

USDA United States
Department of
Agriculture

Forest Service

Pacific Northwest
Research Station

General Technical
Report PNW-GTR-500

July 2000



Proceedings: Linking Healthy Forests and Communities Through Alaska Value-Added Forest Products



Sitka, Alaska ▶ September 27 28, 1999

Editors

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Theodore L. Laufenberg, Technical Editor
Bridget K. Brady, Editor

Sitka, Alaska
September 27-28, 1999

U.S. Department of Agriculture
Forest Service
Pacific Northwest Research Station
Portland, Oregon
General Technical Report PNW-GTR-500
July 2000

Abstract

Laufenberg, Theodore L.; Brady, Bridget K., eds. 2000. Proceedings: linking healthy forests and communities through Alaska value-added forest products. Gen. Tech. Rep. PNW-GTR-500. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 341 p.

The Alaska forest products industry is experiencing significant changes in its structure due to economic, ecological, and social pressures. Papers presented at this workshop brought together technical specialists and exhibitors from forest products industry, associations, universities, and private, state, and federal land management agencies. Topics included: policy and management shifts necessary to link healthy forests, communities, and industries; silvicultural concerns for future forest potential; enhancing value in lumber, engineered timber products, processing of finished wood products, and special (craft and non-timber) forest products; and assessment of Alaska forest products industry's competitive position within state, national, and in Pacific Rim markets.

As the first technology transfer event of the Wood Utilization Research and Development Center, the Alaska Value-Added Forest Products Workshop set the stage for developing a strong research and development program for the new center. The center's mission includes working with community partners to identify and evaluate the opportunities for small businesses and examining how small businesses benefit the local economy. The Alaska Wood Utilization Research and Development Center opened in Sitka in January 1999. Congress directed its creation to identify and evaluate "value-added" activities that may provide a durable mix of employment, profits, and forest products industry in Alaska. The Center is a part of the USDA-FS Pacific Northwest Research Station.

Keywords: forest products, Alaska, wood, timber, logs, economics, forest management, silviculture, land use, engineered products, lumber, special forest products, non-timber forest products, markets, international, secondary processing, value-added, forest health, Sitka spruce, yellow-cedar, western redcedar, hemlock, white spruce, red alder, small business, community development, research needs, industry capacity

Preface

These proceedings comprise the papers submitted to document the presentations at the Alaska Value-added Forest Products Workshop held in Sitka, Alaska on September 27-28, 1999. As the first technology transfer effort for the Pacific Northwest Research Station (PNW) Wood Utilization Research and Development (R&D) Center, this workshop provided the outlet for a series of coordinated studies of the forest products arena. The design of these studies yielded broad coverage of the dynamic issues of Alaska forest resources and the product opportunities and industries derived from them.

During the first year to establish the Sitka center, we worked with Richard Haynes and Terry Shaw of the PNW management team on three objectives: 1) establishing the R&D program, 2) developing partnerships, and 3) hiring staff for the PNW's newest location. Our concept for expediting the development of the program of work for the center hinged on gathering current information from potential partners and soliciting ideas for the future needs of Alaska's forest products industry while the hiring process took place.

As we write this, the center has just become fully staffed and continues to develop their R&D programs. They have the results of these first coordinated studies, and supportive collaborating partners, to give them background and guidance as they undertake the challenges of identifying and evaluating opportunities for forest products in Alaska.

Given this opportunity, we'll introduce the center's staff and encourage you to contact them for advancing the discussions begun at this workshop:

Ken Kilborn, Team Leader
Bridget Brady, Information Support Specialist
Linda Christian, Forester
Dave Nicholls, Research Forest Products Technologist
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Our thanks and best wishes to each participant in this dialogue as we seek to achieve a sustainable balance in Alaska's forests, industry, and communities.

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Acknowledgments

On behalf of the Pacific Northwest Research Station, thank you to everyone who participated. We sincerely appreciate your efforts to develop information and provide guidance for future work at the new Wood Utilization R&D Center.

Thomas Mills, Director, Pacific Northwest Research (PNW) Station
Richard Haynes, Manager, PNW Social and Economic Values Research

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Alaska Science and Technology Foundation
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City and Borough of Sitka
USDA Forest Service- Pacific Northwest Research Station
Region 10 and Forest Products Laboratory
Cooperative State Research Education & Extension Service
Rural Development

The authors and presenters are acknowledged for their time and effort to bring thoughtful dialogue to the wide range of workshop topics. Our workshop included user panels for each major session and we extend our appreciation to the panelists who shared their viewpoints on issues and challenges in their field. Participation in the evening exposition of value-added products and services was a highlight for many workshop attendees and we salute the exhibitors providing this hands-on and face-to-face opportunity for us.

Special thanks to our partners in the Alaska Regional Office (Region 10), Tongass' Sitka Supervisor and Ranger District staffs, PNW Public Affairs and Editing staff and the Sitka Convention and Visitors Bureau who collaborated with Bridget Brady to expedite our planning and execution of this workshop by sharing their experience, supplies, and ideas.

