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Washington Mill Survey 2012

Series Report #22

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WASHINGTON STATE DEPARTMENT OF
Natural Resources
Peter Goldmark - Commissioner of Public Lands

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Cover photographs — **Left*:*** A laminated Centralia PUD utility pole on Cook's Hill Road. *DNR Photo/Dorian Smith* . See article on Page 18. **Right:** This photo of Vaagen Brothers' chip pile illustrates the magnitude of chipping operations. In the last 10 years Washington's annual chip production grew from just more than 500,000 tons to 1.5 million tons. Based in Colville, Vaagen's is a family-owned business; with 140 employees, it operates the largest lumber mill in Eastern Washington. *Vaagen Brothers Photo*

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Introduction

Washington's wood products industries continue to move in new directions to adapt to domestic and global market influences. Also natural wood resources are becoming scarce: for example, fewer western redcedar trees are available to make shakes and shingles or large timber poles to carry broadband and utility cables across neighborhoods.

A few years ago laminated wood telephone poles began to appear on streets and along county roads. These poles are stronger and taller than single log poles, and cheaper than steel. As the nation prepares to make long-overdue improvements to infrastructure, the telephone pole industry is re-organizing to support this need.

The history of these shifts and other industrial trends are recorded in each ***Washington Mill Survey*** (mill survey). Since the 1960s, the Washington Department of Natural Resources has covered wood product manufacturing and mill characteristics from data voluntarily reported by mill managers and owners throughout the state. It covers mills and log exporting operations that all originally use unprocessed logs. While pulp and plywood mills have modified their manufacturing processes and now use fewer logs, they are kept in the mill survey to maintain statistical continuity.

Mill Survey released in Chapters

In an effort to speed up delivery of 2012 data, this edition of the Mill Survey will be released in separate chapters. The first part includes statewide summaries and 10-year trend analyses. Later chapters will report greater statistical details of select sectors.

The tables include data on log volumes, mill capacities, log species, days of operation, and the uses of mill residues. The mill survey is a resource for a wide audience of industry managers, economists, public officials, and state residents.

While the survey covers nearly all businesses in the industry, some data estimates were based on statistics from previous years. Additionally, tables and categories (for industry sectors, counties or economic areas with few mills) are combined into “Other” categories to avoid disclosing companies' proprietary data.

Seven wood product sectors:

- Sawmills
- Veneer and Plywood
- Log Chipping
- Post, Pole, and Piling
- Shake and Shingle
- Log Export Operations
- Pulp

Most log measurements are in thousand board feet, the Scribner Rule — a mid-19th century scale that estimates a log’s potential lumber volume. It accounts for the taper, low end diameter, and height. Due to mill efficiencies in recent decades, sawmills’ net output (measured in “lumber tally”) usually exceeds log input in the Scribner scale.

Washington's tree-growing heritage

In just 30 years Washington's Douglas-fir trees can reach a merchantable size with a diameter of 12 to 16 inches and a height of 70 to 90 feet. A single acre of trees grown to rotation age of 60 years can yield 30,000 to 60,000 board feet, enough to build two to four average-sized homes.

The Southern U.S. has developed a successful wood industry on a different scale. In Georgia loblolly pine forests yield 3,000 to 10,000 board feet per acre.

The U.S. is the world’s largest producer of softwood products. Among the states, Washington is the second largest producer with 16.2 million acres of working forest out of a total of 23 million forested acres.

Washington’s forests generate nearly $5 billion annually in sales, or 1.5 percent of the state’s Gross Domestic Product (GDP). Log and lumber commodities are ranked third among Washington's exports, according to the state’s Department of Commerce.

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Report Summary: 2012 Washington Mill Summary

In 2012, Washington's primary wood products industry continued to veer from traditions that had sustained it for generations. The total number of mills dropped from 125 in 2010 to 105 in 2012, a decline of 16 percent. The total volume of logs consumed fell to 3.35 billion board feet from 3.7 billion board feet in 2010.

The story in 2012 wasn't just about declines. The log export market repeated its boost, tallying more than one billion board feet of logs in 2012. There were also several recent industrial adaptations. Veneer and plywood operations no longer share the same niche and future prospects. Most are now separate mills under separate ownerships as distinct enterprises pursuing separate opportunities. Overtaken by Oriented Strand Board (OSB) in the market place, plywood managers explored sanded and textured plywood, sheathing panels, siding, and overlay products. The veneer industry is now looking into hardwood veneer. It has also joined engineered wood manufacturers for some products.

Since the late 1960s the mill survey has recorded the volumes, percentages, values, averages and other statistics of surveys conducted by the Department of Natural Resources (DNR). This 2012 version will be released in separate chapters: this edition includes the 10-year analyses and the statewide totals. Upcoming publications will focus on statistics for each sector.

Below are tallies of the two major statistics (in million board feet).

Timber consumed by sector

Mill sector	***2012***
Lumber	1,768
Veneer and plywood	171
Pulp*	31
Shakes and shingles	244
Exports	1010
Posts-poles-pilings	44
Chips	355

*Pulp mills also consumed 6,470,277 tons of mill residues and chips.

Original owners (sources) of logs

Owner category	***2002***	***2012***
Forest Industry	2,608	1,955
Small private landowners	698	458
Native American	208	160
Federal	47	112
State	477	624
Other Public	31	11

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Economic areas used in this report

Throughout the Mill Survey these economic areas are used to indicate the locations of mill operations and forests where timber is harvested. An economic area is determined by the similarity of economic activity in the forest products industry. The boundaries of an economic area are not always drawn according to natural geographic features or county lines.

Abbreviations and Conversions

Volume

A log's volume is measured in **Scribner Scale** which accounts for the narrowing width of a tree.
Lumber is measured in **lumber tally**.
A tree's Scribner Scale volume is usually less than its actual lumber tally. On average the conversion is 2:1 lumber tally for each board foot of Scribner logs.

Lumber

board foot (bf) = 12 inches x 12 inches x 1 inch
mbf = 1 thousand board feet
mmbf = 1 million board feet

Pulp (weight)

ton = 2,000 pound
bone dry tons (bdt) = 2,200 pounds (10% water)
1 mbf logs = 5 tons

Shake & Shingle (area)

1 square = 100 square feet
1 square = 4 bundles
10 squares = 1 mbf

Plywood and Veneer

msf 3/8-inch basis = 1 thousand square feet 3/8-inch thick
mmsf 3/8-inch basis = 1 million square feet 3/8-inch thick

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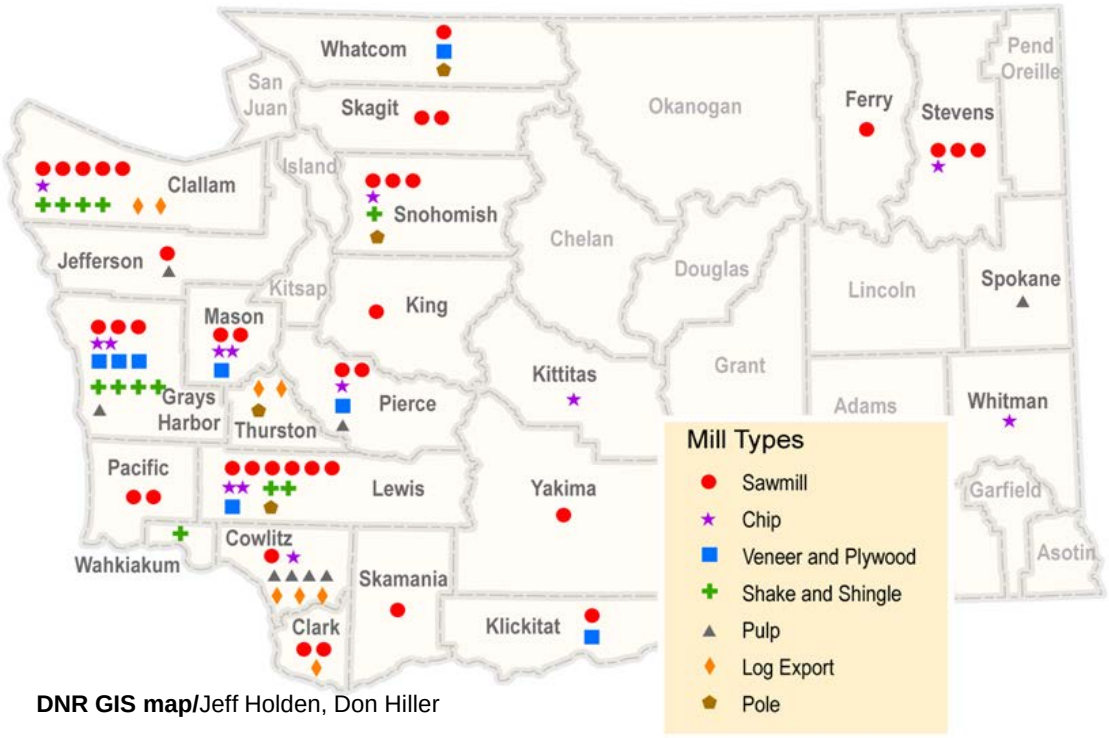
Wood Processing Mills by County



DNR GIS map/Jeff Holden, Don Hiller

County rank by timber volume used by state mills

Counties ranked by volume from where timber was harvested before delivery to Washington mills or export in 2012 (thousand board feet, Scribner Scale).

1	**Grays Harbor**	361,533	17	**Klickitat**	45,407
2	**Lewis**	322,480	18	**Wahkiakum**	44,010
3	**Clallam**	265,424	19	**Kitsap**	33,230
4	**Cowlitz**	223,141	20	**Skamania**	30,506
5	**Pacific**	161,711	21	**Ferry**	26,407
6	**Snohomish**	151,256	22	**Okanogan**	23,938
7	**Mason**	141,538	23	**Pend Oreille**	17,672
8	**Thurston**	140,391	24	**Spokane**	15,452
9	**Skagit**	120,770	25	**Chelan**	12,323
10	**Clark**	107,760	26	**Kittitas**	6,447
11	**Pierce**	89,316	27	**Island**	4,294
12	**Stevens**	87,140	28	**Columbia**	1,948
13	**Jefferson**	72,851	29	**Garfield**	658
14	**Whatcom**	70,806	30	**Lincoln**	518
15	**Yakima**	52,289	31	**Whitman**	132
16	**King**	50,560			

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Mill Survey Analysis

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Graph 1 **Production**

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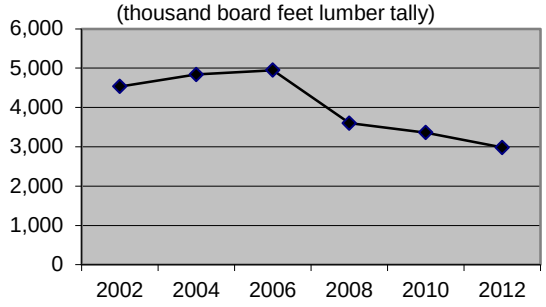
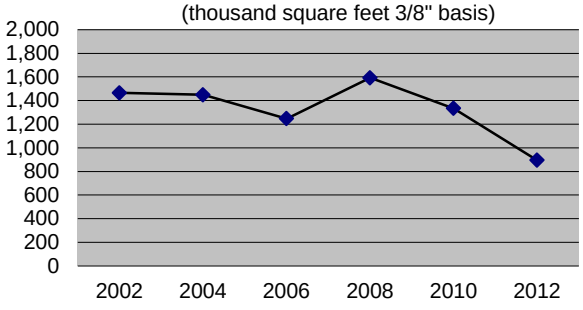
Charts 1a-f display total production by sectors. Lumber output from sawmills (1a). Total volume of logs processed by sawmills continued to drop between 2008 and 2012, tracing the continued effects of the troubled housing market and economy in general. Also declining dramatically was the shake and shingle sector (1d) which dropped two-thirds over the past decade. Pulp mills (1c) produced more pulp and paper products. Post, pole and piling mills (1e) sold more utility poles, following a trend that started in 2004. Log exports in 2012 had another banner year, topping a billion board feet of logs.

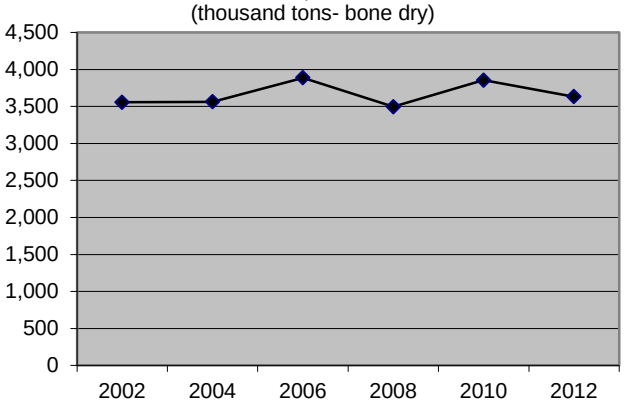
Sawmill
Graph 1a
(thousand board feet lumber tally)



Veneer & Plywood
Graph 1b
(thousand square feet 3/8" basis)

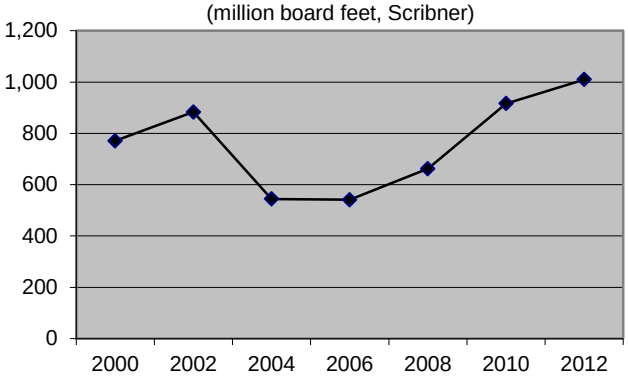


Pulp
Graph 1c
(thousand tons- bone dry)

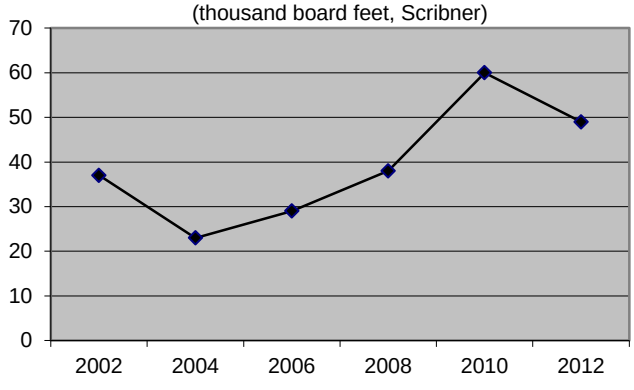


Shake & Shingle
Graph 1d
(squares)

Log Export
Graph 1f
(million board feet, Scribner)



Post, Pole & Piling Production
Graph 1e
(thousand board feet, Scribner)



Graph 2 **Number of operations**

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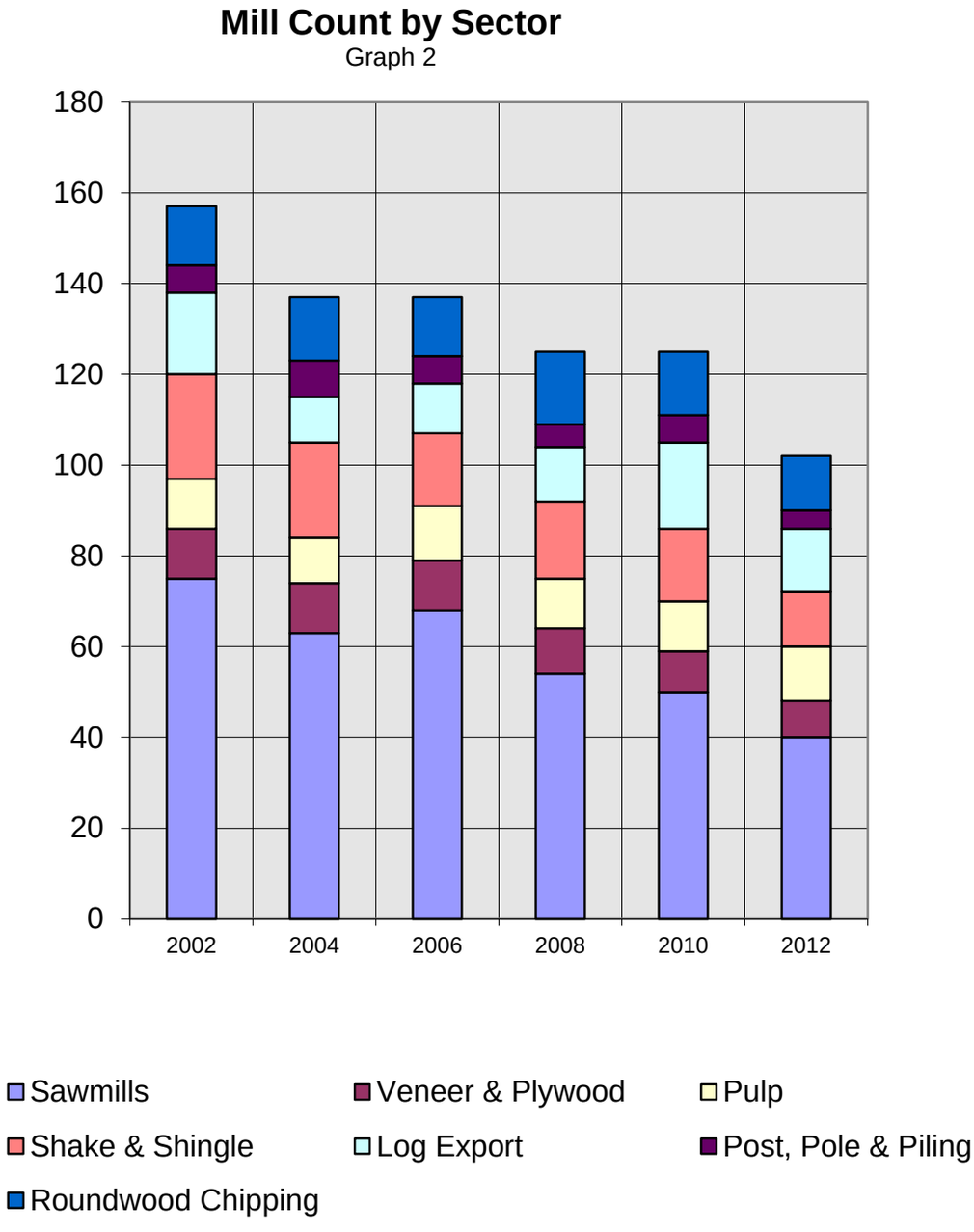
This graph shows the total number of operations in the primary forest products industry in Washington by sector (mills and log export businesses). Throughout this period mills in all sectors closed, declining from more than 150 in 2002 to 105 in 2012. In some sectors, many small mills were replaced by a few large and high-tech operations. An exception was the log export sector, where the number of established export log brokers and forest owners remained roughly the same. High prices paid by China encouraged a few dozen additional large and small forest owners (who were not included in this tally) to ship more than 8,214 containers of logs from the Port of Seattle.



Graph 3 **Log consumption by sector**

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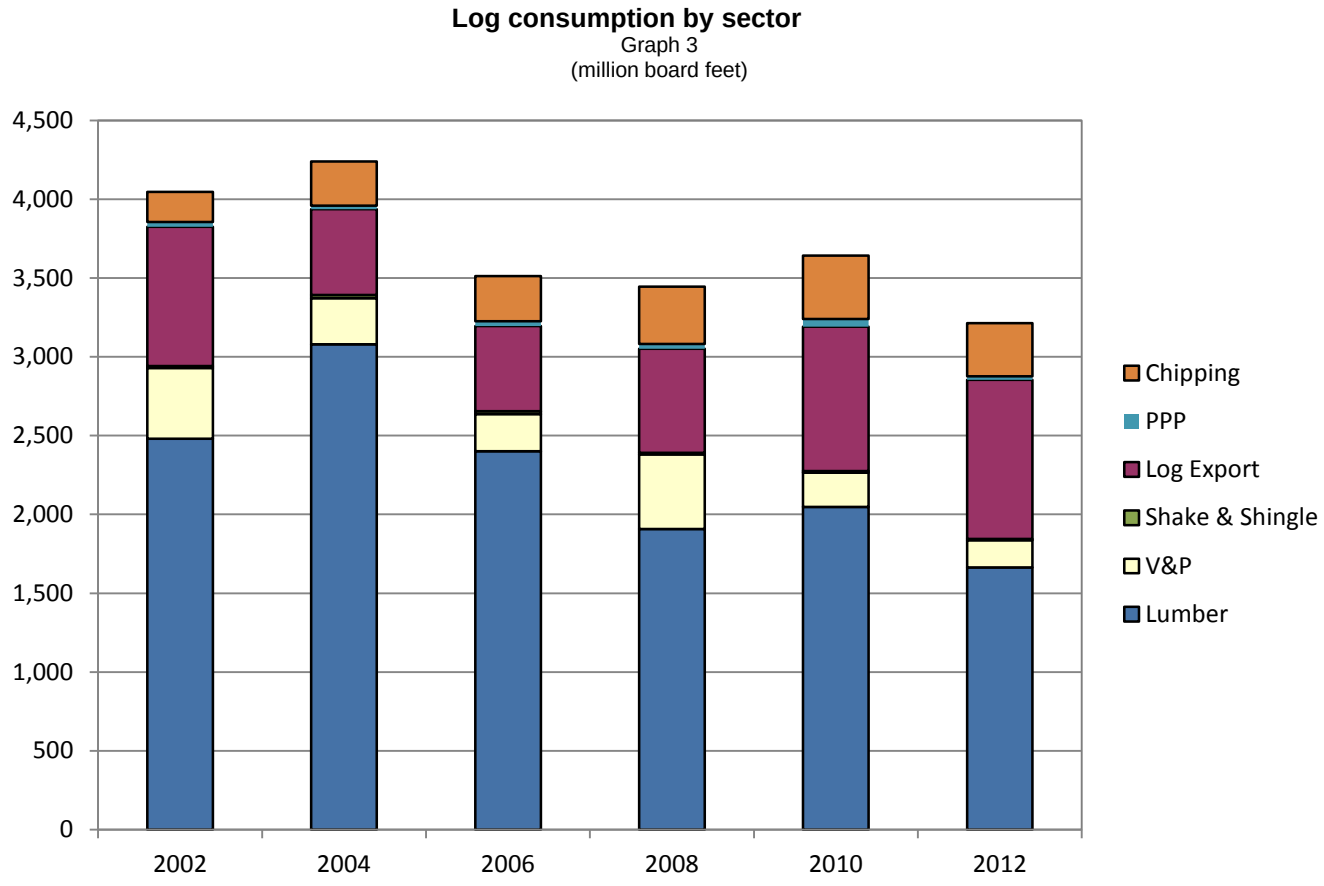
Total log consumption of Washington's primary wood product mills declined 16.5 percent in the past 10 years during the largest boom and largest recession in half a century. With the moderate recovery of the housing industry in the past three years, sawmill declines leveled, and veneer and plywood operations lost the struggle against particle board competition. Small shake mills have shown no signs of prosperity in the past decades. Pulp mills are holding their own with fluctuations for 10 years. Only two sectors have been picking up speed: telephone pole mills and log export operations continue to expand.



Graph 4 **Log consumption by log size and sector**

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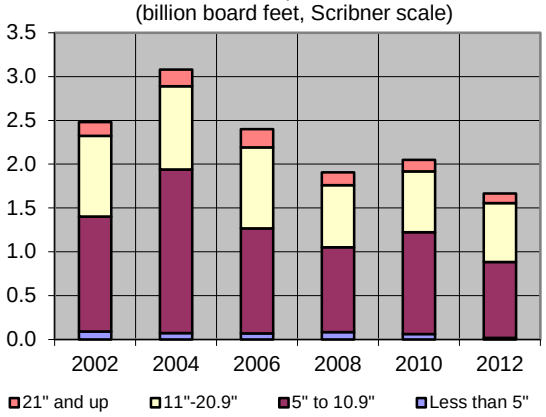
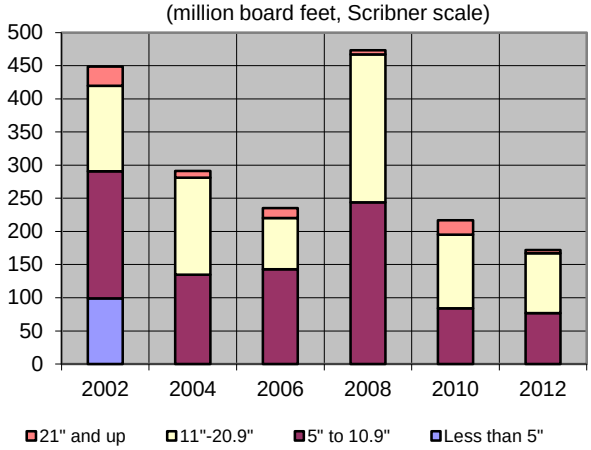
Tables 4a-f display log consumption by log size, except 4c which displays log consumption by type. Nearly all wood delivered to shake mills is gathered as bolts, sections of logs or the remains of salvaging operations. Post-pole-piling mills are selective in their log-size preferences where chip mills most any fiber they can find. In 2012 the log export market (primarily to China) focused on logs 10-inches to 21-inches in diameter.

