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 Kalum (formerly Kalum South) 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 *Kalum Timber Supply Area Analysis Report*.

The *Kalum 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 Kalum 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 eight. For a more detailed description of the information, please contact the Kalum Forest District Office (in Terrace) or the Prince Rupert Forest Region Office (in Smithers) 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 February 26, 1998.

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 Kalum 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

Kalum Land and Resource Management Plan

A Land and Resource Management Plan is currently being developed for the Kalum area. The planning process provides an opportunity for the public, interest groups and government to make recommendations regarding future management of public forest lands.

Once the plan has been approved by government and implemented, it will be considered in future timber supply reviews.

Description of the timber supply area

The Kalum timber supply area is situated in the northwest portion of the province and covers approximately 540,000 hectares excluding the two adjoining Tree Farm Licences (TFL 1 and TFL 41). The Kalum timber supply area is administered by the Kalum Forest District office in Terrace.

The communities

The Kalum timber supply area includes the communities of Terrace, Kitimat, Gitakdamix, Gitwinksihlkw, Kitamaat Village, Kitsumkalum, Rosswood, Thornhill and Usk.

According to the 1996 Census, the population of the Kalum timber supply area has increased 4.5 per cent since 1991 to approximately 33,471. Population growth was concentrated in Terrace and Kitimat, while smaller communities experienced a decline in population. It is anticipated the overall population of the timber supply area will continue to grow at a strong rate. More than 75 per cent of the residents of the Kalum timber supply area live in Terrace and Kitimat.

The economy

In 1991, the public sector and forestry accounted for almost 34 per cent of the timber supply area's employment
(Figure 2, next page).

Forestry employment is supported by harvesting and silviculture activity, and the processing of wood products at four area mills: Skeena Cellulose's chip and lumber complex, West Fraser Mills' lumber mill and Bell Pole's post and pole mill in Terrace, and Eurocan's pulp and paper operation in Kitimat. During 1996, employment at these four facilities totalled approximately 1,180 jobs.

The other sources of timber and employment in the region are TFL 1, held by Skeena Cellulose and TFL 41, held by West Fraser Mills, which support approximately 1,100 full-time direct forestry positions. Skeena's pulp mill in Prince Rupert is also an important source of employment in the region.

Although the Kitimat and Terrace areas are closely linked on the basis of trade and services, they exhibit very different economic profiles. The Kitimat economy relies primarily on the Alcan complex, with the Eurocan pulp and paper facility and the Methanex (formerly Ocelot Chemicals) methanol-ammonia plant playing secondary roles. The Terrace economy is based primarily on forest industries. Terrace also provides basic trade, service and administration functions which reflect its importance as the major regional service centre. Other manufacturing reported in the area includes printing and publishing, concrete products, industrial gases, millwork, signs, boat building, beverages, metal fabricating and machine shops.

Each 100 direct forestry jobs in the area is estimated to support a further 30 to 59 indirect and induced jobs, depending on the type of forestry activity (logging, pulp & paper, or wood manufacturing) and the associated level of wages and salaries. In contrast, each 100 public sector jobs is estimated to support only another 11 positions while each 100 tourism jobs support just a further six. Only mineral processing (associated with Methanex's chemical plant in Kitimat) falls into the range of importance of forestry, at 29 associated positions per 100.

First Nations

A number of First Nations traditional lands are within the Kalum timber supply area. They are represented by four tribal organizations: Nisga'a, Tsimshian, Haisla and Gitxsan.

The Nisga'a Tribal Council is currently negotiating a comprehensive land claim which covers a portion of the Kalum timber supply area. An Agreement-in-Principle dated February 15, 1996 has been signed by the Nisga'a Tribal Council and the Federal and Provincial Governments. When the treaty has been finalized it will be considered in either this or future timber supply reviews.

The Tsimshian and Haisla Nations are in the process of treaty negotiations. The Gitxsan have expressed their intent to negotiate a treaty.

