Timber Supply and Demand: 2008

Alaska National Interest Lands Conservation Act
Section 706(a) Report to Congress
USDA, Forest Service, Alaska Region

United States
Department of
Agriculture

Forest Service
Alaska Region
R10-MB-748
October 2011

Report Number 24

Preface

This is the 24th report prepared in accordance with Section 706(a) of the Alaska National Interest Lands Conservation Act (ANILCA), which directs the Secretary of Agriculture to monitor and report on timber supply and demand in Southeast Alaska. The report provides a summary of timber sale activity in the region and a review of the primary factors affecting timber markets in 2008. This report was prepared by Susan J. Alexander, Ph.D., Alaska Region Regional Economist.

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Summary

The annual volume of timber sold on the Tongass National Forest in the years from 2004 to 2008 ranged from 5.4 to 87.1 million board feet (MMBF). The volume sold in 2008 was 5.4 MMBF. Harvested volumes in the same time period ranged from 18.7 to 49.6 MMBF; in 2008, 28 MMBF were harvested from the Tongass National Forest. Private suppliers in Southeast Alaska, comprised of the native corporations, harvested 52.3 MMBF in 2008, a slight increase from the 50 MMBF harvested in 2007. Harvests in Southeast Alaska from State of Alaska lands (DNR, University, and Mental Health lands) were 11.9 MMBF in 2008, a sharp drop from the 44.6 MMBF cut in 2007. Wood product employment (logging and sawmilling) in the region fell to approximately 265 full-time positions in 2008, a drop of 34 percent from 2007 employment of 402. Tongass National Forest-related employment in logging and sawmilling was 122 in 2008, a slight increase from the 114 jobs in logging and manufacturing in 2007 associated with timber harvest on the Tongass.

Markets for Southeast Alaskan manufactured wood products appear to have shifted to domestic destinations, but the final destination for manufactured products can be difficult to track. Producers will sell products into markets based on price. Alaskan wood products markets are closely tied to North American and Pacific Rim markets and are being impacted by the global recession, tight credit markets, and a sharp downturn nationwide in housing starts. A slow housing recovery is widely anticipated. When wood products markets improve, remaining wood manufacturing facilities will be well situated to take advantage of projected increases in demand for lumber, and timber used in wood-biomass energy applications.

1. Introduction

Section 706(a) of the Alaska National Interest Lands Conservation Act (ANILCA) (Public Law 96-487, December 2, 1980) directs the Secretary of Agriculture to monitor and report on timber supply and demand in Southeast Alaska. Accordingly, this report describes the status of the timber market in Southeast Alaska during the 2008 Federal fiscal year (October 1 - September 30). Many of the statistics presented in this report, however, are based on calendar years. In the appendix tables, data are labeled as to whether they represent fiscal years or calendar years.

The report is divided into three main sections, the first providing a general overview of conditions within the region's timber economy, the second treating timber supply from Federal lands, and the third addressing demand for this timber. The general overview looks at current developments in the timber sector with particular emphasis on timber employment. The supply section focuses upon the ability of the Tongass National Forest to supply adequate volumes for local processors, with the timber sale program receiving the bulk of the attention. The demand section considers the various factors outside of the Tongass National Forest that help determine the willingness of local buyers to purchase Tongass National Forest timber. These factors include Asian and domestic U.S. markets, current processing capacity in Southeast Alaska, and other suppliers of timber in the

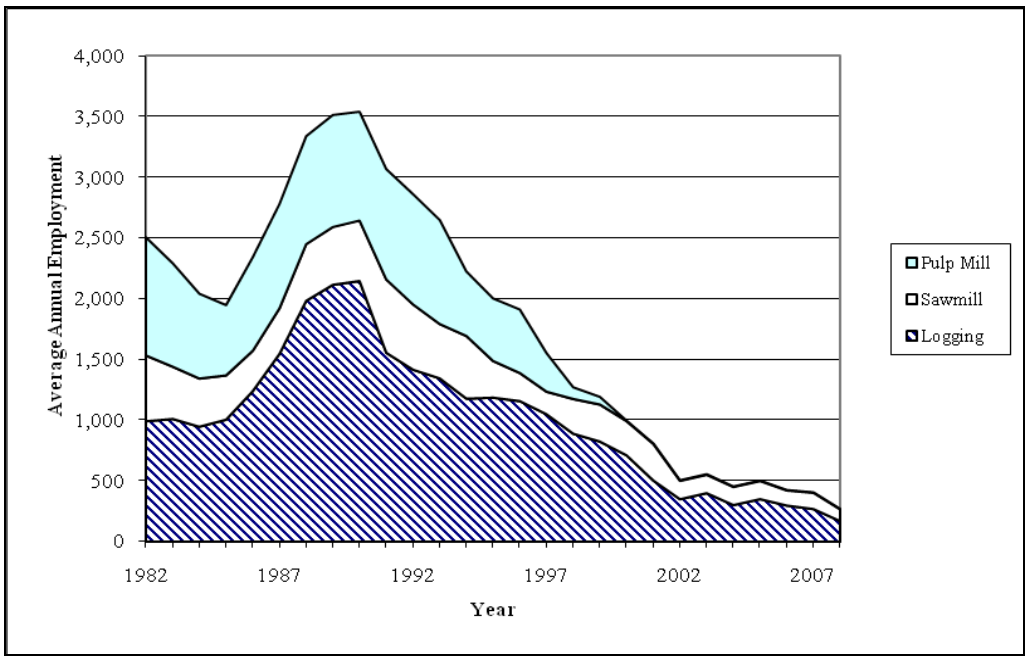
region. Supporting data for the analysis is presented in the various tables included in the appendix.

2. Overview of the Region's Timber Economy

Alaska grew through the last two national recessions, in 1990-1991 and 2001. The state still saw small growth during those national downturns of about one percent. The current recession that began in earnest in 2008, however, presents more of a threat due to its depth and breadth. The impact of the global downturn on oil prices is affecting the statewide economy (Robinson 2009). The national construction industry has been hit hard by the issues in mortgage and banking industries, and trends in construction directly impact demand for wood products. According to the World Economic Outlook (April 2009; IMF), this is the most severe and synchronized global recession in the past 50 years.

Southeast Alaska's economic well-being is closely tied to resource-dependent industries, including fishing, forestry, and mining, and tourism. Over the last decade, a year of job growth in the Southeast Alaska economy has often been followed by a year of job losses. The region experienced 3 years of consecutive job growth from 2005 through 2007. In 2008, employment in Southeast Alaska dropped 0.3 percent, and the expectation for 2009 is a further decline in employment (Shanks 2009). Employment in the timber industry fell by 137 jobs, from 402 in 2007 to 265 in 2008 (Figure 1 and Appendix Table A-2). Forest Service job losses in the region accounted for nearly all of the 200 jobs lost in Federal employment (Shanks 2009).

Figure 1. Southeast Alaska Wood Products Employment, 1982-2008.



Total timber sector employment has dropped from 1,269 to 407 average annual employees in Southeast Alaska in the wood products industry (logging, pulp and paper, and sawmilling) from 2004 to 2008 (see Figure 1, and Table A-2 in appendix). The last of the long-term lease timber sale volume was harvested in 2000. In 2002, the remaining independent sawmills obtained a quarter of their stumpage from non-Federal sources, signaling a shift from the past, when it could be safely assumed that virtually all wood sawn in Southeast came from Federal lands. Tongass National Forest-related employment in logging and sawmilling (there is no employment in pulp and paper any longer in Southeast Alaska) has declined from 173 in 2002 to 122 in 2008, a drop of 30 percent (see Table A-2 in the appendix for how the Tongass National Forest-related employment numbers were calculated). At the same time, non-Tongass employment dropped from 339 to 142, a decline of 58 percent.

