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Alaska's Timber Harvest and Forest Products Industry, 2005

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Abstract

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This report traces the flow of timber harvested in Alaska during calendar year 2005, describes the composition and operations of the state's primary forest products industry, and quantifies volumes and uses of wood fiber. Historical wood products industry changes are discussed, as well as trends in timber harvest, production, and sales of primary wood products.

Keywords: Forest economics, lumber production, mill residue, primary forest products, timber-processing capacity.

Report Highlights

- During calendar year 2005, 268.2 million board feet (MMBF) Scribner of timber was harvested from Alaska's forests. Most (60.7 percent) of the harvested volume came from Native and private lands. State and other public lands supplied 21.7 percent, and the remaining 17.5 percent came from national forests.
- Sitka spruce was the leading species harvested in Alaska during 2005, accounting for 47.3 percent of the total harvest. Western hemlock accounted for 28.9 percent, and cedars made up 9.9 percent. Other significant species, particularly in the interior, consisted of white spruce and paper birch at 6.0 and 7.3 percent, respectively.
- Saw logs were the leading timber product harvested in Alaska during 2005 making up nearly 88 percent of the overall harvest. Other products such as pulpwood, cedar products, logs for furniture, tonewood (wood for musical instruments), and logs used for manufacturing various novelty items (bowls, spoons, and mugs) accounted for 11.5 percent of the harvest, and house logs made up the remaining 0.7 percent.
- The Southeast region supplied 74 percent (198 MMBF) of Alaska's 2005 total timber harvest, South-Central and Western regions combined supplied 25 percent (66 MMBF), and the Interior region supplied about 1.5 percent (3.8 MMBF).
- Alaska was a net exporter of timber in 2005, with 83.4 percent (223.7 MMBF Scribner) of the harvest (including the roundwood equivalent of logs chipped in Alaska) exported for processing in either Pacific Rim countries or the continental United States. Alaska mills received 16.6 percent of the timber volume harvested in-state during 2005.
- In stark contrast to harvest volume, most mill supply came from national forests, which supplied 53 percent of the 44.9 MMBF of timber volume received by mills in Alaska, followed by state and other public lands (38 percent), and then by private and Native lands (8 percent).

In stark contrast to harvest volume, most mill supply came from national forests

- This report identified 78 active primary timber processing facilities operating in Alaska during calendar year 2005. The sawmill sector, manufacturing lumber and other sawn products, was the largest sector with 50 facilities. Twenty facilities produced house logs and log homes along with minor amounts of lumber and other sawn products, and eight other facilities were actively purchasing or using timber in 2005.
- Sawmills and house log manufacturers in Alaska received over 44.8 MMBF Scribner of timber during 2005, and produced approximately 55 MMBF of lumber and 805,000 lineal feet of house logs.¹ Pulp chip production from harvested trees exceeded 79,000 bone-dry units (1 BDU = 2,400 pounds oven-dry weight) during 2005.
- Alaska's timber-processing capacity (i.e., the volume of timber that could be used by active timber processors given sufficient supplies of raw materials and firm market demand for their products) during 2005 was approximately 202 MMBF, Scribner. Only 23 percent of timber-processing capacity in Alaska was utilized in 2005.
- Alaska timber processors produced 57,682 BDU of residue during 2005, of which 12,360 BDU (21 percent) was not utilized.
- Alaska primary wood product sales value (either f.o.b. [free on board] at the producing mill or free alongside ship), including mill residues, totaled nearly \$150 million during 2005. Nearly \$13.6 million (9 percent) of sales were within Alaska, of which, 43 percent (\$5.8 million) was lumber, boards, and timbers; 30 percent (\$4.1 million) was house logs; and the remaining 27 percent (\$3.7 million) consisted of other products and mill residue.

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¹ Board foot lumber tally produced by mills typically exceeds board foot Scribner received at mills. The difference is termed "overrun" and it occurs because volume received at mills is measured using scaling methods developed many decades ago. With improvements in milling technology, such as thinner saw blades and improved utilization of small-diameter logs, sawmills now operate much more efficiently.

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Introduction

This report details timber harvest and describes the composition and operations of the primary forest products industry in Alaska during calendar year 2005. It presents an historical overview of the state's forest products industry and timber harvest, ownership and species composition of harvested timber, types of timber products harvested and processed, as well as movement of timber within Alaska and exports to the contiguous United States and other countries. Timber-processing and production capacities, utilization of mill residue, and forest products sales and employment are also discussed.

Timber used in the direct manufacture of products is the focus of this report. Products directly manufactured from timber are referred to as "primary products" and include lumber, boards, timbers, house logs, log furniture, and tonewood (wood for musical instruments). Material chipped from timber, as well as the disposition of mill residue (i.e., bark, sawdust, slabs, edging, trim, chips, and planer shavings) generated in the production of primary products, are also included. Derivative, or "secondary" products (e.g., window frames, doors, and trusses) made from primary products are not included in this report.

Forest Industries Data Collection System

The primary source of data for this report is a statewide census of Alaska's primary forest products industry and companies that exported timber from Alaska during calendar year 2005. Firms were identified through Alaska's occupational license database, telephone directories, directories of the forest products industries (Paper-loop 2003, Random Lengths 2002–2005), and with the assistance of the Juneau Economic Development Council. Other private and public data sources were also used to supplement information not available from the mill census.

This census of Alaskan timber processors represents a cooperative effort between the University of Montana's Bureau of Business and Economic Research (BBER) and the Pacific Northwest (PNW) Forest Inventory and Analysis (FIA) Program. The BBER, in cooperation with the FIA programs in the Rocky Mountain and PNW Research Stations, developed the Forest Industries Data Collection System (FIDACS) to collect, compile, and make available state and county (or borough/census area) information on the operations of the forest products industry. The FIDACS is based on a census of primary forest product manufacturers and log exporters located in the state of interest and in nearby states that receive timber from the state of interest. Through a written questionnaire or telephone interview, firms provide the following information for each of their facilities for a given calendar year:

Timber used in the direct manufacture of products is the focus of this report.

- Plant location, production, capacity, and employment
- Log lengths and small- and large-end diameters accepted
- Volume of raw material received, by borough/census area and ownership
- Species of timber received and live/dead proportions
- Finished product volumes, types, sales value, and market locations
- Utilization and marketing of manufacturing residue

The facility-level information is then compiled and summarized. Because this study is based on a census, rather than a statistical sample of firms, there is no statistical error associated with the estimates presented. Possibilities of reporting and measurement error exist, but are minimized by cross-checking data against other public and private information sources and through data checking for internal consistency. Summary data tables and drafts of the written report are reviewed by wood products researchers, state and federal agency personnel, and members of the state's forest products industry. Upon completion of the review process, the information is reported in a USDA Forest Service station publication.

This effort is the first application of FIDACS in Alaska. The BBER and the Forest Service research stations have been conducting mill censuses in the Rocky Mountain and Pacific Coast States for 30 years (Brandt et al. 2006; Morgan et al. 2004a, 2004b, 2005, 2006; Spoelma et al. 2008). Information collected through FIDACS is stored at the BBER in Missoula, Montana. Additional information is available by request; however, individual firm data are confidential and will not be released.

Prior to the United States purchasing Alaska from Russia in 1867, a small timber industry supported local settlements.

Historical Overview

Prior to the United States purchasing Alaska from Russia in 1867, a small timber industry supported local settlements. Timber use increased as utilization of mineral and fish resources expanded. During this time, timber was primarily used for pilings, packing cases, lumber, mine timbers, and railroad ties. President Theodore Roosevelt established the Alexander Archipelago Forest Reserve in 1902 and created the Tongass and Chugach National Forests in 1907. The Alexander Archipelago Forest Reserve was combined with the Tongass National Forest in 1908. By 1909, fish traps had evolved (Colt 1999) and large quantities of timber were needed to manufacture the traps and supply lumber for packing cases used by canneries. By 1912, Alaska canneries packed nearly 3 million cases of salmon requiring 21 million board feet (MMBF) of lumber, 8 MMBF of which came from the Tongass National Forest (Hoffmann 1913). The average southeast Alaska sawmill at this time had a daily capacity of 30 thousand board feet (MBF) (Hoffman 1913). In addition to lumber, Alaska's early fishing industry required

large volumes of pilings, floats, and wharf material. Western hemlock was the species of choice owing to its ability to withstand shipworms. During 1912, southeast Alaska harvested over 2 million linear feet for pilings from the Tongass National Forest (table 1) (Hoffman 1913).

Table 1—Timber cut on the Tongass National Forest during fiscal years 1909–1912

Year	Timber harvested		
	<i>Thousand board feet^a</i>	<i>Cords^b</i>	<i>Linear feet</i>
1909	5,612	1,858	60,433
1910	10,569	1,211	397,126
1911	23,020	1,911	627,978
1912	35,133	2,150	2,206,960

^a Assumed to be Scribner, log scale.

^b One cord = 128 cubic feet.