All of the First Nations have expressed concerns about timber harvesting in areas with high cultural and economic values. Cultural heritage inventory studies, which identify sites of potential archaeological significance, have been completed. Once impact assessments and

traditional-use surveys have been completed, this information will be considered in the timber supply review.

The forest land resources

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

The mountainous nature of the area and the diversity of natural attributes offer a wide range of recreational opportunities. Residents of the area spend the greatest number of days per resident recreating in provincial forests, and the average household expenditure for recreation is the highest in the province. Activities include year-round outdoor activities, while sport fishing, rafting, hiking, hunting and wilderness viewing attract visitors to the area.

The environment

The diverse forests of the Kalum timber supply area host a wide variety of wildlife species including moose, deer, grizzly and black bear.

The rivers and ocean support a rich variety of habitat and fishery resources in the timber supply area. The Skeena, Nass, Tseax and Kitimat rivers are inhabited by salmon, Dolly Varden char, cutthroat trout and eulachons. Estuaries, floodplains and islands provide habitat for a wide variety of birds and other species. There are two ecological reserves in the timber supply area.

History of the Allowable Annual Cut

On January 1, 1996 the chief forester reduced the allowable annual cut to 464,000 cubic metres from 480,000 cubic metres, a reduction of approximately three per cent.

As part of the 1996 determination, the chief forester gave direction to resolve uncertainties with respect to the timber supply in the Kalum timber supply area. In preparation for the next allowable annual cut determination, the following issues were to be examined:

- **estimates of existing mature forest volumes** - at the time of the last determination, there was a concern that the existing forest volumes may be overestimated.

  An inventory audit of the Kalum timber supply area is now complete and the results show that the volumes estimates are statistically reliable.

- **site productivity** - at the time of the last allowable annual cut determination there was a concern that site productivity was underestimated.

  A recent study conducted in hemlock stands in the timber supply area has provided an improved estimate of site productivity. This will in turn affect estimates of regenerated stand volumes, the minimum harvestable age and the time required for green-up*. The results of the

study have been incorporated into this timber supply review.

- **timber harvesting land base** - in the last determination concerns were raised regarding the estimate of the timber harvesting land base used in the 1995 timber supply analysis.

  Since the last determination an examination of harvesting operations has revealed that the estimate is reasonable.

Note: For more information on these points, please refer to the Kalum timber supply area Rationale for Allowable Annual Cut Determination, September 25, 1995.

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

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 Kalum 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.

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 Kalum 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 Kalum timber supply area has been assessed for operability based on economic and ecological attributes and physical accessibility. Only those

areas considered operable will contribute to the timber harvesting land base .*

- **Timber licences** - in the Kalum TSA there are old forms of tenure which provide the holder with exclusive harvesting rights within the licence area. Once harvested, all future harvesting rights revert to the Crown. Until that time, the licence area will not contribute to the timber harvesting land base.

- **Poor quality timber** - sites with unmerchantable timber (primarily some hemlock-leading coniferous types older than 100 years and less than 22 metres in height as well as deciduous types) will not contribute to 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 Kalum timber supply area, all of the areas identified as highly sensitive for avalanche, recreation and regeneration problems were not considered to contribute to the timber harvesting land base. Based on terrain stability surveys, 50 per cent of the areas classified as highly sensitive for soils were considered to contribute to the timber harvesting land base.

- **Forest roads** - harvesting and road construction follow regional and provincial guidelines. Currently, it is estimated that existing roads, trails and landings occupy approximately 8.8 per cent of the productive forest land base with stands under 35 years of age in the Kalum timber supply area. As well, it is estimated that an additional 8.8 per cent of the timber harvesting land base will be lost over time to future roads, trails and landing construction.

Inventory factors

- **Forest inventory** - the dominant tree species in the Kalum timber supply area are western hemlock, western redcedar and Sitka spruce. Other tree species include subalpine (balsam) fir, yellow cedar, Engelmann and white spruce, spruce hybrids, lodgepole pine, cottonwood and trembling aspen. The current forest inventory has been updated to 1995 to take into account disturbances, including harvesting and reforestation.