Several factors contribute to the difference in employment decline between manufacturing and logging. Logging employment is generated from all ownerships, including state sales, Native corporation harvests, and Forest Service timber sales. Sawmilling employment has historically been primarily the result of Forest Service timber sales, with a small contribution from state timber harvest. As the total volume of harvest regionally has declined, state timber sales have become a larger proportion of harvested volume (see Appendix Table A-6), and contribute proportionally more to both logging and sawmilling employment. In 2008, however, harvest from state lands dropped precipitously. Alaska Native harvests have continued to contribute to logging employment, although harvested volume from Native lands is also in decline.

Southeast Alaska produces most of the timber harvested in Alaska. Halbrook et al. (2009) conducted a statewide assessment of the timber industry in Alaska, and found that in 2005, the southeast region supplied 74 percent of Alaska's total timber harvest. Most harvest in Alaska in 2005 (60.7 percent) 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. In contrast, most mill supply came from national forests (53 percent), followed by state and other public lands (38 percent), and then by private and Native lands (8 percent). It is likely that these statewide proportional shares of timber harvest and mill supply from 2005 still hold today.

The wood products industry in Southeast Alaska, and in fact the entire state, consists of individual- and family-owned sawmills, and independent logging businesses. Sales of Southeast Alaska manufactured products to domestic markets, including Alaska, have comprised about 79 percent of all sales from 2002 through 2008, on average. The wood products industry in Southeast Alaska has changed considerably since the end of the long-term sales program and seemed to stabilize somewhat between 2002 and 2006, but declined again in 2007 and again in 2008, as measured by employment (Appendix Table A-2) and total regional timber harvest (Appendix Table A-6). The industry is vulnerable both to supply and demand issues. Through 2001, we could assume that virtually all sawmill employment came from harvests from National Forest lands. Now, wood used in sawmills in Southeast Alaska comes from the Tongass National Forest, State lands,

and some private lands. Data from Kilborn et al. (2004), Brackley et al. (2006b), Brackley and Crone (2009), Kilborn (2009), and Parrent (2009) show that the Tongass National Forest contributed an average of about 63 percent of wood sawn in Southeast Alaska from 2002 to 2008 (see Footnote 3, Appendix Table A-2). State of Alaska lands, including lands managed by the Department of Natural Resources, Mental Health Trust, and University of Alaska, have become an important source of logs processed by local sawmills in Southeast Alaska. State lands comprise a relatively small percentage of Southeast Alaska forest lands, and State lands cannot indefinitely supply such a high proportion of the needs of remaining Southeast Alaska sawmills. Harvest on State lands in Southeast Alaska has fallen from 44.6 MMBF in 2006 to 11.9 in 2008. This could be a serious problem for the local industry if the Forest Service is unable to offer sufficient economic timber sales to meet estimates of demand. A small amount of sawlogs and chips are imported into Alaska ports from other countries (primarily Canada) (Appendix Table A-6). Sawlog imports bumped up to about 7.8 MMBF in 2006 and 2007 as the Ketchikan Renaissance Group veneer mill became active, but dropped to 1.1 MMBF in 2008. The veneer mill was inactive in 2008.

While supply and demand are treated separately in the following sections, it is important to remember that the interaction of these two forces is what is important. Both supply and demand present challenges for the region's timber sector as it is currently configured.

3. Supply

The supply of timber from the Tongass National Forest is determined by two main factors. The first is the volume of timber offered for sale by the Forest Service. This is estimated annually, using procedures that were developed by the Alaska Region of the Forest Service with the aim of adjusting volume offered to meet projected demand (Morse 2000). Long-term demand estimates were re-calculated by the Forest Service Pacific Northwest Research Station in 2006 (Brackley et al. 2006a; Brackley and Haynes 2008). The basic procedure of calculating needed annual offerings as outlined by Morse (2000) did not change, but was modified by Alexander (2008) to fit the most recent estimates of long-term demand. The second factor affecting timber supply is the cost of harvesting and delivering wood to its respective intermediate markets: mills in the case of locally processed material, and ports in the case of log exports.

This section of the report describes the Tongass National Forest timber sale program as it stood at the end of FY 2008. While timber harvests from sources other than the Forest Service help determine regional log supply, their impact on the FS sale program is, if anything, on the demand side. This is because these other sources may act as substitutes for Federal timber. Accordingly, private and Alaska state harvests will be discussed in the next section on timber demand.

3.1 The Timber Sale Preparation Process

The Forest Service timber sale process involves a number of stages (or "gates"). The first stage (Gate 1) involves the completion of a "Position Statement," which provides a brief analysis of the project area with the intent of determining the feasibility of the potential

timber sale. Gate 2 entails gathering public comment and conducting environmental analysis in accordance with the National Environmental Policy Act (NEPA). The remaining gates involve, respectively, plan implementation and field layout (Gate 3), sale appraisal and advertising the sale (Gate 4), bid opening (Gate 5), and sale award (Gate 6).

The NEPA process entailed in Gate 2 often comprises the bulk of work devoted by the Forest Service to any given sale. This work formally begins with public scoping, describing the Forest Service's proposed action and intent to conduct an environmental analysis. This stage concludes with the publication of an Environmental Assessment or (in the case of projects with potentially significant effects), an Environmental Impact Statement, and ultimately a Decision Notice or a Record of Decision in which the Forest Service authorizes the sale and documents the conditions for implementing it. Tongass timber sale NEPA decisions are frequently subject to administrative appeals and litigation. Having cleared these requirements, timber sales can then progress through the remaining four gates.

The volume cleared by the NEPA decision is often broken up into separate sales, which may or may not be prepared and offered in the same fiscal year as that in which the decision was made. During the period covered by this report, volume was officially reported as being offered at the time of advertisement. In 2005, as directed by Public Law No. 108-108 (Sec. 318, HR 2691; 2004), the Alaska Region began using a residual value approach in sale appraisals. Using forest cruise data, current market prices for products, mill processing information, and estimates of harvest, transportation, and processing costs, the Forest Service determines the value at which the sale will be advertised. Further details on appraisal methods in the Alaska Region can be viewed at http://www.fs.fed.us/r10/ro/policy-reports/for_mgmt/, under "Timber Valuation". Private firms are invited to bid at or above the advertised rate. Sales are then awarded to the high bidder, subject to certain additional considerations designed to ensure the bidder's ability to comply with the conditions laid out in the sale contract.

For various reasons, within any given year, a portion of the timber volume planned for sale may not be sold. In some instances, sales or portions of sales that are planned are not offered. In other instances, a sale is offered and does not receive a valid bid. If there is no indication of competition from other purchasers, those sales may be available to purchasers at their original advertised rates and conditions for up to one year without additional advertisement. The Forest Service may repackage the sale to enhance its economic attractiveness.

After a sale has been awarded, the purchaser usually has around 3 to 5 years in which to harvest the sale volume. The sum total of volume yet to be harvested is termed "volume under contract," and this constitutes a pool of timber from which contract holders may draw depending on market conditions and their business plans. A central objective of the Tongass National Forest timber sale program is maintenance of the timber program so that the volume under contract can be replenished in an orderly and continuous fashion. Starting in 1999, Congress appropriated additional funds so that the Tongass National

Forest could increase the number of timber sale projects, above the regular program, in an effort to supply enough volume in a timely manner so the timber industry in Southeast Alaska can reach, and maintain, a three-year supply of timber volume under contract. In 2008, the appropriation was about $4 million. The funds are spent on activities, including timber sale planning and preparation, and obtaining log transfer facility permits and resource inventories to facilitate future timber sale planning efforts. Details on volume under contract as of the end of FY 2008 are in Appendix Table A-10.

