

Introduction

The British Columbia Forest Service is required by law to formally review the timber supply* in all timber supply areas* and tree farm licence* areas in the province. A review of each of the areas is completed at least once every five years. The main objectives of the five-year reviews are to:

- identify the economic, environmental and social information that reflects the current forest management practices—including their effects on the short- and long-term timber supply
- identify where improved information is required for future timber supply forecasts
- provide the chief forester with information to make any necessary adjustments to the allowable annual cuts* for the next five years

* Throughout this document, an asterisk at the end of a phrase or word indicates that a definition can be found in the margin.

Objective of this document

The objective of this document is to provide an opportunity for public review of the draft data and management assumptions that will be applied in reviewing the timber supply for the Revelstoke timber supply area. This document represents the early stages of the timber supply review process and is intended to provide a non-technical overview of the draft data and management assumptions that will be used in the upcoming *Revelstoke Timber Supply Area Analysis Report*.

The *Revelstoke Timber Supply Area Analysis Report* will be one of the documents that the chief forester will consider in making the allowable annual cut determination under Section 8 of the *Forest Act*. Public input is encouraged to ensure the best information is used in determining allowable annual cuts.

This report contains a general description of the data assumptions and current forest management practices related to timber supply for the Revelstoke timber supply area. For the purpose of this timber supply review, current practices can be defined as the set of land-use decisions and forest management practices that are currently implemented and enforced. Future forest management objectives that may be established but are not currently implemented and enforced are not included.

The draft data and management assumptions are summarized on pages six through nine. For a more detailed description of the information, please contact the Columbia Forest District Office (in Revelstoke or Golden) or the Nelson Forest Region Office and request a copy of the data package. The public will have 30 days to review and comment on the information report and data package. A response form at the end of this document will assist you in providing your comments. Written comments will be accepted until December 22, 1997.

Timber Supply Review process

In British Columbia, a process of determining allowable annual cuts has been in place since the

late 1940s. However, the process has changed significantly since then. More recently, the process has had some minor revisions designed to improve efficiency and encourage earlier public review through the release of this report.

Figure 1 (next page) illustrates the five-step process that has been developed for the Timber Supply Review for timber supply areas. The diagram indicates the current status of the timber supply review for the Revelstoke timber supply area, and the estimated time required for each step.

The process for reviewing the timber supply and establishing the allowable annual cut for tree farm licence areas is based on similar principles; however, the process takes 30 months from start to completion.

The chief forester's responsibility

Determining the allowable annual cuts for Crown forest lands in British Columbia is the responsibility of the province's chief forester. It is one of the chief forester's most important responsibilities since it affects the local and provincial economies and environment—now and in the future. Section 8 of the *Forest Act* requires the chief forester to consider the following factors to determine allowable annual cuts for timber supply areas and tree farm licence areas:

- a) 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 in which the forest will become re-established
 - silvicultural treatments, including reforestation
 - standards of timber utilization
 - constraints on the amount of timber produced from the area due to use of the forest for purposes other than timber production
 - any other information which relates to the capability of the area to produce timber
- b) the short- and long-term implications to the province of alternative rates of timber harvesting from the area
- c) the nature, production capabilities and timber requirements of established and proposed processing facilities
- d) the economic and social objectives of the Crown for the area, the region and the province, as expressed by the minister of forests
- e) abnormal insect or disease infestations and major salvage programs planned for the timber on the area

Some of these factors can be measured and analyzed—others cannot. Ultimately, the chief forester's determination is an independent, professional judgement based on the best available information. Information that is relevant to the factors listed above is provided to the chief forester by government agencies, the minister of forests and the public.

One of the objectives of the Timber Supply Review is to incorporate changes arising from new information, new practices and new government initiatives that may have an impact on timber supply. In the event of significant change, the allowable annual cut may be reviewed in less than the required five years.

Following the release of the allowable annual cut determination by the chief forester, the minister of forests apportions the cut to the various licences and programs.

Principles of the Timber Supply Review

In determining allowable annual cuts—in addition to the requirements outlined in Section 8 of the *Forest Act*—the following principles have been developed.

The Timber Supply Review:

- is a decision-making process for establishing the allowable annual cut for timber supply areas and tree farm licence areas by the chief forester on a maximum five-year cycle, as required under Section 8 of the *Forest Act*; **it is not a process for making land-use or management decisions**
- incorporates the best information available including all relevant current practices, and identifies where new information is needed
- reflects the results of implemented plans and land-use decisions, and provides a benchmark for future planning processes
- involves other agencies, affected groups and the public

Kootenay-Boundary Land-Use Plan

In 1995, government released the Kootenay-Boundary Land-Use Plan. More recently, on July 8, 1997, the Kootenay-Boundary Land-Use Implementation Strategy was approved by government. The strategy provides details on innovative forest practices and making the most of available timber. It also provides an expression of the government's commitment to achieve the Crown's social and economic objectives for the region, including the Revelstoke timber supply area.

