1998;
- *Identified Wildlife Management Strategy, Procedures for Managing Identified Wildlife, Version 2004*, Ministry of Water, Land and Air Protection, 2004;
- *Identified Wildlife Management Strategy, Accounts and Measures for Managing Identified Wildlife, Coast Forest Region, Version 2004*, Ministry of Water, Land and Air Protection, 2004;
- *Spotted Owl Management Plan, Resource Management Plans*: Squamish Forest District, BC Ministry of Environment, Lands and Parks and BC Ministry of Forests, 1999;
- *Site Index Adjustment of the Soo Timber Supply Area*, Timberline Natural Resource Group Limited, March 31, 2008;
- *Summary of Dead Potential Volume Estimates For Management Units Within The Coast Forest Region*, BC Ministry of Forests and Range, 2006;
- *Soo TSA Inventory Audit*, BC Ministry of Forests, Resources Inventory Branch, 1999;
- *Winter Adventure Tourism and Recreation Activities in the Sea-to-Sky Area*, Centre for Tourism Policy and Research, Simon Fraser University, May 2009;
- *Harvest Billing System - Mark Monthly Billing History Reports*, BC Ministry of Forests, 2001-2010;
- *Provincial Logging Residue and Waste Measurement Procedures Manual*, Ministry of Forests and Range, 2010;
- *Sea-to-Sky Land and Resource Management Plan*, Integrated Land Management Bureau, 2008;
- *Coast Forest Action Plan*, Ministry of Forests and Range, 2007;
- Land Use Planning Agreement between The Lil'wat Nation and the Province of British Columbia (as represented by the Minister of Agriculture and Lands), April 11, 2008;
- Land Use Planning Agreement between the In-SHUCK-ch Nation (as represented by the In-SHUCK-ch Nation Interim Government) and the Province of British Columbia (as represented by the Minister of Agriculture and Lands), July 6, 2007;
- Land Use Planning Agreement between The Squamish Nation and the Province of British Columbia (as represented by the Minister of Agriculture and Lands), July 26, 2007;
- Agreement on Land Planning between the Squamish First Nation and the Province of British Columbia (LUA), June 14, 2007;
- Partnership Agreement to develop an Integrated Land and Resource Management Plan for the Indian River Watershed between the Tsleil-Waututh Nation and her Majesty the Queen in Right of the Province of British Columbia (as represented by the Integrated Land Management Bureau of the Ministry of Agriculture and Lands), December 16, 2005;
- Order Establishing Provincial Non-Spatial Old Growth Objectives, Ministry of Sustainable Resource Management, June 30, 2004;
- *Soo Timber Supply Area, Rationale for Annual Allowable Cut (AAC) determination*, BC Ministry of Forests, 2000;
- *Soo Timber Supply Area Timber Supply Review: Data Package*, Ministry of Forests and Range, Forest Analysis and Inventory Branch, 2008;

- *Soo TSA Timber Supply Review: Public Discussion Paper*, BC Ministry of Forests and Range, Forest Analysis and Inventory Branch, 2010;
- *Squamish Community Profile*, District of Squamish, 2010;
- Information received from the public review of the *Soo TSA Timber Supply Review: Public Discussion Paper*;
- *Consultation Record Guide, Soo Timber Supply Area, Timber Supply Review III*, Ministry of Natural Resources Operations, Metro Vancouver–Squamish District, January 2011; and
- Information received at meetings in Squamish with licensee representatives on January 13 and January 26, 2011; and
- Information received at the AAC determination meeting with Ministry of Forests and Natural Resources Operations, held on January 26th and 27th, 2011 in Squamish BC.

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 of inventory and growth and yield data. These are concerned primarily with biophysical factors—such as the rate of timber growth and definition of the land base considered available for timber harvesting—and with management practices.

The analytical techniques used to assess timber supply necessarily are simplifications of the real world. Many of the factors used as inputs to timber supply analysis are uncertain, due in part to variations 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 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 the AAC for the Soo TSA I have considered 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

Rapid changes in social values and in our understanding and management of complex forest ecosystems mean there is always uncertainty in the information used in AAC determinations. In making the large number of periodic determinations required for British Columbia's many forest management units, administrative fairness requires a reasonable degree of consistency of approach in incorporating these changes and uncertainties. To make my approach in these matters explicit, I have set out the following body of guiding principles. In any specific circumstance where I may consider it necessary to deviate from these principles, I will explain my reasoning in detail.

Two important ways of dealing with uncertainty are:

(i) minimizing risk; in respect of which, in making AAC determinations, I consider particular uncertainties associated with the information before me and attempt to assess and address 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, I intend to reflect, as closely as possible, those forest management factors that are a reasonable extrapolation from current practices. It is not appropriate to base my decision on unsupported speculation with respect to factors that could affect the timber supply that 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 I take this uncertainty into account to the extent possible in context of the best available information.

It is my practice not to speculate on timber supply impacts that may eventually result from land-use decisions not yet finalized by government. 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 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 where 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 of legal designations such as those provided for under the *Land Act* and the *Forest and Range Practices Act* (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.

Some persons have suggested that, given the large uncertainties present with respect to much of the data in AAC determinations, any adjustments in AAC should wait until better data are available. I agree that some data are incomplete, but this will always be true where information is constantly evolving and management issues are changing. The requirement for regular AAC reviews will ensure that future determinations incorporate improved information.

Others have suggested that, in view of data uncertainties, I should immediately reduce some AACs in the interest of caution. However, any AAC determination I make must be

the result of applying my judgment to the available information, taking any uncertainties into account. Given the large impacts that AAC determinations can have on communities, no responsible AAC determination can be made solely on the basis of a response to uncertainty. Nevertheless, in making my determination, I may need to make allowances for risks that arise because of uncertainty.

With respect to First Nations' issues, I am aware of the Crown's legal obligation resulting from recent court decisions to consult with First Nations regarding 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, I will consider the information provided to First Nations to explain the timber supply review (TSR) process and any information brought forward respecting First Nations' aboriginal interests including how these interests may be impacted, and any operational plans and actions that describe forest practices to address First Nations' interests, before I make my decision. As I am able, within the scope of my authority under Section 8 of the *Forest Act*, where appropriate I will seek to address aboriginal interests that will be impacted by my decision. When aboriginal interests are raised that are outside my jurisdiction, I will endeavour to forward these interests for consideration by appropriate decision makers. Specific concerns identified by First Nations in relation to their aboriginal interests within the TSA are addressed in various sections of this rationale.

The AAC that I determine 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 my determination does not prescribe a particular plan of harvesting activity within the Soo TSA. It is also independent of any decision by the Minister of Forests, Lands and Natural Resource Operations with respect to subsequent allocation of wood supply.

Overall, in making AAC determinations, I am mindful of my obligation as a steward of the forest land of British Columbia, of the mandate of the Ministry of Forests, Lands and Natural Resource Operations (formerly the Ministry of Forests and Range) as set out in Section 4 of the *Ministry of Forests and Range Act*, and of my responsibilities under the *Forest and Range Practices Act* and *Forest Act*.

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 for timber supply areas (TSA) and tree farm licences (TFL).

For most AAC determinations, a timber supply analysis is carried out using an information package that includes 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 to reflect different starting harvest levels, rates of decline or increase, and potential tradeoffs 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.

Because the base case represents only one in a number of theoretical forecasts, and because it incorporates information about which there may be some uncertainty, the base case forecast 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 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 forecast 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 judgement 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 forecast. Judgements 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 the Soo TSA

The 2010 timber supply analysis ("the analysis") was conducted by staff from the Forest Analysis and Inventory Branch of the Ministry of Forests, Lands and Natural Resource Operations (FLNR), using the spatial forest estate model Forest Service Spatial Analysis Model (FSSAM).

