

**Timber
Supply
Review**

Boundary Timber Supply Area

P u b l i c D i s c u s s i o n P a p e r

November 2000



**BRITISH
COLUMBIA**

Ministry of Forests

Introduction

The British Columbia Forest Service is reviewing the timber supply for all timber supply areas (TSAs) and tree farm licences (TFLs) in the province. This review examines the impacts of current forest management practices on the timber supply, economy, environment and social conditions of the local area and the province. Based on this review, the chief forester may, if necessary, adjust the allowable annual cut (AAC) for the Boundary TSA.

By law, the chief forester must review and set new AACs for all TSAs and TFLs every five years. The objectives of the Timber Supply Review are:

- to identify relevant current forest management practices and assess their effects on short- and long-term timber supply, and identify related economic, environmental and social factors
- to identify where improved information is required for future timber supply forecasts
- to provide the chief forester with information to make any necessary adjustments to the AACs for the next five years

Timber Supply Review in the Boundary TSA

The Boundary TSA Data Package and Information Report were released in September 1999. Following the release, the documents were reviewed by licensees, the public and government agencies. The B.C. Forest Service has now completed the 2000 Boundary TSA Analysis Report which is summarized in this discussion paper. The objectives of this document are to provide British Columbians with an overview of the Timber Supply Review process and harvest level forecasts for the Boundary TSA and to encourage them to provide comments during the 60-day public review period. Public comments will be accepted until Jan.29, 2001.

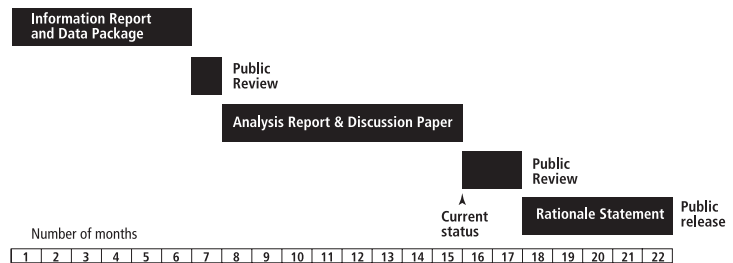
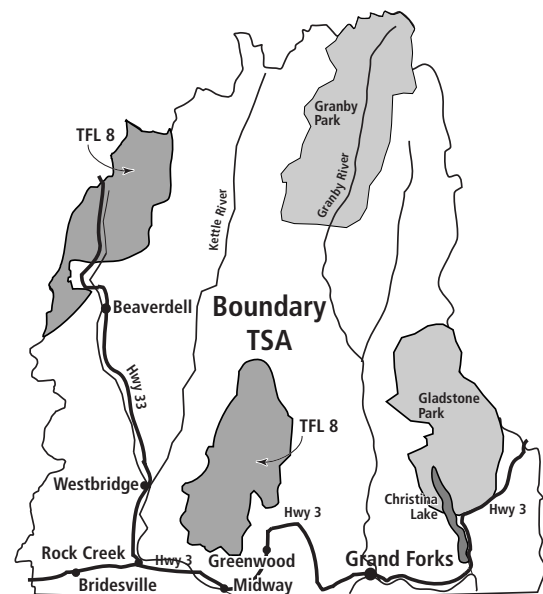


Figure 1. Review process for the Boundary TSA

Before setting a new AAC, the chief forester will review all relevant reports and public input. The chief forester's determination will be outlined in a rationale statement which, along with the summary of public input, will be available to the public upon release. Following the release of the AAC determination by the chief forester, the minister of forests will apportion the AAC to the various licences and programs.

Description of the TSA



The Boundary TSA in southern B.C. covers approximately 580,000 hectares in the western portion of the Nelson Forest Region. The TSA is part of the Boundary Forest District and is administered from the forest district office in Grand Forks. The district covers a larger area which includes TFL 8. This timber supply review does not include TFL 8, which was last reviewed separately in 1997.