Land-use planning decisions regarding forest practices which are implemented and protected areas* that have final approval from government will be reflected in this timber supply review.

Minister's Advisory Committee

Under special invitation of the provincial government, the Revelstoke and Area Land-Use Planning Minister's Advisory Committee was created in 1995. The committee's main task was to begin to implement the Kootenay-Boundary Land-Use Plan for the Revelstoke area by developing strategies which address the values identified in the land-use plan. The committee's priorities included providing advice on the application of Forest Practices Code* guidelines, caribou habitat needs, alternative harvesting and silviculture techniques and the location of areas for enhanced forestry.

The committee has released its draft recommendations for land-use planning and resource management for public review. If these recommendations receive government approval and have been implemented before the chief forester makes an allowable annual cut determination for the Revelstoke timber supply area, they will be considered in the timber supply review.

Description of the timber supply area

The Revelstoke timber supply area is situated in the southeastern portion of British Columbia and covers approximately 500,000 hectares. It is bounded by the Monashee mountains to the west and the Selkirk mountains to the east, and straddles the Columbia River valley, which runs from the Mica Dam in the north to Monashee Provincial Park and Arrowhead in the south. The Trans-Canada highway passes through the southern part of the area providing easy access to an area of outstanding mountain scenery. The Revelstoke timber supply area is administered by the Columbia Forest District office located in Revelstoke.

The community

The Revelstoke timber supply area includes the town of Revelstoke and the community of Mica Creek. According to the 1996 Census the population of the timber supply area has increased more than three per cent since 1991 to approximately 8,640. Ninety per cent of the residents of the timber supply area live in Revelstoke.

The area's economy is well diversified with forestry, tourism and the public sector predominant. Information from the 1991 Census indicates that the forest sector accounted for almost 20 per cent of the timber supply area's total employment (Figure 2). The timber supply area's forest sector is composed of three sawmills, two cedar shake and shingle mills, a pole yard and logging related activities.

Tourism is the fastest growing economic sector in the Revelstoke timber supply area. The mountainous nature of the area and the diversity of natural attributes offer year-round outdoor recreation. Other important sectors of the timber supply area are water extraction, transportation and services due to the community's position on national east-west transportation routes.

Income from forestry accounts for almost 18 per cent of the estimated total income for the timber supply area. This is more than the income from all the other resource sectors.

First Nations

The Revelstoke timber supply area is within the traditional lands of the Shuswap Nation, the Ktunaxa/Kinbasket Nation and the Okanagan Nation. Currently, there are no First Nations reserves or communities within the Revelstoke timber supply area. The Ktunaxa/Kinbasket Tribal Council, of which the Shuswap Indian Band is a member, has submitted a comprehensive land claim which covers the southeast corner of the province including the Revelstoke timber supply area. Negotiations on this claim are currently in the Framework Agreement stage.

A traditional-use site inventory is currently underway by the Ktunaxa/Kinbasket Tribal Council.

The forest land resources

Numerous natural resources are associated with the forest land base. Forest products, recreation and tourism amenities, and significant wildlife habitat features highlight the wide range of values and uses found in the Revelstoke timber supply area.

The Revelstoke timber supply area lies in the interior wet belt of the province. The mountainous environment creates varied climates and growing conditions, resulting in diverse forests. Valley bottoms are covered with cedar and hemlock, and stands of Engelmann spruce

and subalpine fir (balsam) occupy the higher elevation slopes. The mountain peaks are covered by vast expanses of alpine tundra, rock and ice. Because of the rugged landscape and cold, wet climate, only a small proportion of the timber supply area is available for timber harvesting.

Recreational values and uses of forests in the Revelstoke timber supply area are high due to the proximity of national and provincial parks, exceptional natural scenery, and the presence of highway and rail transportation.

The environment

The diverse forests of the Revelstoke timber supply area host a wide variety of wildlife species which include black bear, grizzly bear, caribou, moose, deer, elk and mountain goat.

Approximately 50 per cent of the timber supply area forest cover is old-growth, which provides habitat for mountain caribou, cavity-nesting birds and small mammals. Cavity nesting birds, including raptors, pileated woodpeckers and owls, depend on old-growth attributes such as large diameter snags and uneven aged forests, particularly at lower elevations. Small, old-growth dependent mammals include the pine marten and certain species of bat.

