



Haida Gwaii



**Public Review Period *for*
an Annual Allowable Cut
Determination**

By the
Haida Gwaii Management Council

**Public Discussion Paper
October 2011
Timber Supply
Review**

Haida Gwaii Timber Supply Review Public Discussion Paper

1. Executive Summary

Haida Gwaii consists of more than 150 islands located roughly 80 kilometres off the northern mainland coast of British Columbia. On December 11, 2009, the Council of the Haida Nation (CHN) and the Province of British Columbia (BC), while acknowledging dispute of title over Haida Gwaii, signed the historic *Kunst'aa Guu – Kunst'aayah Reconciliation Protocol (2009 Protocol)*.

Through the Protocol, both Governments choose a more respectful approach to co-existence by way of land and natural resource management through shared and joint decision-making. One aspect of the Protocol was a commitment to establish the Haida Gwaii Management Council (HGMC). This commitment was supported by CHN's 2010 *KaayGuu Ga ga Kyah ts'as – Gin 'inaas 'laas 'waadluwaan gud tl'a gud giidaa (Haida Stewardship Law)*, and BC's *Haida Gwaii Reconciliation Act*, and the HGMC was formed in April, 2011.

The HGMC consists of two members appointed by the Haida Nation after consultation with BC, two members appointed by BC after consultation with the Haida Nation, and a chairperson jointly appointed by both Parties. Both the Haida Nation and BC have entrusted certain of their respective authorities and jurisdictions to the HGMC.

Prominent among the official responsibilities of the HGMC, and its first major decision, is the determination of an allowable annual cut (AAC), to define how much timber may be commercially harvested each year from the Haida Gwaii Management Area.

The Haida Nation and BC have jointly established objectives that will guide the HGMC. These objectives include managing the forests of Haida Gwaii sustainably and consistently, across all forest tenures, for a wide range of values including ecological integrity and socioeconomic benefit for the people of the islands.

A key purpose of this timber supply review is to ensure that the AAC reflects the new protected areas and ecosystem based management regime stemming from the Strategic Land Use Agreement (2007).

One kind of information the HGMC must consider is technical, in the form of a forest management and land use data package used as a basis for a computer-generated forecast of the timber supply available under assumed conditions. Analytical findings are described briefly in this discussion paper and include a 'base case' forecast showing that for all of the Haida Gwaii Management Area, under existing conditions, an initial harvest level of 895,266 cubic metres per year is possible and can be maintained for 80 years before rising to a long-term sustainable level of 923,558 cubic metres per year.

This base-case forecast is not a recommended AAC for Haida Gwaii nor is it the only possible harvest level. It is just one of several sources of information the HGMC will consider in its determination. Other sources include the ideas, opinions, and personal experiences of people who live on Haida Gwaii and/or who consider their interests to be affected by the determination.

To engage the people of Haida Gwaii and elsewhere in BC, the HGMC is circulating this Discussion Paper as an integral part of its decision making process, to offer information on the timber supply analysis, the forest management issues, and the socioeconomic factors it will consider in making its determination, as well as on the AAC determination process itself. The HGMC hopes this will enable individuals, licensees, and interested parties to provide informed responses on any matter that they believe should be considered in the AAC determination, whether consistent with, or critical of, any information or assumption incorporated in the technical analysis. The HGMC now therefore invites and welcomes your feedback on any aspect of this discussion paper, or on any other issue or concern that you feel needs to be considered in assessing the timber supply on Haida Gwaii.

To that end, please see the **'Your feedback is needed'** section at the end of this document. To help the determination process to remain on schedule, we would appreciate receiving your comments during the **45-day period for Public Review and Comment from November 3, to December 17, 2011.**

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Following the HGMC's AAC determination for all of the forest management area on Haida Gwaii, BC's chief forester, using the same technical information will then make separate AAC determinations for the major management units on Haida Gwaii (i.e. the Timber Supply Area and the Tree Farm Licence areas, on Haida Gwaii.) that must not in total exceed the HGMC determination. After the Chief Forester determinations, forest companies that hold licences in the Timber Supply Area will be allocated AACs specific to their licences by the BC Minister of Forests, Lands, and Natural Resource Operations.

2. Introduction:

The special AAC circumstance of Haida Gwaii

The authority for determining the allowable annual cut (AAC) to define how much timber may be harvested on Haida Gwaii now rests with the Haida Gwaii Management Council, a specially mandated body established under the *'Kunst'aa Guu – Kunst'aayah' Reconciliation Protocol*; as well as in the *Haida Gwaii Reconciliation Act*, and in the *Haida Stewardship Law*. This situation has developed from these and other significant agreements reached in recent years between the Council of the Haida Nation and the Province of BC as discussed below.

2007 Strategic Land Use Agreement (SLUA)

The islands of Haida Gwaii cover a total area of just over a million hectares and are located off the north coast of mainland BC to northwest of Vancouver Island. The islands are the traditional home of the Haida Nation, and in recent years landmark agreements have been reached between the Council of the Haida Nation and the government of BC to enable sustainable management of the lands and resources of the islands, that will benefit the islands' people.

These agreements include the December 12, 2007, Strategic Land Use Agreement (SLUA) reached by the Council of the Haida Nation and the Province of BC as the culmination of extensive government-to-government negotiations and years of hard work and collaboration by many people including a jointly led, community-based planning process designed to cooperatively develop a strategic land use plan for Haida Gwaii guided by ecosystem-based management (EBM). The SLUA provides for the protection of areas of critical significance and to establish forest management objectives for cultural, aquatic, biodiversity and wildlife values. Major features of the 2007 SLUA included:

- an agreement to develop a process for long-term AAC determination;
- ensured continuation of sustainable forestry operations;
- new protected areas for ecological and cultural values and for spiritual and recreational purposes, to protect a total of about half the area of the islands;
- an operating area covering the other half of the land planning area, on which forestry operations will be subject to EBM;
- a commitment to an economic timber opportunity of not less than 800,000 cubic metres per year;
- identification of special value areas for forest cover retention for Goshawk, Saw-whet owl and Great Blue Heron;
- a set of initial EBM objectives for forestry to be further tested and refined through detailed strategic planning before being legally established as requirements for timber harvesting, intended to ensure the vital balance between healthy ecosystems and vibrant communities; and
- key implementation steps for more detailed forest planning to address cultural cedar values, coastal zone planning and protected area management planning.

New Protected Areas

Also in 2009, to implement components of the 2007 SLUA, legal protection was introduced for eleven new Heritage Sites/Conservancies, referred to as protected areas, on Haida Gwaii, to support Haida culture, protect natural values and create opportunities for sustainable recreational uses. The new protected areas are

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in areas traditionally used by the Haida Nation for their natural, cultural and spiritual values and, together with additional areas of park and ecological reserve, provide formal protection status to roughly half the total area of Haida Gwaii. More information on the conservancies is provided below in ‘**Land base**’.

2009 Kunst’aa Guu – Kunst’aayah Reconciliation Protocol

The 2007 SLUA was followed on December 12, 2009, by the co-signing of the historic *Kunst’aa Guu – Kunst’aayah Reconciliation Protocol (Reconciliation Protocol)*, by the Haida Nation and the Province of BC (the Parties).

The Reconciliation Protocol, whose title means ‘in the beginning’, is a commitment by both Parties to continue working together toward comprehensive reconciliation, focussing on joint and shared strategic-level decision making respecting lands and natural resources on Haida Gwaii, and other collaborative arrangements that include socioeconomic matters pertaining to children and families.

