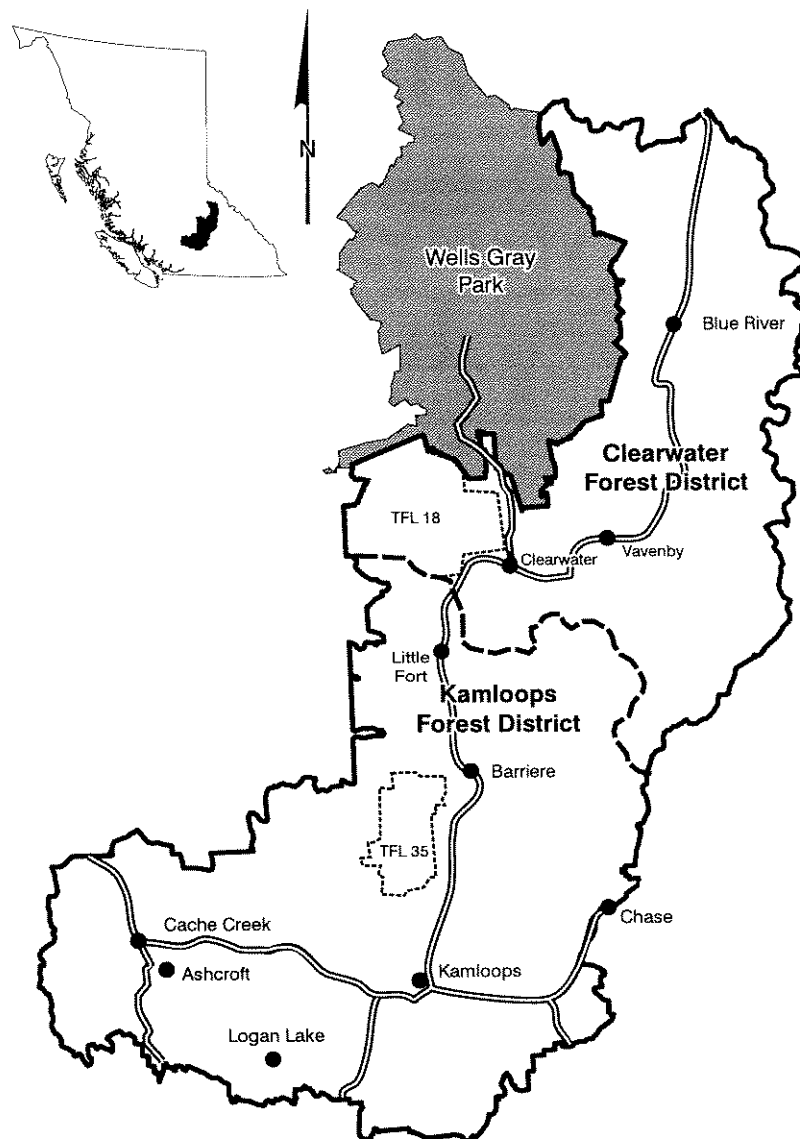




MINISTRY OF FORESTS

Kamloops Timber Supply Area

Timber Supply Review Discussion Paper
May 1995



Province of
British Columbia
Ministry
of Forests

Kamloops Timber Supply Area

Timber Supply Review Highlights

The Timber Supply Review for the Kamloops Timber Supply Area began in 1994. The Land and Resource Management Plan*, which has recently been approved by government, could not be fully taken into account in this review. An approximation of the timber supply impacts of the Plan has been included in this review. A complete timber supply review will be conducted before the maximum five-year period required by the *Forest Act*.

- The British Columbia Forest Service is reviewing the timber supply in all timber supply areas* and tree farm licence* areas 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 the results of this review, the chief forester may decide to adjust the allowable annual cut* for the Kamloops Timber Supply Area.
- The current allowable annual cut in the Kamloops Timber Supply Area, set in 1981, is 2,416,680 cubic metres per year. The harvest allocated to woodlot licences was not included in this review, resulting in an allowable annual cut of 2,393,180 cubic metres for this review. This harvest provides wood to six large sawmills, two veneer/plywood mills and woodchips to one pulp mill in the Timber Supply Area. (page 5)
- Timber harvesting in the Kamloops Timber Supply Area directly supports approximately 1,675 person-years* of employment in the local area. An additional 3,775 person-years of employment are created provincially. (page 6)
- Based on the best information that was available about forest management practices that were being implemented in 1994 when the timber supply review was initiated, the timber supply analysis indicates that the present allowable annual cut can be maintained for 20 years. Following this, the timber supply is projected to decline by nine per cent per decade until the long-term sustainable timber supply level of 1,958,000 cubic metres per year is reached in 40 years from now. (page 8)
- Increasing the estimated area in community watersheds or changing the management practices in these areas may result in a reduced short-term timber supply. (page 9)
- Current integrated resource management* practices which may increase or decrease the short-term timber supply include:
 - estimated minimum green-up* heights or the estimated time required to reach these heights
 - estimated forest cover requirements, particularly for visually sensitive areas and for wildlife and biodiversity
 - requirements in caribou habitat areas (pages 9-11)
- The projected short-term timber supply depends to a great deal on the estimated amount of mature timber in the existing forests. Changes in the estimated minimum harvestable ages also affects the projected short-term timber supply. (page 10)
- There may be opportunities to partially offset projected reductions in timber supply by:
 - harvesting areas that are not currently considered economical or feasible to harvest, particularly very old hemlock forests
 - intensive silvicultural treatments
 - commercial thinning (pages 11-12)
- An approximation of the timber supply impacts of the Kamloops Land and Resource Management Plan indicates the changes in land use designation and forest management practices would permit the current allowable annual cut to be maintained for 10 years before the timber supply declined over 20 years to slightly above the long-term sustainable timber supply level projected in the base case forecast*. (page 12)
- The impact of adjustments in the timber supply on communities in the Kamloops Timber Supply Area is an important consideration in this review. While the City of Kamloops has a relatively diverse economy, other smaller communities in the Timber Supply Area are more heavily dependent on the forest sector. (page 13)
- The chief forester must determine an allowable annual cut as part of a strategy to achieve the projected long-term sustainable timber supply level. The base case forecast provides one alternative, but the chief forester may select another harvest level based on his consideration of the factors required under Section 7 of the *Forest Act*.

* Throughout this document, an asterisk at the end of a phrase indicates the phrase is defined in the definition section on the back of this page.

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Definitions

Allowable annual cut

The rate of timber harvest permitted each year from a specified area of land, usually expressed as cubic metres of wood per year.

Base case forecast

The timber supply forecast that illustrates the effect of current forest management practices on the timber supply using the best available information.

Current forest management practices

Forest practices that were being approved and implemented in the area when this review was initiated. These practices are described in this paper beginning on page 6.

Forest Practices Code

A law which requires better forest practices, with heavy penalties for violators. The Code will be implemented on June 15, 1995.

Green-up

The time required for regenerated forests to reach a desired condition (usually a specific height) after harvesting to meet integrated resource management objectives and allow harvesting to take place in adjacent areas.

Integrated resource management

The identification and consideration of all resource values, including social, economic and environmental needs, in resource planning and decision-making.

Land and Resource Management Plan

A consensus-building process involving a cross section of the public, interest groups and government agencies, to establish resource management objectives and strategies for a defined forest area.

Person-year

One person working the equivalent of one full year. If someone works full time for six months, he or she accounts for 0.5 person-years.

Protected Areas Strategy

A provincial initiative to protect representative ecosystems and special features on a regional basis.

Pulpwood agreement

An agreement between a private interest and the provincial government which permits harvesting of specified forest types in special circumstances when it is necessary to supplement wood supplies.

Riparian areas

The stream bank and flood plain adjacent to streams or water bodies.