We are grateful for the creative talents shown on our cover design by Karen Berton. Cover photographs are by Steve Schmieding of the Forest Products Laboratory who also coordinated audio-visual support during the workshop.

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The Alaska Wood Products Industry 1998 Sawmill Survey

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Abstract

In 1998, the Forest Service, University of Alaska Cooperative Extension Service, and the Alaska Department of Commerce jointly funded a survey of Alaska sawmills, which was conducted by the Institute of Social and Economic Research (ISER) at the University of Alaska Anchorage. This paper discusses the survey and its results.

The 1998 survey covered mill capacity, employment, total production, production by type of product and export or domestic sale, log consumption by species and original timber ownership, chip and residue production, information on suppliers and customers, and several questions about the timber industry in general. It focused on data for calendar year 1997. Some principal findings were:

- Our respondents reported a design capacity of about 240 MMBF annually, almost 200 MMBF of that capacity in Southeast Alaska. They reported that the practical capacity of their mills was somewhat lower – about 205 MMBF statewide, with 174 MMBF in Southeast.
- In 1997, production ranged from 20 MBF to 20,000 MBF. Most firms produced less than 1,000 MBF, and aggregate production was about 67,000 MBF.
- About 55 percent of products were exported and 45 percent sold domestically. About 55 percent of exports were dimensional lumber and 40 percent cants. Domestic sales were 70 percent dimensional lumber and 20 percent cants.
- Of the 27 mills that answered the down time questions, 13 reported no down time due to supply problems. Five firms reported that they lost one day per week or more – up to over half of their total possible time - to lack of supply; the remaining 9 reported just a few days each year.
- Tongass timber accounted for about 90 percent of all the log consumption reported statewide, and over 98 percent of Southeast firms' logs. Elsewhere, privately owned timber provides almost half of Southcentral sawmills' supply, and over 10 percent of Interior sawmills' logs, with the remainder of wood in those regions coming primarily from state land.
- Most mill residue (about 85 percent) is sold (for landscaping and bedding) or used for energy rather than landfilled or burned.

In the last section of the survey, we asked several open-ended questions and solicited comments.

- About half the mills responding in Southeast and Interior reported supply problems, and 4 out of 5 Southcentral mills did. The most common suggestion for government help was more state and local timber sales. Almost half the respondents believed government could help the industry most by providing a dependable timber supply and providing more sales

- Although many respondents would have liked to produce dried lumber, most mills had not and few had plans to do so. Many responses cited high costs as the reason. Despite these concerns about costs, the most common new product plan was to obtain a kiln for drying lumber.
- Two thirds of the mills thought it was feasible for Alaska to manufacture more value added products, but half of those respondents worried about costs, supply and access to markets.

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Introduction

A basic step towards understanding the potential of the Alaska wood products industry is knowing how much timber is harvested, what products are made from timber in Alaska, and how much of the timber harvested here is shipped outside Alaska in the round. A continuing problem in understanding the industry has been that only some of this basic information is available.

The federal and state governments release data on how much timber is harvested from public lands, but no data are collected regularly on timber harvests from private lands. The federal government releases data on exports of round logs and manufactured wood products to foreign countries, but no comprehensive data are released on shipments of round logs or wood products to other states. And no data are collected regularly on wood products manufacturing within Alaska.

In the past, prior to the 1980s, when Alaska's forest products industry was dominated by mills using Tongass timber and exporting almost all their products, lack of data was not a major concern. Federal harvest data showed how much timber was being harvested, and federal export data showed what wood products were being manufactured, and where they went.

In the 1980s, Native timber harvests became a major part of Alaska's timber industry. Private harvests have exceeded public harvests since the early eighties. However, it is still possible to estimate these private harvests from data on raw log exports, since most private harvests were exported without processing.

In the 1990s, however, as the industry changed with the closure of the Southeast Alaska pulp mills and large sawmills, a much greater share of Alaska timber harvests go to either in-state markets or to other states primarily Washington and Oregon. By 1997, domestic sales were important to most sawmills, and the USFS estimated that 30 to 40 percent of Alaska lumber was sold domestically¹. As a result, export data no longer provide an accurate indication of how much Alaska timber is being harvested or what products are produced from it. The need for better information about what is actually harvested and produced in Alaska has grown as the industry changed.

In response to this situation, the University of Alaska Anchorage, together with the Alaska Department of Commerce and Economic Development, the Cooperative Extension Service at the University of Alaska Fairbanks, and the Forest Service undertook a sawmill survey in 1998. This report discusses the survey and its major findings.

Data Sources for the Alaska Wood Products Industry

Harvest Data

There is no regular source of complete information on Alaska timber harvests. Loggers harvesting from public lands report their annual harvest volumes. On private lands, however, there are no requirements for loggers to report their harvest. Alaska's Forest Practices Act does require most timber harvesters to file Notifications of Operation with the Alaska Department of Natural Resources for harvest operations they are conducting. These notifications contain the location and acreage to be harvested, type of operation, starting date and estimated completion date. However, permits may cover several years, and loggers do not have to report how many of those acres they harvest each year of the permit, or the volume of wood they actually harvest.

