

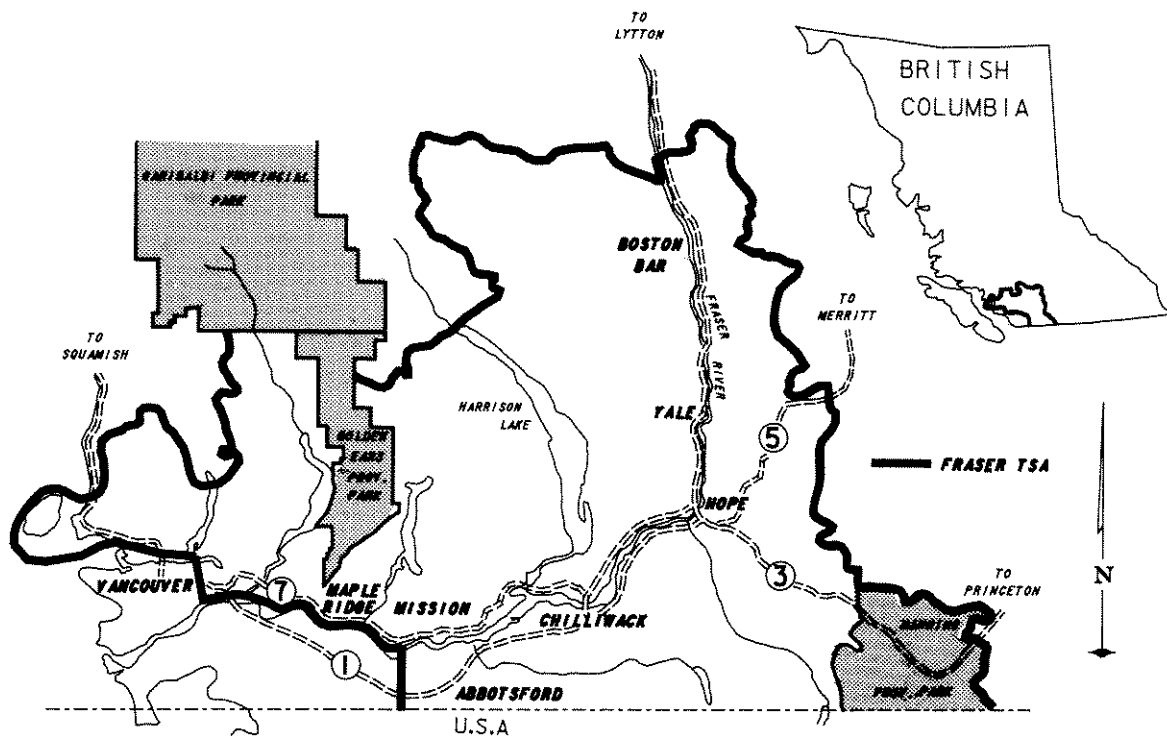


MINISTRY OF FORESTS

Fraser Timber Supply Area

TIMBER SUPPLY SECTION
RESOURCE PLANNING BRANCH

Timber Supply Review Discussion Paper
June 1994



Province of
British Columbia
Ministry
of Forests

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Timber Supply Review Highlights

- The British Columbia Forest Service is reviewing the timber supply for all timber supply areas* and tree farm licences* in the province. The review examines the impacts of current integrated resource management* practices on the timber supply, economy and environment of the local areas and the province. Based on the results of this review, the chief forester may decide to adjust the allowable annual cut* for the Fraser Timber Supply Area.
 - The current allowable annual cut for the Fraser Timber Supply Area is 1,765,000 cubic metres per year. Approximately 70 per cent of this wood is processed in the 110 milling facilities located in the area. The total direct employment generated in the province by harvesting and processing the timber from this timber supply area is estimated to be 2,060 person-years*. The current harvest creates an additional 3,092 person-years of employment in businesses which provide goods and services to the forestry sector. (p. 5)
 - The current allowable annual cut cannot be maintained in the long term with current integrated resource management practices. Over the next 30 years, the timber supply is projected to decline to a sustainable level of 1,180,000 cubic metres per year. (p. 7)
 - Visual aesthetics are extremely important in this area, much of which is visible to hundreds of thousands of B.C. residents and visitors. Because the province's reputation for natural splendor is at stake, approximately 25 per cent of the timber harvesting land base* in the Fraser Timber Supply Area is managed for visual aesthetics which limits the amount of timber harvesting that is possible at any one time. (p. 10)
 - Intensive silviculture treatments (i.e. juvenile spacing, fertilization, etc.) in the Fraser Timber Supply Area are unlikely to increase the short-term timber supply, although these treatments could increase the timber supply in the long term. (p. 10)
 - With alternative harvesting systems and a possible increase in timber values as wood supplies become more limited, greater portions of the timber on mountainous terrain and lower-quality sites may become more economical to harvest in the future than is currently estimated. (p. 10)
 - It may be possible to implement treatments such as commercial thinning or early harvesting of second-growth forests to partially off-set projected reductions in the timber supply and employment. Widespread treatments of second-growth stands may impact the short- and long-term timber supply which must be considered to develop a strategy for treating these areas. (p. 11)
 - Several alternatives exist for the chief forester to adjust the short-term allowable annual cut as part of a strategy to achieve the long-term harvest reduction:
 - the allowable annual cut could be maintained at the present level, requiring severe declines in the future;
 - small reductions could be implemented now, with larger declines in the future;
 - a consistent level of reduction could occur over the next 30 years; or,
 - larger reductions could be made now, with smaller declines in the future.
 - Metropolitan areas are not expected to be impacted significantly by timber supply changes. There is greater concern in the smaller, more timber-dependent communities of Chilliwack, Yale, Boston Bar, Hope and Kent. The impact on specific communities will depend to a large degree on the alternative economic strategies they adopt. (p. 11)
 - Opportunities exist in the forestry sector to reduce the employment impacts of timber supply adjustments by encouraging value-added manufacturing in high employment milling operations and by harvesting timber that is not currently considered merchantable. Additional opportunities may be created through the Forest Renewal Plan*. (p. 11)
 - The *Forest Act* requires the chief forester to consider current management practices and land-use decisions when determining allowable annual cuts. Because a number of government initiatives which may affect timber supply in the future are ongoing, it was not possible to consider these impacts in this review. These initiatives include:
 - the Protected Areas Strategy*,
 - the Spotted Owl Recovery Plan*; and,
 - the Forest Practices Code*.
 - Another review of the timber supply in the Fraser Timber Supply Area will be completed within five years to incorporate decisions from land-use planning processes and new information on the impact of different forest management practices.
- * Throughout this document, an asterisk at the end of a phrase indicates the phrase is defined in the definitions 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 harvest forecast that illustrates the effects of current forest management practices on the timber supply using the best information that was available when the data package was prepared.