Source: Hoffman 1913.

Considerably smaller, the timber industry around the Chugach National Forest during early 1912 was still in its infancy. Only four mills were operating with an average daily output capacity of 5 MBF each, and had a combined annual output of only 650 MBF (Hoffman 1913). Pilings, mine timbers, and railroad ties were the predominant products in this area with over 387,500 lineal feet harvested for pilings during fiscal year 1912 (Hoffman 1913).

With the onset of World War I, timber harvest on the Tongass increased with wartime needs. Alaska forests contributed over 589 MBF of Sitka spruce (see “Scientific and Common Names of Species”) logs to the war effort for aircraft-quality spruce lumber (Williams 1999). After World War I, construction started on Alaska’s first pulp mill, which shipped its first load of high-quality wet bailed pulp to California in 1921 (Smith 1975). Within 2 years, the mill had increased their daily capacity from 20 tons to 30 to 40 tons per day; high shipping costs could not be overcome, however, and the mill was closed 2 years later (Smith 1975).

The forest products industry continued to grow in Alaska as development and the population increased. World War II brought significant changes to Alaska. The military population increased from 750 in 1940 to a high of 152,000 in 1943, requiring lumber for construction (Naske 1995). During this time, logging activity increased on the Chugach National Forest as over \$1 billion was spent to improve the government-owned Alaska Railroad and construct roads, docks, wharves, and airfields (Geier 1998). During the war, spruce was again needed for aircraft construction. In June of 1942, the Alaska Spruce Program was initiated on the Tongass

Alaska forests contributed over 589 MBF of Sitka spruce logs to the war effort for aircraft-quality spruce lumber.

National Forest with a goal of supplying 100 MMBF of spruce lumber per year. This program ended as wooden airplanes were replaced by metal in 1944, after supplying 38.5 MMBF of aircraft quality spruce and an additional 45 MMBF of lower grade spruce and hemlock (Geier 1998). After the war, foreign rebuilding efforts heightened timber demand and increased Alaskan harvests (Byers 1960).

Since the early 1900s, interest has been shown in Alaska's pulp and paper potential. However, transportation and power limitations have led to increased manufacturing costs and discouraged mill investment. The Tongass Timber Act (TTA; Public Law No. 80-385, 61 Stat. 920) was authorized by Congress in 1947 to encourage forest industry development in exchange for a dependable supply of timber. In 1951, the Ketchikan Pulp and Paper Company (KPC) signed a 50-year timber contract with the Forest Service, and by 1954 the first dissolving pulp mill was in operation in Ketchikan (Smith 1975). Initially producing over 100,000 tons of pulp per year, the mill was expanded over the years nearly doubling its capacity to 190,000 tons (McDowell Group 1998, Smith 1975). Following the success of the first contract, three additional long-term agreements were requested for pulp mills in Sitka, Juneau, and Wrangell (Bruce 1960). A 50-year contract was awarded to Pacific Northern Timber Company in Wrangell. Their intent was to build a sawmill first and a pulp mill by 1962 (Greeley 1954). Although the sawmill was built in Wrangell, the pulp mill never materialized and the sawmill, with a modified contract, was eventually sold to the parent corporation of the Alaska Lumber and Pulp Company (Harris et al. 1974). The Sitka dissolving pulp mill was the only successful venture out of the three additional pulp mill requests, and the third 50-year contract was awarded to the Alaska Lumber and Pulp Company (ALP), a Japanese investment group. By 1959, the ALP pulp mill was in operation producing 340 tons of bleached pulp per day (Smith 1975). The mill produced an alpha pulp that was sold as market pulp to paper-processing firms or dissolving pulp to the textile and cellophane industries (Brooks and Haynes 1990). By 1988, the two pulp mills in Alaska had a combined annual production of 391,000 tons of pulp, used an estimated 70 million cubic feet of wood, and were employing 880 workers (Durbak 1993). Brooks and Haynes (1990) estimated that mill residue accounted for approximately 35 percent of the wood used by these pulp mills in 1988. Pulp production began to decrease after 1990, during which exports totaled 318,000 tons (U.S. International Trade Commission 2006). The Alaska Pulp Company closed its Sitka mill in September of 1993, citing "...adverse world market pulp conditions, increasing production costs, and a shortfall in the amount of timber available at an affordable price..." (Morse 1998). Four years later, the Ketchikan Pulp and Paper Company closed, reportedly after considering the financial impacts associated with

updating the mill to meet pollution requirements and a failure to negotiate an extension to their original 50-year timber contract or revise contract terms (Southeast Timber Task Force 1997). Crone (2005) suggested that pulp mill closures in Alaska were due in part to the mills' inability to offset losses after legislation reduced indirect and direct subsidies, declining demand for dissolving pulp, and increased harvest costs.

Alaska Timberlands

Alaska has about 127 million acres of forest land, of which 12 million acres is timberland, which is defined as unreserved forest land productive enough to be able to produce 20 cubic feet of industrial-sized roundwood per acre per year. Currently, only coastal Alaska (fig. 1), an inventory unit stretching from Kodiak to Ketchikan, is included in the national inventory of forests conducted by FIA. Although the coastal Alaska inventory unit contains only 11 percent of Alaska forest land, it contains about 51 percent of the timberland in Alaska. Outside of the coastal inventory unit, much of the forest inventory data are old, typically from the 1970s, and

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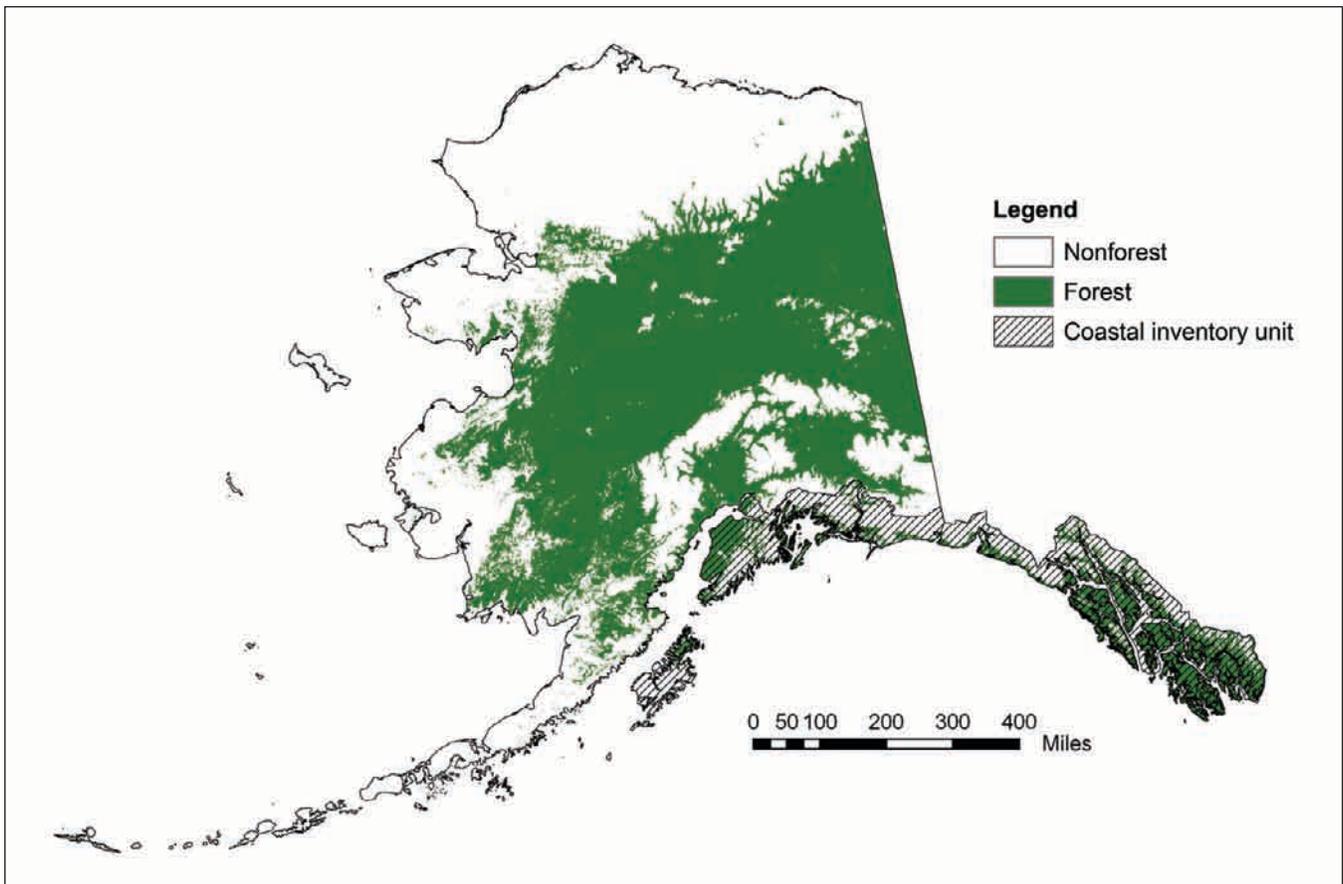


Figure 1—Forest land in Alaska and location of Coastal Alaska Forest Inventory Unit.

the inventories were only conducted in specific geographically limited regions. For these reasons, only inventory data from the coastal Alaska unit are included in the following timberland statistics.