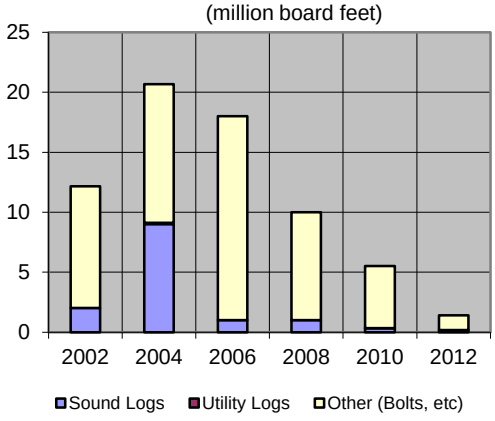
Sawmills
Graph 4a
(billion board feet, Scribner scale)



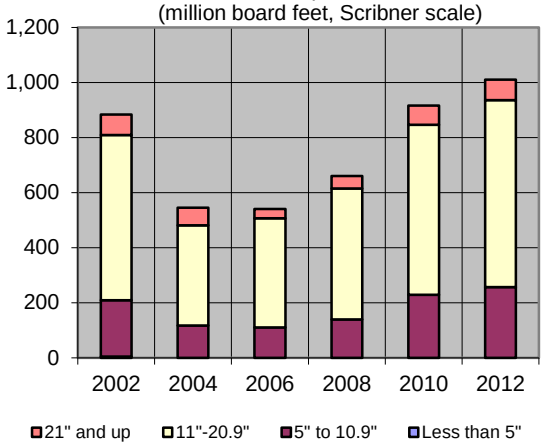
Veneer & Plywood
Graph 4b
(million board feet, Scribner scale)



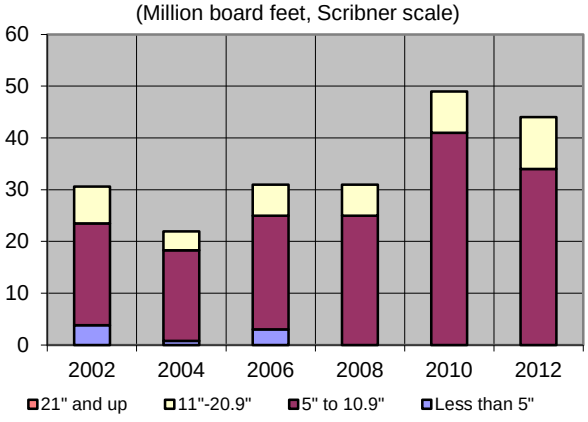
Shake & Shingle
Graph 4c
(million board feet)



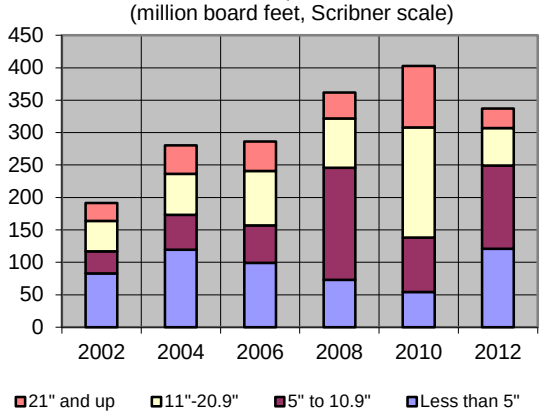
Log Export
Graph 4d
(million board feet, Scribner scale)



Post, Pole, Pilings
Graph 4e
(Million board feet, Scribner scale)



Roundwood Chipping
Graph 4f
(million board feet, Scribner scale)



Graph 5 **Tree species**

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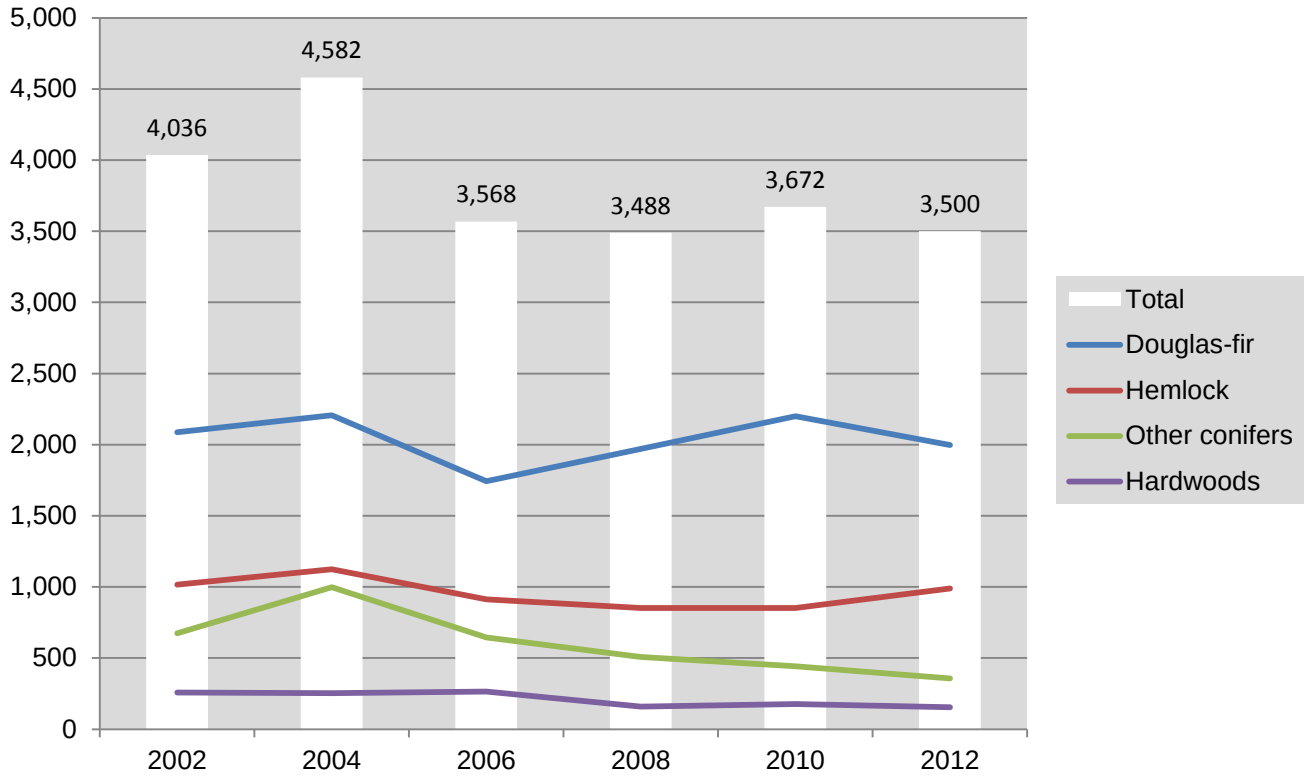
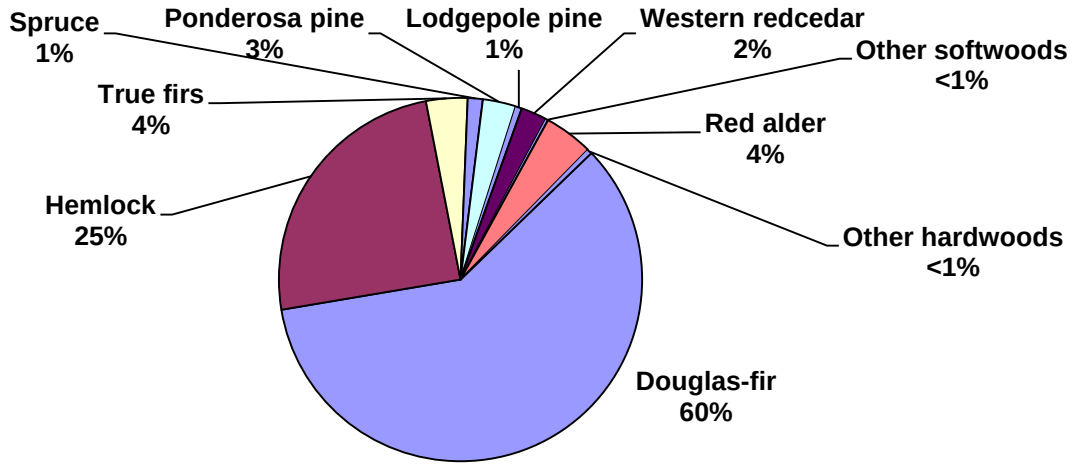
Douglas-fir has always been the dominant species for most of Washington's wood products industries. In 2012 this prized species made up 60% of the consumed timber (Graph 5a), followed by hemlock with 25%. For the past 10 years species' proportions were fairly consistent. Other species have their niche markets. Red alder and other hardwoods account for less than 5% of Washington's total wood production but are popular species for furniture and machined wood products.

Tree species
Graph 5a



Log consumption by Species - 2012
Graph 5b



Graph 6 **Log sources**

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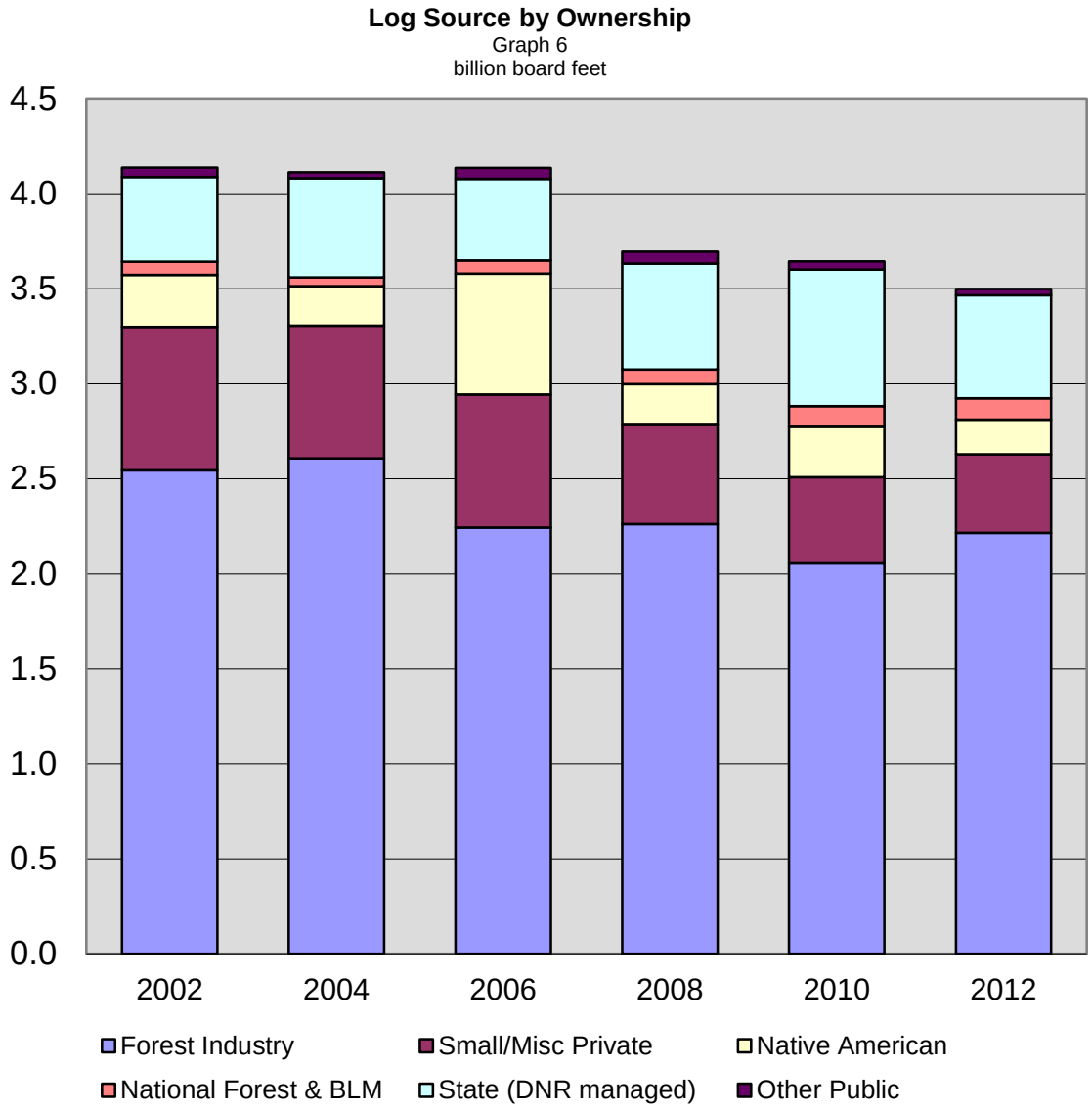
Log source by ownership is a separate tally from "all trees harvested," because some timber harvested in-state is exported out-of-state for milling. Graph 6 shows that private timberlands (forest industry and small private landowners) continue to provide the bulk of logs for the primary forest products industry. However, DNR is a significant source of logs, up from 11 percent in 2000 to 18 percent in 2012.



Graph 7 **Wood residues**

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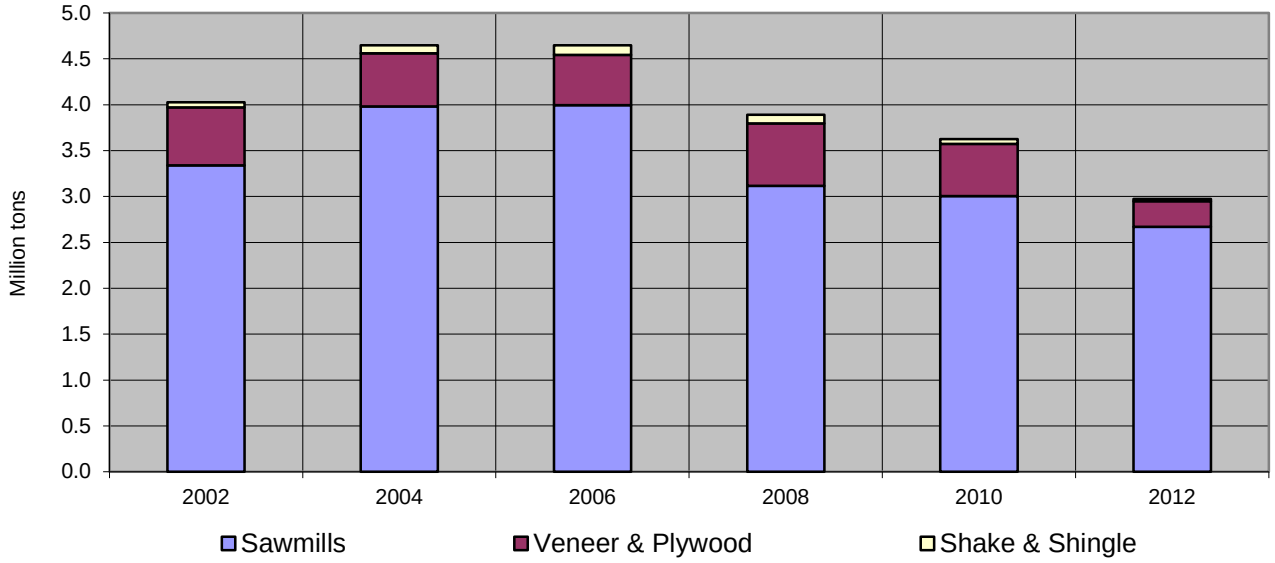
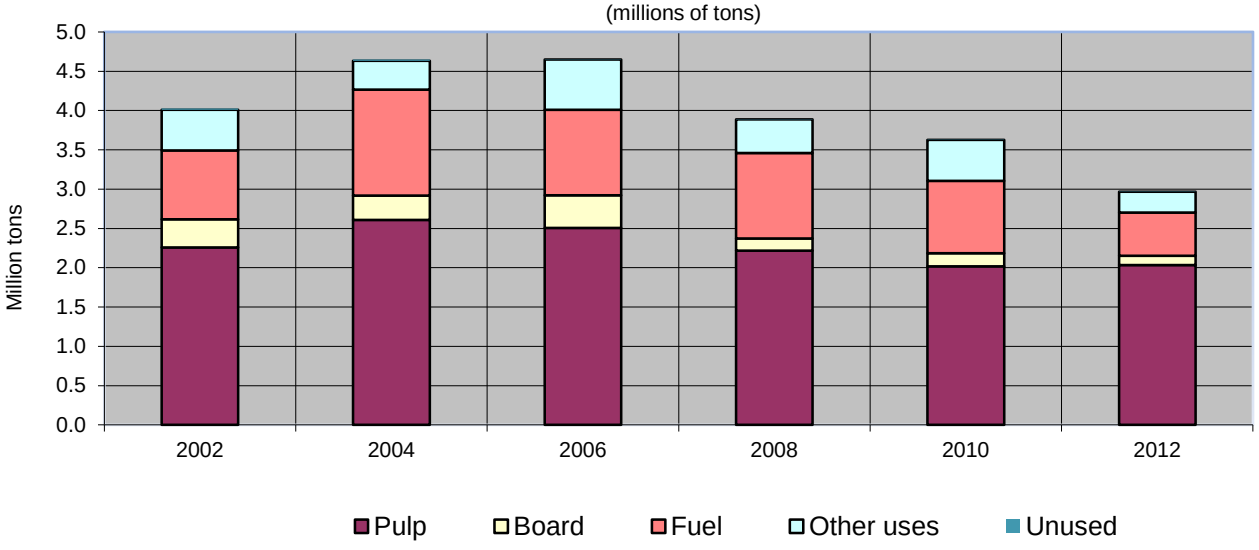
Graphs 7a-b display the production and use of wood residues, a product that has grown in importance since the advent of biomass and wood pellets. Currently, sawmills (not plywood and shake mills) produce about 90% of all residues. Innovation is reconfiguring the old economic system and improving the efficiency of sawmills. However, pulp mills are losing sawmill residue as a major feedstock. In the past few years pulp mills have become more reliant on chip mills for fiber. See Graph 15 for further discussion and information.

Production of Wood Residue (not bark)
Graph 7a
(millions of tons)



Use of Wood Residue (not bark)
Graph 7b
(millions of tons)



Graph 8 **Efficiency**

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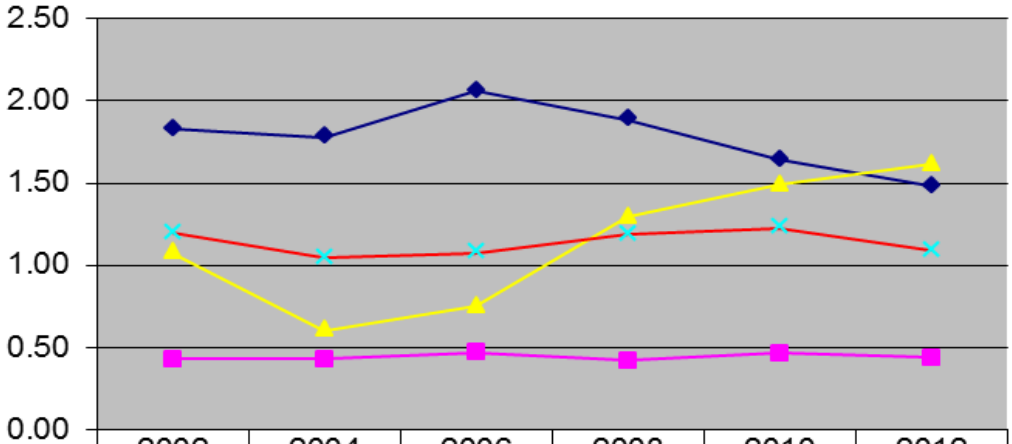
Efficiency is the volume of wood products divided by the volume of logs consumed. Pulp and Post-pole and piling sectors remained at similar levels throughout the past 10 years. According to previous mill surveys, lumber mills consumed far more logs before 2006. However, lumber production totals varied little. The change in the ratio suggests that during the recession, lumber mills improved efficiency, which explains the dramatic drop in log consumption even while production totals dropped at a slower rate. No new shake mills opened but average producitivity rose, meaning that the remaining mills were more efficient.



	2002	2004	2006	2008	2010	2012
Sawmills	1.83	1.78	2.06	1.89	1.64	1.48
Pulp	0.43	0.43	0.47	0.42	0.47	0.44
Shake and Shingle	1.08	0.60	0.75	1.29	1.49	1.62
Post, Pole & Piling	1.19	1.05	1.07	1.19	1.22	1.09

Graph 9 **Sawmills**

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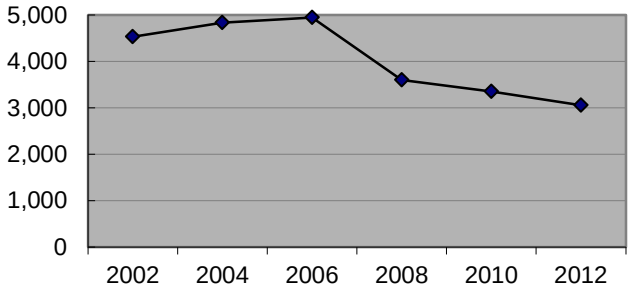
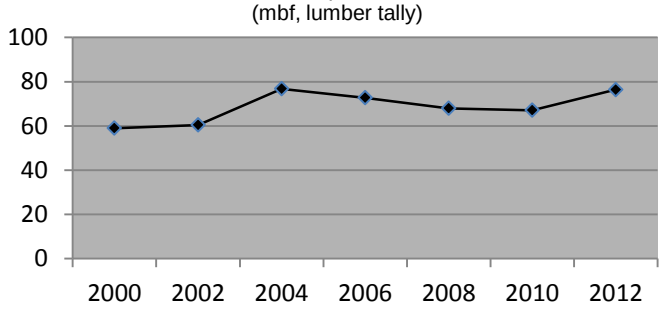
Total sawmill production (9a) decreased from 4.5 billion board feet in 2002 to 3.2 billion board feet in 2012. However, productivity per mill improved. These statistics underscore the fact fewer new mills have replaced closed mills and that the remaining mills are larger and more efficient (9e). The average lumber production per mill has increased by a third, from 57.2 million board feet to 76.4 million board feet,

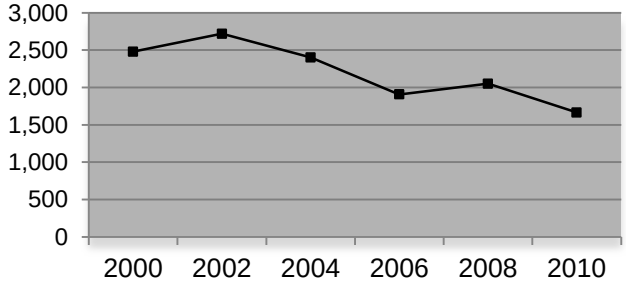
Total Annual Sawmills' Production
Graph 9a
(mbf, lumber tally)



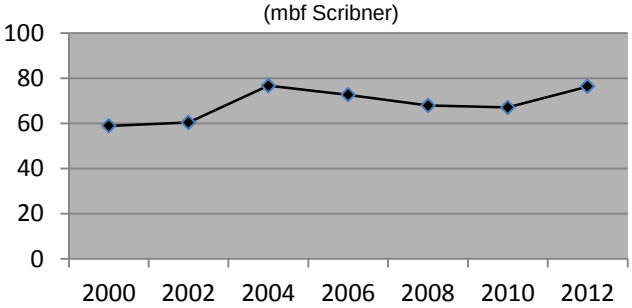
Average Production per Mill
Graph 9d
(mbf, lumber tally)



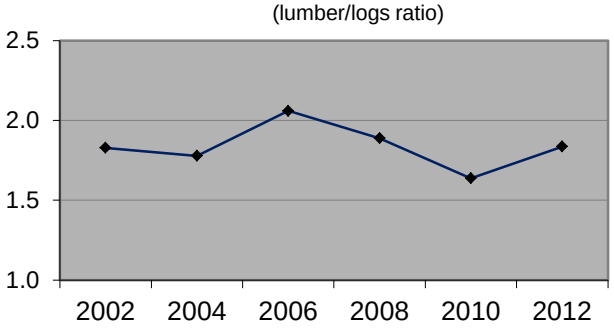
Total Log Consumption
Graph 9c
(mbf Scribner scale)



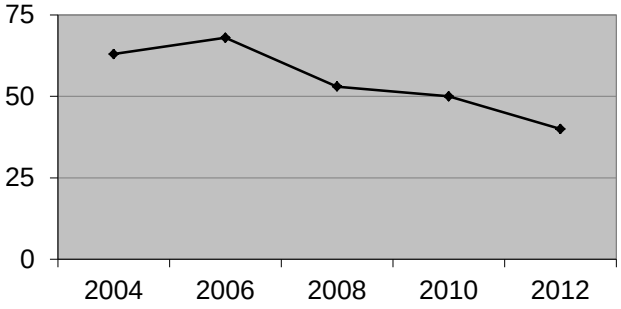
Average Production per Mill
Graph 9c
(mbf Scribner)



Productivity of Sawmills
Graph 9e
(lumber/logs ratio)



Number of sawmills
Graph 9f



Graph 10 **Veneer and plywood mills**

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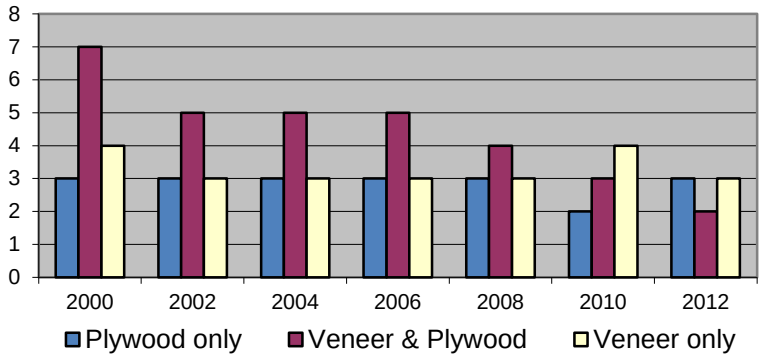
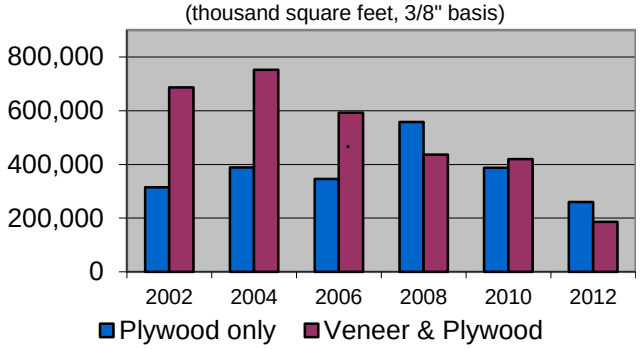
Over the past 12 years much of the state's plywood industry separated into veneer-only and plywood-only operations. The economic disruption halted much production. Since then, the mill activity has been returning to pre-recession levels. For the most part, plywood and veneer operations are no longer combined. Softwood plywood has lost market share to oriented strand board (OSB or particle board) and is moving toward a niche market that uses hardwood veneer. As the market transformed, plywood mills sought other opportunities in sanded, textured, siding, and overlay products. In Washington, the production capacity of each plywood-only mill rocketed from just over 200,000 square feet to more than 350,000 square feet per day. Veneer, on the other hand, sees a bright future with another partner: engineered wood is a range of derivative wood products made of particles, fiber, or veneer bonded with adhesives. Some veneer plants already devote most of their production to engineered wood.