Commission on Resources and Environment (CORE)

An independent commission established to develop and test land-use planning processes in consultation with stakeholders. Regional and sub-regional processes have been implemented by CORE in various areas of the province.

Current management practices

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

Forest Practices Code

A draft *Forest Practices Code for British Columbia Act* was recently introduced in the B.C. Legislature. The final code will be proclaimed into law in late 1994.

Forest Renewal Plan

The Forest Renewal Plan is a partnership of all the forest interests, working together to invest in increasing the value of the forest and strengthening the forest sector economy.

Integrated resource management

The identification and consideration of all resource values, including social, economic and environmental needs, in land use and development 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 management area (usually a timber supply area).

Spotted Owl Recovery Team

A team including representatives from the Ministry of Environment, Lands and Parks, Ministry of Forests, Canadian Wildlife Service, academia, the forest industry and environmental non-government organizations that was established to develop and oversee the implementation of a recovery plan for the northern spotted owl, an endangered species.

Person-year

One person working the equivalent of one full year. If someone works full time for six months, he or she accounts for 0.50 person-years.

Protected Areas Strategy

A provincial government initiative to protect representative areas within each ecological region of the province. Within the Fraser Timber Supply Area, there are several candidate study areas being considered for protection. Decisions on all study areas are expected before the year 2000.

Riparian area

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

Timber harvesting land base

Crown forest land which is economical and environmentally feasible to access and harvest.

Timber Licence

An agreement entered into with the provincial government which provides for harvesting timber from a described area of Crown land by private interests, with payment of royalties prescribed under the regulations.

Timber Supply Area

An area of Crown land defined 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 described area of Crown land.

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Introduction

The British Columbia Forest Service is conducting a Timber Supply Review in the 36 timber supply areas and 35 tree farm licences throughout the province.

The objectives of this three-year review include:

- identifying the economic, environmental and social consequences of existing forest management practices—including their impacts on the short- and long-term timber supply;
- identifying where improved information is required to make reliable forecasts; and,
- providing 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 from the Timber Supply Review in the Fraser Timber Supply Area and encourages British Columbians to comment on the findings. Public comments will be accepted until September 30, 1994. 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 take into account integrated resource management practices and protection of non-timber values;
- the procedures were far too time consuming; and,
- analytical techniques had to be strengthened.

As a result, very few analyses were completed within the past decade, 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. The objectives of this three-year review included:

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

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 his most important responsibilities since it affects the local 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:

- the sustainable rate of timber production from the area;

Towards a sustainable future

British Columbians agree there is a need for sustainable resource management to ensure a strong forest economy, viable communities and a healthy environment - today and always. The Timber Supply Review is one of several government initiatives to achieve sustainability:

- The *Forest Renewal Plan* is a partnership of all the forest interests, working together to invest in increasing the value of the forest and strengthening the forest sector economy.
- The *Forest Practices Code* creates a single enforceable law to require better forest practices, with heavy penalties for violators.
- The *Timber Supply Review* is providing the information needed to adjust allowable annual cuts to ensure the sustainability of British Columbia's forests.
- The *Commission on Resources and Environment*, the *Protected Areas Strategy*, and *Land and Resource Management Plans* are moving to integrate all values into land-use planning in an effort to end confrontation and valley-by-valley battles.
- The *B.C. Treaty Commission* is moving us towards fair and equitable settlement of treaties which can create long-term social and economic stability for aboriginal and non-aboriginal British Columbians.

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- the short- and long-term implications for the province;
- the timber requirements of processing facilities;
- insect or disease infestations; and,
- the government's economic and social objectives for the area, for the region and for the province, as expressed by the minister of forests.

Some of these factors can be measured and analyzed - others cannot. Ultimately, the chief forester's determination is based on professional judgment. By law, the chief forester is independent of the political process and does not take direction from the minister of forests in determining allowable annual cuts. Nor does the chief forester consider the advocacy efforts of lobby groups.

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 below illustrates the five-step process that has been developed for the Timber Supply Review in timber supply areas. The diagram also indicates the status of the Timber Supply Review for the Fraser

Timber Supply Area, and the estimated time required for each step in the process.

The review process for existing tree farm licence contracts is similar, but these contracts require less emphasis on socio-economic impacts. When tree farm licence contracts are placed, the process will conform with the Timber Supply Review format.

The data package used for the Timber Supply Review in the Fraser Timber Supply Area was finalized in March, 1993. This package was reviewed by Forest Service staff and local timber tenure holders. Two reports were then prepared: the Forest Service conducted and released a short- and long-term timber supply analysis (*Fraser Timber Supply Analysis*, October, 1993) and a consultant completed a socio-economic assessment of the timber supply forecasts (*Fraser Timber Supply Area Socio-Economic Assessment*, June, 1994). Both reports are available from the Chilliwack Forest District office and the Vancouver Forest Region office.

In conjunction with the release of this discussion paper and the socio-economic assessment, Forest Service staff will actively solicit public input to ensure the information in the Timber Supply Review for the Fraser Timber Supply Area is correct. Input will be accepted until September 30, 1994.