The base case harvest projection was guided by provincial policy objectives of a sustained harvest flow and the smallest possible reductions or increases to the mid-term or long-term harvest. The modelled harvesting priority rules included use of the "highest volume first" rule, ensuring all forest cover constraints were met at all times, and prioritizing stands in the following order: 1) stands with Douglas-fir, western redcedar, or yellow-cedar as the leading species (Fd/C leading stands) that are harvestable using conventional methods, including cable harvesting and ground-based techniques; 2) stands with Douglas-fir, western redcedar, or yellow-cedar as the leading species that are harvestable using a helicopter; and 3) stands with hemlock or amabilis fir as the leading species (H/Ba leading stands) that are harvestable using conventional methods. The base case objectives were to: 1) maintain the current AAC for as long as possible; 2) not reduce the mid-term harvest level below the sustainable long-term harvest level; 3) if necessary, reduce the harvest level

at a maximum rate of 10 percent per decade; 4) minimize the length of any period in which the harvest level fell below the sustainable long-term level; and 5) reach a stable long-term harvest level associated with a stable total merchantable inventory within the area in the TSA that is available for timber harvesting, which is referred to as the "timber harvesting land base" (THLB).

The base case presented in the *Soo TSA Timber Supply Review: Public Discussion Paper* (2010) showed that an initial harvest level of 503 000 cubic metres per year – the level of the current AAC – could be maintained for 30 years, before increasing to 591 000 cubic metres per year. The harvest level increased at year 75 to 676 000 cubic metres per year; at year 100 to 726 000 cubic metres per year; and finally at year 130 to the long-term harvest level of 801 000 cubic metres per year.

After the release of the *Soo TSA Timber Supply Review: Public Discussion Paper*, a model error was found that resulted in an overestimation of the volume contributed by partially–harvested stands. Once the model was adjusted, a revised base case was prepared. In the revised projection, the increase from the initial harvest level of 503 000 cubic metres per year to a mid-term level 24 percent lower than in the base case occurred at year 60 – 30 years later than the first increase in the base case. Furthermore, the long-term harvest level in the revised base case was 24 percent lower – 612 000 cubic metres per year – than the base case long-term harvest level of 801 000 cubic metres per year.

In the 1999 analysis, which supported the last AAC determination in 2000, the base case harvest forecast presented a non-declining even-flow harvest level of 506 000 cubic metres per year for the entire forecast.

The base case in the current analysis incorporates a number of changes in input data and methodology from the base case generated in the 1999 analysis. These differences include:

- a decrease of about 25 percent in the THLB (93 152 hectares *vs*. 123 392 hectares in the 1999 analysis). This is primarily due to implementation of the Sea-to-Sky LRMP in April 2008, including the establishment of new parks, conservancies, and land use zones; construction of the Whistler Olympic Park, sliding centre facilities, and athletes' village; First Nations accommodation measures associated with the 2010 Winter Olympic Games; establishment of five new woodlots and the Cheakamus Community Forest; and implementation of Government Actions Regulation (GAR) orders protecting critical habitat for deer, moose, mountain goats, grizzly bears, and marbled murrelets;
- spatial modelling of landscape-level biodiversity requirements, riparian areas, known archaeological and cultural use areas, roads, and northern spotted owl special resource management zones; and
- finalization and full implementation of the resource management plans for the northern spotted owl.

Due to these changes, the current and previous base case projections are not directly comparable in some respects. I note, however, that while the THLB decreased by about 25 percent, the initial harvest level is similar to the last base case and the long-term harvest level is higher. The major reasons are: 1) in the 1999 base case the helicopter harvest was capped at 90 000 cubic metres per year; whereas, in the current base case it is not capped;

and 2) results from a site index adjustment project produced higher site indices for regenerated Douglas-fir and western hemlock stands.

I have reviewed the assumptions and methodology incorporated in the base case and revised base case; as well as the total growing stock, the harvest contributions from managed and unmanaged stands, the average volumes per hectare, the total area harvested annually, the consideration given to the availability and desirability of various stand types, and the harvest contributions from areas with various physical and economic barriers that limit harvesting. Based on my review, I am satisfied, subject to the qualifications accounted for in various sections of this document, that the information presented to me provides a suitable basis from which I can assess the timber supply for the Soo TSA. In addition to the revised base case forecast, I was provided with alternative harvest flows, a number of sensitivity analyses carried out using the base case as a reference, and supplemental analysis work. This and other information noted below has been helpful in the considerations and reasoning leading to my determination.

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 analysis. Conversely, I will explain my consideration of any assumption that concerns me for any reason, such as lack of new information or clarity in the analysis, apparent divergence from current management practice, or public or First Nations' input.

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

I have reviewed the information for all of the factors required under Section 8 of the *Forest Act*. 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 2.

Where I believe a factor warrants discussion, it is described in the following sections of this rationale.

Table 2. List of factors for which the 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	Parks and conservancies Community forests Woodlots Non-forest, non-productive forest, and non-commercial cover Economic and physical operability Environmentally sensitive areas Unmerchantable forest types Low site unmerchantable
8(8)(a)(i) Composition of the forest and expected rate of growth	Aggregation, existing and managed stand yields Minimum harvestable age Harvest species profile and sequencing Genetic gain

Forest Act section and description	Factors accepted as modelled
8(8)(a)(ii) Expected time for the forest to be re-established following denudation	Regeneration delays Not sufficiently restocked/backlog
8(8)(a)(iii) Silvicultural treatments to be applied	Regeneration regimes Incremental silviculture
8(8)(a)(iv) Standard of timber utilization and allowance for decay, waste, and breakage	Utilization standards Decay, waste, and breakage
8(8)(a)(v) Constraints on the amount of timber produced by use of the area for other purposes	Scenic areas Stand-level biodiversity/wildlife tree patches Riparian management areas Over-wintering bald eagles Community watersheds Cultural heritage resource and archaeological sites Umbrella lands Sea-to-Sky highway accommodation Pine mushroom Resort Municipality of Whistler Clean energy projects East Howe Sound Garibaldi at Squamish
8(8)(b) Short and long-term implications of alternative rates of timber harvesting from the area	Harvest sequencing and alternative harvest flows
8(8)(d) Economic and social objectives of the government	Community dependence
8(8)(e) Abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area	Unsalvaged losses

Section 8 (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**

Land base contributing to timber harvesting

- *general comments*

The total area of the Soo TSA is 909 519 hectares. Of the total TSA area, 266 646 hectares are classified as productive Crown forest land of which 93 152 hectares, or about 35 percent of the productive Crown forest land base, contribute to the timber harvesting land base (THLB).

As part of the process used to define the THLB, a series of deductions was made from the productive forest land base. These deductions account for economic, ecological, or social

factors that operate to reduce the forest area available for harvesting. In reviewing these deductions, I am aware that some areas may have more than one classification. To ensure accuracy in defining the THLB, care must be taken to avoid any potential double-counting associated with overlapping objectives. Hence, a specific deduction for a given factor reported in the analysis or the AAC rationale does not necessarily reflect the total area with that classification; some portion of it may have been deducted earlier under another classification.

For the Soo TSA, I acknowledge that the above approach was used in the timber supply analysis, resulting in a THLB of 93 152 hectares, which means that 173 494 hectares of productive forest (65 percent) are unavailable for timber harvesting for a variety of reasons.

- railways, power lines and roads

During timber supply analysis, productive forest otherwise considered available for harvesting is excluded from the THLB to account for the construction of roads, trails, and landings. Separate estimates are made for existing and future roads to reflect potential changes in road-building practices and road network requirements over time, and the access that the existing network of roads will provide for future harvesting operations.

Classified roads are identified in the forest inventory. These are usually large roads and highways with rights-of-way. These areas are removed from the THLB as part of the deduction for unproductive forest. In order to account for unclassified roads, buffers of 10 metres, 15 metres or 20 metres were applied to both sides of roads and transportation corridors, highways and railroads, respectively. After applying these buffers, an area of 2445 hectares were excluded from the THLB.

As part of BC Hydro's commitments under the Southern St'at'imc Communities Grid Connection Project, the communities of Baptiste-Smith, Skookumchuck (Skatin), Port Douglas, and Tipella received power by connecting to the BC Hydro electrical grid through a new distribution line approximately 30 kilometres long. Connection to the grid was completed in December 2010; however, the area affected by the line was not excluded from the THLB. The actual area associated with the hydro distribution line is unknown and it is not known what proportion of this area, if any, would have contributed to the THLB used in the base case.