¹ Morse, Kathleen, "Evaluating the Demand for Tongass Timber", USDA Forest Service, Region 10, Sep 28, 1988, p. 15. estimated that 30 to 40 percent of Alaska lumber was sold domestically. Our survey indicates a higher share, perhaps 40 to 50 percent. However, if we exclude KPC's Ketchikan and Annette Island sawmills, the domestic share jumps to 80 percent. Most Alaska sawmills sell primarily to domestic markets.

Also, the emphasis for the State is in using the information to promote good forestry practices, not to obtain aggregate information about the industry. The state does, however, compile data on timber sales and harvests on state lands, and on "active harvest acreage" on private lands.

The USFS Alaska Region compiles an annual report, required under ANILCA, assessing the market for Tongass National Forest timber, "Timber Supply and Demand". That report includes a variety of data on exports, prices, capacity, employment, harvest and other factors relevant to the market for Tongass timber. In addition to reporting harvests from public lands, it estimates timber harvest from private land based on public harvests, interviews with sawmills on the amount of wood they have consumed, and on data export of raw logs.

These USFS data are the best series available on harvest over time, but give little detail on wood products manufacture. Also, it includes only limited information about the industry in Southcentral Alaska, and none at all about the Interior.

U.S. Department of Commerce Export Data

The US Department of Commerce collects data on exported goods, which includes data on raw logs, lumber, chips, and pulp/paper products. The Pacific Northwest Research Station compiles these export data quarterly in "Production, Prices, Employment and trade in Northwest Forest Industries. However, products used locally, used elsewhere in the US, or sold within the US but immediately exported from outside Alaska do not appear in the data.

Alaska Department of Labor Data

The Alaska Department of Labor collects and publishes data on number of wage and salary employees in the industry and their payroll. These data exclude sole proprietors and other self-employed workers. The US Army Corps of Engineers collects data on shipments of goods by water from selected ports. Under Federal law, vessel-operating companies must report domestic waterborne commercial movements to the Corps. The Corps reports tons of cargo moved to and from specific ports, by type of cargo, and by export, coastwise or internal movement. Coastwise refers to domestic transport that includes a segment of ocean travel; internal refers to domestic traffic carries only on inland waterways. These data are in thousands of short tons, rather than in board feet. Also, most rafted logs are not reported in the data.

Survey Data

The state and the Forest Service would like more complete information on the Alaska wood products industry, and there have been several recent efforts to collect more detailed primary information. The Institute of Social and Economic Research at the University of Alaska has conducted two surveys of wood products manufacturers (1996 and 1998) and one of loggers (1996) in Alaska. These surveys provide new information about the type of wood products manufactured in Alaska, and also an independent estimate to assess the accuracy of other estimates.

1996 Wood Products and Harvest Survey

In 1996, ISER conducted a telephone survey of all the logging companies and primary wood products manufacturers we were able to contact. We developed our initial list of companies' telephone listings and from information provided by the USFS, the Alaska Department of Commerce, and the University of Alaska Cooperative Extension Service. We developed the survey instrument in cooperation with the Pacific Northwest Research Station. In order to avoid the most sensitive areas and promote a higher response rate, we didn't ask about prices, sales, income, or profitability. Rather, we focused on the quantity of timber harvested or goods produced, and whether it was sold locally (within Alaska), to other markets within the US, or exported. We attempted to contact 67 firms, and obtained 44 completed surveys. Nine firms were out of business, ten we couldn't contact, and four declined to participate in the survey.

1998 Sawmill Survey

The 1998 survey was jointly funded by the Forest Service, University of Alaska Cooperative Extension Service, and the Alaska Department of Commerce. The Alaska Department of Commerce had developed a Sawmill Survey instrument, which covered many of the same questions as the 1996 survey, and additional questions about mill capacity and residue. The survey was mailed to 111 firms identified from business licenses. ISER followed up the mailing with telephone contacts to firms that didn't respond. Repeated telephone contacts over a two-month period gave us 46 completed surveys. The lower response rate for the 1998 survey is the result of the large group of firms (54) whose status we can't ascertain. Some of these are producing sawmills that simply didn't want to participate. Some are logging firms without significant sawmill operations. Some are out of business. In all cases, we didn't have enough contact with them to confirm into which category they would fall.

Survey Status	Sawmill Status	Logging and Primary Wood Products Survey, 1996	Sawmill Survey 1998
Completed Survey	In Business	44	46
Working Phone, No Contact or Survey Promised but No Survey	Some in Business, Some not	10	54
Refused Survey	In Business	4	3
Confirmed Out of Business	Not in Business	5	7
No Working Telephone Number	Probably not in Business	4	2
Grand Total		67	112
Possible Active Sawmills		58	103
Response Rate		76%	45%

The low response rate for the 1998 survey affects some types of data more than others. Alaska's wood products industry is still relatively concentrated in a few big firms (and was more so in 1997). We have identified and captured most of these large firms in the survey. Therefore, summary data on total production and employment should reflect the state fairly well. However, there are many small firms, each of which may produce only a tiny fraction of a large firm's output. For questions where the number of firms rather than the volume of production are important, the survey data is less reliable.