A remeasurement inventory of the coastal Alaska area began in 2004. With one-tenth of the inventory plots measured each year, remeasurement will be complete in 2014. As of summer 2008, 40 percent of the inventory had been completed, resulting in a sampling error of about 9 percent per million acres of forest land, and about 10 percent per 10 billion cubic feet of timber. These errors will decrease as additional inventory data are gathered during the project.

Coastal Alaska has about 15 million acres of forest, with 40 percent of the total land area forested. Some 6.1 million acres of forest are considered to be of too low site quality for timberland. Of the remaining more productive forest land, an additional 2.9 million acres are designated as reserved forest land, leaving 6.0 million acres of timberland. Although meeting the definition of timberland, most of the forest is lower site quality compared to the primary timber production areas of the United States. Less than 15 percent of the timberland is at least site class 4 (capable of producing more than 85 cubic feet per acre per year), and less than 5 percent of the timberland is at least site class 3 (capable of producing more than 120 cubic feet per acre per year).

Timberland within the coastal area is mostly in public ownership.

Timberland within the coastal area is mostly in public ownership, with 3.5 million acres in the Tongass National Forest, 0.3 million acres in the Chugach National Forest, 0.1 million acres in other federal land, and 0.7 million acres in other public (state and local) ownership. Some 20 percent of coastal Alaska's timberland (1.3 million acres) is in private ownership, which includes Alaska Native Corporations. All of the private timberland in coastal Alaska is considered to be "nonindustrial" private ownership, meaning the landowners do not operate timber-processing facilities.

Coastal timberland supports approximately 31 billion cubic feet in growing-stock trees, and 178 billion board feet of sawtimber. Net cubic foot volume is defined as wood from trees at least 5.0 inches diameter at breast height (d.b.h.), to a minimum top diameter of 4 inches, with rotten and missing cull deducted. Sawtimber volume is calculated from growing-stock trees that are at least 11 inches d.b.h. for hardwoods, and 9 inches d.b.h. for softwoods. Measured in board feet, ownership of standing, live sawtimber on timberland is 81 percent federal, 8 percent state and local, and 11 percent private. Conifers constitute 98 percent of cubic foot volume of growing stock on timberland, with hardwoods at 2 percent. By species,

western hemlock accounts for 43 percent of cubic foot volume on timberland, followed by Sitka spruce (34 percent), Alaska yellow-cedar (7 percent), western redcedar (7 percent), and mountain hemlock (6 percent).

Alaska's Timber Harvest and Flow

Harvest volumes presented in this report for calendar year 2005 came from the FIDACS census of mills and exporters receiving or shipping timber harvested from Alaska. When available, similar timber harvest information was used for comparison to other years. Published timber harvest reports for recent years were not available, with the exception of USDA Forest Service annual "cut and sold" reports and Alaska National Interest Lands Conservation Act (ANILCA) data on file with the Forest Service Alaska Region (Region 10) economist (Susan Alexander. 2006. Personal communication. Economist, USDA Forest Service, Region 10). Small differences may exist between the numbers reported here and those in other reports. These differences are due primarily to different reporting units and conversion factors, rounding error, and scaling and timing discrepancies between sellers and buyers.

Harvest, by Ownership

During calendar year 2005, 268.2 MMBF Scribner of timber was harvested from Alaska forests. Timber came from three broad ownership classes: Native and private lands, national forests, and state and other public lands. Most (60.7 percent) of the harvested volume came from Native and private lands, 17.5 percent came from national forests, and state and other public lands supplied the remaining 21.7 percent (table 2).

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2005, 268.2 MMBF
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Table 2—Alaska timber harvest, by ownership class and timber product type, 2005

Ownership class	Saw logs	House logs	Other products ^a	All products
	<i>Thousand board feet, Scribner</i>			
Private	137,780	798	24,315	162,893
National forest	46,670	39	359	47,068
State and other public	51,040	1,095	6,140	58,275
Bureau of Land Management	9	36	0	45
All owners	235,499	1,967	30,814	268,281

^a Other timber products include pulp chips, logs for furniture, tonewood, and novelty items.

Recent timber harvest levels in Alaska are on par with the mid 1950s but considerably below harvest levels seen from 1960 through 1999 (fig. 2). Changes in harvest over the last 60 years have been driven by changes in output from two ownership categories: Native/private and national forests. Beginning in the 1950s, the annual volume of timber harvested in Alaska began to increase rapidly owing to increased harvest on national forests. This rapid increase in national forest harvest followed the passage of the TTA in 1947, designed to encourage development in the forest products industry by offering long-term timber contracts. In response, significant investments were made in pulping and sawmilling facilities, and the harvest from national forests—almost entirely the Tongass National Forest—increased from under 100 MMBF annually in the late 1940s to 591 MMBF in 1973 (Brackley et al. 2009, Smith 1975). Through 1973, national forests provided more than 90 percent of Alaska’s timber harvest.

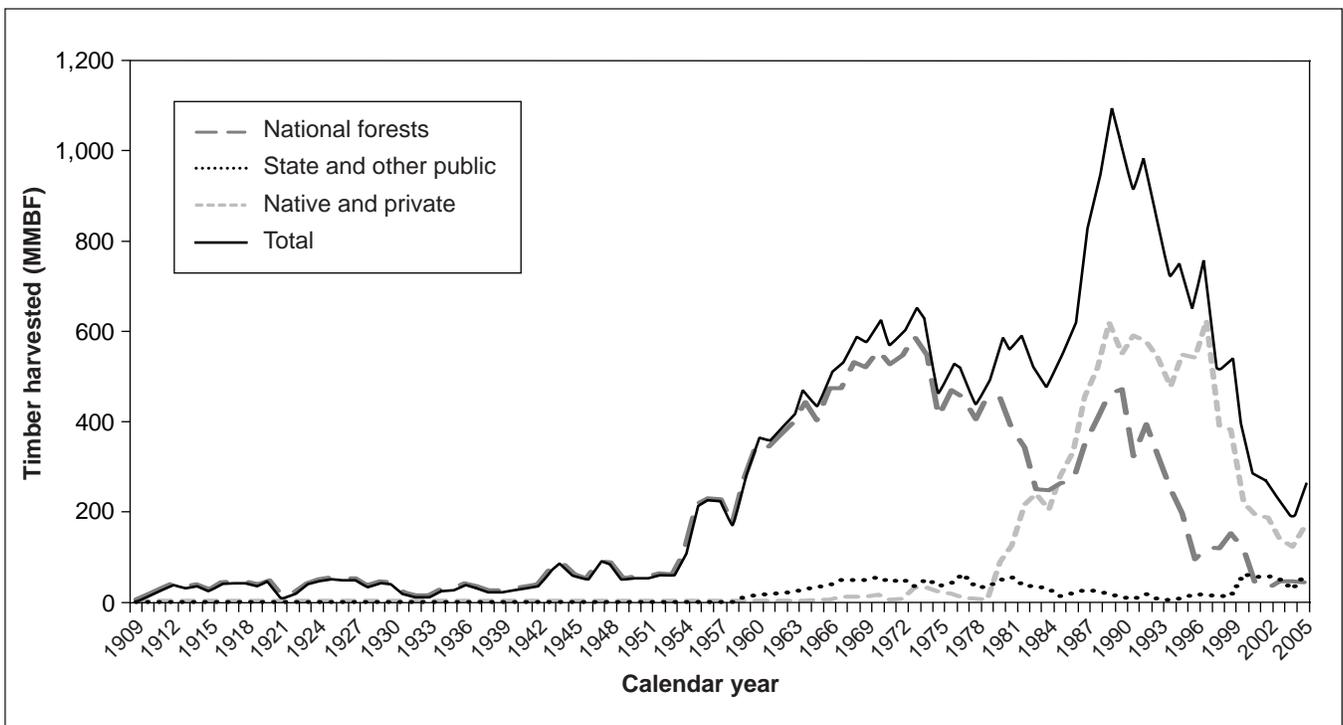


Figure 2—Alaska’s timber harvest by ownership, 1909–2005. Source: Brackley et al. 2009.

A major shift in the ownership source of timber took place in the 1970s. The Alaska Native Claims Settlement Act of 1971 transferred ownership of approximately 44 million acres of federal land (including 550,000 acres within the Tongass National Forest) to Alaska Natives (Knapp 1992). With the shift in land ownership, the combined Native and private harvest increased from near zero prior to 1980 to

a peak of 613 MMBF in 1989. The Tongass continued to provide substantial timber during the 1980s, and after a fall-off in the severe recessions of 1980 and 1982, statewide harvest in Alaska increased to a record of 1,096 MMBF in 1989.