Public input will be summarized in a report to the chief forester and the minister of forests. The minister

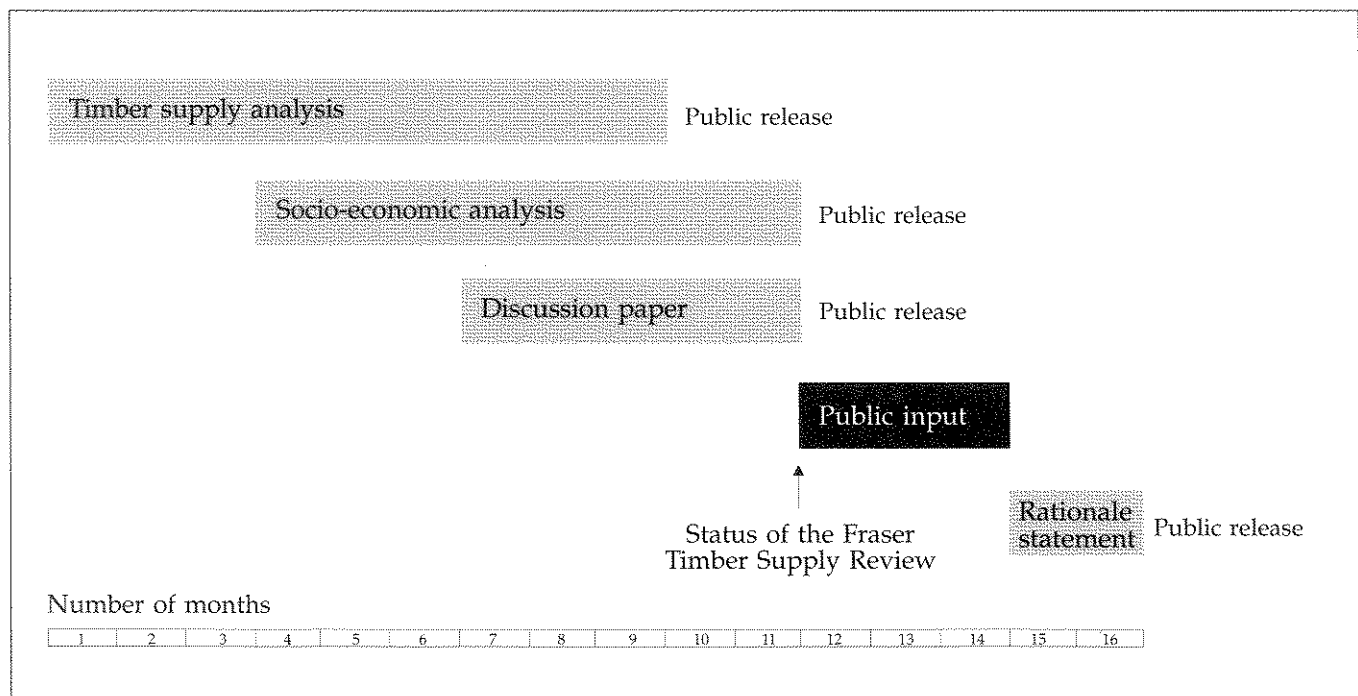


Figure 1. Steps in the Timber Supply Review process

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considers input on the socio-economic factors to define the government's social and economic objectives for the area, the region, and the province, which he provides to the chief forester. The chief forester considers comments on technical forestry matters.

After weighing all of these factors, the chief forester will determine the allowable annual cut for the Fraser Timber Supply Area during the fall of 1994. This determination and a statement of the rationale for the determination, will be released to the public along with the summary of public input.

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 at least every five years after this review is completed, to incorporate new information, new practices and new government policies. Implementation of major government initiatives such as the *Forest Practices Code*, the *Protected Areas Strategy*, and the land-use recommendations from the *Commission on Resources and Environment and 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 allowable annual cut can be reviewed in less than five years.

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 *Timber Supply Analysis Report*; SEA is the *Socio-Economic Assessment*). Both reports are available from the Chilliwack Forest District office and the Vancouver Forest Regional office.

Description of the Fraser Timber Supply Area

The Fraser Timber Supply Area is located in the southwest corner of the province. The unit is bounded by the United States border to the south, the Strait of Georgia to the west, the community of Keefers in the Fraser Canyon to the north and Manning Provincial Park to the east (see map on cover). Administered by the Chilliwack Forest District office in Rosedale, this timber supply area covers approximately 1.17 million hectares. The Fraser Timber Supply Area is the most densely populated area in the province, encompassing the major population centers of the lower mainland and Fraser Valley. In addition, there are a number of

smaller resource based rural communities in the outlying areas.

Forest resources

The majority of the area is dominated by forests of hemlock, balsam and Douglas-fir. This region has an extensive history of logging and forestry activities, as well as urban and rural developments.

Figure 2 illustrates that most of the land base in the timber supply area is not suitable or available for timber harvesting. Slightly more than half of the area (51 per cent) 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 on 26 per cent of the area, including areas that are too wet or steep, environmentally sensitive sites, and areas that contain poor quality timber. In total, only 23 per cent of the land base (275,083 hectares) is suitable for timber harvesting using current methods. This area forms the long-term timber harvesting land base* where harvesting can occur provided integrated resource management objectives are met (TSAR p. 5).

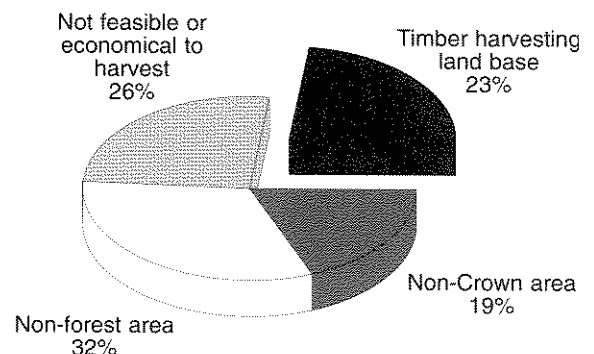


Figure 2. Area summary for the Fraser Timber Supply Area

Notes: Total area: 1,173,616 hectares (does not include provincial parks such as Golden Ears or Manning, ecological reserves, tree farm licences or the Greater Vancouver Water District)

Approved study areas within the timber supply area for the Protected Areas Strategy and Interim Conservation Strategy for the Northern Spotted Owl have not been subtracted from the timber harvesting land base for this analysis.