Selection management

A system used to maintain or create forests containing a wide range of tree ages or sizes.

Timber harvesting land base

Crown forest land that is currently considered feasible and economical for timber harvesting.

Timber supply

The volume of timber available for harvesting over time, under a particular management regime.

Timber supply area

An area of Crown land defined in accordance with the *Forest Act*, primarily by an established pattern of wood flow from the forest to the primary timber-using industries.

Tree farm licence

An agreement entered into with the provincial government which provides for the establishment, management and harvesting of timber by a private interest on a defined area of Crown land in accordance with the *Forest Act*.

Kamloops Timber Supply Area

Introduction

The British Columbia Forest Service is reviewing the timber supply in all timber supply areas and tree farm licence areas in the province. The objectives of this three-year review are to:

- identify the economic, environmental and social consequences of existing forest management practices—including their impacts on the short- and long-term timber supply
- identify where improved information is required to make reliable forecasts
- provide the chief forester with information to make necessary adjustments to the allowable annual cuts for the next five years

This discussion paper summarizes the technical reports for the Timber Supply Review in the Kamloops Timber Supply Area and encourages British Columbians to comment on the findings. Public comments will be accepted until August 16, 1995. You will find a response form at the end of this paper to help you provide input.

Background to the Timber Supply Review

For at least 20 years, governments have known that British Columbia's timber supply would decline in the future—we could not keep cutting at the rate we've been going. Now there is an urgent need for up-to-date information to review the timber supply and allowable annual cuts throughout the province.

A 1991 study completed by the Forest Service, *A Review of the Timber Supply Analysis Process for British Columbia*, examined the procedures which led to the determination of allowable annual cuts, and confirmed the need for change.

The study found that:

- existing allowable annual cuts were based on outdated information and management practices
- procedures failed to fully account for integrated resource management practices and protection of non-timber values
- procedures were far too time consuming
- analytical techniques had to be strengthened

As a result of these procedural weaknesses, very few timber supply analyses had been completed since the early 1980s, with few allowable annual cut adjustments.

The Forest Service acted quickly on the study's recommendations. The Timber Supply Review was initiated to assess short- and long-term timber supplies in light of current forest practices and integrated resource management goals.

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 economy and environment—now and in the future. Section 7 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 licences:

- 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

Renewing our forests, securing our future

In British Columbia today, people are wrestling with one of the most complex and compelling issues of our time—the need to protect our environment and, at the same time, sustain our economy for present and future generations.

In addition to the Timber Supply Review, the government has a number of initiatives to create positive change for British Columbia:

- The new Forest Renewal Plan is already creating hundreds of projects across the province to restore and protect the health of British Columbia's forests, create new forest jobs, and increase economic benefits from each tree harvested.
- The Forest Practices Code is ensuring new forestry standards and better management of the resource.
- The Protected Areas Strategy is doubling British Columbia's parks and protected wilderness—expanding parks and preserving pristine wilderness for our children's future.
- Through the work of the Commission on Resources and Environment and dedicated British Columbians, long-standing land-use debates are being resolved. The government has delivered land-use plans for Vancouver Island, the Cariboo-Chilcotin and the Kootenay Boundary which mark important steps towards securing British Columbia's future.

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- 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 judgment based on the best information that is available. By law, the chief forester is independent of the political process and is not directed by the minister of forests when determining allowable annual cuts. In these determinations the chief forester considers relevant information from any source, including interest groups. However, these determinations cannot be inappropriately influenced by the advocacy efforts of any group.

Timber Supply Review process

The Timber Supply Review is an improvement over past methods, with better information and superior analytical techniques. The process was designed to stimulate public discussion through the release of

reports and this discussion paper, and to accommodate new information, techniques and ideas. Figure 1 illustrates the five-step process that has been developed for the Timber Supply Review in timber supply areas, the status of the Review for the Kamloops Timber Supply Area and the estimated time required to complete each step in the process.

As the legal mandate for allowable annual cut determinations for tree farm licence areas is the same as for timber supply areas, the Timber Supply Review process for tree farm licences is based on similar principles, but it has been designed to reflect the management role of these licencees. In the past, tree farm licences have not included specified timelines for licensees to prepare the information needed by the chief forester to determine allowable annual cuts for these areas. To reflect changing forest management standards, replacement tree farm licences specify timelines for preparing information.

A commitment to incorporate change

The *Forest Act* requires the chief forester to reassess the allowable annual cut for each timber supply area and tree farm licence area at least every five years after this review is completed to incorporate new information, new practices and government policies. Implementation of major government initiatives such as the Forest Practices Code, the Protected Areas Strategy* and the land-use recommendations from Land and Resource Management Plans may have significant impacts on the timber supply in specific timber supply areas and tree farm licences. In these cases, the chief forester may decide to determine the allowable annual cuts more frequently than every five years.

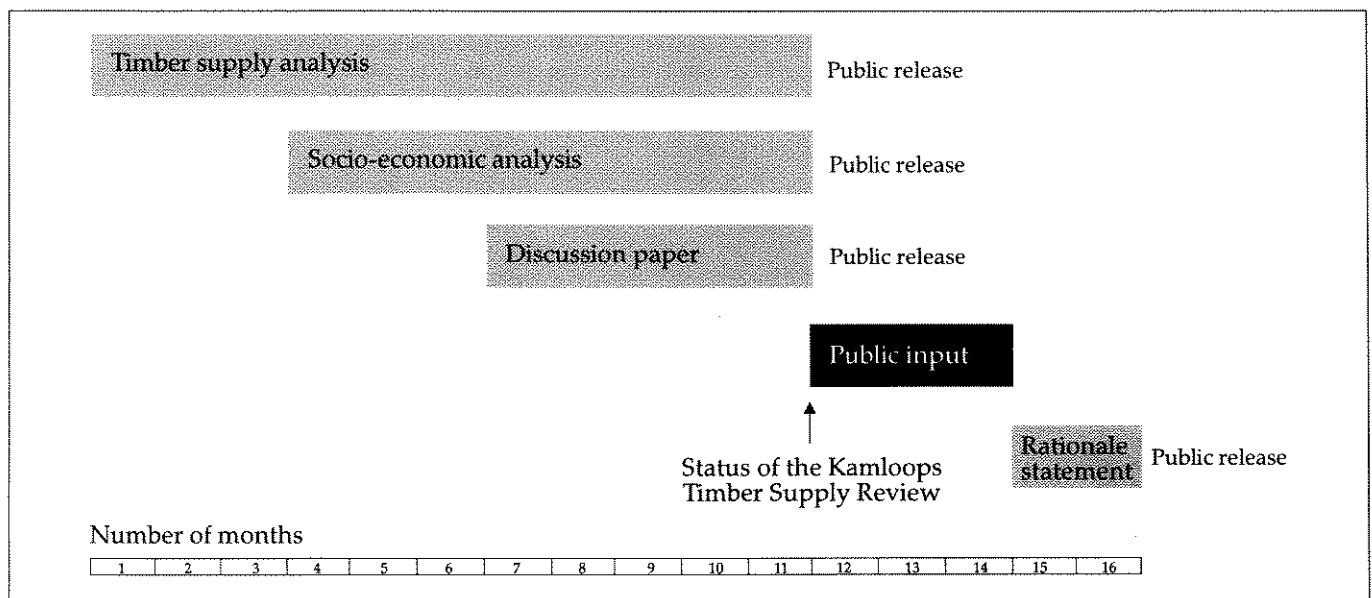


Figure 1 Steps in the Timber Supply Review process

Kamloops Timber Supply Area

Forest Practices Code

A *Forest Practices Code Act* for British Columbia was passed in the Legislature in July, 1994 and comes into force on June 15, 1995. This law requires better forest practices throughout the province, and establishes heavy penalties for violators. When the Code is fully implemented, forest management practices will be changed to meet its requirements. These new practices may influence both short- and long-term timber supply.