Results of the 1998 Sawmill Survey

In 1998, a survey instrument (included as appendix A) was developed by DCED, the Forest Service and other interested parties. The questionnaire asked detailed questions about 1997 operations, and some historical information as well. It covered mill capacity, employment, total production, production by type of product and export or domestic sale, log consumption by species and original timber ownership, chip and residue production, information on suppliers and customers, and several questions about the timber industry in general. Of the 45 firms that responded to our survey, 4 gave only identification information, and left the rest of the survey blank. Forty-one provided partial or complete answers.

Mill Capacity

We didn't talk to mills that weren't in business, so our survey looks only at the capacity of operating mills. It will underestimate the total capacity of the industry, especially in Southeast Alaska, since there is significant capacity in mills that are not operating. Our estimate of 198 MMBF per year is about one-third lower than the 281 recently estimated by the USFS². The Wrangell Sawmill (not currently operating) accounts for 40 MMBF; Differences in the capacity estimates reported by our respondents and reported for those same mills by the Forest service accounts for 32 MMBF more. The Forest Service identified 28 MMBF of capacity in mills we tried to contact, but we unable to get responses from, and estimated 5 MMBF of capacity in "other mills". We identified 14 MBF of capacity in Southeast mills that would fall into that "other " group. The total capacity in Southeast is likely somewhat higher than the 281 MMBF estimate: perhaps 290 or 300 MMBF. This discussion relates to design capacity. We asked about the practical capacity as well as the design capacity of the mills. Practical capacity was consistently about 10 percent lower than design capacity.

Table 2. Comparison of Mill Capacity Estimated by USFS and by 1997 ISER Survey			
	USFS	1998 Survey	
		Design Capacity	Practical Capacity
Total Capacity, State		241	205.5
Total Capacity, SE	281	198	173.6
Mills not operating, 1997	64	9	5
Total Capacity, Operating Mills	217	189	169
Total Capacity, Mills over 10 MMBF	164	173	150
Total capacity, SE Mills < 10 MMBF	34.4	68	23.6

Sawmill Equipment

Of the 41 respondents who told us about their type of sawmill equipment, all had either a band saw or a circular saw as their head rig. In Southeast, 15 had circular saws, 5 had band saws, and 4 had both. In the remainder of the state, 9 had circular saws, 7 had band saws, and 1 had both. The four largest-producing firms all had band saws; one of them had a circular saw as well. A few firms had other types of head rigs in addition to their band or circular saws: 2 gang saws, one chipping mill and one scragg mill.

The maximum log diameter for the head rigs ranged from 6 inches to 10 feet; 10 saws had 3 feet or less logs size; 13 could handle logs from 3 to 6 feet; 4 could handle logs larger than 6 feet, and for 2 we had no answer.

The band saws were much less disparate in size. Of the 17 reported, 5 gave no size. Of the remaining 12, 9 had maximum log sizes of were between 28 and 37 inches, and the largest capacity reported was 71 inches.

Twenty-one firms reported resaw capacity. Two firms had a single circular saw, 8 a multiple circular saw; 9 a single band saw and 4 a multiple band saw. This totals to 23 because two firms have two resaw rigs. One firm had single circular and single band saws; one firm had both single and multiple circular saws.

² Morse (Idem, p. 14)

Sixteen firms have air-drying capacity – 6 in Southeast and 10 in other parts of the state. Only three of our respondent firms (none of them in Southeast) had kiln-drying capability, averaging 4 MBF capacities.

Production

We asked about total production from 1991 to 1997; and also for detailed information about 1997 production by product and destination. Since we talked to firms that began operating after 1991, but not to firms that ceased operation before 1997, our responses will tend to show an increasing number of firms, whether or not that is the case.

	1991	1992	1993	1994	1995	1996	1997
Total	14	17	19	20	25	28	31
Southeast	7	8	9	10	15	18	19
Southcentral	2	3	3	3	3	3	4
Interior	5	6	7	7	7	7	8

Of our 41 total respondents, 14 reported some production data for 1991, increasing to 31 for 1997. For 1997, 6 firms didn't answer the "total production" question, 3 responded, "don't know" and 4 responded zero (two of those began operations in 1998). The total production reported declined from over 100,000 MBF in 1992 and 1993 to 55 - 60,000 MBF in 1995 through 1997.

Seven firms in Southeast that gave production numbers for all seven years. Although several increased production in the first half of the nineties, by 1997, all produced the same volume or less than they had six years earlier. In contrast, all five firms in the other parts of Alaska with data for all seven years (two Southcentral and 3 Interior) increased their annual production. (Figure 1)

The smallest production by a single mill– about 20 MBF per year – stayed constant. However, the largest production dropped from 60,000 MBF to just over 20,000 MBF. Firms entering the market between 1991 and 1997 were most often in the middle group of both production (100 to 1000 MBF) and days (101 to 200 operating days per year) (figures, below). So, the share of both large and small firms dropped, and that of middle sized firms, grew.

