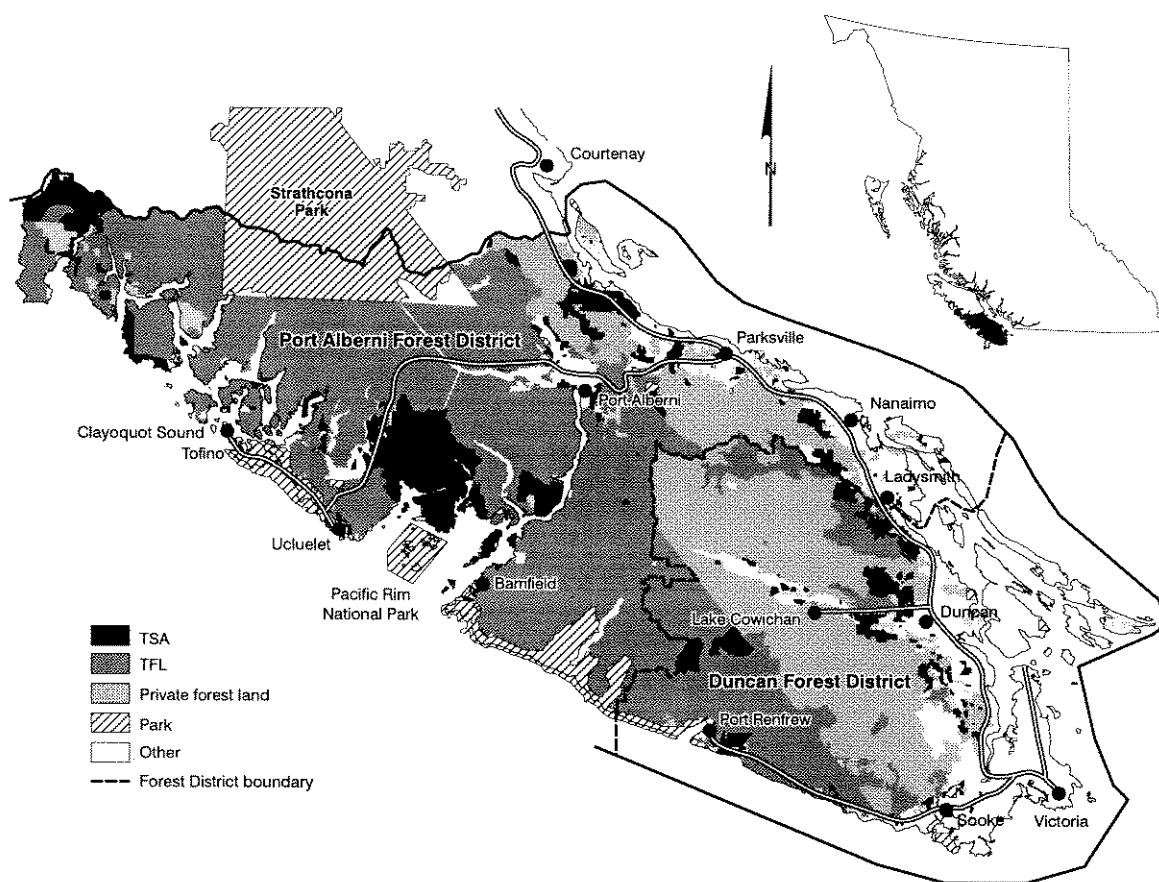




MINISTRY OF FORESTS

Arrowsmith Timber Supply Area

Timber Supply Review Discussion Paper
August 1995



Province of
British Columbia
Ministry
of Forests

Arrowsmith Timber Supply Area

Timber Supply Review Highlights

The Timber Supply Review for the Arrowsmith Timber Supply Area began in December 1993. Consequently, the Clayoquot Sound Land-Use decision, announced in April 1993, and the Vancouver Island Land-Use Plan, announced in June 1994, could not be incorporated in this review because the legal processes to implement these decisions and the resulting planning processes had not been completed when the review was initiated. The Forest Practices Code, which began being implemented on June 15, 1995, and the recently accepted recommendations of the Clayoquot Scientific Panel were also not available to incorporate fully into this review. These initiatives will clearly impact the timber supply and priority will be given to assessing the complete timber supply impacts of these initiatives in the Arrowsmith Timber Supply Area before the next five year periodic review 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 Arrowsmith Timber Supply Area.
- For the Arrowsmith Timber Supply Review, the allowable annual cut of 498,250 cubic metres, which was in effect when the review was initiated, was reduced by 19,100 cubic metres because woodlot licences and licences for harvesting deciduous species were not assessed. This created an allowable annual cut of 479,150 cubic metres per year for the review. The interim allowable annual cut reduction of 16,000 cubic metres made in June 1994 to account for the Clayoquot Sound Land Use decision was not deducted from the allowable annual cut for this review. (page 5)
- The average harvest level from 1991 to 1994 in the Arrowsmith Timber Supply Area was 417,000 cubic metres per year—approximately 13 per cent below the allowable annual cut. This reduced level is due mainly to the difficulty of managing the relatively small, fragmented lands within the timber supply area, reduced land base for timber harvesting and planning delays. This harvest level is eight per cent of the total harvest in the two forest districts which encompass the timber supply area. (page 6)
- Although approximately 58 per cent of the timber harvested from the Arrowsmith Timber Supply Area is processed in mills on southern Vancouver Island, the majority of these mills rely on other sources of timber supply. (page 6)
- It is estimated that a total of 1,400 person-years of employment are supported by harvesting and processing the average annual harvest from the Arrowsmith Timber Supply Area, approximately 363 of which are direct person-years of forestry employment on southern Vancouver Island. (page 7)
- The base case* timber supply forecast indicates that, based on forest management practices that were in place when the review was initiated, the allowable annual cut may have to be reduced by two per cent to 469,000 cubic metres per year. To avoid timber supply shortfalls in the future, the timber supply is then projected to decline by 10 per cent per decade for three decades to 346,000 cubic metres, which is 10 per cent below the projected long-term sustainable timber supply level. This reduced level is maintained for 120 years before rising to the long-term level. (pages 8-9)

Approximately 11 per cent of the timber harvesting land base* in the Arrowsmith Timber Supply Area is within Clayoquot Sound. Government has recently accepted the report of the Clayoquot Sound Scientific Panel which recommends new forest practices for a portion of the Sound. These practices are now being implemented. The chief forester will be provided information about the estimated impacts of these practices on the timber supply from the Arrowsmith Timber Supply Area for the allowable annual cut determination. However, until the recommendations are fully implemented and practices are adjusted in the field, it will not be possible to assess the complete timber supply impacts of these practices.

Government is examining the need to adjust the allowable annual cut for the remaining area within the Sound where these practices apply.