Timber harvest volume in Alaska fell from 1,033 MMBF in 1990 to 268 MMBF in 2005. During this period, national forest harvest dropped by 90 percent and Native/private by about 80 percent. Numerous factors have contributed to this decline in Alaska's timber harvest (Crone 2005, Donovan et al. 2005, Eastin and Braden 2000, Haynes and Brooks 1990, Tsournos and Haynes 2004), including:

- Changes in operating environment and policy related to the Tongass National Forest, such as the Tongass Timber Reform Act of 1990 (Public Law 101-626, 104 Stat. 4426) and lawsuits related to the Tongass timber program.
- Substantially lower timber inventories on some Native corporation lands.
- Shifting markets and market conditions—especially weakness in Japanese wood markets and increased competition from other producing regions.
- Relatively high operating costs in Alaska.

Harvest, by Species

Sitka spruce was the leading species harvested in Alaska during 2005, accounting for 47.3 percent of the total harvest (table 3). Western hemlock accounted for 28.9 percent, and the cedars, western redcedar and Alaska yellow-cedar, were 5.8 and 4.1 percent, respectively. Other significant species, particularly in the interior, consisted of white spruce, and paper birch at 6.0 and 7.3 percent of the harvest, respectively. Other species combined, including black cottonwood, quaking aspen, and black spruce, accounted for less than 1 percent of the 2005 Alaska timber harvest volume.

Sitka spruce was the leading species harvested in Alaska during 2005, accounting for 47.3 percent of the total harvest

Table 3—Alaska timber harvest, by species and timber product type, 2005

Species	Saw logs	House logs	Other products ^a	All products
	<i>Thousand board feet, Scribner</i>			
Sitka spruce	126,636	133	^b	126,769
Western hemlock	77,417	71	^b	77,488
Western redcedar	15,714	5	^b	15,719
Alaska yellow-cedar	10,870	5	^b	10,875
White spruce	4,411	1,543	10,056	16,010
Paper birch	134	96	19,348	19,578
Other ^c	317	114	1,410 ^b	1,841
All species	235,499	1,967	30,814	268,281

^a Other timber products include pulp chips, cedar products, logs for furniture, tonewood, and novelty items.

^b Species were combined to avoid disclosure of private information.

^c Other species include black cottonwood, quaking aspen, and black spruce.

Saw logs were the leading component of the timber harvested in Alaska during 2005, making up nearly 88 percent of the overall harvest.

Harvest, by Product Type

Saw logs were the leading component of the timber harvested in Alaska during 2005, making up nearly 88 percent of the overall harvest. Sitka spruce was the leading species harvested for saw logs, accounting for more than 53 percent of saw logs, and western hemlock made up about 33 percent of the saw-log harvest. Private and Native lands were the leading sources of saw logs, accounting for almost 60 percent of saw logs. National forests and all other public lands combined each supplied about 20 percent of Alaska's saw-log harvest. Other products such as pulpwood, cedar products, logs for furniture, tonewood, and logs used for manufacturing various novelty items (bowls, spoons, and mugs) accounted for less than 12 percent of the harvest, and house logs made up less than 1 percent. White spruce was by far the leading species harvested for house logs, accounting for 78 percent of Alaska's house log volume, and state and other public lands were the primary source of house logs, providing about 56 percent of house log volume. Other products were largely made from paper birch (63 percent) and white spruce (33 percent), with other species combined accounting for less than 5 percent. Private and Native lands provided the majority (79 percent) of timber for other products, with state and other public lands providing nearly all of the rest. National forests provided just 1 percent of timber for other products.

Harvest, by Geographic Source

This report uses borough or census area boundaries to define five geographic regions in Alaska—Southeast, South-Central, Interior, Western, and Far North (table 4, fig. 3), hereafter referred to as resource areas. Timber resources can be found in all but the Far North, with the Southeast region historically dominating Alaska's timber harvest. The Southeast boroughs have 4.4 million acres of timberland, the South-Central boroughs have about 2.5 million acres of timberland, the Interior boroughs have about 2.2 million acres of timberland, the Western boroughs have about 1.0 million acres of timberland, and Alaska boroughs not shown in table 4 (such as the Yukon-Koyukok Borough) have about 1.8 million acres of timberland. With the exception of the Southeast region, none of the borough regions have had a complete forest inventory, so these estimates of timberland acres are approximate. The South-Central and Western region data are reported together to prevent the possible release of confidential information.

The Southeast Resource Area supplied 74 percent (198 MMBF) of Alaska's 2005 total timber harvest (table 5), the South-Central and Western regions combined into one resource area supplied 25 percent (66 MMBF), and the Interior Resource Area supplied about 1.5 percent (3.8 MMBF). The main commercial

Table 4—Alaska timber resource and borough/census areas

Resource area	
Interior:	Southeast:
Fairbanks North Star Borough	Haines Borough
Denali Borough	Juneau Borough
Southeast Fairbanks Census Area	Ketchikan Gateway Borough
	Prince of Wales-Outer Ketchikan Census Area
South-Central:	Sitka Borough
Anchorage Borough	Skagway-Hoonah-Angoon Census Area
Kenai Peninsula Borough	Wrangell-Petersburg Census Area
Matanuska-Susitna Borough	Yakutat Borough
Valdez-Cordova Census Area	
	Western:
	Bethel Census Area
	Kodiak Island Borough

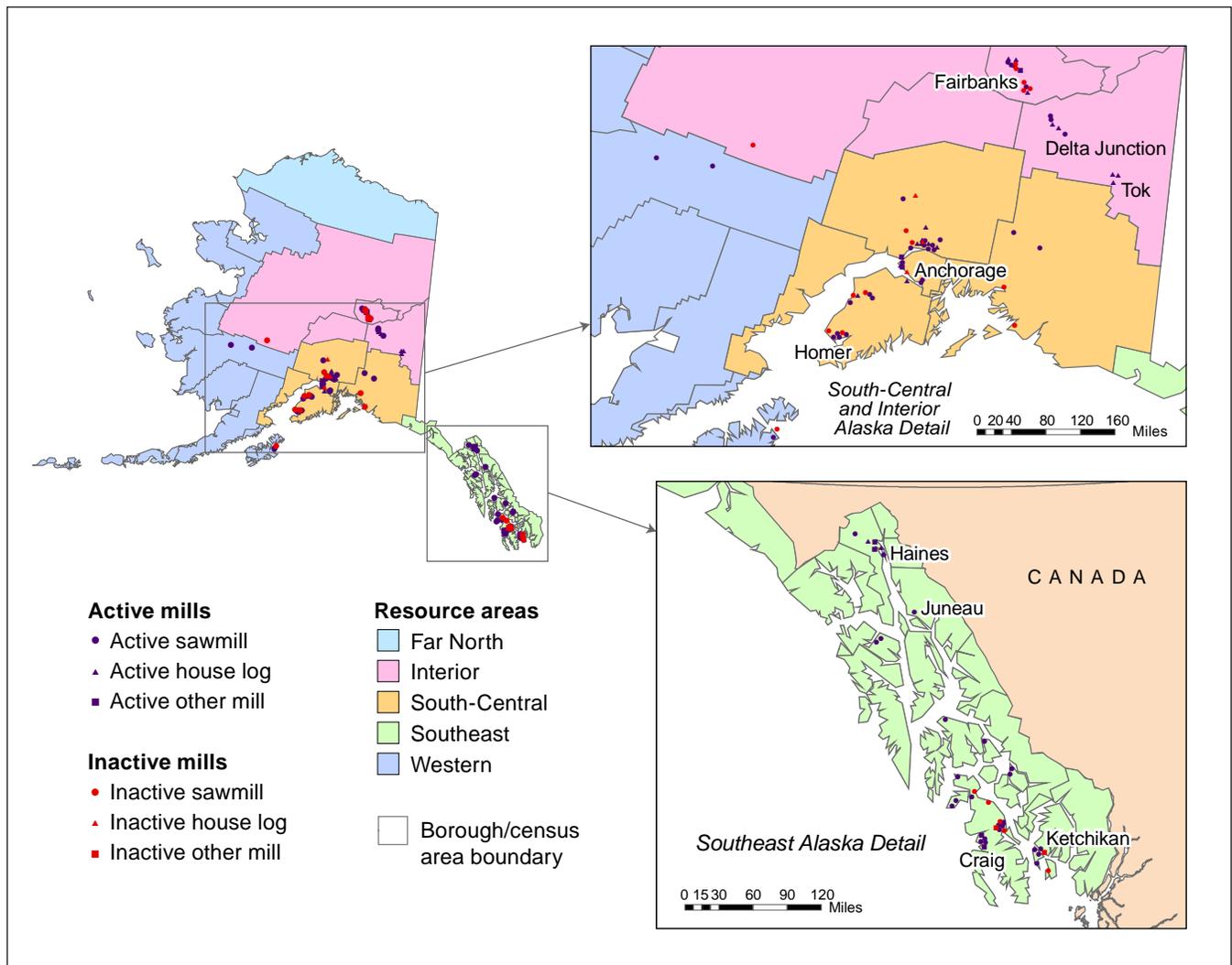


Figure 3—Alaska's resource areas and primary forest products manufacturers, calendar year 2005.