To evaluate the status of the timber flow, Morse (2000) established that it is important to assess the ratio of contract volume to harvest. This ratio can indicate how many years of supply (volume under contract) mills have compared to what they are sawing (i.e., harvest). During the 1981-1995 time period, historical ratios of volume under contract to harvest for the independent sale program (in other words, not including volume in the long-term contracts associated with the pulp mills in Ketchikan and Sitka) ranged from 1.0 to 3.4 with an average of 1.8 (Morse 2000). The ratio of contract volume to harvest peaked in 2002 at 6.8, but dropped closer to the three-year supply objective in 2003. In 2004 and 2005, the ratio dropped to 1.7 and increased to 2.6 in 2006. In 2007, the ratio rose to 6.1, reflecting poor wood market conditions in 2007. The ratio dropped back to 3.5 in 2008, as volume under contract fell slightly and harvest increased.

Table 1. Available Timber Volumes and Harvest (Fiscal Years, MMBF).

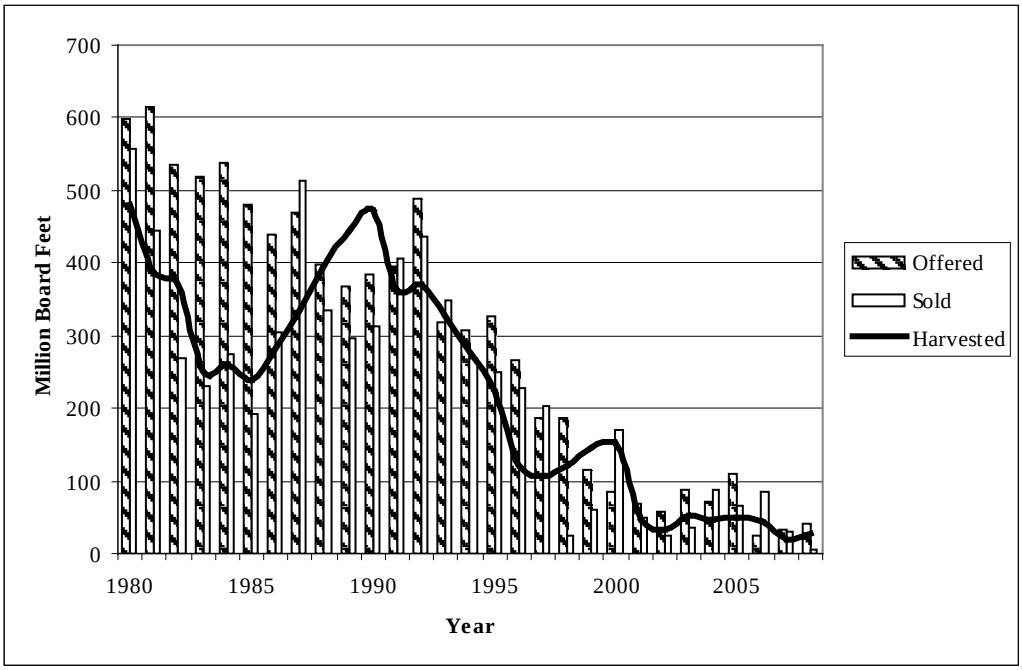
	2002	2003	2004	2005	2006	2007	2008
Volume Under Contract[1]	230	193	78	83	111	114	97
Harvest	34	51	46	50	43	18.7	28
Contract Volume / Harvest ratio	6.8	3.8	1.7	1.7	2.6	6.1	3.5

1. Volume in 2002 does not include volume under injunction. Volumes in 2004 and 2005 do not include cancelled sales. See Appendix Tables A-3 and A-10.

The ratio of volume under contract to harvest is only one indication of whether there is sufficient timber volume under contract to ensure industry viability. There can be increasing contract volume to harvest ratios while there are declining contract volumes. Some volume under contract in 2002 and 2003 was in sales cancelled in 2004 and 2005. Timber flow volumes have recently not only dropped below the desired objective of a three year supply of harvestable timber under current harvest rates, but also would be completely inadequate for allowable harvest rates outlined in the 2008 Tongass Land Management Plan (TLMP). The allowable sale quantity (ASQ) is partitioned into two non-interchangeable components (NICs). About 238 MMBF would be available for harvest under most market conditions (NIC I), as this volume is located on the most operable, accessible ground. The maximum ASQ is 267 MMBF, of which about 29 MMBF is in areas that are difficult to harvest or are isolated (NIC II) (USDA 2008).

Figure 2 illustrates trends in timber offered, sold, and harvested since 1980. This graph illustrates the relative stabilization of the industry in the past 5 years, although struggles with supply are still an issue.

Figure 2. Volumes of timber offered, sold and harvested from the Tongass National Forest, 1980-2008 (Fiscal Years, MMBF).



In 2008, sawmills in southeast Alaska were operating at about 8 percent of estimated capacity. The three largest mills operated at about 15 percent of estimated capacity (Parrent 2009). By comparison, sawmills in Idaho, Oregon, California, and Montana generally utilize more than 80 percent of their capacity, unless there is a severe economic downturn (Brandt 2006, Keegan et al. 2001, Morgan et al 2004a, Morgan et al. 2004b). The highest capacity utilization rate of any single large sawmill in southeast Alaska in 2008 was estimated at about 21 percent. At such low utilization rates, it is extremely difficult for sawmill owners to cover their fixed costs, much less make a profit.

4. Demand

Economists commonly define "demand" as the different amounts of a product buyers are willing to purchase at different prices. As such, demand cannot be characterized as a single number but should be viewed as a series of price-quantity relationships. The same is true for "supply," and it is the combination of these two forces (supply and demand) that determine both the quantity and price of goods produced and consumed in the marketplace.

Softwood lumber exports from Alaska (Appendix Table A-7) recovered from 2003 to 2005, and although the volume shipped dropped slightly in 2006, the value doubled from 2005 prices. Volume of foreign exports of Sitka spruce lumber, the only species reported in Anchorage customs district data, dropped again in 2007, but prices in 2007 were at record highs. In 2008, a small amount of "other" softwood lumber was exported from Alaska, but no Sitka spruce, hemlock, or cedar lumber left the Anchorage customs

district. Mills report that they shipped lumber to foreign markets, but lumber shipped from other ports (e.g. Seattle) as recorded through the Harmonized Trade data cannot be traced back to its origin. Wood chip exports from the Anchorage customs district fluctuated from 2004 to 2006 (Appendix Table A-8), but chip values remained about the same. In 2007 and 2008, wood chip exports from the Alaska customs district fell to almost zero. Log exports from the Alaska customs district constitute the majority of wood product exports value (Appendix Table A-9). As has been true for several years, the top three markets in order of significance for log exports were Japan, Korea, and China. While Japanese and Korean Alaskan log imports have been declining, log exports to China have been steadily climbing as China consumes an ever-increasing proportion of Alaska whole log exports.