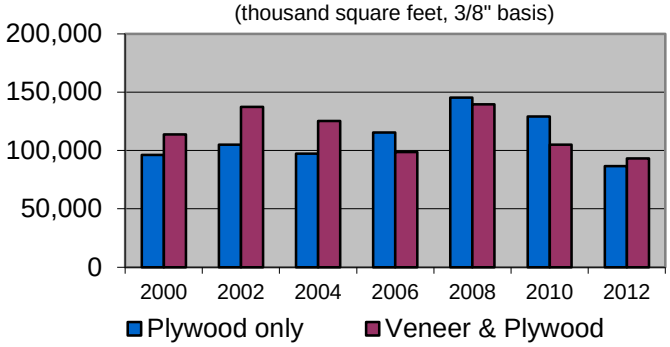
Numbers of Plywood and Veneer Mills
Graph 10a



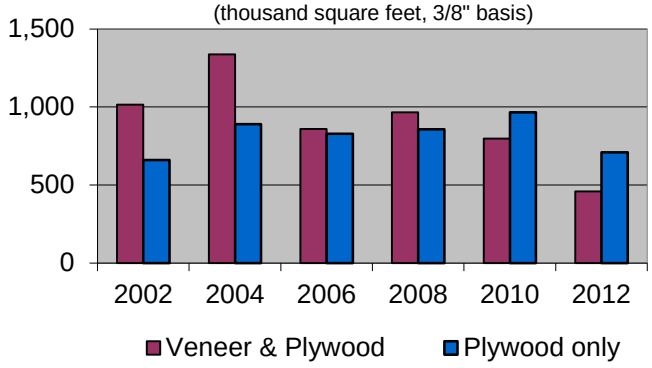
Total Plywood Production
Graph 10b
(thousand square feet, 3/8" basis)



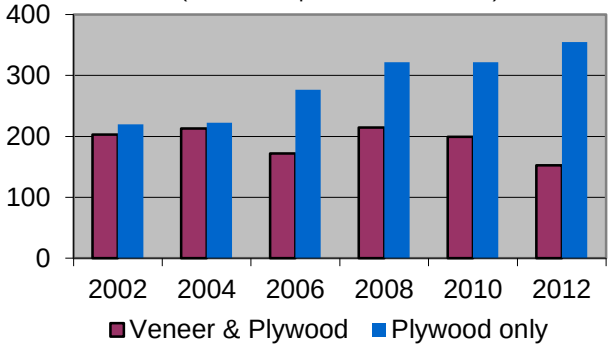
Average Plywood Production per Mill
Graph 10c
(thousand square feet, 3/8" basis)



Total Annual Plywood Capacity
Graph 10d
(thousand square feet, 3/8" basis)



Average Plywood Capacity per Mill
Graph 10e
(thousand square feet, 3/8" basis)



Veneer and plywood mills continued

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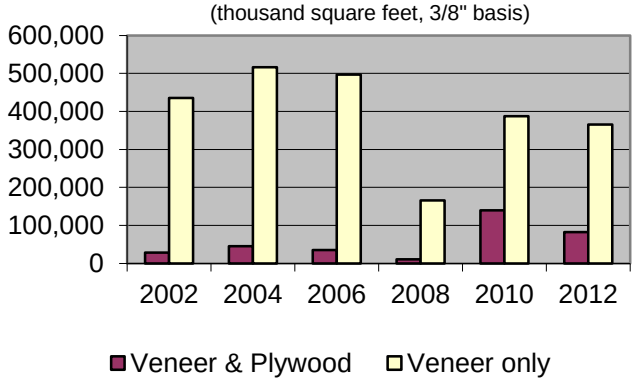
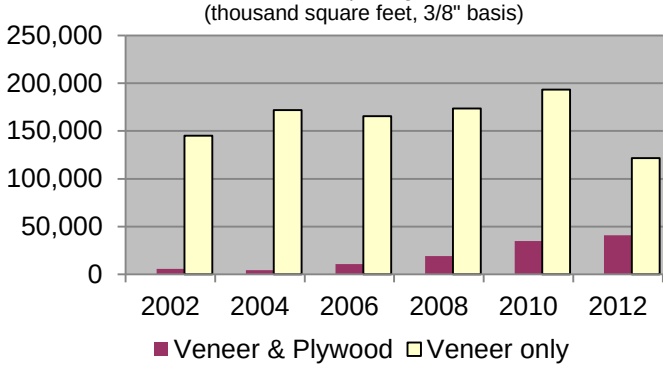
Total veneer production
Graph 10f
(thousand square feet, 3/8" basis)

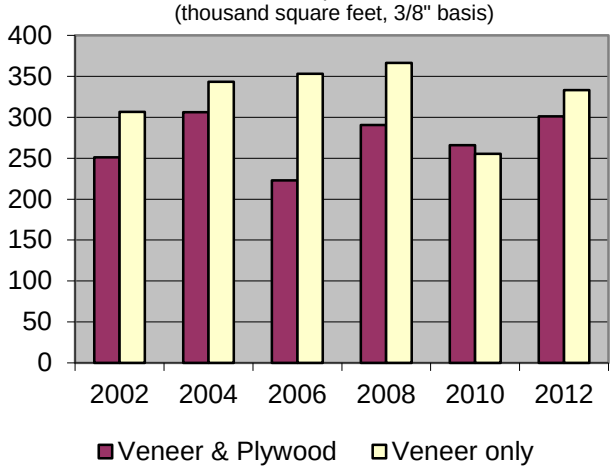


Avg. Annual Veneer Production per Mill
Graph 10g
(thousand square feet, 3/8" basis)

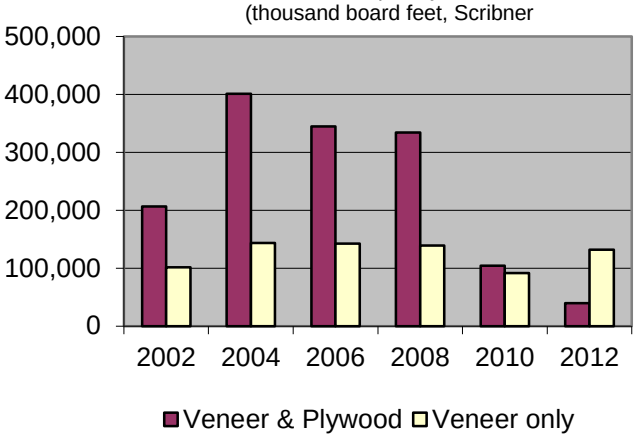


Total Daily Veneer Capacity
Graph 10h
(thousand square feet, 3/8" basis)

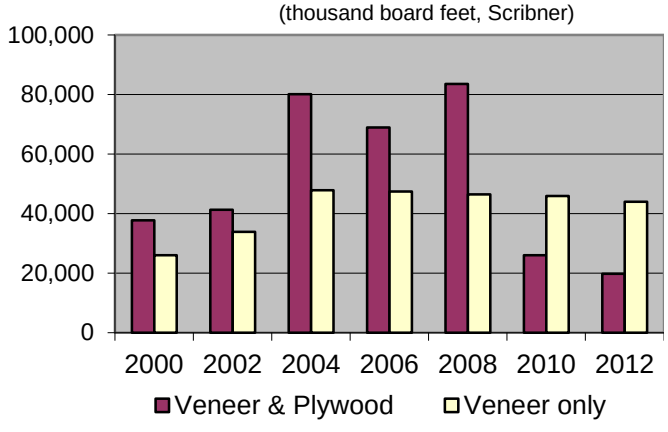
Average Daily Veneer capacity per Mill
Graph 10i
(thousand square feet, 3/8" basis)



Total Annual Log Consumption
Graph 10j
(thousand board feet, Scribner



Average Log Consumption per Mill
Graph 10k
(thousand board feet, Scribner)



Graph 11 **Pulp mills**

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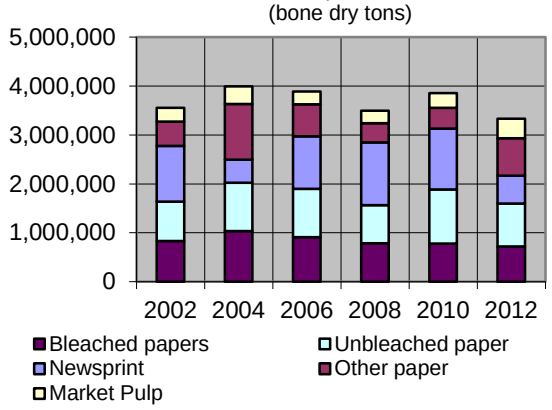
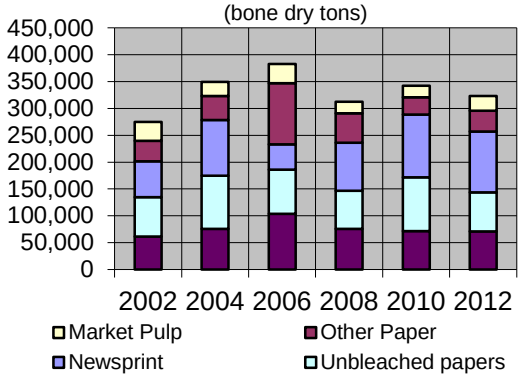
Even though pulp mills gross more revenue than all other Washington primary wood sectors combined, it has enjoyed only a few moments of peaceful prosperity without struggle. Pulp mills were among the first industries required to spend billions to comply with clean air and water legislation. Currently, they compete with biofuels and other green industries for supplies of mill residues that are declining as sawmills are upgraded and more efficient. Global pulp mill investments in China and Europe are adding high-tech competiton. To offset its status as the the fifth largest consumer of energy, the pulp industry has installed large power generators that contribute surplus power to local power grids. And finally, all mills are searching for new product opportunities as old markets dry up.

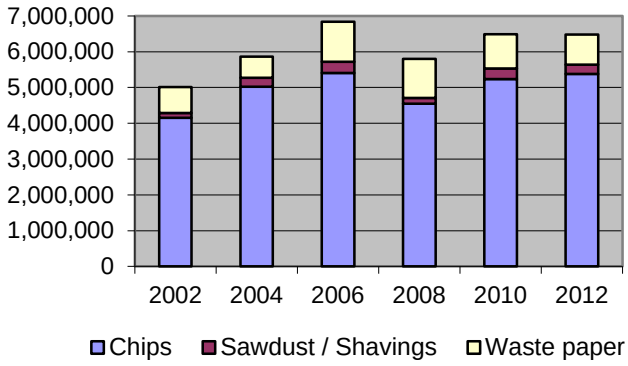
Total Production of Pulp Mills
Graph 11a
(bone dry tons)



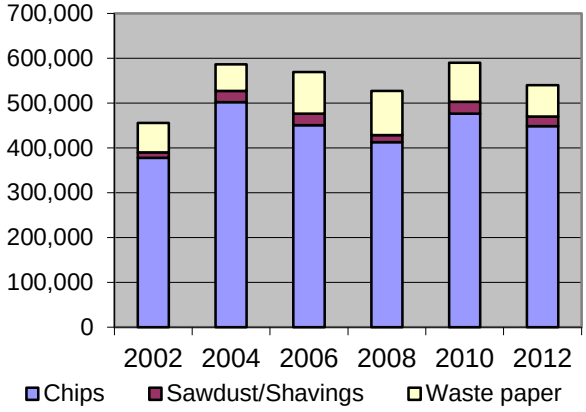
Average Production per Pulp Mill
Graph 11b
(bone dry tons)



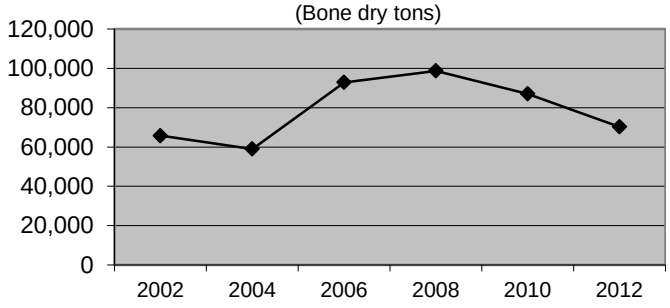
Total Consumption
Graph 11c
(bone dry tons)



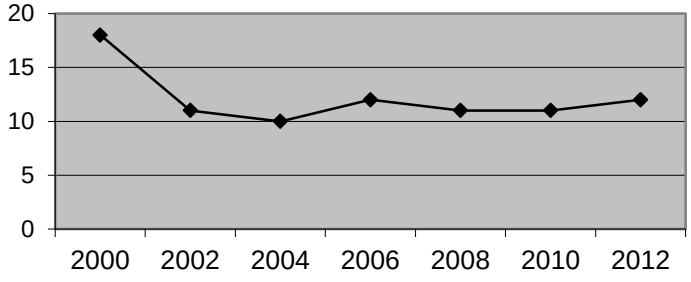
Avg. Consumption per Pulp Mill
Graph 11d



Avg. Waste Paper Consumption per Mill
11e
(Bone dry tons)



Number of Pulp Mills
11f



Graph 12 **Shake & shingle mills**

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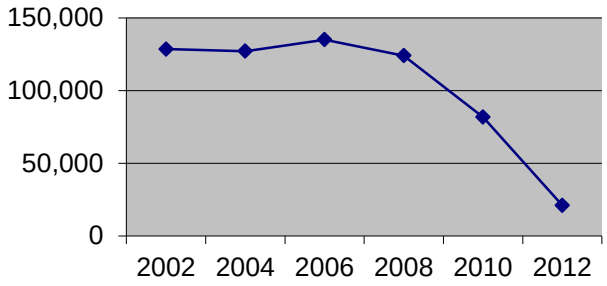
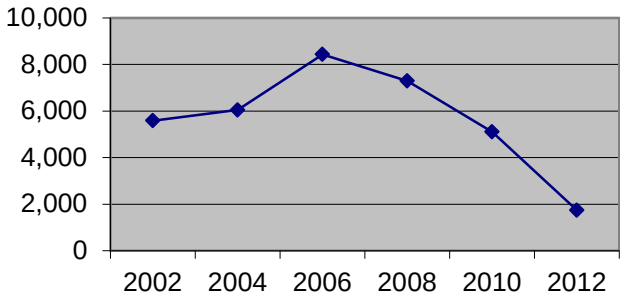
The statistics for shake & shingle mills mark the ongoing decline in numbers of mills and total production. In the last 10 years half the mills closed. Production has dropped from 130,000 squares of shakes, shingles and other cedar products in 2006 to 20,000 in 2012.

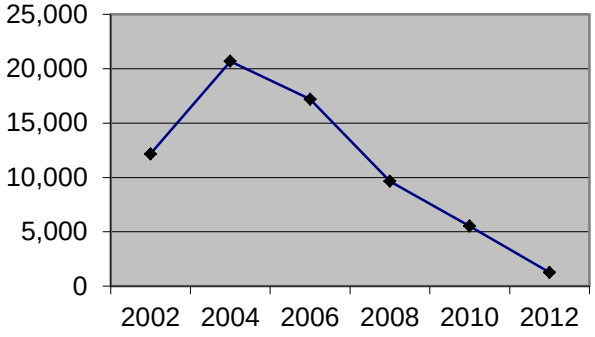
Total Production Shakes, Shingles, etc.
(squares)



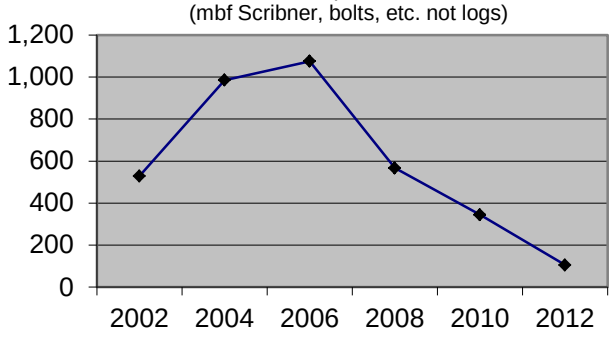
Average Production per Mill
Graph 12b
(squares)



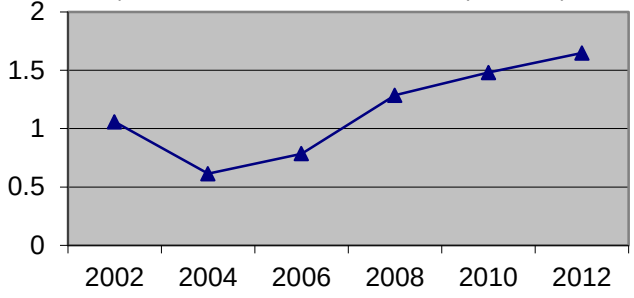
Total wood consumed
Graph 12c
(mbf Scribner scale, bolts etc. not logs)



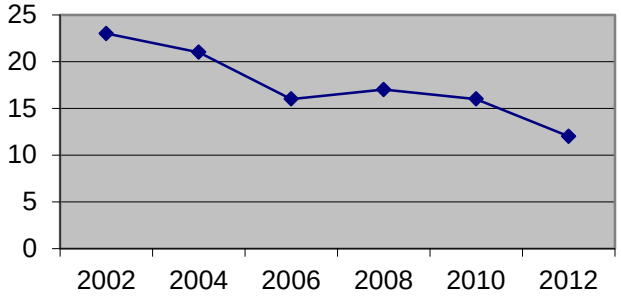
Average wood consumed per mill
Graph 12d
(mbf Scribner, bolts, etc. not logs)



Productivity
Graph 12e
(ratio of wood consumed and lumber produced)



Number of Shake and Shingle Mills
Graph 12f



Graph 13 **Log export operations**

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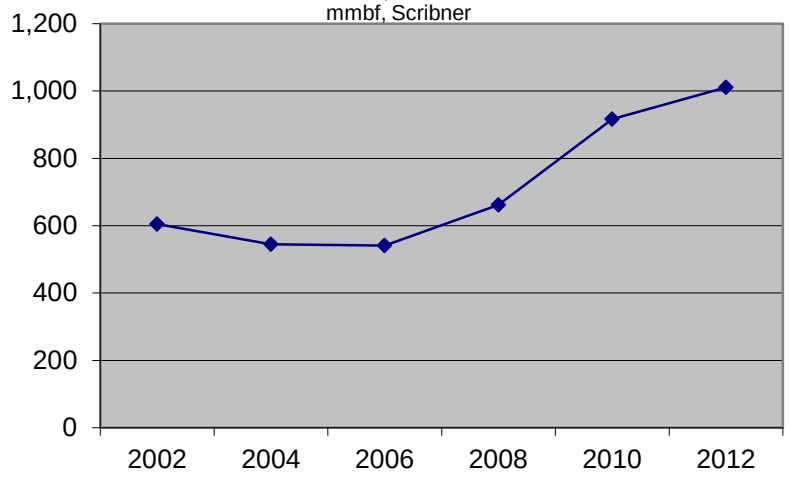
In 2012, log export business continued to grow after the China-led renewal in 2010. For the first time since the mid 90s, the log export volume in 2012 rose above one billion board feet, two years in a row, according to industry reports. In Washington, only the lumber sector used more logs than log exports. The Port of Seattle, with no facilities for bulk logships, recorded more than 81 million board feet of logs shipped in containers. The port's log exporters included dozens of forest landowners who rushed to harvest trees for the high export prices. According to port records, the logs were shipped primarily to China with a rising volume targeted for Japan.

Total volume of Export logs

Graph 13a

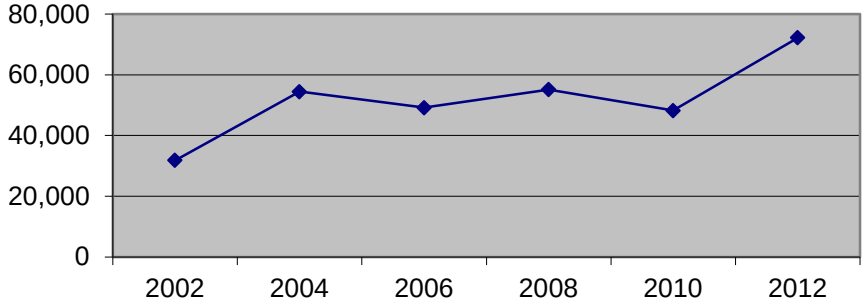
mmbf, Scribner



Average Volume per Log Export Operation*

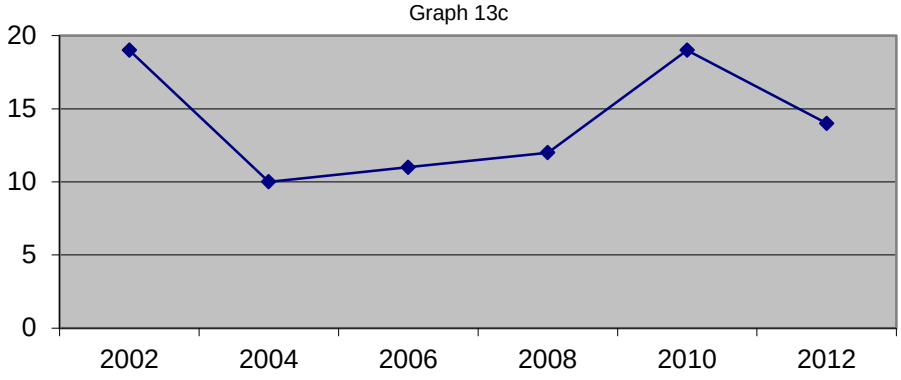
Graph 13b

(mmbf, Scribner scale)



Number of Log Export Operations*

Graph 13c



* Does not include 60 exporters who shipped 81 mmbf of logs in containers

Graph 14 **Post, pole, and piling mills**

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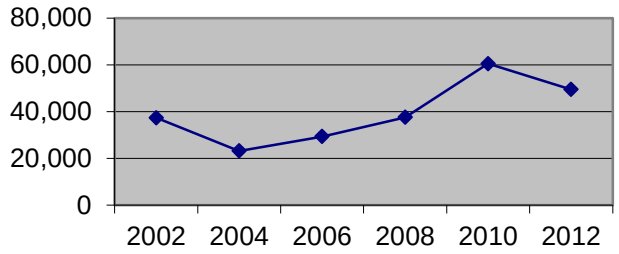
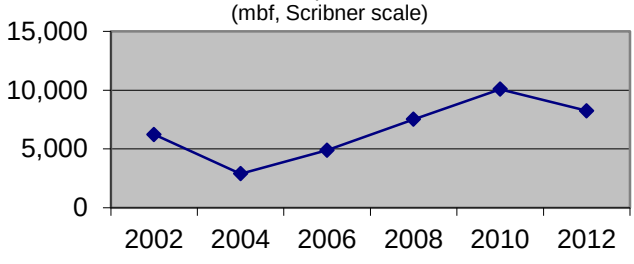
Telephone and utility poles continued their recovery from the recession. Industry reports observe local governments and public utilities budgeting for long overdue infrastructure upgrades, putting log poles on the fast track. Good telephone and utility poles are usually made from Douglas-fir and western redcedar timber. They must be straight, free of defects and have a sufficient amount of taper. In the last few decades, some companies manufactured laminated poles. More expensive than traditional single-tree poles, laminated poles are made of planks glued together in staggered order. The result is a utility pole taller than an old growth pole with strength comparable to the much more expensive steel poles. (See page 18.)

