



Timber Supply and Demand: 2006



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Preface

This is the 22nd 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. Susan J. Alexander, PhD, prepared this report. The report provides a summary of timber sale activity in the region and a review of the primary factors affecting timber markets in 2006.

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Summary

The annual volume of timber sold on the Tongass National Forest in the years from 2002 to 2006 ranged from 24.4 to 87.1 million board feet (MMBF). The volume sold in 2006 was 85.0 MMBF. Harvested volumes in the same time period ranged from 33.8 to 51.3 MMBF; in 2006 43.2 MMBF were harvested from the Tongass National Forest. Private suppliers in Southeast Alaska, comprised by the native corporations, sold 71.2 MMBF in 2006. Harvests in Southeast Alaska from State of Alaska lands at 44.6 MMBF were almost the same as that of the Forest Service in 2006. Wood product employment fell to 421. Tongass National Forest-related employment in logging and sawmilling was 158 in 2006.

Markets for Southeast Alaskan 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. There are opportunities for Southeast Alaska wood products manufacturers to increase market share in both domestic and foreign wood products markets as local producers gain experience with the special markets they are particularly suited for, and as consumers learn more about Southeast Alaska's wood products.

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 2006 federal fiscal year (October 1 - September 30). Many of the statistics presented in this report, however, are based on calendar years. Fiscal years will be designated by "FY" preceding the given year and calendar years by "CY."

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

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. No momentum has developed in either direction. A relatively good year for fishing and a good summer visitor season created small economic gains in the region in 2005 (Gilbertson 2006). For the first time since 1999 and 2000, the region experienced two years of consecutive job growth in 2005 and 2006. The projection for 2007 and 2008 is for slow to moderate job growth (Gilbertson 2007).

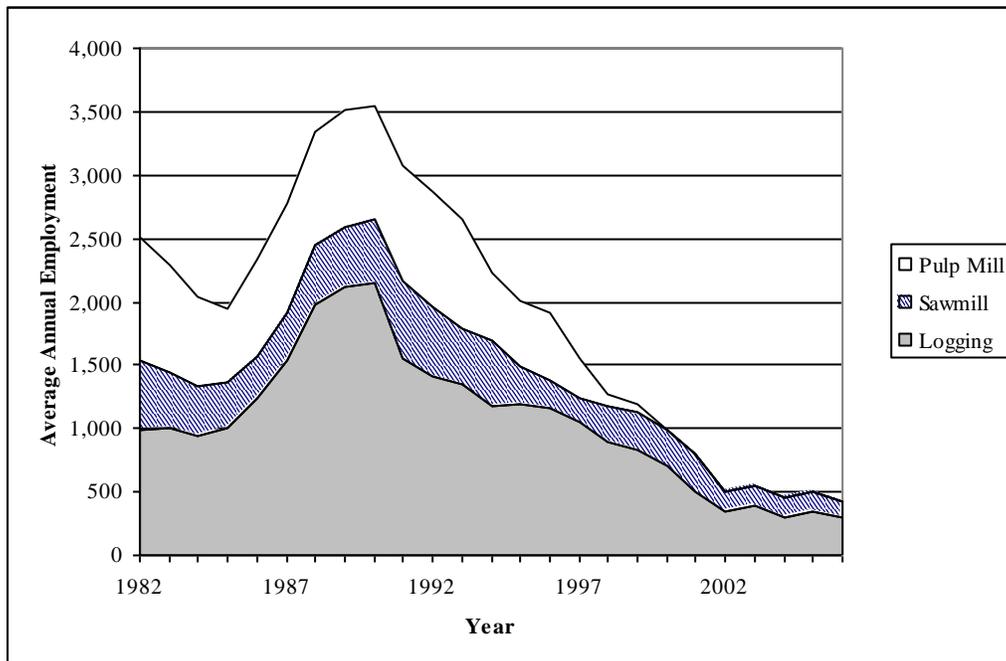
Estimated sales of Southeast Alaska wood products in historic export markets, particularly Asia, are lower than they were in the 1980s and 1990s, but have stabilized in the past few years. Sales of manufactured products to domestic markets have comprised about 72% of all sales since 2000, on average. The wood products industry in Southeast Alaska has changed considerably in the past decade, shifting from large corporate manufacturers to family-owned sawmills and independent logging businesses. There could be a high demand for forest products in Asia in the near future, but Pacific Rim buyers may be unable to compete with domestic markets (Brackley et al. 2006a). Haynes et al. (2007) found that since 1994, the value of U.S. forest product exports has been in gradual decline while the value of imports has steadily increased. This means that US domestic markets have been competing well enough in global markets that not only have exports from the US decreased, but the US is also importing more wood. Hansen (2006) states that U.S. companies have historically jumped into the export market when the domestic market is down, and shifted back to the U.S. market when the domestic market improves. In recent years, the U.S. domestic market has been very attractive with high housing starts and strong prices in many forest product categories. Haynes et al. (2007) state that U.S. demand for forest products is varied and large, averaging 71.4 cubic feet per person per year. This per capita consumption of wood products in the U.S. has been relatively constant for 50 years. Total U.S. forest products consumption is projected to continue to rise as the population increases. U.S. imports of wood products are projected to rise at a somewhat faster rate than domestic wood supply. By 2010, Haynes et al. (2007) project that imports will constitute more than one-quarter of the total of all wood products consumed and exported in the US (a measure of US production and consumption). Economic globalization throughout wood products manufacturing is contributing to a global realignment of growth in raw material demands. In addition to this realignment of where manufacturing takes place, sheer population growth will drive increases in wood products demand both in the US and world-wide. Ince et al. (2007) state that countries such as China are emerging in the 21st century as growth leaders in wood raw material and industrial wood product demand.