Exports of whole logs from Tongass National Forest timber sales occur because of several factors. The 2007 decision to appraise sales for limited log shipments allows small-diameter Sitka spruce and western hemlock to be shipped out of state. Alaska yellow-cedar is appraised under the assumption that it will be exported to foreign markets, as allowed under Section 318 of the Consolidated Appropriations Resolution, 2003 (Public Law 108-7). Even if a given species or diameter is appraised for out of state shipment, the purchaser can still process the wood in local sawmills if they choose to do so. The purchaser might be required to pay additional fees if they ship whole logs to markets other than what the timber sale was appraised for. However, a purchaser can apply for an export permit after a timber sale is sold, under certain conditions. Volumes of log exports from the Tongass National Forest (Appendix Tables A-4 and A-5) have been too small to make specific inferences from one year to the next; in 2008, log exports from the Tongass to foreign ports constituted about 2 percent of all softwood log exports from the Alaska customs district (Appendix Table A-7). Most logs shipped from the Tongass to markets outside Alaska have gone to Asian markets, with some going to domestic markets. Canada was not a destination for logs from the Tongass from 2003 through 2006, or in 2008, but in 2007, more logs were shipped to Canada from the Tongass than were shipped to domestic markets in the Lower 48. Fluctuations in where wood products from Alaska end up illustrate that sellers are going to maximize profits by selling logs or lumber wherever they get the best price.

According to Brackley et al. (2009, p. 7), “much of the growth in U.S. softwood lumber consumption since the early 1990s was a result of a prolonged increase in residential construction.” U.S. construction demand spurred increased imports of lumber from Canada, a resurgence of softwood lumber production in the Pacific Northwest, and shifts in the types of lumber produced as markets shifted and suppliers jockeyed for market share. In the past, lumber from Alaska was often shipped into foreign markets. However, shipments of finished products milled in Southeast Alaska to domestic markets are becoming more significant, as can be seen in Table 2. Table 2 summarizes data gathered from sawmill operators in Southeast Alaska in log scale.

Table 2. Destination of Products Manufactured by Southeast Alaska Sawmills (MBF log scale).

	Alaska	*Other US states*	*Canada*	*Other foreign exports*	*Total*
2000[a]	8,135	54,287	3,774	20,920	87,116
Percent of total	9	62	4	24	
2002	1,842	30,847	480	6,532	39,701
Percent of total	5	78	1	16	
2003	1,758	24,591	382	5,274	32,005
Percent of total	5	77	1	16	
2004	1,468	19,553	5,951	4,056	31,027
Percent of total	5	63	19	13	
2005	2,342	26,177	724	5,423	34,665
Percent of total	7	75	2	16	
2006	3,408	23,250	296	5,186	32,141
Percent of total	11	72	1	16	
2007	3,600	22,113	708	5,296	31,717
Percent of total	11	70	2	17	
2008	2,295	15,663	0	5,707	23,666
Percent of total	10	66	0	24	

a. Data for 2001 is not available.

The conversion from log scale to lumber tally in Southeast Alaska at present is roughly 30 percent; i.e., lumber tally will be 1.3 times greater (approximately) than log scale. Appendix Table A-7 summarizes lumber export data from the Anchorage customs district in MBF lumber tally. There are several reasons the data in Appendix Table A-7 is different from the data in Table 2, although they are both about sawn product exports from Alaska. One is that Table 2 is estimates by Southeast Alaska mill owners of how much material went to various markets. Some of this material may have been shipped from ports in other states. Appendix Table A-7 summarizes data from all Alaska foreign exports as reported in the International Trade Commission Harmonized Trade Code (ITC HTS) data. In addition, Table 2 and Appendix Table A-7 are in different scales (lumber tally versus log scale).

Table 3 compares the data in Table 2 and Appendix Table A-7 with the same scale (lumber tally). One would expect the foreign exports of sawn material from all of Alaska as reported by the Alaska Customs District to be equal to or greater than the amount reported by sawmills in Southeast Alaska if all products were shipped directly to their destination from Alaska producers. As can be seen in Table 3, export data from the Alaska customs district for at least the past 9 years has represented only about 15 percent, on average, of foreign exports of sawn products reported by Southeast Alaska mill owners alone. It is likely that mills in other regions of Alaska also export sawn products. This discrepancy could reflect where products were routed before being shipped out of the U.S. It is possible that Southeast Alaska sawn product exports are being shipped from the Seattle customs district, an issue called transshipments (products are shipped to

other domestic ports and then re-routed to foreign destinations). This illustrates some of the difficulty in getting accurate data regarding wood product production and trade in Alaska.

Table 3. Sawn wood products exports from Alaska, different reporting sources, lumber tally (conversion of log scale mill reports to lumber tally using a factor of 1.3).

Year	*SE sawmills reported foreign exports, MBF*	*ITC HTS data on exports from the Alaska customs District, MBF*
2000	32,102	3,609
2002	9,116	85
2003	7,353	1,217
2004	13,009	1,825
2005	7,991	2,669
2006	7,127	2,166
2007	7,806	1,761
2008	7,419	118

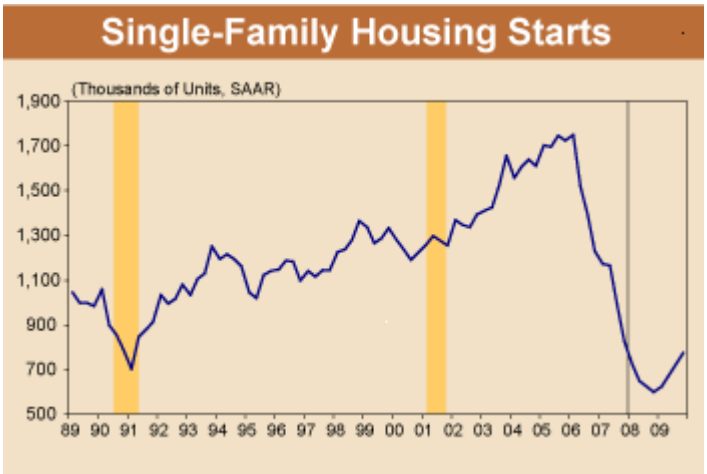
The volume of timber sold from the Tongass National Forest in the past 5 years ranged from a low of 5.4 MMBF in 2008 to a high of 87 MMBF in 2004 (Appendix Table A-3). In the same time period, the timber offered for sale ranged from 24 MMBF in 2006 to 110 MMBF in 2005. Harvested volumes ranged from 18.7 MMBF in 2007 to 51 MMBF in 2003. Harvested volume in 2007 reflects poor wood products markets in 2007 due to national home mortgage problems and their impacts on housing markets. Although harvested volume in 2008 picked back up to 28 MMBF from the previous year's low of 18.7, the small sold volume of 5.4 MMBF in 2008 reflected the continued global economic uncertainty and worsening wood products markets. Local purchasers appeared unwilling to risk taking on more inventory in the very uncertain markets facing all wood products industries in western North America. Sale design, purchaser preferences, uncertain global wood products markets, and a tight credit market in 2008 all influenced the willingness and ability of Southeast Alaska wood purchasers to buy Forest Service timber sales.

Profitability for Tongass National Forest Timber can be affected by the combination of valuable materials versus logging costs in a given timber sale, market options for lower grade material coming off the Forest, and prices for Southeast Alaskan premium species and grades. Although contracts now allow the option of leaving utility logs in the woods, current market conditions still challenge profitability. Brackley et al. (2009) report that the combined costs of logging, manufacturing, and transportation of stumpage in Alaska are roughly $149 per thousand board feet higher than in the Pacific Northwest, on average. These higher costs make it more difficult for Alaskan producers to compete in lower value commodity markets. During the current recession, wood manufacturers nationwide have been experiencing problems with tight margins, meaning the cost of producing wood products is only slightly less than or even greater than revenue. If this

situation continues too long in any given manufacturing facility, they will go out of business. Details of prescriptions, bid prices, and species mixes for Tongass National Forest timber sales in 2008 are presented in Appendix Table A-1. Appendix Table A-1 lists sales sold in FY 2008 that were also offered in the same fiscal year; the total volume for the sales was 4.3 MMBF. The total volume of timber sold in FY 2008, as noted in Appendix Table A-3, was 5.4 MMBF. Some of the 5.4 MMBF sold was offered in the previous fiscal year.