** A timber supply area is an integrated resource management unit established in accordance with section 7 of the Forest Act.*

The Boundary TSA is approximately 100 kilometres long and 90 kilometres wide, and encompasses most of the Kettle and Granby River drainages. It is bounded on the west by the Okanagan Highland Range of the Monashee Mountains and on the east by the Christina Range. The TSA's southern boundary is defined by the Canada-U.S.A. border.

The total population of the TSA in 1996 was estimated to be 12,400 people. The City of Grand Forks is the largest community with an estimated 4,000 people. Other communities include Christina Lake, Greenwood, Midway, Rock Creek, Bridesville and Beaverdell.

The natural resources

Numerous natural resources are associated with the forests in the Boundary TSA. These include forest products, minerals, range forage, fish and wildlife habitat, and recreation and tourism amenities.

The forests of the Boundary TSA are fairly diverse, although lodgepole pine stands occupy about 46 per cent of the land base currently considered available for timber harvesting. Larch and Douglas-fir are other dominant species at lower elevations, while Engelmann spruce and subalpine fir dominate significant higher elevation areas. Other less common species include western redcedar, western hemlock, white pine, ponderosa pine, birch and aspen. The timber harvesting land base—the area considered available for harvesting—comprises about 50 per cent of the Boundary TSA.

The forests of the Boundary TSA support a wide variety of wildlife species. More than 320 species may reside or are present in the TSA at some time during the year. Currently, 15 wildlife species considered at risk or regionally significant occur in the Boundary TSA, including northern goshawk, Lewis's woodpecker and grizzly bear. As part of the 1995 Grizzly Bear Conservation Strategy, the province has committed to undertake recovery plans. A recovery plan to address the grizzly bear population in the Kettle-Granby area is one of two pilot projects in southern B.C. that were announced in 1999. Once complete, the plan will outline the steps required to return the population to long-term viability.

The TSA also has numerous lakes and streams that support many species of non-sport fish and sport fish such as rainbow trout, kokanee, bass, walleye, brook trout and brown trout.

Recreational use of forests is high due to the proximity of several provincial parks (including Granby, Gladstone and Conkle Lake parks), as well as numerous smaller parks, recreation sites and trails, including the historic Dewdney Trail. Recreation activities in the Boundary TSA include hiking, mountain biking, hunting, fishing, boating, back-country recreation, snowmobiling, skiing and wildlife viewing.

Land use planning

In 1995, the provincial government released the Kootenay-Boundary Land Use Plan which included the Boundary TSA and resulted in the creation of 16 new parks in the region. The new provincial parks within the Boundary TSA are Gladstone and Granby.

In July 1997, the government approved the Kootenay-Boundary Land Use Plan - Implementation Strategy (KBLUP-IS). In June 2000 a Higher Level Plan (HLP) was drafted which incorporates some of the policies from the strategy. Once the plan is approved it will contribute to: maintaining biodiversity; conserving old-growth forests, wildlife corridors, scenic landscapes, domestic watersheds, and caribou and grizzly bear habitats; restoring fire-maintained ecosystems; enabling logging practices to better reflect natural disturbance patterns; and creating greater certainty for industry and the environment. A 60-day public review of the plan closed in September. Once the plan has been approved by government, it will be legally established.

The chief forester will consider land-use planning information in the upcoming allowable annual cut determination.

Current allowable annual cut

The current allowable annual cut (AAC) of 700,000 cubic metres was set in 1996. This is unchanged from the previous determination.

Socio-economic profile

Regional economy

Overall, the economy of the Boundary TSA is relatively diversified. As Figure 2 shows, the major employment sectors are forestry, the public sector and tourism. Forestry is the largest employment sector, providing about 26 per cent of the labour force. The public sector provides 23 per cent of employment in the TSA. Tourism has demonstrated

growth and investment in recent years and almost 1,000 people—17 per cent of the labour force—are employed in the Boundary TSA's tourism sector.