- Several factors indicate the short-term timber supply may be lower than predicted in the base case forecast:
 - forest cover requirements in the integrated resource management zone may be underestimated
 - the effects of the fragmented distribution of the timber supply area lands may be underestimated

Arrowsmith Timber Supply Area

- community watershed management guidelines may further limit timber harvesting (pages 9-10)
- The short-term timber supply could be either greater or less than projected because:
 - losses to root rots may be higher or lower than estimated
 - actual green-up ages may vary from the estimates
 - the classification of viewsapes may be adjusted
 - timber productivity estimates for regenerated forests may require revision
 - the size of the timber harvesting land base may change due to biodiversity conservation requirements, urban development or advances in harvesting practices for areas which have not been considered feasible to harvest in the past (pages 10-12)
- Possible opportunities to offset the potential reduction in short-term timber supply include:
 - completion of the transfer of tree farm licence area to the timber supply area
 - increasing the use of partial cutting practices
 - commercial thinning
 - intensive silvicultural treatments (page 12)
- It is estimated that a total of 108 person-years of employment may be lost if the timber supply declines to the projected long-term sustainable level. Of this, approximately 28 person-years are expected to be direct forestry employment within southern Vancouver Island. (page 12)
- Although forestry-based economic activity is significant in several communities in southern Vancouver Island, the relatively small size of the timber supply area and its dispersed location suggest a concentration of employment impacts resulting from an allowable annual cut adjustment is unlikely in any one community. (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 this page.

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 7.

Environmentally sensitive areas

Areas identified as requiring special management to protect important recreation and scenic values, fish and wildlife resources, sensitive soils and unstable slopes.

Forest Practices Code

A law which requires better forest practices, with heavy penalties for violators. Implementation of the Code began on June 15, 1995.

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 management unit.

Person-year

For the forest sector, a person-year is defined as the equivalent of one person working full-time for nine to 12 months. For example, one person working full-time for five to six months accounts for 0.5 person-years.

Protected Areas Strategy

A provincial initiative to protect representative ecosystems and special features on a regional basis. The Vancouver Island Land-Use Plan addressed protected areas in the Arrowsmith Timber Supply Area.

Riparian areas

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

Timber harvesting land base

Crown forest land within the timber supply area that is currently considered feasible and economical for long-term timber harvesting. Harvesting must meet integrated resource management objectives.

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*.

Arrowsmith 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 Arrowsmith Timber Supply Area and encourages British Columbians to comment on the findings. Public comments will be accepted until November 13, 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
 - constraints on the amount of timber produced

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 dedicated British Columbians, the Commission on Resources and Environment and regional Land and Resource Management Plan teams, 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, and a Land and Resource Management Plan for the Kamloops area which mark important steps towards securing British Columbia's future.

Arrowsmith Timber Supply Area

- 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 the *Timber Supply Analysis Report*, *Socio-Economic Analysis Report*, and this *Public 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 diagram also indicates the estimated time required to complete each step in the process and the status of the Timber Supply Review for the Arrowsmith Timber Supply Area.

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 licensees. 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 new government policies. Where major government initiatives prompt changes in land-use designations or forest management practices which significantly impact the timber supply, the chief forester may decide to determine the allowable annual cut more frequently than every five years.

Land use decisions

Two land use decisions and the planning processes resulting from these decisions may influence timber supply in the Arrowsmith Timber Supply Area:

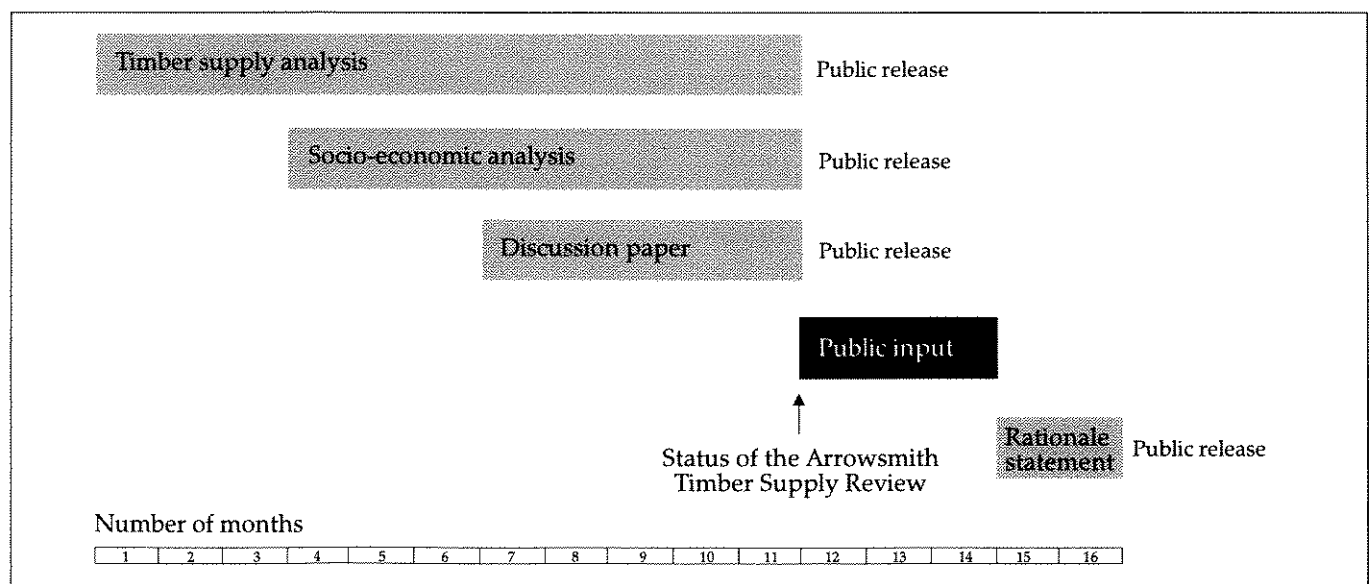


Figure 1 Steps in the Timber Supply Review process

Arrowsmith Timber Supply Area

- **Clayoquot Sound Land Use Decision and Scientific Panel Recommendations**

On April 13, 1993 the government announced its decision on land use in Clayoquot Sound which includes approximately 11 per cent of the timber harvesting land base of the Arrowsmith Timber Supply Area. Several key elements of this decision which have the potential to affect timber supply in the Arrowsmith Timber Supply Area, with economic, social, and environmental consequences are:

- several new protected areas were identified and are being designated
- special management areas were established which emphasize management of recreation, scenic and wildlife values
- an integrated resource management zone was established where timber is a major value and where government has recently accepted practices recommended by a Scientific Panel

In 1994, an interim reduction of 16,000 cubic metres was applied to the allowable annual cut for the Arrowsmith Timber Supply Area to account for the designated protected areas and Special Management Areas in Clayoquot Sound, and to ensure forest management objectives in the rest of the timber supply area were not compromised. In addition to the land designations, special management area planning processes are underway. As well, development planning in Clayoquot Sound is subject to First Nations review under the Interim Measures Agreement between the Province and five First Nations of Clayoquot Sound.

On July 6, 1995 government accepted the report of the Clayoquot Scientific Panel and will fully implement its 120 recommendations including an end to conventional clearcut logging, cutblock size limits, reduced roads with minimum impacts on water flows and soil stability, and harvesting levels based on watershed planning.