Since the information was prepared for the Timber Supply Review, some practices have been implemented in the Kamloops Timber Supply Area based on current understanding of the intentions of the Code. Information about these practices will be provided to the chief forester for consideration in this allowable annual cut determination. However, further implementation and experience with the Code will be required before the timber supply effects of new practices can be properly assessed, making it necessary to incorporate these factors in future allowable annual cut determinations.

Land and Resource Management Plan

A process to develop a Land and Resource Management Plan for the Kamloops Timber Supply Area and the two tree farm licence areas within the Clearwater and Kamloops Forest Districts has been underway since November, 1992. A Land and Resource Management Planning team consisting of 40 representatives of the general public, interest groups, industry and government agencies was formed to develop an integrated resource management plan based on consensus decision-making. Government has approved the final recommendations of this team, which were supported by all but one of the 40 representatives.

The approved plan includes the following land designations:

- 30 per cent for resource management zones where special management practices are required including:
 - 14 per cent for wildlife habitat areas
 - six per cent for community watersheds
 - five per cent for high value recreation and tourism areas
 - four per cent for protected areas, a significant increase from the 0.1 per cent before the Plan (not including Wells Gray Park which is adjacent to the Plan area)
 - one per cent for settlement lands
- 60 per cent for general management
- 10 per cent is private land and Indian Reserves

An approximation of the timber supply impacts of the Plan has been included in the review. A complete

assessment will be undertaken before the maximum five-year period required by the *Forest Act*.

A Land and Resource Management Plan Follow-up Committee will address three outstanding issues which will be considered in future timber supply reviews:

- additional "special feature" protected areas
- biodiversity management
- enhanced resource management zones where timber, mineral, range and agriculture production would be maximized

Timber Supply Review in the Kamloops Timber Supply Area

Forest Service staff in the Kamloops and Clearwater Forest Districts finalized the data for the Kamloops Timber Supply Area timber supply analysis in December 1994. This data is available for public review at the Kamloops and Clearwater Forest District Offices. The Forest Service then conducted and released a short- and long-term timber supply analysis (*Kamloops Timber Supply Analysis*, May, 1995). A consultant also completed a socio-economic analysis of the timber supply forecasts (*Kamloops Timber Supply Area: Socio-Economic Analysis*, May, 1995). Both reports are available from the Kamloops and Clearwater Forest District offices and the Forest Region office in Kamloops.

This discussion paper summarizes these two reports and highlights critical factors that the chief forester must consider to determine the allowable annual cut for the Kamloops Timber Supply Area. In conjunction with the release of this discussion paper, Forest Service staff will actively solicit public input to ensure the information in the Timber Supply Review is correct. Input will be accepted until August 16, 1995, and will be summarized in a report to the chief forester and the minister of forests.

After considering all the available information the chief forester will determine the allowable annual cut for the Kamloops Timber Supply Area late in 1995. This determination and a *Rationale Statement* for the determination will be released with the *Summary of Public Input*.

Throughout this discussion paper the page numbers from the technical reports are provided so that you can refer to them for additional information (TSAR is the *Kamloops Timber Supply Analysis Report*, and SEA is the *Kamloops Socio-Economic Analysis*)

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Description of the Kamloops Timber Supply Area

The Kamloops Timber Supply Area is located in the southwestern interior of British Columbia. It includes the Kamloops and Clearwater Forest Districts. Ecosystems range from dry, hot grasslands in the south to wet, rugged mountain ranges in the north. The Thompson River and its tributaries wind through the heart of the area, travelling south and westward towards its confluence with the Fraser River.

Forest resources

Timber

Figure 2 illustrates that much of the land base in the Kamloops Timber Supply Area is not suitable or available for timber harvesting. Approximately 32 per cent of the area is classified as non-Crown lands (areas not managed directly by the Forest Service, such as private lands and provincial parks) or as non-forested areas (water, rock, swamp, alpine etc.). Timber harvesting is not feasible or economical on approximately 23 per cent of the area, including areas that are too wet or steep, areas containing poor timber quality and areas with key non-timber resource values. In total, 45 per cent of the land base (950,832 hectares) is suitable for timber harvesting using current methods. This area forms the current timber harvesting land base* where harvesting can occur provided integrated resource management objectives are met. (TSAR page 7).

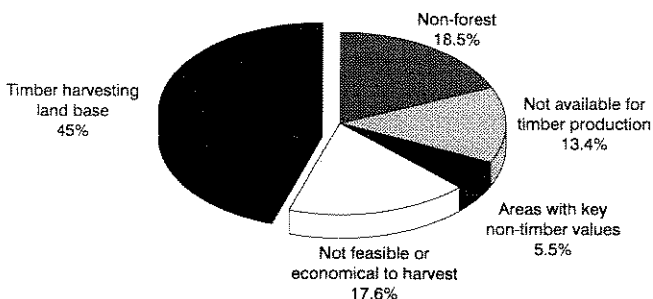


Figure 2 Kamloops Timber Supply Area land base

Notes: Total area: 2,117,718 hectares

Areas with key non-timber resource values include environmentally sensitive areas, riparian areas, Tod Mountain, lakeshore management areas and the Hudson's Bay heritage trail.

Protection Resource Management Zones in the Kamloops Land and Resource Management Plan were not approved by government when the timber supply analysis was completed so these areas were included in the timber harvesting land base for this review.

The dense forests of the north and central portions of the timber supply area contrast with the mixed pine-fir forests and grasslands in the southern valleys. Sixty-two per cent of the timber harvesting land base is occupied by mature forests, of which almost a third are lodgepole pine. Figure 3 illustrates the dominant tree species in the timber harvesting land base of the Kamloops Timber Supply Area. (TSAR page 9)

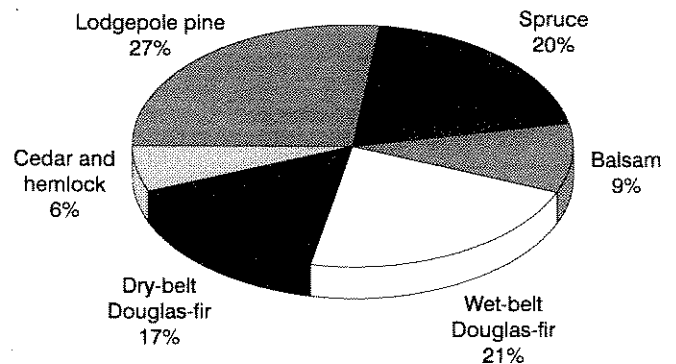


Figure 3 Commercial tree species in the timber harvesting land base

Wildlife

The Kamloops Timber Supply Area contains an abundance of wildlife, ranging from mountain caribou, California big horn sheep, grizzly bear, goat, mule deer, moose and marten to birds and a variety of other species. A provincially important mountain caribou herd uses the timber supply area as a migration corridor to Wells Gray Park. The timber supply area supports a number of other animal and plant species which require special consideration, particularly in the grassland and ponderosa pine ecosystems, due to their rarity or restricted ranges. (SEA page 19)

Fisheries

Approximately 1,800 lakes, 40 salmon streams and many other streams within the timber supply area support some of the finest inland fisheries in British Columbia including rainbow trout, steelhead, kokanee, brook trout and dolly varden. The Thompson and Adams Rivers and their tributaries support significant fish populations including sockeye, coho, chinook and pink salmon and steelhead. The Adams river, in particular, is world-famous for its sockeye. (SEA page 22)

Recreation and tourism

In the Kamloops Timber Supply Area, residents and tourists enjoy recreational activities such as wildlife viewing, camping, hiking, skiing, sports fishing, boating and hunting. The existing parks within the area, near-by Wells Gray Park and the 21 new

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protected areas provide a wide spectrum of recreational opportunities for outdoor enthusiasts. The highways also provide a major scenic corridor for tourists travelling between the coast and interior destinations such as Banff and Jasper National Parks and Shuswap Lake. (SEA page 17)

Range

The grasslands and open forests in the area provide forage for the beef cattle ranching industry. These operations are dependent on public rangelands which provide 40 per cent of their forage requirements. Public rangeland in the Kamloops Timber Supply Area is being used to capacity. (SEA page 15)

Current allowable annual cut

The current allowable annual cut, 2,416,680 cubic metres, was set in 1981. Approximately 81 per cent of the allowable annual cut is allocated to long-term timber tenures, 17 per cent is harvested through the Small Business Forest Enterprise Program administered by the Forest Service, one per cent is allocated to woodlot licenses and one per cent is unallocated.