Figure 3 shows the current age range of the forests within the timber harvesting land base. Due to the long history of timber harvesting activity in the Fraser Timber Supply Area, the timber harvesting land base includes a large proportion of younger,

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regenerated forests that are almost old enough to be harvested a second time. While the old-growth proportion within the timber harvesting land base is relatively small, there are approximately 250,000 hectares of mature old growth within the timber supply area that are not included in the timber harvesting land base because they are not economical or feasible to harvest.

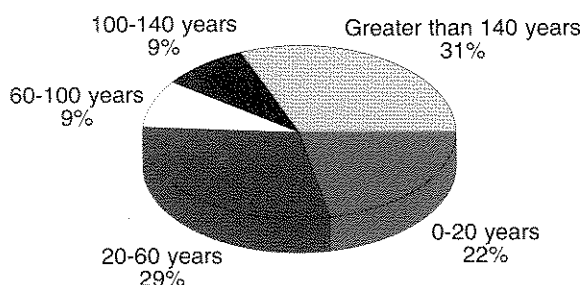


Figure 3. Current forest ages within the timber harvesting land base

In the past, harvesting was concentrated in the better quality stands, either at lower elevations or on better growing sites. As a result, most of the existing mature forests are growing on poorer sites. These poorer sites are not expected to produce as much timber as the better growing sites in the timber supply area, which will impact the short-term timber supply.

In addition to timber harvesting, there has been increased harvesting of botanical forest products (the harvesting or collecting of minor forest vegetation such as cedar boughs, salal, ferns, mosses, yew bark and pine mushrooms) in this timber supply area.

Despite the extent of urban and rural development and resource-use activities, the Fraser Timber Supply Area still contains one of the richest and most diverse arrays of wildlife in Canada. More than 300 species of migratory and resident birds, 45 species of mammals, and 16 species of amphibians and reptiles range throughout the area (SEA p. 27).

Native mammals in the Fraser Timber Supply Area include important species such as the mule and black-tail deer, black bear, grizzly bear, mountain goat, wolf, coyote, muskrat, beaver, pine marten and other fur-bearing species. Recently, preservation of habitat for the northern spotted owl has received international attention.

The rivers, streams and lakes of the lower Fraser Valley are inhabited by at least 87 species of resident, semi-resident and migratory finfish and shellfish. The

lower Fraser River and its tributaries are spawning and rearing grounds and migration corridors for commercially valuable chinook, chum, coho, pink and sockeye salmon. In addition, cutthroat and steelhead, Dolly Varden char and white sturgeon are other valuable fish species in the lower Fraser River.

Tourism and recreation are also important in the Fraser Timber Supply Area. This area provides easily accessible forest recreation opportunities to population centers in the lower mainland. The visual quality of the forest landscape is an important consideration, especially along several major highway corridors that transect the area.

Through the Protected Areas Strategy, the B.C. government is committed to doubling its system of protected areas from six to 12 per cent of the province's land base by the year 2000. Currently, 12 areas in the Fraser Timber Supply Area have been designated by the provincial government as study areas. Within the study areas, resource development will not be approved until land-use decisions are made. In addition, areas have been delineated as ranges for the northern spotted owl under the Interim Conservation Strategy. The short-term strategy within the Interim Conservation Strategy is to defer or modify harvesting and road building plans within defined areas.

Decisions on these land-use strategies have yet to be made. In the meantime, timber licensees have concentrated their harvesting operations elsewhere within the timber supply area. If areas are removed from the timber harvesting land base under these land-use strategies, another timber supply review may be required.

Current allowable annual cut

The allowable annual cut for the Fraser Timber Supply Area is currently set at 1,765,000 cubic metres per year. Approximately 79 per cent of the harvest is allocated to 21 timber licensees. A further 20 per cent is harvested through the Small Business Forest Enterprise Program administered by the Forest Service. Less than one per cent of the allowable annual cut is held in reserve.

Community profile

The Fraser Timber Supply Area is densely populated, with a total regional population of approximately 1.79 million people in 1991, a 16.9 per cent increase over the 1986 population. The population is distributed among four regional districts: Greater Vancouver, Dewdney-Alouette, Central Fraser Valley and Fraser-Cheam. The robust growth in regional population that has occurred over the last decade is projected to continue.

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A large number of First Nation communities exist within this timber supply area: 34 bands and five tribal organizations have traditional territory in the area. Together they represent over 12,000 band members; this does not include non-status or aboriginal peoples from other areas currently living in the timber supply area. Aboriginal land claims are a significant factor in the Fraser Timber Supply Area, as in the rest of the province. To date, six of the 37 Statements of Intent to negotiate land claims that have been filed with the Treaty Commission include part of the Fraser Timber Supply Area. It is expected that all of the First Nations in the area will enter the treaty commission process, covering most of the area.

Socio-economic profile

The forest work force in the area is divided into two categories: the primary forest sector, which includes harvesting and forestry, and the manufacturing sector which is separated into processing and milling. Of the four regional districts in the timber supply area, the Fraser-Cheam Regional District has the highest proportion of the primary forestry and logging employment. Figure 4 shows the place of residence of the workers employed in harvesting by forest companies who operate in the Fraser Timber Supply Area.

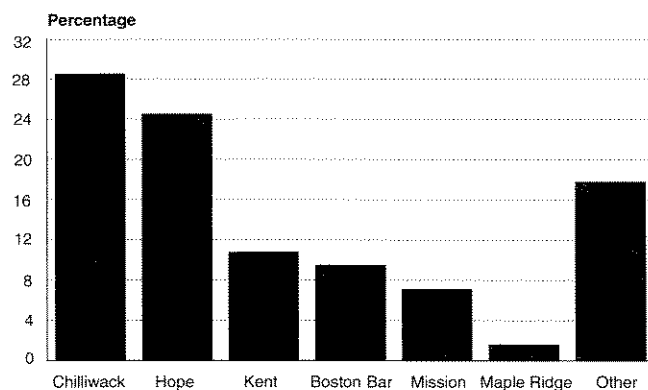


Figure 4. Place of residence of workers employed in harvesting by forest companies operating in the Fraser Timber Supply Area

There are approximately 110 milling facilities in the area (SEA p. 8). Ninety per cent of the timber processed at these facilities comes from outside the timber supply area. Statistics Canada data indicates that the many of the manufacturing workers reside in Maple Ridge and Mission (SEA p. 10).