On the supply side, the cost of preparing stumpage for sale and delivering it to Southeast Alaska mills has increased, due to decreased size of sales, legal and procedural challenges to federal timber sales, and more constraints on harvest activity in the interest of resource protection. The uncertainty surrounding Tongass National Forest sale quantities has increased the risk faced by potential purchasers and investors in local processing capacity.

Total timber sector employment fell from a high of 3,543 average annual employees in Southeast Alaska in the wood products industry (logging, pulp and paper, and

sawmilling) in 1990 to 421 in 2006 (see Figure 1, and Table A-2 in appendix). For the past five years, Tongass National Forest-related employment in logging and sawmilling (there is essentially no employment in pulp and paper any longer in Southeast Alaska) has ranged from 199 in 2003 to 158 in 2006 (see Table A-2 in the appendix for how the Tongass National Forest -related employment numbers were calculated). The last of the long-term lease timber sale volume was harvested in 2000. The industry in Southeast Alaska has changed considerably in response to the shift in industry structure, and has seemed to stabilize somewhat in the past five years. The industry is, however, still vulnerable to supply issues. Through 2001, we could assume that virtually all sawmill employment came from harvests from National Forest lands. However, data from Kilborn et al. (2004), Brackley et al. (2006b), and subsequent mill studies show that the Tongass National Forest contributed an average of about 65 percent of wood sawn in Southeast Alaska from 2002 to 2006. State of Alaska lands have become an important source of logs processed by local sawmills in Southeast. State lands comprise a relatively small percentage of Southeast Alaska forest lands, and State lands probably cannot indefinitely supply such a high proportion of the needs of remaining Southeast Alaska sawmills. The Alaska Department of Natural Resources recently announced they will have to reduce their timber sales levels so as to not over-harvest State lands. 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.

Figure 1. Southeast Alaska Wood Products Employment, 1982-2006.



Source: Alaska Department of Labor; Kilborn et al. (2004); Brackley et al. (2006b), mill studies on file with US Forest Service Alaska Region Regional Economist.