The U.S. Forest Service established the Alaska Wood Utilization Research and Development Center in Sitka, Alaska in 1999. New processing facilities and technologies for better utilizing the region's low-grade hemlock volume are currently being explored. To the extent that these efforts are able to leverage the unique qualities of the wood resource to offset generally high production costs in the region, new operations may present more manufacturing options for lower grade material. Economies of scale and the ability to establish integrated manufacturing in the region are important factors. Different processing facilities will entail different minimum wood requirements. A veneer mill opened in Ketchikan in September 2007, but closed indefinitely in May of 2008 due in part to the faltering U.S. housing market, a key economic driver for wood construction products. As can be seen in Figure 3, single-family housing starts in the U.S. in 2008 dropped precipitously to historic lows.

Figure 3. U.S. single-family housing starts (thousands of units, seasonally adjusted annual rate) (National Association of Home Builders, http://www.nahb.org/generic.aspx?genericContentID=45409 accessed July 2009).



A final consideration in relation to regional demand for Tongass National Forest timber is the supply of timber from other producers in Southeast Alaska. Both the Native Corporations and the State of Alaska also produce timber. Since the early 1980s, the Native Corporations have harvested over half of the total log volume produced in the region. In 2000, owing primarily to sales on Mental Health Trust and University of Alaska lands, the State emerged as a major producer, outstripping Forest Service production in 2001, 2002, 2006, and 2007. Harvest from state lands in southeast Alaska

dropped sharply in 2008 (see Appendix Table A-6). Native Corporation harvests have declined from a high of 434 MMBF in 1990 to a range of 50 to 106 MMBF in each of the last 5 years—a level close to earlier predictions of the long-term supply potential of Native Corporation lands (Knapp 1992). In 2007, Sealaska Timber Corporation announced that their projected harvest levels will be declining in the near future; volume harvested from Native Corporations lands in southeast Alaska dropped by almost half from 2005 to 2007. Harvest in 2008 was slightly lower than in 2007.

According to Alaska State forestry specialists, Native Corporation, Mental Health Trust, and University timber, can be, and frequently is, exported in raw log form. Like Federal timber, timber sold by the Alaska Department of Natural Resources (DNR) must be processed locally unless there is no local market. Native Corporation and trust sales don't compete with National Forest timber in the local processing market. DNR sales may compete locally, but ultimately, the volume available from the relatively small State timber base is far less than the volume from Federal lands in Southeast Alaska. Although private and trust sales may compete with National Forest log exports (of yellow cedar, for example), the total market share of Alaska wood in the export market is too small for any one owner to influence demand for wood from other sources in Southeast Alaska (Brackley et al. 2006a). Small volumes of sawtimber and sometimes chips are imported to Alaska from other countries (Appendix Table A-6), but foreign imports are generally not utilized by Southeast Alaska sawmills.

Conclusion

According to Balter (2009), a major reconfiguration is occurring in the forest products sector in the U.S. Nationwide, over-capacity in lumber and panel manufacturing points to an extended period of tight margins. Sawmills have been closing nationwide, and mill closures will probably continue. In the short run, depleted cash reserves and restricted access to capital will limit new investment. Balter (2009) and Glass (2009) find that a slow housing recovery is widely anticipated. Glass (2009) says that it remains to be seen if the recovery will happen from the supply side first, through a decrease in unsold existing housing inventory, some kind of standardization and consolidation in the home building industry, and sawmill capacity adjustment. Demand side relief will occur through a residential construction recovery. Pent-up demand for housing could make for a steep housing recovery when it finally arrives. Balter (2009) sees emerging markets for timber in wood-biomass energy applications, such as pellets, electrical generation, and bio-fuels, and carbon markets. Alaskan wood products markets are closely tied to North America and the Pacific Rim, and are deeply affected by tight credit and low cost margin issues. However, rapid development of wood-biomass energy could open up new markets for small and lower quality wood. In addition, when wood products markets improve, remaining wood manufacturing facilities will be well situated to take advantage of rebounding demand for lumber.

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Table A-1. Tongass National Forest Timber Sales Newly Offered and Sold in FY 2008[1]

Sale Name[2]	Type Prescription		Proportion Helicopter[3]	Bid Information		
	Clear Cut (% Vol.)	Partial Cut (% Vol.)	(% Vol.)	Advertised Rate ($/MBF)	High Bid ($/MBF)	Bidders (No.)
Pit Run	0	100	0	9.79	19.57	1
Fishsticks	100	0	0	6.41	41.45	2
Soda	100	0	0	10.33	45.80	2
Bogo	100	0	0	5.50	27.26	2
Two Creeks	0	100	0	10.62	12.95	1
Oxbow	100	0	0	5.61	10.96	1
La Brea	100	0	0	8.33	43.73	1
North Pole	100	0	0	42.58	63.65	3
Winter Harbor Stewardship	0	100	0	72.65	75.20	1
Single Pit	100	0	0	46.49	47.74	1
POW Commercial Thinning Study	0	100	0	9.69	54.83	1
Weighted Average	49	51	0	26.87	48.33	1.27

Table A-1 continued

Sale Name	S. Spruce Sawlog (% Vol.)	Hemlock Sawlog (% Vol.)	AK Yellow Cedar (% Vol.)	W. Red Cedar (% Vol.)	SS/Hem Utility (% Vol.)	Total Sale MBF
Pit Run	78	11	0	0	12	104
Fishsticks	14	50	4	23	9	140
Soda	15	23	17	38	7	151
Bogo	12	52	1	21	13	233
Two Creeks	96	4	0	0	0	247
Oxbow	21	51	0	15	13	249
La Brea	8	32	11	40	9	285
North Pole	18	35	9	28	11	312
Winter Harbor Stewardship	58	42	0	0	0	612
Single Pit	26	39	1	22	13	737
POW Commercial Thinning Study	77	23	0	0	0	1,202
Weighted Average	46	33	2	13	6	388

Source: USDA Forest Service, Alaska Region. Data on file with: Regional Economist, Ecosystems Planning, USDA Forest Service, PO Box 21628, Juneau, AK 99802-1628.

1. "Newly offered and sold" does not include re-offered or re-sold sales. Production costs (logging costs and fixed development costs) are not displayed because all the sales used standard rates, the lowest rates at which the Forest Service may sell timber without a supporting appraisal calculation.
2. Data excludes sales under 100 MBF (rounded).
3. "Proportion Helicopter" is the proportion of the sale that was helicopter logged, and can include clear-cut and partial cut prescriptions.

Table A-2. Employment in the Wood Products Industry in Southeast Alaska, 1988-2008.