The 2009 Protocol embodies the interests of ensuring the best decisions for the management of lands and natural resources on Haida Gwaii. Building on the 2007 SLUA, the Protocol includes agreements to address objectives for:

- shared and joint decision making;
- carbon offset and resource revenue sharing;
- forest tenures and other economic opportunities; and
- enhancement of Haida socio-economic well being.

The Haida Gwaii Management Council

The Reconciliation Protocol committed both Parties to a process for shared decision-making regarding resource use on Haida Gwaii, notably by requiring the creation of the Haida Gwaii Management Council (HGMC), which was established in April 2011. The Protocol required each of the Parties, in consultation with the other, to appoint two members, and to then jointly appoint a chairperson. The HGMC’s documented responsibilities include making key, high-level, strategic decisions through a joint decision-making process that aims to achieve consensus. If consensus is not reached, a vote will be taken, excluding the chairperson, and in the event of a tied vote, the chairperson will cast a deciding vote.

Joint decisions made by the HGMC are to focus on:

- implementation and amendment of the 2007 Haida Gwaii SLUA;
- establishment, implementation and amendment of land use objectives for forest practices;
- **determination and approval of the allowable annual cut (AAC) for Haida Gwaii;**
- approval of management plans for protected areas; and
- development of policies and standards for the identification and conservation of heritage sites.

Significant in the above list is the third point, the requirement for the HGMC to determine an AAC for all of the forest management area on Haida Gwaii; it is in support of meeting this requirement that this Public Discussion Paper is now being published.

2010 Land Use Objectives Order (LUOO)

To further the implementation of the 2007 SLUA and consistent with the intent of the 2009 Reconciliation Protocol, the Haida Nation and the Province of BC proceeded to collaboratively develop land use objectives.

These objectives for forest-based values were formally agreed upon by both Parties and were established both under *Haida Stewardship Law* and in the December 17, 2010 *Land Use Objectives Order (LUOO)* made by the BC Minister of Forests, Lands and Natural Resource Operations, as legal requirements to guide the implementation of EBM. All forest practices on Haida Gwaii must now conform to these objectives.

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The new, legally established standards for EBM on Haida Gwaii include, but not limited to, objectives for the management of:

- Haida traditional heritage and forest features, culturally modified trees, cedar and yew;
- aquatic habitats including fish habitat, active fluvial units, upland stream areas and sensitive watersheds;
- forested swamps and old forest ecosystems; and
- Black Bear dens, as well as habitat for Marbled Murrelet, Goshawk, Great Blue Heron and Saw-Whet Owl.

These new legal standards, which guide the implementation of EBM on Haida Gwaii, now represent the current operational forestry practice that must be accounted for in AAC determinations.

3. Haida Gwaii Timber Supply Review Process

The HGMC's AAC determination process began with the appointment of a Joint Technical Working Group (JTWG) to provide a data package that describes current forest management as a basis from which to analyse the timber supply on Haida Gwaii, to provide forecasts of feasible future harvest levels under various assumptions and to provide a socioeconomic analysis. This stage is now complete, and the information on the data used in the analysis may be viewed in the October 2011 Data Package, available at www.haidagwaiimanagementcouncil.ca.

The next stage was to create, and is now to circulate, this Public Discussion Paper, to provide a base of information for reference in a 45-day period of Public Review and Comment, from November 3, 2011, to December 17, 2011. To this end, the HGMC is now publicizing the availability of this paper and its role in the AAC process by notifying interested persons, groups and licensees through public advertisements and by letters distributing the paper and identifying where the data package may be viewed.

The JTWG, which has provided the forest management data package and timber supply analysis, was appointed to serve the HGMC and consists of two staff of the Haida Nation and three staff of the BC Ministry of Forests, Lands and Natural Resources Operations (MFLNRO).

The JTWG produced the forest management data package and used it to perform analysis to create computer-generated forecasts of the timber supply on Haida Gwaii under particular, specified assumptions. These forecasts include a 'base-case' projection, described below, which fits a number of desirable requirements. However, this base-case forecast **is not a recommended AAC** for Haida Gwaii, nor is it the only possible harvest level; rather, it provides just one of the several sources of information the HGMC will consider in making its determination. Other information sources include the 2007 SLUA's commitment to an economic timber harvest opportunity of no less than 800 000 cubic metres per year, which guides but cannot fetter the HGMC's decision, the socioeconomic background analysis, identified uncertainties in the technical information and—very importantly and the reason for this paper—the ideas, opinions, and personal experiences of people who live on Haida Gwaii, and/or who consider their interests to be affected by the determination.

The HGMC hopes that the information in this discussion paper will engage the two Haida communities (Old Massett, Skidegate); the three incorporated villages of Haida Gwaii (Masset, Queen Charlotte, Port Clements) and the two Regional District representatives; other individuals, licensees, and interested parties to provide informed responses on any matter that they believe should be considered in the AAC determination. The HGMC wishes to ensure that any and all information received during the comment period be taken into account in the determination. To provide your ideas and suggestions, please see the '**Your feedback is needed**' section at the end of this document. To help the determination process to remain on schedule, we would appreciate receiving your written comments before the end of the 45-day Public Review and Comment period, that is, **on or before December 17, 2011**.

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When the review period is complete, all received information will be compiled and organized for presentation to the HGMC, in preparation for the HGMC's considerations and reasoning leading to the determination of the AAC, which is intended to be complete by the spring of 2012.

The 2009 Reconciliation Protocol requires all decisions by the HGMC, which include AAC determinations, to be made by consensus or vote as described earlier under '**The Haida Gwaii Management Council**'. These requirements are mirrored in the *Haida Gwaii Reconciliation Act*, which also requires the decision of the HGMC to be published in the *BC Gazette*. The decision will also be published in the Haida Laas newsletter and the Haida Gwaii Observer.

Following the determination, a decision rationale will be completed, and notice will be posted on the HGMC website, www.haidagwaiimanagementcouncil.ca and in the *BC Gazette*.

As described below in '**The chief forester's role**', when the HGMC has completed its determination, the result will be communicated to BC's chief forester, who will then make separate AAC determinations for the major management units on Haida Gwaii that when summed must not exceed the HGMC determination. It is anticipated that the chief forester's determinations will be announced concurrently with the HGMC's announcement of the new AAC.

Stages in the AAC determination process:

- Joint Technical Working Group began assembling data for data package [September 2010]
- Provincial chief forester provided timber supply information to HGMC [March 2011]
- Data package completed [October 2011]
- **Public discussion paper released [November 3, 2011]**
- **45-day Period for Review and Comment by public, licensees, interested persons**, [November 3 to December 17, 2011]
- AAC determination by HGMC completed
- AAC released and conveyed to chief forester
- Chief forester determines AACs for Tree Farm Licenses (TFLs) and Timber Supply Area (TSA), within limits of HGMC determination
- Chief forester's determinations released

The plan is to release both the HGMC and the Chief Forester decision in close succession in spring 2012.

Principles of the Haida Gwaii Timber Supply Review

The context of the Haida Gwaii TSR has two important characteristics. One relates to who determines the AACs, and the other to how the land and forest management objectives and practices are defined.

This AAC determination for Haida Gwaii will be the first to be undertaken by the HGMC, and the first to involve a consolidated review of the timber supply for all of the forest management units on Haida Gwaii into one determination. In all previous timber supply reviews on Haida Gwaii, separate AAC determinations were made for the TSA and TFLs.

Many of the land and forest management objectives and practices for Haida Gwaii are provided by the SLUA and LUOO and were used as the basis for the timber supply analysis that has been done to support the Haida Gwaii TSR. Those documents outline an EBM regime for the islands that in many cases supersedes the provincial *Forest and Range Practices Act*. However, where SLUA and LUOO requirements do not apply, forest practice must still be consistent with FRPA.