Economic evidence of timber-related industries is not as visible in the Lower Mainland metropolitan areas as it is in the Fraser Valley, but the contribution

to the regional economic base can be just as important. Many of the jobs created in the Fraser Valley communities with a high level of dependence on forestry are from the visible primary and manufacturing sectors. Less evident are the significant number of jobs generated by forest firms in the administration, marketing, log-handling and forest service sectors, most of which accrue to the Vancouver economy. In addition, forest company spending supports sizable maintenance and construction sectors in the region (SEA p. 20).

Provincial economy and revenues

Wood flow information indicates that approximately 70 per cent of the timber currently harvested in the timber supply area is processed within the region. The movement of logs to their final processing point can be quite complex with private trades, sales agreements and distribution through the Vancouver log market (SEA p. 37).

The estimated current direct employment in the province resulting from harvesting and processing timber from the Fraser Timber Supply Area is shown in Figure 5.

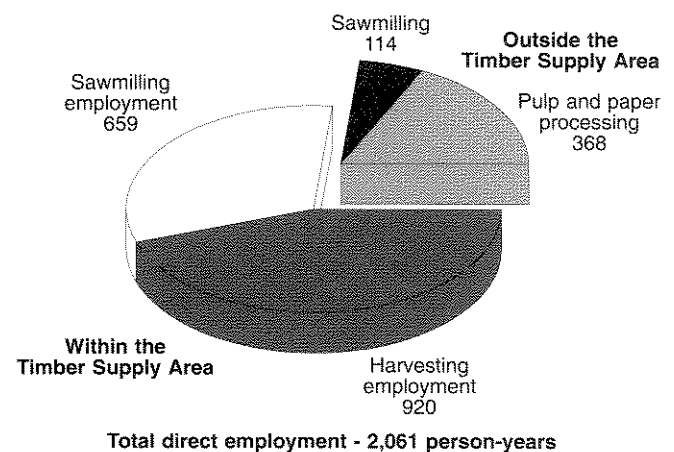


Figure 5. Direct employment generated from harvesting and processing timber from the Fraser Timber Supply Area

On a provincial level, the total indirect employment (i.e. employment from businesses which provide goods and services to the direct forest sector), both within and outside the timber supply area, is estimate to be 3,092 person-years. This estimate is based on the assumption that each direct person-year of employment creates 2.5 person-years of indirect employment both within and outside the area. The total direct and indirect provincial employment generated by harvesting and processing timber from the Fraser Timber Supply Area is estimated to be 5,153 person-years.

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In addition, approximately \$51 million in provincial revenues are generated annually by timber harvesting in the Fraser Timber Supply Area. This figure is based on fees of \$26.6 million for harvesting public timber in the area, estimated personal income taxes of \$14.6 million, plus other tax revenues of \$9.8 million. These estimates were developed before the new Forest Renewal Plan was announced and do not include the increased stumpage revenues that will be generated through this plan. While stumpage revenues are expected to increase by as much as 80 per cent, it will not be possible to accurately estimate the impact of this change until the new policy has been implemented for a period of time.

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 timber, range and recreation resources on public lands. B.C. Environment is responsible for management of fish, wildlife and water resources. 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 the existing land-use designations and current management practices - the practices that were actually being approved and implemented in the Fraser Timber Supply Area when the data package was created. Future changes in land-use designations or management practices may result from initiatives such as the Commission on Resources and Environment, the Forest Practices Code, the Protected Areas Strategy and the Spotted Owl Recovery Plan. Any such changes will be included in the next assessment of the timber supply.

The current integrated forest management practices that are implemented in the timber supply area are briefly described below. The listing is not inclusive, but reflects those key practices that were included in the timber supply analysis. Readers are encouraged to read the *Timber Supply Analysis Report* page 7 and Appendix A-4 for more details.

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 (see *TSAR* page 50 for more details). The typical silviculture regime is: to harvest; then site prepare, if necessary; reforest by planting with a mix of species or by relying on natural regeneration; and control competing vegetation in the plantation. It is assumed that harvested areas will be restocked within three to six years of harvesting.

Forest health and unsalvaged losses - Annual losses of timber to fire and wind damage is estimated to be 17,500 cubic meters. This is timber that cannot be salvaged or recovered. No significant loss of timber is expected to occur as a result of either forest insects or disease.

Minimum harvest ages - Minimum harvest age is defined as the time it takes for stands to grow to harvestable size. The minimum harvest ages used in the timber supply analysis varies by tree species and site productivity. For existing forests, a minimum of 120 years was used. For regenerated forests, a range from 70 to 110 years was used.

Forest cover requirements - To promote biological diversity, the amount of harvesting that is permitted in any area is restricted. Current practices require that a given area cannot be harvested until the regenerated forest on adjacent, previously harvested areas, is at least three metres tall. Also, at any one time, no more than 25 per cent of the timber harvesting land base in a specific area can be harvested and regenerated with forest less than three metres tall.

Viewscape - The visual quality of the forest landscape is an important consideration, particularly in viewscape near major population centers and along several major highway corridors that transect the timber supply area. Maintenance of scenic landscapes is a recreation and tourism management priority. Road construction and logging are planned and implemented to minimize visual impacts. Recent studies have shown that trees on harvested areas must reach a height of at least five metres before they create acceptable viewscape.

Twenty-six per cent of the timber harvesting land base (72,000 hectares) has been classified into three levels of visually sensitive areas:

- highly sensitive areas: no more than eight per cent of the area can have trees less than five metres tall at any time;
- moderately sensitive areas: no more than 16 per cent of the area can have trees less than five metres tall at any time; and,
- low sensitive areas: no more than 31 per cent of the area can have trees less than five metres tall at any time.

Special recreation zone - High population densities within the lower mainland and Fraser Valley require significantly more management of recreation use and values in the timber supply area. Areas are classified as having special recreation values when they require special management consideration to protect or maintain recreational values (for example, the Pierce Lake Trail and the recreation corridor along a portion of the Chilliwack River). Timber harvesting is considered to be compatible with recreational uses of

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the forest, as long as the rate of harvesting is limited in areas identified as having special value for recreation. Generally, smaller and less concentrated clearcuts are permitted.