Table 5—Alaska timber harvest, by resource area, 2005

Resource area	Harvest volume	Percentage of total
	<i>Thousand board feet, Scribner</i>	<i>Percent</i>
Interior	3,839	1.4
South-Central and Western	66,096	24.6
Southeast	198,346	73.9
State total	268,281	100

species within the Southeast and South-Central Resource Areas include Sitka spruce, western hemlock, western redcedar, and Alaska yellow-cedar. These species do not grow in western and interior Alaska where the main species include white spruce mixed with hardwoods such as paper birch, black cottonwood, quaking aspen, and black spruce.

Timber Flow

During 2005, as in previous years, Alaska was a net exporter of timber (table 6), with 83.4 percent (223,670 MBF Scribner) of the harvest (including the roundwood equivalent of logs chipped in Alaska) exported for processing in either Pacific Rim countries or the contiguous United States. Saw logs constituted the bulk (86.5 percent, or 193,480 MBF) of the exported timber products, with the remaining 13.5 percent (30,190 MBF) exported as pulp chips. Facilities in Alaska imported a total of 250 MBF in 2005, all of which went to house log manufacturers.

Table 6—Alaska out-of-state timber flow, 2005

Timber products	Log flow into Alaska	Log flow out of Alaska	Net in (net out)
	<i>Thousand board feet, Scribner</i>		
Export logs	0	(193,480)	(193,480)
Chipped logs ^{a b}	0	(30,190)	(30,190)
House logs	250	0	250
All products	250	(223,670)	(223,420)

^a Roundwood equivalent of logs chipped in Alaska.

^b Derived from United States International Trade Commission data.

Timber Use

Alaska's 2005 timber harvest was approximately 52,679 thousand cubic feet (MCF), exclusive of bark (fig. 4). Harvest volumes are a component of total removals used in calculation of growth/drain relationships. Total removals typically exceed harvest volume because of logging residue, which is not accounted for in this study or the following figures. Alaska's timber harvest was processed by several manufacturing

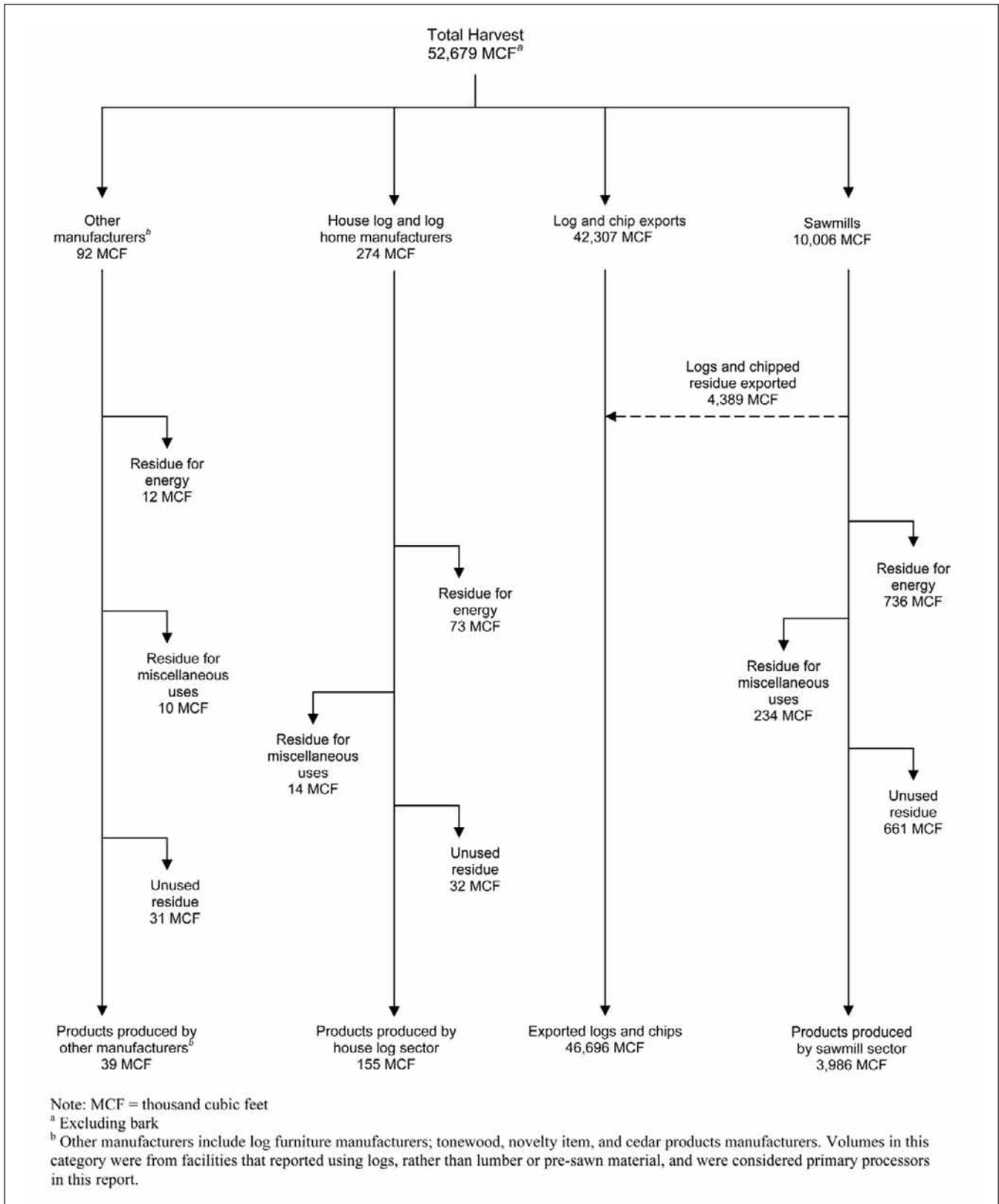


Figure 4—Use of Alaska's 2005 timber harvest.

sectors both within and outside Alaska. Of this volume, 10,006 MCF went as logs to sawmills, 274 MCF went to log home manufacturers, 42,307 MCF was exported as raw logs or chipped logs, and 92 MCF went to other manufacturers, including tonewood, novelty item, cedar product, and roundwood furniture manufacturers. Volumes are presented in cubic feet rather than board feet Scribner because both mill residues and timber products are displayed. Bark is not included in these figures. The following conversion factors were used to convert Scribner board foot volume to cubic feet:

- 5.09 board feet per cubic foot for saw logs and exported logs
- 5.30 board feet per cubic foot for house logs
- 5.03 board foot per cubic foot for all other products

Of the 10,006 MCF of timber received by sawmills, 3,986 MCF (40 percent) became rough green or dried lumber or other sawn products. Approximately 4,389 MCF (44 percent) was either exported as logs or chipped residue. The remaining 1,631 MCF stayed within Alaska as sawmill residue. About 736 MCF of this sawmill residue was used for energy (firewood, boilers, etc.), 234 MCF was used for miscellaneous uses such as mulch or animal bedding, and 661 MCF went unused. Of the 274 MCF of timber received by log home manufacturers, 155 MCF (57 percent) became house logs or other sawn product. The remaining 119 MCF became mill residue. About 73 MCF of house log residue was used for energy, 14 MCF was used for miscellaneous uses, and 32 MCF went unused. Of the 92 MCF of timber received by other manufacturers, 39 MCF (42 percent) became finished product with the remaining 53 MCF becoming mill residue (31 MCF being unused).

Excluding raw logs that were received by Alaska mills and subsequently exported, Alaska facilities received 16.7 percent of the harvest.

Volume Received by Alaska's Timber-Processing Facilities

Although the 2005 harvest was 268.2 MMBF Scribner, the volume processed by Alaska facilities was significantly less. Excluding raw logs that were received by Alaska mills and subsequently exported, Alaska facilities received slightly over 44.8 MMBF for processing in state, approximately 16.7 percent of the harvest. Facilities reported also using slightly over 1.2 MMBF of timber harvested in 2004 from their log deck inventory.

Volume Received, by Ownership

In stark contrast to Alaska timber **harvest volume**, of which national forests accounted for just 17.5 percent, timber **received by mills in Alaska** (table 7) came from national forests for the largest share (53 percent), followed by state and other public lands (38 percent), and private and Native lands (8 percent), with Canadian

Table 7—Timber volume received by Alaska facilities, by ownership class and timber product type, 2005

Ownership class	Saw logs	House logs	Other products ^a	All products
	<i>Thousand board feet, Scribner</i>			
Private and Native	2,780	798	165	3,743
National forest	23,468	39	359	23,866
State and other public	15,762	1,095	100	16,957
Bureau of Land Management	9	36	0	45
Canada	0	250	0	250
All owners	42,019	2,217	624	44,861

^aOther timber products include logs for furniture, tonewood, and novelty items.

imports representing less than 0.5 percent. National forests provided the majority of logs for Alaska sawmills and producers of products other than log homes. State and other public lands provided the majority of house logs used in Alaska.