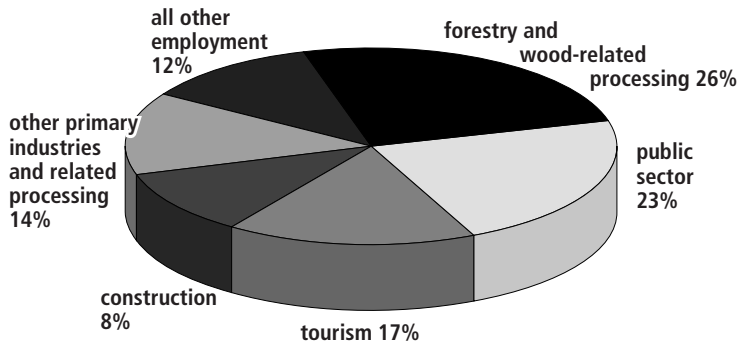


Figure 2.

Total employment by sector—Boundary TSA, 1996

Source: 1996 Census

Forestry supports numerous other jobs in the area through companies and employees purchasing goods and services from local businesses. Each 100 full-time direct forestry jobs in the Boundary TSA are estimated to support another 26 to 48 jobs, depending on the forestry activity (harvesting or timber processing). In comparison, 100 direct jobs in the tourism sector support an estimated seven to 14 indirect and induced jobs.

Table 1 illustrates the estimated contribution of the forest industry associated with the Boundary TSA timber harvest to both the regional and provincial economies. Figures in this table are based on the current AAC of 700,000 cubic metres.

	TSA	Provincial
Direct employment (person years)	663	838
Total employment (person years)	947	1,777
Total employment income (\$ millions per year)	\$39.4	\$68.1
Provincial government revenues (\$1998 millions per year)	n.a.	\$26.9

Table 1. Summary of local and provincial economic information associated with the current AAC.

Timber supply forecasts

A timber supply computer model was used to project several possible timber supply forecasts for the next 250 years. Two forecasts illustrate the effect of current forest management on the timber supply. The forecasts are not recommendations for an AAC. Rather, they will be considered along with all other available and relevant sources of information when the chief forester sets the AAC.

The two forecasts (see Figure 3) are presented in this report for discussion and comparison, and due to areas of uncertainty, the AAC determined by the chief forester may be greater or less than the forecasts. Both forecasts indicate that given current forest management assumptions and existing data, the timber supply for the Boundary TSA is reasonably stable for the short and long term.

One timber supply forecast for the Boundary TSA shows that the current AAC of 700,000 cubic metres could be maintained for 100 years. In the longer term, the current AAC forecast shows that the timber supply could be seven per cent higher and reach a long-term level of 749,000 cubic metres per year.

The second forecast shows that it is possible under the current management regime to maintain the timber supply over the entire analysis horizon at the long-term level of 749,000 cubic metres per year. This second forecast, called the maximum even-flow forecast, suggests that the existing timber inventory and the productive land base are sufficient to support a harvest that is higher than the current AAC.

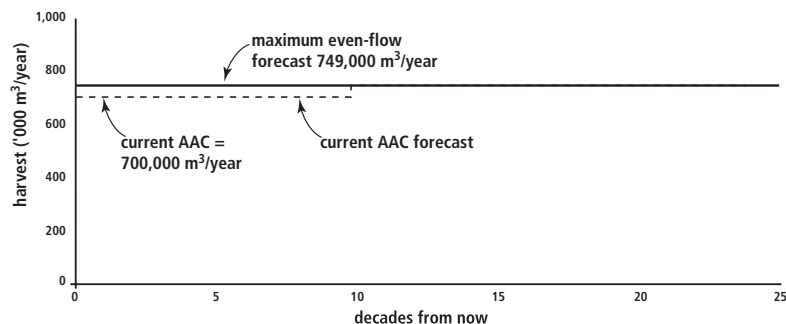


Figure 3. *The current AAC forecast and the maximum even-flow forecasts for the Boundary TSA, 2000*

Several changes have resulted in an increase in projected timber supply compared to the 1996 timber supply review. The size of the timber harvesting land base has been reduced as a result of the creation of the Gladstone and Granby Provincial

Parks and the recognition of riparian management reserves. However, this has been offset by changes as a result of: the availability of better information about silviculture practices; a decrease in estimated unsalvaged losses; refined mule deer winter range requirements; and reductions in regeneration delays and green-up ages.