Approximately 15 per cent (42,000 hectares) of the timber harvesting land base has been classified as special recreation areas. Within these areas, no more than 20 per cent of the area can have trees less than five metres tall at any time.

Fish and wildlife - Streamside or riparian areas* are protected and maintained under the Coastal Fisheries/Forestry Guidelines. These areas represent about half of one per cent of the land base and are not included in the timber harvesting land base.

Suitable deer winter range must have sufficient forest cover to reduce snow depth and provide thermal and security cover for deer during the winter. A stand age of at least 100 years is required to meet these criteria. At present, critical deer winter ranges have been mapped and are protected until alternate habitats in close proximity are identified. The areas currently protected are primarily forested with Douglas-fir and it is assumed they will eventually be harvested. However, at least 6.5 per cent of the timber harvesting land base (18,000 hectares) must be maintained in mature forests to meet the requirements for deer winter range.

Timber supply forecast and impacts

Timber supply forecast

To complete the timber supply analysis for this review, a computer model was used to attempt to generate a base case* timber supply forecast for the Fraser Timber Supply Area which met each of the following conditions:

- it maintained the current allowable annual cut as long as possible or if this was not possible, it found the maximum harvest rate;
- it reduced the harvest within a defined range, usually eight to 12 per cent per decade, until the long-run level was reached; and,
- it maintained harvest levels at or above the predicted long-run level at all times.

If a timber supply forecast could not be generated that would meet all these conditions, the analyst adjusted the conditions until a feasible forecast could be produced. Several of these conditions had to be adjusted to create a base case timber supply forecast for the Fraser Timber Supply Area, given current management practices and the best available information at the time.

It is important to note 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 harvests to sustainable levels. These forecasts are part of the information that will be used by the chief forester to determine the allowable annual cut for the next five years.

In the Fraser Timber Supply Area, the present allowable annual cut cannot be maintained without causing severe timber supply shortfalls in the future. The base case timber supply forecast (Figure 6) indicates an initial rate of harvest of 1,550,000 cubic metres per year, 12 per cent lower than the present allowable annual cut of 1,765,000 cubic metres per year. This reduced harvest level can be maintained for 10 years before declines of approximately 10 per cent per decade are required over the next 30 years to reach the long-term harvest level of 1.8 million cubic metres per year (TSAR p. 10).

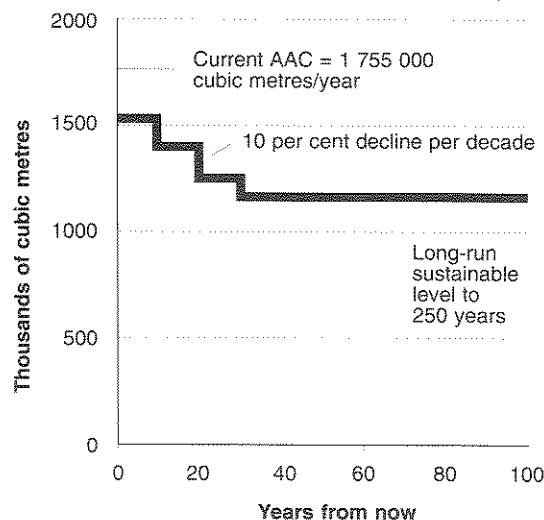


Figure 6. The base case timber supply forecast for the Fraser Timber Supply Area

Several factors have interacted to create this timber supply outlook:

- **reduced timber harvesting land base**
The timber harvesting land base that was defined for this analysis is approximately 25 per cent smaller (by 90,000 hectares) than was estimated for the 1985 timber supply analysis, which was used to set the current allowable annual cut. This is primarily the result of the improved procedures used to define the timber harvesting land base for this analysis. In the 1985 analysis, the land base was estimated using a variety of techniques. Since

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then, timber company and Forest Service staff have mapped the areas they expect can be harvested using current methods and technology.

There have been also been reductions through the creation of new parks and establishment of the Coquihalla Highway.

- **remaining mature timber is on poor growing sites**

A large proportion of the remaining mature forest in the timber harvesting land base is growing on sites that are poor producers of timber, resulting in lower timber harvests from each hectare of forest that is harvested than in the past. These forests are projected to be harvested over the next 20 to 30 years. A lower yield of timber from each hectare of forest harvested means that, when compared to harvesting better growing sites, more area must be harvested in order to achieve the target harvest level.

- **increased forest cover requirements**

Since the 1985 analysis, forest cover requirements have increased to meet integrated resource management objectives, particularly for visual quality, wildlife and recreation management. This limits the amount of timber that can be harvested from each area.

The reduction in the timber harvesting land base and the requirement to maintain increased forest cover on this land base combine to limit the amount of mature forest that is available to harvest at any one time. This is compounded by the need to harvest more hectares than in the past, of the remaining lower volume stands, to reach the allowable annual cut level. The interaction of these factors has resulted in the reduced timber supply projected in the base case forecast. (TSAR pp. 10-11).

Several alternatives exist for the chief forester to adjust the short-term allowable annual cut as part of a strategy to achieve the long-term harvest reduction:

- the allowable annual cut could be maintained at the present level, requiring severe declines in the future;
- small reductions could be implemented now, with larger declines in the future;
- a consistent level of reduction could occur over the next 30 years; or,
- larger reductions could be made now, with smaller declines in the future.

The chief forester must decide what the short-term allowable annual cut should be as part of a strategy to phase in the long-term timber supply adjustment.

Environmental impacts

BC Environment staff support current management practices used in the Fraser Timber Supply Area to protect fish and wildlife habitats. However, they are concerned that the following factors were not completely reflected in the base case analysis:

- the shift in the age of the forests in the timber harvesting land base from mature old-growth to managed forests will reduce habitat for old-growth-dependent species. Some old-growth habitats will be maintained in the short term due to the amount of area that is environmentally sensitive and not economical or feasible to harvest, and the current management practice of maintaining forest cover within each management zone. Options to address biological diversity requirements within the timber supply area may be fewer with limited old-growth area. As well, fragmentation of the existing wildlife habitat will increase as harvesting in these stands continues.

