
Major Primary Timber Processing Facilities in British Columbia

2009



Ministry of
Forests, Lands and
Natural Resource Operations



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2009

Competitiveness and Innovation Branch
Ministry of Forests, Lands and Natural Resource Operations
Victoria, B.C.

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Foreword

This is the 2009 edition of the Ministry of Forests, Lands and Natural Resource Operations publication of *Major Primary Timber Processing Facilities in British Columbia* and refers to timber processing mills that have primary log processing capability and which operated during 2009. Coverage does not include re-manufacturing plants. Pulp and paper mills, panel plants and pellet mills are included in this report even though some do not have primary log processing capabilities. Where a mill produces more than one product (e.g. lumber and veneer), each operation is listed in the respective sections of the report. Contrary to previous years, the 2009 survey does not include information on shake and shingle mills, pole and post mills, or lumber mills with annual capacity less than 40 million board feet. Data presented on these mills in this report are estimates.

The information was gathered through a survey of individual processing mills. If a mill did not submit a response, mill specific information reported in trade publications, directories and corporate annual reports may have been used. In some cases Ministry of Forests, Lands and Natural Resource Operations staff provided estimates based on their knowledge of the operation and information reported in previous years.

This report is available free of charge on the Ministry of Forests, Lands and Natural Resource Operations Internet site at:

<http://www.for.gov.bc.ca/het/fibre.htm>

The report is updated annually. Comments, errors or omissions may be sent to the following location:

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The survey and analyses were led by Rebecca Ewing, conducted by Teresa Zhuang, Linda Jakubowski and Patrick Withey and reviewed by Jim Johnston.

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Abbreviations for Products

PLP	- Pulp	PLY	- Plywood
PPR	- Paper	OSB	- Oriented Strand Board
VNR	- Veneer	PNL	- Other Panel
LBR	- Lumber	CHP	- Chip
PLT	- Pellet		

Map of Forest Region and District Boundaries Applicable in 2009¹

RSI - Southern Interior Forest Region (Kamloops)

DMH - 100 Mile House Forest District (100 Mile House)
 DAB - Arrow Boundary Forest District (Castlegar, Grand Forks, Nakusp)
 DCS - Cascades Forest District (Merritt, Lilloet, Princeton)
 DCC - Central Cariboo Forest District (Williams Lake, Horsefly, Likely)
 DCH - Chilcotin Forest District (Alexis Creek)
 DCO - Columbia Forest District (Revelstoke, Golden)
 DHW - Headwaters Forest District (Clearwater, McBride)
 DKA - Kamloops Forest District (Kamloops)
 DKL - Kootenay Lake Forest District (Nelson)
 DOS - Okanagan Shuswap Forest District (Vernon, Penticton, Salmon Arm)
 DQU - Quesnel Forest District (Quesnel)
 DRM - Rocky Mountain Forest District (Cranbrook, Invermere)

RNI - Northern Interior Forest Region (Prince George)

DFN - Fort Nelson Forest District (Fort Nelson)
 DJA - Fort St. James Forest District (Fort St. James)
 DKM - Kamloops Forest District (Terrace)
 DMK - Mackenzie Forest District (Mackenzie)
 DND - Nadina Forest District (Burns Lake, Houston)
 DPC - Peace Forest District (Dawson Creek, Fort St. John)
 DPG - Prince George Forest District (Prince George)
 DSS - Skeena Stikine Forest District (Smithers, Dease Lake, Hazelton)
 DVA - Vanderhoof Forest District (Vanderhoof)

RCO - Coast Forest Region (Nanaimo)

DCR - Campbell River Forest District (Campbell River)
 DCK - Chilliwack Forest District (Chilliwack)
 DQC - Haida Gwaii Forest District (Queen Charlotte City)
 DNC - North Coast Forest District (Prince Rupert)
 DIC - North Island - Central Coast Forest District (Port McNeill, Hagensborg)
 DSI - South Island Forest District (Port Alberni, Duncan)
 DSQ - Squamish Forest District (Squamish)
 DSC - Sunshine Coast Forest District (Powell River, Sechart)

* Denotes BC Timber Sales Location



¹ These are the regional and district boundaries that were applicable from 2003 to 2009 and used in the conduct of this survey. In January 2010 new regions were adopted that are common for all natural resource ministries. See <http://www.for.gov.bc.ca/mof/maps/regdis/regdismap.pdf>

Analysis

A. Introduction

The Analysis section of the report presents summary statistics derived from the mill survey database and selected analyses of these statistics. First, 2009 fibre supply and use in the province are examined through a series of tables and pie charts. These are followed by time series statistics for medium and large lumber and veneer mills, as well as pulp and paper mills.

In contrast to previous years, the 2009 survey was not sent to small sized lumber mills (mills with annual capacity less than 40 million board feet), shake and shingle mills or pole and post mills. Thus, in order to include data for these mills in the analysis of wood fibre supply and use, it is necessary to rely on estimates. Details on how these estimates were obtained are provided in footnotes to the figures. The time series analysis in section C is not affected by the lack of data on small lumber mills, since that section only considers data for medium and large sized mills.

B. Wood Fibre Supply and Use in British Columbia, 2009

Figure 1 shows the estimated primary log use by mills in British Columbia was approximately 48.2 million cubic metres. This represents a 10.7 million cubic metre (18.2%) decrease from 2008, 17.3% on the Coast and 18.5% in the Interior. Combined with the larger 15.8 million cubic metre drop from 2007 to 2008, log use in 2009 was 35.5% lower than in 2007.

The large decline in log use can be mainly attributed to lumber mill curtailments. 21 medium or large sized lumber mills were closed or did not operate in 2009, due to continued weakness in the US housing market. Logs used by lumber mills dropped from 42.8 million cubic metres in 2008 to an estimated 34.2 million cubic metres in 2009, a 20% decline.

Lumber mills accounted for an estimated 71.1% of the total primary log use in 2009 (down 1.6 percentage points from 2008), followed by veneer and OSB mills at 10.1% (up 0.2 percentage points from 2008).

Curtailments in lumber mills resulted in a significant reduction in residual chip supplies. As a result, pulp mills in 2009 continued to increase the proportion of their input use in the form of whole log chips (i.e. chipping in pulp mill wood rooms and chip mills). Whole log chipping accounted for over 11.3% of the log consumption in the province, up from 10.1% in 2008 and 7% in 2007.

Figure 1: Estimated British Columbia Primary Log Use - 2009

	Coast			Interior			Province		
	Number of Mills	Est. Volume Used (000 M ³)	Per Cent	Number of Mills	Est. Volume Used (000 M ³)	Per Cent	Number of Mills	Est. Volume Used (000 M ³)	Per Cent
Primary Log Use									
Lumber Mills, M and L	19	4,948	37.8%	53	28,189	80.3%	72	33,137	68.8%
Lumber Mills, small (est*)	34	621	4.7%	28	468	1.3%	62	1,088	2.3%
Veneer/OSB Mills	3	1,430	10.9%	12	3,460	9.9%	15	4,890	10.1%
Pulp Mill Wood Rooms	8	1,989	15.2%	11	895	2.5%	19	2,884	6.0%
Chip Mills	6	1,339	10.2%	6	1,230	3.5%	12	2,569	5.3%
Other (est**.)	36	709	5.4%	51	446	1.3%	88	1,155	2.4%
Log Exports		2,043	15.6%		415	1.2%		2,458	5.1%
TOTAL	107	13,079	100%	161	35,102	100%	268	48,181	100%
Log Available									
Total Harvest***		11,140			37,654			48,793	
Log Imports								34	
TOTAL								48,827	
Difference								646	1.3%

*Estimate: 2008 values for number of small mills are adjusted using the percentage decrease in the number of medium and large mills from 2008 to 2009.

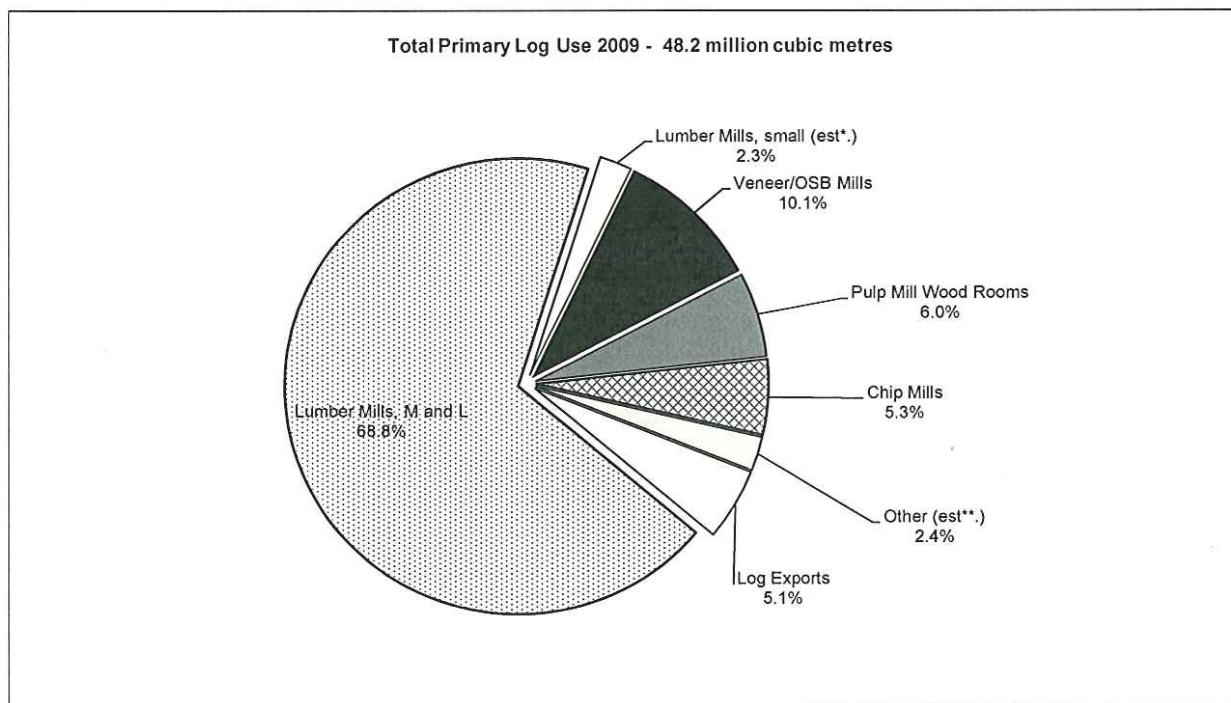
(Ministry data show that the percentage reductions in the number of small mills was similar to that in large and medium mills from 2008 to 2011).

For 'Est Volume Used' in small mills, 2008 values were adjusted with known input reductions from 2008 to 2011.