Since the last determination, two important studies have improved our understanding of forests in the Boundary TSA. In 1998, an inventory audit reported no significant problems with the estimated volume from mature stands. In 1999, district staff completed a study on dense lodgepole pine stands. This study resulted in improving the classification of dense lodgepole pine stands that are currently merchantable, and therefore contribute to the timber harvesting land base.

Sensitivity analyses: examining uncertainty

Because forests are complex and constantly changing, timber supply analysts assess how their timber supply forecast results might be affected by uncertainties in the inventory information and management practices. These uncertainties are generally examined in what are called sensitivity analyses, which the chief forester will consider in determining an AAC. The sensitivity analyses are useful for assessing how any changes in information, or uncertainties and risks might affect timber supply.

In the Boundary TSA, many sensitivity analyses were conducted to examine the stability of the timber supply. Some of the key sensitivity analyses are listed below. For a complete listing, please refer to the 2000 Boundary TSA Analysis Report.

Uncertainty about the size of the timber harvesting land base

The definition of the timber harvesting land base for this analysis involves approximations of the types of forest land available for harvesting, using inventory classifications that themselves contain uncertainty. For the Boundary TSA, there is some uncertainty about the size of the timber harvesting land base due to factors such as the estimation of riparian and wildlife habitat areas, and proposed protected areas.

As Figure 4 shows, if the timber harvesting land base is underestimated in the analysis by 10 per cent, the initial harvest level is projected to increase from the maximum even-flow forecast to 817,000

cubic metres per year and be maintained at that level for 250 years.

If the timber harvesting land base is overestimated by 10 per cent, the maximum even-flow harvest level (749,000 cubic metres) could be maintained for four decades, then decrease by 10 per cent to a new long-term harvest level of 668,000 cubic metres per year.

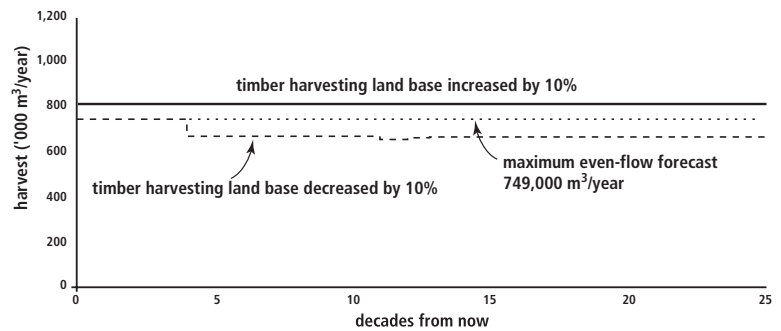


Figure 4 Uncertainty about the size of the timber harvesting land base—Boundary TSA, 2000

Uncertainty in minimum harvestable ages

Minimum harvestable age is an estimate of the time needed for future stands to reach a merchantable condition (the stage where they may be considered for harvest), although many existing stands are harvested at ages above the minimum. Uncertainty exists around estimating this factor because of uncertainty about the growth of regenerated stands, but more importantly because it is difficult to predict future conditions that will determine merchantability.

The sensitivity analysis (see Figure 5) shows that if minimum harvestable ages were 20 years younger than those used in the maximum even-flow forecast, the projected harvest level would not change. If minimum harvestable ages were increased by 20 years, or if they were assumed to reflect the age at which maximum annual growth is occurring, the short- and medium-term harvest level is projected to be 5.7 per cent lower than the maximum even-flow level and about one per cent higher than the current AAC.