According to Robertson and Brooks (2001), mills in Alaska used an average of 6.04 hours of production worker labor per thousand board feet (MBF) of lumber output from 1987 to 1994, which is equivalent to 2.9 annualized full-time equivalent employees per MMBF. Mills in the Pacific Northwest used 4.78 hours of production labor per MBF of lumber output, equivalent to 2.3 full-time annual positions per MMBF. Although data for sawmill lumber output is not available for Southeast Alaska in recent years, information on sawlog volume used to manufacture sawn products is. In Southeast Alaska, sawmilling results in 3.31 (annualized) jobs per MMBF of net sawlog volume harvested (net sawlog volume reported in Region 10 Cut and Sold reports). Employment data is an average of 2000 to 2005. Employment data comes from sawmill surveys in 2000, 2002 (Kilborn et al. 2004), 2003 and 2004 (Brackley et al. 2006), and the Alaska Department of Labor and Workforce Development (<http://almis.labor.state.ak.us> last accessed Aug 28 2007). Annualized jobs means this is all the employment this amount of sawlog input produces, no matter how long the project is. Each sawmilling job represents an average (2001-2005) of \$31,690 per year. The income data comes from the Alaska Department of Labor (<http://almis.labor.state.ak.us> last accessed Aug 28 2007) for sawmilling, a report included under wood product manufacturing. Sawmilling produces an average direct income of \$115,250 per MMBF of net utilized sawlog volume, or \$115 per MBF, for people employed in sawmilling, based on Tongass National Forest related employment and net sawlog output. Logging results in 2.31 annualized jobs per MMBF net sawlog harvested volume on the Tongass. This number is calculated from Tongass employment and net sawlog harvested volume, 2000-2005. Each job represents an average (2001-2005) of \$42,257 per year (income data from Alaska Department of Labor for forestry and logging). So logging produces an average income of \$95,983 per MMBF, or \$96 per MBF of net sawlog volume. This data for forestry and logging include road building.

Robertson and Brooks (2001) point out that Alaska forests are largely remote, with difficult terrain, and loggers can't take advantage of many mechanized harvesting opportunities. Also, logging production wages are higher in Alaska than in the Pacific Northwest. They calculated that between the higher wages and lower productivity, it cost \$24 more in labor to produce an MBF of lumber in Alaska over the 1987-94 period than in the Pacific Northwest. Mill efficiency is continuously increasing in the Pacific Northwest, with high levels of competition in tighter markets. Due to these changes, the labor cost difference between Alaska and the Pacific Northwest could be even greater now. Most remaining sawmills in the Pacific Northwest process logs that are fairly uniform in size, and generally can not efficiently saw logs larger than a 32 inch scaling diameter. The sawmill industry in Southeast Alaska has undergone tremendous changes from 2000 to 2006. Remaining mills must remain flexible as wood sizes processed in Alaska vary from large old-growth logs to small diameter material. With high variability in piece size, species, and grade, sawmills in Southeast Alaska will have higher costs than mills in the Pacific Northwest, most of which are highly specialized for specific sizes and species, and also highly mechanized. As the industry in Southeast Alaska changes, and remaining facilities become more efficient, the amount of labor required to produce lumber and to harvest trees will also change.

Brackley and Haynes (in press) cite a study by Stevens and Brooks (2003) suggesting that southeast Alaska producers are at a competitive disadvantage relative to producers in Canada and the rest of the US. However, as they state, the Stevens and Brooks (2003) study “focused on Alaska competing in integrated commodity markets, which are dominated by dimension lumber used in residential construction (i.e., 2 by 4, 2 by 6, 2 by 8, etc). This view in light of the capacity studies [Kilborn et al. 2004; Brackley et al. 2006b] is now outdated since it does not recognize the extent to which southeast Alaska producers have transitioned to compete in the high quality domestic markets since 2000.” Brackley and Haynes (in press) did find that from 1975 to 2005, logging, manufacturing, and transportation costs averaged roughly \$149 per thousand board feet higher in southeast Alaska than in the Pacific Northwest, limiting the ability of Alaskan producers to compete in the lower value commodity markets. However, current production levels and shipments in southeast Alaska “demonstrate how the industry has transitioned to operate in current markets...where they focus on higher value markets.” Past studies have compared southeast Alaska to other western regions, often to the disadvantage of southeast Alaska industry. New data is showing that Alaska mills are moving into markets in which they have a competitive advantage, despite differences in mill types.