Based on the analysis and the advice of district staff, I conclude the assumptions applied in the analysis for existing railways, roads, and power lines were appropriate, with the exception of the lack of a deduction for the Southern St'at'imc Communities Grid Connection Project. This may have resulted in a very small, unquantified overestimation in the harvest levels projected across the entire base case forecast period and I have taken this into account in my determination, as discussed under '**Reasons for Decision**'.

No reductions were applied in the base case to account for future roads, trails, and landings. However, for the previous timber supply analysis (1999), a review of the area occupied by roads, trails and landings for areas harvested after 1987 indicated productive forest losses of 5.4 percent and 3 percent for conventional and helicopter-operable stands, respectively. Application of these factors in the previous analysis resulted in an overall 2.3 percent reduction for future roads, trails and landings.

District staff indicate that due to changes in harvest practices and road construction since 1999, a reduction factor of two percent would be more reflective of current practices.

On this basis, in order to allow for future roads, trails and landings, I will account for about a two percent overestimation in the long-term harvest level projected in the base case, and I will discuss this further in my '**Reasons for Decision**'.

- timber licence reversion

Timber licences (TLs) are old tenures that give a licensee exclusive rights within the licence area to harvest the merchantable timber that was greater than 75 years of age in 1975. TLs do not contribute to the THLB in the TSA until they have been harvested and reach a free-growing condition, at which time they become part of the THLB.

Approximately 1571 hectares of TL area in the Soo TSA remain to be harvested before reverting back to the TSA. This area was modelled in the analysis to be reverted over 30 years in six, five-year increments that were approximately the same size. The TL reversions were applied as "age offsets" to managed stand yields, harvesting the stands with the greatest harvest chance first; that is, Douglas-fir stands on good sites being harvested in five years and hemlock and amabilis fir stands being harvested 30 years from now.

The majority of the area that remains to be reverted, however, is located in TL T0830 which was recently purchased by the Cheakamus Community Forest Limited Partnership (CCFLP) from Western Forest Products Limited. The CCFLP applied to have the existing TL transferred to the community forest and this application was approved April 4, 2011.

The transfer of TL T0830 to the Cheakamus Community Forest reduces the size of the mid- to long-term THLB. This reduction results in about a one percent overestimation of the mid- to long-term timber supply projected in the base case and I will account for this in my determination, as discussed in '**Reasons for Decision**'.

Existing forest inventory

The current vegetation resources inventory (VRI) information is based on a re-inventory project that was completed in 1992 and subsequently updated in 2001 to VRI format. A new VRI project is underway and is expected to be completed late in 2011.

The inventory data were projected to December 31, 2007 for the analysis using the Variable Density Yield Projection model version 6.a (VDYP 6.a). Natural disturbances and harvest openings were updated to the same date using district updates, data from the provincial RESULTS database, and satellite photography.

I consider that the updated inventory forms an acceptable basis for this determination.

Expected rate of growth

- site productivity estimates

Inventory data include estimates of site productivity for each forest stand, expressed in terms of a site index. The productivity of a site largely determines how quickly trees grow,

and the site index is based on the stand's height as a function of its age. The rate of tree growth in turn affects the time seedlings will take to reach green-up conditions, the volume of timber that can be produced, and the ages at which a stand will satisfy mature forest cover requirements and reach a merchantable size.

In general, forest stands between 30 and 150 years of age provide the most accurate measurements of site productivity. Site indices determined from younger stands and older stands may not accurately reflect potential site productivity. In stands younger than 30 years, growth often depends as much on recent weather, stocking density, and competition from other vegetation as it does on site quality. In stands older than 150 years, which have not been subject to management of stocking density, the trees used to measure site productivity may have grown under intense competition or may have been damaged, and therefore may not reflect the true growing potential of the site. This has been verified in many areas of the province where old-growth site index studies suggest that actual site indices may be higher than those indicated by existing data from mature forests.

In his 2000 AAC determination, the chief forester recognized a high probability that site productivity was underestimated in the Soo TSA, and emphasized the need for localized data. As a result, the forest licensees in the TSA hired Timberline Forestry Consultants (now TECO) to complete a site index adjustment (SIA) project. The project was focused on Douglas-fir and western hemlock stands. The report *Site Index Adjustment of the Soo Timber Supply Area* was released in March 2008, and in May 2008 TECO released a database providing the original and adjusted site index for every stand in the productive forest land base.

The SIA results showed that the site index for stands regenerated after harvesting was underestimated in the 1999 analysis by 7.8 metres for Douglas-fir and 7.2 metres for western hemlock. These revisions to the site indices suggest that the mean annual increment at culmination age could increase by 75 percent for managed Douglas-fir stands and 90 percent for managed western hemlock stands. Staff from FLNR reviewed the methodology and results from the project and were concerned about some of the potential sources of uncertainty. However, they found no reason not to accept the results of the project, as they are comparable to SIA projects completed in other coastal TSAs and TFLs.

Initial inspection of the base case results suggested that the site index adjustments probably played a significant role in the forecast of a timber supply that is stable in the short term and increases in the mid term and long term. The results of a sensitivity analysis in which the managed stand yields for Douglas-fir were reduced by 20 percent showed that the harvest contribution from Douglas-fir stands could be maintained for 20 years before decreasing in the mid to long term.

The analysis results suggest that site index adjustment plays a significant role in moderating the mid- and long-term impact of the 25 percent decrease in the size of the THLB since the 1999 analysis. While the sensitivity analysis results indicate that the effect of site index adjustment has no effect on timber supply for the next two decades, I am concerned about the uncertainty associated with this factor. I am aware that the Soo TSA licensees plan to complete both a Vegetation Resources Inventory project and a Terrestrial Ecosystem Mapping project in the next few years. I encourage licensee and FLNR staff to use the results of these projects to verify or revise the site index estimates and carefully

assess their impacts on the projected mid-term and long-term timber supply in the next analysis.

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

As noted in Table 2, I accept as modelled the factors usually considered under this section, and I will not discuss them further.

(iii) silvicultural treatments to be applied to the area:

- silviculture systems

In the analysis, it was assumed that all stands would be harvested by clearcutting. Data from the TSA show that approximately 43 percent of the harvesting was by clearcutting with reserves, 34 percent was by retention harvesting, and 20 percent was by clearcutting with no reserves. District staff also report that there is a growing trend, especially in areas harvested by helicopter, to leave significant amounts of economically unviable timber.

Upon review of the information provided, I note that the base case did not account for the potential impact on regeneration and stand yields due to shading from the remaining overstory trees in areas where reserves, retention, and uneconomical timber are left behind. Although a lack of local data prevents me from estimating the potential effect of overstory shading on understory growth, I am concerned that this may result in downward pressure on the mid- to long-term timber supply.

Due to the lack of information and the fact that overstory shading does not affect short-term timber supply, I will not account for a decrease in stand productivity that would result in a downward pressure on the mid- to long-term timber supply. To assist with future analyses, however, I request that district and FAIB staff collaborate in examining the growth performance of young stands in the Soo TSA; including investigating relevant research results, the extent to which they have been incorporated in the models used in the analysis, and operational results from the field.

(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:

- dead potential volume estimates

Under the log grading system used in the 1999 analysis, a log was scaled according to whether the tree it came from was alive or dead at the time of harvest, and logs from dead trees were not charged to the AAC. Under the grading system now in use, grades are based on the size and quality of logs at the time they are scaled, without regard to whether they were alive or dead when harvested. Dead trees that are potentially merchantable ('dead potential' trees) therefore should now be accounted for in timber supply determinations. This is not reflected in the base case, however, as the VDYP model used to estimate existing stand volume does not account for dead potential volume.