- **Vancouver Island Land-Use Plan**

On June 22, 1994, the government announced a Land-Use Plan for Vancouver Island. Several components of this plan have the potential to affect the timber supply in the Arrowsmith Timber Supply Area:

- several new protected areas have been identified and are being designated
- areas have been identified for low-intensity management and work is in progress to finalize areas for general and high-intensity forest management
- a *Forest Land Reserve Act* and a Forest Land Commission will secure the commercial forest land base
- a Forest Jobs Commissioner is working with companies, unions, communities and

government to secure stable forest industry employment

- the Forest Renewal Plan will more than offset the employment impacts of the Land-Use Plan through spending on silviculture, research, inventory and watershed restoration

Implementation of the Clayoquot Sound Land-Use decision, the Clayoquot Scientific Panel recommendations, and the Vancouver Island Land-Use Plan are underway. Until these initiatives are fully implemented and practices are adjusted in the field, the actual timber supply impacts cannot be measured. This Timber Supply Review will be used as the basis for determining the impacts of each initiative as it is implemented. The next Timber Supply Review, which will be undertaken as soon as possible, will be based on actual experience gained during the implementation period.

Forest Practices Code

The *Forest Practices Code of British Columbia Act* became law on June 15, 1995. The Code requires better forest practices throughout the province, with heavy penalties for violators. As the Code is 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 Arrowsmith Timber Supply Area to meet the requirements of the Code. Information about these practices will be provided to the chief forester for consideration in this allowable annual cut determination. It is expected that further implementation and experience with the Code will be required before all of the timber supply effects of the Code can be properly assessed. Therefore, the timber supply impacts of some of the new practices will be incorporated in future allowable annual cut determinations.

Timber Supply Review in the Arrowsmith Timber Supply Area

The information used for the timber supply analysis for the Arrowsmith Timber Supply Area was prepared beginning in December 1993 by Forest Service staff with input from the Fish and Wildlife Branch of the Ministry of Environment, Lands and Parks as well as from the Department of Fisheries and Oceans. This information was reviewed with major forest companies and the Regional District of Alberni - Clayoquot. The Forest Service then conducted a short- and long-term timber supply analysis (*Arrowsmith Timber Supply Analysis Report*, August 1995) and contracted a consultant to perform a socio-economic

Arrowsmith Timber Supply Area

analysis of the timber supply forecast (*Arrowsmith Timber Supply Area Socio-Economic Analysis*, August 1995).

As the Clayoquot Sound Land-Use decision, the Clayoquot Scientific Panel recommendations, the Vancouver Island Land-Use Plan and the Forest Practices Code were not finalized when preparation for the timber supply analysis for the Arrowsmith Timber Supply Area began in 1993, the *Timber Supply Analysis Report* and the *Socio-Economic Analysis* do NOT include the land-use decisions, subsequent planning processes and changes in forest practices resulting from these initiatives. Where possible, the changes in practices resulting from these initiatives are identified in this *Discussion Paper*.

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 Arrowsmith Timber Supply Area. Both reports are available from the Port Alberni Forest District office, Duncan Forest District office, the Vancouver Forest Region office in Nanaimo and Timber Supply Branch of the Forest Service in Victoria.

In conjunction with the release of this *Discussion Paper*, *Timber Supply Analysis Report* and *Socio-Economic Analysis*, Forest Service staff will actively solicit public comment. You are invited to comment on the reports. Input will be accepted until November 13, 1995 and will be summarized in a report to the chief forester and the minister of forests.

After considering all of the available information, the chief forester will determine the allowable annual cut for the Arrowsmith Timber Supply Area early in 1996. The determination and a *Rationale Statement* for the determination will be released to the public along with a *Summary of Public Input*.

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

Description of the Arrowsmith Timber Supply Area

The Arrowsmith Timber Supply Area is located on the southern half of Vancouver Island and includes small

areas of provincial forest on the Gulf Islands. It is the smallest timber supply area in the province with a total area of approximately 169,000 hectares. The timber supply area is bordered by tree farm licences west of Port Alberni and Lake Cowichan, and is interspersed with private forest land and settled areas in the eastern portions resulting from the historic Esquimalt and Nanaimo (E&N) Railway Land Grant.

Most of the area experiences wet, mild winters and cool summers punctuated by hot dry spells. The western area is strongly influenced by maritime weather and the mountain ranges which divide the island cause higher precipitation in the western half of the timber supply area. Higher elevation areas in these mountains have cold, snowy winters. The mountainous terrain and variation in climate creates a complex mosaic of ecological conditions.

Forest resources

Timber

Figure 2 illustrates that approximately 45 per cent of the land base was considered to be available for timber harvesting when the timber supply analysis was initiated. Areas that were not included within the timber harvesting land base* are water or non-Crown land, woodlot licences, non-forested areas, areas with non-commercial tree species, areas that are not technically or economically feasible to harvest and areas with key non-timber values. The latter includes environmentally sensitive areas* such as sensitive soils, streamside buffers, deer winter ranges, and important recreation features (TSAR page 8). New protected areas created by the Clayoquot Land-Use decision and the Vancouver Island Land-Use Plan were not deducted from the timber harvesting land base for the timber supply analysis.

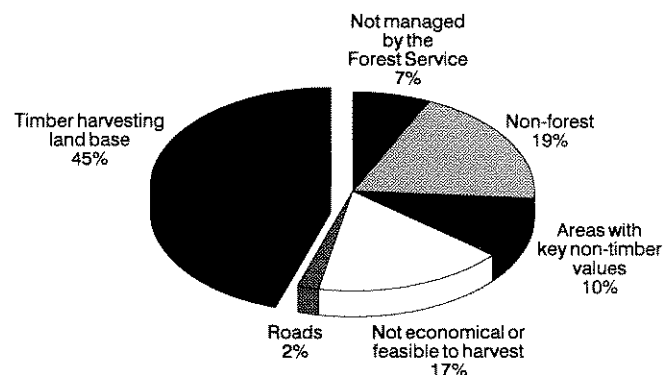


Figure 2 Classification of land within the Arrowsmith Timber Supply Area

Notes: Total area - 169,000 hectares

Only those lands that were legally described as timber supply area lands were included in the land base. Private land and tree farm licence areas were not included.

Arrowsmith Timber Supply Area

The majority of the forests in the Arrowsmith Timber Supply Area are dominated by forests of Douglas-fir, western red-cedar, hemlock and balsam (TSAR page 10). Due to the long history of timber harvesting in the Arrowsmith Timber Supply Area, the timber harvesting land base includes a large proportion of younger, regenerated forests that are almost old enough to be harvested for the second time (Figure 3). Most of these forests are scattered throughout the eastern portion of the timber supply area while the older forests are concentrated in the western portion. (TSAR page 12)

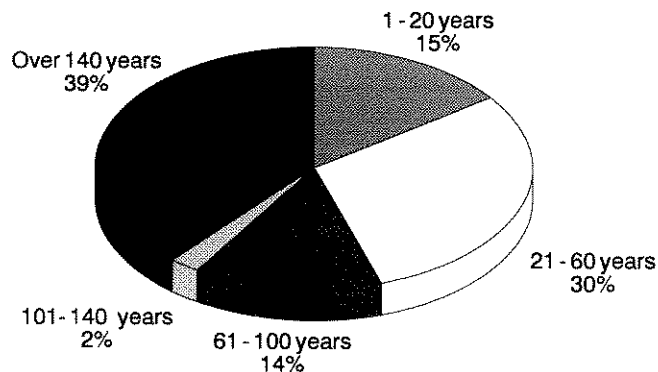


Figure 3 Current forest ages within the timber harvesting land base

Wildlife

A diversity of wildlife inhabit the Arrowsmith Timber Supply Area including black-tailed deer, Roosevelt elk, black bear, wolf, cougar, Vancouver Island marmot, beaver, and several other fur-bearing species. Management of black-tailed deer is particularly important because a substantial portion of the deer hunting in the province occurs in this area. However, because of the relatively small size of the timber supply area, and the small, fragmented areas within it, only a relatively small amount of critical wildlife habitat in southern Vancouver Island is included in the timber supply area. (SEA page 17)