Volume Received, by Species and Product Type

Although Sitka spruce was the leading species harvested during 2005, most of that volume was exported. Western hemlock was the leading species received by Alaska facilities (table 8), accounting for more than 50 percent, and only 24 percent of timber received by Alaska mills was Sitka spruce. Other significant species received by Alaskan facilities during 2005 include white spruce (14 percent), western redcedar (4 percent), and Alaska yellow-cedar (2 percent). Saw logs accounted for the vast majority (94 percent) of timber received by Alaska timber-processing facilities, followed by house logs (5 percent), and other products (1 percent). Pulp chips are not included in these calculations as they were chipped in the woods and not received by a processing facility.

Western hemlock was the leading species received by Alaska facilities, accounting for more than 50 percent, and only 24 percent of timber received by Alaska mills was Sitka spruce.

Table 8—Timber volume received by Alaska facilities, by species and timber product type, 2005

Species	Saw logs	House logs	Other products ^a	All products
	<i>Thousand board feet, Scribner</i>			
Sitka spruce	10,744	133	^c	10,877
Western hemlock	23,467	71	^c	23,539
Western redcedar	1,852	5	^c	1,857
Alaska yellow-cedar	1,094	5	^c	1,099
White spruce	4,411	1,743	^c	6,154
Paper birch	134	96	^c	230
Other ^b	317	164	624 ^c	1,105
All species	42,019	2,217	624	44,861

^aOther products include logs for furniture, tonewood, and novelty items.

^bOther species include black cottonwood, quaking aspen, and black spruce.

^cSpecies combined to avoid disclosure of private information.

Volume Received, by Geographic Source

Approximately 85 percent (38 MMBF Scribner) of the timber processed by facilities in Alaska during 2005 originated from southeast Alaska (table 9). Timber originating from the Interior Resource Area contributed 8 percent (3.7 MMBF), and the South-Central and Western Resource Areas (excluding pulp chips) provided slightly under 7 percent (2.9 MMBF). Approximately 0.5 percent (250 MBF) of timber received by Alaskan facilities was imported. Owing primarily to the high cost of transportation, timber was typically processed by facilities in the resource area where the timber was harvested.

Table 9—Timber volume received by Alaska facilities, by resource area and timber product type, 2005

Resource area	Saw logs	House logs	Other products ^a	All products
	<i>Thousand board feet, Scribner</i>			
Southeast	36,851	507	624 ^b	37,982
South-Central and Western ^b	1,899	1,001	^b	2,900
Interior	3,269	460	^b	3,729
Out-of-state	0	250	^b	250
All areas	42,019	2,217	624	44,861

^a Other products include logs for cedar products, furniture, tonewood, and novelty items.

^b Resource areas combined to avoid disclosure of private information.

Primary timber processors in Alaska produced an array of products including dimension lumber, board and shop lumber, timbers, finished house logs, log homes, log furniture, pulp chips from roundwood, cedar products, tonewood, and novelty items such as bowls, spoons, and mugs during 2005.

Alaska’s Forest Products Industry

Primary timber processors in Alaska produced an array of products including dimension lumber, board and shop lumber, timbers, finished house logs, log homes, log furniture, pulp chips from roundwood, cedar products, tonewood, and novelty items such as bowls, spoons, and mugs. During 2005, production of lumber and other sawn products was approximately 55 MMBF lumber tally (table 10), of which 89 percent was produced in southeast Alaska. Production of house logs totaled more than 805,000 lineal feet, and pulp chip production from harvested trees exceeded 79,000 bone-dry units (BDU; 1 BDU is the equivalent of 2,400 pounds of oven-dry wood).

Table 10—Alaska lumber, house log, and chip production, by resource area, 2005

Resource area	Lumber and other sawn products	House logs	Chipped logs
	<i>Thousand board feet, lumber tally</i>	<i>Thousand lineal feet</i>	<i>Bone dry units^a</i>
Southeast	49,209	1	0
South-Central and Western	2,039	325	79,700 ^b
Interior	4,156	310	0
All areas	55,404	805	79,700

^a Bone dry unit = 2,400 pounds of oven dry wood.

^b Derived from United States International Trade Commission data.

Forest Industry Sectors

During 2005, Alaska's primary forest products industry consisted of 78 active facilities located in 14 of the 27 borough/census areas in Alaska (table 11). The sawmill sector, manufacturing lumber and other sawn products, was the largest sector operating in 2005 with 50 facilities. Twenty facilities produced house logs and log homes along with minor amounts of lumber and other sawn products. Eight other facilities were actively purchasing or using timber in 2005.

Table 11—Number of active timber-processing facilities, by borough/census area and product produced, 2005

Borough/census area	Lumber	House logs	Other ^a	Total
Anchorage Borough	1	1	1	3
Bethel Census Area	2	0	0	2
Fairbanks North Star Borough	3	3	1	7
Haines Borough	2	2	2	6
Juneau Borough	1	0	0	1
Kenai Peninsula Borough	6	3	0	9
Ketchikan Gateway Borough	4	0	0	4
Kodiak Island Borough	1	0	0	1
Matanuska-Susitna Borough	9	6	1	16
Prince of Wales-Outer Ketchikan Census Area	10	0	3	13
Skagway-Hoonah-Angoon Census Area	2	0	0	2
Southeast Fairbanks Census Area	3	5	0	8
Valdez-Cordova Census Area	2	0	0	2
Wrangell-Petersburg Census Area	4	0	0	4
State total	50	20	8	78

^a Other facilities include producers of pulp chips, cedar products, log furniture, tonewood, and novelty items.

Sawmill sector—

The 2005 census identified 50 sawmills operating in Alaska during 2005, producing nearly 55 MMBF of lumber with a sales value of just over \$20 million (f.o.b. the producing mill). Based on annual output (lumber tally), sawmills in Alaska were classified as small (<150 MBF), medium (150 to 1,000 MBF), and large (>1,000 MBF). Sawmills classified as small made up 64 percent (32 facilities) and were mostly portable mills (table 12). Even though these small mills accounted for more than half of the sawmills in Alaska during 2005, they were responsible for only 3 percent of Alaska's lumber production. There were 13 facilities classified as medium sawmills, making up 26 percent of the sawmills and responsible for producing approximately 8 percent of Alaska's total lumber output. The remaining five sawmills were classified as large and accounted for only 10 percent of the sawmill facilities in Alaska during 2005, yet these five sawmills accounted for 89 percent of the lumber produced. In 2005, about 34 percent of the lumber produced by Alaska's sawmills was dimension lumber and studs, 39 percent was board and shop lumber, 24 percent timbers, and the remaining 3 percent comprised other specialty items such as flooring, siding, and moulding.

Table 12—Alaska annual lumber production and average overrun, by mill size, 2005

Annual lumber production size class	Number of mills	2005 lumber production^a	Percentage of total	Average overrun
		<i>Thousand board feet, lumber tally</i>	<i>Percent</i>	<i>Thousand board feet, lumber tally</i>
< 150 MBF lumber tally	32	1,740	3	1.15
150–1,000 MBF lumber tally	13	4,257	8	1.11
>1,000 MBF lumber tally	5	48,864	89	1.30
Total	50	54,861	100	1.27

^a Does not include sawn product from the house log sector.

On average, Alaska sawmills produced approximately 1.27 board feet of lumber for every board foot Scribner of timber processed for an average overrun of 27 percent in 2005.

On average, Alaska sawmills produced approximately 1.27 board feet of lumber for every board foot Scribner of timber processed for an average overrun of 27 percent in 2005. A study by Kilborn (2002) looked at mill recoveries for 22 mills between 1997 and 1999; these mills produced over 90 percent of Alaska's lumber at that time, and overrun results indicated that the state average overrun was 18 percent. The increased overrun seen in 2005 is likely due to a combination of product mix, increased efficiency, and the closure of less efficient mills.

The Alaska dry kiln program was launched in 2001 to add value to Alaska's wood products industry and increase marketability. By 2005, the dry kiln capacity had doubled in Alaska to an estimated 220 MBF (Nicholls et al. 2006). In 2004, only 12 percent (800 MBF) of the estimated 6 MMBF annual dry kiln capacity was used, as many of the dry kilns were in the initial stages of startup; however, weather-related factors, staffing problems, transportation uncertainties, and sawmill capacity may limit facilities realizing full dry kiln capacity (Nicholls et al. 2006).

The Alaska dry kiln program was launched in 2001 to add value to Alaska's wood products industry and increase marketability.