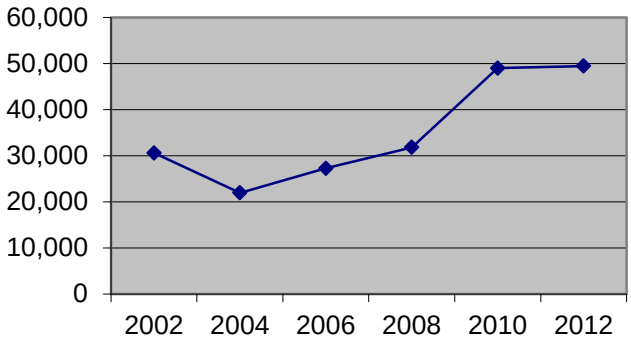
Total Production
Graph 14a
(mbf, Scribner scale)



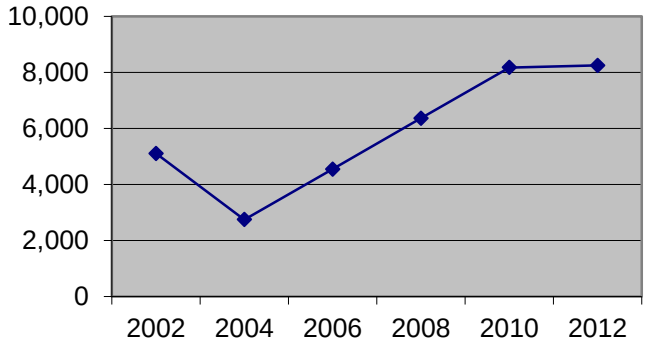
Average Production per Mill
Graph 14b
(mbf, Scribner scale)



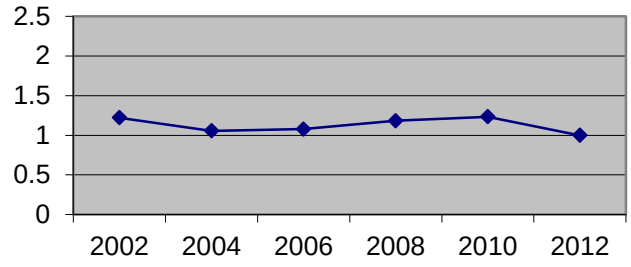
Total Log Consumption
Graph 14c
(mbf, Scribner scale)



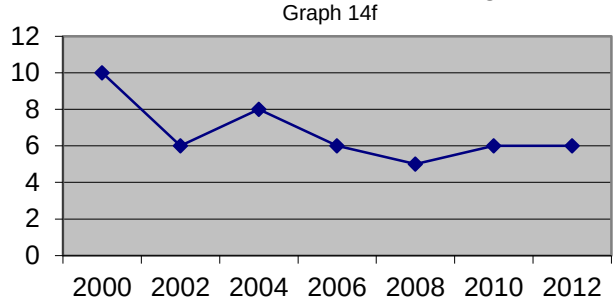
Average Log Consumption per Mill
Graph 14d
(mbf, Scribner scale)



PPP Productivity
Graph 14e
(volume ratios of finished poles to logs)



Number of Post, Pole and Piling Mills
Graph 14f



Graph 15 **Chipping mills**

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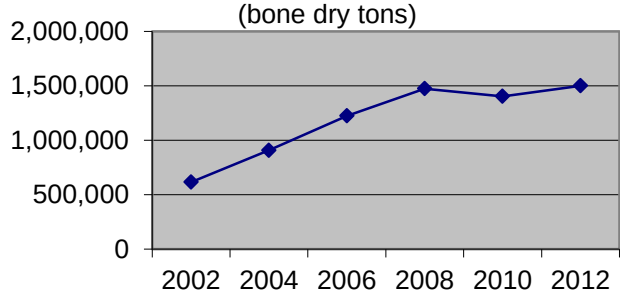
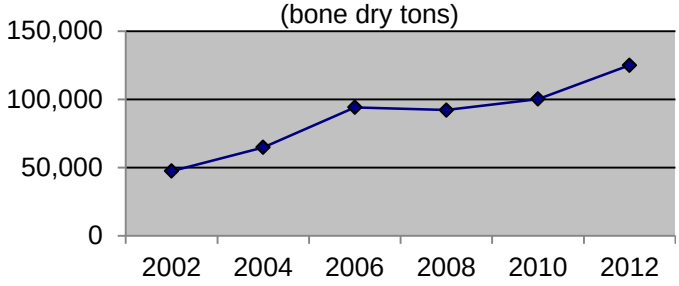
The chip mill sector was not as affected by the recession. In 2002 chip mills consumed 191 mbf of timber. In 2012, they consumed 355 mbf, a trajectory that barely wavered during the recession. Chipping mills grind logs into chips which are most often sold to pulp mills. As lumber mills were re-tooled with more efficient equipment that produced less residue. Chip mills increased chip production such that by 2012 roundwood chips accounted for 40% of the total wood fiber consumed by pulp mills. (Note: Preliminary data on lumber production indicate that in 2013 sawmills produced more lumber than they had in several years. This could mean that even more efficient sawmills are producing more residues for pulp mills, threatening to out-compete chip mill production.)

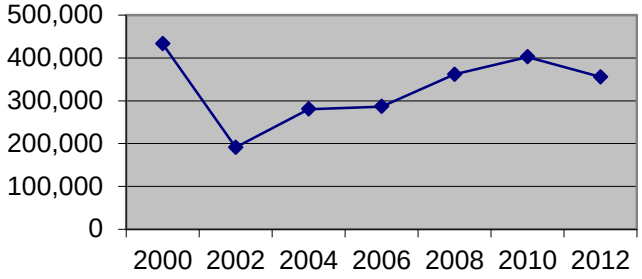
Total Production
Graph 15a
(bone dry tons)



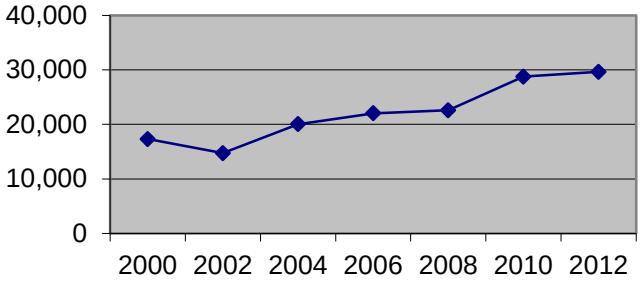
Average Production
Graph 15b
(bone dry tons)



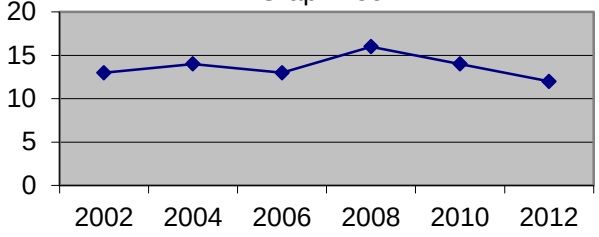
Total Log Consumption
Graph 15c
(mbf, Scribner scale)



Average Log Consumption
Graph 15d
(mbf, Scribner scale)



Number of Chipping Mills
Graph 15e



Rectangle is the new round

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Laminated wood poles compete favorably with steel

In today's world nothing escapes technological improvement, even the stalwart neighborhood telephone pole. Single-tree poles were overwhelmed by the emergence of bulky power and multi-media wire cables. Only steel 'utility poles' could handle the weight and long distance strength that these cables required, especially on corners.

After years of being relegated to block-to-block service, wood poles returned with a laminated design and a new rectangular look. Instead of relying on the natural girth of a tree, laminated poles are made of successively glued planks to increase diameter for strength and length. Laminated wood is also a popular option in flooring and exposed beams.

Dennis Olsen with Stella Jones Inc., a Canadian-based firm that recently purchased three pole mills in Washington, answered a series of questions about the use and benefits of laminated poles:

When were laminated poles first used? In the early '80s.

What are the benefits? The ability to build extremely strong structures, durability, flexibility and aesthetics.

What are the costs? Higher than round wood, but competitive with steel.

Is there a manufacturing advantage to using several pieces of wood instead of one long perfect pole? You can make a laminated pole stronger than a natural round pole will grow.

Are laminated poles expected to compete with single piece utility poles? Yes, but the niche is really heavy load structures which mean they typically compete with steel.

Besides other wood-based poles, how do laminated poles compete with steel or

Photo by Stella Jones. Inc.

How do laminated poles rank in the list of materials used for making utility poles? It's a niche product. It's used throughout North America but less than 5 percent of all structures.

How many have you sold in Washington? There are hundreds if not thousands in use in Washington State.

Do they satisfy certain needs that traditional poles don't? (Laminated poles are) unguyed (not supported by ground lines) structures and can be used where load is heavier than round wood poles can support.

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Statewide Mills Summary

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2002-2012

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Table 1 shows the number of operations by sector and the counties in which the mills operated in 2012.

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Table 1 **Number of operations – by county and industry**

(mills and export businesses)

Economic area and county	All industries	Industry: Lumber	Veneer and plywood	Pulp	Shake and shingle	Log export	Post, pole, and piling	Roundwood chipping
Puget Sound								
King	2	1	0	0	0	1	0	0
Pierce	7	3	1	2	0	0	0	1
Skagit	2	2	0	0	0	0	0	0
Snohomish	9	3	0	0	1	3	1	1
Whatcom	3	1	1	0	0	0	1	0
Total	**23**	**10**	**2**	**2**	**1**	**4**	**2**	**2**
Olympic Peninsula								
Clallam	15	6	0	1	4	3	0	1
Grays Harbor	14	3	3	1	4	1	0	2
Jefferson	2	1	0	1	0	0	0	0
Lewis	13	7	1	0	2	0	2	1
Mason	6	2	1	0	0	0	1	2
Pacific	2	2	0	0	0	0	0	0
Thurston	3	0	0	0	0	2	1	0
Total	**55**	**21**	**5**	**3**	**10**	**6**	**4**	**6**
Lower Columbia								
Clark	4	2	0	1	0	1	0	0
Cowlitz	9	1	0	4	0	3	0	1
Klickitat	2	1	1	0	0	0	0	0
Skamania	1	1	0	0	0	0	0	0
Wahkiakum	1	0	0	0	1	0	0	0
Total	**17**	**5**	**1**	**5**	**1**	**4**	**0**	**1**
Central Washington								
Kittitas	1	0	0	0	0	0	0	1
Yakima	1	1	1	1	1	1	1	1
Total	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**1**
Inland Empire								
Ferry	1	1	0	0	0	0	0	0
Spokane	1	0	0	1	0	0	0	0
Stevens	4	3	0	0	0	0	0	1
Walla Walla	1	0	0	1	0	0	0	0
Whitman	1	0	0	0	0	0	0	1
Total	**8**	**4**	**0**	**2**	**0**	**0**	**0**	**2**
State total	**105**	**41**	**8**	**12**	**12**	**14**	**6**	**12**

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Table 2 shows the total volume of logs and lumber residues used by all wood product mills. In 2012 mills produced 6.47 million bone dry tons of mill residues, which was used almost exclusively by pulp mlls.

Table 2 **Log (logs and residues) consumption – by industry**

(thousand board feet, Scribner)

Economic area	All roundwood	Sound logs	Utility logs	Other	Residue (bone dry tons)
Puget Sound					
Lumber	459,740	453,473	6,267	0	0
Log export	122,253	122,253	0	0	0
Others	82,164	81,734	430	15	698,878
Total	**664,157**	**657,460**	**6,697**	**15**	**698,878**
Olympic Peninsula					
Lumber	871,543	833,774	37,769	8,571	0
Veneer & plywood	111,017	107,585	3,432	0	0
Shake & shingle	244	184	60	684	0
Log export	219,309	219,309	0	0	0
Post, pole & piling	35,218	35,218	0	0	0
Roundwood chipping	130,863	124,463	6,400	0	0
Others	31	0	31	0	1,143,836
Total	**1,368,225**	**1,320,533**	**47,692**	**9,255**	**1,143,836**
Lower Columbia					
Lumber	238,363	238,363	0	0	0
Pulp & board	0	0	0	0	3,749,013
Log export	669,359	669,359	0	0	0
Others	134,443	134,443	0	322	0
Total	**1,042,165**	**1,042,165**	**0**	**322**	**3,749,013**
Central Washington	57,178	57,178	0	0	0
Inland Empire					
Lumber	146,486	130,209	16,277	0	0
Others	52,666	5,267	47,399	0	878,550
Total	**199,152**	**135,476**	**63,676**	**0**	**878,550**
State total					
Veneer & plywood	171,505	167,643	3,862	0	0
Log export	1,010,921	1,010,921	0	0	0
Lumber	1,764,452	1,704,139	60,313	8,571	0
Post, pole & piling	44,582	44,582	0	0	0
Pulp & board	31	0	31	0	6,470,277
Roundwood chipping	339,142	285,343	53,799	0	0
Shake & shingle	244	184	60	1,021	0
Total	**3,330,877**	**3,212,812**	**118,065**	**9,592**	**6,470,277**

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Table 3 shows the total volume of logs consumed by each sector and the states where they were harvested. A third of the billion board feet of timber exported through Washington state ports was harvested in Oregon.

Table 3 **Log consumption – by industry and state of origin**

(thousand board feet, Scribner)

Economic area	All sources	Washington	Oregon	Idaho	Montana	British Columbia	Other state
Puget Sound							
Lumber	459,740	432,186	0	0	0	27,554	0
Log export	122,253	122,253	0	0	0	0	0
Others	82,164	81,604	560	0	0	0	0
Total	**664,157**	**636,043**	**560**	**0**	**0**	**27,554**	**0**
Olympic Peninsula							
Lumber	871,543	797,556	25,996	0	0	44,791	3,200
Veneer & plywood	111,017	109,923	1,094	0	0	0	0
Shake & shingle	244	244	0	0	0	0	0
Log export	219,309	216,899	2,411	0	0	0	0
Post, pole & piling	35,218	33,925	1,293	0	0	0	0
Roundwood chipping	130,863	130,863	0	0	0	0	0
Others	31	31	0	0	0	0	0
Total	**1,368,225**	**1,289,440**	**30,794**	**0**	**0**	**44,791**	**3,200**
Lower Columbia							
Lumber	238,363	202,225	36,138	0	0	0	0
Pulp & board	0	0	0	0	0	0	0
Log export	669,359	328,820	340,539	0	0	0	0
Others	134,443	104,505	29,938	0	0	0	0
Total	**1,042,165**	**635,550**	**406,615**	**0**	**0**	**0**	**0**
Central Washington	57,178	57,178	0	0	0	0	0
Inland Empire							
Lumber	146,486	143,226	0	3,260	0	0	0
Others	52,666	2,633	5,267	44,766	0	0	0
Total	**199,152**	**145,859**	**5,267**	**48,026**	**0**	**0**	**0**
State total							
Veneer & plywood	171,505	169,712	1,793	0	0	0	0
Log export	1,010,921	667,972	342,949	0	0	0	0
Lumber	1,764,452	1,623,513	62,134	3,260	0	72,345	3,200
Post, pole & piling	44,582	42,729	1,853	0	0	0	0
Pulp & board	31	31	0	0	0	0	0
Roundwood chipping	339,142	259,871	34,505	44,766	0	0	0
Shake & shingle	244	244	0	0	0	0	0
Total	**3,330,877**	**2,764,070**	**443,236**	**48,026**	**0**	**72,345**	**3,200**

Tables 4 a-e show the volumes of logs harvested from each county and the counties where the timber was processed. This is a significant factor since transportation cost is a major expense in wood markets.

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Table 4a **Log consumption – by mill location and county of harvest**

Logs harvested in Washington (thousand board feet, Scribner scale)

		Puget Sound Economic Area						
Economic area and county of operation	**Total Washington logs**	**Island**	**King**	**Kitsap**	**Pierce**	**Skagit**	**Snohomish**	**Whatcom**
Puget Sound								
Pierce	194,517	0	17,385	8,680	54,507	0	3,014	0
Snohomish	198,145	1,889	618	644	425	39,597	78,432	26,954
Others	241,319	2,405	23,797	8,238	122	68,895	61,832	37,053
Total	**633,981**	**4,294**	**41,801**	**17,562**	**55,054**	**108,492**	**143,278**	**64,008**
Olympic Peninsula								
Clallam	263,220	0	0	2,924	0	2,558	2,558	2,558
Grays Harbor	352,532	0	2,680	0	0	3,000	4,000	2,000
Mason	154,205	0	330	6,408	6,999	0	1,420	0
Lewis	225,531	0	0	3,566	16,363	6,720	0	2,240
Others	293,953	0	2,910	2,770	9,420	0	0	0
Total	**1,289,440**	**0**	**5,920**	**15,668**	**32,782**	**12,278**	**7,978**	**6,798**
Lower Columbia								
Clark	89,460	0	2,485	0	0	0	0	0
Cowlitz	375,924	0	0	0	1,481	0	0	0
Others	73,396	0	0	0	0	0	0	0
Total	**538,780**	**0**	**2,485**	**0**	**1,481**	**0**	**0**	**0**
Central Washington	**57,178**	**0**	**354**	**0**	**0**	**0**	**0**	**0**
Inland Empire								
Stevens	133,326	0	0	0	0	0	0	0
Others	12,533	0	0	0	0	0	0	0
Total	**145,859**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
State total	**2,665,238**	**4,294**	**50,560**	**33,230**	**89,316**	**120,770**	**151,256**	**70,806**

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Table 4b **Log consumption – by mill location and county of harvest**

Logs harvested in Washington (thousand board feet, Scribner scale)

	Olympic Peninsula Economic Area						
Economic area and county of operation	**Clallam**	**Grays Harbor**	**Jefferson**	**Lewis**	**Mason**	**Pacific**	**Thurston**
Puget Sound							
Pierce	0	26,938	0	30,923	23,296	15,152	14,271
Snohomish	11,948	4,250	0	4,658	5,190	2,125	3,949
Others	27,165	0	8,238	284	74	47	169
Total	**39,113**	**31,188**	**8,238**	**35,865**	**28,561**	**17,325**	**18,390**
Olympic Peninsula							
Clallam	199,798	4,750	36,447	4,366	0	1,085	2,558
Grays Harbor	19,250	221,221	13,646	8,594	13,064	39,095	20,688
Mason	3,861	18,778	4,755	3,630	87,408	0	19,958
Lewis	0	17,963	348	93,006	7,251	12,677	32,875
Others	3,401	65,149	9,416	71,908	2,770	75,968	37,249
Total	**226,311**	**327,861**	**64,613**	**181,504**	**110,492**	**128,825**	**113,328**
Lower Columbia							
Clark	0	2,485	0	16,898	2,485	0	4,473
Cowlitz	0	0	0	88,213	0	15,561	4,200
Others	0	0	0	0	0	0	0
Total	**0**	**2,485**	**0**	**105,111**	**2,485**	**15,561**	**8,673**
Central Washington	0	0	0	0	0	0	0
Inland Empire							
Stevens	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Others	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**
State Total	**265,424**	**361,533**	**72,851**	**322,480**	**141,538**	**161,711**	**140,391**

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Table 4c **Log consumption — by mill location and county of harvest**

Logs harvested in Washington (thousand board feet, Scribner scale)

Lower Columbia Economic Area

Economic area and county of operation	Clark	Cowlitz	Klickitat	Skamania	Wahkiakum
Puget Sound					
Pierce	0	0	0	0	0
Snohomish	1,159	0	0	0	0
Others	260	260	0	0	0
Total	**1,419**	**260**	**0**	**0**	**0**
Olympic Peninsula					
Clallam	1,446	1,446	0	362	362
Grays Harbor	0	4,758	0	536	0
Mason	0	330	0	0	330
Lewis	2,444	22,962	185	297	1,819
Others	1,496	1,496	0	0	10,000
Total	**5,387**	**30,991**	**185**	**1,194**	**12,510**
Lower Columbia					
Clark	31,013	23,160	0	4,473	1,988
Cowlitz	59,141	168,730	0	7,403	29,512
Others	10,800	0	43,290	17,436	0
Total	**100,954**	**191,890**	**43,290**	**29,312**	**31,500**
Central Washington	**0**	**0**	**1,933**	**0**	**0**
Inland Empire					
Stevens	0	0	0	0	0
Others	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**
State total	**107,760**	**223,141**	**45,407**	**30,506**	**44,010**

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Table 4d **Log consumption — by mill location and county of harvest**

Logs harvested in Washington (thousand board feet, Scribner scale)

Economic area and county	Central Washington Economic Area					
	Chelan	Douglas	Kittitas	Lincoln	Okanogan	Yakima
Puget Sound						
Pierce	0	0	350	0	0	0
Snohomish	8,541	0	0	0	7,765	0
Others	74	0	0	0	2,405	0
Total	**8,616**	**0**	**350**	**0**	**10,170**	**0**
Olympic Peninsula						
Clallam	0	0	0	0	0	0
Grays Harbor	0	0	0	0	0	0
Mason	0	0	0	0	0	0
Lewis	0	0	1,185	0	0	3,629
Others	0	0	0	0	0	0
Total	**0**	**0**	**1,185**	**0**	**0**	**3,629**
Lower Columbia						
Clark	0	0	0	0	0	0
Cowlitz	0	0	0	0	0	0
Others	0	0	0	0	0	1,870
Total	**0**	**0**	**0**	**0**	**0**	**1,870**
Central Washington	**3,189**	**0**	**4,912**	**0**	**0**	**46,790**
Inland Empire						
Stevens	518	0	0	518	13,768	0
Others	0	0	0	0	0	0
Total	**518**	**0**	**0**	**518**	**13,768**	**0**
State total	**12,323**	**0**	**6,447**	**518**	**23,938**	**52,289**

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Table 4e **Log consumption – by mill location and county of harvest**

Logs harvested in Washington (thousand board feet, Scribner scale)

Inland Empire Economic Area

Economic area and county of operation	Asotin	Columbia	Ferry	Garfield	Pend Orielle	Spokane	Stevens	Whitman
Puget Sound								
Pierce	0	0	0	0	0	0	0	0
Snohomish	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Olympic Peninsula								
Clallam	0	0	0	0	0	0	0	0
Grays Harbor	0	0	0	0	0	0	0	0
Mason	0	0	0	0	0	0	0	0
Lewis	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Lower Columbia								
Clark	0	0	0	0	0	0	0	0
Cowlitz	0	1,685	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0
Total	**0**	**1,685**	**0**	**0**	**0**	**0**	**0**	**0**
Central Washington	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Inland Empire								
Stevens	0	0	22,083	0	0	12,882	71,198	0
Others	0	263	990	658	0	2,570	5,940	132
Total	**0**	**263**	**23,073**	**658**	**0**	**15,452**	**77,138**	**132**
State total	**0**	**1,948**	**23,073**	**658**	**0**	**15,452**	**77,138**	**132**

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Table 4f **Log consumption by state or province of log harvest**

Logs not harvested in Washington (thousand board feet, Scribner)

Economic area and county of operation	State or province of log harvest: Oregon	Idaho	Montana	British Columbia	Other state
Puget Sound					
Pierce	0	0	0	5,727	0
Snohomish	560	0	0	7,500	0
Others	0	0	0	14,327	0
Total	**560**	**0**	**0**	**27,554**	**0**
Olympic Peninsula					
Clallam	2,411	0	0	3,049	0
Grays Harbor	2,414	0	0	0	0
Mason	0	0	0	35,907	0
Lewis	24,913	0	0	5,835	3,200
Others	1,056	0	0	0	0
Total	**30,794**	**0**	**0**	**44,791**	**3,200**
Lower Columbia					
Clark	9,940	0	0	0	0
Cowlitz	379,688	0	0	0	0
Others	16,987	0	0	0	0
Total	**406,615**	**0**	**0**	**0**	**0**
Inland Empire					
Stevens	0	2,160	0	0	0
Others	5,267	45,866	0	0	0
Total	**5,267**	**48,026**	**0**	**0**	**0**
Central Washington	**0**	**0**	**0**	**0**	**0**
State Total	**443,236**	**48,026**	**0**	**72,345**	**3,200**

Table 5 offers two views of logs harvested from national forests: mill sector and economic area.

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Table 5 **Logs harvested from National Forests**

(thousand board feet, Scribner scale)

Economic area of operation	All national forests	Olympic	Gifford Pinchot	Mount Baker/ Snoqualmie	Mount Baker/ Wenatchee	Okanogan	Colville	Umatilla	Other
Puget Sound	8,443	538	1,613	2,136	0	4,157	0	0	0
Olympic Peninsula	15,805	10,578	4,924	0	16	0	0	0	288
Lower Columbia	5,640	0	4,097	0	0	0	0	0	1,543
Central Washington	1,506	0	0	0	1,506	0	0	0	0
Inland Empire	18,467	0	0	0	0	3,768	14,699	0	0
State total	**49,862**	**11,115**	**10,633**	**2,136**	**1,522**	**7,926**	**14,699**	**0**	**1,831**
Industry									
Lumber	36,928	2,964	7,357	2,136	16	7,926	14,699	0	1,831
Veneer & plywood	4,011	2,398	1,613	0	0	0	0	0	0
Log export	0	0	0	0	0	0	0	0	0
Roundwood chipping	8,923	5,753	1,664	0	1,506	0	0	0	0
State total	**49,862**	**11,115**	**10,633**	**2,136**	**1,522**	**7,926**	**14,699**	**0**	**1,831**

Tables 6 a-c show the number of mills by economic area and sector, with percentages of log volume by economic area and landowners.