Native and migratory birds within the forests of the area include several species of management concern such as marbled murrelets, Queen Charlotte goshawks, great blue herons and pileated woodpeckers. Areas adjacent to the coastline and estuaries support large populations of marine birds. (SEA page 17)

Fisheries

The coastal areas of southern Vancouver Island support substantial migrating stocks of several salmon species. These stocks provide the foundation for economically important commercial and sport saltwater fisheries. The amount of habitat provided by the streams and lake systems within the timber supply area is naturally relatively low, even in the Barkley Sound and Alberni Inlet area which is

adjacent to a relatively large block of the timber supply area. (SEA page 21)

The stream systems in the eastern portion of the island produce an abundance of fisheries, particularly coho chum salmon, and to a lesser extent, chinook. However, most of these streams flow outside the timber supply area. (SEA page 22)

Steelhead and cut-throat trout inhabit freshwater systems in the area and supports extensive freshwater recreational fishing in southern Vancouver Island. (SEA page 22)

Tourism and recreation

The west coast of southern Vancouver Island is well known for its marine, beach and hiking recreation and tourism opportunities. Maintaining the high quality scenic viewscapes in this area is important to the continuation and anticipated expansion of these activities.

The main highway networks on the eastern side of the island are widely used for touring and they provide access for hiking and other activities. Because of the high proportion of private land in the area, the timber supply area provides the majority of the existing opportunities for the public to access public forest lands. Boating and fishing are also popular activities. Scenic viewscapes management is also important in this area. (SEA page 22)

Current allowable annual cut

The Arrowsmith Timber Supply Area was created in 1986 with an initial allowable annual cut of 392,250 cubic metres. In 1992, the allowable annual cut was increased to 498,250 cubic metres per year as a result of transfers of land and allowable annual cut from major licences. In June, 1994 an interim reduction of 16,000 cubic metres per year was applied to the allowable annual cut to account for the Clayoquot Sound Land-Use decision, resulting in the current allowable annual cut of 482,250 cubic metres per year. (SEA page 30)

Approximately 49 per cent of the allowable annual cut is allocated to the Small Business Forest Enterprise Program administered by the B.C. Forest Service. Forty-six per cent is harvested through four major licences. Approximately three per cent of the allowable annual cut is reserved for woodlot licences and the remaining two per cent is apportioned for harvesting commercial deciduous species such as red alder, or is unallocated. (SEA page 31)

Because woodlot licences and licences for harvesting deciduous species are not included in the Timber Supply Review and the Clayquot Land Use decision had not been fully implemented when the

Arrowsmith Timber Supply Area

timber supply analysis was initiated, for the analysis, the 19,100 cubic metres per year apportioned to woodlot licences and deciduous species was deducted from the allowable annual cut that was in place (498,250 cubic metres per year) before the temporary reduction for the Clayquot decision. This results in an allowable annual cut of 479,150 cubic metres per year for this review. (SEA page 31)

The average harvest level in the Arrowsmith Timber Supply Area from 1991 to 1994 was approximately 417,000 cubic metres per year—13 per cent below the allowable annual cut. The main reasons for the reduced harvesting level are the fragmented distribution of the timber supply area on eastern Vancouver Island, reduced available land base due to the Vancouver Island Land Use Plan and the high development and public use pressures which have resulted in lengthy public planning processes for Small Business Forest Enterprise Program sales. It has also been difficult to harvest the projected allowable annual cut from the relatively small, fragmented land base which was transferred from the tree farm licences. (SEA page 32)

Socio-economic profile

The Arrowsmith Timber Supply Area is primarily distributed within sections of four Regional Districts located on the southern portion of Vancouver Island: Alberni Clayoquot, Cowichan Valley, Nanaimo, and Capital. A small portion of the timber supply area also extends into the Comox-Strathcona Regional District. In 1994, the population of the area was estimated at 550,000. Over 90 per cent of the population is concentrated in the eastern area. The area has experienced varied rates of population growth over the past years, with the Nanaimo Regional District experiencing five per cent growth annually compared to Alberni Clayoquot with a 1.2 per cent rate. (SEA page 2)

Southern Vancouver Island has a growing, diversified economy, with the public sector, forestry and tourism serving as the primary employment generators. Forestry accounts for 10 per cent of the employment in the area, but there is substantial variation among the regions: in the Victoria area forestry accounts for two per cent of employment while in the Lake Cowichan area forestry generates 50 per cent of the employment. The Lake Cowichan, Alberni, Ladysmith and Duncan areas, as well as the communities of Port Renfrew and Jordan River, are heavily dependent on the forest sector. Forestry is also important in the Parksville-Qualicum, Nanaimo and Sooke areas, but it is not dominant. (SEA page 6)

On the west coast, Port Alberni is the community most dependent on forest sector employment and income. The economy is dominated by a pulp and paper mill and timber harvesting from a single tree

farm licence with an allowable annual cut almost five times that of the Arrowsmith Timber Supply Area. A number of independent sawmills in the area also add significantly to forest sector employment and revenue. Tofino, also on the west coast, is more dependent on tourism and commercial fishing than forestry, whereas Ucluelet relies on forest sector employment as well as fishing and tourism. (SEA page 7)

Communities in the Lake Cowichan area, west of Duncan, are almost entirely forest sector dependent although a single mill is the only remaining permanent operation in the area. A community forest licence in the area is currently being considered which will sustain part of the timber supply to this mill. This allocation is being re-directed from the Small Business Forest Enterprise Program and does not represent new timber supply.

For the City of Duncan, the District of North Cowichan and the communities of Cobble Hill and Shawnigan Lake, the pulp and paper mill at Crofton, and the five sawmills and value-added manufacturing plants in the area are an important part of the economy.

First Nations

There are twenty-nine First Nations with reserves or traditional territories located within the geographic area that includes the Arrowsmith Timber Supply Area. First Nations population is estimated at 13,200, with 53 per cent of these people living on reserves. Four tribal councils—the Nuuchahnulth, South Island, Mid-Island and Alliance—and one Treaty Association represent all but three of the First Nations. (SEA page 11)

Changes in the forest sector and low job security have reduced First Nations employment in the forest sector since the early 1970s. Some First Nations now desire more direct involvement in the industry to reduce high unemployment levels of 70 to 90 per cent and to provide long-term community stability. The Toquaht and Pacheenaht First Nations, in particular, have undertaken initiatives to achieve these goals. (SEA page 12)

Timber harvesting and processing

Outside of the Lower Mainland, southern Vancouver Island has the largest concentration of wood processing facilities in the province. Thirteen major sawmills, three pulp mills, one plywood/veneer plant, sixteen independent lumber mills, a sizeable number of remanufacturing or value-added operations, ten to twenty cedar shake and shingle mills and three log home builders operate in the area. Approximately 58 per cent of the timber harvested from the Arrowsmith Timber Supply Area is processed on southern