Because allowable annual cuts for woodlots are determined separately, the land base for woodlots was not included in the timber harvesting land base for this review. Consequently, the 23,500 cubic metres of allowable annual cut for woodlots was deducted from the cut, resulting in an allowable annual cut of 2,393,180 cubic metres for this review.

In addition to the timber harvesting rights allocated under the allowable annual cut, two pulpwood agreements* also cover portions of the Kamloops Timber Supply Area. These agreements permit timber harvesting in special circumstances when it is necessary to supplement wood supplies. Planning is currently underway for harvesting under one of these agreements. Because there had not been any harvesting under these agreements when the timber supply analysis was initiated, pulpwood harvesting was not considered a current practice and was not included in the timber supply analysis.

Socio-economic profile

The total population within the Kamloops Timber Supply Area is 90,450 (based on 1991 data), with 76 per cent residing in the City of Kamloops.

Local economy

The City of Kamloops is relatively diversified with no one economic sector dominating the labour force. However, the surrounding area is dependent on

resource-based activities, with the dominant sectors being forestry, mining and ranching/agriculture. In the western portion of the timber supply area, two major mining operations provide the bulk of the employment. In the North Thompson area, people employed in the forest industry comprise 37 per cent of the labour force compared to 10 per cent in Kamloops. (SEA page 14)

Figure 4 illustrates the sources of employment income in the Kamloops Timber Supply Area. (SEA page 14)

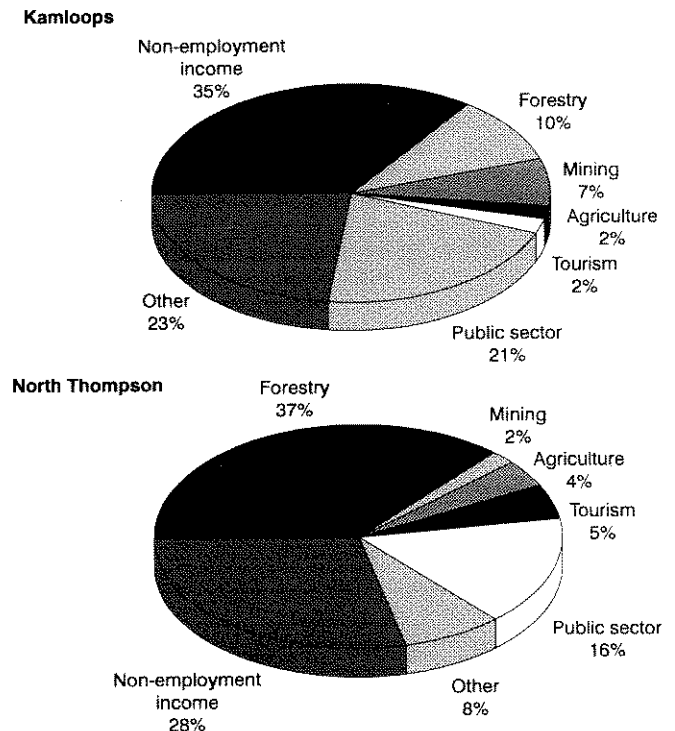


Figure 4 Employment income sources in the Kamloops Timber Supply Area

First Nations

Ten First Nations bands, all located south of Clearwater, reside within the timber supply area. The seven bands within the Secwepemc (Shuswap) Nation Tribal Council account for 87 per cent of the total aboriginal population of approximately 4,078 individuals within the timber supply area. Of the remaining three bands, two are affiliated with the Nlaka'pamux Nation Tribal Council which has communities primarily along the Thompson River, south of Cache Creek. The Little Shuswap Band is independent and its people reside near the eastern boundary of the timber supply area. There are eight additional bands whose people reside outside the timber supply area, but whose traditional territory extends into the timber supply area. Three of these bands are associated with the Shuswap Nation Tribal Council, two are associated with the Lillooet Tribal

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Council, two are affiliated with the Nicola Valley Tribal Council, and one is independent.

Forest sector

The forest sector in the Kamloops Timber Supply Area includes a range of businesses, from individuals to independent companies and multinational corporations. Eight major forest companies have long-term licences to harvest timber from the area. Six of the eight companies have mills within the timber supply area while the other two companies process the timber they harvest outside the timber supply area; one company in Armstrong and the other in Lumby and Revelstoke. The sawmills in the timber supply area secure 71 per cent of their timber from the Kamloops Timber Supply Area. (SEA page 30)

These figures do not include the timber requirements of the numerous secondary manufacturers producing firewood, utility poles, fencing products, housing components, shakes and specialty boards. These mills are usually in critical need of wood, and the Small Business Forest Enterprise Program administered by the Ministry of Forests provides them with opportunities for wood supply through competitive timber sales.

Other businesses provide a variety of forestry services including building forest roads, planning, stand tending such as juvenile spacing, and other silvicultural activities. Small forestry consultants also specialize in timber cruising, logging layout and other forestry activities.

Harvesting and processing the current allowable annual cut in the Kamloops Timber Supply Area generates an estimated 1,675 person-years of direct employment within the area. An additional 1,075 person-years of spin-off employment are estimated to be created through forest company and employee spending, based on the assumption that for every direct job in the local forest industry, an additional 0.64 jobs are created elsewhere in the Kamloops Timber Supply Area. In total, the present allowable annual cut generates approximately 2,750 person-years of employment in the Kamloops Timber Supply Area. (SEA page 39)

Provincial economy and revenues

It is estimated that harvesting and processing timber from the Kamloops Timber Supply Area generates a total of 505 person-years of additional direct forestry employment in the province. In total, forestry activities resulting from the current allowable annual cut generate approximately 5,450 person-years of

employment in the province, 50 per cent of which is created in the Kamloops Timber Supply Area. (SEA page 40)

Approximately \$82.5 million in provincial revenues are generated annually by timber harvesting in the Kamloops Timber Supply Area. This figure is based on the average total fees for harvesting public timber in the area (\$20.75 per cubic metre based on 1994 information), plus estimated personal income taxes and other tax revenues of \$13.70 per cubic metre. These estimates include the increased stumpage revenues being generated to fund the Forest Renewal Plan. (SEA page 41)

Current management practices

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

The timber supply analysis was based on current management practices—practices being approved and implemented in the Kamloops Timber Supply Area in 1994, when this analysis was initiated. Readers are encouraged to review the *Kamloops Timber Supply Analysis Report* (Pages 11-14 and Appendix A) for more detailed information.

Management zones and integrated resource management practices

For the timber supply analysis, Forest Service staff divided the timber harvesting land base into management zones by grouping areas where similar integrated resource management practices are implemented. This approach permits an analysis of the different types of forests and the range of practices in the Kamloops Timber Supply Area. The area in each zone was estimated from existing plans and integrated resource management practices in the timber supply area. Site specific practices implemented in any one area may differ from the practices used in the analysis for each zone.