Log home sector—

Twenty house log manufacturers were identified in the 2005 census; these include only those firms that process timber and manufacture house logs or log homes, not log home distributors. In Alaska, it is a fairly common practice for house log manufacturers to produce lumber as well as house logs; if a facility's raw log input was over 50 percent house logs, the mill was classified as a house log manufacturer. The majority of the house logs produced during 2005 were 6- and 8-inch double-round logs used in cabin kits. These logs were sawn on two sides, leaving a flat surface on the top and bottom. Facilities (including sawmills) that purchased house logs used approximately 2.2 MMBF Scribner of timber, produced slightly over 800,000 lineal feet of house logs, and generated about \$4.2 million in log home product sales.

Other products sector—

In addition to a chip conversion operation, Alaska's other primary wood products industry consisted of manufacturers of tonewood (wood used for musical instruments), cedar products, furniture, and novelty items. Items such as tonewood or furniture could be produced by either primary or secondary processors, but in this report only primary processors, who reported using logs rather than lumber or pre-sawn material, are included. (Mills and manufacturers self-identify what type of facility they consider themselves to be.) Tonewood is manufactured from tight-grained Sitka spruce, and continues to be in high demand by music instrument manufacturers. The sales value of these other products, excluding the chips, was approximately \$4.3 million.

Capacity

Timber-processing capacity for 2005 was developed directly from the FIDACS census of Alaska's forest products industry. Alaska mills were asked for their 8-hour shift and annual production capacities given sufficient supplies of raw materials and firm market demand for their products. Lumber and other sawn products were reported in thousand board feet lumber tally, and log home manufacturers reported their capacity in thousand lineal feet. The Southeast Resource Area dominated

lumber and other sawn products with 91 percent of production capacity, followed by the Interior Resource Area and the South-Central and Western Resource Area, which had 5 and 4 percent, respectively (table 13). The South-Central and Western Resource Area was responsible for 44 percent of house log capacity, followed closely by the Interior Resource Area, which had 42 percent of the house log capacity. The Southeast Resource Area contained the remaining 14 percent of house log production capacity.

Table 13—Alaska production capacity,^a by resource area and sector, 2005

Resource area^b	Lumber and other sawn products	House logs
	<i>Thousand board feet, lumber tally</i>	<i>Thousand lineal feet</i>
Southeast	218,290	365
South-Central and Western	9,244	1,142
Interior	12,625	1,096
All resource areas	240,159	2,603

^a Includes mills active during 2005 only.

^b See table 4 for a list of borough/census areas located within resource areas.

Timber-processing capacity in Alaska during 2005 was approximately 202 MMBF, Scribner.

Product recovery ratios were calculated for each facility using reported timber input and product output volumes. Timber-processing capacity was defined as the volume of timber reported in MBF Scribner that could be processed given sufficient supplies of raw materials and firm market demand for products, and was estimated for each facility by applying the product recovery ratios to production capacity figures provided by each facility. Timber-processing capacity in Alaska during 2005 was approximately 202 MMBF, Scribner (table 14). Sawmills accounted for nearly 87 percent or 176 MMBF of the total timber-processing capacity and processed approximately 44 MMBF (95 percent) of the timber in the state. Approximately 87 percent (40 MMBF) of the timber was processed by the 16 largest sawmills, and these facilities accounted for nearly 82 percent (165 MMBF) of Alaska's total timber-processing capacity. Including the volume used from log-deck inventory, approximately 23 percent of timber-processing capacity in Alaska was used in 2005.

Table 14—Alaska annual timber-processing capacity^{a,b} and use, by size class and sector, 2005

Annual timber-processing capacity size class	Number of active facilities	Annual capacity		2005 timber use	
		Timber-processing capacity	Percentage of sector capacity	Volume processed ^b	Capacity utilization within size class
		<i>Thousand board feet, Scribner</i>	<i>Percent</i>	<i>Thousand board feet, Scribner</i>	<i>Percent</i>
Sawmill sector:					
< 250 MBF	24	3,097	1.8	1,448	46.7
251–500 MBF	3	1,010	0.6	200	19.8
501–1,000 MBF	7	6,189	3.5	2,057	33.2
>1,000 MBF	16	165,319	94.1	40,284	24.4
Sawmill sector total	50	175,615	100	43,988	25.0
House log and other ^c sectors:					
<250 MBF	15	1,441	5.4	515	35.7
251–500 MBF	8	2,819	10.6	397	14.1
>501 MBF	4	22,281	83.9	1,231	5.5
House log sector total	27	26,541	100	2,143	8.1
Combined sector totals	77	202,156		46,131	21.4

^a Includes mills active during 2005 only.

^b Includes timber used from log deck inventory.

^c Other sectors include cedar product, log furniture, tonewood, and novelty item manufacturers. Does not include pulpwood chipping facility.

A timber-processing capacity estimate similar to the one developed from the 2005 FIDACS census was developed from a sawmill survey in 1998 (Hill 2000) in which statewide practical capacity of active mills was estimated at 206 MMBF. The Hill (2000) report also listed a design capacity of 241 MMBF. Design capacity estimates were also used in recent reports to quantify the capacity of Southeast Alaska mills for Tongass timber (Brackley et al. 2006, Kilborn et al. 2004). Design capacity refers to the maximum capacity that can be attained by mills based on the capabilities of installed equipment. The total design capacity of active and inactive southeast Alaska mills reported for calendar years 2003 and 2004 was roughly 370 MMBF (Brackley et al. 2006). Other design-based capacity estimates for calendar years 2000 and 2002 were 502 MMBF and 454 MMBF, respectively (Kilborn et al. 2004).

Mill Residue: Quantity, Types, and Use

A substantial portion of the wood fiber, including bark, processed by primary forest product plants ends up as mill residue. Three types of mill residue are typically generated by the primary wood products industry: coarse or chippable residue consisting of edging, slabs, trim, and log ends; fine residue consisting primarily of sawdust and planer shavings; and bark. The 2005 census collected information on volumes and uses of mill residue. Actual residue volumes, reported in bone-dry units were obtained from facilities that sold all or most of their residue. For facilities that did not track residue production, residue volume factors that express residue generated per unit of finished product (table 15) were calculated for reporting facilities and used to estimate total residue volumes. All mills reported, on a percentage basis, how their residue was used.

Table 15—Alaska sawmill residue factors, 2005

Type of residue	BDU ^a per MBF lumber tally
Coarse	0.60
Sawdust	0.19
Planer shavings	0.10 ^b
Bark	0.21
Total	1.10

^a Bone-dry unit (BDU = 2,400 lb of oven-dry wood) of residue generated for every 1,000 board feet of lumber manufactured.

^b Few Alaska sawmills reported planing lumber; this factor represents only those mills that planed lumber.

Alaska timber processors produced 57,682 BDU of residue during 2005, of which 96 percent came from sawmills.

Alaska timber processors produced 57,682 BDU of residue during 2005, of which 96 percent came from sawmills. About 12,360 BDU (21 percent) of mill residue went unused (table 16). Unused residue in Alaska frequently is piled or used to fill low-lying areas. Coarse residue was the largest component (60 percent) of all residue, with 7 percent going unused. About 78 percent of coarse residue was exported for use as pulp, 11 percent was used for energy applications (e.g., firewood, boilers, dry kilns), and an additional 4 percent went to other uses such as animal bedding, mulch, and landscape material. The fine residue component, not including bark made up 20 percent of the overall residue total in 2005, with sawdust contributing 93 percent and shavings and peelings (from planer, lathe, and house logs) accounting for the remaining 7 percent. Fifty-five percent of fine residue was used, primarily as a component of hog fuel, animal bedding, and mulch. The bark

Table 16—Production and disposition of mill residue from Alaska's forest products industry, 2005

Type of residue	Residue disposition				Total
	Pulp	Fuel	Other uses ^a	Unused	
			<i>Bone dry units^b</i>		
Coarse	26,854	3,702	1,360	2,458	34,374
Sawdust		4,724	860	5,055	10,639
Shavings/peelings		205	546	109	860
Bark		6,548	523	4,739	11,811
All residues	26,854	15,179	3,289	12,360	57,682

^a Other uses primarily include animal bedding, mulch, and landscape material.

^b Bone dry unit (BDU) = 2,400 pounds of oven dry wood.

component made up the remaining 20 percent of residue with Alaska facilities generating 11,811 BDU of bark from processing timber in 2005. Nearly 60 percent of the bark generated was used, with the majority (55 percent) being used for fuel and the remaining 5 percent for other uses.

Forest Products Sales and Employment

Mills responding to the FIDACS survey summarized their calendar year 2005 shipments of finished wood products, providing information on volume, sales value, and geographic destination. Mills distributed their products either through their own distribution channels or through independent wholesalers and selling agents. Because of subsequent transactions, the geographic destination reported here may not reflect the final delivery points of shipments.