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 US Forest Service Pacific Northwest Research Station in 2006 (Brackley et al. 2006a). The basic procedure of calculating needed annual offerings as outlined by Morse (2000) did not change. 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 begins with a description of the Tongass National Forest timber sale program as it stood at the end of FY 2006, concentrating on the volumes of timber in various stages of the Forest Service sale process. This is followed by a discussion of the estimated harvest costs that, in conjunction with final market prices, determine the rates at which the Forest Service sells its timber and, ultimately, the economic feasibility of any given timber sale.

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 documents the conditions for implementing the sale. 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 three to five 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 timber “pipeline” 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 2006, the appropriation was about \$4 million. Pipeline funds are spent to facilitate a reliable Tongass timber supply. Projects are funded with pipeline funds include 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 2006 are in Appendix Table A-10.

In 2002 on the Tongass National Forest, an injunction was placed on permitting timber harvest and road building in inventoried roadless areas, which included the signing of decision documents for timber sales in inventoried roadless areas (*Sierra Club v. Rey*, J00-0009CV (JKS)). Although the injunction ended in spring 2003, the effects lasted throughout the rest of the year. Volume under contract in 2003 dropped to 193 MMBF from 230 MMBF of available volume in 2002 (see Table 1). In 2002, an additional 65 MMBF was under injunction and so unavailable for harvest. Volume under contract continued to decline in 2004 to 78 MMBF and rose to 83 MMBF in 2005 and 111 MMBF in 2006. The decline in volume under contract in 2004 and 2005 from levels in previous years was largely due to cancelled timber sales.

In 2004, Section 339 of the Department of the Interior and Related Agencies Appropriations Act for fiscal year 2004, Public Law No. 108-108, provided that the Secretary of Agriculture may cancel, with the consent of the timber purchaser, a number of timber sale contracts on the Tongass National Forest awarded between October 1 1995 and January 1 2002. A given sale could be cancelled provided that the Secretary determined, at the Secretary’s sole discretion, that the sale would result in a financial loss to the purchaser, and the costs to the government of seeking a legal remedy against the purchaser would likely exceed the cost of terminating the contract. By the end of FY 2005, a total of seventeen sales (with approximately 122 MMBF) on the Tongass National Forest were cancelled. It is the intent of the Tongass National Forest to reconfigure cancelled timber sales and re-offer that portion of the volume that is economically viable.

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.