(Ministry data show that reductions in volume from 08 to 11 were much higher in small mills than in medium and large mills, so the 08-09 % change in M/L mills was not used)

**Estimate: 2008 values for shake and shingle mills, post and pole mills and log home mills are adjusted using known closures as of 2011

***Total harvest excludes waste and reject



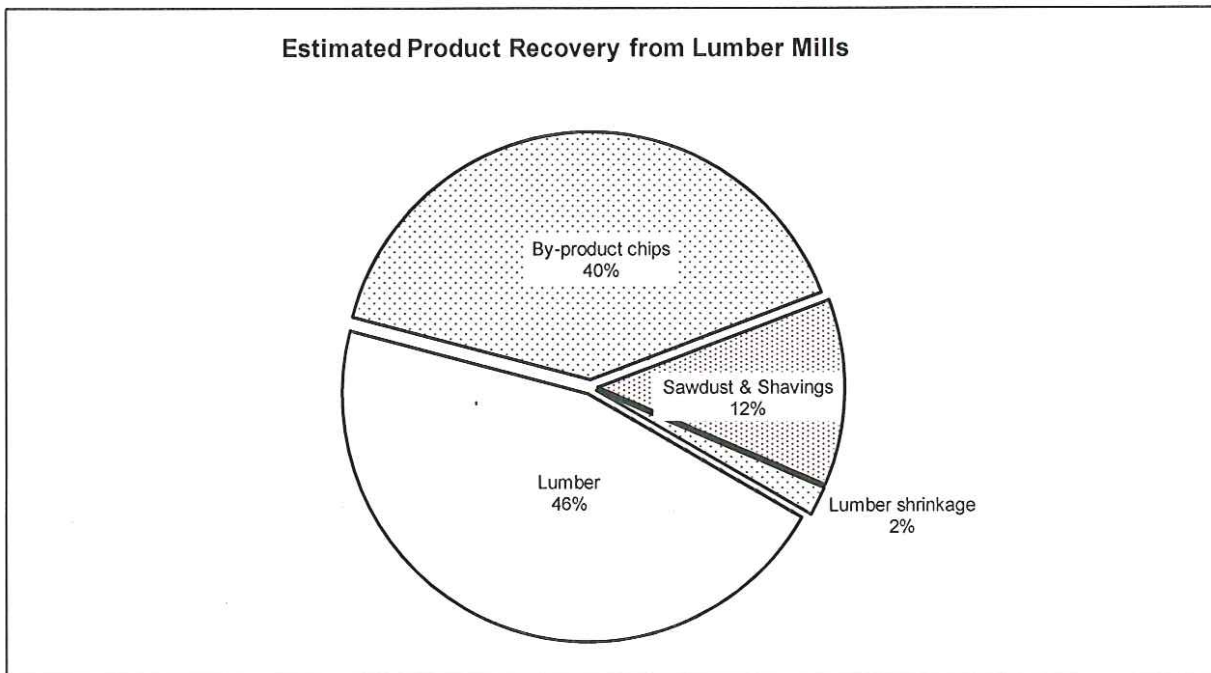
Sources:

Survey data; Statistics Canada trade data for total provincial exports and imports; BC Ministry of Forests, Lands and Natural Resource Operations log export statistics for the proportion of exports from the Coast versus Interior.

Note: Statistics above do not include mills that were closed or did not operate in 2009.

Figure 2: Estimates of Product Recovery from Lumber Mills - 2009

	Units	Coast	Interior	Province
Number of Mills, Medium (M) or Large (L) Mills		19	53	72
Number of Mills, Small (S) Mills (est.*)		34	28	62
Log Input , M or L Mills	(000 m ³)	4,948	28,189	33,137
Log Input , S Mills (est.*)	(000 m ³)	621	468	1,088
Lumber Output, M or L Mills				
Lumber Output (nominal measure)	(000 mfbm)	1,166	7,946	9,112
Lumber Recovery Factor	(mfbm/m ³)	0.236	0.282	0.275
Conversion Factor **	(m ³ /mfbm)	2.07	1.61	1.67
= Actual Volume of Lumber Produced	(000 m ³)	2,414	12,793	15,207
As Per Cent of Total Log Input	(%)	43%	45%	44%
Lumber Shrinkage				
Shrinkage (5% of lumber production)	(000 m ³)	-	640	640
As Per Cent of Total Log Input	(%)	0%	2%	2%
Lumber Output, S Mills (est.*)				
Lumber Output (nominal measure)	(000 mfbm)	131	118	249
Lumber Recovery Factor	(mfbm/m ³)	0.211	0.252	0.228
Conversion Factor **	(m ³ /mfbm)	2.07	1.61	1.85
= Actual Volume of Lumber Produced	(000 m ³)	271	190	460
As Per Cent of Total Log Input	(%)	5%	1%	1%
Lumber Shrinkage				
Shrinkage (5% of lumber production)	(000 m ³)	-	9	9
As Per Cent of Total Log Input	(%)	0%	0%	0%
By Product Chip Output (from M or L Lumber Mills)				
By Product Chip Output	(000 bdu)	727	4,019	4,746
By Product Chip Recovery Factor	(bdu/000 m ³)	147	143	143
Conversion Factor**	(m ³ /bdu)	2.86	2.75	2.77
= Volume of Chips Produced	(000 m ³)	2,079	11,051	13,131
As Per Cent of Total Log Input	(%)	37%	39%	38%
By Product Chip Output (from S Lumber Mills (est.*))				
By Product Chip Output	(000 bdu)	169	52	221
By Product Chip Recovery Factor	(bdu/000 m ³)	273	112	203
Conversion Factor	(m ³ /bdu)	2.86	2.75	2.83
= Volume of Chips Produced	(000 m ³)	484	144	627
As Per Cent of Total Log Input	(%)	9%	1%	2%
Sawdust and Shavings - Estimated Volume	(000 m ³)	320	3,829	4,150
As Per Cent of Log Input	(%)	6%	14%	12%



Notes:

*Estimate: 2008 values for small mills are adjusted using the percentage decrease in medium and large mills from 2008 to 2009

** Conversion factors are to convert lumber output or by-product chips in nominal measure to solid wood equivalent.

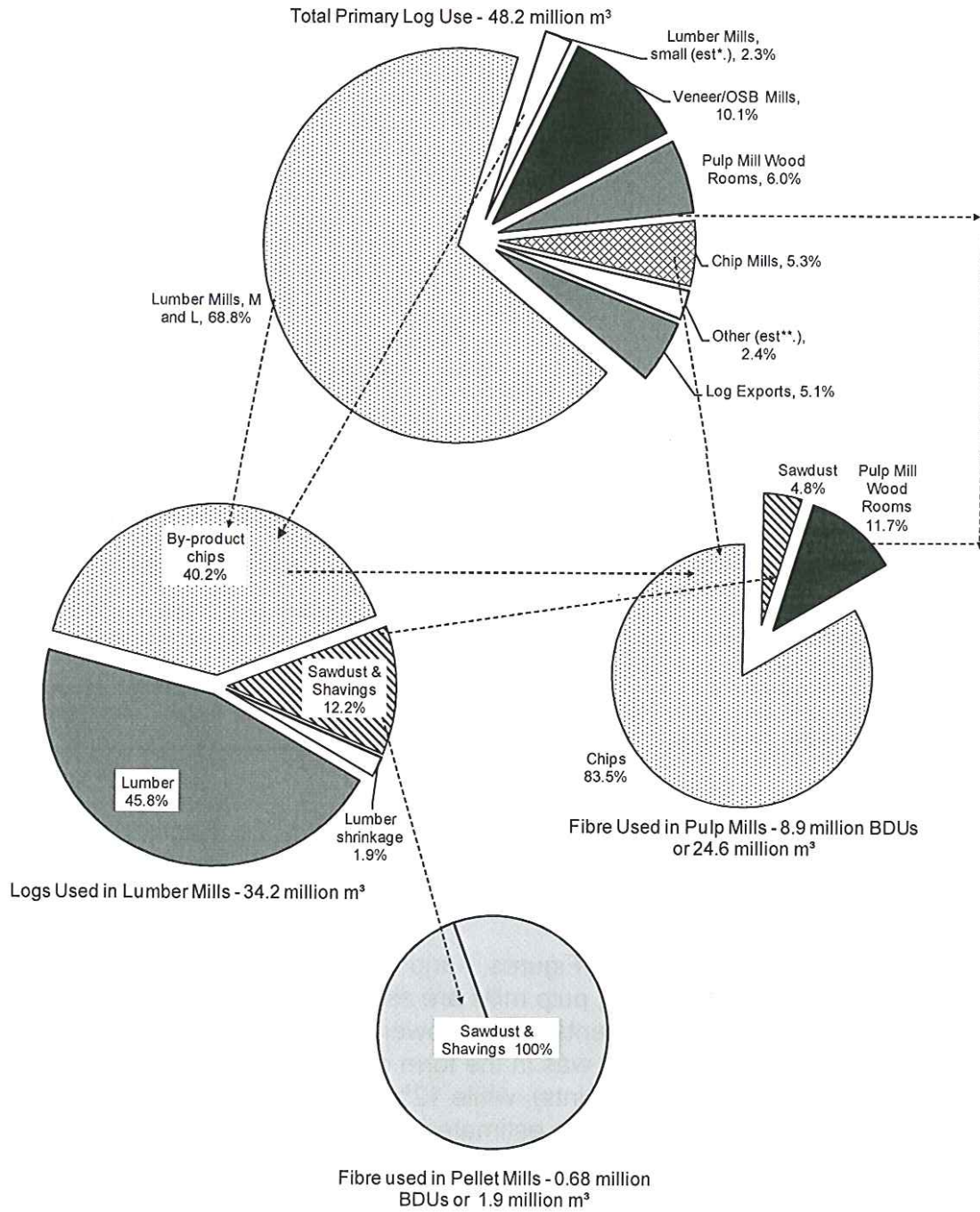
mfbm = thousands of board feet; m³ = cubic metres; bdu = bone dry unit = 2400 pounds.

Conversion factors used in the analysis are based on Nielson, R.W.; Dobie, J.; Wright, D.M. (1985) "Conversion Factors for the Forest Products Industry in Western Canada", Forintek Canada Corp., Special Publication No. SP-24R and "Major Primary Timber Processing Facilities in British Columbia 2007", Appendix 1, page 24.

Figure 2 estimates product recovery from lumber mills. It shows that 46% of the volume of wood entering lumber mills was converted to lumber, 2% was lost through lumber shrinkage, and the remaining 52% was converted to chips, sawdust and shavings.

Figure 3 combines information from Figures 1 and 2 with a chart showing fibre used by pulp mills and pellet mills. In 2009, pulp mills are estimated to have used 24.6 million cubic metres in solid wood equivalents, 12.5% lower than the 2008 level. Over 88% of the fibre used by pulp mills in 2009 was in the form of chips and sawdust obtained from other mills (down 1.5 percentage points), while 12% was from logs chipped in the pulp mill. Fibre use in pellet mills in 2008 is estimated to have been 1.9 million cubic metres in solid wood equivalents, 13.6% lower than the 2008 level.