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Table 6a **Operations — by percentage of logs from original owners**

Economic area and industry of operation	National forest				State				Bureau of Land Management			
	Percentage of log dependency											
	0	1-33	34-66	67-100	0	1-33	34-66	67-100				
Puget Sound												
Lumber	7	3	0	0	1	5	4	0	10	0	0	0
Log export	4	0	0	0	4	0	0	0	4	0	0	0
Others	7	2	0	0	4	2	2	1	9	0	0	0
Total	**18**	**5**	**0**	**0**	**9**	**7**	**6**	**1**	**23**	**0**	**0**	**0**
Olympic Peninsula												
Lumber	13	8	0	0	2	12	5	2	20	1	0	0
Veneer & plywood	2	3	0	0	2	1	2	0	5	0	0	0
Shake & shingle	10	0	0	0	8	1	1	0	10	0	0	0
Log export	6	0	0	0	6	0	0	0	6	0	0	0
Post, pole & piling	4	0	0	0	0	0	2	2	4	0	0	0
Roundwood chipping	1	5	0	0	1	5	0	0	6	0	0	0
Others	1	2	0	0	1	2	0	0	3	0	0	0
Total	**37**	**18**	**0**	**0**	**20**	**21**	**10**	**4**	**54**	**1**	**0**	**0**
Lower Columbia												
Lumber	3	2	0	0	2	1	2	0	2	3	0	0
Pulp & board	5	0	0	0	5	0	0	0	5	0	0	0
Log export	4	0	0	0	4	0	0	0	4	0	0	0
Others	3	0	0	0	2	1	0	0	3	0	0	0
Total	**15**	**2**	**0**	**0**	**13**	**2**	**2**	**0**	**14**	**3**	**0**	**0**
Central Washington	**1**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**0**
Inland Empire												
Lumber	1	3	0	0	0	4	0	0	2	2	0	0
Others	3	1	0	0	3	1	0	0	4	0	0	0
Total	**4**	**4**	**0**	**0**	**3**	**5**	**0**	**0**	**6**	**2**	**0**	**0**
State total												
Lumber	25	16	0	0	6	22	11	2	35	6	0	0
Veneer & plywood	4	4	0	0	4	1	3	0	8	0	0	0
Pulp & board	11	2	0	0	11	2	0	0	13	0	0	0
Shake & shingle	12	0	0	0	10	1	1	0	12	0	0	0
Log export	15	0	0	0	15	0	0	0	15	0	0	0
Post, pole & piling	6	0	0	0	0	0	3	3	6	0	0	0
Roundwood chipping	4	8	0	0	2	10	0	0	12	0	0	0
Total	**77**	**30**	**0**	**0**	**48**	**36**	**18**	**5**	**101**	**6**	**0**	**0**

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Table 6b **Operations — by percentage of logs from original owners**

Economic area and industry	Other public				Own wood supply				Other wood supply			
	Percentage of log											
	0	1-33	34-66	67-100	0	1-33	34-66	67-100	0	1-33	34-66	67-100
Puget Sound												
Lumber	7	3	0	0	6	4	0	0	2	3	3	2
Log export	4	0	0	0	3	0	1	0	0	0	1	3
Others	7	2	0	0	8	1	0	0	5	2	1	1
Total	**18**	**5**	**0**	**0**	**17**	**5**	**1**	**0**	**7**	**5**	**5**	**6**
Olympic Peninsula												
Lumber	15	5	1	0	17	3	1	0	6	3	6	6
Veneer & plywood	3	2	0	0	5	0	0	0	2	2	1	0
Shake & shingle	10	0	0	0	9	0	0	1	7	1	1	1
Log export	6	0	0	0	3	2	0	1	0	1	2	3
Post, pole & piling	3	1	0	0	4	0	0	0	0	3	1	0
Roundwood chipping	5	1	0	0	6	0	0	0	0	0	3	3
Others	2	1	0	0	2	0	1	0	1	1	0	1
Total	**44**	**10**	**1**	**0**	**46**	**5**	**2**	**2**	**16**	**11**	**14**	**14**
Lower Columbia												
Lumber	1	4	0	0	4	1	0	0	0	2	2	1
Pulp & board	5	0	0	0	5	0	0	0	5	0	0	0
Log export	4	0	0	0	0	1	1	2	2	1	0	1
Others	3	0	0	0	2	1	0	0	1	0	2	0
Total	**13**	**4**	**0**	**0**	**11**	**3**	**1**	**2**	**8**	**3**	**4**	**2**
Central Washington												
Others	2	0	0	0	2	0	0	0	0	1	0	1
Total	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
Inland Empire												
Lumber	2	2	0	0	2	2	0	0	0	2	1	1
Others	4	0	0	0	4	0	0	0	3	0	0	1
Total	**6**	**2**	**0**	**0**	**6**	**2**	**0**	**0**	**3**	**2**	**1**	**2**
State total												
Lumber	26	14	1	0	30	10	1	0	8	11	12	10
Veneer & plywood	5	3	0	0	7	1	0	0	3	3	2	0
Pulp & board	12	1	0	0	12	0	1	0	11	1	0	1
Shake & shingle	12	0	0	0	11	0	0	1	9	1	1	1
Log export	15	0	0	0	7	3	2	3	3	2	3	7
Post, pole & piling	4	2	0	0	5	1	0	0	1	4	1	0
Roundwood chipping	11	1	0	0	12	0	0	0	1	0	5	6
Total	**85**	**21**	**1**	**0**	**84**	**15**	**4**	**4**	**36**	**22**	**24**	**25**

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Table 6c **Operations — by percentage of logs from original owners**

Economic area and industry	Native American				Farmer and misc. private			
	Percentage of log dependency							
	0	1-33	34-66	67-100	0	1-33	34-66	67-100
Puget Sound								
Lumber	6	4	0	0	2	3	4	1
Log export	1	3	0	0	1	3	0	0
Others	7	2	0	0	4	5	0	0
Total	**14**	**9**	**0**	**0**	**7**	**11**	**4**	**1**
Olympic Peninsula								
Lumber	11	10	0	0	5	12	3	1
Veneer & plywood	4	1	0	0	2	3	0	0
Shake & shingle	10	0	0	0	10	0	0	0
Log export	4	1	1	0	0	5	1	0
Post, pole & piling	4	0	0	0	0	4	0	0
Roundwood chipping	1	5	0	0	0	6	0	0
Others	1	2	0	0	1	2	0	0
Total	**35**	**19**	**1**	**0**	**18**	**32**	**4**	**1**
Lower Columbia								
Lumber	3	2	0	0	1	4	0	0
Pulp & board	5	0	0	0	5	0	0	0
Log export	3	1	0	0	2	2	0	0
Others	2	1	0	0	1	1	1	0
Total	**13**	**4**	**0**	**0**	**9**	**7**	**1**	**0**
Central Washington	**1**	**0**	**0**	**1**	**0**	**2**	**0**	**0**
Inland Empire								
Lumber	1	3	0	0	1	2	1	0
Others	4	0	0	0	3	1	0	0
Total	**5**	**3**	**0**	**0**	**4**	**3**	**1**	**0**
State total								
Lumber	21	19	0	1	9	22	8	2
Veneer & plywood	6	2	0	0	3	5	0	0
Pulp & board	11	2	0	0	11	2	0	0
Shake & shingle	12	0	0	0	12	0	0	0
Log export	9	5	1	0	4	10	1	0
Post, pole & piling	6	0	0	0	0	6	0	0
Roundwood chipping	5	7	0	0	2	9	1	0
Total	**70**	**35**	**1**	**1**	**41**	**54**	**10**	**2**

Tables 7 a-c show the number of operations by sector and economic area and their percentage of log volume by landowners.

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Table 7a **Operations — by percentage of logs from original owners**

Industry and economic area	National forest				State				Other wood supply			
	Percentage of log dependency											
	0	**1-33**	**34-66**	**67-100**	**0**	**1-33**	**34-66**	**67-100**	**0**	**1-33**	**34-66**	**67-100**
Log export												
Puget Sound	4	0	0	0	4	0	0	0	4	0	0	0
Olympic Peninsula	6	0	0	0	6	0	0	0	6	0	0	0
Lower Columbia	4	0	0	0	4	0	0	0	4	0	0	0
Total	**14**	**0**	**0**	**0**	**14**	**0**	**0**	**0**	**14**	**0**	**0**	**0**
Lumber												
Puget Sound	7	3	0	0	1	5	4	0	10	0	0	0
Olympic Peninsula	13	8	0	0	2	12	5	2	20	1	0	0
Lower Columbia	3	2	0	0	2	1	2	0	2	3	0	0
Inland Empire	1	3	0	0	0	4	0	0	2	2	0	0
Others	1	0	0	0	1	0	0	0	1	0	0	0
Total	**25**	**16**	**0**	**0**	**6**	**22**	**11**	**2**	**35**	**6**	**0**	**0**
Post, pole & piling												
Olympic Peninsula	4	0	0	0	0	0	2	2	4	0	0	0
Others	2	0	0	0	0	0	1	1	2	0	0	0
Total	**6**	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**6**	**0**	**0**	**0**
Pulp & board												
Lower Columbia	5	0	0	0	5	0	0	0	5	0	0	0
Others	5	2	0	0	5	2	0	0	7	0	0	0
Total	**10**	**2**	**0**	**0**	**10**	**2**	**0**	**0**	**12**	**0**	**0**	**0**
Roundwood chipping												
Olympic Peninsula	1	5	0	0	1	5	0	0	6	0	0	0
Others	3	3	0	0	1	5	0	0	6	0	0	0
Total	**4**	**8**	**0**	**0**	**2**	**10**	**0**	**0**	**12**	**0**	**0**	**0**
Shake & shingle												
Olympic Peninsula	10	0	0	0	8	1	1	0	10	0	0	0
Others	2	0	0	0	2	0	0	0	2	0	0	0
Total	**12**	**0**	**0**	**0**	**10**	**1**	**1**	**0**	**12**	**0**	**0**	**0**
Veneer & plywood												
Olympic Peninsula	2	3	0	0	2	1	2	0	5	0	0	0
Others	2	1	0	0	2	0	1	0	3	0	0	0
Total	**4**	**4**	**0**	**0**	**4**	**1**	**3**	**0**	**8**	**0**	**0**	**0**
State total	**75**	**30**	**0**	**0**	**46**	**36**	**18**	**5**	**99**	**6**	**0**	**0**

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Table 7b **Operations – by percentage of logs from original owners**

Industry and economic area	Other Public				Own wood supply				Other wood supply			
	Percentage of log dependency											
	0	1-33	34-66	67-100	0	1-33	34-66	67-100	0	1-33	34-66	67-100
Log export												
Puget Sound	4	0	0	0	3	0	1	0	0	0	1	3
Olympic Peninsula	6	0	0	0	3	2	0	1	0	1	2	3
Lower Columbia	4	0	0	0	0	1	1	2	2	1	0	1
Total	**14**	**0**	**0**	**0**	**6**	**3**	**2**	**3**	**2**	**2**	**3**	**7**
Lumber												
Puget Sound	7	3	0	0	6	4	0	0	2	3	3	2
Olympic Peninsula	15	5	1	0	17	3	1	0	6	3	6	6
Lower Columbia	1	4	0	0	4	1	0	0	0	2	2	1
Inland Empire	2	2	0	0	2	2	0	0	0	2	1	1
Others	1	0	0	0	1	0	0	0	0	1	0	0
Total	**26**	**14**	**1**	**0**	**30**	**10**	**1**	**0**	**8**	**11**	**12**	**10**
Post, pole & piling												
Olympic Peninsula	3	1	0	0	4	0	0	0	0	3	1	0
Others	1	1	0	0	1	1	0	0	1	1	0	0
Total	**4**	**2**	**0**	**0**	**5**	**1**	**0**	**0**	**1**	**4**	**1**	**0**
Pulp & board												
Lower Columbia	5	0	0	0	5	0	0	0	5	0	0	0
Others	6	1	0	0	6	0	1	0	5	1	0	1
Total	**11**	**1**	**0**	**0**	**11**	**0**	**1**	**0**	**10**	**1**	**0**	**1**
Roundwood												
Olympic Peninsula	5	1	0	0	6	0	0	0	0	0	3	3
Others	6	0	0	0	6	0	0	0	1	0	2	3
Total	**11**	**1**	**0**	**0**	**12**	**0**	**0**	**0**	**1**	**0**	**5**	**6**
Shake & shingle												
Olympic Peninsula	10	0	0	0	9	0	0	1	7	1	1	1
Others	2	0	0	0	2	0	0	0	2	0	0	0
Total	**12**	**0**	**0**	**0**	**11**	**0**	**0**	**1**	**9**	**1**	**1**	**1**
Veneer & plywood												
Olympic Peninsula	3	2	0	0	5	0	0	0	2	2	1	0
Others	2	1	0	0	2	1	0	0	1	1	1	0
Total	**5**	**3**	**0**	**0**	**7**	**1**	**0**	**0**	**3**	**3**	**2**	**0**
State Total	**83**	**21**	**1**	**0**	**82**	**15**	**4**	**4**	**34**	**22**	**24**	**25**

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Table 7c **Operations — percentage of logs from original owners**

Economic area and industry	Native American				Farmer and misc. private			
	Percentage of log dependency							
	0	1-33	34-66	67-100	0	1-33	34-66	67-100
Log export								
Puget Sound	1	3	0	0	1	3	0	0
Olympic Peninsula	4	1	1	0	0	5	1	0
Lower Columbia	3	1	0	0	2	2	0	0
Total	**8**	**5**	**1**	**0**	**3**	**10**	**1**	**0**
Lumber								
Puget Sound	6	4	0	0	2	3	4	1
Olympic Peninsula	11	10	0	0	5	12	3	1
Lower Columbia	3	2	0	0	1	4	0	0
Inland Empire	1	3	0	0	1	2	1	0
Others	0	0	0	1	0	1	0	0
Total	**21**	**19**	**0**	**1**	**9**	**22**	**8**	**2**
Post, pole & piling								
Olympic Peninsula	4	0	0	0	0	4	0	0
Others	2	0	0	0	0	2	0	0
Total	**6**	**0**	**0**	**0**	**0**	**6**	**0**	**0**
Pulp & board								
Lower Columbia	5	0	0	0	5	0	0	0
Others	5	2	0	0	5	2	0	0
Total	**10**	**2**	**0**	**0**	**10**	**2**	**0**	**0**
Roundwood								
Olympic Peninsula	1	5	0	0	0	6	0	0
Others	4	2	0	0	2	3	1	0
Total	**5**	**7**	**0**	**0**	**2**	**9**	**1**	**0**
Shake & shingle								
Olympic Peninsula	10	0	0	0	10	0	0	0
Others	2	0	0	0	2	0	0	0
Total	**12**	**0**	**0**	**0**	**12**	**0**	**0**	**0**
Veneer & plywood								
Olympic Peninsula	4	1	0	0	2	3	0	0
Others	2	1	0	0	1	2	0	0
Total	**6**	**2**	**0**	**0**	**3**	**5**	**0**	**0**
State total	**68**	**35**	**1**	**1**	**39**	**54**	**10**	2

Tables 8 a-b show the total volume of logs that were used by each sector and ownership category.

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Table 8a **Log consumption — by sector and original log owners**

(thousand board feet, Scribner scale)

Economic area and industry	All Owners	State	National	Bureau of Land Management	Other Public
Puget Sound					
Lumber	459,740	116,082	6,793	0	7,617
Log export	122,253	0	0	0	0
Others	82,164	24,644	4,605	0	2,990
Total	**664,157**	**140,726**	**11,399**	**0**	**10,607**
Olympic Peninsula					
Lumber	871,543	248,562	6,527	231	24,861
Veneer & plywood	111,017	49,053	3,577	0	5,073
Shake & shingle	244	9	0	0	0
Log export	219,309	0	0	0	0
Post, pole & piling	35,218	22,114	0	0	1,185
Roundwood chipping	130,863	12,237	7,417	0	2,840
Others	31	4	0	0	0
Total	**1,368,225**	**331,979**	**17,522**	**231**	**33,959**
Lower Columbia					
Lumber	238,363	78,151	5,640	6,634	25,036
Pulp & board	0	0	0	0	0
Log export	669,359	0	0	0	0
Others	134,443	29,239	0	0	0
Total	**1,042,165**	**107,390**	**5,640**	**6,634**	**25,036**
Central Washington	**57,178**	**266**	**1,506**	**0**	**0**
Inland Empire					
Lumber	146,486	30,354	18,467	8,679	2,708
Others	52,666	10,533	1,053	0	0
Total	**199,152**	**40,888**	**19,521**	**8,679**	**2,708**
State total					
Veneer & plywood	171,505	64,963	5,727	0	7,223
Log export	1,010,921	0	0	0	0
Lumber	1,764,452	473,149	37,428	15,543	60,221
Post, pole & piling	44,582	28,065	0	0	2,025
Pulp & board	31	4	0	0	0
Roundwood chipping	339,142	55,057	12,432	0	2,840
Shake & shingle	244	9	0	0	0
Total	**3,330,877**	**621,248**	**55,587**	**15,543**	**72,309**

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Table 8b **Log consumption – by sector original log owners**

(thousand board feet, Scribner rule)

Economic area of operation	Forest Industry * Own Wood Supply	Forest Industry * Other Wood Supply	Native American	Farmer and miscellaneous private
Puget Sound				
Lumber	22,416	169,190	6,564	131,078
Log export	41,189	77,077	1,994	1,994
Others	236	31,715	2,594	15,379
Total	**63,841**	**277,982**	**11,152**	**148,451**
Olympic Peninsula				
Lumber	48,613	431,192	19,793	91,764
Veneer & plywood	0	35,246	6,864	11,204
Shake & shingle	180	55	0	0
Log export	80,672	98,666	19,626	20,346
Post, pole & piling	0	7,212	0	4,707
Roundwood chipping	0	89,445	9,309	9,616
Others	15	9	1	1
Total	**129,480**	**661,824**	**55,593**	**137,637**
Lower Columbia				
Lumber	6,225	96,904	3,558	16,215
Pulp & board	0	0	0	0
Log export	395,309	182,600	12,690	78,760
Others	5,072	54,826	874	44,432
Total	**406,605**	**334,331**	**17,123**	**139,407**
Central Washington	**0**	**8,576**	**45,904**	**926**
Inland Empire				
Lumber	8,249	20,189	28,472	29,369
Others	834	43,667	1,667	2,413
Total	**9,082**	**63,856**	**30,139**	**31,783**
State total				
Veneer & plywood	5,072	57,480	7,738	23,302
Log export	517,169	358,343	34,309	101,099
Lumber	85,502	719,407	104,291	268,909
Post, pole & piling	236	7,982	0	6,274
Pulp & board	15	9	1	1
Roundwood chipping	834	203,292	13,570	58,619
Shake & shingle	180	55	0	0
Total	**608,175**	**1,342,401**	**158,243**	**455,104**

* Primarily, "industry" forests are owned by large landowners. "Own" means trees were harvested by owners.

Tables 9a-b show the volume of logs by species consumed by each sector.

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Table 9a **Log consumption — by species**

(thousand board feet, Scribner scale)

Economic area and industry	All species	Douglas-fir	Hemlock	True firs	Spruce	Ponderosa pine
Puget Sound						
Lumber	459,740	304,257	125,270	712	0	372
Log export	122,253	69,181	40,169	8,027	4,329	105
Others	82,164	45,290	24,483	1,290	430	430
Total	**664,157**	**418,728**	**189,922**	**10,028**	**4,759**	**908**
Olympic Peninsula						
Lumber	871,543	362,199	358,329	560	9,722	1,325
Veneer & plywood	111,017	78,182	29,478	343	2,671	343
Shake & shingle	244	0	0	0	0	0
Log export	219,309	130,841	73,281	3,937	11,250	0
Post, pole & piling	35,218	35,218	0	0	0	0
Roundwood chipping	130,863	52,398	56,169	0	1,867	0
Others	31	9	22	0	0	0
Total	**1,368,225**	**658,847**	**517,279**	**4,840**	**25,509**	**1,668**
Lower Columbia						
Lumber	238,363	208,784	20,572	3,864	0	5,143
Pulp & board	0	0	0	0	0	0
Log export	669,359	519,391	112,768	27,937	9,262	0
Others	134,443	78,152	24,561	3,148	0	4,022
Total	**1,042,165**	**806,327**	**157,901**	**34,949**	**9,262**	**9,165**
Central Washington	**57,178**	**13,852**	**886**	**16,284**	**0**	**25,271**
Inland Empire						
Lumber	146,486	57,854	0	8,952	4,069	54,025
Others	52,666	2,633	0	44,766	0	2,633
Total	**199,152**	**60,487**	**0**	**53,719**	**4,069**	**56,658**
State total						
Veneer & plywood	171,505	116,880	40,228	4,781	3,101	4,795
Log export	1,010,921	719,413	226,218	39,901	24,841	105
Lumber	1,764,452	945,175	504,171	26,651	13,791	84,542
Post, pole & piling	44,582	42,349	0	0	0	0
Pulp & board	31	9	22	0	0	0
Roundwood chipping	339,142	134,416	95,349	48,486	1,867	4,228
Shake & shingle	244	0	0	0	0	0
Total	**3,330,877**	**1,958,242**	**865,988**	**119,820**	**43,599**	**93,670**

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Table 9b **Log consumption by species**

(thousand board feet, Scribner rule)

Economic area and industry	Lodgepole pine	Western redcedar	Other softwoods	Red alder	Other hardwoods
Puget Sound					
Lumber	0	3,476	0	21,526	4,127
Log export	0	0	354	0	89
Others	0	2,451	109	4,869	2,811
Total	**0**	**5,927**	**463**	**26,394**	**7,027**
Olympic Peninsula					
Lumber	662	54,700	2,650	76,973	4,423
Veneer & plywood	0	0	0	0	0
Shake & shingle	0	244	0	0	0
Log export	0	0	0	0	0
Post, pole & piling	0	0	0	0	0
Roundwood chipping	0	3,200	1,420	12,789	3,020
Others	0	0	0	0	0
Total	**662**	**58,144**	**4,070**	**89,762**	**7,443**
Lower Columbia					
Lumber	0	0	0	0	0
Pulp & board	0	0	0	0	0
Log export	0	0	0	0	0
Others	0	0	0	24,561	0
Total	**0**	**0**	**0**	**24,561**	**0**
Central Washington	**886**	**0**	**0**	**0**	**0**
Inland Empire					
Lumber	9,766	11,819	0	0	0
Others	6,801	0	2,501	0	0
Total	**16,567**	**11,819**	**2,501**	**0**	**0**
State total					
Veneer & plywood	0	0	0	0	1,720
Log export	0	0	354	0	89
Lumber	10,429	69,995	2,650	98,498	8,550
Post, pole & piling	0	2,233	0	0	0
Pulp & board	0	0	0	0	0
Roundwood chipping	7,687	3,418	4,030	42,219	4,111
Shake & shingle	0	244	0	0	0
Total	**18,115**	**75,890**	**7,034**	**140,717**	**14,470**

Tables 10a-b show the total volume of wood and bark residues produced in the sawmill, veneer & plywood, and shake and shingle sectors. The tables also show the volumes of residue used for different purposes. **Board:** Oriented strand board, sheathing panels, particle board. **Pulp:** paper products. **Fuel:** mill site boilers for the manufacturing process or drying wood products. **Other:** garden mulch, barn shavings.

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Table 10a **Wood and bark residues – by industry and use**

(dry weight tons)

		Wood Residue						
Economic area and industry	**All residues**	**All Wood**	**Used Total**	**Pulp**	**Board**	**Fuel**	**Other**	**Unused**
Puget Sound								
Lumber	652,816	499,391	499,391	334,553	0	72,870	91,968	0
Log export	0	0	0	0	0	0	0	0
Others	278	276	276	42	0	12	222	0
Total	**653,094**	**499,667**	**499,667**	**334,595**	**0**	**72,882**	**92,190**	**0**
Olympic Peninsula								
Lumber	2,217,949	1,706,533	1,706,533	1,135,626	52,559	361,666	156,682	0
Veneer & plywood	303,111	210,297	210,297	154,728	0	12,751	42,818	0
Shake & shingle	13,440	12,190	4,609	0	0	4,360	249	7,581
Log export	0	0	0	0	0	0	0	0
Post, pole & piling	0	0	0	0	0	0	0	0
Roundwood chipping	0	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0	0
Total	**2,534,500**	**1,929,020**	**1,921,439**	**1,290,354**	**52,559**	**378,777**	**199,749**	**7,581**
Lower Columbia								
Lumber	539,404	419,237	419,237	317,095	10,881	65,197	26,064	0
Pulp & board	0	0	0	0	0	0	0	0
Log export	0	0	0	0	0	0	0	0
Others	72,230	72,230	72,230	48,119	0	8,075	16,036	0
Total	**611,634**	**491,467**	**491,467**	**365,214**	**10,881**	**73,272**	**42,100**	**0**
Central Washington	**74,420**	**58,643**	**58,643**	**37,509**	**10,567**	**9,246**	**1,321**	**0**
Inland Empire	**238,554**	**179,948**	**179,948**	**81,764**	**45,177**	**19,522**	**33,485**	**0**
State total								
Veneer & plywood	371,051	278,235	278,235	202,889	0	20,838	54,508	0
Log export	0	0	0	0	0	0	0	0
Lumber	3,723,143	2,863,752	2,863,752	1,906,547	119,184	528,501	309,520	0
Post, pole & piling	0	0	0	0	0	0	0	0
Pulp & board	0	0	0	0	0	0	0	0
Roundwood chipping	0	0	0	0	0	0	0	0
Shake & shingle	18,008	16,758	9,177	0	0	4,360	4,817	7,581
Total	**4,112,202**	**3,158,745**	**3,151,164**	**2,109,436**	**119,184**	**553,699**	**368,845**	**7,581**

Continued

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Table 10b **Wood and bark residues — production and use**

(dry weight tons)

Economic area and industry	All Bark	Used Total	Pulp	Board	Fuel	Other	Unused
Puget Sound							
Lumber	153,425	153,425	0	0	81,895	71,530	0
Log expo	0	0	0	0	0	0	0
Others	2	2	0	0	0	2	0
Total	**153,427**	**153,427**	**0**	**0**	**81,895**	**71,532**	**0**
Olympic Peninsula							
Lumber	511,416	509,017	0	0	420,884	88,133	2,399
Veneer &	92,814	92,814	0	0	92,814	0	0
Shake &	1,250	130	0	0	130	0	1,120
Log expo	0	0	0	0	0	0	0
Post, pol	0	0	0	0	0	0	0
Roundwo	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0
Total	**605,480**	**601,961**	**0**	**0**	**513,828**	**88,133**	**3,519**
Lower Columbia							
Lumber	120,167	120,167	0	0	75,283	44,884	0
Pulp & bo	0	0	0	0	0	0	0
Log expo	0	0	0	0	0	0	0
Others	0	0	0	0	0	0	0
Total	**120,167**	**120,167**	**0**	**0**	**75,283**	**44,884**	**0**
Central Washington	**15,777**	**15,777**	**0**	**0**	**11,044**	**4,733**	**0**
Inland Empire	**58,606**	**58,606**	**0**	**0**	**53,962**	**4,644**	**0**
State total							
Veneer &	92,816	92,816	0	0	92,814	2	0
Log expo	0	0	0	0	0	0	0
Lumber	859,391	856,992	0	0	643,068	213,924	2,399
Post, pol	0	0	0	0	0	0	0
Pulp & bo	0	0	0	0	0	0	0
Roundwo	0	0	0	0	0	0	0
Shake &	1,250	130	0	0	130	0	1,120
Total	**953,457**	**949,938**	**0**	**0**	**736,012**	**213,926**	**3,519**

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Table 11 shows the total number of mills by sector and volume that use hardwoods.