Objectives from the LUOO were used as the basis for the timber supply analysis that was conducted by the JTWG to support the Haida Gwaii TSR.

The new AAC to be determined by the HGMC will also account for all recently protected and formerly existing conservancies, ecological reserves, parks and protected areas, with no further necessity for temporary AAC reductions under Part 13 of the *Forest Act*, as was the case in previous years.

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Other values brought forward by the Haida Nation and incorporated into the analysis are: Haida Gwaii should be treated as one unit- without tenure boundaries; TSRs should be transparent to the public- not a “black box”; Haida cultural values need to be accounted for; harvest levels need to be sustainable; TSRs should be spatially based; and the management of land and waters need a pre-cautionary approach.

While many of the underlying principles therefore differ fundamentally in these ways from those used elsewhere in BC, there are similarities in other crucial respects. An identical rigour still applies in the technical methodology of the timber supply analysis itself; only the management inputs differ. And, in the Haida Gwaii Timber Supply Review conducted by the HGMC, the following steps will be accomplished by the HGMC as they are in reviews in other areas by BC’s chief forester; specifically, the HGMC will:

- examine relevant forest management data and practices, information from the public, and economic, environmental and social factors;
- determine a new AAC; and
- identify information to improve future timber supply reviews.

The chief forester’s role

As noted above, the Chief Forester will make separate AAC determinations for the TSA and TFL areas that when added to AAC determinations for other management units such as woodlot licences, First Nations Woodland Licences, and Community Forest Agreement areas, shall not exceed the overall AAC determined by the HGMC for all of the forest management area in Haida Gwaii.

These determinations are required by Section 8 of the BC *Forest Act*, under which the chief forester must regularly determine a new AAC for all TFLs and TSAs in BC. For Haida Gwaii these determinations by the chief forester will effectively allocate the appropriate proportion of the overall AAC for the islands determined by the HGMC, to these management areas—but, importantly, *not* to the specific licences held within the TSA, which is an apportionment that is the responsibility of the Minister of FLNRO, as noted in the next section.

What the AAC determination does not do

- The new AAC set by the HGMC will regulate how much timber may be harvested in each year on Haida Gwaii, and the decisions by the Chief Forester will determine how much of the AAC may be cut from each TFL and the TSA. However: The AAC determination does not establish the forest management regime. On Haida Gwaii, the Strategic Land Use Agreement and the Land Use Objectives Order establish objectives for ecosystem-based management, and a key purpose of the AAC determinations is to establish allowable harvest levels that are sustainable and consistent with the SLUA and LUOO.
- The AAC determination does not allocate harvesting rights, nor the manner in which socioeconomic benefits associated with timber harvesting are generated and distributed among licensees, communities, and other stakeholders. These decisions are made through other processes - for example, the Minister of FLNRO will apportion the AAC that is determined for the TSA among various types of forest tenure

4. Description of Haida Gwaii

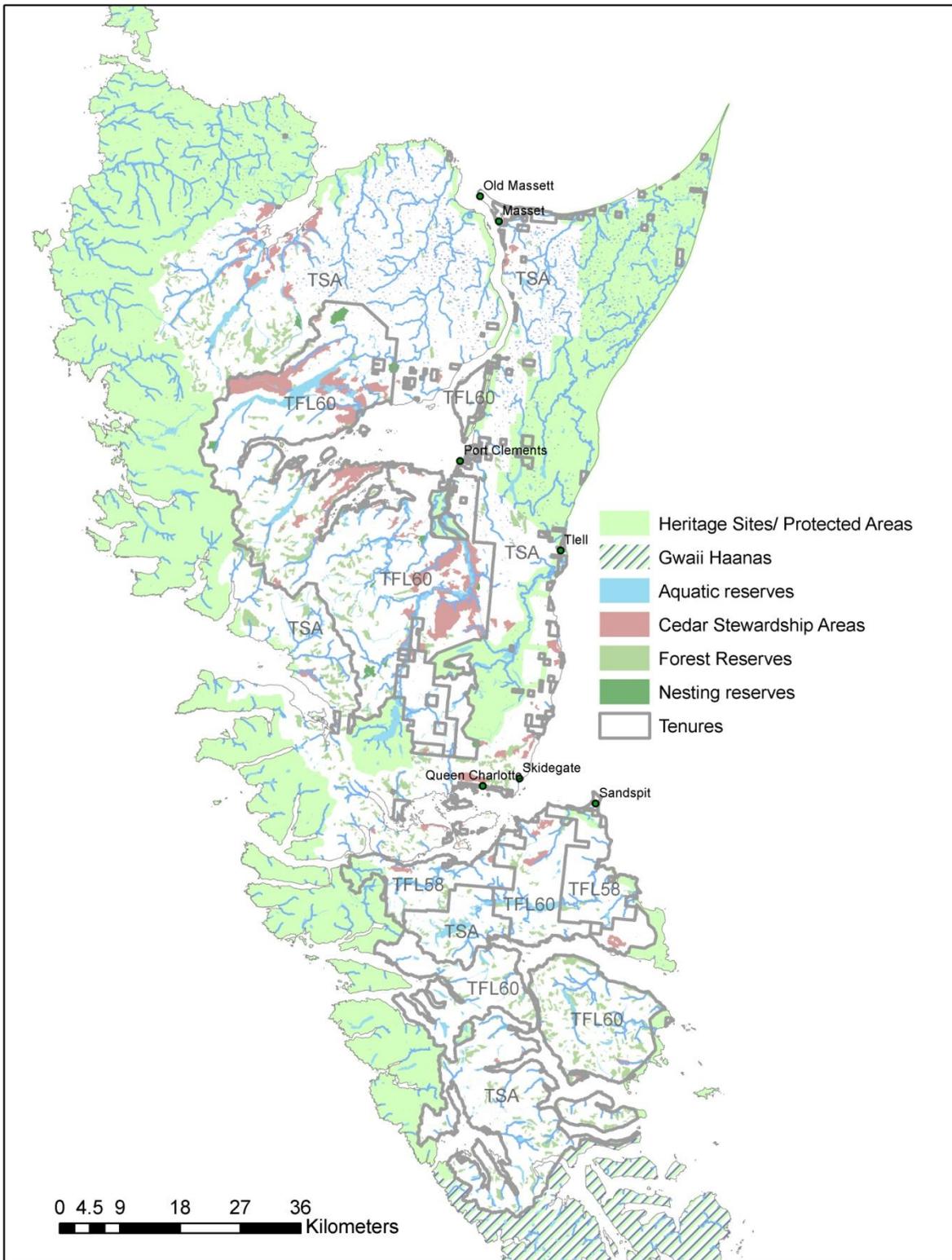


Figure 1: Land use zones and tenure boundaries on Haida Gwaii.(2010)

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Haida Gwaii is an archipelago of more than 150 islands off the north coast of British Columbia, to the north of Vancouver Island, from which it is separated by Queen Charlotte Sound. The mainland north coast of BC lies 80 kilometres to the east across Hecate Strait, and the U.S. state of Alaska lies to the north across Dixon Entrance. Haida Gwaii's total landmass of just over a million hectares is situated mostly in two main islands, the larger, Graham Island, being to the north, and Moresby Island to the south.