Arrowsmith Timber Supply Area

Vancouver Island, the remainder is transported to the Lower Mainland or northern Vancouver Island for processing. The timber harvested from the Arrowsmith Timber Supply Area represents only eight per cent of the total timber harvest on southern Vancouver Island. Thus the majority of the mills in this area obtain fibre from tree farm licences, other timber supply areas and private land—generally they do not depend on the timber supply area. (SEA page 33)

It is estimated that approximately 363 person-years of direct forestry employment have been created in the area by harvesting and processing the average annual harvest of 417,000 cubic metres per year from the Arrowsmith Timber Supply Area. This is a conservative estimate because employment in re-manufacturing is not included in these estimates. It is estimated that for every 1,000 cubic metres harvested, an additional 0.54 person-years of spin-off employment are generated through forest company and employee spending. It is estimated that the average annual harvest level supports a total of 589 person-years of employment in southern Vancouver Island. (SEA page 46)

Provincial economy and revenues

It is estimated that harvesting and processing the average annual harvest from the Arrowsmith Timber Supply Area generates an additional 197 person-years of direct forestry employment and 614 person-years of spin-off employment outside of southern Vancouver Island. Provincially, on average approximately 1,400 person-years of employment are supported annually by wood harvested from the Arrowsmith Timber Supply Area. (SEA page 46)

Approximately \$23.0 million in provincial government revenues are generated annually by timber harvesting in the Arrowsmith Timber Supply Area. This figure is based on fees of \$15.2 million for harvesting public timber in the area, estimated personal income taxes of \$4.5 million, plus other tax revenues of \$3.3 million. These estimates are based on 1994 data and increased stumpage revenues being generated to fund the Forest Renewal Plan. (SEA page 46)

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. The Ministry of Environment, Lands and Parks is responsible for management of wildlife and water resources and shares responsibility for fisheries resources with the federal Department of Fisheries and Oceans. These 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 legal land-use designations and current management practices that were approved and implemented in the Arrowsmith Timber Supply Area when the information for the timber supply analysis was prepared. These practices are briefly described below. Readers are encouraged to read the *Timber Supply Analysis Report* pages 13-16 and Appendix A for more details.

- **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. The typical silvicultural practices are to harvest, then site prepare if necessary, reforest by planting a mix of species or by relying on natural regeneration, and control of competing vegetation where needed. For the timber supply analysis it is assumed that areas will be restocked within two to three years of harvesting.
- **Forest health and unsalvaged losses** — Forest losses due to wildfire, insects, diseases and wind damage are minimized as much as possible, and damaged timber is salvaged when and where feasible. Annual losses of timber to fire and wind damage are estimated to be 3,062 cubic metres. In the timber supply analysis, losses due to root rot were accounted for by reducing the predicted timber yields for second-growth Douglas-fir by 11 per cent.
- **Timber utilization** — Within areas being harvested, all coniferous trees greater than 17.5 centimetres in diameter at chest height are considered merchantable and must be utilized down to a 10 centimetre top diameter.
- **Harvestable ages** — Minimum harvestable age is defined as the time it takes for forests to grow to harvestable size. The minimum harvestable ages used in the timber supply analysis vary by tree species, site productivity and forest district. Minimum ages for existing mature forests range from 48 to 215 years and from 45 to 165 years for regenerated forests. (TSAR page 14)
- **Soil conservation** — Many areas in the Arrowsmith Timber Supply Area have sensitive soils that are likely to erode if disturbed by logging or road building. A total of 6,852 hectares of moderately to highly sensitive soils were deducted from the timber harvesting land base for the timber supply analysis.

To account for productive land lost to date to road building, seven per cent of the timber

Arrowsmith Timber Supply Area

harvesting land base within currently accessed areas were considered not to contribute to timber production in the future. Future losses were estimated at less than three per cent on the basis of current practices which include rehabilitation of some roads and use of harvesting methods such as skyline systems which require less roads.

- **Fish and wildlife** — Approximately 2,500 hectares (two per cent of the productive forest land) were deducted from the timber harvesting land base to account for streamside riparian* areas where timber harvesting is not permitted in accordance with the Coastal Fisheries/Forestry Guidelines which were in effect when the timber supply analysis was initiated.

Suitable deer and elk winter range must have adequate forest cover to reduce snow depth and provide thermal protection and security from predators during the winter. Approximately 1,454 hectares of productive forest land were deducted from the timber harvesting land base for protection of critical wildlife habitat.

- **Recreation** — Approximately 4,548 hectares were deducted from the timber harvesting land base for management of key recreational features.
- **Viewscapes** — Maintenance of scenic landscapes is a recreation and tourism management priority, particularly for viewscapes near major population centres and along several major highway and marine corridors within the timber supply area. Road construction and logging are designed to minimize visual impacts.

Recent studies have shown that, on average, harvested areas which are visually sensitive must have trees which are at least five metres tall before they appear "greened-up". Provincial guidelines define the minimum percentage of the landscape that must meet these requirements within specified visually sensitive classifications. Thirty four per cent of the timber harvesting land base has been classified into one of three visual sensitivity zones, each with a corresponding forest cover requirement:

- highly sensitive (retention) zone (5,100 hectares) - generally no more than five per cent of the forested viewcape is permitted to have trees less than five metres tall at any time
- moderately sensitive (partial retention) zone (14,400 hectares) - generally no more than 10 per cent of the forested viewcape is permitted to have trees less than five metres tall at any time and,
- low sensitivity (modification) zone (6,100 hectares) - generally no more than 20 per cent of the forested viewcape is permitted to have trees less than five metres tall at any time

- **Integrated resource management zone** (46,220 hectares) — includes area not within the visually sensitive zones. In these areas, harvesting is dispersed to create a diversity of forest ages and to limit the area that is clearcut at any one time. A given area cannot be harvested until the regenerated forest on adjacent, previously harvested areas is at least three metres tall. To approximate current practices which limit the area harvested at any time, in the timber supply analysis a maximum of 25 per cent of the timber harvesting land base was permitted to be covered with trees less than three metres tall at any time. Areas are not permitted to be progressively clearcut.

Approximately five per cent of the timber harvesting land base (3,446 hectares) is in areas which require alternative harvesting methods, including long reach cable systems and helicopters on the west coast. In these areas, a maximum of 20 per cent of the forested land base is permitted to have forests less than three metres tall at any time.

Timber supply forecasts and critical factors

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 harvest levels. The base case forecast and the critical factors described below are part of the information the chief forester will use to determine the allowable annual cut for the next five years.

Base case timber supply forecast

To complete the timber supply analysis for the Arrowsmith 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, or if this was not possible, find the maximum initial harvest level
- if the predicted long-term sustainable timber supply 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 level at or above the predicted long-term sustainable level at all times

If a timber supply forecast could not be generated to meet all these principles, the conditions were adjusted until a feasible forecast could be produced.