Table 11 **Hardwoods consumed—by volume (mbf)**

(thousand board feet Scribner)

	Number of mills	Hardwood
Sawmills	7	107,049
Veneer & Plywood	2	1,720
Export	1	89
Chip	10	21,769
State Total	**20**	**130,627**

Table 12 shows the total volume by diameter of logs used by each sector, indicating which log sizes are most economically viable.

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Table 12 **Log consumption—by diameter in inches**

(thousand board feet, Scribner)

Economic area and industry of operation	Total	Log diameter in inches: less than 5	5 to 10	10 to 20	21 or more
Puget Sound					
Lumber	459,740	245	229,861	177,297	52,337
Log export	122,253	0	36,488	73,345	12,420
Others	82,164	8,940	35,719	31,776	5,729
Total	**664,157**	**9,185**	**302,068**	**282,419**	**70,485**
Olympic Peninsula					
Lumber	871,543	2,826	551,007	281,365	36,345
Veneer & plywood	111,017	0	54,381	53,406	3,230
Shake & shingle	244	0	20	160	64
Log export	219,309	0	81,917	125,233	12,159
Post, pole & piling	35,218	0	28,021	7,197	0
Roundwood chipping	130,863	39,172	51,619	23,599	16,473
Others	31	16	16	0	0
Total	**1,368,225**	**42,014**	**766,981**	**490,960**	**68,270**
Lower Columbia					
Lumber	238,363	6,039	85,842	136,873	9,609
Pulp & board	0	0	0	0	0
Log export	669,359	0	138,874	481,182	49,303
Others	134,443	52,630	66,948	13,990	874
Total	**1,042,165**	**58,669**	**291,664**	**632,046**	**59,786**
Central Washington	**57,178**	**2,657**	**8,456**	**36,562**	**9,503**
Inland Empire					
Lumber	146,486	8,139	91,953	43,074	3,320
Others	52,666	2,633	10,533	31,600	7,900
Total	**199,152**	**10,772**	**102,486**	**74,674**	**11,220**
State total					
Veneer & plywood	171,505	0	76,784	89,757	4,964
Log export	1,010,921	0	257,279	679,760	73,882
Lumber	1,764,452	17,249	964,461	673,400	109,342
Post, pole & piling	44,582	0	33,929	10,653	0
Pulp & board	31	16	16	0	0
Roundwood chipping	339,142	106,033	139,166	62,930	31,013
Shake & shingle	244	0	20	160	64
Total	**3,330,877**	**123,297**	**1,471,655**	**1,516,661**	**219,265**

NATURAL RESOURCES

Washington Mill Survey 2012

Series Report #22 Lumber Edition

PUBLISHED MAY 2014

WASHINGTON STATE DEPARTMENT OF
Natural Resources
Peter Goldmark - Commissioner of Public Lands

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Washington Mill Survey 2012

Series Report #22
Lumber Edition

Published April 2014

Introduction

Past readers of the Washington Mill Survey may be surprised to see this second edition covering 2012 statistics for the wood products industry. By the end of 2014, four total editions of the 2012 report will have been printed and posted online. This new publication timetable will enable us to reduce the time to gather and analyze vital data.

For the past 46 years, the Mill Survey has been published as a single volume covering all sectors of the primary wood products sector. The Mill Survey is undergoing modifications to accomodate the needs of the public and forestry professionals when reporting about the forest products markets.

Here is the publishing schedule for this year.
Februrary - Statewide totals and 10 year analyses
April - Lumber mills
August - Plywood, veneer, pulp and shake & shingle mills
December - Log exports, poles and chip mills

The initial 2012 report -- covering statewide and 10 year statistics and analyses -- was a prologue for the story that the industry is rapidly adapting to increasing demands for logs and lumber. Some economists predict that the U.S. housing construction resurgence could last several years. Export markets are also increasing as countries.

Other changes in the Mill Survey are expected. Some sectors are modifying their manufacturing process so much that they are barely recognizable from their original organization. For instance, the original Mill Survey only featured operations that bought logs and produced wood products. Then some plywood mills by-passed log processing and now buy veneer to manufacture plywood. Other mills are introducing new construction products from processed wood.

The only constant in the wood products industry is it continues to be a viable economic

Link to Mill Surveys and Timber Harvest Reports

Economic areas used in this report

Throughout the Mill Survey these economic areas are used to indicate the locations of mill operations and forests where timber is harvested. An economic area is determined by the similarity of economic activity in the forest products industry. The boundaries of an economic area are not always drawn according to natural geographic features or county lines.

Abbreviations and Conversions

Volume

A log's volume is measured in **Scribner Scale** which accounts for the narrowing width of a tree.
Lumber is measured in **lumber tally**.
A tree's Scribner Scale volume is usually less than its actual lumber tally. On average the conversion is 2:1 lumber tally for each board foot of Scribner logs.

Lumber

board foot (bf) = 12 inches x 12 inches x 1 inch
mbf = 1 thousand board feet
mmbf = 1 million board feet

Pulp (weight)
ton = 2,000 pound
bone dry tons (bdt) = 2,200 pounds (10% water)
1 mbf logs = 5 tons

Shake & Shingle (area)
1 square = 100 square feet
1 square = 4 bundles
10 squares = 1 mbf

Plywood and Veneer
msf 3/8-inch basis = 1 thousand square feet 3/8-inch thick
mmsf 3/8-inch basis = 1 million square feet 3/8-inch thick

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Table 13 **Number of sawmills — by mill size***

Mill-size class

Economic area and county of operation	All Classes	Mill-size class* D	C	B	A	AA	AAA
Puget Sound							
Pierce	3	1	0	0	0	1	1
Snohomish	3	0	1	1	1	0	0
Others***	4	1	1	0	1	0	1
Total	**10**	**2**	**2**	**1**	**2**	**1**	**2**
Olympic Peninsula							
Clallam	6	1	0	1	1	3	0
Grays Harbor	3	0	1	0	1	0	1
Lewis	7	0	1	0	3	1	2
Others**	5	0	0	0	1	2	2
Total	**21**	**1**	**2**	**1**	**6**	**6**	**5**
Lower Columbia	**5**	**0**	**0**	**0**	**0**	**5**	**0**
Washington/ Inland Empire	**5**	**1**	**0**	**1**	**2**	**1**	**0**
State total	**41**	**4**	**4**	**3**	**10**	**13**	**7**

TABLE 13 shows the number of mills sorted by mill-size categories (AAA, AA, A, B, C, D) that operated in 2010 in each county and economic area. The average size has of sawmills has grown in the last 10 years. Half of the mills are in the top two out of six size categories.

* These tables uses 6 mill class sizes. All other tables use 4 mill class sizes. Mill-size classes indicate the capacity to process logs (in thousand board feet, Scribner scale) during an 8-hour shift.

Class AAA: More than 500 mbf
Class AA: 250-500 mbf
Class A: 120-250 mbf
Class B: 80-120 mbf
Class C: 40-80 mbf
Class D: less than 40 mbf

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Table 14 **Sawmills' capacity—by 8-hour single shift and mill size***

(thousand board feet, lumber)

Economic area and county of operation	Total Capacity	Mill-size Class*					
		D	C	B	A	AA	AAA
Puget Sound							
Pierce	832	12	0	0	0	300	520
Snohomish	385	0	75	110	200	0	0
Others**	853	35	50	0	180	0	588
Total	**2,070**	**47**	**125**	**110**	**380**	**300**	**1,108**
Olympic Peninsula							
Clallam	1418	20	0	100	120	1,178	0
Grays Harbor	1150	0	75	0	225	0	850
Lewis	2025	0	40	0	460	300	1,225
Others**	2170	0	0	0	150	830	1,190
Total	**6,763**	**20**	**115**	**100**	**955**	**2,308**	**3,265**
Lower Columbia	**1,768**	**0**	**0**	**0**	**0**	**1,768**	**0**
Central Washington/ Inland Empire	**931**	**1**	**0**	**100**	**330**	**500**	**0**
State total	**11,532**	**68**	**240**	**310**	**1,665**	**4,876**	**4,373**

TABLE 14 shows the total 8-hour capacity (in lumber tally) of sawmills sorted by county and economic area. All the lumber manufactured in a single shift in Washington's sawmills would be sufficient to build over 1,000 homes.

* Tables 13 and 14 use 6 mill class sizes. All other tables use 4 mill class sizes. Mill-size classes indicate the capacity to process logs (in thousand board feet, Scribner scale) during an 8-hour shift.

Class AAA: More than 500 mbf
Class AA: 250-500 mbf
Class A: 120-250 mbf
Class B: 80-120 mbf
Class C: 40-80 mbf

Class D: less than 40 mbf

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Table 15 **Number of sawmills—by selected equipment and mill size**

Economic area and size of mill	Total Mills	Barker	Chipper	Planer	Burner	Kiln
Puget Sound						
A	5	3	3	2	0	2
Others*	5	5	4	5	2	4
Total	**10**	**8**	**7**	**7**	**2**	**6**
Olympic Peninsula						
A	17	17	16	14	1	13
Others*	4	3	2	0	0	1
Total	**21**	**20**	**18**	**14**	**1**	**14**
Lower Columbia	**5**	**5**	**5**	**5**	**0**	**5**
Central Washington / Inland Empire	**5**	**3**	**4**	**4**	**1**	**2**
State total						
A	30	27	26	23	2	22
B	3	2	1	2	0	0
C	4	4	3	2	1	3
D	4	3	4	3	1	2
Total	**41**	**36**	**34**	**30**	**4**	**27**

TABLE 15 shows the number of sawmills in four size categories (A, B, C, D) which have special equipment to add value to sawmills products. For instance, 89 percent of Washington's 41 sawmills are equipped with kilns. Kilns dry out the moisture that

* Some mill-class sizes were combined to avoid disclosure of individual corporate data.

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Table 16 **Number of sawmills — by selected equipment and county**

Economic area and county of mill	All mills	Barker	Chipper	Planner	Burner	Kiln
Puget Sound						
Pierce	3	2	2	2	0	1
Snohomish	3	3	2	2	0	2
Others*	4	3	3	3	2	3
Total	**10**	**8**	**7**	**7**	**2**	**6**
Olympic Peninsula						
Clallam	6	5	5	4	0	4
Grays Harbor	3	3	3	2	1	2
Lewis	7	7	6	4	0	3
Others*	5	5	4	4	0	5
Total	**21**	**20**	**18**	**14**	**1**	**14**
Lower Columbia	**5**	**5**	**5**	**5**	**0**	**5**
Central Washington/ Inland Empire	5	3	4	4	1	2
State total	**41**	**36**	**34**	**30**	**4**	**27**

TABLE 16 is similar to Table 15 and tallies special equipment to add value to wood products. Half of all the sawmills in the Olympic Peninsula Economic Area use barkers.

* Some counties were combined to avoid disclosure of individual corporate data.

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Table 17 **Number of sawmills — by size and headrig**

Economic area and mill size	Circular Saw 2ft	Circular Saw 4ft	Circular Saw 6ft	Circular Saw 8ft	Bandsaw 2ft	Bandsaw 4ft	Bandsaw 6ft	Gang Saw 2ft	Chipping Saw 2ft	Gang Saw 2ft
Puget Sound										
A	0	0	0	0	2	0	2	2	1	2
Others*	0	0	0	0	0	4	1	0	1	0
Total	**0**	**0**	**0**	**0**	**2**	**4**	**3**	**2**	**2**	**2**
Olympic Peninsula										
A	1	0	0	0	8	6	2	4	2	4
Others*	0	0	0	0	1	2	0	0	0	0
Total	**1**	**0**	**0**	**0**	**9**	**8**	**2**	**4**	**2**	**4**
Lower Columbia	**0**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**0**
Central Washington / Inland Empire	**0**	**1**	**0**	**0**	**2**	**1**	**0**	**0**	**0**	**0**
State total										
A	1	0	0	0	12	10	4	6	3	6
B	0	0	0	0	2	0	1	0	0	0
C	0	0	0	0	0	3	0	0	0	0
D	0	1	0	0	0	3	0	0	1	0
Total	**1**	**1**	**0**	**0**	**14**	**16**	**5**	**6**	**4**	**6**

0

TABLE **17** shows the number of mills by size and type of headrig (cutting saws). At 74 percent, band saws are the most common sawmill equipment type used in Washington.

* Some mill sizes were combined to avoid disclosure of individual corporate data.

* Mill-size classes indicate the capacity to process logs (in thousand board feet, Scribner scale) during an 8-hour shift.
Class A: More than 120 mbf
Class B: 80-120 mbf
Class C: 40-80 mbf
Class D: less than 40 mbf

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Table 18 **Sawmills' average operating days, capacities, consumption, production**

Economic area and mill size	Average annual operating days	Avg single shift capacity	Avg log consumption	Avg lumber tally production
Puget Sound				
A	254	358	53,781	45,016
Others*	232	56	38,167	71,291
Average	**243**	**207**	**45,974**	**58,154**
Olympic Peninsula				
A	235	384	48,817	109,320
Others*	212	59	10,412	20,774
Average	**224**	**221**	**29,615**	**65,047**
Lower Columbia	**264**	**354**	**47,673**	**93,152**
Central Washington / Inland Empire	**227**	**186**	**38,961**	**57,686**
State Average	**237**	**233**	**39,635**	**66,207**

TABLE 18 lists the average number of operating days, average single shift capacity (lumber volume produced) per mill, average annual log consumption and average lumber production per mill by mill size and economic area. Washington sawmills operated on average 20 percent more days in 2012 than in 2010.

* Some mill sizes were combined to avoid disclosure of individual corporate data.

* Mill-size classes indicate the capacity to process logs (in thousand board feet, Scribner scale) during an 8-hour shift.
Class A: More than 120 mbf
Class B: 80-120 mbf
Class C: 40-80 mbf
Class D: less than 40 mbf

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Table 19 **Number of sawmills — by size and headrig**

(thousand board feet, lumber tally)

Economic area and mill size	All roundwood	Roundwood: Sound logs	Roundwood: Utility logs	Other: Peeler cores	Other: Other
Puget Sound					
A	268,906	263,139	5,767	0	0
Others*	190,834	190,334	500	0	0
Total	**459,740**	**453,473**	**6,267**	**0**	**0**
Olympic Peninsula					
A	829,894	793,326	36,568	2	8,571
Others*	41,649	40,448	1,201	0	0
Total	**871,543**	**833,774**	**37,769**	**2**	**8,571**
Lower Columbia	**238,363**	**238,363**	**0**	**0**	**0**
Central Washington / Inland Empire	**194,806**	**178,529**	**16,277**	**0**	**0**
State total					
A	1,520,869	1,462,257	58,612	2	8,571
B	75,957	75,457	500	0	0
C	95,273	94,072	1,201	0	0
D	72,353	72,353	0	0	0
Total	**1,764,452**	**1,704,139**	**60,313**	**2**	**8,571**

TABLE 19 shows the total volume of wood that were processed by Washington's sawmills, according to mill size. More than 87 percent of all logs were rated as sound logs, and not utility, peeler cores or other cateogories.

* Some mill sizes were combined to avoid disclosure of individual corporate data.

* Mill-size classes indicate the capacity to process logs (in thousand board feet, Scribner scale) during an 8-hour shift.
Class A: More than 120 mbf
Class B: 80-120 mbf
Class C: 40-80 mbf
Class D: less than 40 mbf

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Table 20 **Log consumption by sawmills – by diameter (in inches)**

(thousand board feet, Scribner)

Economic area and mill size	Total	Log diameter in inches: less than 5	5 to 10	10 to 20	21 or more
Puget Sound					
A	268,906	0	156,733	99,751	12,422
Others*	190,834	245	73,128	77,547	39,915
Total	**459,740**	**245**	**229,861**	**177,297**	**52,337**
Olympic Peninsula					
A	829,894	2,826	550,258	251,652	25,158
Others*	41,649	0	749	29,713	11,187
Total	**871,543**	**2,826**	**551,007**	**281,365**	**36,345**
Lower Columbia	**238,363**	**6,039**	**85,842**	**136,873**	**9,609**
Central Washington / Inland Empire	**194,806**	**8,139**	**97,752**	**77,865**	**11,051**
State total					
A	1,520,869	17,004	886,170	561,695	56,000
B	75,957	0	4,400	34,870	36,687
C	95,273	0	48,456	37,447	9,370
D	72,353	245	25,436	39,388	7,285
Total	**1,764,452**	**17,249**	**964,461**	**673,400**	**109,342**

TABLE 20 displays the distribution of logs among the economic areas and size categories. Half of all lumber in Washington was processed in the Olympic Peninsula Economic Area.

* Some counties were combined to avoid disclosure of individual corporate data.

* Mill-size classes indicate the capacity to process logs (in thousand board feet, Scribner scale) during an 8-hour shift.
Class A: More than 120 mbf
Class B: 80-120 mbf
Class C: 40-80 mbf
Class D: less than 40 mbf

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Table 21a **Consumption by sawmills – by original owners and mill size**

(thousand board feet, Scribner rule)

Economic area and mill size		All Owners	State	National Forest	Bureau of Land Management	Other Public
Puget Sound						
	A	268,906	70,681	3,964	0	0
	Others*	190,834	45,401	2,829	0	7,617
	Total	**459,740**	**116,082**	**6,793**	**0**	**7,617**
Olympic Peninsula						
	A	829,894	222,044	6,527	231	20,381
	Others*	41,649	26,518	0	0	4,480
	Total	**871,543**	**248,562**	**6,527**	**231**	**24,861**
Lower Columbia		**238,363**	**78,151**	**5,640**	**6,634**	**25,036**
Central Washington / Inland Empire		**194,806**	**30,354**	**18,467**	**8,679**	**2,708**
State total						
	A	1,520,869	399,025	32,949	15,543	48,124
	B	75,957	39,657	2,150	0	7,000
	C	95,273	25,308	2,329	0	4,852
	D	72,353	9,159	0	0	245
	Total	**1,764,452**	**473,149**	**37,428**	**15,543**	**60,221**

TABLES 21A-B show the total volume of logs that were processed by sawmills, according to mill ownership. Private forest owners (including industrial, small forest owners and tribes) provided 66% of the total volume of logs processed in Washington mills. Public ownership includes state (27% of the total), federal , counties, cities, etc.

* Some mill sizes were combined to avoid disclosure of individual corporate data.

* Mill-size classes indicate the capacity to process logs (in thousand board feet, Scribner scale) during an 8-hour shift.
Class A: More than 120 mbf
Class B: 80-120 mbf
Class C: 40-80 mbf
Class D: less than 40 mbf

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Table 21b **Log consumption by sawmills – by original owners and mill size**
(thousand board feet, Scribner scale)

Economic area and mill-size class	Forest Industry Own supply	Other supply	Native American	Farmer and miscellaneous private
Puget Sound				
A	18,916	68,737	3,788	102,820
Others*	3,500	100,452	2,776	28,258
Total	**22,416**	**169,190**	**6,564**	**131,078**
Olympic Peninsula				
A	48,613	427,832	19,793	84,473
Others*	0	3,360	0	7,291
Total	**48,613**	**431,192**	**19,793**	**91,764**
Lower Columbia	**6,225**	**96,904**	**3,558**	**16,215**
Central Washington / Inland Empire	**8,249**	**22,121**	**74,376**	**29,853**
State total				
A	81,892	610,025	101,490	231,821
B	110	24,500	0	2,540
C	0	58,055	1,553	3,175
D	3,500	26,827	1,248	31,374
Total	**85,502**	**719,407**	**104,291**	**268,909**

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Table 22a **Logs consumed by sawmills – by counties and original owners**

(thousand board feet, Scribner scale)

Economic area and county of operation	All Owners	State	National Forest	Bureau of Land Management	Other Public
Puget Sound					
Pierce	148,394	5,085	0	0	0
Snohomish	140,441	50,620	2,829	0	7,000
Others*	170,905	60,377	3,964	0	617
Total	**459,740**	**116,082**	**6,793**	**0**	**7,617**
Olympic Peninsula					
Clallam	176,856	61,700	203	0	0
Grays Harbor	163,200	21,680	2,640	0	16,360
Lewis	227,415	49,913	3,564	231	8,501
Others*	304,072	115,269	121	0	0
Total	**871,543**	**248,562**	**6,527**	**231**	**24,861**
Lower Columbia	**238,363**	**78,151**	**5,640**	**6,634**	**25,036**
Central Washington/ Inland Empire	**194,806**	**30,354**	**18,467**	**8,679**	**2,708**
State Total	**1,764,452**	**473,149**	**37,428**	**15,543**	**60,221**

TABLES 22a-b show the total volume of logs that were processed by sawmills, according to county, economic area and the original ownership of logs. About the same volume of logs from National Forests were used by mills in eastern Washington and western Washington.

* Some counties were combined to avoid disclosure of individual corporate data.

* Mill-size classes indicate the capacity to process logs (in thousand board feet, Scribner scale) during an 8-hour shift.
Class A: More than 120 mbf
Class B: 80-120 mbf
Class C: 40-80 mbf
Class D: less than 40 mbf

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Table 22b **Log consumption by sawmills – by counties and original owners**

(thousand board feet, Scribner scale)

Economic area and county	Forest Industry		Native American	Farmer and miscellaneous private
	Own Wood Supply	Other Wood Supply		
Puget Sound				
Pierce	5,184	70,160	1,145	66,819
Snohomish	0	72,578	1,553	5,861
Others*	17,232	26,452	3,866	58,398
Total	**22,416**	**169,190**	**6,564**	**131,078**
Olympic Peninsula				
Clallam	0	95,222	3,327	16,403
Grays Harbor	5,280	95,120	8,120	14,000
Lewis	6,549	123,243	8,105	27,311
Others*	36,785	117,607	241	34,050
Total	**48,613**	**431,192**	**19,793**	**91,764**
Lower Columbia	**6,225**	**96,904**	**3,558**	**16,215**
Central Washington/ Inland Empire	**8,249**	**22,121**	**74,376**	**29,853**
State total	**85,502**	**719,407**	**104,291**	**268,909**

Table 23a **Number of sawmills – by percentage of logs from various sources**
(Percentage of dependency)

Economic area and mill-size class		National Forest				State		
		0	1-33	34-66	67-100	0	1-33	34-66
Puget Sound								
	A	4	1	0	0	0	3	2
	Others*	3	2	0	0	1	2	2
	Total	**7**	**3**	**0**	**0**	**1**	**5**	**4**
Olympic Peninsula								
	A	9	8	0	0	2	10	4
	Others*	4	0	0	0	0	2	1
	Total	**13**	**8**	**0**	**0**	**2**	**12**	**5**
Lower Columbia		3	2	0	0	2	1	2
Central Washington / Inland Empire		**2**	**3**	**0**	**0**	**1**	**4**	**0**
State total								
	A	17	13	0	0	5	16	8
	B	1	2	0	0	0	1	1
	C	3	1	0	0	0	3	1
	D	4	0	0	0	1	2	1
	Total	**25**	**16**	**0**	**0**	**6**	**22**	**11**

TABLES 23 A-C show the percentage of log volumes of mills (classified by mill-size) from original owner categories. There are 30 mills in the largest size category of mills, only seven are grouped in the lower three categories. This

* Some mill sizes were combined to avoid disclosure of individual corporate data.

* Mill-size classes indicate the capacity to process logs (in thousand board feet, Scribner scale) during an 8-hour shift.
Class A: More than 120 mbf
Class B: 80-120 mbf
Class C: 40-80 mbf

Continued

Table 23b **Number of sawmills – by percentage of logs from various sources**

By percentage of dependency

Economic area and mill size	Other Public				Own Wood Supply		
	0%	1-33%	34-66%	67-100%	0%	1-33%	34-66%
Puget Sound							
A	5	0	0	0	2	3	0
Others*	2	3	0	0	4	1	0
Total	**7**	**3**	**0**	**0**	**6**	**4**	**0**
Olympic Peninsula							
A	12	5	0	0	13	3	1
Others*	3	0	1	0	4	0	0
Total	**15**	**5**	**1**	**0**	**17**	**3**	**1**
Lower Columbia	**1**	**4**	**0**	**0**	**4**	**1**	**0**
Central Washington / Inland Empire							
Others*	3	2	0	0	3	2	0
Total	3	2	0	0	3	2	0
A	19	11	0	0	21	8	1
B	2	1	0	0	2	1	0
C	2	1	1	0	4	0	0
D	3	1	0	0	3	1	0
Total	**26**	**14**	**1**	**0**	**30**	**10**	**1**

Continued

Table 23c **Number of sawmills – by percentage of logs from various sources**

Percent of Dependency

conomic area and industry	Native American 0%	Native American 1-33%	Native American 34-66%	Native American 67-100%	Farmer and miscellaneous private 0%	Farmer and miscellaneous private 1-33%	Farmer and miscellaneous private 34-66%
Puget Sound							
A	3	2	0	0	1	1	2
Others*	3	2	0	0	1	2	2
Total	**6**	**4**	**0**	**0**	**2**	**3**	**4**
Olympic Peninsula							
A	7	10	0	0	3	12	2
Others*	4	0	0	0	2	0	1
Total	**11**	**10**	**0**	**0**	**5**	**12**	**3**
Lower Columbia	**3**	**2**	**0**	**0**	**1**	**4**	**0**
Central Washington	**1**	**3**	**0**	**1**	**1**	**3**	**1**
Inland Empire							
State total							
A	13	16	0	1	5	19	5
B	3	0	0	0	1	2	0
C	3	1	0	0	2	1	0
D	2	2	0	0	1	0	3
Total	**21**	**19**	**0**	**1**	**9**	**22**	**8**

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Table 24a **Logs consumed by sawmills — by species and mill size**

(thousand board feet, Scribner scale)

Economic area and mill-size class	All species	Douglas-fir	Hemlock	True firs	Spruce	Ponderosa pine
Puget Sound						
A	268,906	200,845	65,043	212	0	0
Others*	190,834	103,412	60,227	500	0	372
Total	**459,740**	**304,257**	**125,270**	**712**	**0**	**372**
Olympic Peninsula						
A	829,894	331,464	352,355	0	8,042	1,325
Others*	41,649	30,735	5,974	560	1,680	0
Total	**871,543**	**362,199**	**358,329**	**560**	**9,722**	**1,325**
Lower Columbia	**238,363**	**208,784**	**20,572**	**3,864**	**0**	**5,143**
Central Washington / Inland Empire	**194,806**	**69,934**	**0**	**21,516**	**4,069**	**77,702**
State total						
A	1,520,869	810,957	437,971	25,591	12,111	84,145
B	75,957	59,807	4,650	500	0	0
C	95,273	26,548	61,551	560	1,680	372
D	72,353	47,862	0	0	0	25
Total	**1,764,452**	**945,175**	**504,171**	**26,651**	**13,791**	**84,542**

TABLES 24 A-B display the total volume of logs that were processed by sawmills, according to mill size*, economic area and species. In the dry eastside of Washington there were no hemlock, hardwood or spruce and only 7.4 percent of the total Douglas-fir trees harvested for statewide mills. However, the eastside contributed 92% of the Ponderosa Pine, 94% of the Lodgepole Pine, 17% of the Western Red Cedar and 81% of

* Some mill sizes were combined to avoid disclosure of individual corporate data.