Figure 3: Estimated British Columbia Log and Fibre Use - 2009

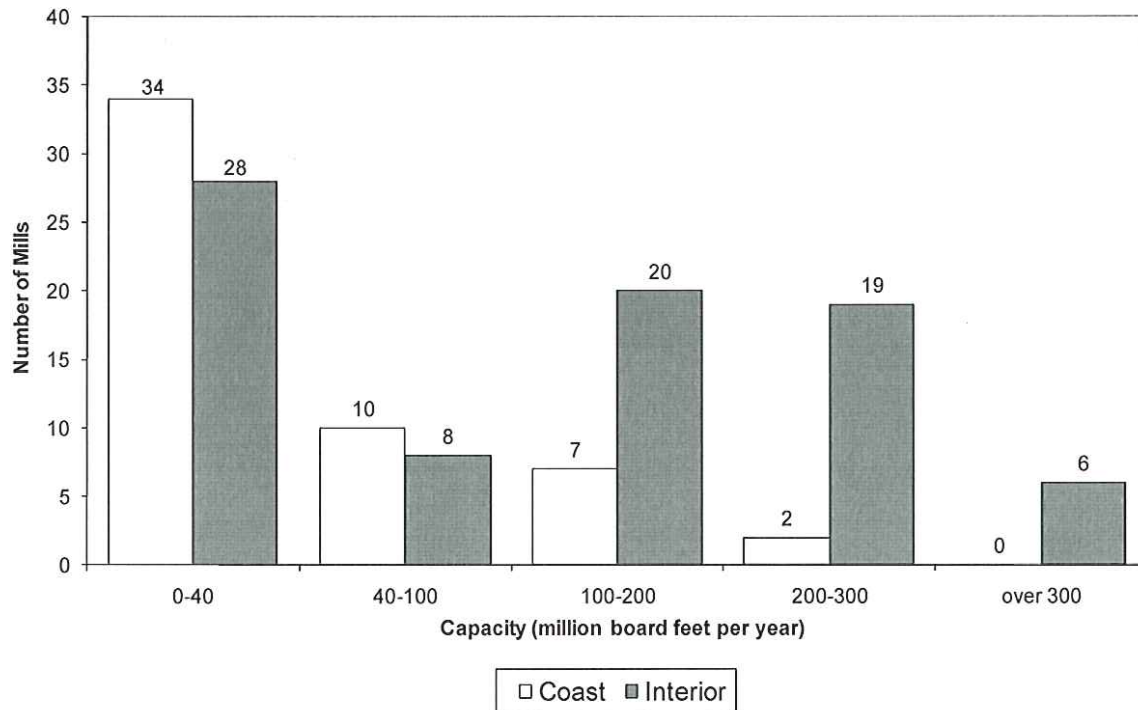


C. Time Series Data

1) Medium and Large Lumber Mills

There were 72 lumber mills with annual capacity over 40 million board feet per year operating in BC in 2009, accounting for about 97% of all lumber production². Figure 4 shows the distribution of lumber mills by mill size, for the Coast and Interior³. Compared to 2008, the number of mills with capacity under 200 million board feet has fallen both on the Coast and in the Interior, the numbers in the 200 to 300 million board feet category have remained the same while the numbers greater than 300 million board feet have risen. This suggests that closures due to reduced market demands have been accompanied by mill rationalizations and selective upgrading.

Figure 4: Distribution Of British Columbia Lumber Mills By Size - 2009



² The 2009 survey was not sent to lumber mills with annual capacity less than 40 million board feet. The output of mills in that category is an estimate calculated, as in Figure 1, from information supplied by ministry staff in March, 2011 concerning the operating status of mills and using the 2008 output of operating small mills.

³ The number of mills with annual capacity less than 40 million board feet has been estimated as specified in footnote 2.

Table 1 shows detailed statistics for medium and large sized sawmills in BC from 1990 to 2009⁴. The data covers 19 mills on the Coast and 53 in the Interior in 2009.

As seen in Table 1 as well as Figures 5 and 6, the number of lumber mills has been falling steadily since 1990, while the average capacity has been trending upwards for the same period of time. Average capacity is higher in the Interior than on the Coast. The gap has widened since 2001, with the average capacity growing at a faster pace in the Interior.

Figure 7 shows that capacity utilization has dropped significantly since 2007 in both the Interior and Coastal regions. This reflects widespread curtailments among lumber mills in the province since 2007 as a result of the economic downturn.

From Figure 8, the lumber recovery factors (LRF) in both the Interior and Coastal regions have been rising, with the Interior rising at a higher rate. This trend, however, flattened out in 2004 in the Interior and has remained relatively flat between 2004 and 2009. The LRF for the Interior is higher than on the Coast for a number of reasons including species differences, the younger age and greater technological advancement of the mills and the less diverse range of lumber products manufactured in the Interior as compared to the Coast.

⁴ The time series data was developed from historical databases from the Ministry of Forests, Lands and Natural Resource Operations annual mill survey and only covers those mills with annual capacity of 40 million board feet or more.

Table 1: British Columbia Lumber Mill Summary Statistics for Medium and Large Sized Mills

		1990...	1995...	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	% change 1990- 2009
COAST														
Number of Mills		43	38	36	34	29	28	27	29	24	24	21	19	-56%
Total Capacity	billion board feet per year	4.2	3.8	4.0	3.7	3.3	3.2	3.2	3.4	2.7	2.7	2.4	2.2	-48%
Total Output	billion board feet per year	3.8	3.3	3.1	2.5	2.4	2.3	2.6	2.6	2.4	1.7	1.5	1.2	-69%
Total Input	million cubic metres per year	17.1	15.0	13.8	11.3	10.7	10.1	11.3	11.2	10.3	7.6	6.5	4.9	-71%
Average Capacity	million board feet per mill per year	99	100	111	109	113	116	118	117	114	111	112	116	18%
Capacity Utilization	output divided by capacity	89%	88%	77%	67%	74%	72%	81%	76%	89%	65%	64%	53%	-40%
Lumber Recovery Factor	'000 board feet per cubic metre	0.220	0.223	0.222	0.222	0.228	0.233	0.229	0.231	0.236	0.230	0.232	0.236	7%
INTERIOR														
Number of Mills		88	83	77	78	73	70	71	71	72	72	62	53	-40%
Total Capacity	billion board feet per year	10.7	10.3	10.7	11.3	11.6	11.9	12.6	12.8	12.8	12.4	11.3	10.7	0%
Total Output	billion board feet per year	10.0	10.0	10.5	10.3	11.8	11.9	13.4	14.1	14.2	13.3	9.7	7.9	-20%
Total Input	million cubic metres per year	42.2	40.8	39.9	38.1	43.4	43.1	47.6	50.2	50.5	47.4	34.7	28.2	-33%
Average Capacity	million board feet per mill per year	121	124	139	145	159	170	177	180	177	172	182	201	66%
Capacity Utilization	output divided by capacity	93%	97%	99%	91%	102%	100%	107%	111%	111%	107%	86%	75%	-20%
Lumber Recovery Factor	'000 board feet per cubic metre	0.236	0.245	0.263	0.270	0.272	0.275	0.281	0.282	0.281	0.280	0.279	0.282	19%
PROVINCE														
Number of Mills		131	121	113	112	102	98	98	100	96	96	83	72	-45%
Total Capacity	billion board feet per year	14.9	14.1	14.7	15.1	14.9	15.1	15.7	16.2	15.5	15.1	13.7	12.9	-14%
Total Output	billion board feet per year	13.7	13.3	13.6	12.8	14.2	14.2	16.0	16.7	16.6	15.0	11.2	9.1	-34%
Total Input	million cubic metres per year	59.2	55.7	53.8	49.4	54.0	53.1	58.9	61.4	60.8	55.0	41.2	33.1	-44%
Average Capacity	million board feet per mill per year	114	117	130	134	146	154	161	162	162	157	165	179	57%
Capacity Utilization	output divided by capacity	92%	94%	93%	85%	96%	94%	101%	103%	107%	100%	82%	71%	-23%
Lumber Recovery Factor	'000 board feet per cubic metre	0.232	0.239	0.253	0.259	0.264	0.267	0.271	0.272	0.273	0.273	0.272	0.275	19%

Source: Major Primary Timber Processing Facilities in British Columbia, internal database, various years

Notes:

Medium and Large Sized Mills defined as lumber mills with estimated capacity over 40 million board feet per year.

Capacity estimated assuming two 8-hour shifts, 240 days per year.