Year[1]	Tongass Logging[2]	Tongass Sawmill	Pulp Mill	Tongass- Related Employment[3]	Other sawmill	Other Logging	Total Industry Employment
1988	1,010	468	892	2,370	-	971	3,341
1989	1,166	478	925	2,569	-	947	3,516
1990	1,123	500	899	2,522	-	1,021	3,543
1991	872	604	911	2,387	-	682	3,069
1992	788	538	910	2,236	-	627	2,863
1993	754	447	859	2,060	-	590	2,650
1994	621	515	533	1,669	-	556	2,225
1995	702	301	516	1,519	-	483	2,002
1996	804	230	524	1,558	-	353	1,911
1997	823	184	318	1,325	-	226	1,551
1998	579	284	96	959	-	310	1,269
1999	305	303	63	671	-	519	1,190
2000	340	280	2	623	-	371	994
2001	109	300[4]	2	409	-	391	800
2002	63	110	-	173	40	299	512
2003	108	91	-	199	64	298	561
2004	82	95	-	177	53	220	450
2005	88	96	-	184	52	263	499
2006	81	77	-	158	46	217	421
2007	44	70	-	114	63	225	402
2008	52	70	-	122	24	118	265

Source: Alaska Department of Labor, Kilborn et al. (2004), Brackley et al. (2006), Brackley and Crone (2009), Kilborn (2008), and Parrrent (2009). Data on file with: Regional Economist, Ecosystems Planning, USDA Forest Service, PO Box 21628, Juneau, AK 99802-1628

1. 2000 and after reported in calendar years. Prior to 2000, Federal fiscal years were used.
2. Tongass National Forest logging estimated based on the ratio of Tongass timber harvest to total timber harvest in Southeast Alaska.

3. Through 2001, assumes all sawmill and pulp mill employment is dependent upon Tongass National Forest timber supply. Beginning in 2002, this assumption no longer held. Data from Kilborn et al. (2004), Brackley et al. (2006b), Brackley and Crone (2009), Kilborn (2008) and Parrent (2009) show that Federal timber supplied 73% of the wood sawn in Southeast Alaska mills in 2002, 59% in 2003, 64% in 2004, 65% in 2005, 62% in 2006, 53% in 2007, and 75% in 2008. Tongass National Forest sawmill employment from 2002 through 2009 is estimated based on sawmill employment numbers and the ratio of sources of wood (Federal versus the total) reported by Kilborn et al. (2004), Brackley et al. (2006b), Brackley and Crone (2009), Kilborn (2008), and Parrent (2009).
4. Beginning in 2001, employment estimates are being published under a new classification system. The Standard Industrial Classification (SIC) system has been replaced by the North American Industrial (NAI) Classification system. "Sawmill" in this table is reported by the Alaska Department of Labor as "wood manufacturing" which in the NAI system includes sawmills, wood preservation, veneer, plywood, engineered wood, and other wood products. In southeast Alaska, this category is assumed to represent only sawmill employment. Beginning in 2001, sawmill employment figures are adjusted based on regional mill studies, which take into account self employed mill owners.

Table A-3. Volume of National Forest Timber Offered, Sold, and Harvested in the Alaska Region, FY 2004-2008 (MMBF).[1]

Offered – Million Board Feet (MMBF)

Fiscal Year	Tongass NF	Chugach NF	Total
2004	72.6	0.0*	72.6
2005	110.4	0.0*	110.4
2006	23.7	0.0*	24.7
2007	34.0	0.6	34.6
2008	42.0	0.0	42.0
5 yr. Average	56.5	0.1	56.6

Sold/Released – Million Board Feet (MMBF)

Fiscal Year	Tongass NF	Chugach NF	Total
2004	87.1	0.0*	87.1
2005	65.1	0.1	65.1
2006	85.0	0.0*	85.0
2007	30.4	0.6	31.0
2008	5.4	0.0*	5.4
5 yr. Average	54.6	0.1	54.7

Harvested – Million Board Feet (MMBF)

Fiscal Year	Tongass NF	Chugach NF	Total
2004	46.4	0.0*	46.4
2005	49.6	0.1	49.7
2006	43.2	0.0*	43.2
2007	18.7	0.2	18.9
2008	28.0	0.3	28.3
5 yr. Average	37.2	0.1	37.3

Source: USDA Forest Service, Alaska Region. Data on file with: Regional Economist, Ecosystems Planning, USDA Forest Service, PO Box 21628, Juneau, AK 99802-1628.
1. Volumes do not include re-offered sales, re-sold sales, or credit volumes.
* Trace amount of harvest

Table A-4. Tongass National Forest Log Export Permits Active in CY 2008 (MBF)

Sale	Purchaser	Permit Number	SS[1]	Hem.	AYC	WRC	Total MBF
Thorne Island	Viking Lumber Co.	2006-09			9		9
Tuxecan	Viking Lumber Co.	2008-18				1,069	1,069
Tuxecan	Viking Lumber Co.	2008-10	864	1,191	15		2,070
Luck Lac II	Viking Lumber Co.	2005-17	10	31	414		455
Luck Lac II	Viking Lumber Co.	2005-16				13	13
Finger Point	Viking Lumber Co.	2006-7			1		1
Summore Change	Viking Lumber Co.	2005-8				9	9
Lindenberg	Viking Lumber Co.	2006-8			830		830
Finger Point	Viking Lumber Co.	2008-6	0.2	3			3
Finger Point	Viking Lumber Co.	2007-6	0.5				0.5
Finger Point	Viking Lumber Co.	2006-7			117		117
Lindenberg	Viking Lumber Co.	2007-7	3				3
Lindenberg	Viking Lumber Co.	2008-7	51	15			66
Kogish Shinaku	Viking Lumber Co.	2005-7			2		2
Summore Change	Viking Lumber Co.	2003-08			14		14
Backline	Norsemen	2007-13			8		8
Backline	Norsemen	2007-14		4			4
Buckdance Madder	Pacific Log and Lumber	2008-11	249	393	405		1,047
Skipping Cow	Alcan	2006-9	18	26	75		119
Total			1,196	1,663	1,8901	1,091	5,839

Source: USDA Forest Service, Alaska Region. Data on file with: Regional Economist, Ecosystems Planning, USDA Forest Service, PO Box 21628, Juneau, AK 99802-1628.

1. SS = Sitka spruce (*Picea sichensis*); Hem. = western hemlock (*Tsuga heterophylla)*; AYC = Alaska yellow-cedar (*Chamaecyparis nootkatensis*); WRC = western red cedar (*Thuja plicata*).

Table A-5. Tongass National Forest Log Exports CY 2004-2008 (MBF)

Year	Destination	SS[1]	Hem.	AYC	WRC	Other	Total
CY 2004	Canada	0	0	0	0	0	0
	Lower 48	0	0	0	1,412	0	1,412
	Pacific Rim	6,831	1,236	1,681	0	0	9,748
	Total	6,831	1,236	1,681	1,412	0	11,160
CY 2005	Canada	0	0	0	0	0	0
	Lower 48	0	0	49	3,888	0	3,937
	Pacific Rim	11,712	1,925	1,909	0.3	0	15,547
	Total	11,712	1,925	1,958	3,889	0	19,485
CY 2006	Canada	0	0	0	0	0	0
	Lower 48	0	0	37	2.480	0	2.517
	Pacific Rim	448	129	421	837	0	1,836
	Total	448	129	458	3,317	0	4,353
CY 2007	Canada	85	0	0	184	130	400
	Lower 48	0	0	3.7	210	0	214
	Pacific Rim	166	81	2,717	47	0	3,010
	Total	252	81	2,720	441	130	3,624
CY 2008	Canada	0	0	0	0	0	0
	Lower 48	40	4	254	1,091	0	1,390
	Pacific Rim	1,155	1,659	1,636	0	0	4,449
	Total	1,195	1,663	1,890	1,091	0	5,839
5 Yr. Avg.	Canada	17	0	0	37	26	80
	Lower 48	8	1	69	1,816	0	1,894
	Pacific Rim	4,062	1,006	1,673	177	0	6,918
	Total	4,088	1,007	1,742	2,030	26	8,892

Source: USDA Forest Service, Alaska Region. Data on file with: Regional Economist, Ecosystems Planning, USDA Forest Service, PO Box 21628, Juneau, AK 99802-1628.