The 2006 *Haida Gwaii/Queen Charlotte Islands Land Use Plan Recommendations Report* records that

The Islands were formed about 20 million years ago when the Farallon plate began to slide under the North American continent. This shifting of continental plates led to the formation of a range of rugged mountains rising from the ocean floor and stretching from the Olympic Mountains on Vancouver Island to Haida Gwaii/Queen Charlotte Islands. The archipelago has been further shaped by a variety of other physical forces including volcanic activity, erosion, sedimentation and glaciation.

The climate of the Islands is generally mild, with cool summers and moderate winters, influenced by the effects of the warm Japanese current sweeping along the coast.

The geography of the Islands is similar to the mainland coast of British Columbia and the southern regions of Alaska, including mountainous terrain, deep fjords, bog lowlands, temperate rainforests and sub-alpine tundra.

The rugged mountains of the Windward Queen Charlotte Ranges dominate the west side of the Islands, descending abruptly into the ocean to form a steep, rocky coastline. The weather is cool and wet, with deep snow at higher elevations. Steep headwater streams and gullies drain the mountainsides, carrying water, sediment and organic materials to the fans and floodplains that line the valley bottoms.

The Skidegate Plateau, immediately to the east of the Windward Queen Charlotte Range is lower in relief and rainfall and includes the most productive forest lands on the Islands. Many of the largest trees found on Haida Gwaii/Queen Charlotte Islands are located within the Skidegate Plateau. In this region, high levels of biodiversity and much of the best habitat for wildlife anywhere on the Islands can be found.

The relatively flat, low elevation Queen Charlotte Lowlands are found to the northeast of the Skidegate Plateau. This area is dominated by extensive blanket bogs, shallow lakes and scrub forest, with patches of productive forest in better drained areas and on richer bedrock.

The diverse geography and landscape of the Islands is reflected in its biological diversity. There are a large number of plant and animal species and sub-species that are only found on the archipelago. This is one reason why the Islands are often referred to as “the Galapagos of the North.”

The landscapes of Haida Gwaii are largely forested and include over 540 000 hectares of intact temperate rainforest, a significant portion of what remains of the globally rare coastal temperate rainforest biome, represented in North America by the dense evergreen Pacific Coast Conifer Forest stretching from northern California through southeast Alaska (Alaback and Pojar 1997). It is estimated that only 44 percent of this biome remains, most of which lies north of latitude 48°N.

At low elevations, Haida Gwaii's closed coniferous forests are dominated by western hemlock, western red cedar and Sitka spruce. Higher elevations support forests of mountain hemlock and yellow-cedar, with parkland, alpine meadows and heaths at higher altitudes. In the boggy, windward forests, yellow-cedar and lodgepole pine are present with western hemlock, mountain hemlock, western red cedar, and Sitka spruce. The productive forests are characterized by big, old trees, and large accumulations of biomass.

Haida Gwaii supports a wide range of wildlife including a number of species for the habitats of which specific EBM objectives have been legally established. These are Black Bear, Northern Goshawk, Northern Saw-Whet Owl, Marbled Murrelet, and Great Blue Heron. A number of wildlife and plant subspecies found on Haida Gwaii occur nowhere else on Earth.

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Of Haida Gwaii's total area of 1,006,310 hectares, lakes rivers and wetlands cover about 64,000 hectares, about 5000 hectares are unforested (in wetlands and maritime and high elevation areas), and over 130,000 hectares are forests considered unproductive for commercial harvesting.

Roughly half the total area of Haida Gwaii is protected land, and about 191,000 hectares are considered suitable and available for harvesting timber. Over 255,000 hectares are in protected areas collaboratively managed by the Haida Nation and BC. Protected land also includes the 149 500-hectare Gwaii Haanas National Park Reserve and Haida Heritage Site, established in 1988. This area, on the southern end of Moresby Island and numerous smaller adjacent islands and islets, is cooperatively managed by the Haida Nation and the Government of Canada.

5. Socioeconomic Conditions

Population

Over the past two decades the population of Haida Gwaii has declined by about 16%. It is expected to remain fairly stable over the next decade. This projection does not consider changes that may be related to the forest sector as described in this document.

Table 1. Haida Gwaii population estimates and projections, 1990-2020.

	1990	1995	2000	2005	2006	2007	2008	2009	2010	2015	2020
Haida Gwaii	5,677	5,882	5,314	4,910	4,959	4,926	4,878	4,777	4,788	4,859	4,887

Source: BCStats. Population Projections for School Districts.

<http://www.bcstats.gov.bc.ca/data/pop/pop/popproj.asp>

Labour Force

Tables 3 and 4 show the employment and income dependencies for Haida Gwaii. The data used to create these tables are from the Census, thus reflect those people who resided on Haida Gwaii when the Census was undertaken. The data does not include those who work on the Islands, but who reside elsewhere.

Table 2. Haida Gwaii employment dependencies by sector, 2001, 2006 Census

Haida Gwaii	Forestry	Mining & Min Proc	Fish & Trapping	Agric. & Food	Tourism	High Tech	Public Sector	Const	Other	Non Basic	Total
2006 Census	354	20	297	17	488	25	891	141	83	455	2,772
	15%	1%	13%	1%	21%	1%	38%	6%	4%		
2001 Census	672	14	191	20	292	0	966	134	95	508	2,892
	28%	1%	8%	1%	12%	0%	41%	6%	4%		

Source: 2006, 2001 Economic dependency tables for forest districts, Garry Horne. BC Stats.

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Table 3. Haida Gwaii income dependencies by sector, 2001, 2006 Census

Haida Gwaii	Forestry	Mining & Min Proc	Fish & Trapping	Agric. & Food	Tourism	High Tech	Public Sector	Const	Other	Trans Payments	Other Non-employ. Income
2006 Census	14%	0%	6%	0%	10%	0%	33%	4%	2%	17%	13%
2001 Census	36%	0%	4%	0%	5%	0%	30%	4%	2%	13%	6%

Source: 2006, 2001 Economic dependency tables for forest districts, Garry Horne. BC Stats.

Table 4. Haida Gwaii forest district cubic metres of timber harvested, by management unit, 2000-2010.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average	Current AAC
TSA	324 576	404 729	362 642	371 110	313 165	376 248	299 403	296 680	331 119	207 331	369 713	332 429	869 748
TFLs*	1 145 059	850 667	917 615	557 421	723 181	505 187	579 115	527 057	697 023	136 014	255 300	626 695	902 868
Other Prov. Crown	59 341	17 489	58 429	10 600	56 960	59 419	1 732	1 218	7 884	10 199	8 430	26 518	Part of TSA
Private/Federal	64 742	11 363	19 259	20 506	8 553	1 584	572	62 681	120 429	73 750	119 643	45 735	
Total Haida Gwaii	1 593 719	1 284 249	1 357 944	959 638	1 101 860	942 439	880 821	887 636	1 156 455	427 294	753 087	1 031 377	1 772 616

Source: Timber Pricing Branch, BC Ministry of Forests, Lands and Natural Resource Operations.

Note (*): TFL 58 AAC is 100 000 cubic meters per year and TFL 60 AAC is 802 868 cubic meters per year

Table 5. Estimated direct employment impacts associated with the base case timber supply forecast (895,266 cubic metres/year).

	Number of full-time equivalent jobs
Timber supply	
Harvesting Haida Gwaii residents	304
Processing Haida Gwaii residents	50
Non Haida Gwaii residents	743
Total province person years	1,098

6. Land base

Since the last timber supply analyses for AAC determinations for the TSA and TFLs on Haida Gwaii, a number of land use and management decisions have been made that affect the size of the area on which timber may be harvested—the ‘timber harvesting land base’—and the forest management objectives and requirements to which harvesting must adhere. These changes have in turn affected the availability of timber for harvest on Haida Gwaii.