Our respondents' production was split about evenly between export and domestic products. Exports were dominated by just a few mills: Only seven mills out of 30 that reported their product destinations reported any export; two of those made up 80 percent of exported volume.

We can see how much of Alaska's wood products exports we have captured in our survey by looking at the US Department of Commerce (DOC) export statistics. Our respondents accounted for more than the total of reported export products. We report too many board feet of hemlock lumber, probably the result of a double counting in one of the respondents³. In spruce and cedar products, the discrepancies are smaller and are probably due to rounding in the responses.

Species	Domestic	Export	Total Production	US DoC Exports
Spruce	8,559	12,487	21,046	13,053
Hemlock	21,957	22,606 ³	44,563	18,524
Cedar	449	232	681	84
Other	493		493	926
Total	31,458	35,325	66,783	32,587

Export products included both dimensional lumber and cants; our respondents reported about two-thirds of the export volume was lumber and one-third cants. Although we believe there's a wide margin of error in those responses, (see previous paragraph) and cants and flitches probably make up somewhere between one third and one half the export volume.

For products sold domestically, there's no independent source of data to compare with our total reported volume. We believe that we have missed some volume. Based on our analysis of capacity and of exports, we have responses from all the largest sawmills, but are missing a number of smaller mills. Morse estimates 64 MMBF of capacity in mills with less than 10 MMBF annual capacity; our respondents account for only 34.4 MMBF, or about half of this. If we assume that production for these small mills was in proportion to capacity, then we can estimate how much of Southeast Alaska's production we failed to capture in our survey.

The small Southeast mills we talked to, totaling 34.4 MMBF of capacity, together produced 2,118 MBF of wood products. If the total capacity of small Southeast mills in operation in 1997 is 64 MMBF, then this implies that we failed to obtain responses from mills that together produced about

$$2,118 \times (64 - 34.4) / 34.4 = 1,847 \text{ MBF of products}$$

Although this is half the production of small Southeast mills, it is only about 3 percent of total Alaska production.

Dimensional lumber was the main product sold domestically, accounting for 71 percent of production for US markets reported in our survey. Cants and flitches accounted for 18 percent, and boards, ties, timbers and house logs were each 2 to 3 percent of total production. Again, the totals are dominated by a few mills. There were 24 firms reporting domestic sales of dimensional lumber; 3 of those accounted for over 90 percent of the 21,678 MBF produced, and 21 other mills each accounted for 2 percent or less. This dominance by a few larger mills is true both in Southeast and in the remainder of Alaska; two or three firms in each region account for over 90 percent of the region's domestically sold production.

³ One respondent reported consuming about 4 MMBF fewer hemlock logs (Sec 3) than the hemlock output reported (section 2); and about 4MMBF less total production in 1997 (section 1) than the sum of the products. Furthermore this is the only respondent with enough exports to account for the discrepancy. However, we have been unable to contact the respondent for clarification.

**Table 5. Volume of Wood Products Manufactured, 1997,
by Region and Product (MBF)**

Region/Product	Domestic	Export*	Total Production
<u>Southeast Total</u>	26,098	35,325	61,423
Boards	1,001	1,080	2,081
Cants/flitches	5,462	14,662	20,124
Decking	2		2
Dimensional	18,453	19,525	37,978
House logs	20		20
Other	91		91
Shingles		58	58
Ties	1,000		1,000
Timbers	70		70
<u>Southcentral Total</u>	940		940
Dimensional	540		540
House logs	400		400
Other	Amt. unknown		Amt. unknown
<u>Interior Total</u>	3,421		3,421
Boards	10		10
Cants/flitches	50		50
Dimensional	2,685		2,685
House logs	214		214
Other	23		23
Timbers	438		438
<u>State Total</u>	30,459	35,325	65,784
Boards	1,011	1,080	2,091
Cants/flitches	5,512	14,662	20,174
Decking	2		2
Dimensional	21,678	19,525	41,203
House logs	634		634
Other	114		114
Shingles		58	58
Ties	1,000		1,000
Timbers	508		508

* Note: Although we know actual exports are about 4 MMBF lower than the 35 MMBF reported here, we do not know which products to delete. Therefore, we are reporting the responses as given.

Supply Problems

Several questions shed light on the issue of the effect of wood supply problems on Alaska's sawmills. We asked the mills how many days they were shut down due to routine maintenance and due to supply problems⁴. We also asked their capacity and actual 1997 production, from which we can estimate capacity utilization. In the open-ended comments section (question 6), we asked if they had problems obtaining a wood supply, and what solutions they would suggest, if they did have problems. We also asked what they saw as a useful government role in the wood products industry.

Of the 27 mills that answered the down time questions, 13 reported no down time due to supply problems. Five firms reported that they lost one day per week or more – up to over half of their total possible time - to lack of supply; the remaining 9 reported just a few days each year.

Capacity utilization estimates ranged from 3 percent to over 70 percent. There were 22 firms for which we had both a capacity utilization estimate, and a reply on days down for lack of supply. At first analysis there appears to be a strong correlation between these two measures. However, the correlation is dependent on two mills with outlying values of down days. The other 20 firms show no correlation between their capacity utilization measures and reported days lost to supply problems.