* Mill-size classes indicate the capacity to process logs (in thousand board feet, Scribner scale) during an 8-hour shift.
Class A: More than 120 mbf
Class B: 80-120 mbf
Class C: 40-80 mbf
Class D: less than 40 mbf

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Table 24b **Log consumption by sawmills — by species and mill size**

(thousand board feet, Scribner scale)

Economic area and mill-size class	Lodgepole pine	Western redcedar	Other softwoods	Red alder	Other hardwoods
Puget Sound					
A	0	2,806	0	0	0
Others*	0	670	0	21,526	4,127
Total	0	3,476	0	21,526	4,127
Olympic Peninsula					
A	662	52,000	2,650	76,973	4,423
Others*	0	2,700	0	0	0
Total	**662**	**54,700**	**2,650**	**76,973**	**4,423**
Lower Columbia	**0**	**0**	**0**	**0**	**0**
Central Washington / Inland Empire	**9,766**	**11,819**	**0**	**0**	**0**
State total					
A	10,429	55,620	2,650	76,973	4,423
B	0	11,000	0	0	0
C	0	3,370	0	0	1,192
D	0	5	0	21,526	2,935
Total	**10,429**	**69,995**	**2,650**	**98,498**	**8,550**

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Table 25a **Log consumption by sawmills – by species and county**

(thousand board feet, Scribner

Economic area and county	All species	Douglas-fir	Hemlock	True firs	Spruce	Ponderosa pine
Puget Sound						
Pierce	148,394	130,124	15,464	0	0	0
Snohomish	140,441	80,310	59,631	500	0	0
Others*	170,905	93,823	50,175	212	0	372
Total	**459,740**	**304,257**	**125,270**	**712**	**0**	**372**
Olympic Peninsula						
Clallam	176,856	62,064	89,378	0	5,088	0
Grays Harbor	163,200	55,936	85,024	560	1,680	0
Lewis	227,415	77,988	48,357	0	662	1,325
Others*	304,072	166,212	135,570	0	2,291	0
Total	**871,543**	**362,199**	**358,329**	**560**	**9,722**	**1,325**
Lower Columbia	**238,363**	**208,784**	**20,572**	**3,864**	**0**	**5,143**
Central Washington/ Inland Empire	**194,806**	**69,934**	**0**	**21,516**	**4,069**	**77,702**
State Total	**1,764,452**	**945,175**	**504,171**	**26,651**	**13,791**	**84,542**

TABLES 25 A-B display the total volume of logs that were consumed in Washington, according to the mills' home counties, economic areas and tree species. (Tables 24a and 24b group the data by mill size instead of counties.)

* Some counties were combined to avoid disclosure of individual corporate data.

* Mill-size classes indicate the capacity to process logs (in thousand board feet, Scribner scale) during an 8-hour shift.
Class A: More than 120 mbf
Class B: 80-120 mbf
Class C: 40-80 mbf
Class D: less than 40 mbf

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Table 25b **Log consumed by sawmills – by species and county**

(thousand board feet, Scribner

Economic area and county of operation	Lodgepole pine	Western redcedar	Other softwoods	Red alder	Other hardwoods
Puget Sound					
Pierce	0	2,806	0	0	0
Snohomish	0	0	0	0	0
Others*	0	670	0	21,526	4,127
Total	**0**	**3,476**	**0**	**21,526**	**4,127**
Olympic Peninsula					
Clallam	0	0	0	19,716	610
Grays Harbor	0	20,000	0	0	0
Lewis	662	34,700	2,650	57,257	3,814
Others*	0	0	0	0	0
Total	**662**	**54,700**	**2,650**	**76,973**	**4,423**
Lower Columbia	**0**	**0**	**0**	**0**	**0**
Central Washington/ Inland Empire	**9,766**	**11,819**	**0**	**0**	**0**
State total	**10,429**	**69,995**	**2,650**	**98,498**	**8,550**

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Table 26 **Wood and bark residues - by county**

(dry weight tons)

Economic area and county of operation	All residues	Wood Residues	Bark Residues
Puget Sound			
Pierce	249,889	189,677	60,212
Snohomish	337,522	263,734	73,788
Others*	65,405	45,980	19,425
Total	**652,816**	**499,391**	**153,425**
Olympic Peninsula			
Clallam	468,428	362,120	106,308
Grays Harbor	402,834	315,557	87,277
Lewis	644,728	484,239	160,489
Others*	701,959	544,617	157,342
Total	**2,217,949**	**1,706,533**	**511,416**
Lower Columbia	**539,404**	**419,237**	**120,167**
Central Washington/ Inland Empire	**312,974**	**238,591**	**74,382**
State Total	**3,723,143**	**2,863,752**	**859,390**

TABLE 26 displays the volume of wood and bark residues by the sawmills' home counties and economic areas. Although a post-production waste material, wood residues are the primary raw material for pulp mills. In Washington the highest total value of wood products comes from pulp mills.

* Some counties were combined to avoid disclosure of individual corporate data.

* Mill-size classes indicate the capacity to process logs (in thousand board feet, Scribner scale) during an 8-hour shift.
Class A: More than 120 mbf
Class B: 80-120 mbf
Class C: 40-80 mbf
Class D: less than 40 mbf

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Table 27a **Wood residues (all types) from sawmills – mill size and use**

(dry weight tons)

Economic area and mill size		Total	Total used	All Types: Pulp	Board	Fuel	Other	Unused
Puget Sound								
	A	162,376	162,376	91,839	0	2,670	67,867	0
	Others*	337,015	337,015	242,714	0	70,200	24,101	0
	Total	**499,391**	**499,391**	**334,553**	**0**	**72,870**	**91,968**	**0**
Olympic Peninsula								
	A	1,648,109	1,648,109	1,103,217	52,559	349,176	143,157	0
	Others*	58,424	58,424	32,409	0	12,490	13,525	0
	Total	**1,706,533**	**1,706,533**	**1,135,626**	**52,559**	**361,666**	**156,682**	**0**
Lower Columbia		**419,237**	**419,237**	**317,095**	**10,881**	**65,197**	**26,064**	
Central Washington / Inland Empire		**238,591**	**238,591**	**119,273**	**55,744**	**28,768**	**34,806**	
State total								
	A	2,450,931	2,450,931	1,621,872	119,184	441,869	268,006	0
	B	122,555	122,555	98,363	0	20,304	3,888	0
	C	206,093	206,093	139,118	0	55,582	11,393	0
	D	84,173	84,173	47,194	0	10,746	26,233	0
	Total	**2,863,752**	**2,863,752**	**1,906,547**	**119,184**	**528,501**	**309,520**	**0**

TABLES 27 A-D displays the weights of wood residues produced by lumber mills and how they were used. Weights are also separated by quality: coarse, medium and fine.

* Some mill sizes were combined to avoid disclosure of individual corporate data.

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Table 27b **Wood residues from sawmills — mill size and use**
(dry weight tons)

Economic area and mill-size class	Total	Total used	Coarse				Unused
			Pulp	Board	Fuel	Other	
Puget Sound							
A	65,140	65,140	65,140	0	0	0	0
Others*	190,868	190,868	187,310	0	0	3,558	0
Total	**256,008**	**256,008**	**252,450**	**0**	**0**	**3,558**	**0**
Olympic Peninsula							
A	921,346	921,346	756,458	0	57,907	106,981	0
Others*	33,408	33,408	22,987	0	6,864	3,557	0
Total	**954,754**	**954,754**	**779,445**	**0**	**64,771**	**110,538**	**0**
Lower Columbia	**245,457**	**245,457**	**211,996**	**0**	**33,461**	**0**	**0**
Central Washington / Inland Empire	**113,990**	**113,990**	**113,990**	**0**	**0**	**0**	**0**
State total							
A	1,336,381	1,336,381	1,138,032	0	91,368	106,981	0
B	72,525	72,525	72,525	0	0	0	0
C	114,109	114,109	100,130	0	6,864	7,115	0
D	47,194	47,194	47,194	0	0	0	0
Total	**1,570,209**	**1,570,209**	**1,357,881**	**0**	**98,232**	**114,096**	**0**

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Table 27c **Medium wood residue from sawmills — by county and use**

(dry weight tons)

Economic area and mill-size class	Total	Medium					
		Total used	Pulp	Board	Fuel	Other	Unused
Puget Sound							
A	48,618	48,618	0	0	2,670	45,948	0
Others*	68,574	68,574	16,416	0	42,012	10,146	0
Total	**117,192**	**117,192**	**16,416**	**0**	**44,682**	**56,094**	**0**
Olympic Peninsula							
A	323,547	323,547	92,022	52,559	171,162	7,804	0
Others*	7,068	7,068	0	0	2,813	4,255	0
Total	**330,615**	**330,615**	**92,022**	**52,559**	**173,975**	**12,059**	**0**
Lower Columbia	**86,890**	**86,890**	**31,923**	**10,881**	**18,022**	**26,064**	**0**
Central Washington / Inland Empire	**62,301**	**62,301**	**0**	**26,147**	**1,348**	**34,806**	**0**
State total							
A	517,441	517,441	123,945	89,587	193,175	110,734	0
B	20,304	20,304	16,416	0	0	3,888	0
C	45,251	45,251	0	0	43,853	1,398	0
D	14,002	14,002	0	0	999	13,003	0
Total	**596,998**	**596,998**	**140,361**	**89,587**	**238,027**	**129,023**	**0**

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Table 27(**Fine wood residues from sawmills — by mill size and use**

(dry weight tons)

Economic area and mill-size class	Total	Total used	Fine				Unused
			Pulp	Board	Fuel	Other	
Puget Sound							
A	48,618	48,618	26,699	0	0	21,919	0
Others*	77,573	77,573	38,988	0	28,188	10,397	0
Total	**126,191**	**126,191**	**65,687**	**0**	**28,188**	**32,316**	**0**
Olympic Peninsula							
A	403,216	403,216	254,737	0	120,107	28,372	0
Others*	17,948	17,948	9,422	0	2,813	5,713	0
Total	**421,164**	**421,164**	**264,159**	**0**	**122,920**	**34,085**	**0**
Lower Columbia	**86,890**	**86,890**	**73,176**	**0**	**13,714**	**0**	**0**
Central Washington / Inland Empire	**62,300**	**62,300**	**5,283**	**29,597**	**27,420**		
State total							
A	597,109	597,109	359,895	29,597	157,326	50,291	0
B	29,726	29,726	9,422	0	20,304	0	0
C	46,733	46,733	38,988	0	4,865	2,880	0
D	22,977	22,977	0	0	9,747	13,230	0
Total	**696,545**	**696,545**	**408,305**	**29,597**	**192,242**	**66,401**	**0**

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Table 28 **Bark residues from sawmills — by mill size* and use**

(tons, dry weight)

Economic area and mill-size class	Total	Total used	Used				Unused
			Pulp	Board	Fuel	Other	
Puget Sound							
A	58,071	58,071	0	0	0	58,071	0
Others*	95,354	95,354	0	0	81,895	13,459	0
Total	**153,425**	**153,425**	**0**	**0**	**81,895**	**71,530**	**0**
Olympic Peninsula							
A	489,978	487,579	0	0	404,529	83,050	2,399
Others*	21,438	21,438	0	0	16,355	5,083	0
Total	**511,416**	**509,017**	**0**	**0**	**420,884**	**88,133**	**2,399**
Lower Columbia	**120,167**	**120,167**	**0**	**0**	**75,283**	**44,884**	**0**
Central Washington / Inland Empire	**74,383**	**74,383**	**0**	**0**	**65,006**	**9,377**	**0**
State total							
A	737,955	735,556	0	0	544,818	190,738	2,399
B	35,506	35,506	0	0	30,862	4,644	0
C	55,970	55,970	0	0	54,121	1,849	0
D	29,960	29,960	0	0	13,267	16,693	0
Total	**859,391**	**856,992**	**0**	**0**	**643,068**	**213,924**	**2,399**

TABLE 28 displays the volumes of bark residues and how they were used.

* Some mill sizes were combined to avoid disclosure of individual corporate data.

* Mill-size classes indicate the capacity to process logs (in thousand board feet, Scribner scale) during an 8-hour shift.
Class A: More than 120 mbf
Class B: 80-120 mbf
Class C: 40-80 mbf
Class D: less than 40 mbf

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Table 29 **Bark residues — by use and county**

(dry weight tons)

Economic area and county of operation	Total	Total used	Used				Unused
			Pulp	Board	Fuel	Other	
Puget Sound							
Pierce	60,212	60,212	0	0	0	60,212	0
Snohomish	73,788	73,788	0	0	68,628	5,160	0
Others*	19,425	19,425	0	0	13,267	6,158	0
Total	**153,425**	**153,425**	**0**	**0**	**81,895**	**71,530**	**0**
Olympic Peninsula							
Clallam	106,308	106,308	0	0	101,225	5,083	0
Grays Harbor	87,277	87,277	0	0	87,277	0	0
Lewis	160,489	160,489	0	0	127,011	33,478	0
Others*	157,342	154,943	0	0	105,371	49,572	2,399
Total	**511,416**	**509,017**	**0**	**0**	**420,884**	**88,133**	**2,399**
Lower Columbia	**120,167**	**120,167**	**0**	**0**	**75,283**	**44,884**	**0**
Central Washington/ Inland Empire	**74,382**	**74,382**	**0**	**0**	**65,006**	**9,377**	**0**
State Total	**859,390**	**856,991**	**0**	**0**	**643,068**	**213,924**	**2,399**

TABLES 29 A-D display the volume of bark residues produced in wood product mills and their use. More than 75% of bark residues from Washington mills was burned as fuel in 2012.

* Some mill sizes were combined to avoid disclosure of individual corporate data.

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Continued:

Table 29b **Coarse wood residues — by use and county**

(dry weight tons)

Economic area and mill-size class	Total	Total used	Coarse Used: Pulp	Board	Fuel	Other	Unused
Puget Sound							
Pierce	88,855	88,855	88,855	0	0	0	0
Snohomish	140,182	140,182	140,182	0	0	0	0
Others*	26,971	26,971	23,413	0	0	3,558	0
Total	**256,008**	**256,008**	**252,450**	**0**	**0**	**3,558**	**0**
Olympic Peninsula							
Clallam	203,886	203,886	203,886	0	0	0	0
Grays Harbor	178,275	178,275	149,804	0	28,471	0	0
Lewis	259,368	259,368	217,930	0	36,300	5,138	0
Others*	313,225	313,225	207,825	0	0	105,400	0
Total	**954,754**	**954,754**	**779,445**	**0**	**64,771**	**110,538**	**0**
Lower Columbia	**245,457**	**245,457**	**211,996**	**0**	**33,461**	**0**	**0**
Central Washington/ Inland Empire	**113,990**	**113,990**	**113,990**	**0**	**0**	**0**	**0**
State total	**1,570,209**	**1,570,209**	**1,357,881**	**0**	**98,232**	**114,096**	**0**

* Some mill sizes were combined to avoid disclosure of individual corporate data.

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Continued

Table 29d **Wood residue — by use and county**

(dry weight tons)

Economic area and county	Total	Total used	Fine Used				Unused
			Pulp	Board	Fuel	Other	
Puget Sound							
Pierce	50,411	50,411	26,699	0	9,720	13,992	0
Snohomish	61,776	61,776	38,988	0	18,468	4,320	0
Others*	14,004	14,004	0	0	0	14,004	0
Total	**126,191**	**126,191**	**65,687**	**0**	**28,188**	**32,316**	**0**
Olympic Peninsula							
Clallam	87,336	87,336	74,033	0	9,048	4,255	0
Grays Harbor	73,069	73,069	8,856	0	62,985	1,228	0
Lewis	129,031	129,031	86,514	0	13,915	28,602	0
Others*	131,728	131,728	94,756	0	36,972	0	0
Total	**421,164**	**421,164**	**264,159**	**0**	**122,920**	**34,085**	**0**
Lower Columbia	**86,890**	**86,890**	**73,176**	**0**	**13,714**	**0**	**0**
Central Washington/ Inland Empire	**62,300**	**62,300**	**5,283**	**29,597**	**27,420**	**0**	**0**
State total	**696,545**	**696,545**	**408,305**	**29,597**	**192,242**	**66,401**	**0**

* Some mill sizes were combined to avoid disclosure of individual corporate data.

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Continued

Table 29d **Wood residue — by use and county**

(dry weight tons)

Economic area and county	Total	Medium					
		Total used	Pulp	Board	Fuel	Other	Unused
Puget Sound							
Pierce	50,411	50,411	0	0	3,642	46,769	0
Snohomish	61,776	61,776	16,416	0	41,040	4,320	0
Others*	5,005	5,005	0	0	0	5,005	0
Total	**117,192**	**117,192**	**16,416**	**0**	**44,682**	**56,094**	**0**
Olympic Peninsula							
Clallam	70,898	70,898	46,312	0	16,265	8,321	0
Grays Harbor	64,213	64,213	0	0	64,213	0	0
Lewis	95,840	95,840	13,310	29,598	52,932	0	0
Others*	99,664	99,664	32,400	22,961	40,565	3,738	0
Total	**330,615**	**330,615**	**92,022**	**52,559**	**173,975**	**12,059**	**0**
Lower Columbia	**86,890**	**86,890**	**31,923**	**10,881**	**18,022**	**26,064**	**0**
Central Washington/ Inland Empire	**62,301**	**62,301**	**0**	**26,147**	**1,348**	**34,806**	**0**
State Total	**596,998**	**596,998**	**140,361**	**89,587**	**238,027**	**129,023**	**0**

* Some mill sizes were combined to avoid disclosure of individual corporate data.

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Table 30 **Lumber production — by saw type and county**

(thousand board feet, Scribner)

Economic area and county of operation		All types	Circular saw	Band saw	Gang saw	Chipping saw	Others*
Puget Sound							
	Pierce	233,382	0	44,455	175,427	13,500	0
	Snohomish	286,000	0	279,920	0	6,080	0
	Others*	62,153	0	47,941	0	2,505	11,707
	Total	**581,535**	**0**	**372,317**	**175,427**	**22,085**	**11,707**
Olympic Peninsula							
	Clallam	402,355	0	402,355	0	0	0
	Grays Harbor	338,284	0	338,284	0	0	0
	Lewis	591,045	2,224	401,244	95,178	44,880	47,519
	Others*	609,856	0	358,262	205,931	7,750	37,913
	Total	**1,941,540**	**2,224**	**1,500,145**	**301,109**	**52,630**	**85,432**
Lower Columbia		**465,762**	**0**	**297,845**	**167,917**	**0**	**0**
Central Washington/ Inland Empire		**288,430**	**125**	**151,280**	**0**	**0**	**137,025**
State Total		**3,277,267**	**2,349**	**2,321,587**	**644,453**	**74,715**	**234,164**

TABLE 30 displays the volumes of finished lumber produced in thousand board feet and type of saw. In 2012 the total lumber production of Washington State was 3.3 billion board

* Some mill sizes were combined to avoid disclosure of individual corporate data.

* Mill-size classes indicate the capacity to process logs (in thousand board feet, Scribner scale) during an 8-hour shift.
Class A: More than 120 mbf
Class B: 80-120 mbf
Class C: 40-80 mbf
Class D: less than 40 mbf

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Table 31 **Lumber produced by sawmills — by softwood and hardwood**

(thousand board feet, Lumber tally)

Economic area and mil size	Total	Softwood	Hardwood
Puget Sound			
A	225,082	225,082	0
Others*	356,453	315,116	41,337
Total	**581,535**	**540,198**	**41,337**
Olympic Peninsula			
A	1,858,446	1,730,381	128,065
Others*	83,094	83,094	0
Total	**1,941,540**	**1,813,475**	**128,065**
Lower Columbia	**465,762**	**465,762**	**0**
Central Washington	**288,430**	**288,430**	**0**
State Total	**3,277,267**	**3,107,865**	**169,402**

TABLE 31 displays the total volume of softwood and hardwood lumber produced . Nearly 95 percent of the commercial lumber manufactured in Washington is softwood. No hardwood is produced in eastern Washington.

NATURAL RESOURCES

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Series Report #22

Plywood
Veneer
Pulp
Shake & Shingle

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Cover —In this 2006 photo, tall stacks of veneer are stored in front of the Hardel Mutual Plywood mill in Chehalis. Veneer mills now provide more veneer for engineered wood products than plywood.
Dorian Smith/DNR Photo

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Washington Mill Survey 2012

Series Report #22

Plywood, Veneer, Pulp and Shake Edition

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Introduction

Past readers of the Washington Mill Survey may be surprised to see this third edition covering 2012 statistics for the wood products industry. By the end of 2014, four total editions of the 2012 report will have been published. This new publication timetable will enable us to reduce the time to gather and analyze vital data.

For the past 46 years, the Mill Survey has been published as a single volume covering all sectors of the primary wood products industry. The Mill Survey is undergoing modifications to accomodate the needs of the public and forestry professionals when reporting about the forest products markets.

Here is the publishing schedule for this year.
February—Statewide totals and 10 year analyses
May—Lumber mills
September—Plywood, veneer, pulp, and shake-and-shingle mills
December—Log exports, poles, and chip mills

The initial 2012 report -- covering statewide and 10 year statistics and analyses — was a prologue for the story that the industry is rapidly adapting to increasing demands for logs and lumber. Some economists predict that the U.S. housing construction resurgence could last several years. Export markets are also increasing with the growth of global trade.

Other changes in the Mill Survey are expected. Some sectors are modifying their manufacturing process so much that they are barely recognizable from their original organization. For instance, the original Mill Survey only featured operations that bought logs and produced wood products. Then some plywood mills by-passed log processing and now buy veneer to manufacture plywood. Other mills are introducing new construction products from processed wood.

The only constant in the wood products industry is it continues to be a viable economic

Link to Mill Surveys and Timber Harvest Reports

Economic areas used in this report

Throughout the Mill Survey these economic areas are used to indicate the locations of mill operations and forests where timber is harvested. An economic area is determined by the similarity of economic activity in the forest products industry. The boundaries of an economic area are not always drawn according to natural geographic features or county lines.

Abbreviations and Conversions

Volume

A log's volume is measured in **Scribner Scale** which accounts for the narrowing width of a tree.
Lumber is measured in **lumber tally**.
A tree's Scribner Scale volume is usually less than its actual lumber tally. On average the conversion is 2:1 lumber tally for each board foot of Scribner logs.

Lumber

board foot (bf) = 12 inches x 12 inches x 1 inch
mbf = 1 thousand board feet
mmbf = 1 million board feet

Pulp (weight)
ton = 2,000 pound
bone dry tons (bdt) = 2,200 pounds (10% water)
1 mbf logs = 5 tons

Shake & Shingle (area)
1 square = 100 square feet
1 square = 4 bundles
10 squares = 1 mbf

Plywood and Veneer

msf 3/8-inch basis = 1 thousand square feet 3/8-inch thick
mmsf 3/8-inch basis = 1 million square feet 3/8-inch thick

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Table 32 **Veneer-producing mills—by lathe log diameter**

Lathe log diameter limit in inches

Economic area	Total	Layup only	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Puget Sound	2	1	0	0	1	0	0	0	0	0
Olympic Peninsula	5	2	0	0	3	0	0	0	0	0
Lower Columbia	1	0	0	0	1	0	0	0	0	0
State Total	**8**	**3**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**

TABLE 32 displays the number of mills that produce veneer by maximum lathe diameter. (A lathe peels veneer by spinning a log on its axis against a blade.) For instance, no mills can handle logs more than 40 inches in diameter.

Table 33 **Number of veneer and plywood mills — by minimum core size**

Lathe log diameter limit in inches

		Lathe log diameter limit in inches									
Economic area	Total	3	4	5	6	7	8	9	10	11	No Lathe or core
Puget Sound	2	1	0	0	0	0	0	0	0	0	1
Olympic Peninsula	5	0	3	0	0	0	0	0	0	0	2
Lower Columbia	1	0	1	0	0	0	0	0	0	0	0
State total	**8**	**1**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**

TABLE 33 displays the number of veneer mills by the minimum core size -- the thinnest log that can be peeled with the mill's equipment. For instance, in Washington, only one mill can peel veneer from a log as narrow as three inches.

Table 34 **Veneer and plywood mills — total 8-Hour single shift capacity**

(thousand square feet, 3/8-inch)

Economic area and county	Veneer only	Plywood only	Veneer and Plywood: Veneer	Veneer and Plywood: Plywood
Puget Sound	360	200	0	0
Olympic Peninsula	640	510	280	250
Lower Columbia	0	0	322	208
State Total	**1,000**	**710**	**602**	**458**

TABLE 34 shows the 8-hour capacity (thousand square feet) of mills that produce veneer and plywood. For instance, Washington's mills could totally produce nearly 1.2 million square feet of plywood (3/8-inch basis) per 8-hour shift. (In 2010 the capacity was 1.8 million square feet.) The state's mills decreased their veneer production capacity by 22%. However, the total veneer produciion capacity from veneer and plywood mills decreased by 41%, while production from veneer-only mills increased by 33%.