Figure 5 illustrates the area within each management zone.

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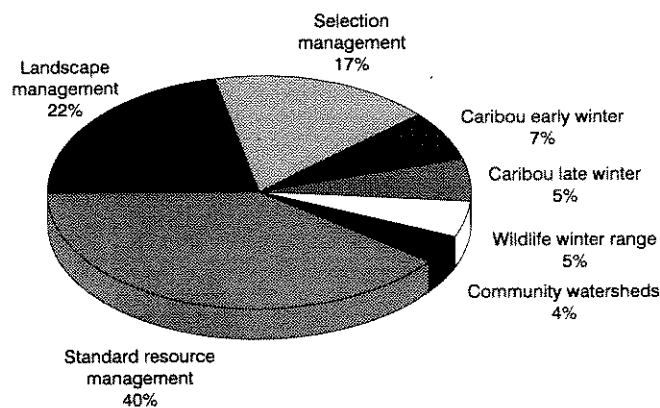


Figure 5 Area of each zone in the timber harvesting land base

Forest cover requirements have been defined for each zone to permit analysis of the integrated resource management guidelines which were being implemented when the timber supply analysis was done. These requirements include the maximum amount of forest which can be younger than a certain age to ensure harvesting does not become overly dominant, and the minimum amount of area that must be covered by forests older than a certain age. The forest cover requirements for each management zone are described below.

- **Landscape management zone** (205,474 hectares) — areas that can be seen from the main highways and a number of lakes within the timber supply area. The management objective is to maintain visual quality along corridors where people live, work, play and travel. In this zone no more than 10.7 per cent of the area may have forests below six metres tall (25 years old) and at least 6.6 per cent of the area must have forests greater than 20 metres tall (82 years old) at all times.
- **Selection management* zone** (157,038 hectares) — dry-belt Douglas-fir where selection management is used to maintain forests with a range of tree ages and sizes. Forest cover requirements do not apply in this zone as small, cleared patches are created during harvest which do not negatively impact non-timber resource values.
- **Caribou early winter zone** (63,598 hectares) — early winter and transitional range areas used by mountain caribou. In this zone no more than 32 per cent of the area may have forests below three metres tall (21 years old) and at least 30 per cent of the area must have forests at least 19.5 metres tall (92 years old) at all times.
- **Caribou late winter zone** (53,589 hectares) - winter range areas used by mountain caribou. No more than 33 per cent of the area may have forests less than three metres tall (22 years old) and, to ensure adequate winter food sources exist, at least 12 per cent of the area must have forests at least 200 years old at all times.

- **Wildlife winter range zone** (49,906 hectares) — winter range areas for deer and elk where forage production is maintained or enhanced by distributing harvesting throughout the area. In this zone, no more than 20 per cent of the area is permitted to have forests less than three metres tall (16 years old) and at least 28.4 per cent of the area must have forests greater than 20 metres tall (77 years old) at all times.
- **Community watershed zone** (41,730 hectares) — areas where maintaining water quality, quantity, and timing of run-off is the priority. No more than 24 per cent of the area is permitted to have forests less than 5.4 metres tall (23 years old) and at least 9.3 per cent of the area must have forests greater than 20 metres tall (84 years old) at all times.
- **Standard integrated resource management zone** (379,496 hectares) — the remaining timber harvesting land base not assigned to another zone. Long-term management practices are designed to integrate all resource values. This zone is managed on a four-pass harvesting system within the Kamloops District and a three-pass harvesting system within the Clearwater District. On average, no more than 28 per cent of the area is permitted to have forests less than three metres in height (17 years old) and at least seven per cent of the area must have forests greater than 20 metres tall (84 years old) at all times.

Current practices

The current forest management practices that are approved and implemented in all zones are briefly described below.

- **Basic silviculture** — British Columbia laws require areas that are harvested and expected to produce timber in the future must be reforested with ecologically acceptable species within a specified time frame (two to five years was used in the analysis). The most common silviculture practice is to clearcut harvest; site prepare (if necessary); reforest by planting a mix of species or by relying on natural regeneration; and control competing vegetation if required.

About 17 per cent of the timber harvesting land base has dry-belt Douglas-fir forests which are harvested using selection management which aids regeneration by providing shading.
- **Harvestable ages** — The minimum harvestable age is defined as the time it takes for trees to grow to a harvestable size. The minimum age at which a forest may be harvested in the Kamloops Timber Supply Area ranges from 81 to 101 years, depending on the tree species and the quality of the growing site.

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- **Forest health and unsalvaged losses** — Timber losses due to wildfire, insects, diseases and windthrow are minimized as much as possible, and damaged timber is salvaged when feasible. Losses of merchantable timber to insects, disease and animals are estimated to be 34,400 cubic metres per year. Losses to fire and wind are expected to be 9,000 cubic metres per year.
- **Timber utilization** — Within cutblocks, timber that meets or exceeds the following size limits and is suitable for manufacturing lumber or pulp chips must be utilized:
 - diameter at stump: lodgepole pine - 15 centimetres; other species - 20 centimetres
 - diameter at top: cedar older than 141 years - 15 centimetres; other species - 10 centimetres
- **Protection of riparian areas** — Riparian areas* are very important to fish and wildlife and contain the highest number of species of flora and fauna. In accordance with the *Kamloops Timber Supply Area Riparian Management Area Guidelines*, a total of 10,483 hectares were deducted from the database to protect streamside and lakeshore areas throughout the Kamloops Timber Supply Area.
- **Wildlife/biodiversity**
Streamside and lakeshore buffers, forests that are not considered feasible for timber harvesting due to low timber volumes, and other environmentally sensitive areas that were deducted from the timber harvesting land base contribute to wildlife habitat and biodiversity. Forest cover requirements have been designed to ensure appropriate wildlife habitat is available, and to meet biodiversity requirements, particularly in the caribou and wildlife winter ranges.
- **Soil conservation** — Harvesting layout follows provincial and regional guidelines. For the timber supply analysis, 12.8 per cent of the timber harvesting land base with forests less than 21 years old was deducted to account for existing roads, landings and major debris piles which have become non-productive through harvesting. To account for future roads, landings and major debris piles, the remaining land base was reduced by 7.6 per cent.

Timber supply forecasts and critical factors

It is important to understand that the timber supply forecasts presented in the analysis report and in this paper do not represent either a short-term allowable annual cut determination or a long-term strategy to adjust harvest levels. The base case forecast and the critical factors described below will be considered by the chief forester to determine the allowable annual cut for the next five years.