The Revelstoke timber supply area overlaps the range of one of the largest and most viable populations of mountain caribou in Canada. Due to heavy snowfall in the area, these caribou require sufficient canopy cover, which mature forests provide, to move between feeding areas. The caribou also depend on mature lichen-bearing forests for feeding.

History of the allowable annual cut

On August 26, 1994, the chief forester reduced the allowable annual cut to 230,000 cubic metres from 269,000 cubic metres, a reduction of approximately 15 per cent.

As part of the 1994 determination, the chief forester gave direction to resolve uncertainties with respect to the timber supply in the Revelstoke timber supply area. In preparation for the next allowable annual cut determination, the following issues were to be examined:

- **mountain caribou habitat** - it was noted in the last determination that the management practices required for adequate protection of mountain caribou habitat were underestimated in the previous timber supply analysis.

Since the previous determination, intensive field research and analyses have been undertaken to identify the extent and importance of mountain caribou habitat in the Revelstoke timber supply area. This has led to more accurate mapping of key caribou habitats and the development of timber harvesting techniques which minimize impacts in areas used by caribou. This information will be incorporated into the timber supply analysis.

- **riparian habitat* management** - the last allowable annual cut determination noted that the previous timber supply analysis may not have accounted adequately for protection of riparian habitats.

Recently, an inventory project has been completed to determine the riparian management area classifications for all streams, lakes and wetlands in the Revelstoke timber supply area. These classifications will be considered in this timber supply review.

- **estimates of existing mature forest volumes** - at the time of the last allowable annual cut

determination, there was a concern that the existing mature forest volumes were overestimated.

Since the previous determination there have been a number of initiatives to resolve this concern. A reinventory has been completed and is currently being audited for accuracy. A study of decay and breakage factors is also underway and old-growth site index research is being carried out in the Nelson Forest Region. If the results of these initiatives are available before the allowable annual cut is set, then they will be considered in the determination.

Note: For more information on these points, please refer to the Revelstoke timber supply area Rationale for Allowable Annual Cut Determination, August 26, 1994.

Current timber supply review

Public forest lands in British Columbia provide recreational enjoyment, fish and wildlife habitat, water supplies, timber resources and many other benefits. The Ministry of Forests manages the timber, range and recreation resources on public lands, while the Ministry of Environment, Lands and Parks is responsible for the management of fish, wildlife, water resources and parks. Both agencies subscribe to the principle of integrated resource management*, where all resources are considered when making forest management decisions.

The data and management assumptions that will be used in the timber supply analysis will be based on the existing land-use designations and current resource management practices that are approved and implemented in the Revelstoke timber supply area. The chief forester will also consider any new information, based on implemented changes, at the time of the allowable annual cut determination.

The Forest Practices Code is now law and is being implemented in the timber supply area. The Code was fully implemented on June 15, 1997. The new practices may influence both the short- and long-term timber supply.

Draft data and management assumptions for public review

The public is encouraged to review the data and management assumptions for completeness and accuracy. In determining an allowable annual cut, the chief forester will consider these assumptions as required by Section 8 of the *Forest Act*. The following general outline contains *some* of the more pertinent information that will be used in the timber supply analysis and, subsequently, in the chief forester's allowable annual cut determination for the Revelstoke timber supply area. More detailed information can be found in *Appendix A: Data Package*. This appendix is available upon request from the Ministry of Forests offices listed at the end of this report.

Land base factors

- **Operable area** - the forested area in the Revelstoke timber supply area has been assessed for

operability based on economic, ecological and physical accessible attributes. Only those areas that are considered operable will contribute to the timber harvesting land base*.

- **Low productivity sites** - in addition to the above, forest types that are not considered fully available for harvesting due to forest characteristics such as low timber volumes or low growth productivity will be separated from the timber harvesting land base.
- **Marginal timber types** - pure hemlock, pure balsam stands or balsam-leading (with no spruce) stands that are older than 140 years generally have marginal economic value due to aging and decay, and will be separated from the timber harvesting land base.
- **Environmentally sensitive areas*** - portions of these areas are removed from the timber harvesting land base to account for their sensitivity. An evaluation of the environmental concerns and the past level of harvesting within these areas was used to determine the extent of the reductions. For the Revelstoke timber supply area, 100 per cent of avalanche areas and 90 per cent of the areas identified as having highly sensitive soils and significant regeneration problems will be separated from the timber harvesting land base.
- **Forest roads** - harvesting and road construction follow regional and provincial guidelines. Currently, it is estimated that there are 2,252 hectares of existing roads, trails and landings in the Revelstoke timber supply area. Also, it is estimated that an additional 4,703 hectares of the timber harvesting land base will be lost over time to future roads, landings and trails construction.