The best source of data regarding dead potential timber in the Soo TSA is a 1999 audit by the FLNR of the Soo timber inventory. Data from that audit indicated that dead potential volume is about 4.5 percent of the total live volume for the forested land base over 60 years of age in the TSA. That estimate was drawn mainly from stands that were naturally

established following wildfires, other stand-replacing disturbances, or senescence of old growth, and such stands would have contained significant numbers of large, dead trees. It probably overestimates the proportion of dead potential volume in younger stands that have been or will be established following logging. Furthermore, district staff report that the utilization of dead potential volume does not reach 100 percent in the Soo TSA.

Based on this information, I conclude that the base case underestimated the timber supply in the short term because it did not account for dead potential volumes. However, the contribution of dead potential volume to the actual volume harvested is uncertain but it is likely to fall between zero and 4.5 percent and I will account for this as discussed in '**Reasons for Decision**'.

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

Integrated resource management objectives

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

- *landscape-level biodiversity*

Biodiversity is defined as the full range of living organisms, in all their forms and levels of organization. It includes the diversity of genes, species, and ecosystems, and the evolutionary and functional processes that link them. Biodiversity in a given management unit is usually assessed and managed at the level of both the forest stand and the landscape. Although some general forest management practices can broadly emulate the natural processes within most ecosystems, more often a variety of practices is needed to represent the different natural disturbance patterns under which ecosystems have evolved.

A major consideration in managing for biodiversity at the landscape level is leaving sufficient and appropriately located mature forests for species dependent on, or strongly associated with, old-growth forests. At the stand level, retention of wildlife tree patches and coarse woody debris are the major biodiversity concerns. Maintenance of rare or threatened ecosystems, as represented by plant communities on the red- and blue-lists of the Ministry of Environment (MOE), is another issue addressed in certain areas under the identified wildlife provisions of the FRPA.

As noted in Table 2, I accept the modelling assumptions applied in the base case for stand-level biodiversity.

Objectives for landscape-level biodiversity can be achieved by maintaining forests with a variety of patch sizes, seral stages, and forest stand attributes and structures across a variety of ecosystems and landscapes. Managing for biodiversity in part is based on the principle

that maintaining these conditions, together with connectivity of ecosystems and maintenance of forest interior conditions in large stands, will provide for the habitat needs of most forest and range organisms. A major consideration in managing for biodiversity at the landscape level is leaving sufficient and reasonably located patches of old-growth forests for species dependent on old-growth forests or strongly associated with them.

Through approved landscape unit plans, Old Growth Management Areas (OGMAs) have been established legally for 12 of 19 landscape units in the Metro Vancouver-Squamish District; and draft OGMAs have been identified on the remaining seven landscape units. Timber harvesting is generally prohibited within legally established OGMAs. Licensees in the Soo TSA currently treat draft OGMAs as if they have been legally established, thus no harvesting is occurring in them.

Because timber harvesting is generally not permitted in OGMAs, the established and draft OGMAs within the Soo TSA were excluded from the THLB in the analysis. The OGMA area totalled 19 170 hectares, net of areas excluded for other reasons.

During the Sea-to-Sky LRMP process, the parties recognized that there might be a potential to relocate some OGMAs in all landscape units to reduce the timber supply impacts of the LRMP and an expected new habitat plan for the spotted owl. The principle behind this was that the landscape-level biodiversity objectives of OGMAs must still be achieved, but if some could be relocated to areas where timber harvesting was already constrained by other factors, additional timber supply could be made available. Overall, this process, which is now underway, is expected to free up some THLB, possibly in the order of 2 – 4 percent in the near future. In addition, as part of the negotiations to create the Mkwal'ts conservancy, the parties agreed to move all potentially operable OGMAs in Billygoat Creek into the Mkwal'ts conservancy. These changes have yet to be completed, but according to district staff may be completed soon.

The actual area of OGMAs that can be relocated is currently unknown, therefore, it is not possible to accurately predict the resultant increase in unconstrained THLB. Consequently, I have no specific estimate of the potential increase in the THLB beyond what was assumed in the base case. Given the relocation of OGMAs has not been completed and the lack of information regarding the influence on timber supply, I will not account for this factor in the current determination.

However, given the likelihood that relocation of OGMAs will have an influence in the short-term timber supply for the TSA, I request that district staff work with forest licensees to refine the OGMAs currently designated in the Soo TSA, moving them into otherwise constrained areas wherever appropriate. These changes will likely be completed prior to the next AAC determination and can be reflected in the information used in the supporting timber supply analysis.

- *wildlife management areas*

Wildlife Management Areas (WMAs) are designated under the *Wildlife Act* and are managed by FLNR. Within WMAs, use of the land or resources is prohibited except where authorized by the FLNR Regional Manager. In practice, this means that timber harvesting is not allowed in most WMAs.

In the Soo TSA, the 673 hectare Skwelwil'em Squamish Estuary WMA was established on February 28, 2008. This WMA is intended to allow the maintenance and restoration of significant habitat for fish and wildlife species in the Squamish River estuary. The Skwelwil'em Squamish Estuary Wildlife Management area was accounted for in the base case.

The FLNR has also pursued a WMA for the Pemberton valley wetlands on the floodplain of the upper Lillooet River, due to the significance of the 614 hectares of highly productive wetland and riparian communities found there. The order establishing the Pemberton Valley Wetlands WMA is currently under final review and is expected to be sent for the approval by the Minister of Forests, Lands and Natural Resource Operations soon. The anticipated impact to the THLB is approximately 57 hectares, which was not accounted for in the base case.

Based on the upcoming designation of the Pemberton Valley Wetlands WMA, I conclude that there will be a small downward pressure on the timber supply, equivalent to the impact of removing 57 hectares from the THLB, as discussed in '**Reasons for Decision**'.

- wildlife habitat

The Soo TSA supports numerous wildlife species, including approximately 130 species that depend on the characteristics of older forests. These include four species of amphibians, five species of reptiles, 93 species of birds and 28 species of mammals. Two bird species at risk that depend on old forests, the northern spotted owl and the marbled murrelet, occur in the TSA. Other species at risk that depend on or benefit from forests are the bull trout, coastal tailed frog, red-legged frog, great blue heron, fisher, pacific water shrew, Keen's long-eared myotis, grizzly bear, and wolverine.

The Conservation Data Centre of BC maintains forest district tracking lists that name those species and plant associations considered to be at risk and which are known to occur, strongly expected to occur, or which have occurred in the past within a given district. The Identified Wildlife Management Strategy addresses habitat management for forest-dwelling species considered to be at risk.

i) spotted owl habitat

The northern spotted owl is found exclusively within the temperate coniferous forests of western North America, with its entire Canadian distribution limited to southwestern British Columbia. In 1986, the spotted owl was designated by the Committee on the Status of Endangered Wildlife in Canada as endangered. Some of the estimated 100 pairs of owls that were thought to exist in southwestern BC at that time were in the Soo TSA.

An extensive planning process for the management of spotted owl habitat was conducted jointly by the former Ministry of Forests and Ministry of Environment, Lands and Parks, culminating in the release of the Cabinet-approved Northern Spotted Owl Management Plan (SOMP) in May 1997. The SOMP includes permanent protection of potentially suitable owl habitat in existing and new protected areas, as well as 16 Special Resource Management Zones (SRMZs) established under the *Forest Practices Code of BC Act* that are intended to allow for constrained timber harvesting in order to meet owl habitat objectives. The SOMP also applies to 'matrix' areas—certain areas outside the SRMZs and protected areas that contained owls—which are intended to be phased out by 2047.

Eight of the 16 SRMZs, as well as two matrix areas, occur in the Soo TSA. Resource management plans, which identify landscape-level and stand-level management strategies to protect suitable owl habitat and to provide forestry, economic, and employment opportunities, were completed in May 1999 for five of the eight SRMZs in the Soo TSA. There are no requirements for resource management plans to be developed for the other three SRMZs in the Soo TSA.

The province has issued a notice under the *Forest Planning and Practices Regulation* for the spotted owl in the Metro Vancouver-Squamish District. The notice indicates the amount, distribution, and attributes of habitat required for this species that need to be addressed in Forest Stewardship Plans (FSP). These requirements are based on the 1997 SOMP.