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

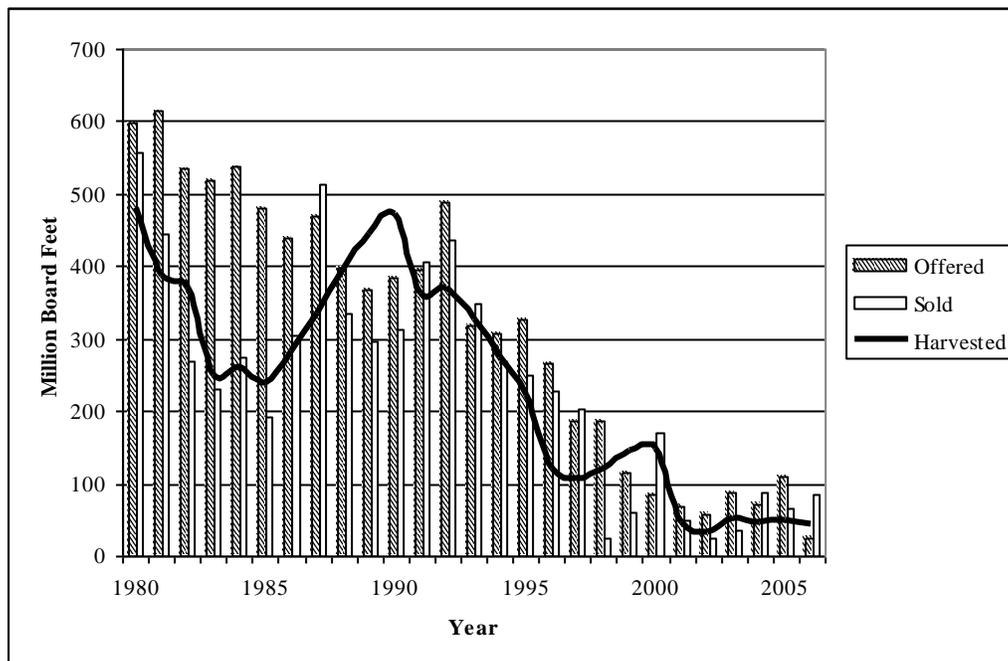
	2002	2003	2004	2005	2006
Volume Under Contract ¹	230	193	78	83	111
Harvest	34	51	46	50	43
Contract Volume / Harvest ratio	6.8	3.8	1.7	1.7	2.6

1. Volume in 2002 does not include volume under injunction. Volumes in 2004 and 2005 do not include cancelled sales.

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

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 1997 Tongass Land Management Plan (TLMP). The allowable sale quantity (ASQ) is partitioned into two non-interchangeable components (NICs). About 219 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 48 MMBF is in areas that are difficult to harvest or are isolated (NIC II) (USDA 1997). Figure 2 illustrates trends in timber offered, sold, and harvested since 1980. This graph illustrates the relative stabilization of the industry in the past five years, although struggles with supply are still an issue.

Figure 2. Volumes of timber offered, sold and harvested from the Tongass National Forest, 1980-2006 (Fiscal Years, MMBF).



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

In 2006, sawmills in southeast Alaska were operating at about 10 percent of estimated capacity. The largest mills operated at about 14.5 percent of estimated capacity (Parrent 2007). By comparison, Idaho sawmills varied from a low of 74 percent utilization in 1985 to a high of 90 percent utilization in 1990 in the period from 1979 to 2001 (Morgan et al 2004a). In 2003, Oregon sawmills operated at about 85 percent of total capacity (Brandt 2006). California sawmills operated at about 83 percent of capacity in 2000 (Morgan et al. 2004b). Capacity utilization in Montana from 1976 to 2000 ranged from a high of 88 percent in 1999 to a low of 53 percent in 1982 when there was a severe recession (Keegan et al. 2001). The highest capacity utilization rate of any single large sawmill in southeast Alaska in 2006 was about 24 percent (Parrent 2007). 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 market place.

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. Wood chip exports from the Anchorage customs district have fluctuated from 2004 to 2006 (Appendix Table A-8), but chip values have remained about the same. Alaskan chip exports have been due in large part to the extensive mortality of trees throughout South-central Alaska and the Kenai Peninsula. Wood chip exports from the Anchorage customs district dropped considerably in 2006 (Appendix Table A-8), and generally make up a small portion of the value of wood products exports (Appendix Table A-9). Log exports from the Alaska customs district constitute the majority of wood product exports value (Appendix Table A-9). The 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, but trends were apparent. Most of these log exports were to Asian markets, with some going to domestic markets. Canada has not been a destination for logs from the Tongass since 2003.

Domestic markets are taking a greater share of the wood manufactured in SE AK than they did in the early 1990s, 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).