In particular, respecting the land base, significant areas have been excluded from the harvestable area to protect heritage sites and conservancies; and, respecting the management of the forest, ecosystem-based management (EBM) is now required by the objectives legally established in Haida Stewardship Law and in the 2010 LUOO as the basis for all forest practices throughout harvestable areas on Haida Gwaii.

Heritage sites and conservancies

Many areas on Haida Gwaii which have long been protected by the Haida Nation for their natural, cultural and spiritual values have now been recognized by provincial legislation. Heritage Sites and conservancies on Haida Gwaii cover over 250 000 hectares, and together with parks and other protected areas, contribute to the permanent protection of approximately one half the land of Haida Gwaii.

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These areas ensure continuance of the natural values that support activities integral to the traditional way of life of the Haida, and also ensure protection of the environmental values that attract visitors from all over the world to enjoy many forms of wilderness experience with ever more valuable opportunities for relaxation and spiritual refreshment. This visitor activity is also an important contributor to the economy of Haida Gwaii.

These 11 protected areas are:

- Duu Guusd- 143,496
- Daawuuxusda – 70,293 hectares
- Damaxyaa - 822 hectares
- Kamdis – 1896 hectares
- Kunxalas – 3344 hectares
- Nang Xaldangaas – 6897 hectares
- K'uuna Gwaay - 1756 hectares
- Sgaay Taaw Siiwaay K'adjuu - 597 hectares
- Tlall – 16,214 hectares
- Yaaguun Gandlaay – 2493 hectares
- Yaaguun Suu- 7970 hectares

Haida Gwaii conservancies now cover a total of 255,778 hectares.

The Haida Nation and the Province of BC will collaboratively manage the protected areas.

Forest Tenure Operating Areas

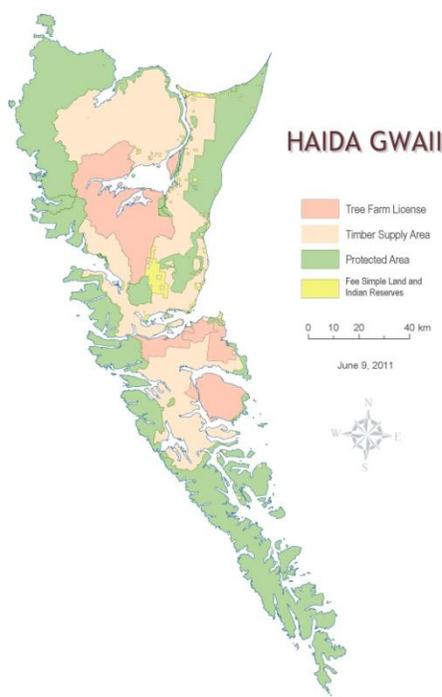


Figure 2. Map of large tenure areas on Haida Gwaii

Outside the protected areas, the majority of the area on which timber harvesting is permitted is contained within three areas, two Tree Farm Licenses (TFLs), TFL 58 and TFL 60, and the Timber Supply Area (TSA). The TSA is a defined area of land within which various types of forest tenures provide timber

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harvesting rights and management responsibilities. The TSA is located primarily on Graham Island, with a smaller portion on north central Moresby Island.

The TSA has a gross area of 798,301 hectares, and a long-term timber harvesting land base of 121,329 hectares.

Tree Farm Licence 58 is held by Teal Cedar Products Ltd. and comprises the land in the former Moresby Block of the old TFL 47, from which it was created on December 1, 2006, and which is located immediately adjacent to the community of Sandspit. The TFL's gross area is 27,873 hectares, with a long-term timber harvesting land base of 13,095 hectares.

Tree Farm Licence 60, currently in the process of transfer from Western Forest Products Ltd. to the Haida-owned Taan Forest Ltd., comprises the land in former Block 6 of TFL 39 that was divided off from that TFL effective January 15, 2010. The TFL has a gross area of 180,133 hectares, with a long-term timber harvesting land base of 55,484 hectares. The current, determined or implied AAC for each area is shown earlier in Table 4.

The Haida Gwaii Forest District has four Woodlot Licences. There are 1842 ha of land in woodlot licences within this district. The current total allowable annual cut (AAC) for the district is 9293 m³ per year. The current licences in the district are as follows:

Woodlot Licence 0161 – D. Younger, Near Port Clements – 477 ha / 2728 m³ AAC

Woodlot Licence 0162 – G. Lavoie, Lawn Hill Area – 465 ha / 2445 m³ AAC

Woodlot Licence 1840 – Skidegate Band Council, Near Jungle Creek – 422 ha / 2000 m³ AAC

Woodlot Licence 1841 – Old Massett Village Council, Near Port Clements – 478 ha / 2120 m³ AAC

7. Forest Management

Ecosystem Based Management:

EBM on Haida Gwaii is now a requirement of both Haida and BC law. In the 2007 SLUA, EBM is defined for Haida Gwaii jointly by the Haida Nation and BC as

“an adaptive, systematic approach to managing human activities, that seeks to ensure the co-existence of healthy, fully functioning ecosystems and human communities.”

The SLUA also notes that

“[t]he Haida will establish the EBM Objectives in accordance with their laws, policies, customs, traditions and decision making processes.”

The 2010 LUOO states

“This Land Use Objectives Order establishes legal objectives for forest-based values to support implementation of ecosystem-based management. These objectives protect important Haida cultural values, support ecosystem integrity and provide environmental benefits by maintaining the diversity and abundance of organisms on Haida Gwaii. Human well-being will be maintained through policies and initiatives designed to achieve socio-economic benefits, including carbon values, and timber harvest levels that will support a viable forest industry.”

The aim of Haida Stewardship Law is ‘...bringing land and resource use balance to Haida Gwaii to ensure the continuity of Haida culture and a sustainable islands economy’, and the Haida Land Use Vision places

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triple emphases on ‘the well-being of the land’, ‘the condition of the land’, and ‘the natural ability of the land to function and provide’. The Haida Land Use Vision also refers to

“Yah’guudang—our respect for all living things—[which] celebrates the ways our lives and spirits are intertwined and honours the responsibility we hold to future generations.”

This is the underlying spirit of the EBM on Haida Gwaii that is now prescribed in detail in the legally established land use objectives and is accounted for in the timber supply analysis as briefly described in the following section.

Incorporating EBM in the timber supply review

The specific objectives defining the implementation of EBM on Haida Gwaii are set out in the 2010 *Land Use Objectives Order* (LUOO) that followed from the 2007 Strategic Land Use Agreement (SLUA).

The objectives do not define, amend, recognize, affirm, deny or limit the aboriginal rights, aboriginal title, or treaty rights of the Haida Nation; nor do they relieve the Province of any obligation or duty to consult and accommodate the Haida Nation. However, they are based both on Haida Stewardship Law and on BC’s land use objectives regulation for the purpose of ensuring sustainable forest management.

Because the legal establishment of these objectives ensures that all forest stewardship and woodlot licence plans throughout Haida Gwaii must conform to them, they must be reflected and accounted for in timber supply analysis, and in AAC determinations, as definitive current practice.

Haida cultural values, as identified in the LUOO, are accounted for in the analysis, including reductions to the THLB to protect monumental cedar, culturally modified trees, yew and crabapple, medicinal plants, and heritage features like middens and village sites.

The legally established objectives include:

Cultural objectives, for

- cedar stewardship areas;
- cultural feature identification;
- Haida traditional heritage features;
- Haida traditional forest features;
- western red cedar and yellow-cedar retention;
- western yew retention; and
- culturally modified trees and monumental cedar.