The SOMP's provisions for timber harvesting in the various components of SRMZs and matrix areas are complex, and were laid out in detail in the supporting materials provided to me by the district for this determination. The resulting impact on the productive forest land base was the removal of 11 911 hectares to account for spotted owl management. I am satisfied that the analysis has provided adequate and appropriate accounting for spotted owl habitat, and will make no further adjustments on this account.

I am aware, however, that a revised habitat plan for the spotted owl is being developed by the provincial government, using the principle of 'no net loss' to both the THLB and to spotted owl habitat as compared to the SOMP. The new habitat plan is expected to provide greater assurance of access to the timber resource for licensees in certain areas of the Soo TSA, hence harvesting performance under the new owl plan is anticipated to improve. The current draft version of the new plan has the support of licensees in the Soo TSA.

Because the provisions for the spotted owl in the Soo TSA affect so much habitat and constrain the harvesting flexibility available to licensees over such a large area, I strongly encourage the agencies to complete the new habitat plan as soon as possible, to provide more operational flexibility to the Soo licensees.

ii) wildlife habitat areas

In the Soo TSA, approximately 31 735 hectares of wildlife habitat areas have been established under the FRPA to protect habitat for the grizzly bear and the coastal tail frog; 1893 hectares of which were deducted from the THLB after accounting for previous deductions. In addition, a notice is in place under the *Forest Planning and Practices Regulation* requiring protection of nesting habitat for the marbled murrelet. Draft wildlife habitat areas have been located to cover the marbled murrelet nesting habitat, and Soo TSA licensees are not proposing to harvest timber from the draft WHAs. Accordingly, those areas were excluded from the THLB in the base case.

I conclude that the protection of grizzly bear, coastal tailed frog, and marbled murrelet critical habitat has been appropriately accounted for in the base case.

iii) ungulate winter range

Under the ungulate winter range provisions of the FRPA, 66 535 hectares of important winter ranges for mountain goat, black-tailed deer, and moose have been protected in the

Soo TSA. Of this total area, 4778 hectares were withdrawn from the THLB after accounting for previous netdowns for other purposes.

The base case accounted for the restrictions on timber harvesting currently in effect in the ungulate winter ranges, but the FLNR has recently indicated that approximately 342 hectares of deer winter range located in the Snowcap, Douglas, and Kakila Creek watersheds are to be changed from 'no timber harvesting' to 'rotational harvesting' as part of the negotiations leading to establishment of the Mkwal'ts conservancy. Once completed, this change in the provisions for the Snowcap, Douglas, and Kakila Creek deer winter ranges is expected to result in a small amount of additional timber being available for harvesting.

Based on this upcoming change to the ungulate winter ranges, I conclude that the base case underestimated the timber supply by an unquantified but small amount. I will discuss this further in my '**Reasons for Decision**'.

- Sea-to-Sky Land and Resource Management Plan

The Sea-to-Sky LRMP is a sub-regional land use plan covering a large portion of the Metro Vancouver-Squamish District, which includes the Soo TSA and TFL 38. The public planning process for the LRMP began in 2001 and led to the development of a consultation draft of the LRMP that was based upon stakeholder recommendations from a multi-sector public planning forum. In 2005, the provincial government began negotiations with First Nations to reconcile First Nations' land use interests with the general management direction contained in the consultation draft of the Sea-to-Sky LRMP. Government-to–government land use agreements were reached between the Province and the Squamish Nation, In-SHUCK-ch Nation, and Lil'wat Nation; and a partnership agreement was reached between the Province and the Tsleil-Waututh Nation. The land use direction contained in these agreements was integrated into the Sea-to-Sky LRMP.

Although a formal agreement was not reached with the N'Quatqua Nation, the Province made a commitment to engage with the N'Quatqua once they were ready.

The Minister of Agriculture and Lands approved the Sea-to-Sky LRMP in April 2008. The LRMP provides general management direction for land and resource values throughout the plan area, and area-specific direction to address the values in particular land use zones. These include:

- 'All Resource Uses Permitted' Zone comprised of the Frontcountry Area and Cultural Management Areas (47 percent of the LRMP total area);
- Protected areas comprised of existing provincial parks and nine new Conservancies (26 percent of the LRMP total area); and
- Wildland zone, in which mining and tourism are permitted (27 percent of the LRMP total area).

The Frontcountry Area follows the major transportation corridors and allows intensive public and commercial recreational use. Visual quality and recreation are the primary management objectives in the Frontcountry Area.

Cultural Management Areas are the outcome of the government-to-government land use planning agreements with First Nations. These areas have high First Nations cultural values, and development and use of these areas must be conducted in a manner that

protects First Nations cultural heritage resource values. The Sea-to-Sky LRMP Land Use Objectives Order, issued by the Ministry of Forests, Lands and Natural Resource Operations came into effect April 14, 2011. This order established land use objectives for First Nations Cultural Places, Cultural Management Areas, Floodplain Management Areas, and specific riparian areas.

New Conservancies have been identified to protect the high value of these areas to First Nations and the public. Industrial resource development activities such as commercial logging, mining, hydroelectric development, and new roads are not permitted in the Conservancies. The Conservancies have been legally established under the *Protected Areas of British Columbia Act.*

The Wildland Zones allow for tourism and mining development but do not allow for commercial timber harvesting or the development of infrastructure (including transmission lines) related to commercial wind or run-of-river clean energy projects. The Sea-to-Sky Wildland Area Order, issued by Cabinet came into effect on April 14, 2011. This order legally established the boundaries of 45 Wildlands in the Sea-to-Sky Area area covered by the Soo TSA and TFL 38 (the old Squamish Forest District).

In the base case, all elements of the Sea-to-Sky LRMP that affected the forestry land base or harvesting practices, except four Floodplain Management Areas, were accounted for through land base exclusions or other allowances. Although the Floodplain Management Areas were not modelled in the analysis, the district advises that for the most part they cover areas outside the THLB, with only 254 hectares overlapping with the THLB. Based on a review of the location and the modelling assumptions associated with these areas, the timber supply analyst who prepared the analysis concluded that these areas had no impact on the THLB.

Based on my review of the information used in the base case, I conclude that the requirements of the Sea-to-Sky LRMP were modelled appropriately and I will make no adjustment to the base case on this account.

-*Whistler Mountain and Blackcomb Controlled Recreation Areas*

Effective April 16, 2008 both Whistler Mountain Resort and Blackcomb were defined as Controlled Recreation Areas under the Controlled Recreation Regulation of the *Resort Timber Administration Act*. This enabled officials of the former Ministry of Tourism, Culture and the Arts to authorize timber harvesting and associated actions for the purposes of resort development.

Although much of the area officially designated as controlled recreation areas is legally available for harvest, district staff advise that it is likely that the amount of harvest would be considerably constrained by concerns related to recreational activities and visual aesthetics. Since the establishment of the controlled recreation areas, timber harvesting mainly has been limited to thinning of forest stands to provide for community protection under the Fire Smart program.

In the analysis, no netdown factor was applied to the THLB to account for the controlled recreation areas. The district reports, however, that the areas contain only small amounts of THLB that have not been accounted for in previous netdowns. Based on this advice,

I conclude that the lack of accounting for controlled recreation areas in the base case represents a negligible effect on the timber supply.

- recreation

The Sea-to-Sky corridor area of the Soo TSA is known worldwide for its extensive recreational opportunities; some of which include mountaineering, Nordic and alpine skiing, mountain biking, fishing, golfing, and hiking. The area hosted over 78,000 back-country visits by winter recreation users between January and May 2008.

In the analysis, many recreation activities were accounted for in the land base netdowns for provincial parks and conservancies. The designation of wildland zones, as well as restrictive visual quality objectives resulting from the Sea-to-Sky LRMP process, also recognized some of the recreation pressures on the THLB. In addition, polygons designated for use, recreation and enjoyment for the public were removed from the land base as an ownership netdown.