**Figure 5: BC Medium and Large Sized Lumber Mills
Number of Mills**

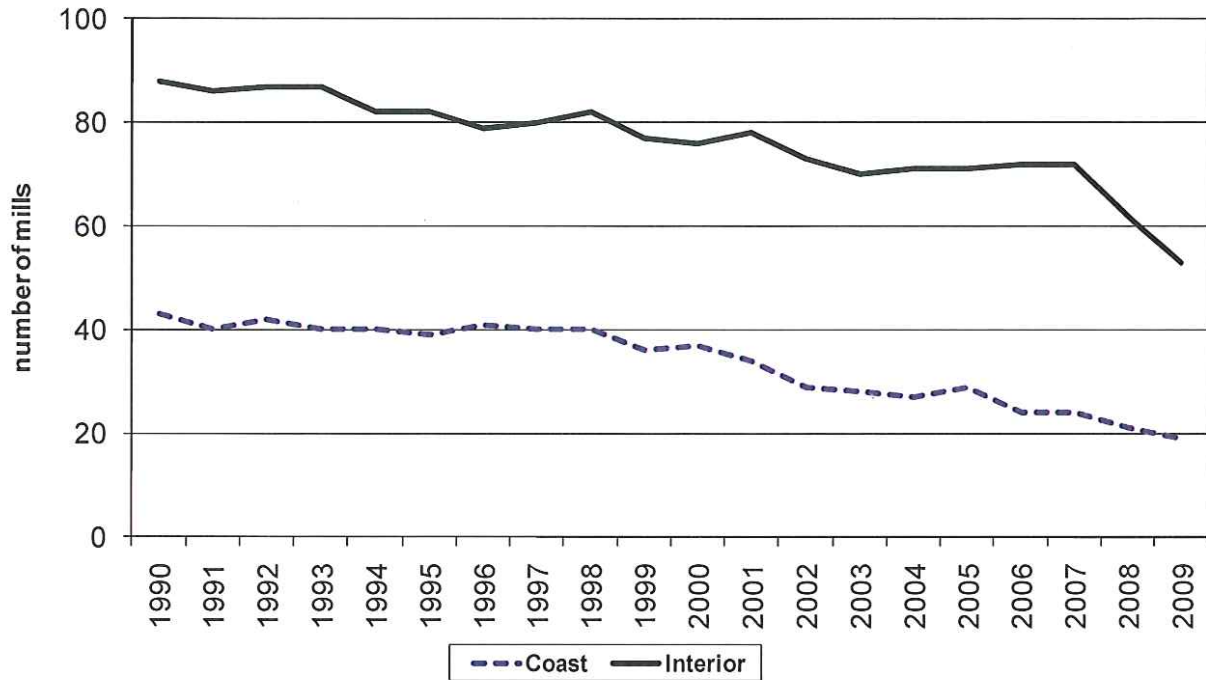


**Figure 6: BC Medium and Large Sized Lumber Mills
Average Capacity**

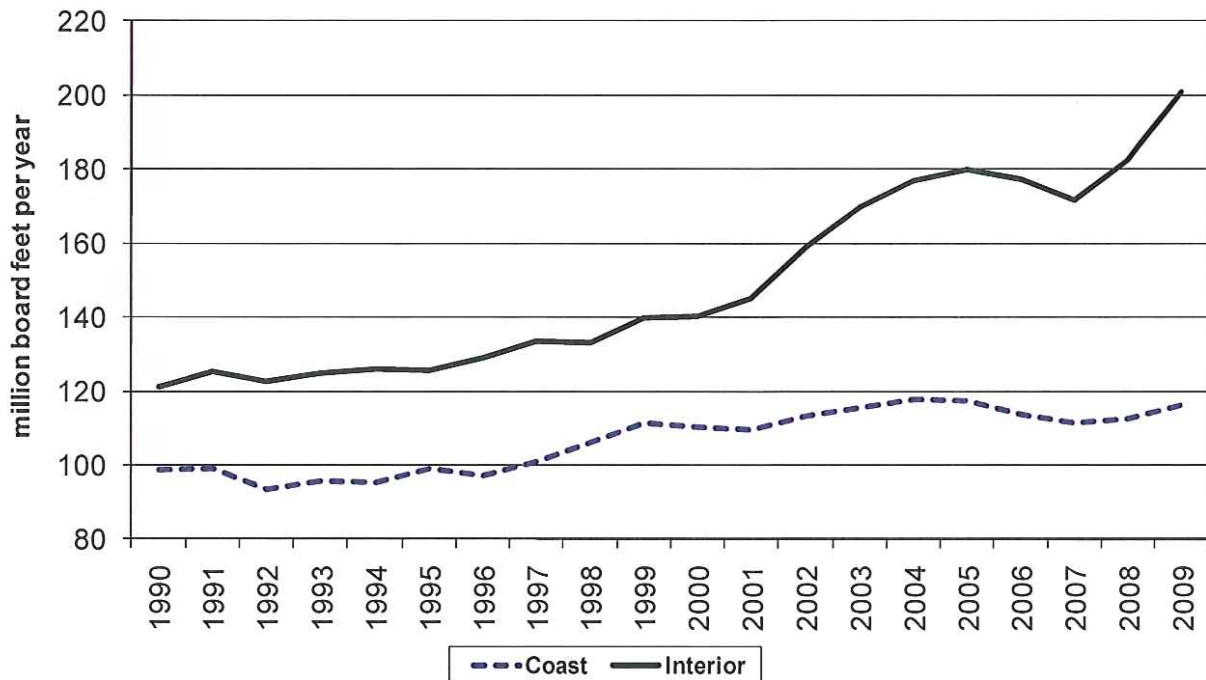


**Figure 7: BC Medium and Large Sized Lumber Mills
Capacity Utilization**

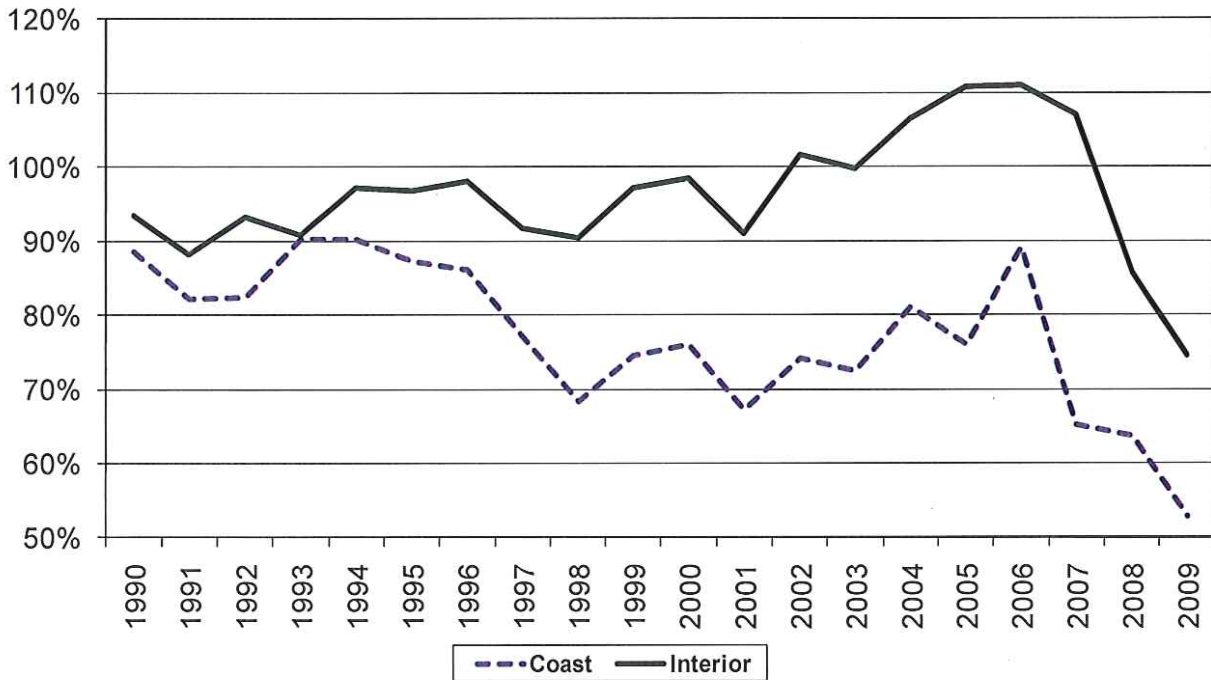
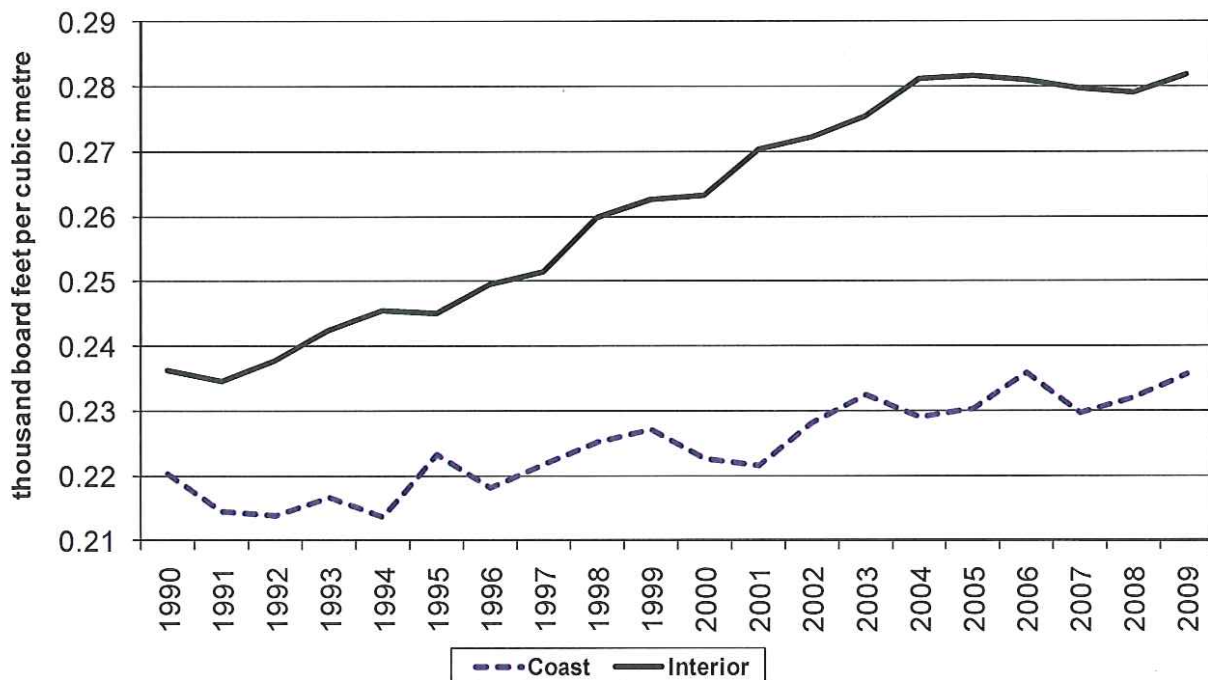


**Figure 8: BC Medium and Large Sized Lumber Mills
Lumber Recovery Factor**



2) Veneer Mills

Veneer is used as an input to plywood manufacturing as well as an input to other engineered wood products such as laminated veneer lumber. Nine veneer mills in British Columbia have a plywood mill on the same site, whereas 3 mills produce “market veneer” for sale to plywood and other types of mills.

Table 2 gives a provincial overview of veneer mill statistics for 1990-2009. These statistics show 12 veneer mills operating in British Columbia in 2009, 3 on the Coast and 9 in the Interior. Total veneer capacity grew between 2000 and 2006, but declined between 2007 and 2009 as a result of production curtailments and mill closures.

Figure 9 shows that total output and log input in veneer mills have dropped since 2006. Figure 10 shows that the average capacity of veneer mills has grown steadily since 1990. Figure 11 shows a steady upward trend for capacity utilization in veneer mills since 1991 as mills shifted from 2 to 3 shifts per day. The trend was reversed in recent years, as veneer mills curtailed production due to the poor U.S. housing market. Figure 12 shows that the average recovery factor of BC veneer mills grew over the 1990s, but remained steady between 2000 and 2009 at about 580 square feet per cubic metre of log input.

Table 2: British Columbia Veneer Mill Summary Statistics

		1990...	1995...	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	% change 1990-2009
Number of Mills		20	17	16	16	16	16	17	17	16	15	13	12	-40%
Total Capacity	(million square feet 3/8" basis)	2,102	2,131	2,030	2,055	2,212	2,228	2,520	2,580	2,505	2,325	2,006	2,056	-2%
Total Output	(million square feet 3/8" basis)	2,306	2,388	2,567	2,558	2,911	2,901	3,552	3,667	3,314	2,946	2,320	1,928	-16%
Total Log Input	(thousand cubic metres)	4,398	4,143	4,390	4,446	4,989	4,976	6,057	6,348	5,650	5,069	3,996	3,364	-24%
Average Capacity	(million square feet per mill)	105	125	127	128	138	139	148	152	157	155	154	171	63%
Average Log Input	(thousand cubic metres per mill)	220	244	274	292	312	311	360	375	353	338	307	280	27%
Capacity Utilization	(output divided by capacity)	110%	112%	126%	128%	132%	130%	140%	141%	132%	127%	116%	94%	-14%
Recovery Factor	(square feet per cubic metre log input)	524	576	585	575	584	583	586	578	586	581	580	573	9%

Source: Major Primary Timber Processing Facilities in British Columbia, internal database, various years

Notes:

- Output Capacity is estimated based on two 8 hour shifts, 240 days per year

Small mills using an average of less than 25,000 cubic metres of logs per year are not included in these statistics