Arrowsmith Timber Supply Area

In the Arrowsmith Timber Supply Area it was not possible to generate a base case harvest forecast that met all of these conditions. As Figure 4 indicates, although it is possible to maintain the current allowable annual cut for the next ten years, this results in a 12 per cent decline in the next decade and an eventual drop to below the long-term harvest level. Figure 4 also illustrates that even when the harvest level is reduced immediately to the long-term harvest level, reductions to below the long-term level still occur in the future. (TSAR pages 27-28)

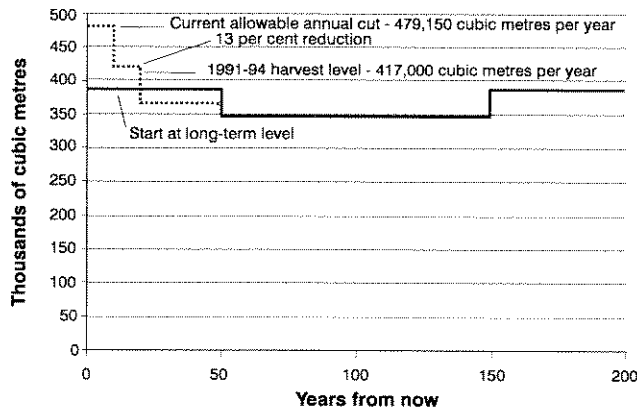


Figure 4 Initial timber supply forecasts

Based on the information from these initial forecasts and the principles outlined above, a base case timber supply forecast was developed that balanced the short and long-term impacts identified in the initial tests (Figure 5). This forecast indicates the need for a two per cent reduction in the current allowable annual cut to 469,000 cubic metres per year. This rate is projected to be maintained for 10 years before the timber supply is estimated to decline approximately 10 per cent per decade for the next three decades, to 346,000 cubic metres per year, approximately 10 per cent below the projected long-term level. This level is projected to continue for 120 years before rising to the long-term sustainable timber supply level of 385,000 cubic metres per year. (TSAR page 18)

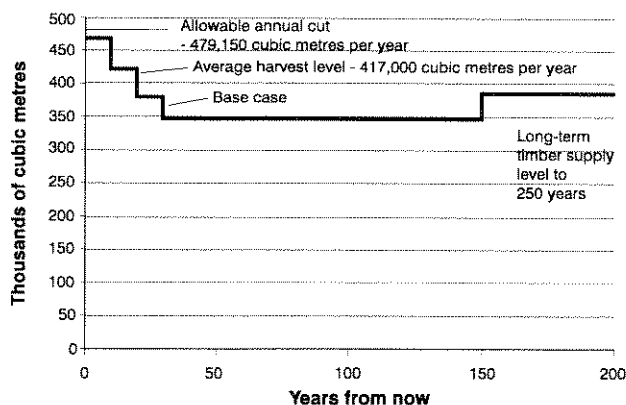


Figure 5 Base case timber supply forecast

The projected two per cent reduction in timber supply is separate from the interim 16,000 cubic metre per year reduction which accounts for the Clayoquot Sound Land Use decision. The projected timber supply forecast will be further impacted by the recommendations of the Clayoquot Scientific Panel. The chief forester will be provided information about the estimated impacts of the new practices on the projected timber supply for the allowable annual cut determination. However, until the recommendations are fully implemented and practices are adjusted in the field, it will not be possible to assess the complete timber supply impacts of these practices.

Examining critical factors

Since 1993 when the data were prepared for the timber supply analysis, Forest Service staff have been collecting more information on some of the factors in the analysis. Also, tests completed during the timber supply analysis identified which factors had the greatest influence on the timber supply forecasts. These critical factors are discussed in this section. Other factors in the analysis were tested and are discussed in the *Timber Supply Analysis Report* (see TSAR pages 26-41) but were not considered critical to this review and therefore have not been included in this discussion paper.

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.

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

- **Forest cover requirements in the integrated resource management zone**
Forest cover requirements — the amount of area permitted to have forests below a specified height or age at any time — were used in the timber supply analysis to approximate the integrated resource management objectives and practices in each management zone. These requirements are applied across the broad zones within the timber supply area.

Within the integrated resource management zone, existing operational requirements for conservation of environmental values, such as dispersed harvesting, reduced block sizes, retaining some forest cover within cutblocks, and new requirements under the Forest Practices Code, result in forest cover requirements which are more restrictive to timber harvesting than those used in

Arrowsmith Timber Supply Area

the analysis. This reduces the timber that is actually available for harvesting compared to the base case timber supply forecast.

The timber supply impacts of increased forest cover requirements in the integrated resource management zone were tested in the timber supply analysis by reducing the amount of area which could have trees less than three metres tall at any time, and increasing the number of harvesting entries required to harvest the area from four to five (Figure 6). The test indicates this factor has a significant impact on the projected immediate timber supply. (TSAR page 37)



Figure 6 Impact of increases in the number of harvesting entries

- **Fragmented ownership of forest land**

The historic development of southern Vancouver Island with the extensive E&N Railroad land grant and the early establishment of a wide range of forest management tenures has resulted in a complex and fragmented distribution of land ownership and forest management units throughout the area, including tree farm licences, private forest land, timber supply area lands, and private urban and rural development. Forest management practices on forestland adjacent to lands within the timber supply area and development on adjacent private lands sometimes limit the amount of timber available for harvesting within the timber supply area. Small, fragmented parcels of Crown forest land in the eastern portion of the timber supply area also do not support large scale forestry. These factors limit the short-term timber supply.

- **Community watersheds**

There are numerous community watersheds in the eastern portion of the timber supply area which vary significantly in size and number of water users, but all are sensitive to timber harvesting. The Forest Practices Code includes new community watershed management guidelines which are expected to limit timber harvesting more than was represented in the base case forecast. Alternative practices such as commercial thinning are occurring

now, however, it was not possible to directly analyse the timber supply impacts of these practices.

- **Combined effects**

Each of the critical factors explained above may reduce the short-term timber supply. Forest Service staff are of the opinion that the risk of these factors occurring together is high. In some cases the impacts of these factors may be compounded while in others the impacts may overlap. The relationship of these factors is a consideration in the allowable annual cut determination.

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

- **Losses to root rot**

Research indicates 70 per cent of Douglas-fir forests on southern Vancouver Island are moderately to severely infected with root rot. Based on field surveys conducted in the Duncan Forest District, for the timber supply analysis the Douglas-fir timber yield estimates for regenerated forests were reduced by 11 per cent to account for timber losses due to this disease.

There is considerable debate regarding the impact of root rot on future timber yields. The estimate used in the timber supply analysis is based on current understanding of decay rates following infection, the impact of root rot on forest growth, and the potential for reducing these losses through forest management practices. Further studies may indicate these losses are higher or lower than estimated.