The comments provided in question 6 were not unexpected. Mills that reported many days lost due to lack of supply mostly reported wanting more sales, noting both the Tongass and beetle killed spruce as sources for that supply. A few firms, however, reported no supply problems. Conversely, although there were many "no problem" comments from firms that reported no days lost due to lack of supply, several firms did report that supply was a problem.

Number of Days	Number of Mills
Zero days	14
Up to one day per month	8
One day per week or more	5

* no mills reported more than one day per month but less than one day per week

Log Consumption

We asked about both species and ownership of logs used by sawmills in our survey. Hemlock and spruce logs from the Tongass National Forest account for over 95 percent of logs used by Southeast sawmills, and they are over 85 percent of logs consumed statewide. In Southcentral and Interior Alaska, however, white spruce is the dominant log, with some consumption of birch and cottonwood. While privately owned timber provides less than 1 percent of logs supplied to Southeast sawmills, it comprises almost half of Southcentral sawmills' supply, and over 10 percent of Interior sawmills logs. Of the 21 Southeast mills that provided information on their log consumption, 8 were totally supplied by Tongass logs, and 4 more obtained the majority of their wood there.

⁴ Unfortunately, some answers are difficult to interpret, since some answered in total shift or days per year, some in shifts or days per week, and still others in percent of time. It isn't always possible to determine what the respondent intended.

Species	Southeast	Southcentral	Interior	Alaska Total
Sitka Spruce	15,760	-	-	15,760
Hemlock	36,114	-	-	36,114
Redcedar	1,701	-	-	1,701
Yellow Cedar	468	-	-	468
White Spruce	-	1,880	3,222	5,102
Birch & Cottonwood	-	150	315	465

Ownership	Southeast	Southcentral	Interior	Alaska Total
Public	54,185	1,695	3,056	58,936
Chugach	50	85	-	135
Tongass	53,386	-	-	53,386
State of Alaska	435	1,510	3,052	4,997
Other Public	314	100	4	418
Private	301	1,470	481	2,252
Native	95	600	80	775
Other Private	206	870	401	1,477

Log consumption data lets us estimate the capacity utilization of mills in our survey, which the table below shows is low throughout the state. The maximum capacity utilization was only 50 percent, and several mills had zero.

Capacity Utilization	Number of Mills			
	Southeast	Southcentral	Interior	Alaska Total
10 percent or less	10	1	5	16
11 to 30 percent	8	2	2	12
Over 30 percent	3	2	1	6
Average Utilization	28%	23%	14%	26%

Note: capacity is based on one shift, 250 days per year for all mills

Employment

We asked about full and part time employment, and 38 mills provided answers. The total number of employees ranged from 0 to 77. However, one quarter of mills had no full time employees; four out of 5 had five or fewer full time employees. Altogether, our respondents employed 283 full time employees and 57 part time employees, for a total of 340 jobs. The 5 largest firms accounted for three-quarters of full time employment, and two-thirds of total employment. About 1 in 10 of the full time employees are in an administrative or managerial position. The Alaska Department of Labor (AKDoL) tracks wage & salary employment in logging, lumber, and pulp and paper industries. In 1997, they reported an average annual lumber employment of 383 jobs.

Table 10. Distribution of Mills by Number of Employees in 1997			
	Number of Firms with specified number of employees:		
Number of Employees	Total Employment	Full Time Employment	Part Time Employment
No employees	2	10	18
1 employee	7	6	5
2 employees	2	7	4
3 employees	5	2	5
4 employees	6	2	3
5 employees	3	3	1
6 employees	5	2	2
7 employees	3	1	0
10 to 50 employees	3	3	0
Over 50 employees	2	2	0
Total Employment, All Mills	340	283	57

Chip and Residue Production

Nineteen sawmills were able to give us numerical estimates of their residue production, although used several different units of measure, and so it is difficult to produce a single total. In addition, eight sawmills reported zero residue production, but several of those cited all residues as going to the landfill or burned on site; clearly they are producing some residue. Table 11 summarizes the residue production reported.

Table 11. Residue Production in 1997	
Chips	
	94,495 Bone Dry Units
	10,760 Cubic Yards
	1 mill reported chip production, but no quantity
Hogged Fuel	
	39,935 Bone Dry Units
	204 tons
	9,470 Cubic Yards
	4 mills reported hogged fuel production, but no quantity
Slabs	
	2,982 cords
	606 tons
	7,500 Cubic Yards
	50 thousand board feet
	5 mills reported slab production, but no quantity

The first column in the table below shows how many mills use each type of use as their primary means of disposing of residue; the second shows how many sawmills reported at least some of their residue in each category. Of 39 sawmills that answered at least some part of section 5, only three produced any of their energy needs from residue, and one reported using residue for local heat (that mill is included in "firewood"). Ten more made some use of most of their residue, typically as firewood. Fourteen mills either burned or sent to the landfill most of their residue as waste. Eleven more didn't specify how they disposed of residue.