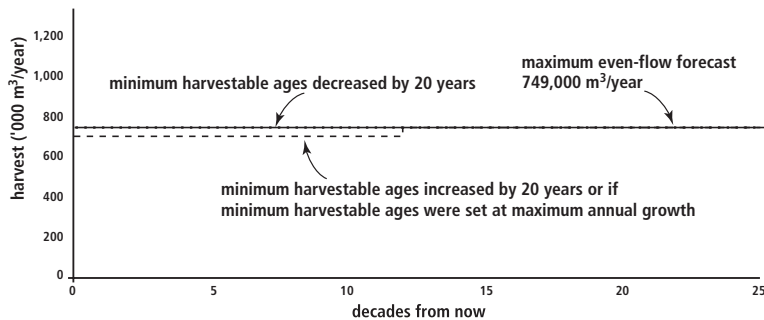


Figure 5 Harvest forecasts showing the effects of changes to the minimum harvestable ages of stands — Boundary TSA, 2000.

Uncertainty regarding implementation of the Kootenay-Boundary Land Use Plan

On June 29, 2000, the provincial government released the Higher Level Plan Draft Order detailing the government's intention to establish a higher level plan under the Forest Practices Code. Once established, the order will declare components of the Kootenay-Boundary Land Use Plan — Implementation Strategy as legal requirements.

The forestry-related components outlined in the Higher Level Plan Draft Order have not been included in the maximum even-flow or current AAC forecast because they are still draft at this time. However, a sensitivity analysis was conducted to examine several of the forestry-related components, including biodiversity emphasis options, mature forest retention targets and forest cover requirements for scenic areas. As shown in Figure 6, the potential impact of these components of the higher level plan indicate that the timber supply could be about four per cent higher than the current AAC level, which is about 2.5 per cent lower than the maximum even-flow forecast over the 250-year analysis horizon.

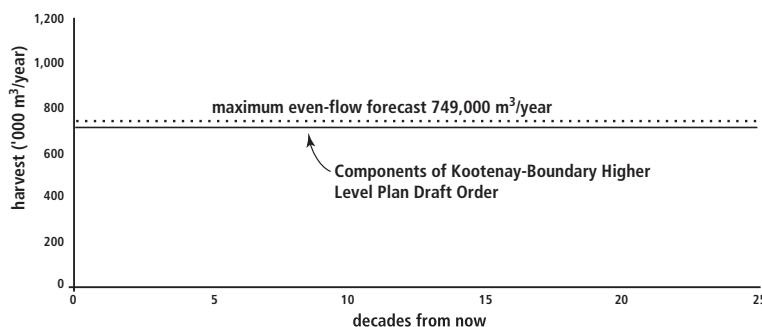


Figure 6 The effect of three components of the Kootenay-Boundary Land Use Plan-Implementation Strategy — Boundary TSA, 2000.

If these components are declared in the final approved higher level plan prior to the release of the AAC determination, they will be accounted for in the decision.

The chief forester takes a cautious approach when examining potential harvest level increases. In considering an increase, important factors to consider are the likelihood of future decreases and the level of uncertainty regarding forest management information for the area.

Implications of changes in the AAC

Environmental Implications

Current forest management follows the direction set out by the Forest Practices Code. This direction is designed to maintain a range of biodiversity and wildlife values. In the Boundary TSA analysis area, about 50 per cent of the total TSA land base is not considered available for timber harvesting and will provide for many environmental values. Forested areas both inside and outside of the timber harvesting land base will aid in the maintenance of critical forest habitats for many species. Forest cover requirements for deer, biodiversity, and community watersheds were included in the analysis.

As well, in this analysis two grizzly bear access management strategies consistent with the KBLUP-IS guidelines were examined for their potential impacts on the timber supply. The strategies, which provide areas for the bears distant from human activity at all times, require concentrating the harvest in some parts of a drainage for a period of time while restricting harvesting in other areas.

Analysis indicates that access management strategies for grizzly bear could have a small medium-term effect on overall timber supply and would affect the timing and degree of activity in different areas.

First Nations

No First Nations reserves or communities are located in the Boundary TSA. However, the longstanding presence of First Nations' people has been documented. The Okanagan Nation Alliance, which includes the various Okanagan First Nations, has identified the entire Boundary TSA as their traditional territory. The northern part of the TSA is also identified as traditional territory by the Shuswap First Nation.