1. SS = Sitka spruce (*Picea sichensis*); Hem. = western hemlock (*Tsuga heterophylla)*; AYC = Alaska yellow-cedar (*Chamaecyparis nootkatensis*); WRC = western red cedar (*Thuja plicata*).

Table A-6. Timber Harvest and Imports for Southeast and Southcentral Alaska, 1992-2008[1]

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Southeast Alaska (MMBF)																		
Tongass N. F.	Sawlogs	303.1	268.3	221.8	181.3	97.4	94.4	107.6	132.8	133.7	39.8	30.0	44.1	40.9	43.3	39.4	14.8	24.0
	Utility Logs	66.6	56.7	54.0	39.8	22.8	12.2	12.2	12.9	13.0	7.9	3.8	6.7	5.4	6.2	3.7	3.9	4.0
State of Alaska[2]	Sawlogs	14.9	5.0	18.1	3.6	4.5	5.2	5.6	7.3	47.8	48.0	48.0	32.7	21.9	40.7	43.6	38.8	10.3
	Utility Logs	0.1	0.0	2.7	2.2	2.5	0.3	1.9	0.1	12.1	5.2	9.3	2.1	2.3	2.2	1.0	5.8	1.6
BIA	Sawlogs and Utility	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alaska Native Corporations[3]	Sawlogs	348.7	328.2	275.0	233.9	292.4	335.9	157.6	193.6	114.6	106.5	93.6	98.1	92.0	99.3	67.1	46.9	45.5
	Utility Logs	97.0	82.2	12.3	81.1	37.7	47.6	59.0	45.4	46.0	13.3	8.1	7.6	6.9	4.6	4.1	3.1	6.8
Southeast Alaska Total	Sawlogs	671.2	601.5	514.9	418.8	394.3	435.5	270.8	333.7	296.2	194.3	171.6	174.9	154.8	183.3	150.1	100.5	79.8
	Utility Logs	163.7	138.9	69.0	123.1	63.0	60.1	73.1	58.4	71.1	26.3	21.2	15.4	14.6	13.2	8.8	12.8	12.4
	Total	834.9	740.4	583.9	541.9	457.3	495.6	343.9	392.1	367.2	220.6	192.8	190.3	169.4	196.5	158.9	113.3	92.2
Southcentral Alaska (MMBF)																		
Chugach N. F.	Sawlogs	0.5	1.7	0.0	1.1	1.3	0.8	0.8	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Utility Logs	0.0	0.0	6.5	0.8	2.0	1.4	0.7	0.3	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.3
State of Alaska[2]	Sawlogs	0.8	0.0	0.0	2.6	8.1	8.6	5.0	5.4	0.0	2.1	0.4	0.8	1.3	2.8	0.1	0.0	0.0
	Utility Logs	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.8	0.0	0	14.1	2.7	0.5	0.6	0.0	0.0
BIA	Sawlogs and Utility	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0
Alaska Native Corporations[3]	Sawlogs and Utility	123.5	127.2	186.0	230.1	207.6	237.1	172.2	139.9	56.3	71.3	83.0	32.2	21.3	16.3	3.1	0.1	0.1
Southcentral Alaska Total	Sawlogs and Utility	125.0	128.9	192.5	234.3	219.0	247.9	178.8	145.7	58.3	73.8	84.9	47.1	25.3	19.6	3.8	0.3	0.4
Alaskan Imports (MMBF)[4]																		
	Logs and timber	6.5	1.9	4.4	11.1	3.9	0.0	0.0	0.0	0.1	3.2	1.7	0.1	2.6	1.7	7.7	7.8	1.1
	Pulpwood	22.3	18.1	22.9	126.8	53.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Chips, sawdust	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3

Source: US Forest Service, Alaska Region; on file with Regional Economist, Ecosystems Planning, US Forest Service, PO Box 21628, Juneau, AK 99802.

1. National Forest and Bureau of Indian Affairs harvests reported for fiscal years. All other ownerships reported in calendar years.
2. Harvests from Alaska Mental Health Trust and University of Alaska lands omitted prior to 2000.
3. Estimated by telephone survey. Metric tons converted to log scale at a ratio of 2.7 tons per MBF.
4. Compiled from trade statistics available from the U.S. Department of Commerce. Metric tons converted to log scale at a ratio of 2.7 tons per MBF.

Table A-7. Exports of Softwood Logs and Lumber from Alaska (Anchorage Customs District), CY 1994-2008.

Softwood Logs (MBF Scribner, $/MBF)

	All Species		Hemlock		Redcedar		Spruce	
	Volume	Average Value	Volume	Average Value	Volume	Average Value	Volume	Average Value
1994	525,404	739.45	200,129	579.34	39,563	647.25	240,323	811.57
1995	561,550	695.12	250,659	539.02	40,685	652.43	228,615	779.98
1996	530,147	705.98	223,519	537.02	22,632	678.28	257,254	817.34
1997	541,667	642.25	202,517	480.10	37,305	806.85	259,601	733.15
1998	325,386	473.55	72,186	443.51	15,232	791.62	133,334	626.71
1999	427,970	455.70	125,779	408.47	17,687	684.56	172,435	552.20
2000	436,178	426.35	127,861	403.79	22,246	766.73	148,906	541.69
2001	320,615	424.03	108,563	355.95	11,389	694.51	119,288	547.01
2002	286,976	409.70	79,406	398.67	10,820	726.22	153,548	434.34
2003	305,588	456.62	85,094	438.80	12,936	763.28	190,003	430.18
2004	175,281	552.35	50,637	490.39	7,785	804.57	104,118	576.07
2005	216,021	561.74	52,048	495.90	9,962	778.22	141,508	557.69
2006	254,053	423.30	57,967	491.19	6,299	750.70	177,427	379.20
2007	206,456	394.43	30,547	543.05	8,442	940.23	151,925	332.09
2008	203,617	383.42	30,979	540.21	8,980	815.33	144,096	339.90

Softwood Lumber (MBF lumber tally, $/MBF)

	Total		Western hemlock		Sitka Spruce		Cedar		Other Softwoods	
	Volume	Average Value	Volume	Average Value	Volume	Average Value	Volume	Average Value	Volume	Average Value
1994	111,836	561.28	68,839	468.11	42,679	713.84	0	--	318	254.72
1995	50,379	775.01	28,367	608.59	20,352	1,010.91	1,407	817.34	253	221.34
1996	26,854	715.05	14,831	557.28	11,934	914.09	20	688.30	69	204.08
1997	32,764	599.48	18,524	499.05	13,093	759.35	84	100.11	1,063	420.12
1998	9,048	460.22	4,447	386.06	3,874	540.98	261	392.86	466	534.46
1999	14,674	735.78	1,492	371.20	8,624	682.96	0	--	4,558	955.05
2000	3,609	901.62	0	--	3,254	854.45	278	1235.94	77	1691.68
2001	3,292	208.21	0	--	3,247	200.58	0	--	44	770.89
2002[1]	85	49.56	0	--	0	--	0	--	85	49.56
2003	1,217	1,023.87	0	--	1,217	1,023.87	0	--	0	--
2004	1,825	1,087.76	0	--	1,825	1,087.76	0	--	0	--
2005	2,669	561.78	0	--	2,669	561.78	0	--	0	--
2006	2,166	1,005.35	0	--	2,166	1,005.35	0	--	0	--
2007	1,761	1,222.79	0	--	1,761	1,222.79	0	--	0	--
2008	118	732.33	0	--	0	--	0	--	118	732.33

Source: Warren 2008 and data provided by Warren (on file with Regional Economist, Ecosystems Planning, USDA Forest Service, PO Box 21628, Juneau, AK 99802-1628).