Alaska primary wood product sales value (either f.o.b. [free on board] at the producing mill or free alongside ship), including mill residues, totaled nearly \$150 million during 2005 (table 17). Nearly \$13.6 million (9 percent) of sales were within Alaska, of which, 44 percent (\$5.8 million) was lumber, boards, and timbers, 31 percent (\$4.1 million) house logs, and the remaining 25 percent (\$3.2 million) other products (including residue). Saw logs and pulpwood chipped from logs accounted for nearly 80 percent of Alaska's total primary wood product sales, of which approximately 9 percent went to the Lower 48 States with the remaining shipped overseas to Pacific Rim countries. Nearly 99 percent of the \$4.2 million in log home sales were to purchasers in Alaska, and roughly 75 percent of the \$4.3 million in other product sales were also in state.

Alaska primary wood product sales value totaled nearly \$150 million during 2005.

Table 17—Destination and sales value of Alaska's primary wood products and mill residue, 2005

Product	Alaska	West coast ^a	Other states	Canada	Pacific Rim	Other countries ^b	Total
<i>Thousands of 2005 dollars</i>							
Lumber	5,769	10,146	752	314	3,374	105	20,460
House logs	4,120	25	25	0	0	0	4,171
Sawlog and pulpwood exports ^c	0	10,400	0	0	108,771	0	119,171
Other ^d	3,229	802	289	0	0	0	4,320
Total primary product	13,119	21,373	1,067	314	112,145	105	148,121
Residue ^e	470	946					1,416
Total sales value	13,589	22,319					149,537

^a West coast includes California, Hawaii, Oregon, and Washington.

^b Other countries includes Europe and Mexico.

^c Derived from United States International Trade Commission data.

^d Other products include cedar products, furniture, tonewood, and novelty items.

^e Mill residues in West coast include all out-of-state mill residue sales.

Employment—

Data from the U.S. Department of Commerce (2007) were used to identify employment for Alaska's forest products industry. Prior to 2001, the forest products industry was reported in three standard industrial classifications (SIC) as defined by the U.S. Office of Management and Budget (OMB 1987): SIC 08—forestry services, SIC 24—lumber and wood products, and SIC 26—pulp, paper, and allied products. Starting in 2001, the North American Industry Classification System (NAICS) replaced the SIC system. The forest products industry can now be found in four categories (OMB 1998): NAICS 113—forestry and logging, NAICS 1153—forestry support activities, NAICS 321—wood product manufacturing, and NAICS 322—paper manufacturing. The change from the SIC to NAICS system has caused difficulties with data continuity; however, combining categories makes totals for the industry comparable between the two systems.

In 2005 there were an estimated 1,049 people working in Alaska's forest products industry (fig. 5). As would be expected with the precipitous decline in harvest, there has been a large decline in forest industry employment. With the implementation of the TTA, associated industrial development, and increase in timber harvest, employment in Alaska's industry grew, reaching over 3,000 workers in the 1970s (U.S. Department of Commerce 2007).

After dropping during the severe recession of 1980–1982, harvest and employment peaked in 1989 and 1990 at over 1 billion board feet and more than 4,600 workers. By 2005, with a 90-percent decline in national forest timber harvest and

In 2005 there were an estimated 1,049 people working in Alaska's forest products industry.

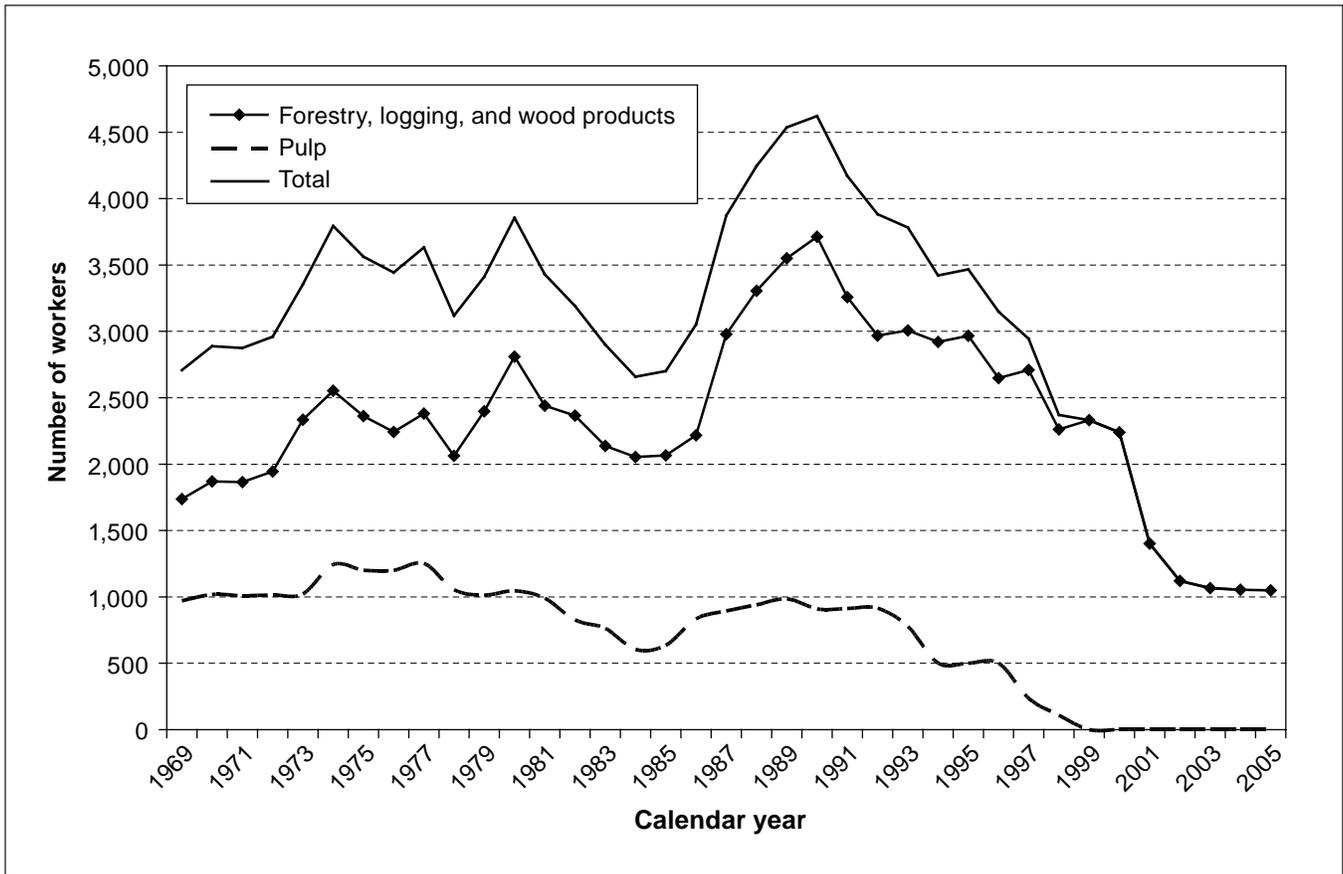


Figure 5—Employment within Alaska's forest products industry 1969–2005 (U.S. Department of Commerce 2007).

an 80-percent fall in Native/private harvest, total harvest had dropped by more than 80 percent. There was also a substantial loss in infrastructure with the closure of the two pulp mills in the 1990s, and forest industry employment fell to just 1,049 workers in 2005.

In addition to the steep employment declines, there was also a shift in the proportions of employment in various components of Alaska's products industry. Prior to mill closures in the 1990s, approximately one-half the employment was in the logging sector. Currently, with the export of approximately 80 percent of Alaska's timber harvest, over two-thirds of the workforce is in logging and forest management employment, and the remaining one-third is in wood products manufacturing.

Acknowledgments

The authors would like to thank Allen Brackley, Susan Alexander, Doug Hanson, Bert Mead, and Lynn Sullivan.

Scientific and Common Names of Species

Alaska yellow-cedar	<i>Cupressus nootkatensis</i> D. Don
Black cottonwood	<i>Populus balsamifera</i> L.
Black spruce	<i>Picea mariana</i> (Mill.) Britton, Sterns & Poggenb.
Mountain hemlock	<i>Tsuga mertensiana</i> (Bong.) Carrière
Paper birch	<i>Betula papyrifera</i> Marsh.
Quaking aspen	<i>Populus tremuloides</i> Michx.
Sitka spruce	<i>Picea sitchensis</i> (Bong.) Carrière
White spruce	<i>Picea glauca</i> (Moench) Voss
Western hemlock	<i>Tsuga heterophylla</i> (Raf.) Sarg.
Western redcedar	<i>Thuja plicata</i> Donn ex D. Don

Metric Equivalents

When you know:	Multiply by:	To find:
Inches	2.54	Centimeters
Feet	.305	Meters
Square feet	.093	Square meters
Cubic feet	.028	Cubic meters
Acres	.405	Hectares
Pounds	.454	Kilograms
Tons	.907	Tonnes or megagrams

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