Base case forecast

To complete the timber supply analysis for the Kamloops Timber Supply Area, a computer model was used to generate a base case timber supply forecast using the following principles:

- maintain the current allowable annual cut for as long as possible, or if this was not possible, find the maximum initial harvest level
- if the predicted long-term sustainable timber supply level was lower than the initial harvest level, reduce the timber supply within a defined range of eight to 12 per cent per decade, until the long-term level was reached
- if possible, maintain the timber supply at or above the predicted long-term sustainable level at all times

Using the best information available when the analysis was conducted in 1994 and meeting the conditions described above, the base case forecast for the Kamloops Timber Supply Area indicates the present allowable annual cut can be maintained for 20 years (Figure 6). Following this, the timber supply is projected to decline by nine per cent per decade until the long-term sustainable timber supply level of 1,958,000 cubic metres per year is reached 40 years from now. (TSAR page 15)

Kamloops Timber Supply Area

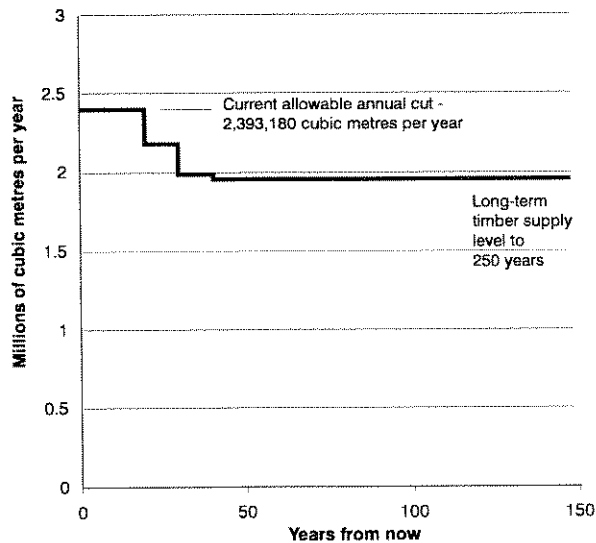


Figure 6 Base case timber supply forecast

Examining critical factors

Since 1994 when the data was prepared for the timber supply analysis, Forest Service staff have been collecting more information for some of the factors in the analysis. Also, tests completed during the timber supply analysis identified which factors had the greatest effect on the timber supply forecasts. These critical factors are discussed in this section.

The chief forester must carefully evaluate this information to determine the allowable annual cut and identify where improved information is needed for future determinations. We encourage you to do the same.

Factors indicating the short-term timber supply may be lower than predicted in the base case

- **Management practices in community watersheds**
In the southern portions of the Kamloops Timber Supply Area, maintaining acceptable water flow is an important factor because of the naturally dry conditions in this area. The area within community watersheds may have been underestimated for the timber supply analysis. Also, upcoming changes in practices in watersheds may limit the amount of timber harvesting permitted, which may reduce the projected timber supply.

Factors that may either increase or decrease the short-term timber supply

- **Green-up periods**
In the Kamloops Timber Supply Area, green-up heights—the height regenerated forests on

previously cutover areas must reach before adjacent timber can be harvested—vary from six metres in the landscape management zone to three metres in the wildlife winter range and standard management zones. In the timber supply analysis, it was estimated that 16 to 25 years would be required for forests to reach these heights. These estimates may be inappropriate because:

- the defined minimum height may not provide the forest conditions required to meet the management objectives for visual quality or wildlife winter range
- it may take regenerated forests more or less time than estimated to reach the minimum height.

As Figure 7 illustrates, changing the green-up heights affects the projected timber supply (TSAR page 32).

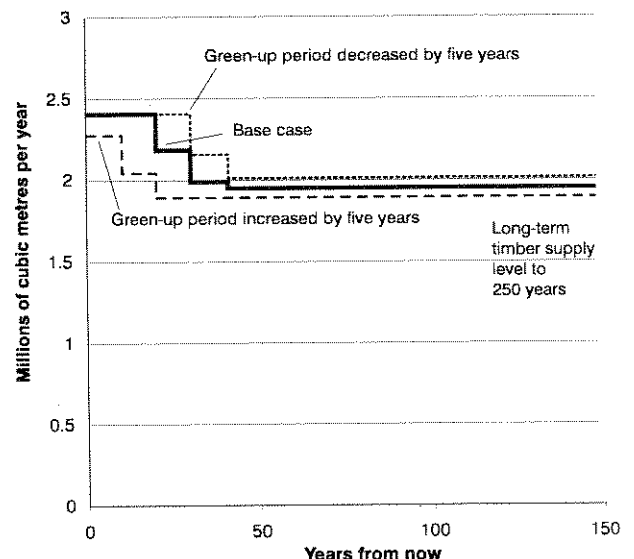


Figure 7 Impact of changing estimates of green-up periods

- **Forest cover requirements**
Forest cover requirements—the amount of area within the timber harvesting land base permitted to have forests below a defined minimum height or age, and the area required to have forests above a defined height or age—are used in timber supply analyses to approximate the management practices for each zone. The estimates used for the following factors have substantial impacts on the projected timber supply in the Kamloops Timber Supply Area:
- **visually sensitive areas**
Changing the estimates of the amount of area permitted to have forests below a defined height or age in each zone has a substantial impact on the the projected timber supply (Figure 8). As Figure 8 also illustrates, the requirements in the landscape management zone, which occupies 22

Kamloops Timber Supply Area

per cent of the timber harvesting land base, cause the majority of the impact on the projected timber supply. Similar changes to the estimated requirements in the other zones have much smaller effects on the the base case forecast. (TSAR page 34)

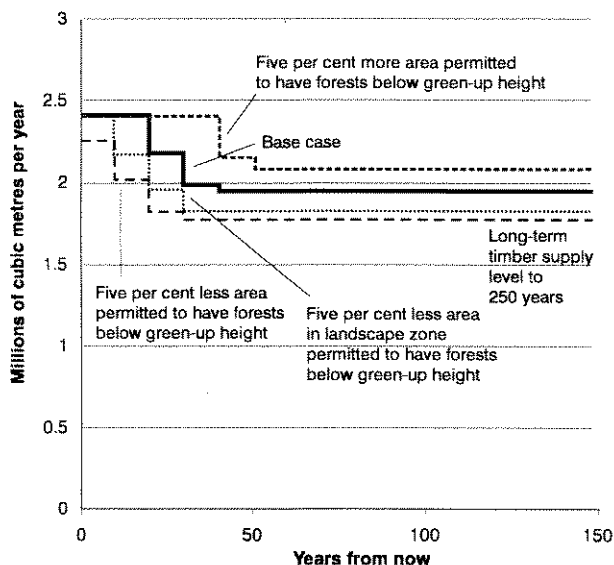


Figure 8 Impacts of changing the estimated forest cover requirements

- **wildlife and biodiversity**

For the timber supply analysis, a defined percentage of the forests in the timber harvesting land base was required to have forests above a specified age at all times to provide mature forests for wildlife habitat and to ensure a range of forest ages to maintain biodiversity. Figure 9 illustrates the impacts on the projected timber supply of changing the estimated area required to have forests over this age. (TSAR page 36)

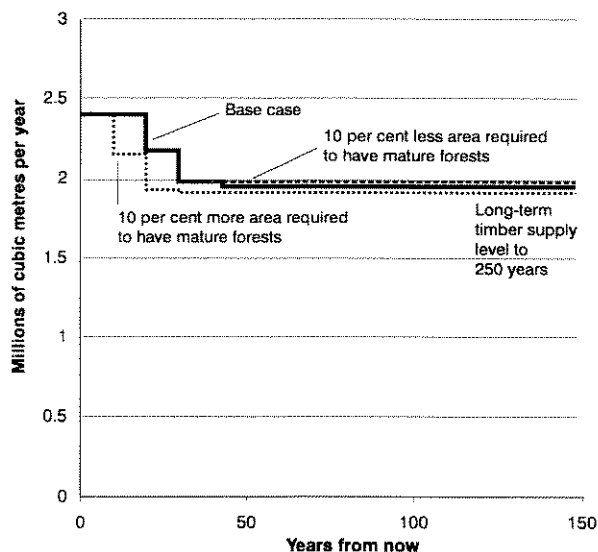


Figure 9 Impacts of changing the requirements for mature forests

- **Estimates of existing mature timber**

As Figure 10 illustrates, the estimates of merchantable timber in the existing mature forests in the timber harvesting land base have a substantial impact on the projected timber supply.