1. Inconsistencies may result due to low export volumes reported in 2002.

Table A-8. Woodchip Exports from U.S. West Coast customs districts, CY 1999-2008

Wood Chips (In short tons, on a dry-weight basis; value in dollars per short ton)								
	Seattle		Columbia-Snake		San Francisco		Anchorage	
	Volume	Average Value	Volume	Average Value	Volume	Average Value	Volume	Average Value
1999	753,147	60.51	1,024,223	82.64	285,740	90.57	131,699	41.75
2000	461,874	78.54	992,062	94.01	237,781	87.11	178,461	41.03
2001	353,074	86.00	856,164	96.58	166,558	90.59	154,880	61.28
2002	262,395	71.10	893,185	84.31	109,049	75.50	98,535	68.85
2003	252,050	82.58	760,965	82.39	63,037	69.10	109,621	49.66
2004	330,760	62.28	744,356	75.89	34,122	69.25	48,848	50.43
2005	421,042	61.44	918,475	83.71	26,470	76.78	113,922	62.82
2006	198,292	47.57	841,646	92.67	3,684	52.72	6,442	44.58
2007	410,625	48.48	863,947	119.43	4,553	39.08	20[1]	214.43
2008	329,719	51.08	1,120,344	97.35	8,124	46.52	25	156.75

1. HTC 4401.30.0000, "sawdust and wood waste and scrap" is the only chip product shipped from the Anchorage CD in 2007. It went to Canada; the original data are 18,289 kg at a total value of $4,323.

Source: U.S. Department of Commerce 2009, at http://dataweb.usitc.gov/ (accessed July 2009) and Warren 2008. The valuation definition used in the export statistics is the value at the seaport or border port of exportation. It is based on the selling price (or cost if not sold) and includes inland freight, insurance, and other charges to the port of exportation. Seattle Customs District includes all ports in the State of Washington, except Longview and Vancouver. Columbia-Snake Customs District includes all Oregon ports and Longview and Vancouver, Washington. San Francisco Customs District includes all coastal and inland ports in the State of California from Monterey north. The Anchorage Customs District is the State of Alaska.

Table A-9. Value of Exports from Alaska (Anchorage Customs District) by Product and Country, CY 1999-2008, in $1,000 US (unadjusted).

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
					Logs					
Canada	15,124	19,501	12,385	10,694	9,537	1,097	502	833	1,861	2,630
China	866	2,582	6,069	3,664	2,484	2,544	7,120	7,748	13,703	19,064
Japan	134,375	118,120	83,316	62,552	75,090	50,964	57,933	37,134	36,803	28,982
Korea	39,502	35,817	30,594	35,033	48,636	37,177	51,136	57,395	27,013	23,711
Taiwan	5,195	8,137	3,584	4,618	2,646	2,936	4,659	2,414	2,895	2,340
Other	0	1,865	0	1,028	1,189	0	0	2,015	51	1,975
Total	**195,062**	**186,021**	**135,948**	**117,589**	**139,582**	**94,520**	**121,351**	**107,539**	**82,327**	**78,701**
					Sawnwood					
Canada	52	544	0	0	0	0	0	0	0	0
Japan	10,647	2,714	651	64	1,488	2,123	3,322	2,817	2,149	10
Other	174	0	0	4	33	0	27	23	4	76
Total	**10,874**	**3,259**	**651**	**69**	**1,521**	**2,123**	**3,349**	**2,839**	**2,153**	**86**
					Chips and Sawdust					
Canada	4,674	6,142	3,954	1,915	909	1,097	1,136	287	4	0
Japan	10,987	1,930	5,615	4974	4,661	1,537	2,442	3	0	0
Other	0	9,404	1,388	0	0	12	3,734	0	0	4
Total	**15,660**	**17,475**	**10,958**	**6,889**	**5570**	**2,645**	**7,312**	**290**	**4**	**4**
					Other Wood Products					
Canada	28	5	10	166	51	54	71	3	13	3
Hong Kong	221	175	226	389	341	351	206	237	112	82
Japan	1,229	432	929	574	1,932	762	269	600	598	487
Korea	74	807	304	131	1,403	623	28	335	188	102
Taiwan	177	23	179	98	140	125	35	126	20	71
Other	212	154	174	801	1,315	651	258	541	297	668
Total	**1,940**	**1,595**	**1,822**	**2,159**	**5,182**	**2,566**	**867**	**1,841**	**1,230**	**1,413**
					Grand Total					
Canada	19,877	26,192	16,349	12,775	10,496	2,050	1,709	1,123	1,879	2,633
China	866	2,582	6,106	4,230	3,279	2,810	7,277	8,038	13,855	19,456
Hong Kong	221	175	340	393	1,527	363	211	237	112	82
Japan	157,238	123,195	90,568	68,164	83,171	55,387	63,966	40,554	39,551	29,469
Korea	39,576	36,623	30,949	35,164	50,039	37,800	54,894	57,730	27,201	23,812
Taiwan	5,269	8,944	3,763	4,716	2,786	3,061	4,694	2,546	2,915	2,414
Other	386	11,423	1,561	1,264	556	384	128	2,282	195	2,255
Total	**223,432**	**209,134**	**149,636**	**126,705**	**151,854**	**101.855**	**132,879**	**112,510**	**85,714**	**80,121**

Source: U.S. Department of Commerce 2009 (http://dataweb.usitc.gov/, accessed July 2009), and Warren 2008.

Sums do not match due to round-off error and omission of minor categories.

Table A-10. Tongass National Forest current contracts and remaining volume under contract as of September 30, 2008; summary by purchaser[1]

Purchaser Name	Original Volume Estimate (MBF)	Volume Cut (MBF)	Remaining Volume (MBF)
Alcan Forest Products LLP	18,641	0	18,641
Brent Cole	88	19	69
Coby Luther	39	0	39
Coeur Alaska, Inc	2,077	814	1,264
Commercial Firewood	63	0	63
Commercial Sawlog	9	0	9
CSL Farm and Supply	470	9	461
Custom Cut LLC	16	0	16
D&L Woodworks	383	69	314
Ernie Eads	945	0	945
Four Dam Pool Power Agency	1,710	1,543	167
Gordon Chew	71	0	71
H&L Salvage Inc	1,510	324	1,186
Icy Straits Lumber and Mill	9,652	334	9,318
J&S Timber Products	6	6	0
James Harrison	702	220	482
Jerod Cook	118	58	60
Keith Dahl	1,393	407	987
Larry Trumble	15	9	6
Last Chance Enterprises	297	46	251
Norsemen Wood	4,518	753	3,765
Pacific Log and Lumber Ltd	46,884	18,632	28,252
Porter Lumber	140	0	140
R&R Conner Inc	1,106	9	1,097
Richard Blauvelt	48	2	46
Scott Hill Skyline Logging	493	0	493
SE Alaska Wood Products	4,542	2,475	2,067
Sharp Lumber	1,353	0	1,353
Steve Little	160	0	160
The Mill Inc	651	448	203
Viking Lumber Co.	124,163	100,524	23,639
Vincent S. Schafer	90	0	90
William Kaufman	28	5	23
Winrod Logging	49	5	44
William Thomason	1,263	21	1,242
Total	**223,693**	**126,730**	**96,964**

1. All volumes rounded to nearest MBF. "Volume Cut" represents total volume cut from all open contracts held by the purchaser, regardless of the year any individual contract was awarded. "Volume Cut" can potentially include harvested volume over several years time for any given purchaser.