- **Green-up ages**

Green-up age is the estimated time required for regenerated forests to reach a specified condition, usually defined as a minimum height, to meet integrated resource management objectives and permit further harvesting in an area. In the timber supply analysis, green-up ages were based on regenerated forests being at least five metres tall in the visual management zones, and at least three metres tall in the integrated resource management zone. However, it is possible that:

- the defined minimum heights may not create the conditions required to meet environmental, wildlife or scenic resource management objectives
- it may take regenerated forests more or less time than estimated to reach the minimum height

As Figure 7 illustrates, the short-term timber supply in the Arrowsmith Timber Supply Area depends heavily on the estimated green-up ages. (TSAR pages 34-36)

Arrowsmith Timber Supply Area

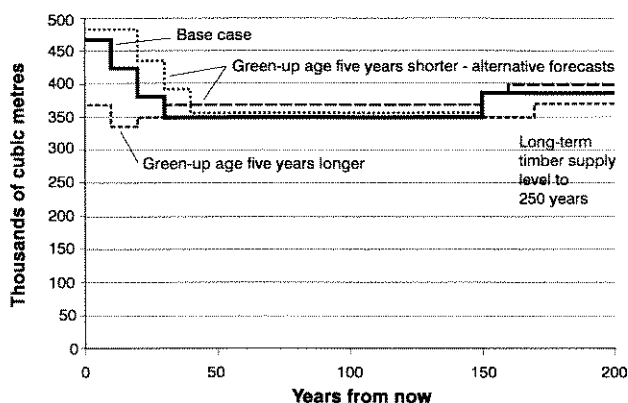


Figure 7 Impacts of changes in green-up ages

• Viewscape management

In the Arrowsmith Timber Supply Area, viewscape management is very important, particularly in the high recreation use areas on the west coast where the mountains are very visible and in the portions of the east coast with extensive urban development. In the timber supply analysis, 34 per cent of the timber harvesting land base was classified into three levels of visual sensitivity. These classifications were based on recommended classes which have not yet been approved, and which may be adjusted through the Vancouver Island Land Use Plan and the Special Management Areas planning processes of the Clayoquot Sound Land Use decision.

A test was completed in the timber supply analysis to assess the possible timber supply effects of changes in these classifications (Figure 8). This test shows that short-term timber supply would be greatly affected by an increase in the area in the most restrictive class. (TSAR page 40)

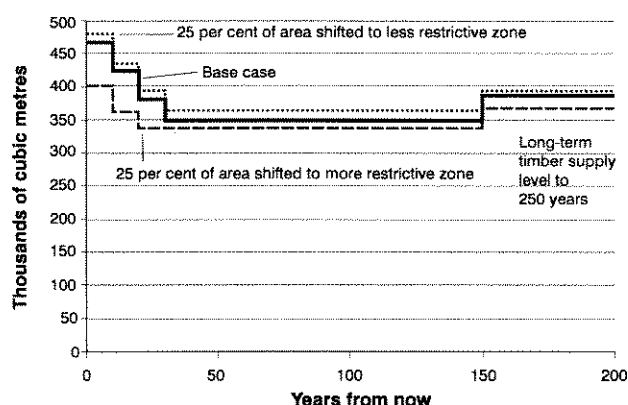


Figure 8 Impacts of changes in the area within each visually sensitive zone

• Size of the timber harvesting land base

Several factors may influence the estimated size of the timber harvesting land base:

• biodiversity

The *Coastal Biodiversity Guidelines* are now being implemented. These guidelines require that specific portions of the forested land base be reserved from harvesting to meet biodiversity objectives. These include environmentally sensitive areas, reserves, areas that are not currently feasible or economical to harvest and corridors which maintain and connect representative ecosystems and important wildlife habitats such as old-growth forests. In addition, small patches of timber may be left unharvested within cutblocks to provide wildlife habitat. It is possible that harvesting costs could increase as a result of these requirements, which may reduce the area that is economical to harvest. These factors will likely result in a smaller timber harvesting land base than was used in this timber supply analysis.

• urban development

Public expectations for green space near settlement areas limit timber harvesting on lands within the eastern portion of the timber supply area. Continued expansion of settlement areas with associated infrastructure development and increased recreation use of forest lands will reduce the size of the timber harvesting land base in the timber supply area.

• area that is not feasible to harvest

Using the best available information, approximately 21,000 hectares in the western portion of the timber supply area were not considered to be technically, economically or environmentally feasible to harvest using current methods and were deducted from the timber harvesting land base for the timber supply analysis. (TSAR pages 7, 65).

It is possible that with alternative harvesting methods and an increase in timber values as wood supplies become limited, more lower quality timber and timber on mountainous terrain could become economical to harvest. An example of this is the increase in the use of helicopters and long-line harvesting in recent years to harvest timber from unstable slopes and other sensitive areas. Approximately 3,400 hectares, almost five per cent of the timber harvesting land base, were identified as suitable for balloon, helicopter and long-reach harvesting methods and were included in the timber harvesting land base.

Figure 9 illustrates the timber supply impacts of changes in the size of the timber harvesting land base (TSAR page 29)

Arrowsmith Timber Supply Area

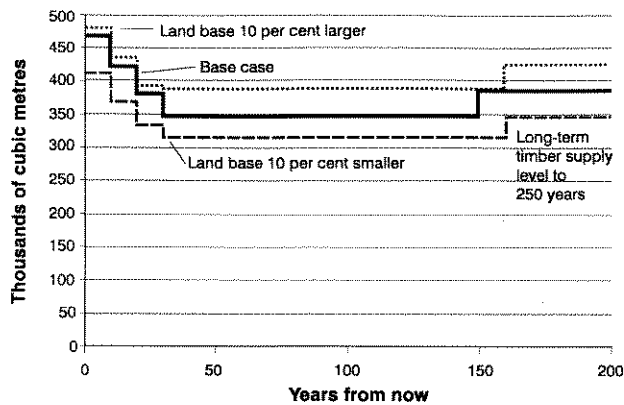


Figure 9 Impacts of changes in the size of the timber harvesting land base

• Timber productivity estimates for regenerated forests

The timber productivity estimates used in the timber supply analysis for both existing and regenerated forests are based on existing forests. In some cases, particularly for areas where the existing forests are very old, these estimates may not be accurate for regenerated forests.

Throughout the province, Forest Service and timber industry staff are concerned the timber productivity of regenerated forests may be underestimated, or in some cases, overestimated. Studies are underway in various areas of the province to investigate and quantify this issue.

In the timber supply analysis, the timber productivity estimates for regenerated forests affect the predicted rate of growth for regenerated forests and consequently green-up ages, minimum harvestable ages and total timber volume produced. These factors may influence the timber supply forecasts.

Possible opportunities to offset potential reductions in short-term timber supply

• Transfer of tree farm licence area

In 1992, a tree farm licence within the Port Alberni Forest District changed ownership. As required by the *Forest Act*, five per cent of the allowable annual cut from public lands within the license area was reallocated to the Small Business Forest Enterprise Program. When negotiations are completed, this is expected to add 9,000 cubic metres of allowable annual cut to the timber supply area.

When the timber supply review was initiated, this process had not been completed, and the area was not included in the timber harvesting land base of this review. While this transfer will increase the land base, and possibly the timber supply for the timber supply area, it is a redistribution of land management responsibility which will not increase the total timber supply in the two Forest Districts.

• Partial cutting practices

Most of the timber harvesting in the Arrowsmith Timber Supply Area has historically been accomplished with clearcuts. Partial cutting practices where varying numbers, sizes and distribution of trees remain after harvesting may increase the environmental feasibility and public acceptability of harvesting in some areas of the timber supply area. The Forest Service and forest companies are thoroughly examining the potential to implement these practices to provide opportunities to harvest areas where clearcutting is not feasible. If the use of these practices expands, the timber supply impacts of these practices will be examined in future timber supply reviews.