The impacts of any treaties on the Boundary TSA land base are unknown at this time. When the impacts are known, they will be considered in future AAC determinations.

An Archaeological Overview Assessment has been completed for the entire Boundary Forest District and is the basis for determining areas and sites that may require further assessment. Archaeological Impact Assessments are carried out as part of development planning to adjust forestry practices so cultural heritage sites are protected.

Community Implications

The implication of changes in the AAC for local communities is an important consideration in the Timber Supply Review. If the AAC is maintained at the current level of 700,000 cubic metres, and fully harvested, no employment or other industry-related changes should occur in the Boundary TSA forestry sector as a result of the Timber Supply Review. If the AAC is increased to the maximum even-flow of 749,000 cubic metres, and fully harvested, it may offer opportunities for additional investments in the forest industry.

Your input is needed

Establishing the AAC is an important decision that requires well-informed and thoughtful public input. Feedback is welcomed on any aspect of this discussion paper, the 2000 Boundary TSA Analysis Report and other issues related to the timber supply in the Boundary TSA. Forest Service staff would be pleased to answer questions or discuss concerns that would help you prepare your response. Please send your comments to the forest district manager at the address below. Your comments will be accepted until Jan. 29, 2001.

You may identify yourself on the response if you wish. If you do, you are reminded that responses will be subject to the Freedom of Information and Protection of Privacy Act and may be made public. If the responses are made public, personal identifiers will be removed before the responses are released.

A summary of public comments will be attached to the AAC rationale and will be available from the district office when the chief forester's AAC determination is announced.

For more information contact and/or mail your comments to:

District Manager
B.C. Forest Service
Boundary Forest District
Box 2650, 136 Sagamore Avenue
Grand Forks, B.C. V0H 1H0
Phone: (250) 442-5411, Fax: (250) 442-5468, or
electronically mail to Jeff.Leahy@gems3.gov.bc.ca

Visit our website at <http://www.for.gov.bc.ca/tsb>

Background Information Regarding TSR

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The Chief Forester's Responsibility

Determining the allowable annual cuts (AACs) for public forest lands in British Columbia is the responsibility of the province's chief forester. In this lengthy and complex process, the chief forester considers technical reports, analyses and public input, as well as government's social and economic objectives.

This responsibility is required by legislation in the Forest Act, Section 8. It states that the chief forester shall specifically consider the following factors:

1. The rate of timber production that may be sustained from the area, taking into account:
 - the composition of the forest and its expected rate of growth
 - the time that it will take the forest to become re-established
 - silviculture treatments, including reforestation
 - standards of timber utilization
 - constraints on the amount of timber that may be produced due to use of the forest for other purposes.
2. The short- and long-term implications to the province of alternative rates of timber harvesting from the area.
3. The nature, production capabilities and timber requirements of established and proposed processing facilities.
4. The economic and social objectives of the Crown for the area, region and province—as expressed by the minister of forests.

5. Abnormal insect or disease infestations, and major salvage programs planned for the timber on the area.

Some of these factors can be readily measured and analyzed—others cannot. Ultimately, the chief forester's determination is an independent professional judgment based on the best available information. By law, the chief forester is independent of the political process, and is not dictated to by the minister of forests when determining AACs. In these determinations, the chief forester considers relevant information from all sources.

Why the current AAC may be higher than the long-term harvest level.

Some concern has been expressed that the AACs are higher than the long-term harvest level. There are two main factors that explain this difference:

- In the short term, harvesting takes place in older forests that have accumulated high timber volumes by growing for a long time. Future harvesting on the same sites will take place in second-growth forests at younger ages, often yielding lower volumes per hectare.
- Where the long-term harvest level is significantly below the current AAC, the chief forester's strategy is to gradually reduce AACs in a managed transition to the lower level over several decades. This allows communities that rely on the forest sector to avoid sudden economic disruptions and to plan for the future (provided the long-term harvest level is not jeopardized).