The analysis did not apply a netdown for environmentally sensitive areas (ESAs) for recreation, but district staff indicate that the area of such ESAs has increased from 106 hectares of THLB in the 1999 analysis to 307 hectares now. Recreation sites also were not included in the data package for the analysis as many are covered by other land base netdowns. Furthermore, many of these sites are being identified as resource features and respected in Forest Stewardship Plans.

Another recreation pressure not recognized in the base case is protection of mountain bike trails to accommodate public use. For the significant mountain bike trails in Squamish, Whistler, and Pemberton, district staff conducted an analysis in which a 20-metre buffer was applied on both sides of the trails, resulting in a 95 hectare impact to the THLB. Using a 50-metre buffer on these same trails, a 204 hectare impact resulted. As both the demands on the local trails and the public expectation for trail protection increases, there is expected to be a downward pressure on the THLB in the range of these two estimates.

All of these issues highlight the recreational pressure on the land base within the Sea-to-Sky corridor. This will no doubt result in many site-specific decisions to restrict forestry and other land uses in viewscapes, around mountain-biking trails, and in other interface areas.

Based on this information, I conclude that recreation concerns represent a one percent downward pressure on the timber supply in the short term, and somewhat greater than a one percent downward pressure in the long term. This includes accounting for the small number of recreation ESAs that were not accounted for in the analysis.

-real estate developments

A proposed real estate development at Porteau Cove includes 95 hectares of private land that was Crown granted in 2001 but that was not deducted from the THLB in the analysis. District staff also indicate that, once the Porteau Cove subdivision in complete, some nearby Crown timber that was previously considered to be available for aerial harvest is likely to be alienated.

Although the base case did not account for the 95 hectare land base reduction at Porteau Cove, I conclude that it will have a negligible impact on the timber supply.

Other information

- First Nations land use agreements

As part of the planning process for the Sea-to-Sky LRMP, government-to-government negotiations with First Nations took place. Those negotiations resulted in strategic land use planning agreements with the In-SHUCK-ch Nation and the Lil'wat First Nation, an agreement on land planning with the Squamish First Nation, and a partnership agreement with the Tsleil-Waututh First Nation. The potential impacts of these agreements on the timber supply are, for the most part, too uncertain to account for directly at this time. District staff will continue to manage the provisions of these agreements at the operational level; and will consult with First Nations on cutting permits, Forest Stewardship Plans, or other resource development plans that could potentially conflict with these agreements.

The Land Use Planning Agreement between the Lil`Wat First Nation and the Province included a commitment to undertake a process to protect up to 2000 hectares of old-growth forest and sensitive ecosystems in the Lil'wat territory. Of the 2000 hectares, up to a maximum of 1000 hectares could consist of areas currently included as THLB. The agreement was amended on April 22, 2010 to recognize the creation of the Mkwal'ts conservancy, and the amended agreement reduced the amount of old growth required to be protected to 425 hectares of THLB. These 425 hectares of old-growth forest protected by the Lil'wat strategic land-use planning agreement were not accounted for in the base case.

Based on the unquantified impacts that are expected to arise as land-use agreements with First Nations are implemented and on the 425 hectares of old growth not accounted for in the analysis, I conclude that this factor will exert a downward pressure of one percent on the timber supply across the forecast period. I discuss this further in my '**Reasons for Decision**'.

- harvesting performance

From 2001 to 2010, an average of 67 percent of the AAC for the Soo TSA was harvested. The average species contribution was 64 percent from Douglas-fir and cedar and 34 percent from hemlock and amabilis fir.

In the previous analysis, the species harvest profile was projected to be approximately 40 percent Douglas-fir and cedar and 60 percent hemlock and amabilis fir. It is apparent, therefore, that over the last 10 years the harvest of Fd/C leading stands has been disproportional to their contribution to the species profile of the THLB. The fact that the AAC has not been achieved consistently mitigates this disproportionate licensee preference for conventional Fd/C stands, but the relatively low proportion of harvesting in H/Ba leading stands does highlight the operational or economic challenge in accessing such stands.

Given this concern about the economic viability of old growth H/Ba leading stands, a series of sensitivity analyses were conducted. The first sensitivity analysis explored the effect of removing those stands from the harvest and relying only on younger (less than 250 years old) H/Ba stands harvestable with conventional methods and the helicopter accessible Fd/C stands. Results of that model run showed that there was no impact to the base case,

indicating there is sufficient flexibility in the timber supply to allow the model to avoid the older conventional H/Ba stands.

In the second sensitivity analysis, the old growth H/Ba stands were removed for 250 years and the Fd/C stands accessible by helicopter were removed for the first 30 years. Again there was no impact to the base case.

Finally, a sensitivity analysis was performed which attempted to draw 100 percent of the harvest from conventional Fd/C leading stands; and if that could not be met, then to select the helicopter accessible Fd/C stands next, followed by the conventional H/Ba stands. Results indicated that the current AAC could only be maintained for five years if only conventional Fd/C stands (blue line) are harvested in the short term. The base case harvest is therefore predicated on the assumption that, in addition to the conventional Fd/C leading stands, harvesting will also need to occur in both the conventional H/Ba and helicopter accessible Fd/C stands.

In the 1999 analysis, the base case modelled 135 hectares per year harvested from the helicopter acessible land base. To assess the reliability of this estimate, helicopter harvesting performance in the Soo TSA was tracked from 1999 to 2007. Of 1140 hectares harvested using helicopters during that period, 407 hectares were from the helicopter land base, 474 hectares were from the conventional land base, and 259 hectares were from the inoperable land base. Using average volume per hectare data from the TSA, the 666 hectares of helicopter harvesting from the non-conventional land base represents an average of 74 hectares per year. Allowing for the fact that only 67 percent of the AAC was harvested on average, this represents approximately an 82 percent proportional achievement of the helicopter partition that has been in effect since the last determination. I regard this as substantial success on the part of the licensees in meeting the goals of the partition.

Based on these sensitivity analyses and the helicopter harvesting data, I consider that the base case has appropriately considered harvesting performance and that it forms a suitable basis for this determination. I will return to the issue of the helicopter partition in my '**Reasons for Decision**'.

- *Meager Creek landslide*

On August 6, 2010 one of the largest landslides in Canadian history came down Capricorn Creek off the south flank of Mount Meager in the upper Lillooet River valley. An estimated 45 to 55 million cubic metres of material were deposited into Meager Creek and the Lillooet River. The bridge crossing over the Lillooet River into the Meager Creek watershed was destroyed and is not expected to be replaced in the short term. This will eliminate access to a portion of the THLB for the next several years. In addition, an area of 176 hectares of THLB alongside Capricorn and Meager Creeks was essentially eliminated by the landslide.

Neither the loss of access nor the destruction of the 176 hectares of THLB in the Meager Creek watershed were modelled in the analysis.

I conclude that the lack of accounting for these impacts in the base case exerts a very small downward pressure on timber supply across the forecast period, and I return to this in my '**Reasons for Decision**'.

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

As noted in Table 2, I accept that the factors related to this section of the *Forest Act*, were appropriately addressed in the analysis, and I will not discuss them further.

(c) 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

- First Nations consultation

The Crown has a duty to consult with First Nations who are known to have potential aboriginal interests that may be impacted by a proposed decision, including strategic-level decisions such as AAC determinations; and to accommodate those First Nations if necessary. As chief forester 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.

The Soo TSA overlaps with the asserted traditional territories of the following First Nations groups: the In-SHUCK-ch Nation, the Lil'wat First Nation, the Musqueam Indian Band, the N'Quatqua Band, the Squamish First Nation, the Sts'ailes' First Nation, the Stó:lõ Nation, and the Tsleil-Waututh First Nation.

Of the eight groups listed above, all but Musqueam First Nation have held either a Forest and Range Agreement (FRA) or a Forest and Range Opportunity (FRO) agreement with the Crown. These agreements provide for revenue sharing and forest tenure opportunities, and contain provisions for consultation on administrative decisions including AAC determinations. All FRO and FRA agreements have expired, except the FRO agreement with Squamish First Nation.