• Commercial thinning

As a result of the long history of timber harvesting on southern Vancouver Island, 21 per cent of the forests of the Arrowsmith Timber Supply Area are between 40 and 60 years of age, a large portion of which may be candidates for commercial thinning. To date however, only a minor amount of commercial thinning has occurred in the timber supply area.

Commercial thinning offers an alternative in areas where scenic or other non-timber values restrict the use of clearcutting. Commercial thinning may also offset projected short-term timber supply reductions, although possible negative impacts on long-term timber supply must also be considered. Further operational experience with commercial thinning is needed, as well as an examination of the impacts on short- and long-term timber supply.

• Intensive silvicultural treatments

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

When the timber supply analysis was initiated, information about the projected timber volumes from intensive silvicultural treatments planned in the Arrowsmith Timber Supply Area was not available and could not be included in the analysis. Since the analysis was completed, information has become available which will be considered by the chief forester in the allowable annual cut determination.

A test completed in the timber supply analysis indicates the timber supply gains from increased growth of regenerated forests are not immediate, and would not offset the projected immediate timber supply reduction (TSAR page 32). These treatments, particularly juvenile spacing and pruning, are labour intensive and can provide a short-term employment benefit.

Arrowsmith Timber Supply Area

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 Arrowsmith Timber Supply Area were not examined. Further analysis is required to examine the potential opportunities for intensive silvicultural treatments and the implications of these treatments on timber supply and other resources.

Vancouver Island Land-Use Plan, Clayoquot Sound Land-Use Decision, Clayoquot Scientific Panel Report Implementation, and the Forest Practices Code

It is expected that implementation of the Clayoquot Sound Land-Use decision, Vancouver Island Land-Use Plan and the Forest Practices Code will impact the timber supply in the Arrowsmith Timber Supply Area through:

- reductions in the timber harvesting land base for protected areas
- reduced harvesting to meet management objectives for important non-timber values, particularly within Low Intensity Areas
- establishment of three separate special management areas for the management of scenic, recreation, and wildlife values in the Clayoquot Sound Land-Use decision
- implementing the Clayoquot Scientific Panel recommendations including an end to conventional clearcut logging, limits on cutblock size and roads and setting harvesting levels based on watershed planning
- conserving networks of representative forested ecosystems where harvesting is restricted to provide linked old-growth habitats throughout the landscape
- maintaining trees within cutblocks to provide wildlife habitat
- increased streamside buffers to protect fish habitat and water quality
- ensuring forest practices meet water management objectives, especially in community watersheds
- identifying and protecting unstable gullies

Employment reductions resulting from these changes are expected to be offset by more labor intensive harvesting practices and Forest Renewal programs including watershed restoration, value-added manufacturing and increased silviculture, inventory and research programs.

Environmental and socio-economic implications

Environmental concerns

Forty-one per cent of the forested land in the timber supply area (49,375 hectares) was not included in the timber harvesting land base for the timber supply analysis. Of this, 16,323 hectares was subtracted for environmentally sensitive areas such as sensitive soils, wildlife habitat, recreation features, fisheries and riparian values. The remaining area was not included because it is infeasible or uneconomical to harvest with current methods or it has been designated for another land use. However, these areas provide biodiversity, old-growth, wildlife and fisheries habitat, water, and scenic and recreational values. (SEA page 30)

The fragmented, dispersed distribution of the timber supply area, particularly on the eastern side of the island, has important implications for wildlife and biodiversity management. This characteristic makes it difficult to maintain networks of representative ecosystems or a variety of forests to provide wildlife habitat and conserve biodiversity. The Ministry of Environment, Lands and Parks has indicated the highest standards of biodiversity management may be required within the timber supply area, depending on how the Forest Practices Code is applied to the surrounding private forest lands. (SEA page 17)

As few of the major streams and lakes on southern Vancouver Island lie within the timber supply area, fisheries are not expected to be affected by adjustments in the allowable annual cut. Ministry of Environment, Lands and Parks view the current stream and lake protection measures in effect within the timber supply area as adequate, and they will be further enhanced by the new Forest Practices Code. (SEA page 22)

First Nations implications

Many of the First Nations within southern Vancouver Island have expressed intentions to become more involved in forest management in the area. Particularly in the western portions of the timber supply area, First Nations are becoming more active in the management of public forest lands and timber harvesting in their traditional territories. First Nations are increasingly concerned about maintaining the long-term sustainability of all natural forest resources within their traditional territories. They have expressed concern that current management practices and the recent levels of timber harvesting may limit their future opportunities for forest resource stewardship and economic benefits. (SEA page 52)

Arrowsmith Timber Supply Area

Community implications

The ability of the communities in the area to adapt to changes in the timber supply is one of the factors considered by the chief forester in the allowable annual cut determination.

To calculate the economic impacts of timber supply adjustments, it was assumed in the *Socio-Economic Analysis* that a change in the timber supply would create economic impacts directly related to the size of the timber supply reduction or increase (i.e. a 10 per cent change in the timber supply would result in a 10 per cent change in employment). However, because the actual harvest level during 1991 to 1994 has been 417,000 cubic metres, which is lower than the current allowable annual cut, this level was used to assess the economic implications of the timber supply forecasts. Consequently, while the timber supply analysis indicates the need for a reduction in the allowable annual cut, from 479,150 to 469,000 cubic metres per year, the *Socio-Economic Analysis* projects economic benefits if the harvest level is increased initially from the average recent level of 417,000 cubic metres per year to the projected immediate timber supply level of 469,000 cubic metres per year.

Based on this methodology, it is estimated that if the chief forester adjusted the allowable annual cut to conform to the base case timber supply forecast, and the harvest level increased to the projected level, 45 person-years of direct forestry employment and 28 person-years of spin-off employment could be created within the timber supply area. This assumes the current difficulties which limit the actual harvest level can be overcome. Projected future reductions to the long-term sustainable timber supply level over the next 30 years may eliminate a total of 28 person-years of direct forestry employment and 17 person-year of spin-off employment compared to current employment estimates. (SEA page 48)

Although forestry-based economic activity and employment are significant for communities such as Port Alberni, Lake Cowichan, Chemainus and others, the relatively small size of the allowable annual cut for the timber supply area, the dispersed location of the land within the timber supply area, and the relatively small changes indicated by the analysis suggest that a concentration of impacts in any one community is unlikely to result from allowable annual cut adjustments. (SEA page 51)

Provincial implications

Using the same methodology as for the community employment impacts, it is estimated that provincially, a total of 175 person-years of direct and spin-off employment may be created if the allowable annual cut were adjusted to the base case forecast and

harvest levels were increased to the initial forecasted level. This estimate includes employment within and outside the timber supply area. The long-term sustainable timber supply level is estimated to result in a reduction of 108 person-years of employment. (SEA page 48)

Provincial government revenues, including stumpage and taxes, are projected to increase in the first decade by \$2.9 million per year based on the same timber supply forecasts. As the long-term timber supply level is reached, provincial government revenues are expected to drop by \$1.8 million. (SEA page 48)

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.

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 Arrowsmith Timber Supply Area. Forest Service staff 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 listed below. Your comments will be accepted until November 13, 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.

Arrowsmith Timber Supply Area

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

For more information contact:

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

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 Arrowsmith Timber Supply Area. Further information on the critical factors outlined on pages 9-13 in this paper would be most helpful.

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

Address (optional) _____

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