Aquatic habitat objectives, for

- Type I fish habitat [as defined in the Order];
- Type II fish habitat [as defined in the Order];
- active fluvial units;
- upland stream areas; and
- sensitive watersheds;

Biodiversity objectives, for

- forested swamps;
- ecological representation; and
- red-listed and blue-listed ecological communities.

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Wildlife objectives, for

- Black Bear dens;
- Marbled Murrelet nesting habitat;
- Northern Goshawk habitat;
- Great Blue Heron nesting habitat; and
- Northern Saw-whet Owl nesting habitat.

Forest reserve objectives, for

- areas reserved to meet landscape level objectives.

Examples of how these objectives are incorporated into the analysis are as follows.

Objective 5, for Haida traditional heritage features, requires that all Class 1 Haida traditional heritage features be protected in a reserve zone with a minimum width of 500 metres, measured from the edge of the feature. (The reserve zone may be reduced for necessary purposes if this is decided to be unavoidable by a completed intergovernmental process.)

To account for these reserves in the timber supply analysis, an appropriate, corresponding area is excluded from the timber harvesting land base, and is assumed not to contribute to the timber supply at any time (except by providing forest cover for biodiversity purposes).

As another example, Objective 10 requires that all forest within Type I fish habitat, and all forest within two tree lengths adjacent to such habitat (plus or minus half a tree length), be protected in a reserve zone. Accordingly, in the analysis, the area of riparian reserves (including adjustments for unmapped streams) within each forest stand delineated for the analysis is determined, and that area is excluded from contributing to the harvestable area (the timber harvesting land base) such that no timber is ever assumed to be available for harvest in these areas.

For other objectives, instead of excluding area from the timber harvesting land base, a 'forest cover requirement' is applied such that no more than a given percentage of the forest cover may be harvested at any time. For instance, Objective 14, for sensitive watersheds, requires for watersheds up to or greater than 500 hectares that up to five percent of the watershed area may be harvested in a five-year period, while for watersheds less than 500 hectares, up to 10 percent of the watershed area may be harvested in a 10-year period.

If too much timber has already been harvested in a sensitive watershed (representing an equivalent clearcut area of 20 percent or more) then no harvesting may occur). In such a case in the analysis an over-harvested area is assumed to be excluded from the timber harvesting land base until the area is adequately 'greened-up'.

In these ways, the real-life, physical, on-the-ground implications for timber supply arising from applying the objectives in the LUOO can be represented in the analysis by applying specific, corresponding assumptions to constrain the timber supply in respect of each separate requirement.

8. The timber harvesting land base

In the analysis, in order to model the timber supply, it is necessary to derive the size of the land base on which timber harvesting may be assumed to occur. For this, the overall size of the forest must be assumed to be reduced, by a series of exclusions or deductions representing actual constraints, to ensure that only that timber which is truly suitable and available for harvest at a particular time is assumed to contribute to the timber supply projected for each period in the forecast. To achieve this, in deriving the timber harvesting land base (THLB) in the analysis, for each of TFL 58, TFL 60 and the TSA, land base deductions were applied in respect of a number of factors. For the whole of Haida Gwaii, which covers a total area of 1,006,310 hectares, the gross total land base area deductions applied in respect of the following factors are shown in Table 7:

Following these deductions, some of which overlap, the total of the combined areas in the TFLs and the TSA which contribute directly to the overall long-term timber harvesting land base is 190,907 hectares, nearly 19 percent of the total area of Haida Gwaii.

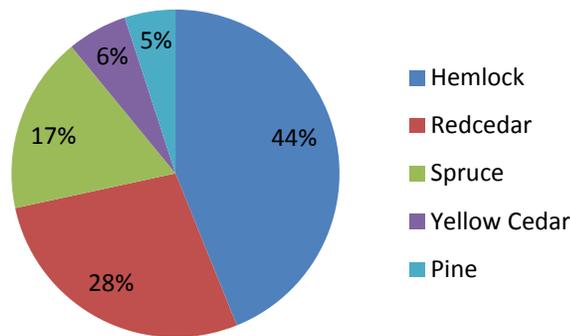


Figure 3. Species profile in the operating landbase of Haida Gwaii.

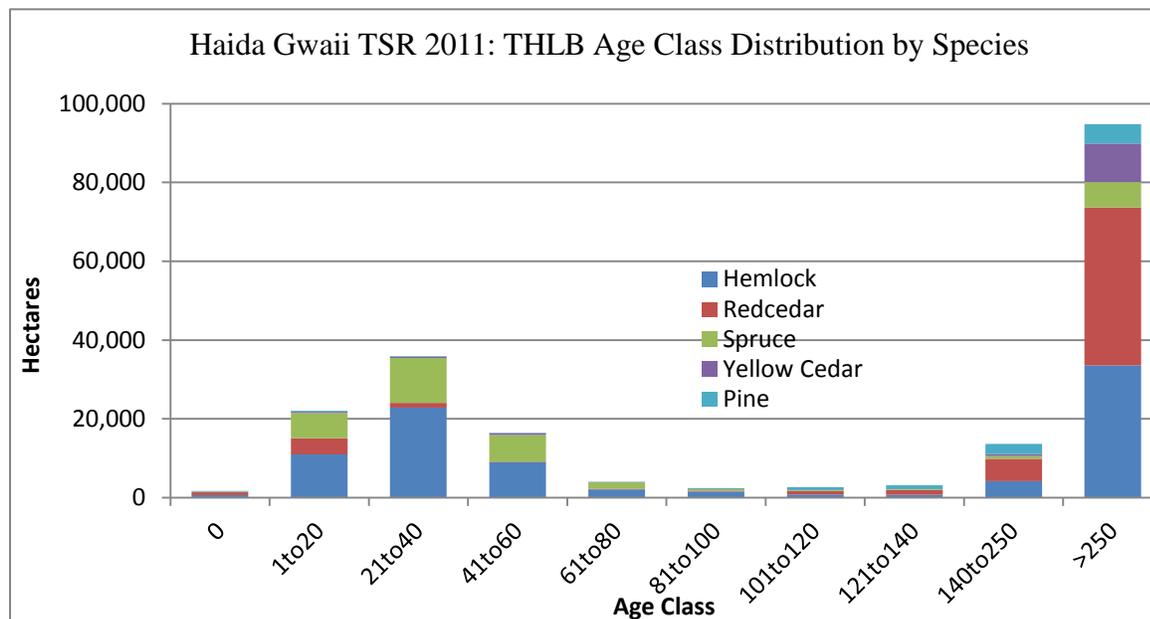


Figure 4. Timber harvesting land base age class distribution by species

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Table 6. Gross area reductions in deriving timber harvesting land base for all Haida Gwaii (including overlaps)

Land types excluded from Harvesting land base	Total area (ha)
Lakes, Wetlands, Rivers	63,987
Non Productive	130,467
Non Forested	4,923
No Inventory Available	24,566
No Species Info in Inventory	29,419
Protected areas, private lands and areas not administered for forest management objectives	518,446
Terrain Stability Classes 4 and 5	54,292
Economically Inoperable	85,644
Cedar Stewardship Areas	22,829
Forest Reserve Network	34,088
Wildlife Habitat Areas	1,717
Active Fluvial Units	30,749
Forested Swamps	14,278
Saw-whet Owl and Goshawk*	3,225
Potential Goshawk Habitat*	4,771
Potential Blue Heron Nesting	208
Red Listed Site Series	12,408
Blue Listed Site Series	97,295
Riparian Buffers	255,213
Not Sufficiently Restocked	11,822
In Block Reductions (Monumental Cedar 13.7%, Culturally Modified Trees 7.7%, Haida Traditional Forest Features 5%)	46,463
Future Roads Trails and Landings	12,733

9. Timber supply analysis results

The sources of information the HGMC will review in making its determination include the timber supply analysis, prepared for Haida Gwaii by the Joint Technical Working Group, which models the development of the forest on the islands through time and its response to harvesting while respecting EBM objectives. This section highlights some of the important findings from the timber supply analysis.