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Table 35 **Logs consumed by veneer and plywood mills — by diameter**

(thousand board feet, Scribner)

Minimum log diameter	Volume	Percent
Less than 5 inches	0	0
5.0 to 10.9 inches	76,784	45
11.0 to 20.9 inches	89,757	52
21 inches or more	4,964	3
State total	**171,505**	**100**

TABLE 35 displays the volume of logs processed to make veneer (from veneer-only and plywood and veneer mills) by log diameter. For instance, 97% of all logs processed to make veneer were between 5 and 21 inches in diameter.

Table 36 **Veneer and plywood production**

(thousand square feet, 3/8-inch basis)

Veneer	**447,470**
Plywood	**471,666**

TABLE 36 displays the total volume of veneer and plywood from veneer-only, plywood-only and veneer-plywood mills, on thousand square feet, 3/8-inch basis. For instance, Washington's mills produced 471.7 million square feet of plywood in 2012, a 42% decrease from 2010.

Table 37 **Number of veneer and plywood mills—by selected equipment**

Economic area and county	Total Mills	4-foot lathe	8-foot lathe	Slicer	Veneer chipper	Core chipper	Cold press	Hot press	Burner
Olympic Peninsula	5	0	3	0	4	3	0	2	1 1
Others*	3	1	2	0	1	2	1	1	1 0
State total	**8**	**1**	**5**	**0**	**5**	**5**	**1**	**4**	**2**

TABLE 37 displays the number of veneer and plywood mills which possess a variety of production equipment. For instance, half of the mills use a hot press, which simultaneously heats and presses together three or more layers of veneer. The heated glue is better spread and bonds to the layers of veneer.

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Table 38 **Wood residues from veneer and plywood mills — by use**

(bone dry tons)

		Used					
		Total					
Economic area	**Total**	**used**	**Pulp**	**Board**	**Fuel**	**Other**	**Unused**
Puget Sound							
Coarse	80	80	42	0	10	28	0
Medium	0	0	0	0	0	0	0
Fine	2	2	0	0	2	0	0
Total	**82**	**82**	**42**	**0**	**12**	**28**	**0**
Olympic Peninsula							
Coarse	209,970	209,970	154,728	0	12,424	42,818	0
Medium	0	0	0	0	0	0	0
Fine	3,106	3,106	0	0	3,106	0	0
Total	**213,076**	**213,076**	**154,728**	**0**	**15,530**	**42,818**	**0**
Lower Columbia							
Coarse	66,241	66,241	48,119	0	6,460	11,662	0
Medium	0	0	0	0	0	0	0
Fine	1,615	1,615	0	0	1,615	0	0
Total	**67,856**	**67,856**	**48,119**	**0**	**8,075**	**11,662**	**0**
State total							
Coarse	276,291	276,291	202,889	0	18,894	54,508	0
Medium	0	0	0	0	0	0	0
Fine	4,723	4,723	0	0	4,723	0	0
Total	**281,014**	**281,014**	**202,889**	**0**	**23,617**	**54,508**	**0**

TABLE 38 shows the volume in bone dry tons of the use of bark and mill residues produced by plywood and veneer mills. For instance, about 70% (202,889 tons) of the total wood residues (281,014 tons) was sold to pulp mills.

Table 39 **Average number of operating days — veneer and plywood mills**

	Average days	
Mill type	**statewide**	**Mills**
Veneer only	251	3
Plywood only	266	3
Veneer and plywood	220	2
State average	**246**	**8**

TABLE 39 shows the average number of mills and average annual operating days of three categories of production: veneer only, plywood only, and both plywood and veneer. For instance, in 2012 there were two mills that produce both veneer and plywood. In 2010 there were four.

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Table 40 **Numbers of Pulp Mills by processing type**

Economic area and county	All mills	Sulfite	Sulfate	Groundwood	Semi-chemical
Puget Sound	1	0	1	0	0
Olympic Peninsula	3	1	1	1	0
Lower Columbia	5	1	3	1	0
Inland Empire	2	0	1	1	0
State total	**11**	**2**	**6**	**3**	**0**

TABLE 40 shows the number of pulp mills based on their method of production. Methods include chemical (sulphate and sulphite), groundwood (mechanical grinding) and semi-chemical (chemical and mechanical). Kraft mills (sulfate) is the most common type of pulp mill in Washington.

Table 41 **Pulp mills' capacity (single 8-hour shift) – by type of mill**

(bone dry tons)

Pulp mill type	Capacity	Number
Sulfite	800	2
Sulfate	6,575	6
Groundwood and Semichemical	2,228	3
State total	**9,603**	**11**

TABLE 41 shows the average 8-hour shift capacity of the state's pulp mills, by manufacturing process. The total average 8-hour shift capacity for all pulp mills in Washington was 9,600 bone dry tons.

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Table 42 **Pulp mill production — by product, area and type of operation**

(bone dry tons)

		Products				
Economic area	All products	Newsprint	Bleached paper	Unbleached paper	Other paper	Market pulp
Puget Sound	478,377	0	283,946	127,570	0	66,861
Olympic Peninsula	617,645	100	10	239,954	160,000	217,581
Lower Columbia	2,187,594	371,849	279,252	933,813	602,680	0
Inland Empire	614,297	199,533	159,279	135,296	0	120,189
State total	**3,897,913**	**571,482**	**722,487**	**1,436,633**	**762,680**	**404,631**
Type of Operation						
Sulfite	194,030	0	0	54,030	0	140,000
Sulfate	2,502,379	100	722,487	1,382,603	132,558	264,631
Groundwood	1,201,504	571,382	0	0	630,122	0
State total	**3,897,913**	**571,482**	**722,487**	**1,436,633**	**762,680**	**404,631**

TABLE 42 shows the volumes of products (types of paper, market pulp, etc.) in bone dry tons that were produced by pulp mills. For instance, in 2012 unbleached paper was produced in the greatest volumes (1.4 million tons) of all pulp mill products (3.9 million tons). In 2010 the greatest product volume was 1.25 million tons for newsprint (newspapers).

Table 43 **Wood fiber consumption by pulp mills — by fiber type**

(bone dry tons)

		Chips					
Economic area	Total	Total Chips	From mill residues	From roundwood chipping mill	From logs	Sawdust and shavings	Waste paper
Puget Sound	698,878	654,566	498,393	156,173	0	0	44,312
Olympic Peninsula	1,375,144	1,182,371	405,073	478,648	231,308	67,342	192,773
Lower Columbia	3,749,013	3,300,437	1,957,488	1,204,145	0	138,804	448,576
Inland Empire	878,550	721,130	380,272	286,258	0	54,600	157,420
State total	**6,701,585**	**5,597,758**	**3,241,226**	**2,125,224**	**231,308**	**260,746**	**843,081**

TABLE 43 shows the volume and wood fiber type used by pulp mills. For instance, in 2012 pulp mills statewide used a total of 6.7 million tons of chips, mill residues, sawdust, shavings and recycled paper. Pulp mills used 6.9 million tons in 2010.

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Table 44 **Roundwood chip consumption by pulp mills – by species**

(bone dry tons)

Economic area	All species	Douglas-fir	Hemlock	TRUE fir	Spruce	Ponderosa pine	Lodgepole pine	Western redcedar	Other conifer	Red alder	Other hardwood
Puget Sound	156,173	124,938	23,426	3,123	0	0	0	4,685	0	0	0
Olympic Peninsula	478,648	41,748	435,324	0	1,576	0	0	0	0	0	0
Lower Columbia	1,204,145	579,174	223,767	17,612	0	72,324	183,243	5,871	0	95,413	26,743
Inland Empire	286,258	106,844	0	11,070	615	142,458	615	0	24,656	0	0
State total	**2,125,224**	**852,704**	**682,516**	**31,805**	**2,191**	**214,782**	**183,858**	**10,556**	**24,656**	**95,413**	**26,743**

TABLE 44 shows the volume and species of (roundwood) chips. For instance, in 2012 pulp mills statewide used 852,704 tons of Douglas-fir chips, a decrease of 10% from 2010.

Table 45 **Logs, sawdust and roundwood chip use by pulp mills – by state**

(bone dry tons)

Economic area	Total volume	Washington	Oregon	Idaho	Montana	British Columbia	Other States
Puget Sound							
Roundwood chips	156,173	156,173	0	0	0	0	0
Sawdust	0	0	0	0	0	0	0
Logs	0	0	0	0	0	0	0
Total	**156,173**	**156,173**	**0**	**0**	**0**	**0**	**0**
Olympic Peninsula							
Roundwood chips	478,648	477,597	0	0	0	1,051	0
Sawdust	67,342	65,322	0	0	0	2,020	0
Logs	231,308	231,308	0	0	0	0	0
Total	**777,298**	**774,226**	**0**	**0**	**0**	**3,071**	**0**
Lower Columbia							
Roundwood chips	1,204,145	629,979	482,353	0	9,768	3,898	78,146
Sawdust	79,877	79,877	0	0	0	0	0
Logs	0	0	0	0	0	0	0
Total	**1,284,022**	**709,856**	**482,353**	**0**	**9,768**	**3,898**	**78,146**
Inland Empire							
Roundwood chips	286,258	109,706	110,690	7,011	55,038	3,813	0
Sawdust	54,600	49,140	5,460	0	0	0	0
Logs	0	0	0	0	0	0	0
Total	**340,858**	**158,846**	**116,150**	**7,011**	**55,038**	**3,813**	**0**
State total							
Roundwood chips	2,125,224	1,373,456	593,043	7,011	64,806	8,762	78,146
Sawdust	201,819	194,339	5,460	0	0	2,020	0
Logs	231,308	231,308	0	0	0	0	0
Total	**2,558,351**	**1,799,102**	**598,503**	**7,011**	**64,806**	**10,782**	**78,146**

TABLE 45 shows the volume and wood fiber types from Pacific Northwest states and British Columbia that were used by Washington pulp mills, not including recycled paper or chips from mill residues. For instance, in 2012 the percentage of wood fiber used by pulp mills that came from out of state was 30%, down from 37%

These totals do not include waste paper or chips from mill residues

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Table 46 **Shake-and-shingle mills' capacity and operating days**

Total single shift capacity (Squares)

Economic area	Number	Shake	Shingle	Other	Average number of operating days / year
Puget Sound	1	0	2	0	100
Olympic Peninsula	10	65	132	121	134
Lower Columbia	1	0	30	0	220
State total	**12**	**65**	**164**	**121**	**139**

TABLE 46 shows the average number of operating days, mill capacities and product volumes of shake-and-shingle mills. For instance, Washington's 12 shake-and-shingle mills operated an average of 139 days in 2012. In 2010 the average was 151. Between 2008 and 2012 the average number of days operated by shake-and-shingle mills has declined 23%.

Table 47 **Shake-and-shingle mills with selected equipment**

Economic area and county	Chipper	Barker	Burner	None
Puget Sound	0	0	0	1
Olympic Peninsula	1	0	1	10
Lower Columbia	0	0	0	1
State Total	**1**	**0**	**1**	**12**

TABLE 47 shows only one out of 12 shake-and-shingle mills used a burner and one used a chipper in 2012.

Table 48 **Log consumption by shake-and-shingle mills – by type**

(thousand board feet, Scribner)

Economic area	All types	Sound logs	Utility logs	Other*
Puget Sound	15	0	0	15
Olympic Peninsula	928	184	60	684
Lower Columbia	322	0	0	322
State total	**1,265**	**184**	**60**	**1,021**

"Other" includes blocks, bolts, lumber, etc.

TABLE 48 shows the volume of logs and other forms of wood received by the shake-and-shingle sector. The mills only received the equivalent of 1.3 million board feet of logs and bolts (logs cut before delivery to mills), The mills received 80% of their wood in the form of bolts.

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Table 49 **Shake-and-shingle mills' production**

(squares)

		Product		
Economic area	**Total**	**Shakes**	**Shingles**	**Other**
Puget Sound	200	0	200	0
Olympic Peninsula	16,129	367	10,418	5,344
Lower Columbia	4,510	0	4,510	0
State total	**20,839**	**367**	**15,128**	**5,344**

TABLE 49 shows the volume of products (in squares) produced by shake-and-shingle mills in 2012. Production declined 75% between 2010 and 2012 in the traditional shake-and-shingle industry

Table 50 **Log consumption by shake and shingle mills — by original owners**

(thousand board feet, Scribner

						Forest industry			
Economic area	**All owners**	**State**	**National Forest**	**Bureau of Land Management**	**Other public**	**Own wood supply**	**Other wood supply**	**Native American**	**Farmer, misc. private**
State total	**244**	**9**	**0**	**0**	**0**	**180**	**55**	**0**	**0**

TABLE 50 displays the original ownerships of logs processed into shake-and-shingle products in Washington. About three-quarters of the logs were harvested by the owners of privately owned forests.

Table 51 **Log consumption by shake-and-shingle mills — by diameter (in inches)**

(thousand board feet, Scribner)

		Log diameter in inches			
	Total	**ss than 5**	**5 to 10**	**10 to 20**	**21 or more**
State Total	244	0	20	160	64

TABLE 51 shows the volume logs by diameter that were used to produce shake-and-shingle products in Washington in 2012. For instance, 66% of the logs were between 10 and 20-inches in diameter. About 26% were more than 21 inches in diamter.

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Table 52a **Wood and bark residues — production by shake-and-shingle mills**

(dry weight tons)

Economic area	All residues	Wood Residues				
	Total	Used	Unused	Total	Used	Unused
State total	18,009	0	0	16,759	16,759	0

Table 52b

(dry weight tons)

	Bark residues		
	Total	Used	Unused
State total	1,250	0	0

TABLES 52 A-B shows the volumes of wood and bark residues that were produced in shake-and-shingle mills. Only 1.1 percent of all the wood and bark residues from shake-and-shingle mills were not used.

Table 53 **Wood residues — by use and economic area**

(dry weight tons)

	All Types					
	Total	Total used	Pulp	Fuel	Other	Unused
State Total	16,759	12,771	0	4,360	8,411	3,987

	Coarse					
	Total	Total used	Pulp	Fuel	Other	Unused
State total	3,924	2,129	0	1,029	1,980	915

	Fine					
	Total	Total used	Pulp	Fuel	Other	Unused
State total	12,834	9,762	0	3,331	6,431	3,072

	Bark residues					
	Total	Total used	Pulp	Fuel	Other	Unused
State total	1,250	130	0	130	0	1,120

TABLE 53 shows the volumes and use of wood and bark residues from shake-and-shingle mills. Total wood residues from shake-and-shingle mills in 2010 was 52,355 bone dry tons. In 2012 the total residues was 16,759 bone dry tons, a 68% decrease.

NATURAL RESOURCES

Washington Mill Survey 2012

Series Report #22

Log Exports
Post, Poles, Pilings
Chips

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WASHINGTON STATE DEPARTMENT OF
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Washington Mill Survey 2012

Series Report #22
Log Exports; Post, Poles, Pilings; Chips
Edition

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Introduction

Past readers of the Washington Mill Survey may be surprised to see this fourth edition covering 2012 statistics for the wood products industry. This is the fourth and final edition of the 2012 Mill Survey. This new publication timetable will enable us to reduce the time to gather and analyze vital data.

For the past 46 years, the Mill Survey has been published as a single volume covering all sectors of the primary wood products industry. The Mill Survey is undergoing modifications to accomodate the needs of the public and forestry professionals when reporting about the forest products markets.

Here is the publishing schedule for this year.
February—Statewide totals and 10 year analyses
May—Lumber mills
October—Plywood, veneer, pulp, and shake-and-shingle mills
November—Log exports and pole and chip mills

The initial 2012 report—covering statewide and 10 year statistics and analyses — was a prologue for the story that the industry is rapidly adapting to increasing demands for logs and lumber. Some economists predict that the U.S. housing construction resurgence could last several years. Export markets are also increasing with the growth of global trade.

Other changes in the Mill Survey are expected. Some sectors are modifying their manufacturing process so much that they are barely recognizable from their original organization. For instance, the original Mill Survey only featured operations that bought logs and produced wood products. Then some plywood mills by-passed log processing and now buy veneer to manufacture plywood. Other mills are introducing new construction products from processed wood.

The only constant in the wood products industry is it continues to be a viable economic resource.

Link to Mill Surveys and Timber Harvest Reports

Economic areas used in this report

Throughout the Mill Survey these economic areas are used to indicate the locations of mill operations and forests where timber is harvested. An economic area is determined by the similarity of economic activity in the forest products industry. The boundaries of an economic area are not always drawn according to natural geographic features or county lines.

Abbreviations and Conversions

Volume

A log's volume is measured in **Scribner Scale** which accounts for the narrowing width of a tree.
Lumber is measured in **lumber tally**.
A tree's Scribner Scale volume is usually less than its actual lumber tally. On average the conversion is 2:1 lumber tally for each board foot of Scribner logs.

Lumber

board foot (bf) = 12 inches x 12 inches x 1 inch
mbf = 1 thousand board feet
mmbf = 1 million board feet

Pulp (weight)
ton = 2,000 pound
bone dry tons (bdt) = 2,200 pounds (10% water)
1 mbf logs = 5 tons

Shake & Shingle (area)
1 square = 100 square feet
1 square = 4 bundles
10 squares = 1 mbf

Plywood and Veneer
msf 3/8-inch basis = 1 thousand square feet 3/8-inch thick
mmsf 3/8-inch basis = 1 million square feet 3/8-inch thick

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Table 55 **Export logs — by diameter in inches**

(thousand board feet, Scribner)

Port	Total	Diameter in inches: Less than 5	5 to 11	11 to 21	21 or more
Everett	20,499	0	7,995	10,045	2,460
Grays Harbor	50,530	0	30,318	20,212	0
Longview	612,596	0	127,618	434,411	50,567
Olympia	109,000	0	27,110	73,900	7,990
Port Angeles	50,137	0	22,464	25,432	2,241
Seattle	91,234	0	26,600	58,567	6,067
Tacoma	76,925	0	15,175	57,194	4,556
State total	**1,010,921**	**0**	**257,279**	**679,760**	**73,882**

Table 55 Shows the volume of logs based on diameter. For instance, no logs were exported that were less than five inches in diameter.

Table 56 **Export logs — by species**

(thousand board feet, Scribner rule)

Port	All species	Douglas-fir	Hemlock	True firs	Spruce
Everett	20,499	2,050	14,349	2,050	2,050
Grays Harbor	50,530	17,686	27,792	2,527	2,527
Longview	612,596	491,084	88,457	22,721	10,334
Olympia	109,000	99,210	9,190	600	0
Port Angeles	50,137	10,378	32,057	714	6,988
Seattle	91,234	61,030	22,348	5,766	1,648
Tacoma	76,925	37,976	32,026	5,523	1,295
State total	**1,010,921**	**719,413**	**226,218**	**39,901**	**24,841**

Table 56 shows the volume of logs by species that were exported through Washington's ports. The major log exporting species was Douglas-fir (719.4 million board feet).

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Table 57 **Export logs (from Washington) – by port and economic area**

(thousand board feet, Scribner)

			Port of export						
Logs' Origin		**Total**	**Longview**	**Grays Harbor**	**Everett**	**Olympia**	**Port Angeles**	**Tacoma**	**Seattle**
	Washington	667,972	269,647	50,530	20,499	109,000	50,137	76,925	91,234
	Oregon	342,949	342,949	-	-	-	-	-	-
Total		**1,010,921**	**612,596**	**50,530**	**20,499**	**109,000**	**50,137**	**76,925**	**91,234**

Table 57 displays the volumes of logs that were exported through Washington ports. The port with the largest volume of logs exported in 2012 was Longview with 612.6 million board feet, followed by Olympia with 109 mmbf and Seattle wtih 91.2 mmbf. Depending on each port's

Table 58 **Export logs – by port and original owners**

(thousand board feet, Scribner rule)

			Forest industry			
Port		**Total**	**Own wood supply**	**Other wood supply**	**Native American**	**Farmer and misc. private**
	Everett	20,499	0	18,449	1,025	1,025
	Grays Harbor	50,530	0	27,792	17,686	5,053
	Longview	612,596	328,904	189,832	12,690	81,171
	Olympia	109,000	73,950	24,150	1,940	8,960
	Port Angeles	50,137	6,722	39,493	0	3,922
	Seattle	91,234	41,189	49,160	443	443
	Tacoma	76,925	66,405	9,468	526	526
Total		**1,010,921**	**517,169**	**358,343**	**34,309**	**101,099**

Table 58 displays the volume of logs by ownership category that were exported from Washington ports. In Washington logs harvested from publicly owned lands (state, federal, city, county, etc.) cannot be exported.

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Table 59 **Post, pole and piling mills — by operating days and capacity**

Economic area	Number	Annual capacity (thousand bd ft., Scribner) Peeling	Treatment	Average number of operating days in 2012 Peeling	treatment
Puget Sound	2	90	330	241	306
Olympic Peninsula	4	2,379	250	250	0
State total	**6**	**2,469**	**580**	**238**	**306**

Table 59 displays the number of mills and the state total annual capacity for peeling and treatment of primarily telephone poles. It also disolays the average number of operatting days per mill.

Table 60 **Number of post, pole and piling mills — by selected equipment**

Economic area	Number of mills	Peeler	Burner
State total	**6**	**5**	**0**

Table 60 displays the number of post, pole and piling mills that include peelers. No mills in this category have burners.

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Table 61 **Log consumption by post, pole and piling mills — by diameter in inches**

(thousand board feet, Scribner

	Diameter in inches				
	Total	Less than 5	5 to 11	11 to 21	21 or more
State total	**44,582**	**0**	**33,929**	**10,653**	**0**

Table 61 shows the diameter of logs used to produce post, poles, and pilings. All logs were between 5 and 21 inches in diameter.

Table 62 **Post, pole and piling mills' production — by treatment**

(thousand board feet, Scribner scale)

	Total	Untreated	Treated
State total	**49,450**	**26,218**	**23,232**

Table 62 shows the volume of wood that has been treated by post, pole and piling mills. Treatment includes embedding chemicals for products such as telephone poles that will be submitted to year-round exposure to outdoors.

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Table 63 **Number of chipping operations – by capacity and operating days**

Economic area	Number	Total our capacity (bone dry tons)	ge days operated
Puget Sound	2	415	245
Olympic Peninsula	6	2,590	212
Lower Columbia	1	1,800	240
Central Washington	1	200	260
Inland Empire	2	1,150	255
State Total	**12**	**6,155**	**242**

Table 63 shows the number of chipping operations, their daily capacities and number of operating days. For instance, all log chipping mills in the Olympic Peninsula area were collectively

Table 64 **Log consumption by log chipping mills – by diameter in inches**

(thousand board feet, Scribner

		Diameter in inches			
Economic area	Total	Less than 5	5 to 11	11 to 21	1 or more
Puget Sound	29,800	8,940	10,031	5,960	4,869
Olympic Peninsula	130,863	39,172	51,619	23,599	16,473
Lower Columbia	116,955	52,630	64,325	0	0
Central Washington	8,858	2,657	2,657	1,772	1,772
Inland Empire	52,666	2,633	10,533	31,600	7,900
State total	**339,142**	**106,033**	**139,166**	**62,930**	**31,013**

Table 64 shows the diameter of logs used to produce chips. Logs of all diameter widths were used to made chips.

Table 65 **Log consumption by log chipping mills – by original owners**

(thousand board feet, Scribner scale)

						Forest industry			
Economic area of operation	All owners	State	National Forest	Bureau of Land Mgmt.	Other public	Own wood supply	Other wood supply	Native American	Farmer misc. private
Puget Sound	27,533	2,783	2,455	0	0	0	16,755	2,594	5,213
Olympic Peninsula	130,863	12,237	7,417	0	2,840	0	89,445	9,309	9,616
Lower Columbia	116,955	29,239	0	0	0	0	46,782	0	40,934
Central Washington	8,858	266	1,506	0	0	0	6,644	0	443
Inland Empire	52,666	10,533	1,053	0	0	0	39,500	0	1,580
State Total	**339,142**	**55,057**	**12,432**	**0**	**2,840**	**0**	**199,125**	**11,903**	**57,786**

Table 65 shows the volumes of logs that were purchased from various forest owner categories.

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Table 66 **Log consumption by log chipping mills — by species**

(thousand board feet, Scribner

Economic area	All species	Douglas-fir	Hemlock	TRUE firs	Spruce	Pond. pine	Lodge. pine	Western redcedar	Other conifer	Red alder	Other hardwood
Puget Sound	29,800	9,779	13,733	0	0	0	0	218	109	4,869	1,091
Olympic Peninsula	130,863	52,398	56,169	0	1,867	0	0	3,200	1,420	12,789	3,020
Lower Columbia	116,955	67,834	24,561	0	0	0	0	0	0	24,561	0
Central Washington	8,858	1,772	886	3,720	0	1,594	886	0	0	0	0
Inland Empire	52,666	2,633	0	44,766	0	2,633	2,633	0	0	0	0
State Total	**339,142**	**134,416**	**95,349**	**48,486**	**1,867**	**4,228**	**3,519**	**3,418**	**1,529**	**42,219**	**4,111**

Table 66 shows the proportion of species that were used to produce chips. All commercial tree species were used to make chips in Washington mills.

Table 67 **Chipping operations — production**

(bone dry tons)

Economic area	Chip production
Central Washington	47,692
Inland Empire	258,000
Lower Columbia	424,546
Olympic Peninsula	610,660
Puget Sound	82,287
State total	**1,423,185**

Table 67 shows that the state's chip mills produced a total of 1.4 million bone dry tons of chips.