**Figure 9: BC Veneer Mills
Capacity, Output and Log Input**

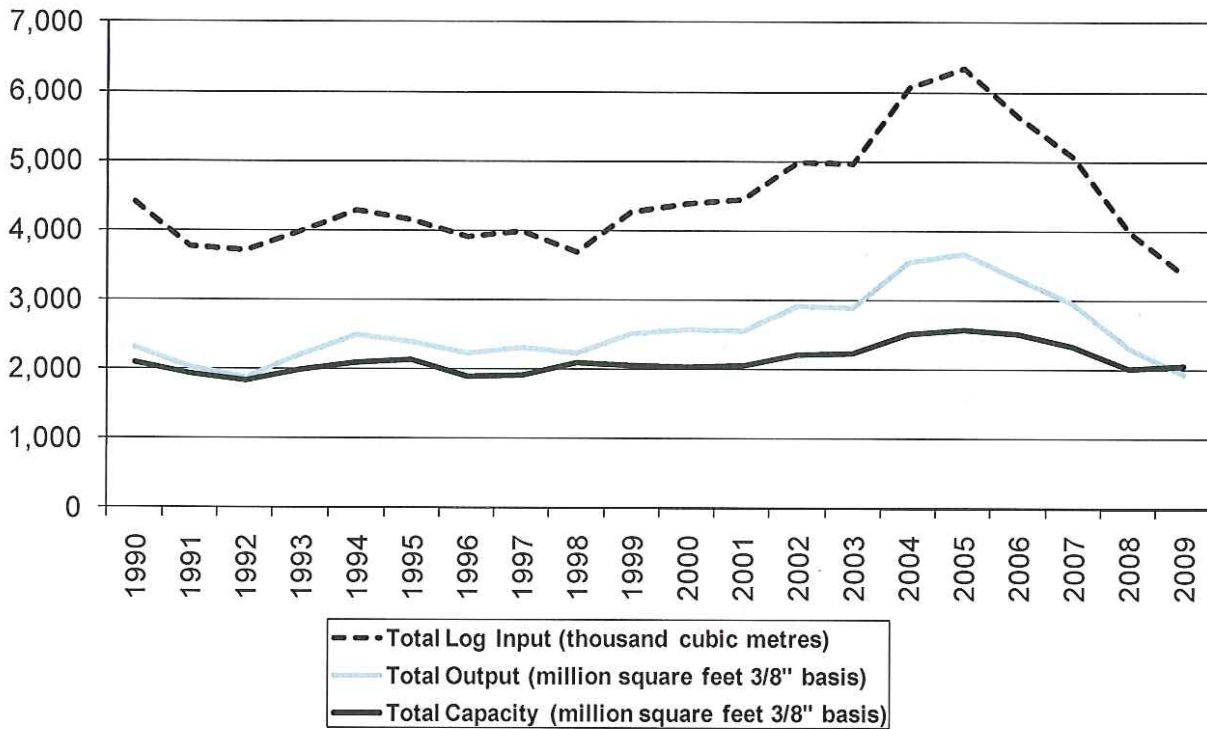


**Figure 10: BC Veneer Mills
Number of Mills and Average Capacity**

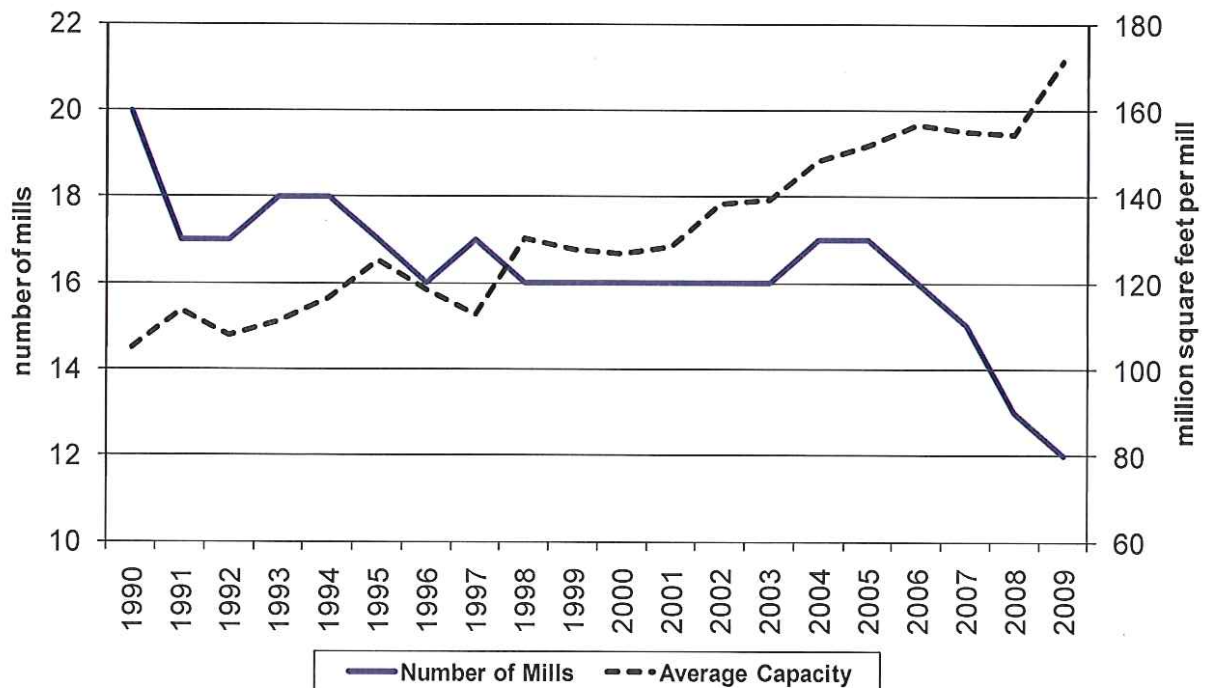


**Figure 11: BC Veneer Mills
Capacity Utilization**

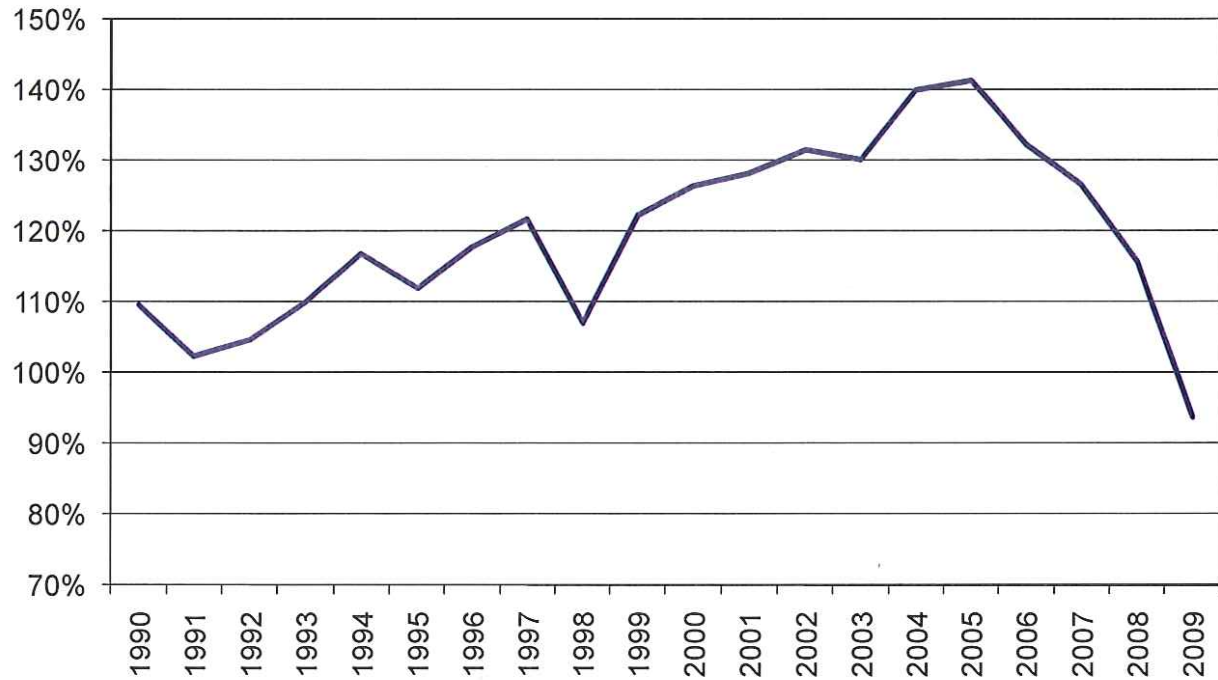
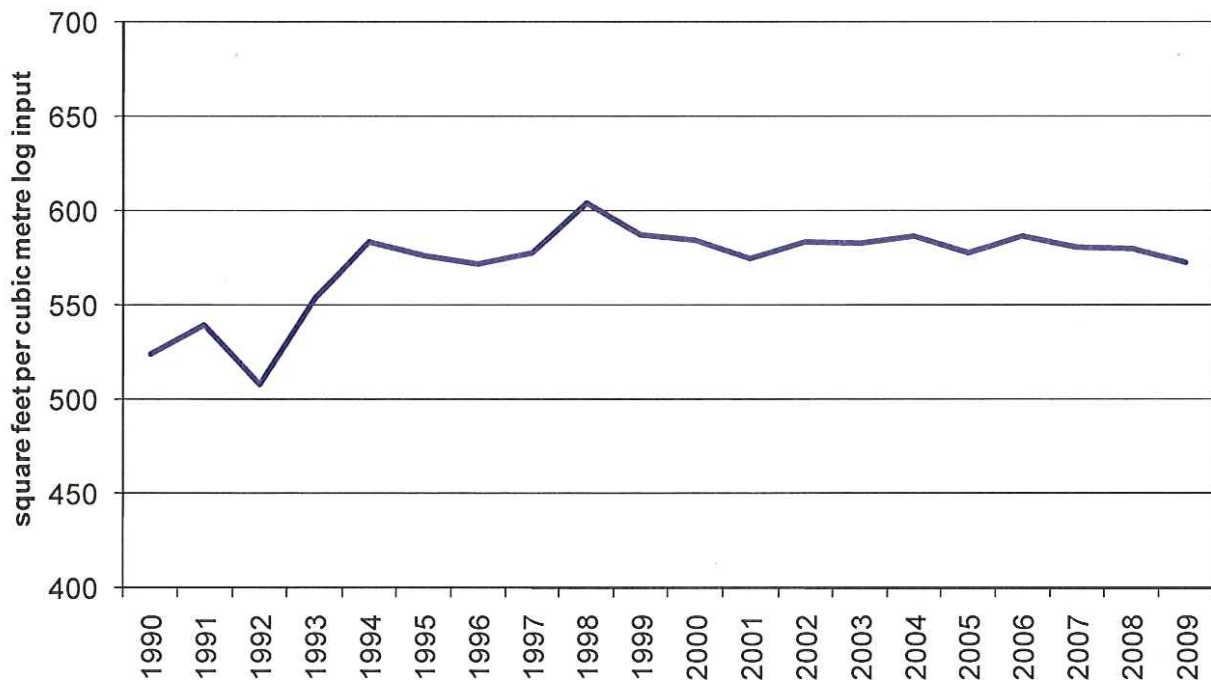


**Figure 12: BC Veneer Mills
Recovery Factor**



3) Pulp and Paper Mills

Pulp is used primarily as a raw material for paper and paperboard products as well as packaging. There were 19 pulp mills and 8 paper mills in BC in 2009. Of the 19 pulp mills, 8 were integrated, meaning that both the pulp mill and paper mill are located in the same site. The main pulp products are bleached softwood kraft pulp and chemi-thermo-mechanical pulp (CTMP), whereas most of the paper produced in BC is newsprint.