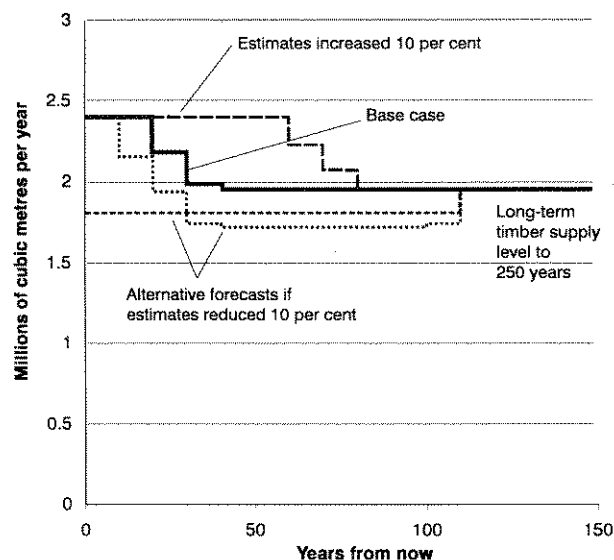


Figure 10 Impact of changing the estimates of mature timber in existing forests

Studies are underway to examine the accuracy of the estimates of mature timber used in the timber supply analysis. (TSAR page 29)

- **Management practices in caribou habitat**

Approximately 12 per cent of the timber harvesting land base is within caribou habitat where timber harvesting practices are being refined to permit some timber removal while maintaining adequate forest conditions for caribou. Partial cutting techniques are preferred in these areas to minimize the impact of timber harvesting. It is possible the estimates used in the timber supply analysis may over or under estimate the actual timber supply impacts of practices to maintain caribou habitat.

- **Minimum harvestable ages**

Minimum harvest age is an estimate of the time it takes for a forest to reach a specified merchantable condition. It also defines when second growth will be available for harvesting, and therefore, determines how long the timber industry must rely on the existing mature timber supply.

The minimum harvest age depends on the type of forest product that is to be produced and the expected time it will take for forests to reach the condition required to produce that product. Both of these factors are, to some degree, unknown.

Figure 11 shows the effect on timber supply if the minimum harvest ages used to produce the base case harvest forecast are increased or decreased. (TSAR page 28)

Kamloops Timber Supply Area

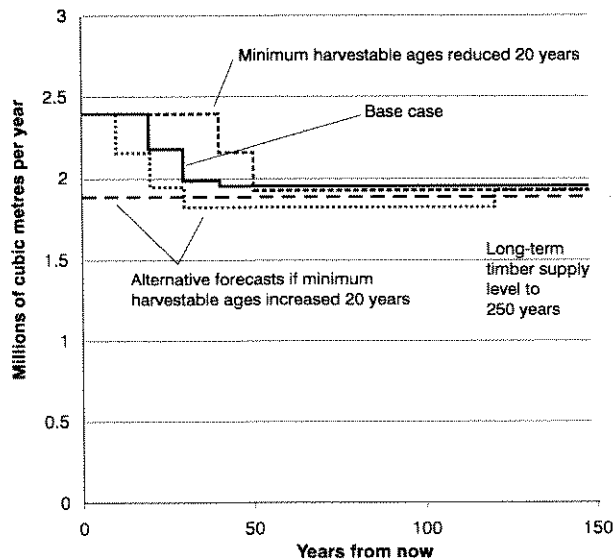


Figure 11 Impact of changes in minimum harvestable ages

Factors indicating the short-term timber supply may be higher than predicted in the base case

• Timber productivity estimates for regenerated forests

The biological productivity of a forest site is the main factor that determines how quickly trees will grow on that site, what the expected timber volumes from regenerated forests will be, and when these forests will be suitable for harvesting. The most accurate assessments of site productivity (known as site index) are based on the growth of 30 to 150-year-old forests. Current assessments of site productivity in the Kamloops Timber Supply Area are based on the original, very old forests, and may not be accurate for regenerated forests.

Possible opportunities to change practices to partially offset timber supply reductions

• Harvesting areas that are currently not considered economical to harvest

The harvesting practices being implemented when the data was prepared for the timber supply analysis determined what areas were included in the timber harvesting land base. Forest inventory data was used to identify areas where it is currently feasible to harvest based on the terrain, soil stability, and amount of merchantable timber. Determining the long-term timber harvesting land base is difficult, however, because of changing markets, technology and social values. An example of these changes is very old cedar, greater than 140 years old. In the past analyses, only 60 per cent of the very old cedar timber was included, based on

the assumption that the remaining 40 per cent was not economical to harvest. Today, cedar timber is highly valued, and all of the very old timber is included in this analysis.

Three particular opportunities exist in the Kamloops Timber Supply Area:

• very old hemlock

Approximately seven million cubic metres of hemlock over 140 years old were deducted from the mature timber in the timber supply analysis. This is based on the current practice of not using this timber for solid wood products. New technologies and higher values for this timber are prompting changes in this practice.

This additional timber volume could either offset a potential immediate timber supply reduction, prolong the current harvest level, or increase the allowable annual cut. In the past, very old hemlock was not included in the timber supply analysis, although some harvesting was permitted when it was economical. Current perspectives indicate this timber should be considered in the allowable annual cut determination. (TSAR page 39)

• problem forest types

Over 165,000 hectares of forests that are mainly very dense lodgepole pine with small diameters and short trees were deducted from the timber harvesting land base because these forest types have not been harvested in the past. Changes in harvesting and reforestation practices and increased timber values may make it feasible to include portions of these areas in the timber harvesting land base.

Recent changes in timber harvesting and milling technology now provide an opportunity to utilize problem forest types for oriented fibreboard products. A pulpwood agreement currently authorizes harvesting a maximum of 86,000 cubic metres per year of problem forest types from the Kamloops Timber Supply Area.

If these problem forest types are harvested, they would be reforested and a portion would be managed to produce sawlogs in the future. This would increase the size of the timber harvesting land base, and the projected long-term timber supply.

Harvesting problem forest types under the pulpwood agreement may affect the availability of mature timber for sawlog harvesting by creating cutover areas which must be reforested and reach the minimum height requirements before adjacent sawlog timber can be harvested. Concerns have also been raised that harvesting

Kamloops Timber Supply Area

problem forest types may have a negative impact on wildlife habitat.

- **deciduous forests**

Deciduous forests, which occupy 46,000 hectares in the Kamloops Timber Supply Area, currently are not harvested and were deducted from the timber harvesting land base. New technologies may make it feasible to utilize these forests, making it possible to add them to the timber harvesting land base. It is expected that some of these forests will be harvested under the pulpwood agreement.

- **Intensive silvicultural treatments**

In some circumstances, intensive silvicultural treatments such as juvenile spacing or fertilization which increase tree growth and the long-term timber supply may also increase the short-term timber supply.

In the timber supply analysis, a test of the impacts of changing the estimated timber harvested from regenerated forests by 10 per cent did not change the projected short-term timber supply. (TSAR page 30)

Because the Timber Supply Review was designed to assess the timber supply impacts of current practices, the range of intensive silvicultural treatments that might be implemented in the Kamloops Timber Supply Area were not examined. Further analyses are required to examine the potential opportunities for intensive silvicultural treatments and the implications of those treatments on timber supply and other resources.

- **Commercial thinning**

Approximately 14 per cent of the forests in the Kamloops Timber Supply Area are between 30 to 80 years old and may be candidates for commercial thinning. However, to date very little commercial thinning has occurred. Commercial thinning has the potential to supply some additional timber in the short term. Further study is required to identify candidate forests for commercial thinning, to examine the feasibility of a commercial thinning program, and to assess the impact of this practice on the projected short- and long-term timber supply.

Timber supply impacts of the approved Land and Resource Management Plan

In December 1994, the Land and Resource Management Planning Team reached an agreement-

in-principle which was supported by all but one member. These recommendations are now approved by government. Based on the agreement-in-principle, an approximation of the timber supply impacts of the Plan was tested in the Kamloops timber supply analysis.