- 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 before timber harvesting is considered. This age is based on the time required for regenerated stands to achieve desired physical characteristics such as volume per hectare, as well as on an evaluation of the age at which the forest types achieve the maximum rate of growth over time.

  In the Kalum timber supply area, the minimum harvestable age is based on a minimum volume requirement of 250 cubic metres per hectare, a minimum height of 22 metres and a minimum average diameter of 25 centimetres at a ground height of 1.3 metres for all species.

Forest re-establishment factors

- Basic silviculture - British Columbia laws require areas that are harvested and expected to produce timber in the future to be reforested with ecologically acceptable species within a

specified time frame. The most common silvicultural practice is to clear-cut harvest; then reforest by planting a mix of species or by relying on natural regeneration; and control competing vegetation.

In the Kalum timber supply area, reforestation is achieved with a combination of natural reforestation and planting a mixture of acceptable coniferous species with a small retention of other tree species for wildlife and biodiversity. It is assumed that planted areas will be reforested within three years after harvesting has begun, and naturally reforested areas within six years after harvesting.

Timber utilization factors

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 cottonwood which requires a minimum diameter of 22.5 centimetres.

Infestations, devastations, and salvage of timber

Each year, portions of the forests in the Kalum 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 9,500 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 resource management areas, a maximum of 35 per cent of the timber harvesting land base will be allowed to have forest less than three metres tall at any time.

- **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. Within the Kalum timber supply area, visual quality objectives, which vary according to the degree of visual sensitivity, have been assigned to approximately 17 per cent of the timber supply area.

- **Riparian habitat*** - to meet the requirements of the Forest Practices Code, a portion of the forested land base will be considered unavailable for timber harvesting to account for riparian reserve areas and riparian management zones 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 for stand-level biodiversity is current practice in the Kalum timber supply area. This practice will be accounted for in the timber supply analysis by reducing the average volume per hectare. Current practice requires that one to nine per cent of a cutblock be retained for wildlife tree patches. It is assumed that 75 per cent of this requirement will be met from areas outside of the timber harvesting land base. As a result, approximately two to three per cent of the forested land base will be considered unavailable for timber harvesting.

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

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 in 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. The November 1994 *Kalum South Socio-Economic Analysis* prepared for the previous timber supply review identified approximately 400 harvesting, silviculture, processing and related direct person years associated with allowable annual cut for the Kalum timber supply area. Approximately 240 associated indirect and induced jobs were also identified as dependent on timber supply area activities.

  The socio-economic section of the upcoming analysis report will review the role of the forest sector in the Kalum timber supply area. To provide this update, statistics on employment and wood flow will be gathered from licensees, processing facilities, the British Columbia Forest Service and other stakeholders. Employment multipliers from the Ministry of Finance and Corporate Relations will be used to estimate indirect and other related employment at both local and provincial levels. Employment and government revenue co-efficients, reported per 1,000 cubic metres of harvested timber, will also be developed to help estimate the impacts of projected harvest levels.

Timber processing facilities

The socio-economic analysis will examine the implications of potential changes of timber supply for the area’s processing facilities. There are four major processing facilities located within the Kalum timber supply area which depend to varying degrees on the local timber supply: two sawmills and a post and pole mill in Terrace, and a pulp and paper mill in Kitimat.

In 1996, these four mills processed approximately 1.3 million cubic metres of timber. While the Kalum timber supply area is not the only source of timber for these mills, its average 1994-96 harvest of 354,000 cubic metres per year is an important source contributing up to one-third of the area's 1996 fibre requirements.

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.

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 Kalum 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 February 26, 1998.

After receiving public input, the Forest Service will finalize the data and management assumptions that will be applied in the timber supply analysis. The timber supply analysis will be complete and available for review by Summer of 1998. You may also wish to participate in the second public review period, which will follow the release of the *Kalum 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 Kalum 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
Kalum Forest District
200-5220 Keith Avenue
Terrace, B.C., V8G 1L1

Phone: (250) 638-5100
Fax: (250) 638-3437

or electronically mail to: Marek.Waszkiewicz@gems4.gov.bc.ca