Table 12. Disposition of Mill Residue		
Use of Residue	# of Mills disposing of most residue this way	# of Mills disposing of some residue this way
Energy	3	3
Firewood/fuel	8	12
Landscape/bedding	2	8
Sell	2	3
Burned	6	6
Landfill	7	10
Waste/unknown	11	13
Total	39	N/A

Two mills reported cogeneration capacity, and one more said they would be "working on that soon". One of the two mills with cogeneration capacity did not actually produce any of their energy with it; the other produced all of their energy from residue.

By estimating conversion factors⁵, we were able to combine most of the reporting mills information to look at what proportion of residue is disposed of in each manner. The table below shows the results by region. Residue is used, rather than thrown away, throughout the state. In Southeast, the most prevalent use is for energy generation, in Southcentral, landscaping and bedding, and in the Interior, firewood. Firewood is the second largest use in both Southcentral and Southeast. Although less than 0.5 percent of residue that is disposed of in Southeast or Southcentral is burned, fully half of Interior's unused residue is burned rather than deposited in a landfill.

Only a few sawmills produced chips from whole logs, but these mills accounted for the majority of the chips produced; so about 60,000 bone dry units (BDU) of chips, or 64 percent of all reported chip BDU, were produced from whole logs.

	Southeast	Southcentral	Interior	Alaska Total
Economic Use	84%	90%	77%	85%
Disposal	16%	10%	23%	15%
Economic Uses				
Energy Source	65%	0%	5%	44%
Local Heat	0%	0%	4%	0%
Firewood/Fuel	35%	17%	59%	31%
Landscaping/ Bedding	0%	82%	33%	24%
Sold	0%	1%	0%	0%
Disposal Methods				
Burned	0%	0%	49%	5%
Landfill	100%	100%	51%	95%

	Southeast	Southcentral	Interior	Alaska Total
Chipped from Whole Logs	77%	2%	0%	54%
Produced as By-Product	23%	98%	100%	46%

Comments from the Survey Respondents

The last section of the survey asks respondents several open-ended questions. About half the mills responding in Southeast and Interior reported supply problems, and 4 out of 5 Southcentral mills did. The most common suggestion for government help was more state and local timber sales, especially in Southeast; next was more small sales. Then better timed or longer sales.

This theme was repeated when mills were asked what they saw as the government's most important role in helping the industry. The two most common answers, provided by almost half the respondents, were "provide a dependable timber supply" and "negotiate small sales or a

⁵ We used conversion factors given in "Timber Supply and demand 1997", USFS Region 10, Table A-18, p. 42. However, for cubic yards and feet we converted to cubic meters, then used the "log and lumber, board feet (lumber tally) to m³" conversion of 2.36 m³ per MBF to produce a board feet measure, and the chip conversion of 2.7 tons chips per MBF. For cords, often used as a measure of slabs, we first converted cords to ft³ at a simple 4 ft x 4 ft x 8 ft factor, since stacked slabs won't have as much open space as round wood; and then proceeded as described. While these are very rough conversion factors, they do let us draw general conclusions about mill residue dispositions.

variety of sales. The next most commonly cited strategies were subsidies, regulatory changes and other assistance targeted at small businesses.

When asked what species and grade mills preferred to buy, the results were unsurprising. Southeast mills wanted Sitka spruce and cedar followed by hemlock; Southcentral and Interior firms wanted white or Lutz spruce. Although some respondents mentioned wanting better grades of wood, all grades were named, and many respondents did not address their grade preferences.

We asked about plans for producing dried wood, or other product plans the mills might have. Most mills had not produced dried wood and few had plans to do so. Many responses cited costs (of a kiln, of producing, storing and transporting the wood) as reasons they did not produce dried timber. Several Southeast mills cited lack of supply, and Interior mills, low quality wood as reasons.

Despite these concerns about costs, the most common new product plan was to obtain a kiln for drying lumber. Most other new product responses included adding some sort of equipment to the mill, most commonly a planer or band saw. Some firms mentioned one or another new product, and a few said they were planning to sell more in the domestic market. Seven of the 37 mills answering this question said they had no new plans, and one planned to leave the industry.

We asked respondents if they thought it was feasible for Alaska mills to manufacture more value added products. The majority (25 out of 36 mills responding) thought it was, but one third offered qualifications. Like the 'no' respondents, qualified yes respondents worried about costs, supply and access to markets. The more optimistic yes respondents cited the need to do this and ability of Alaska markets to purchase local production.

The following tables summarize the responses provided to the six questions we asked.

Table 15. Question 6A. Have you encountered problems in obtaining a wood supply? Do you have any suggested solutions?				
	Statewide total	Southeast	Southcentral	Interior
Total Mills Responding	39	24	5	10
We are having Problems	21	13	4	4
No Supply Problems	12	5	1	6
Need More Sales	5	4	1	0
Need more Small sales	4	4	0	0
Need better timing/longer sales	5	2	2	1
Need less red tape	2	2	0	0
Reduce lawsuits	1	1	0	0
More funding	2	2	0	0
More state/local timber	7	5	1	1
Stop log exports	1	1	0	0
Let state manage Tongass	1	1	0	0
Too much logging/ clear cutting	2	1	0	1
Cost too high/market won't support cost	3	3	0	0
Use beetle kill	2	1	1	0
Educate wood users	1	1	0	0
Need funding for stockpiling	1	0	1	0

Table 16. Question 6B: What problems have you encountered in either producing or marketing dried lumber?