Inventory factors

- **Forest inventory** - the dominant tree species in the Revelstoke timber supply area are western redcedar and western hemlock at lower elevations and Engelmann spruce and subalpine fir at higher elevations. Other tree species found are Douglas-fir, western white pine, lodgepole pine, larch, cottonwood, birch and aspen.
- **Forest growth rates** - the most up-to-date information regarding growth projections for regenerated forest stands will be used for the analysis.
- **Minimum harvestable ages** - for the purposes of the timber supply analysis, the minimum harvestable age is defined as the earliest age at which a forest is estimated to reach a merchantable size. This age is based on the time required for regenerated stands to achieve desired physical characteristics such as a minimum diameter of 25 centimetres at a ground height of 1.3 metres and a minimum volume per hectare, as well as an evaluation of the age at which the forest types achieve the maximum rate of growth over time.

Forest re-establishment factors

- **Basic silviculture** - British Columbia laws require that areas that are harvested and expected to produce timber in the future must be reforested with ecologically acceptable species within a specified time frame. The most common silvicultural practice is to harvest; then if necessary prepare the site for reforestation; reforest by planting a mix of species or by relying on natural regeneration; and control competing vegetation.

In the Revelstoke timber supply area, reforestation is achieved predominantly by planting a mixture of acceptable coniferous species and often retaining other tree species for wildlife and biodiversity, when present. In the timber supply analysis, it is assumed that areas will be reforested two years after harvesting has begun.

Timber utilization factors

- **Timber utilization** - volume estimates will be based on the utilization of all trees which meet or exceed the following current standards: a minimum 10-centimetre top diameter; a maximum 30-centimetre high stump; and a minimum diameter of 17.5 centimetres at a ground height of 1.3 metres, except for lodgepole pine which require a minimum diameter of 12.5 centimetres at a ground height of 1.3 metres.

Infestations, devastations, and salvage of timber

Each year portions of the forests in the Revelstoke timber supply area are damaged by natural agents such as fire, wind, insects and disease. It is anticipated that some of the damaged timber will not be salvaged due to road and economic limitations. The unsalvaged volume is estimated to be 8,586 cubic metres annually.

Factors to be considered for purposes other than timber production

Forest management guidelines used to manage forest resources such as biodiversity, scenic values, wildlife habitat and water quality will be included in the timber supply analysis through the use of forest cover requirements, and volume and land-base reductions.

- **Forest cover requirements** - under current forest management practices, cutblocks* must achieve green-up* before adjacent areas are permitted to be harvested. For example, to account for forest cover requirements in the integrated management area, a maximum of 25 per cent of the timber harvesting land base will be allowed to have forests less than two metres tall at any time. As well, considerations for maintaining areas of old-growth forests will be accounted for in the timber supply analysis.
- **Visually sensitive areas** - these are areas where the maintenance of scenic landscapes is a priority for recreation and tourism management, particularly in areas that are adjacent to major travel corridors and waterways. Road construction and logging within these areas are planned and implemented to minimize visual impacts. Interim visual quality objectives have been established for scenic areas identified in the Revelstoke timber supply area. The current practice in visually sensitive areas is that harvested areas must have trees that are at least six metres tall before adjacent areas can be harvested. Also, forest cover requirements will vary according to the degree of visual sensitivity and will permit a maximum of between five and 15 per cent of a visual landscape area to have forests less than six metres tall at any time.
- **Wildlife habitat** - these are areas which have been identified and designated as important habitat for caribou and other ungulates (a hoofed herbivore). In the designated caribou habitat areas and ungulate winter range, generally 40 per cent of the forested land base must have trees older than 140 years and 100 years, respectively. Also, a minimum of 10 per cent of the areas designated as important for caribou must have trees older than 250 years.
- **Riparian habitat** - to meet the requirements of the Forest Practices Code, a portion of the timber harvesting land base will be considered unavailable for timber harvesting to account for riparian habitat areas along streamsides.
- **Biological diversity** - or biodiversity, is the full range of living organisms, in all their forms and levels of organization, and includes the diversity of genes, species, and ecosystems, and the evolutionary and functional processes that link them. The Forest Practices Code requires that biodiversity be examined at both the stand- and landscape-level.