Table 3 presents an overview of pulp and paper mills in the province for 1991-2009. Total capacity and output of pulp mills in BC have declined since 1991, and the drop has accelerated in recent years. A similar trend was seen in paper mill capacity and output. Paper mill capacity fell by 27% between 1991 and 2009, with total paper mill output falling by 26% over this period.

An upward trend that was seen in pulp mill capacity utilization flattened out in 2004 and remained flat until 2007. Capacity utilization dropped slightly in 2008 and fell significantly in 2009 to 83%, a 9 percentage point drop. This was largely due to the closure of three mills for much of the year; Catalyst Paper's mills in Elk Falls and Crofton and Tembec's mill in Chetwynd. Excluding these mills, utilization fell by 3 percentage points to 89%.

Figure 15 shows that both the total capacity and output of paper mills decreased significantly in 2009 compared with the 2008 level, continuing a downward trend evident since 2006. Figure 16 shows that paper mill capacity utilization has dropped since 2005 as total output has fallen at a faster rate than total capacity during this time period.

Table 3: British Columbia Pulp and Paper Mill Summary Statistics

		1991...	1995...	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	% change 1991-2009
Number of Pulp Mills		24	24	23	23	21	21	22	22	21	21	19	19	-21%
Total Capacity	(thousand tonnes)	8,416	8,210	7,839	7,842	7,303	7,647	7,527	7,445	7,421	6,836	6,356	6,333	-25%
Total Output	(thousand tonnes)	6,683	7,295	7,558	6,728	6,788	6,939	7,221	7,092	7,082	6,513	5,852	5,269	-21%
Total Fibre Input	(thousand bone dry units)	11,761	12,748	13,438	11,959	11,577	11,825	12,282	12,344	11,792	10,965	10,117	8,872	-25%
Average Capacity	(thousand tonnes)	351	342	341	341	348	364	342	338	353	326	335	333	-5%
Average Fibre Input	(thousand bone dry units)	490	531	584	520	551	563	558	561	562	522	532	467	-5%
Capacity Utilization		79%	89%	96%	86%	93%	91%	96%	95%	95%	95%	92%	83%	5%
Number of Paper Mills		12	11	11	11	11	11	11	11	11	9	9	8	-33%
Total Capacity	(thousand tonnes)	3,472	3,062	3,271	3,135	3,081	3,237	3,218	2,979	3,188	2,864	2,838	2,521	-27%
Total Output	(thousand tonnes)	2,739	2,747	3,175	2,949	2,936	2,925	3,139	3,021	3,045	2,552	2,419	2,032	-26%
Average Capacity	(thousand tonnes)	289	278	297	285	280	294	293	271	290	318	315	315	9%
Capacity Utilization		79%	90%	97%	94%	95%	90%	98%	101%	95%	89%	85%	81%	2%

Source: Major Primary Timber Processing Facilities in British Columbia, internal database, various years

Notes:

Estimated annual capacity is based on a standardized operation of 345 operating days per year, one 24-hour shift per day. Actual operations may vary from this schedule.

Pulp mills included in these statistics are those that use wood fibre input. A deinking pulp mill which uses other input, such as waste paper, is not included in the table.