	Statewide total	Southeast	Southcentral	Interior
Total Mills Responding	32	20	4	8
haven't produced dried timber	14	10	1	3
need a kiln; kiln too expensive	6	2	3	1
just starting	1	1	0	0
energy costs	3	3	0	0
energy availability	2	2	0	0
access to markets	1	1	0	0
wood supply	3	3	0	0
wood quality	4	1	0	3
grading	1	0	1	0
regulatory restrictions	1	1	0	0
transportation costs	2	2	0	0
need larger capacity	1	1	0	0
hard to be competitively priced	3	2	1	0
need to store dry wood (cost, space)	3	2	0	1

Table 17. Question 6C: Do you have any plans for expansion or moving into a different product line? If so, please give a brief description of your plans and the type of equipment you would like to purchase over the next five years.

	Statewide total	Southeast	South central	Interior
Total Mills Responding	37	22	5	10
Moving towards domestic market	3	3	0	0
"upgrades" to mill	4	3	0	1
resaw	8	5	2	1
band saw	1	0	1	0
edger	4	4	0	0
trimmer	2	1	1	0
kilns, dryers	14	9	2	3
planer	10	6	0	4
molder	6	5	0	1
milling machine	1	1	0	0
chipper	2	0	2	0
debarker	3	0	2	1
scragg mill	2	0	1	1
mulcher	1	0	1	0
fencing, decking	2	2	0	0
siding	2	1	0	1
woodworking: furniture, tourist items	2	1	0	1
tongue and groove	1	0	0	1
packaging, dust collection	1	1	0	0
cedar shake system	1	1	0	0
green chains for sorting lumber	1	1	0	0
pellet press for presto logs	1	1	0	0
depends on quantity and cost of supply	1	1	0	0
Would like to, but no plans now	2	2	0	0
Planning to leave sawmill business	1	0	1	0
No plans for new products	5	2	0	3

Table 18. Question 6D: Given the choice, what species, grade and volume of wood do you prefer to purchase?				
	Statewide total	Southeast	Southcentral	Interior
Total Mills Responding	38	22	5	11
Species				
Hemlock	11	11	0	0
Sitka Spruce	18	15	2	0
Redcedar	12	12	0	0
Yellow Cedar	6	6	0	0
White/Lutz Spruce	14	0	4	9
Birch	3	1	1	1
Aspen	1	0	0	1
Cottonwood	1	1	0	0
Grades				
Grade 1 select	3	2	1	0
Grade 2 and better	3	2	1	0
Grade 3 and better	0	0	0	0
all grades	2	1	1	0
shop and better	1	1	0	0
best grade available	1	1	0	0
beetle infested	1	0	1	0
"good" quality	1	0	0	1
Total Volume Mentioned (MBF)	17,351	8,551	7,200	1,600

Table 19. Question 6E. In your opinion, what role can the state government play in assisting the wood products industry?				
	Statewide total	Southeast	South-central	Interior
Total Mills Responding	36	22	5	9
provide dependable timber supply	9	5	1	3
more Tongass logging	3	3	0	0
keep logging roads open	1	1	0	0
use mental health trust forests	1	1	0	0
make regulations friendly to local products	1	1	0	0
make regulations friendly to logging	2	0	0	2
"favorable atmosphere" for business development	1	1	0	0
stop /discourage exports of raw materials	3	2	0	1
small business assistance	3	1	1	1
startup grants/ funding for small businesses	5	3	2	0
less emphasis on big businesses	3	1	0	2
negotiate small sales/ variety of sales	8	7	1	0
ensure sustainable resource management	3	1	1	1
more foresters	1	0	1	0
marketing assistance	2	0	0	2
State should buy all Alaskan products	2	0	1	1
State already doing what they should	4	2	0	2

Table 20. Question 6F: In your opinion, is it feasible to manufacture more value-added wood products in Alaska? Why or why not?				
	Statewide total	Southeast	South-central	Interior
Total Mills Responding	36	22	5	9
Yes	25	15	4	6
Yes but difficult	3	3	0	0
Y-we have raw materials	8	5	2	1
Y-cut bureaucracy	2	2	0	0
Y-must market Alaska	3	1	0	2
Y-need dependable supply	2	2	0	0
Y-need start up subsidies for this	1	1	0	0
Y - we cut less volume and need to get more from it	1	1	0	0
Y-can selectively log best trees without hurting old growth forest	2	1	1	0
Y - Alaska market can sustain local value added businesses	6	2	1	3
No	4	2	1	1
No-Transportation costs	4	3	0	1
N- high local costs	2	1	0	1
N- not enough long term supply	1	0	1	0
N- difficult to compete here; only some products can	3	3	0	0
N -difficult to understand market	1	0	0	1