The amount of old growth that is required, particularly to meet the habitat requirements of the northern spotted owl, is currently being assessed.

- the long-term impact of the rate of harvest on the quality and quantity of water from the timber harvesting land base has not been specifically included in the timber supply analysis. To some extent, this may be accounted for in the current practices for other resources (e.g. forest cover requirements, riparian zone management, wildlife habitat and visually sensitive areas).

Community impacts

If the chief forester adjusted the allowable annual cut to conform to the base case timber supply forecast, the initial 12 per cent reduction may cause a reduction of 189 person-years in direct employment within the TSA. While it is very difficult to forecast how employment would change far into the future, using the same estimate, a total of 521 person-years of direct employment may be lost as the harvest level declines to the projected long-term level.

Outside the timber supply area, it is estimated that an additional 58 person-years of direct employment in wood processing may be lost in the first decade. A total of 159 person-years of direct employment may be lost as the harvest level further declined to the projected long-run level.

The total direct employment loss resulting from the base case forecast is estimated at 247 person-years in the first decade and 680 person-years at the long-term harvest level.

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Assessing the community and social impacts of timber supply adjustments in the Fraser Timber Supply Area is particularly challenging because of the region's large population and relative economic diversity. Impacts are therefore not as evident or measurable as in other areas of the province.

Recent responses to changes in employment in the region indicate there would be a relatively minor effect on population in the short term due to the employment effects of the base case forecast. Population in the region has been growing as part of the overall provincial trend of increased immigration. Even in more sensitive areas like the Fraser Canyon and Hope, an initial reduction in harvest level would probably not lead to regional population declines. In the longer term, as harvest levels continue to decline, there would likely be only a slowing effect on population growth in the Fraser Canyon, Hope and Chilliwack (*SEA* p. 44).

Direct forest sector employees within communities such as Chilliwack and especially Boston Bar, Yale, Hope and Kent would likely bear the greatest strain of a reduction in harvest levels and have the greatest difficulty in obtaining alternative employment (*SEA* p. 44).

A reduction in timber supply would affect the overall industry and not one particular forest company as harvest reductions would impact timber licensees on a proportional basis according to the size of their licensed cut.

The impact of the base case forecast on tourism is uncertain. However it is certain that the demand for recreation opportunities in the timber supply area will continue to increase.

The effects of these job losses on specific communities will depend to a large degree on the alternative economic strategies that are adopted. One promising option is to increase the number of jobs created in processing each cubic metre of wood through value-added manufacturing. The recently announced Forest Renewal Plan may provide employment opportunities for the affected communities.

Aboriginal impacts

Over 100 aboriginal people are employed in harvesting and manufacturing, with the greatest concentration in Boston Bar, Harrison Mills, Hope and Chilliwack. Any loss of employment due to reductions in allowable annual cut would affect the aboriginal community more dramatically as unemployment levels are already high and, in general, aboriginal people are more dependent on

forestry and wood manufacturing than the overall population (*SEA* p. 47).

Aboriginal communities are seeking access to a secure wood supply to provide employment and economic development opportunities. Any reduction in the timber supply may reduce the volumes available for these initiatives and joint ventures.

Allowable annual cut reductions resulting from management for wildlife habitat, recreational values and visual quality may assist in enhancing traditional values such as hunting areas. In the short term, there may be reduced impacts on heritage and cultural values due to less ground disturbance and site degradation.

Provincial impacts

On the provincial level, the direct and indirect employment loss resulting from the base case timber supply forecast is projected to be 618 person-years in the first decade (based on the estimate that 2.5 person-years of employment are created in the province for each direct person-year, employment from within and outside the timber supply area). Over the long term, as the harvest level further declines to the projected long-run level, a total of 1,700 person-years of direct and indirect employment may be lost (refer to *SEA Summary* for more details).

Provincial government revenues, including stumpage and taxes, are projected to decline by \$6.1 million per year for the first 10 years, reaching \$16.8 million annually when the long-term harvest level is reached. As discussed earlier, these estimates do not include expected increased stumpage revenues from the recently announced Forest Renewal Plan.

Examining critical factors

This section identifies critical factors that require special consideration during the allowable annual cut determination for the Fraser Timber Supply Area.

When the Timber Supply Analysis Report was completed in 1993, the potential impact of different assumptions on the timber supply forecast was tested by changing the values for certain critical factors in the analysis. Since the analysis, local Forest Service staff have further investigated these assumptions, as well as other critical factors. Their perspectives are outlined in the following discussion. Other factors in the analysis were tested and are discussed in the Timber Supply Analysis Report (see *TSAR* pages 15-33) but were not considered critical to this review and therefore are not included in this discussion paper.

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When reviewing these factors readers should bear in mind that the *Socio-Economic Assessment* assumes that a change in the timber supply would create economic impacts that are directly related to the size of the timber supply reduction or increase (i.e. a 10 per cent increase in the timber supply would result in a 10 per cent increase in employment).

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

A. Options to partially offset reductions in short-term timber supply

1. Impact of maintaining visual quality objectives

Maintaining forest cover within the timber harvesting land base to meet integrated resource management objectives for visual quality, recreational values and wildlife ranges all limit the amount of timber that is available for harvesting in the short term. Management for visual quality has been identified as a particular concern. As approximately 25 per cent of the timber harvesting land base is managed for visual quality, this factor has a significant impact on the projected timber supply, as illustrated in Figure 7.