**Figure 13: BC Pulp Mills
Capacity, Output and Input**

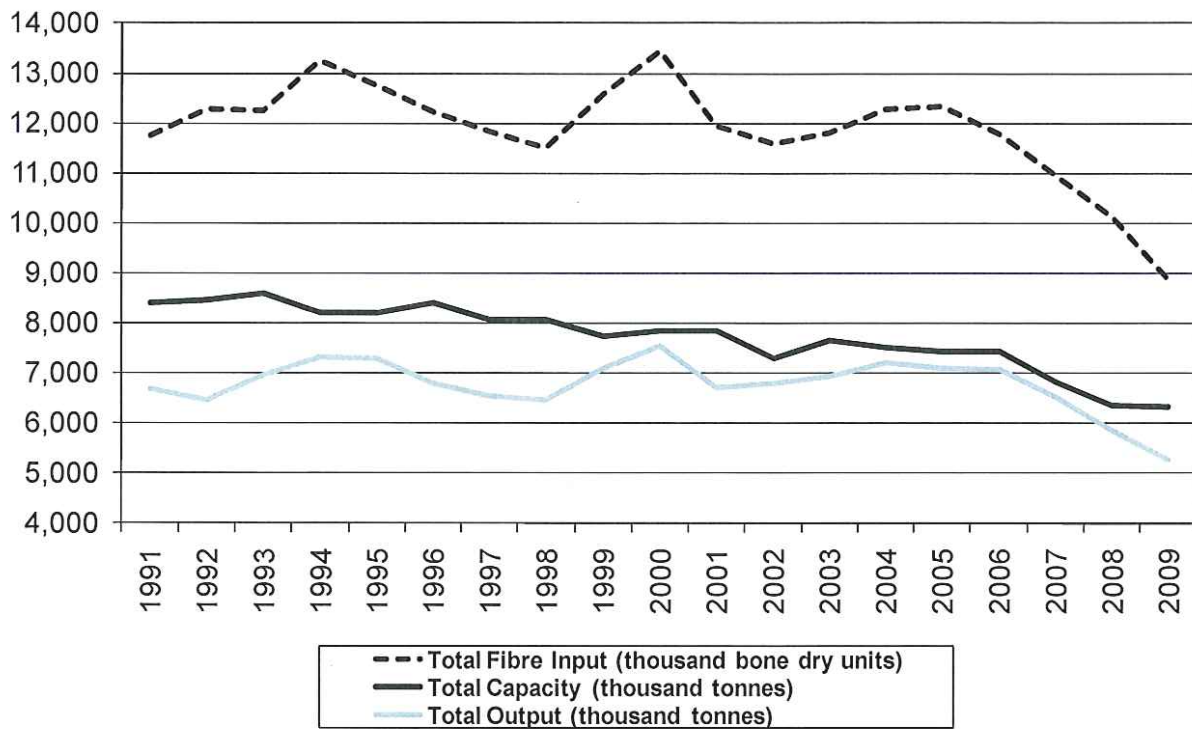


Figure 14: BC Pulp Mills Capacity Utilization

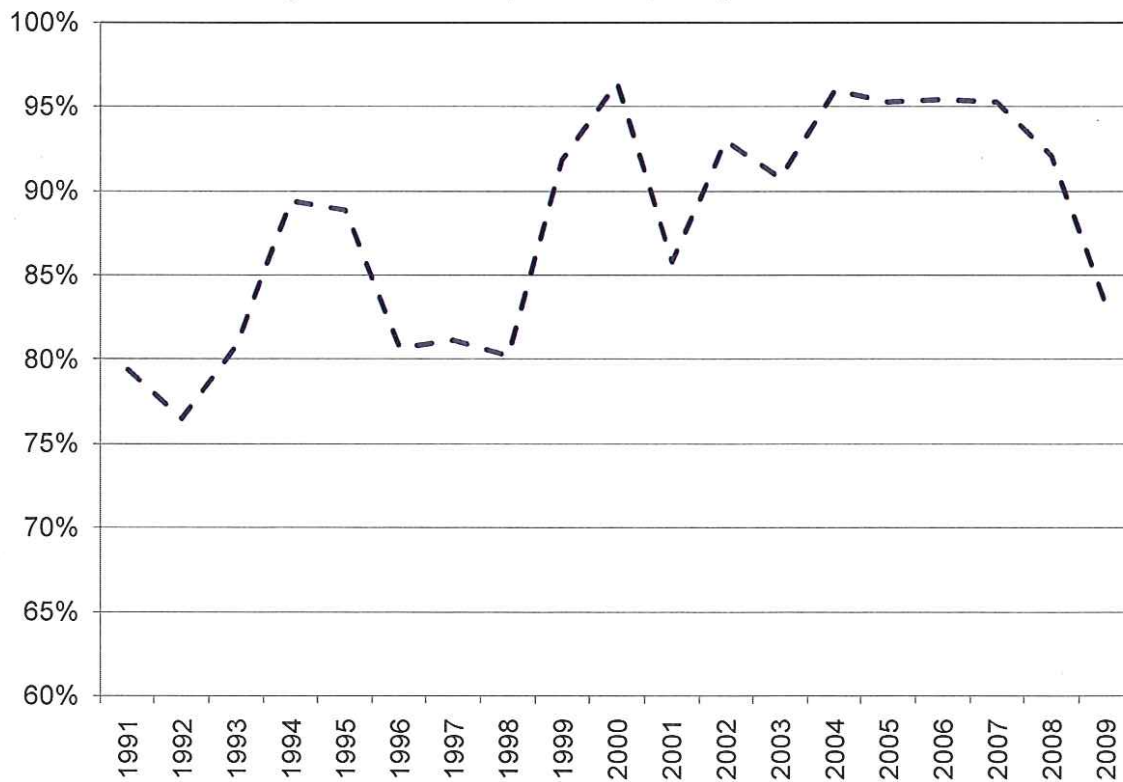


**Figure 15: BC Paper Mills
Capacity and Output**

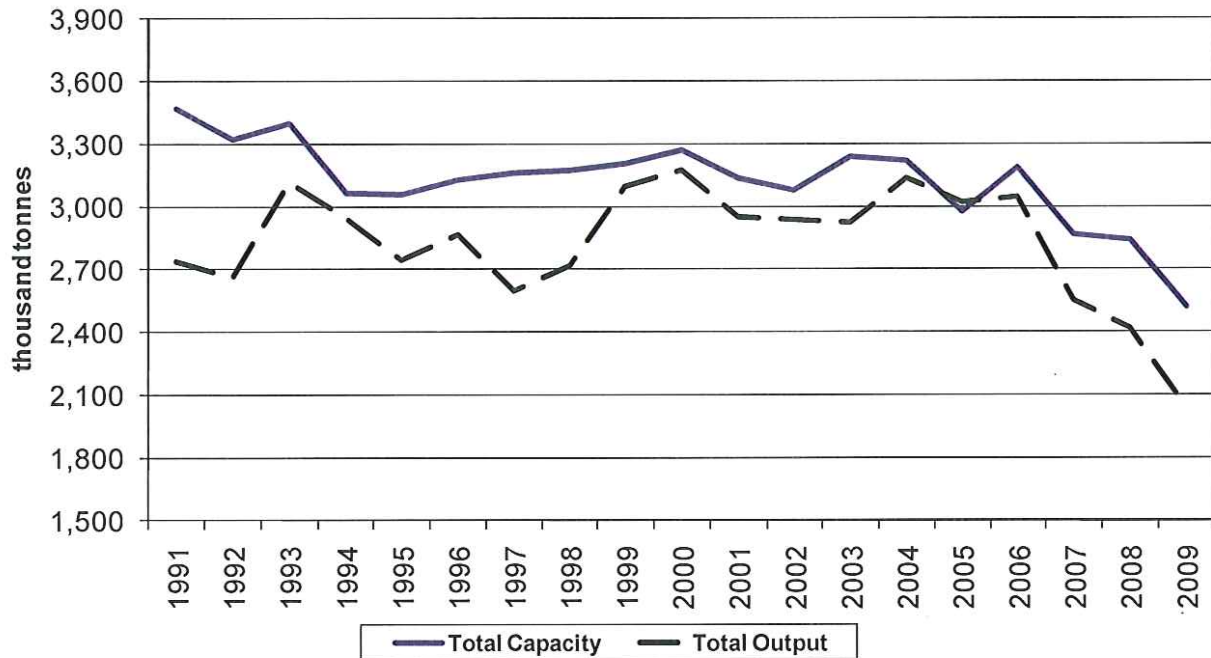
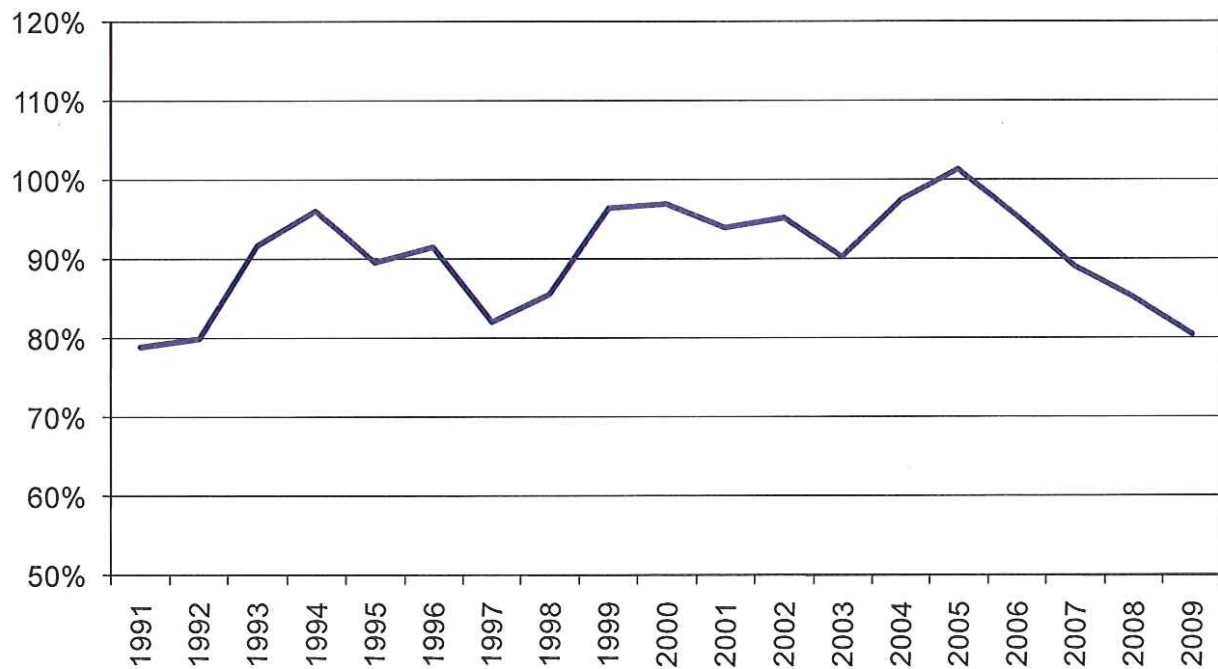


**Figure 16: BC Paper Mills
Capacity Utilization**



4) Pellet Mills

Wood pellets are primarily used as wood fuel and are usually made from compacted sawdust and other byproducts of sawmilling and other wood transformation activities. Most of the pellet production from British Columbia is shipped to European countries.

This report shows 8 pellet mills operated in BC in 2009. It is estimated that the total capacity of these mills was 959,750 tonnes of pellets per year based on an operating schedule of three 8-hour shifts per day, 345 days per year. On average, mills ran at about 79% of capacity, producing about 755,000 tonnes of pellets in total in 2009. The fibre used to produce this volume of pellets was about 676,000 metric tonnes, largely in the form of sawdust, which is equivalent to 1.9 million cubic metres on a solid wood basis.

The eight pellet mills in the province also supply wood pellets to BC bio-energy plants. While other fuel sources exist for bio-energy plants, pellets remain attractive for shipping owing to their high density and low moisture content. The worldwide bio-energy sector is expanding and increasingly looking to pellet mills to meet their fuel demands.

In contrast to all other major mill types, pellet mills are a recent addition to the primary mill scene in British Columbia. The first mills were surveyed in 2005.

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Appendix: List of Mills

Chip Mills

(Listed Alphabetically)

Only mills that produce wood chips as a primary product are listed in this section.

Notes:

1. Measurement units are in thousands of bone dry units (000 BDUs).
2. Estimated annual capacity is based on a standardized operation of 240 days per year, two 8 hour shifts per day. Actual operations may vary from this schedule.
3. Forest regions and districts are those that were applicable in 2009 (see page 4).

CHIP MILLS -2009

Mill Number	Company	Location of Mill	Forest Region	Forest District	Estimated Annual Capacity (000s of BDUs)
446	Campbell River Fibre Ltd.	Campbell River	Coast	Campbell River	110
924	Chips Ahoy Fibre Supply	Mission	Coast	Chilliwack	110
345	DCT Chambers Trucking Ltd.	Chemainus	Coast	South Island	187
356	East Fraser Fibre Co Ltd.	Mackenzie	Northern Interior	Mackenzie	180
409	Howe Sound Pulp & Paper Ltd.	Vancouver	Coast	Chilliwack	278
937	Pacific Fibre	Port Mellon	Coast	Sunshine Coast	149
952	River City Fibre	Kamloops	Southern Interior	Kamloops	168
18	Terminal Forest Products Ltd.	Langdale Dryland Sort	Coast	Sunshine Coast	91
107	Tolko Industries Ltd.	Williams Lake	Southern Interior	Central Cariboo	64
394	Tolko Industries Ltd.	Heffley Creek	Southern Interior	Kamloops	77
68	Tolko Industries Ltd.	Armstrong	Southern Interior	Okanagan Shuswap	96
183	West Fraser Mills Ltd.	Terrace	Northern Interior	Kalum	403

Lumber Mills

(Listed Alphabetically)

Mills producing lumber are reported for mills that have estimated annual capacity of more than 40 million board feet of lumber.

Notes:

1. Measurement units are in millions of board feet.
2. Estimated annual capacity is based on a standardized operation of 240 days per year, two 8 hour shifts per day. Actual mill operations may vary from this schedule.
3. Forest regions and districts are those that were applicable in 2009 (see page 4).

LUMBER MILLS WITH CAPACITY GREATER THAN 40 MILLION BOARD FEET - 2009

Mill Number	Company	Location of Mill	Forest Region	Forest District	Estimated Annual Capacity (millions of board feet)
137	Apollo Forest Products Ltd.	Fort St James	Northern Interior	Fort St James	151
207	Ardeu Wood Products Ltd.	Merritt	Southern Interior	Cascades	53
498	Aspen Planers Ltd.	Merritt	Southern Interior	Cascades	192
213	Babine Forest Products Limited	Burns Lake	Northern Interior	Nadina	320
130	Canadian Forest Products Ltd.	Mackenzie	Northern Interior	Mackenzie	230
193	Canadian Forest Products Ltd.	Houston	Northern Interior	Nadina	480
122	Canadian Forest Products Ltd.	Fort St John	Northern Interior	Peace	221
135	Canadian Forest Products Ltd.	Isle Pierre	Northern Interior	Prince George	230
160	Canadian Forest Products Ltd.	Bear Lake	Northern Interior	Prince George	132
97	Canadian Forest Products Ltd.	Prince George	Northern Interior	Prince George	134
153	Canadian Forest Products Ltd.	Prince George	Northern Interior	Prince George	269
166	Canadian Forest Products Ltd.	Prince George	Northern Interior	Prince George	261
140	Canadian Forest Products Ltd.	Engen	Northern Interior	Vanderhoof	442
64	Canadian Forest Products Ltd.	Vavenby	Southern Interior	Headwaters	225
110	Canadian Forest Products Ltd.	Quesnel	Southern Interior	Quesnel	120
90	Canadian Forest Products Ltd.	Radium Hot Sprgs	Southern Interior	Rocky Mountain	183
150	Carrier Lumber Ltd.	Prince George	Northern Interior	Prince George	312
128	Conifex Timber Inc.	Mackenzie	Northern Interior	Mackenzie	194
45	Downie Timber Ltd.	Revelstoke	Southern Interior	Columbia	113
158	Dunkley Lumber Ltd.	Strathnaver	Northern Interior	Prince George	576
11	Eagle River Industries Inc.	Malakwa	Southern Interior	Okanagan Shuswap	46
66	Gilbert Smith For Prod Ltd.	Barriere	Southern Interior	Kamloops	53
537	Goldwood Industries Ltd.	Richmond	Coast	Chilliwack	58
14	Gorman Bros Lumber Ltd.	Westbank	Southern Interior	Okanagan Shuswap	115
30	Interfor	Grand Forks	Southern Interior	Arrow Boundary	120
283	International Forest Products Ltd.	Delta	Coast	Chilliwack	136
297	International Forest Products Ltd.	Hammond	Coast	Chilliwack	173
70	International Forest Products Ltd.	Adams Lake	Southern Interior	Kamloops	282
88	J H Huscroft Ltd.	Erickson	Southern Interior	Kootenay Lake	58
100	J.S. Jones	Surrey	Coast	Chilliwack	158
50	Kalesnikoff Lumber Co. Ltd.	Thrms	Southern Interior	Arrow Boundary	72
144	L & M Lumber Ltd.	Vanderhoof	Northern Interior	Vanderhoof	191
149	Lakeland Mills Ltd.	Prince George	Northern Interior	Prince George	154
361	Mackenzie Sawmill Ltd.	Surrey	Coast	Chilliwack	67
403	Mill & Timber Products Ltd.	Surrey	Coast	Chilliwack	60