Recently, the Province introduced the new Forestry Consultation and Revenue Sharing Agreement (FCRSA) to replace the expired FROs and FRAs. Currently only the Lil'wat and Sts'ailes First Nations have signed FCRSAs. District staff are negotiating new FCRSAs with other First Nations who had expired FROs or FRAs.

I am also aware of additional agreements between First Nations and the Province that provide accommodation to First Nations. Such agreements include the Sea-to-Sky Highway Upgrade Project Accommodation Agreement; land use agreements; and the Umbrella Agreement with Squamish Nation, BC Rail, and the Province.

The In-SHUCK-ch Nation is in Stage 5 of the BC treaty process. As part of their Final Agreement, treaty settlement lands within the Soo TSA were offered and were designated under Section 169 of the *Forest Act*. Until March 2010, a Ministerial Order was also in place that restricted most forms of harvesting within the treaty settlement lands, with the exception of harvesting carried out by the In-SHUCK-ch Nation. In March 2010, the order in council designating the treaty settlements lands under Section 169 of the *Forest Act* expired. In October 2010, a new order in council was produced designating the approximately the same area, with minor revisions to the treaty settlement lands. The

Ministry of Aboriginal Relations and Reconciliation is currently preparing a new Ministerial Order for this designated area.

I am aware that the ratification of the In-SHUCK-ch Final Agreement will take some time. In accordance with my guiding principles, I will not anticipate the impact of decisions that have not yet been made, including as the In-SHUCK-ch treaty settlement. When the final agreement is ratified, the treaty settlement lands within the designated area will be deleted from the Soo TSA and the AAC will be adjusted accordingly.

As part of consultation with First Nations the district conducted a preliminary assessment, including a review of information on aboriginal interests and an analysis of the potential impacts the AAC decision might have on those interests. Sources of information included traditional use studies, ethno-historical assessments, Remote Access to Archaeological Data, agreements between First Nation and the Province, and information from past consultation processes. Based on this review, the district undertook consultation at the normal level of the consultation spectrum as outlined in the *Haida* decision.

FLNR district staff initiated consultation on July 25, 2007 in a letter to all First Nations groups with asserted territory overlapping the Soo TSA, except the Sts'ailes First Nation as noted below. District staff subsequently distributed the following to First Nations (except the Sts'ailes): 1) on October 23, 2007, the data package from the 1999 timber supply review for the Soo TSA was provided to the Lil'wat First Nation at their request; 2) on September 12, 2008, the new data package for this determination was sent to all First Nations, with a request for their input; 3) on November 4, 2010, the public discussion paper for this timber supply analysis was sent to all First Nations, with a request for their input; and 4) on December 7, 2010, a letter was sent to all First Nations again requesting their review and comment on the Soo TSA public discussion paper. The review and comment period ended on January 14, 2011. Follow-up letters were sent and phone calls and discussions were held with several of the First Nations to clarify information and to request input.

After the release of the Soo TSA public discussion paper, the district was notified of recent changes to the boundary of the Sts'ailes (formerly Chehalis Indian Band) traditional territory. The new boundary now extends into the Soo TSA. District staff notified Sts'ailes of the Soo TSA timber supply review and asked if they would like to be consulted, but Sts'ailes indicated that consultation was not necessary. District staff assured Sts'ailes that they will be consulted on future decisions that occur in the area of overlap with their traditional territory and the Soo TSA.

In a November 2008 letter, the Lil'wat Nation expressed concern about the inclusion of the Ure Creek watershed in the THLB. Because of its cultural significance, the Ure Creek watershed is included in the province's Land Use Agreement with Lil'wat Nation. The Lil'wat Nation recommended that, until the Province and Lil'wat Nation could reach an agreement on zoning for Ure Creek, the area should be removed from the THLB. District staff responded to the Lil'wat Nation indicating that, since negotiations concerning the Ure Creek watershed were continuing, a sensitivity analysis would be conducted to determine the timber supply impacts of excluding the Ure Creek area from the THLB. In April 2010 the Province and Lil'wat Nation established the Mkwal'ts Conservancy

protecting the Ure Creek watershed, so the Ure Creek watershed area was removed from the THLB for the analysis.

I conclude that district staff engaged at an appropriate level of consultation with First Nations during the timber supply review for the Soo TSA given the aboriginal interests expressed by each First Nation, available information regarding those interests, and the potential impact that this AAC determination may have on them. I note that district staff continue to be available to meet and consult with First Nations on specific issues at the operational planning level.

If new information regarding First Nations' aboriginal interests becomes available that significantly varies from the information that was available for this determination, I am prepared to revisit this determination sooner than the 10 years required by legislation.

- *Minister's letter*

The Minister of Forests and Range (now the Minister of Forests, Lands and Natural Resource Operations) expressed the economic and social objectives of the Crown for the province in a letter to the chief forester, dated July 4, 2006 (attached as Appendix 3). The letter stresses the importance of a stable timber supply to maintain a competitive and sustainable forest industry while being mindful of other forest values. In respect of this, in the base case projection and in all of the alternative harvest flow projections with which I have been provided for reference in this determination, a primary objective in the harvest flow has been to attain a stable, long-term harvest level where the growing stock also stabilizes. In my determination, I have been mindful of the need for the allowable harvest in the short term to remain consistent with maintaining the integrity of the timber supply projection throughout the planning horizon. I have also considered with care the adequacy of the provisions made both in current practice, and assumed in the analyses, for maintaining a range of forest values.

I am therefore satisfied that this determination accords with the objectives of government as expressed by the Minister.

- *public consultation*

The data package for the analysis was released in September 2008, and a discussion paper was released in October 2010 for public review and comment until January 14, 2011. Advertisements were run in Whistler in the Pique newspaper on October 28, 2010 and in Squamish in the Chief newspaper on October 29, 2010.

One letter was received from a member of the public. In addition, staff from the district and from the Forest Analysis and Inventory Branch of FLNR met with a licensee group on January 13, 2011 at the FLNR Metro Vancouver-Squamish district office to review the public discussion paper. A letter was also received from a group of forest licensees representing the renewable licence holders in the Soo TSA on January 13, 2011. Finally, the Chief Forester, District staff, and Forest Analysis and Inventory Branch staff met with a licensee group representing the renewable licence holders in the Soo TSA on January 26, 2011; again in the district office.

I have carefully considered the comments from the public, including the forest licensees, and I note that local objectives have been an important consideration in my determination of an AAC for the Soo TSA.

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

As noted in Table 2, I accept as modelled the factors usually considered under this section, and I will not discuss them further.

Reasons for Decision

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

As discussed in '*Base case for the Soo TSA'*, correction of an error in the timber supply model resulted in revision of the base case. The following discussion relates to the revised base case, which projected an initial harvest level of 503 000 cubic metres per year – the level of the current AAC – could be maintained until year 60 before increasing to 555 000 cubic metres per year. At year 75, the harvest level increased to 585 000 cubic metres per year. The long-term harvest level of 612 000 cubic metres per year was reached at year 130. I am satisfied that the assumptions applied in the revised base case forecast for the majority of the factors applicable to the Soo TSA were appropriate, as detailed in Table 2. Following is my consideration of those factors for which I consider it necessary in this determination to further take into account implications to the timber supply projected in the revised base case forecast.

In determining an AAC for the Soo TSA, I have identified a number of factors which, considered separately, indicate that the timber supply may be either greater or less than that projected in the revised base case. Some of these factors can be readily quantified and their impact on the harvest level assessed with reliability. Others may influence timber supply by adding an element of risk or uncertainty to the decision, but cannot be reliably quantified at this time.