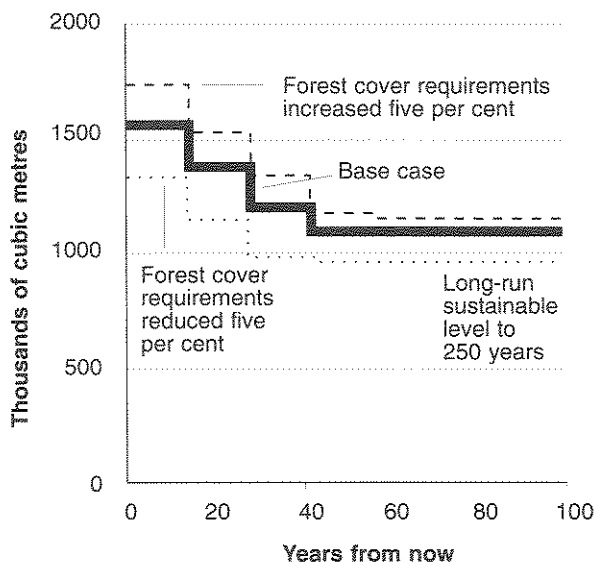


Figure 7. Impact of changes in forest cover requirements in the visually sensitive areas

An examination of the procedures used to define the forest cover requirements for the three levels of visually sensitive areas in the Fraser Timber Supply Area has been conducted by the forest district staff. Based on recent harvesting history and five-year harvesting plans that have been submitted by forest companies, this examination indicates the requirements assumed in the timber supply analysis reflect current management practices.

A further observation is that the amount of harvesting projected within the visually sensitive areas in the five-year plans is less than the amount assumed in the timber supply analysis. Opportunities exist for timber licensees to expand harvesting in these sensitive areas.

2. Intensive silviculture treatments

In some circumstances, intensive silviculture treatments (i.e. juvenile spacing, fertilization, etc.) that increase tree growth and the long-term timber supply can also increase the short-term timber supply. A test of the possible impacts of intensive silviculture in the Fraser Timber Supply Area which assumed a 20 per cent increase in growth of regenerated stands did not show this result. The long-term supply increased but the short-term timber supply did not (TSAR p. 21).

3. Increasing the area that is economically feasible to harvest and reforest

One of the first steps in a timber supply analysis is to define the timber management land base - the area that is economically and environmentally feasible to harvest based on current harvesting methods and technology. The timber management land base includes sites where the cost of harvesting and reforestation is less than the value of the timber extracted.

In the Fraser Timber Supply Area, there are approximately 190,000 hectares of forests that are not economical or feasible to harvest, and 61,000 hectares of low productivity sites (TSAR p. 46). The timber industry has suggested that, with alternative harvesting systems and a possible increase in timber values as wood supplies become limited, more of the timber on the mountainous terrain and lower quality sites in the area will be economical to harvest in the future than is currently estimated. This may lead to an

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increase in the timber harvesting land base and possibly an increase in the short- and long-term timber supply.

4. Commercial thinning

The long history of timber harvesting in the Fraser Timber Supply Area has created large areas of second-growth forests. It may be possible to implement a commercial thinning program to partially offset the projected reductions in timber supply and employment. However, although many of these stands are located on gentle slopes that are suitable for commercial thinning, they tend to be composed of naturally regenerated, thin-barked tree species, such as hemlock, cedar and balsam, that are easily damaged and become susceptible to disease during commercial thinning operations. In addition, because these stands are naturally regenerated they are often overly dense, with slow-growing, small diameter stems, making them unsuitable for commercial thinning.

Alternative treatments are being considered for these forests, such as early harvesting followed by planting with species, such as Douglas-fir, creating stands which are more suitable for intensive management, including commercial thinning. Operational trials of commercial thinning are underway; trials of other treatments will be implemented in the future.

Widespread commercial thinning or other treatments such as early harvesting may have impacts on the short- and long-term timber supply which must be examined before large programs are implemented. Commercial thinning may reduce long-term timber supply but this may be offset by the improved quality and value of the remaining trees.

B. The community's ability to adapt

The timber supply analysis indicates the current allowable annual cut for the Fraser Timber Supply Area cannot be maintained in the short and long term with current management practices. The rate and timing of an allowable annual cut reduction is in part dependent on the ability of the communities in the area to adapt to this change.

The large timber processing industry within the area relies on wood supplies from the Fraser Timber Supply Area and from other coastal and Interior timber supply areas and from tree farm licences, where similar timber supply reviews are being completed. Significant wood supplies (about 300,000 cubic metres per year) are also generated from private land and to a lesser extent from timber licences* in the area. It is not known whether the amount of timber harvested from these other sources can be increased to offset possible adjustments in the allowable annual cut for the Fraser Timber Supply Area.

The metropolitan areas within the area are not expected to be impacted significantly by these changes. There is greater concern about the smaller, more timber-dependent communities within the area. These communities understand the need to regulate harvesting of the existing mature forest while waiting for the newly regenerated forests to grow to merchantable size.

Opportunities exist within the forestry sector to reduce employment losses by encouraging value-added manufacturing in high employment milling operations, by harvesting stands that are not currently considered merchantable, and by implementing commercial thinning programs. Additional opportunities are expected to be created through the new Forest Renewal Plan. The challenge for these communities is to develop economic strategies to take advantage of local opportunities.

Your input is needed

The allowable annual cut determination is an important decision 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 that you feel are relevant.

If you prefer, additional comments or a detailed submission can be written on separate pages. Feedback is welcomed on any aspects of this discussion paper, the *Timber Supply Analysis Report*, the *Socio-Economic Assessment* and other topics related to the timber supply in the Fraser Timber Supply Area. Forest district staff would be pleased to discuss questions or concerns that you may have that would help you prepare your response.

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Please mail the completed questions and your comments to the forest district manager at the address below. Your comments will be accepted until September 30, 1994.

You can identify yourself on your response if you wish. If you do, you are reminded that responses may be made public as required under the *Access to Information Act*. The identity of respondents will be confidential if this occurs. A summary of public comments will be available from the district manager.

John Hall
District Manager
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Rosedale, B.C. V0X 1X0
Phone: (604) 794-2111

Please use the space below to provide any information which you believe may assist the chief forester in considering the technical factors that must be considered to determine the allowable annual cut for the Fraser Timber Supply Area. Further information on the critical technical factors outlined on pages 9 to 11 in this paper would be most helpful.

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 are no margins, text, or other markings on the paper.

☐ local business	☐ timber industry
☐ outdoor tourism	☐ environmental conservation
☐ general public	☐ other (please define) _____

Address (optional) _____

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RESOURCE MANAGEMENT

TIMBER SUPPLY REVIEW

Fraser TSA Timber Supply Analysis



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