LUMBER MILLS WITH CAPACITY GREATER THAN 40 MILLION BOARD FEET - 2009

Mill Number	Company	Location of Mill	Forest Region	Forest District	Estimated Annual Capacity (millions of board feet)
336	Mill & Timber Products Ltd.	Port Moody	Coast	Chilliwack	77
22	Noble Custom Cut Ltd.	Whonnock	Coast	Chilliwack	48
713	Paragon Ventures Ltd.	Lumby	Southern Interior	Okanagan Shuswap	34
626	Porcupine Wood Products Ltd.	Salmo	Southern Interior	Arrow Boundary	58
454	S & R Sawmills Ltd.	Surrey	Coast	Chilliwack	240
55	Springer Creek Forest Products	Slocan	Southern Interior	Arrow Boundary	115
539	Stag Timber Ltd.	Surrey	Coast	Chilliwack	86
79	Tembec Industries Ltd.	Canal Flats	Southern Interior	Rocky Mountain	176
82	Tembec Industries Ltd.	Elko	Southern Interior	Rocky Mountain	188
396	Terminal Forest Products Ltd.	Vancouver	Coast	Chilliwack	204
540	Terminal Forest Products Ltd.	Richmond	Coast	Chilliwack	192
25	Tolko Industries Ltd.	Merritt	Southern Interior	Cascades	276
101	Tolko Industries Ltd.	Williams Lake	Southern Interior	Central Cariboo	254
103	Tolko Industries Ltd.	Williams Lake	Southern Interior	Central Cariboo	254
107	Tolko Industries Ltd.	Williams Lake	Southern Interior	Central Cariboo	164
68	Tolko Industries Ltd.	Armstrong	Southern Interior	Okanagan Shuswap	240
20	Tolko Industries Ltd.	Lavington	Southern Interior	Okanagan Shuswap	216
67	Tolko Industries Ltd.	Kelowna	Southern Interior	Okanagan Shuswap	204
98	Tolko Industries Ltd.	Quesnel	Southern Interior	Quesnel	144
453	Twin River Cedar Products Ltd.	Ruskin	Coast	Chilliwack	43
639	West Chilcotin Forest Products Ltd.	Anahim Lake	Southern Interior	Chilcotin	115
181	West Fraser Mills Ltd.	Burns Lake	Northern Interior	Nadina	43
530	West Fraser Mills Ltd.	Houston	Northern Interior	Nadina	264
552	West Fraser Mills Ltd.	Chetwynd	Northern Interior	Peace	257
191	West Fraser Mills Ltd.	Smithers	Northern Interior	Skeena Stikine	252
532	West Fraser Mills Ltd.	LeJac	Northern Interior	Vanderhoof	260
95	West Fraser Mills Ltd.	100 Mile House	Southern Interior	100 Mile House	237
214	West Fraser Mills Ltd.	Clinton	Southern Interior	100 Mile House	235
114	West Fraser Mills Ltd.	Williams Lake	Southern Interior	Central Cariboo	161
113	West Fraser Mills Ltd.	Quesnel	Southern Interior	Quesnel	384
393	Western Forest Products	Chemainus	Coast	South Island	96
546	Western Forest Products	Duke Point	Coast	South Island	86
320	Western Forest Products	Cowichan Bay	Coast	South Island	151
392	Western Forest Products	Port Alberni	Coast	South Island	66
528	Western Forest Products	Port Alberni	Coast	South Island	114
442	Western Forest Products Ltd.	Ladysmith	Coast	South Island	156
29	Weyerhaeuser Company Ltd.	Princeton	Southern Interior	Cascades	163
93	Wynndel Box & Lumber Co. Ltd.	Wynndel	Southern Interior	Kootenay Lake	62

Pellet Mills

(Listed Alphabetically)

Mills producing wood pellets for bio-energy are listed in this section.

Notes:

1. Measurement units are in thousands of tonnes.
2. Estimated annual capacity for pellet mills is based on a standardized operation of 345 days per year, three 8 hour shifts per day. Actual operations may vary from these schedules.
3. Forest regions and districts are those that were applicable in 2009 (see page 4).

PELLET MILLS - 2009

Mill Number	Company	Location of Mill	Forest Region	Forest District	Estimated Annual Capacity (000s of tonnes)
930	Pacific BioEnergy	Prince George	Northern Interior	Prince George	186
929	Pinnacle Pellet Armstrong Inc.	Armstrong	Southern Interior	Okanagan Shuswap	56
947	Pinnacle Renewable Energy Group	Houston	Northern Interior	Nadina	207
931	Pinnacle Renewable Energy Group	Quesnel	Southern Interior	Quesnel	88
948	Pinnacle Renewable Energy Group	Williams Lake	Southern Interior	Central Cariboo	169
932	Premium Pellet Ltd.	Vanderhoof	Northern Interior	Vanderhoof	105
933	Princeton Co-Generation Corp	Princeton	Southern Interior	Cascades	83
935	Westwood Fibre Products	Westbank	Southern Interior	Okanagan Shuswap	66

Pulp and Paper Mills

(Listed Alphabetically)

Mills producing pulp and paper are listed in this section. For integrated mills, pulp capacity includes pulp that is used internally to produce paper, and pulp that is shipped from the mill site as market pulp.

Notes:

1. Measurement units are in thousands of tonnes.
2. Estimated annual capacity is based on a standardized operation of 345 operating days per year, 24 hours per day. Actual operations may vary from this schedule.
3. Forest regions and districts are those that were applicable in 2009 (see page 4).

PULP AND PAPER MILLS -2009

Mill Number	Company	Location of Mill	Product	Forest Region	Forest District	Estimated Annual Capacity (000s of tonnes)
500	Canadian Forest Products Ltd.	Prince George	PPR	Northern Interior	Prince George	128
335	Canadian Forest Products Ltd.	Taylor	PLP	Northern Interior	Peace	210
500	Canadian Forest Products Ltd.	Prince George	PLP	Northern Interior	Prince George	150
503	Canadian Forest Products Ltd.	Prince George	PLP	Northern Interior	Prince George	549
960	Canadian Forest Products Ltd. (Intercon Div.)	Prince George	PLP	Northern Interior	Prince George	300
497	Cariboo Pulp & Paper Co. Ltd.	Quesnel	PLP	Southern Interior	Quesnel	328
330	Catalyst Paper	Duncan Bay	PPR	Coast	Campbell River	497
487	Catalyst Paper	Port Alberni	PPR	Coast	South Island	319
483	Catalyst Paper	Crofton	PPR	Coast	South Island	362
486	Catalyst Paper	Powell River	PPR	Coast	Sunshine Coast	445
330	Catalyst Paper	Duncan Bay	PLP	Coast	Campbell River	182
206	Catalyst paper	Coquitlam	PLP	Coast	Chilliwack	143
487	Catalyst Paper	Port Alberni	PLP	Coast	South Island	186
483	Catalyst Paper	Crofton	PLP	Coast	South Island	680
486	Catalyst Paper	Powell River	PLP	Coast	Sunshine Coast	347
2	Domtar	Kamloops	PLP	Southern Interior	Kamloops	460
496	Eurocan Pulp & Paper Co.	Kitimat	PPR	Northern Interior	Kalum	452
496	Eurocan Pulp & Paper Co.	Kitimat	PLP	Northern Interior	Kalum	449
484	Howe Sound Pulp & Paper Ltd.	Port Mellon	PPR	Coast	Sunshine Coast	242
484	Howe Sound Pulp & Paper Ltd.	Port Mellon	PLP	Coast	Sunshine Coast	656
491	Kruger Products Ltd.	New Westminster	PPR	Coast	Chilliwack	76
491	Kruger Products Ltd.	New Westminster	PLP	Coast	Chilliwack	31
488	Nanaimo Forest Products	Cedar	PLP	Coast	South Island	407
489	Neucel Specialty Cellulose	Port Alice	PLP	Coast	North Island - Central Coast	173
553	Quesnel River Pulp Company	Quesnel	PLP	Southern Interior	Quesnel	279
205	Tembec Industries Ltd.	Chetwynd	PLP	Northern Interior	Peace	207
1	Tembec Industries Ltd.	Skookumchuk	PLP	Southern Interior	Rocky Mountain	250
501	Zellstoff Celgar Limited Partnership	Castlegar	PLP	Southern Interior	Arrow Boundary	490

Veneer, Plywood, OSB and Other Panel Mills

(Listed Alphabetically)

Mills producing veneer, plywood and other types of panel are listed in this section. For mills that produce both market veneer and plywood, veneer capacity includes market veneer and the veneer that is used within the mill to manufacture plywood. Panel mills that use wood residuals to produce panels or that do not have log-processing capability are also listed in this report.

Notes:

1. Measurement units are in millions of square feet, 3/8" basis (mill. sq. ft., 3/8").
2. Estimated annual capacity for veneer mills is based on a standardized operation of 240 days per year, two 8 hour shifts per day. For plywood mills, estimated annual capacity is based on a standardized operation of 240 days per year, three 8 hour shifts per day. For OSB and other Panel mills, estimated annual capacity is based on a standardized operation of 345 days per year, three 8 hour shifts per day. Actual operations may vary from these schedules.
3. Forest regions and districts are those that were applicable in 2009 (see page 4).

VENEER, PLYWOOD, OSB AND OTHER PANEL MILLS - 2009

Mill Number	Company	Location of Mill	Product	Forest Region	Forest District	Estimated Annual Capacity (million sq ft, 3/8" basis)
411	Ainsworth Lumber Co. Ltd.	100 Mile House	OSB	Southern Interior	100 Mile House	445
115	Aspen Planers Ltd.	Lillooet	VNR	Southern Interior	Cascades	134
109	Aspen Planers Ltd.	Savona	PLY	Southern Interior	Kamloops	137
51	Atco Wood Products	Fruitvale	VNR	Southern Interior	Arrow Boundary	110
508	CIPA Lumber Co. Ltd.	Annacis Island	VNR	Coast	Chilliwack	216
244	Coastland Wood Industries Ltd.	Nanaimo	VNR	Coast	South Island	408
12	Federated Co-op Ltd.	Canoe	VNR	Southern Interior	Okanagan Shuswap	144
12	Federated Co-op Ltd.	Canoe	PLY	Southern Interior	Okanagan Shuswap	144
84	Louisiana Pacific Canada Ltd.	Golden	VNR	Southern Interior	Columbia	86
650	Louisiana Pacific Canada Ltd.	Dawson Creek	OSB	Northern Interior	Peace	388
84	Louisiana Pacific Canada Ltd.	Golden	PLY	Southern Interior	Columbia	86
357	Northern Engineering Wood Products Inc.	Smithers	PNL	Northern Interior	Skeena Stikine	94
942	Peace Valley OSB	Fort St John	OSB	Northern Interior	Peace	849
478	Richmond Plywood Corp. Ltd.	Richmond	VNR	Coast	Chilliwack	173
478	Richmond Plywood Corp. Ltd.	Richmond	PLY	Coast	Chilliwack	227
394	Tolko Industries Ltd.	Heffley Creek	VNR	Southern Interior	Kamloops	160
35	Tolko Industries Ltd.	Lumby	VNR	Southern Interior	Okanagan Shuswap	148
67	Tolko Industries Ltd.	Kelowna	VNR	Southern Interior	Okanagan Shuswap	211
394	Tolko Industries Ltd.	Heffley Creek	PLY	Southern Interior	Kamloops	185
68	Tolko Industries Ltd.	Armstrong	PLY	Southern Interior	Okanagan Shuswap	180
105	West Fraser Mills Ltd.	Williams Lake	VNR	Southern Interior	Central Cariboo	120
112	West Fraser Mills Ltd.	Quesnel	VNR	Southern Interior	Quesnel	144
105	West Fraser Mills Ltd.	Williams Lake	PLY	Southern Interior	Central Cariboo	194
112	West Fraser Mills Ltd.	Quesnel	PLY	Southern Interior	Quesnel	212
113	West Fraser Mills Ltd.	Quesnel	PNL	Southern Interior	Quesnel	231