I have identified the following factors in my considerations as indicating that the timber supply projected in the revised base case may have been overestimated:

- *railways, power lines and roads*—inclusion of the area associated with the Southern St'at'imc Communities Grid Connection Project represents a very small, unquantified downward pressure on the harvest levels across the forecast period, and the lack of a deduction for future roads represents a downward pressure of approximately two percent in the long term;
- *timber licence reversion*— addition of Timber Licence T0830 to the Cheakamus Community Forest resulted in an 808-hectare overestimation in the mid- to long-term THLB, resulting in about a one percent downward pressure on the mid- to long-term timber supply;
- *wildlife management areas*—the upcoming designation of the Pemberton Valley Wetlands WMA will exert a very small downward pressure on the projected timber supply, equivalent to the impact of removing 57 hectares from the THLB;
- *recreation*—because environmentally sensitive areas for recreation were not accounted for in the base case, mountain bike trails increasingly are being protected with buffers, and other site-specific decisions are being made to protect recreation values by restricting forestry operations, I concluded that recreation concerns represent a

one percent downward pressure on the timber supply in the short term, and somewhat greater than a one percent downward pressure in the long term;

- *First Nations land use agreements*—the unquantified impacts that are expected to arise as land use agreements with the First Nations are implemented, and the 425 hectares of old-growth forest protected by the Lil'wat strategic land use planning agreement, will exert a downward pressure of one percent on the timber supply across the forecast period; and
- *Meager Creek landslide*—the lack of accounting in the base case for the 176 hectares of THLB alongside Capricorn and Meager Creeks that were essentially eliminated by the Meager Creek landslide will exert a very small downward pressure on timber supply across the forecast period.

I have identified the following factors in my considerations as indicating that the timber supply projected in the base case may have been underestimated:

- *dead potential volume estimates*—harvesting of dead potential volume is expected to add between zero and 4.5 percent to the timber supply in the short term, as compared to the base case forecast; and
- *ungulate winter range*—the change from 'no timber harvesting' to 'rotational harvesting' on approximately 342 hectares of deer winter range located in the Snowcap, Douglas, and Kakila Creek watersheds will result exert an upward pressure on the timber supply of an unquantified but small amount.

I have reviewed the small unquantified upward and downward pressures on the harvest levels projected in the revised base case and conclude that given the small magnitude and the uncertainty associated with these factors, I will not consider them further in this determination.

In consideration of the above, I conclude that the quantified downward pressures—railways, power lines and roads; timber licence reversion; recreation; and First Nations considerations—in combination result in about a five percent overestimation of the timber supply. The factor exerting quantified upward pressure on the timber supply—dead potential volume estimates— is sufficiently uncertain that I do not consider it appropriate to account for it in this determination.

Also in this determination, I remove the partition in the existing AAC of at least 90 000 cubic metres per year to the helicopter-operable portions of the land base. I am mindful of the reasoning employed by the previous chief forester in setting the partition, but I consider it to be unnecessary in this determination for two reasons. First, as discussed above in *Harvesting performance*, the Soo licensees have demonstrated good performance in harvesting helicopter-operable timber in the last 10 years; and second, the capacity of the forest industry in the Soo TSA to harvest the full AAC was significantly reduced during the recent economic recession. Unless there is a major surge in markets for traditional forest products or a change in government policy to allow exports of raw logs from the Soo TSA, the local forest companies appear unlikely to reach full harvesting capacity in the short term. There appears, therefore, to be no undue risk of over-harvesting high value timber in areas that are harvestable with conventional methods. This matter should be reviewed at the next determination, however, taking into consideration the proportions of high value and easily accessible timber harvested in the interim.

I note that the timber harvesting land base in the current analysis, as compared to the 1999 analysis, was reduced by 24.5 percent; and I am mindful that the impact of this reduction largely has been mitigated by a greater harvest contribution from the helicopter land base and the site index adjustments that were accounted for in the base case. I conclude that the expectation of a substantial amount of helicopter harvesting is supported by the licenses' performance since the last determination; and I accept that the site index adjustments were appropriate, based on reviews by FLNR experts and experience in other coastal units.

I am aware that the base case and revised base case forecast a short-term timber supply of 503 000 cubic metres per year, equivalent to the existing AAC, from a land base that has been reduced by, among other factors, the removal of the Cheakamus Community Forest and several woodlots from the THLB. Therefore, the initial harvest level of 503 000 cubic metres represents a projected increase in the AAC for the Soo TSA, as separate AACs are now assigned to those other tenures. Given the estimated five percent downward pressure on the timber supply resulting from the factors listed above, plus other pressures that I expect to arise in the next few years as the Sea-to-Sky LRMP and agreements with First Nations are implemented, I consider the base case forecasts overestimate the timber supply for the TSA.

When I take into account the over- and underestimation of harvest levels, sensitivity analyses, uncertainties, and risks, I conclude that it is appropriate to determine an AAC for the Soo TSA of 480 000 cubic metres per year.

Determination

I have considered and reviewed all the factors as documented above, including the risks and uncertainties of the information provided. It is my determination that a timber harvest level that accommodates objectives for all forest resources during the next 10 years and that reflects current management practices as well as the socio-economic objectives of the Crown, can be best achieved in the Soo TSA by establishing an AAC of 480 000 cubic metres.

In this determination, I also remove the partition in the existing AAC of at least 90 000 cubic metres per year to the helicopter operable portions of the land base.

This determination is effective May 12, 2011, and will remain in effect until a new AAC is determined, which may take place within 10 years of the effective date of this determination.

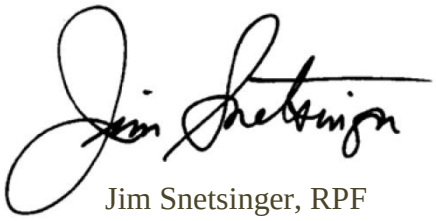
If additional significant new information is made available to me, or major changes occur in the management assumptions upon which I have predicated this decision, then I am prepared to revisit this determination sooner than the 10 years required by legislation.

Implementation

In the period following this decision and leading to the subsequent determination, I encourage forest licensees and staff from FLNR to undertake the tasks and studies noted below that I have also mentioned in the appropriate sections of this document. I recognize that the ability of staff to undertake these projects is dependent on available staff resource

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 TSA:

- *Forest inventory and site productivity estimates*: I encourage the licensees and FLNR staff to use the results of the planned Vegetation Resources Inventory and Terrestrial Ecosystem Mapping projects to verify or revise the site index estimates and carefully assess their impacts on the projected mid-term and long-term timber supply in the next analysis;
- *Silviculture systems*: Because of uncertainty about potential limitations on regeneration and stand yields due to shading from overstory trees such as reserves, retention, and uneconomical timber, I request the district and FAIB staff to collaborate in examining further the growth performance of young stands in the Soo TSA. This includes investigating relevant research results, the extent to which they have been incorporated in the models used in the analysis, and operational results from the field;
- *Landscape-level biodiversity*: I request the district staff to work with forest licensees to refine the old growth management areas currently designated in the Soo TSA, moving them into otherwise constrained areas wherever appropriate; and
- *Spotted owl habitat*: Because the provisions for the spotted owl in the Soo TSA affect so much habitat and constrain the harvesting flexibility available to licensees over such a large area, I strongly encourage the agencies to complete the new habitat plan as soon as possible, to provide more operational flexibility to the Soo licensees.



Jim Snetsinger, RPF
Chief Forester

May 12, 2011

Appendix 1: Section 8 of the *Forest Act*

Section 8 of the *Forest Act*, as of April 27, 2011, 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 *Ministry of Forests Act*

Section 4 of the *Ministry of Forests and Range Act*, as of April 27, 2011, reads as follows:

Purposes and functions of ministry

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

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

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

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

(d) encourage a vigorous, efficient and world competitive

(i) timber processing industry, and

(ii) ranching sector

in British Columbia;

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

Appendix 3: Minister's letter of July 4, 2006

BRITISH COLUMBIA

JUL 0 4 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.

Minister of Forests and Range and Minister Responsible for Housing

Office of the Minister

Mailing Address:
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Telephone: 250 387-6240
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Location:
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Victoria BC V8V 1X4
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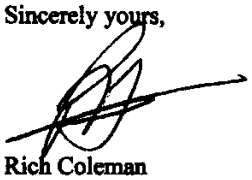
Jim Snetsinger

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,



Rich Coleman
Minister