Leaving wildlife tree* patches and coarse woody debris* for stand-level biodiversity is current practice in the Revelstoke timber supply area. Generally, coarse woody debris objectives can be met by the contributions of non-merchantable timber. Wildlife tree patches will be accounted for in the timber supply analysis by reducing the average volume per hectare. Current practice requires that at least six per cent of a cutblock must have wildlife trees. It is assumed that 50 per cent of this requirement will be met from areas outside of the timber harvesting land base. As a result, volume estimates that contribute to the timber supply will be reduced by three per cent in the timber supply analysis.

Considerations for landscape-level biodiversity will be accounted for in the timber supply analysis by applying averaged seral stage* constraints to each draft landscape unit* and natural disturbance types*. This is being done because at this time the landscape units and biodiversity objectives are still draft and have not yet been established.

Sensitivity analyses* will be undertaken to examine the impact on timber supply from applying the draft emphasis assignments as reported in the Kootenay-Boundary Land-Use Implementation Strategy.

Implications of alternative rates of harvesting

- **Alternative rates of harvesting** - there are many alternative harvest forecasts that can be produced for a given set of forest conditions and management assumptions. Each alternative usually represents a trade-off between the harvest level in the short term and the subsequent rate of decline to the long-term harvest level. For the projected base-case forecast*, the initial harvest forecast will be based on trying to achieve the current rate of harvest in the short term without compromising the long-term harvest level. The implications of alternative short-term rates of harvest will be tested in sensitivity analyses.
- **Implications related to community dependence** - the impact of timber supply adjustments on local communities and the provincial economy is an important consideration in the timber supply review. Research by the Ministry of Finance and Corporate Relations found that for each 100 direct jobs in the forest industry in Revelstoke, a further 80 indirect and induced jobs are supported elsewhere in the province.

The upcoming socio-economic analysis will use recent information to examine the potential socio-economic impacts associated with alternative rates of timber harvesting. Current information on employment and fibre flows will be gathered from the BC Forest Service, licensees, processing facilities and other stakeholders. Indirect and other related employment at both local and provincial levels will also be estimated using employment multipliers provided by the Ministry of Finance and Corporate Relations.

To examine the implications of alternative rates of harvest, employment coefficients, reported in person years per 1,000 cubic metres, will be developed and used to estimate changes to employment levels now and in the future resulting from any potential harvest level changes.

- **Implications related to ecological resources** - the rate of harvest of mature and old stands and subsequent replacement by immature regenerated stands affects the proportion of early to mature/old stands within the timber supply area. This in turn influences the proportion of different habitats for flora and fauna.

Timber processing facilities

The socio-economic analysis will examine the implications of potential changes of timber supply for the area's processing facilities. The Revelstoke timber supply area supplies approximately 48 per cent of the wood processed by six mills in the area. In 1996 these mills processed a total of approximately 400,000 cubic metres and employed about 280 people.

Economic and social objectives of the Crown

In a letter and a memo to the chief forester, the minister of forests has expressed the Crown's economic and social objectives for the province. The harvest flow objectives to be used in the timber supply analysis (see above, "Alternative rates of harvesting") are consistent with the minister's stated objectives.

In addition, economic and social objectives for the area and the general region are derived from public input. Community residents in the Revelstoke timber supply area recognize the importance of the timber industry to their economy, and have expressed concern about possible changes in timber supply resulting from this review.

Your input is needed

Establishing the allowable annual cut is an important decision which requires well-informed and thoughtful public input. Feedback is welcomed on any aspect of this *Information Report*, the *Data Package Appendix* and other topics related to the timber supply in the Revelstoke timber supply area. The response form at the end of this document will assist you in preparing your comments. As well, Forest Service staff would be pleased to discuss questions or concerns that may help you prepare your response.

Please mail the completed response form and your comments to the Forest Service district manager located at the address below. Your comments will be accepted until December 22, 1997.

After receiving public input, the Forest Service will finalize the data and management assumptions that will be applied in this timber supply analysis. The timber supply analysis will be completed and available for review by Spring of 1998. You may also wish to participate in the second public review period, which will follow the release of the *Revelstoke Timber Supply Area Analysis Report*.

Following the second public review period, the chief forester will examine all the information available in order to review the timber supply for the Revelstoke timber supply area. The chief forester will then establish the allowable annual cut based on his consideration of the factors as required under Section 8 of the *Forest Act*.

You may identify yourself on your 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 copies of the responses are requested, personal identifiers will be removed before the responses are released.

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

District Manager

B.C. Forest Service
Columbia Forest District
PO Box 9158 RPO #3
Revelstoke, B.C.
V0E 3K0

Phone: (250) 837-7611

Fax: (250) 837-7626

or electronically mail to: KRGIBSON@MFOR01.FOR.GOV.BC.CA