It must be emphasized that it is not possible to exactly assess the approved Plan, particularly because it includes tree farm licence areas which are not included in this analysis. The following is an approximation of the approved Plan.

Forest Service staff made the following adjustments to the data used in the Timber Supply Review to approximate the land use designations and practices in the approved Land and Resource Management Plan:

- **timber harvesting land base reduced by 3.9 per cent**
 - community watersheds deducted - 3,800 hectares
 - additional recreation/tourism areas - 356 hectares
 - protected areas - 33,000 hectares
- **areas for future roads, trails and landings reduced**
 - area deducted reduced from 7.6 per cent of forests over 20 years old to 6.6 per cent based on rehabilitation of roads, trails and landings on good and medium sites
- **changes to forest management practices**
 - landscape management zone - green-up period reduced from six metres (25 years) to four metres (20 years); area below green-up increased from 10.7 per cent to 13.4 per cent
 - caribou winter zones - both managed on 150 year rotations; requirement that 12 per cent of late winter zone be above 200 years old removed
 - standard management zone - 10 per cent of the timber harvesting land base must be more than 200 years old at any time to meet biodiversity objectives

Figure 12 illustrates the approximate timber supply impacts of the approved Plan. (TSAR page 40)

Kamloops Timber Supply Area

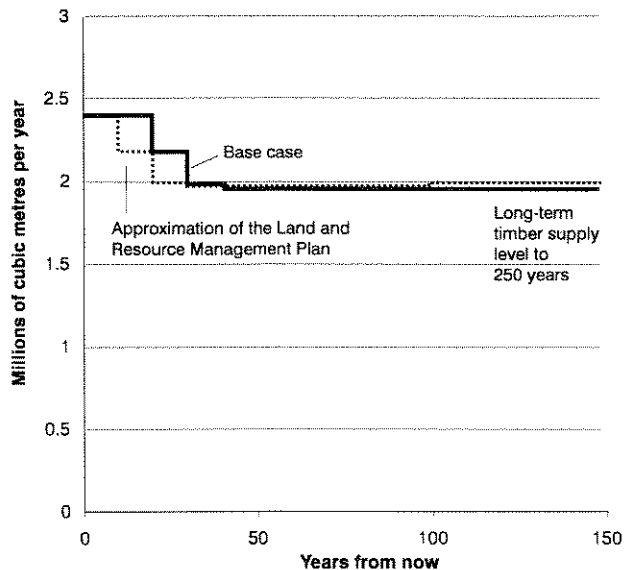


Figure 12 Approximate impacts of the Land and Resource Management Plan

Environmental and socio-economic impacts

Environmental concerns

Staff of the Ministry of Environment, Lands and Parks and the federal Department of Fisheries and Oceans both review harvesting development plans and support many of the current practices used in the Kamloops Timber Supply Area to protect fish and wildlife habitat. Implementation of the Forest Practices Code and the Kamloops Land and Resource Management Plan should address many remaining concerns about fish and wildlife habitat management. (SEA page 44)

Riparian habitats are particularly important to fish and wildlife species, and for biodiversity. Ministry of Environment, Lands and Parks are of the opinion that additional protection of riparian areas that do not have fish populations present is required. This would reduce the size of the timber harvesting land base.

There are concerns continued extensive road construction required to maintain the current allowable annual cut may have negative impacts on sensitive habitats such as riparian areas, and on wildlife populations through increased hunting and recreational traffic.

To provide suitable wildlife habitat and biodiversity, Ministry of Environment, Lands and Parks prefers that the natural range of forest ages remain within the forest. In the timber supply analysis it is assumed that the older forests will be harvested first, which may not meet wildlife and biodiversity management objectives.

First Nations impacts

First Nations communities in the Kamloops Timber Supply Area have many diverse concerns and issues associated with forestry activity.

The policy of the Secwepemc Nation Tribal Council is that British Columbia should avoid alienation or potential degradation of natural resources in Secwepemc Nation territory. Secwepemc people do not feel comfortable with the level of forest harvesting in the timber supply area and the detrimental impacts to the environment which have occurred in the past. The independent Little Shuswap Band is concerned about preservation of traditional lands and cultural sites, as well as distribution and access to timber for First Nations.

Community impacts

The impact of adjustments in timber supply on local communities is an important consideration in the Timber Supply Review. While the base case timber supply forecast for the Kamloops Timber Supply Area indicates it may be possible to maintain the current allowable annual cut for 20 years, communities in the Timber Supply Area are beginning to recognize the need to plan for the projected timber supply reductions in the future and to initiate the development of transition strategies, particularly in the North Thompson area. Expansion of the timber manufacturing sector (e.g. value-added processing of wood from the timber supply area) and the tourism industry could help offset future economic impacts. Initiatives through the Forest Renewal Plan will also offset future impacts. (SEA page 43)

Chief forester's determination

The chief forester must determine an allowable annual cut as part of a strategy to achieve the projected long-term sustainable timber supply level. The base case forecast provides one alternative, but the chief forester may select another harvest level based on his consideration of the factors required under Section 7 of the *Forest Act* which are listed on pages 1 and 2 of this paper.

Your input is needed

The allowable annual cut is an important determination requiring well-informed and thoughtful public input. We ask you to answer the questions on the response form at the back of this paper. We encourage you to add any additional comments you feel are relevant. If you prefer, additional comments or a detailed submission may be written on separate pages.

Kamloops Timber Supply Area

Feedback is welcomed on any aspects of this *Discussion Paper*, the *Timber Supply Analysis Report* and the *Socio-economic Analysis Report* and other topics related to the timber supply in the Kamloops Timber Supply Area. Forest Service staff listed below would be pleased to discuss questions or concerns that would help you prepare your response.

Please mail the completed questions and your comments to one of the forest district managers at the addresses below. Your comments will be accepted until August 16, 1995.

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 the responses are requested, personal identifiers will be removed before the responses are released.

A summary of public comments will be available from the district managers when the chief forester's allowable annual cut determination is announced.

For more information contact:

Bob Miller, District Manager, or
Gary Reay, Strategic Planner
Kamloops Forest District
1265 Dalhousie Drive
Kamloops, B.C., V2C 5Z5

Phone: (604) 371-6500
Fax: (604) 828-4627

Jim Munn, District Manager, or
Ron Van der Zwan, District Planner
Clearwater Forest District
Box 4501, R.R.#2
Clearwater, B.C., V0E 1N0

Phone: (604) 587-6700
Fax: (604) 587-6790

Discussion Paper Response Form

- the rate of timber production that can be sustained from the area
- the short- and long-term implications for the province of alternative rates of timber harvesting from the area
- the timber requirements of established and proposed timber processing facilities
- the economic and social objectives of the Crown, as expressed by the minister, for the area, the general region, and the province
- abnormal pest infestations in the timber on the area and major salvage programs that are planned

A. Economic and social objectives

Please use the space below to provide your comments regarding the economic and social objectives you believe should be considered in determining the allowable annual cut for the Kamloops Timber Supply Area.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

B. Technical forestry factors and impacts of alternative rates of harvest

Please use the space below to provide any information which you believe may assist the chief forester in considering the technical factors to determine the allowable annual cut for the Kamloops Timber Supply Area. Further information on the critical factors outlined on pages 9 to 13 in this paper would be most helpful.

Which community sector listed below best describes your interests?

- | | |
|--|--|
| ☐ local business | ☐ timber industry |
| ☐ outdoor tourism | ☐ environmental conservation |
| ☐ general public | ☐ other (please define) _____ |
| ☐ First Nation | ☐ government agency (please identify) |

Name (optional) _____

Address (optional) _____

Mail your comments to:

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Kamloops Forest District
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