The base case

The timber supply analysis provides an assessment of the land base of Haida Gwaii and forest management information. This assessment includes a timber supply forecast, aggregated from the forecasts prepared for the TFLs and the TSA by the Joint Technical Working Group using the most up-to-date and best available data and knowledge on current forest management objectives and practices. This timber supply forecast is called the base case. The base case is not an AAC recommendation, but rather one of many sources of information the HGMC will consider when determining the AAC, which may be greater or less than the initial level forecasted in the base case, depending on many factors including the uncertainties described in section 10, ‘Main issues and concerns’.

The base case harvest forecast (Figure 5) shows a harvest level of 895,266 cubic metres per year for the next 80 years. Following this, the harvest level rises to a 923,558 cubic metres a year and remains at this level for the long term. The chart also shows harvest forecasts for the individual major management units. These results are relevant for the chief forester’s determinations for the TSA and TFLs. For the TSA, the

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forecasted harvest level for the first 80 years is almost 493,000 cubic metres per year, and the long-term levels in just over 521,000 cubic metres per years. The forecast for TFL 58 is constant at just below 73,000 cubic metres per years, and for TFL 60 is constant at somewhat above 329,000 cubic metres per year.

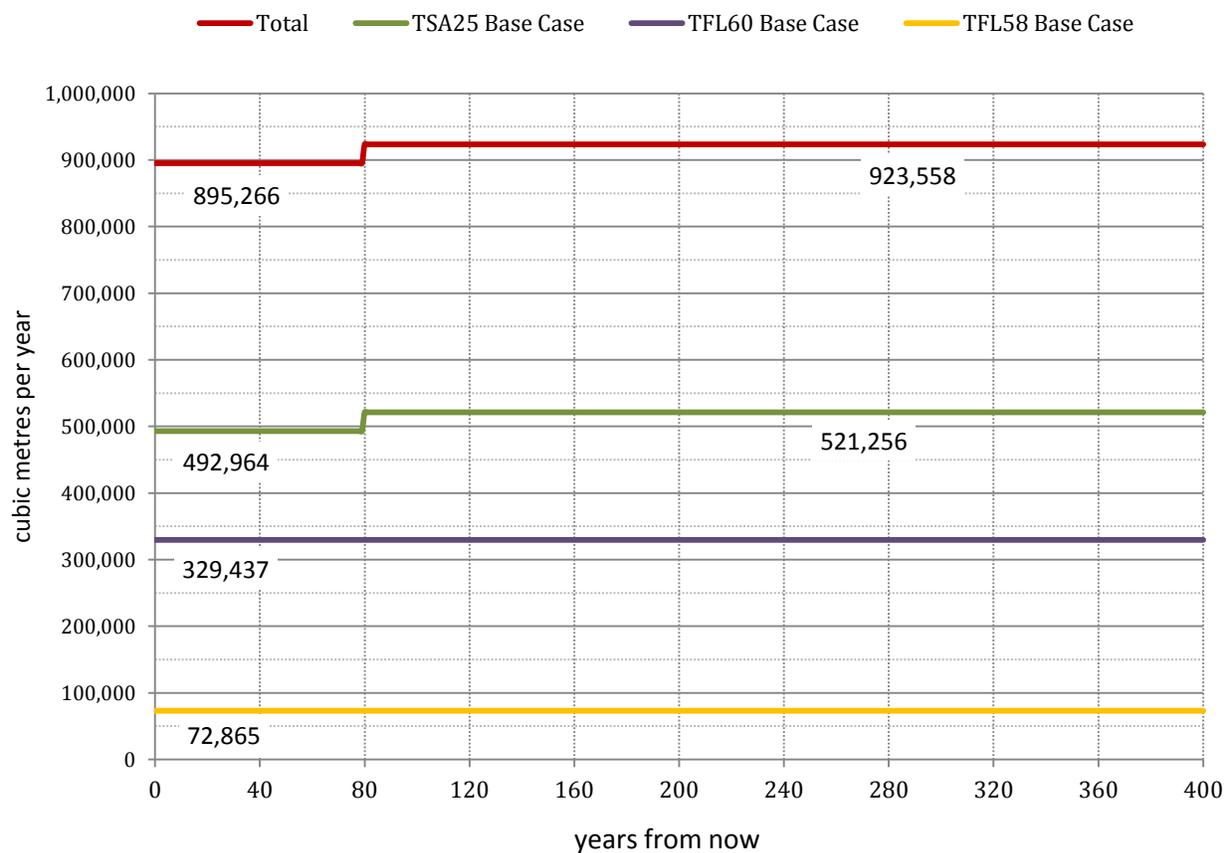


Figure 5. TSR base case harvest forecast

10. Main issues and concerns

In producing the data package and conducting the timber supply analysis, the Joint Technical Working Group has identified a number of issues and concerns that will need to be considered and addressed by the HGMC in making its AAC determination. These are:

Hydrological recovery:

In the LUOO, the objectives for sensitive watersheds and for upland streams place a maximum limit on the area of forest that is not hydrologically recovered after harvesting. The purpose of the limit is to maintain the quality and quantity of water within the natural range of variation. The degree of hydrologic recovery is normally associated with the heights of the trees growing in new stands after harvest. Research on hydrologic recovery is ongoing, and given the uncertainty about when recovery is achieved, analysis was done to investigate the timber supply impacts of different rates of recovery.

. Sensitivity analysis addressed the question “what if watersheds recover much earlier (shorter stands) or much later (taller stands) than what was modeled in the base case?”

One analysis assessed the difference in timber supply that would occur if full hydrologic recovery occurred in stands that are 2m shorter than the base case. The analysis showed a minor increase of 3% in timber supply for the first 20 years only.

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A second analysis examined the difference in timber supply when using a recovery threshold 5m taller than the base case. This resulted in 2% less volume being available in the short term, and 3% less volume being available in the mid-term (80-190 years from now).

The science on hydrological recovery is emerging and the Joint Technical Working Group will continue to work with hydrological experts to have the best available information available for consideration by the HGMC.

Risk-managed objectives from the LUOO

In the LUOO, some of the objectives provide for the exercise of specified degrees of discretion under particular conditions. For instance, the LUOO allows for deviation from the default requirements for the width of no-harvest buffers next to some fish habitat, active fluvial units, and traditional heritage features, or in respect of the required percentages of retained mature and old forest in forested swamps.

A sensitivity analysis addressed the question “what if risk-managed objectives were always applied?” To examine the potential implications for timber supply arising from the application of the risk-managed objectives, a sensitivity analysis was run exploring risk management for fish habitat, active fluvial units, forested swamps, sensitive watersheds, upland streams and monumental cedar. The results showed an increase in timber availability of 8% over the first 80 years, and an increase in the long-term level of 3%.

Estimates of site productivity

An estimate of the site productivity of each forest stand, that is the potential capability for growing trees, is used in timber supply analysis. Studies in BC in recent years have shown that in many cases the productivity estimates for older forests often underestimate the actual rates of growth that occur in the new stands after harvest. In the base case site productivity estimates from the most reliable and up to date sources were used. Where information was available, estimates were based on ground-truthed data collected after harvests, or a study that compared old tree stumps with growth on ‘logged and regenerated’ stands. In other areas, site productivity was assigned using correlations between ecosystem types and site index. Given uncertainties about what rates of growth will be observed over longer time periods, it was important to gain an understanding of how different site productivity estimates could affect timber supply.

A sensitivity analysis addressed the question “what if site productivity estimates derived from forest inventory data are in fact better than estimates based on the recent studies?” This analysis showed that if trees do not grow as quickly as indicated in the recent site productivity studies, timber supply would be 6% lower over the next 80 years, and 9% lower over the long term.

Another assessment addressed the question “what if site productivity is higher in the Timber Supply Area to the extent indicated in the recent site index adjustment (SIA) study?” The findings of the SIA study are applicable to hemlock and spruce stands in the TSA that are currently between 10 and 60 years old have slightly higher productivity than was modelled in the base case. The area to which these results apply is 6% of the TSA timber harvesting land base. The gains in timber supply that would be expected from these changes would be small and would only occur in the mid to long term.

Minimum harvestable age

For timber supply analysis, estimates must be made of the earliest point at which trees will reach a harvestable condition. For the base case, minimum harvestable age (MHA) was assigned at an age that maximizes average volume productivity over the long term. For modeling, an MHA was assigned for each stand of the operating landbase; for the base case, the area-weighted average MHA for all stands for the current area of second growth is 110 years.

In the timber supply analysis, sensitivity analyses were performed to address the question “what if, on average, stands are harvested at younger ages than the base case, or older ages than the base case”.

Uncertainty about the actual timing of harvest stems from differences in objectives. One objective would

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be to obtain revenue from a stand as soon as possible based on economic concerns.. Such an objective would often lead toward shorter harvest ages. Another objective could be to obtain high quality wood grades and products, which usually take longer to grow, and hence require longer harvest ages.

To explore the impacts of these different outlooks, a pair of sensitivity analyses was done. The first looked at the outcome of harvesting stands 20% younger than the base case. The results showed a 7% increase in annual volume in the short term tapering off to a 1% decrease below the base case after 80 years.

The second sensitivity analysis looked at the outcome of harvesting stands 20% older than the base case. This analysis provides a reasonable idea of the general magnitude of change that could stem from a focus on higher quality logs. The results show a decrease in timber availability of 7% per year.

Species profile of actual harvests compared to species profile of the inventory:

Species profile is the amount and distribution of tree species in the inventory and across the landbase (Figure 3 above). In the base case, modelled harvests were proportional to the contribution of each species to the inventory. However, in reality the various species are not being harvested in proportion to their contribution to the overall inventory. Figure 6 shows the species profile of actual harvest based on volumes billed between 1995-2010 in the Haida Gwaii Forest District.

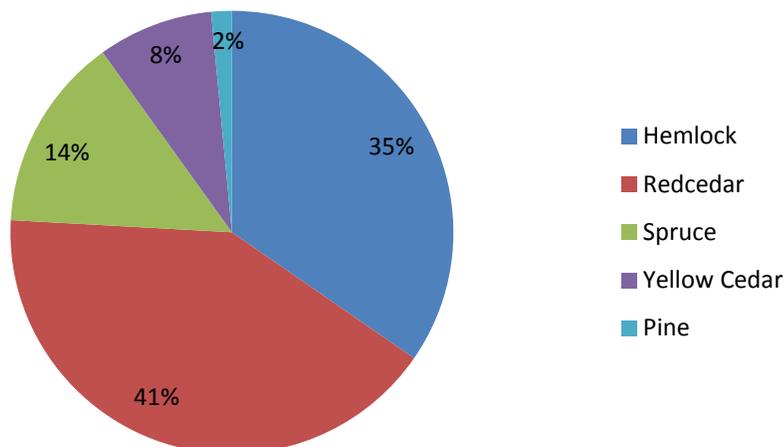


Figure 6. Species profile of volumes billed between 1995-2010 on Haida Gwaii

This shows that redcedar and yellow cedar make up 49% of the actual annual volume, compared to 34% in the inventory.

An analysis of timber supply results was done to address the question “how long will old growth cedar be available for logging if we continued to log cedar at the current proportion of harvest?”

The analysis shows that if redcedar and yellow cedar continued to be harvested at the same proportion of the total harvest as they have been over the last 15 years, the supply of old redcedar and yellow cedar available for harvest would effectively be gone in 41 years.

Inventory audit implications:

An inventory audit and a volume and decay sampling study for Haida Gwaii in the late 1990s showed the possibility that some inventory volumes may be underestimated given new information on decay and tree shape. However, a number of caveats (such as the applicability of new adjustments to individual trees vs. stands) have led to these assumptions not being included within the base case forecast. An assessment was

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done to see how the new information affects estimates of the available timber inventory. Analysis showed that the overall volume of timber on the timber harvest land base would increase by 19%, which would have a similar change to the potential harvest flow, over the next 100 years.

Economic operability:

The ‘operable area’ in which licensees are able to harvest economically is subject to uncertainty. In some cases, harvesting has taken place in areas previously assumed to be inoperable, and some areas assumed operable have proved too expensive to harvest. For the base case, it was assumed that types of forests – according to terrain, tree species and volume – that have been harvested over the past 10 years will continue to be economically operable in the future.

Some forest areas with quite low timber volume were defined as economically operable for the base case. Therefore, an assessment was done to see how the harvesting land base would change if forests needed to have a higher volume in order to be economic to harvest. For this assessment, the historically harvested types of forests with the lowest volumes (specifically, the lowest 10% percent of volumes) were excluded from the harvesting land base. The impact was that the total area defined as economically inoperable went from 85,644 ha to 153,245 ha, an increase of 85%. But due to overlaps with other types of areas that were excluded, the harvesting land base actually decreased by only 5.6%. Such a change would be expected to have an approximately proportionate impact on timber supply over the entire analysis horizon. The changes on the harvesting land base and timber supply will be dampened because of the EBM-related exclusions from the harvesting land base.

11. Your feedback is needed

Information provided by local and interested people is of major importance in the considerations for the determination of AACs. Your personal experience and knowledge of a particular area may be essential to an accurate judgement, particularly if something significant has been overlooked in the information under consideration. Your feedback is welcomed on any aspect of this discussion paper, on any other issue related to the timber supply, or on any other matter which you consider should be taken into account by the HGMC in making its AAC determination.

This is your opportunity to provide input on the HGMC’s determination as well as the chief forester’s determinations for the TSA and TFLs. There will not be a separate public consultation process for the chief forester’s determinations.

The HGMC will be pleased to hear from you and to answer questions to help you prepare your response.

**Please send your written comments to admin@haidagwaiimanagementcouncil.ca
or to PO Box 157 Masset, Haida Gwaii, BC V0T 1M0.**

In the interest of keeping the AAC determination on schedule, it would be appreciated if we can receive your comments by the **end of the Public Review and Comment Period, on December 17, 2011.**

You may identify yourself in your response if you wish; please note that all responses may be made public under the Freedom of Information and Protection of Privacy Act, but if the responses are made public, personal identifiers will be removed before the responses are released.

For more information, please contact the Haida Gwaii Management Council at:

admin@haidagwaiimanagementcouncil.ca

Or, write to: PO Box 157 Masset, Haida Gwaii, BC V0T 1M0

For more information, or to view the forest management data package, visit the HGMC website at www.haidagwaiimanagementcouncil.ca