	<i>Alaska</i>	<i>Other US states</i>	<i>Canada</i>	<i>Other foreign exports</i>	<i>Total</i>
2000 ^a	8,135	54,287	3,774	20,920	87,116
Percent of total	9	62	4	24	100
2002	1,842	30,847	480	6,532	39,701
Percent of total	5	78	1	16	100
2003	1,758	24,591	382	5,274	32,005
Percent of total	5	77	1	16	100
2004	1,468	19,553	5,951	4,056	31,027
Percent of total	5	63	19	13	100
2005	2,342	26,177	724	5,423	34,665
Percent of total	7	75	2	16	100
2006	3,408	23,250	296	5,186	32,141
Percent of total	11	72	1	16	100

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. Appendix Table A-7 summarizes data from all Alaska foreign exports as reported in the International Trade Commission Harmonized

Trade Code (ITC HTS) data. 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 7 years has represented only about 15 percent, on average, of foreign exports of sawn products reported by Southeast Alaska mill owners alone. This 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; 2001 data is unavailable).

<i>Year</i>	<i>SE sawmills reported foreign exports, MBF</i>	<i>ITC HTS data on exports from the Alaska customs District, MBF (Appendix Table A-7)</i>
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

The volume of timber sold from the Tongass National Forest in the past five years ranged from a low of 24 MMBF in 2002 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 34 MMBF in 2002 to 51 MMBF in 2003. Harvested volume in 2006 was close to the five-year average.

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. Details of prescriptions, production costs, and species mixes for sales in 2006 are presented in Appendix Table A-1. Table A-1 lists sales sold in FY 2006 that were also offered in the same fiscal year; the total volume for the sales was about 65 MMBF. The total volume of timber sold in FY

2006, as noted in table A-3, was 85 MMBF. Some of the 85 MMBF sold was offered in a previous fiscal year.

In contrast to the lower valued species and grades, higher grade Sitka spruce lumber and cedar logs historically generated considerable profits owing to the high price premiums paid by the Japanese for these products (Robertson and Brooks 2001). These premiums shrank from 1996 to 2001, but have increased since 2003 to the historic peaks of 1995-1996 levels (see Appendix Table A-7). Values for Sitka spruce logs have remained fairly consistent over the past 8 years. In 2006 values for Sitka spruce lumber increased over 2005 values. The prices paid for these products and species are an indicator of North American and world-wide demand for the higher valued wood species and grades that come from Southeast Alaska. This high quality material is becoming increasingly less available from other sources.

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.

Braden et al. (2000) state that interregional productivity and economies-of-scale differences between Alaska and its closest competitors in the US Pacific Northwest and British Columbia, Canada, can be partially attributed to dated, under-equipped mills. They believe that to be competitive, the Alaska wood products industry must upgrade current facilities and attract business startups with capital investment of either their own funds, or funding from venture capitalists. Parrent (2000) states that, to be effective, Alaska's wood producers must be highly efficient in their processes and use the minimum amount of labor possible. However, Southeast Alaska generally has old, low-tech, low-productivity equipment. Alaska is not currently particularly well positioned to compete in the world marketplace for commodity goods, such as dimension lumber. This is one reason why southeast Alaska producers have shifted to other markets. Several mills in Southeast Alaska have recently added improvements such as small diameter sawlog processing capacity and kilns. Getting funding and credit for wood manufacturing investments can be difficult in Southeast Alaska (Donovan et. al 2005). Some marketing options are niche products and import substitution (i.e., making products in Alaska for local consumption and substituting them for products currently imported). Parrent (2000) states that this is possible for sawn lumber products and finished solid wood products such as furniture and molding. He goes on to say that products that can't be manufactured on a small scale, such as plywood and oriented strand board, are poor candidates for production and import substitution in Alaska.

Products that take advantage of the quality of Southeast Alaska wood are an option for Alaska wood products producers. Products unique to Alaska could include yellow cedar structural elements, hemlock and spruce millwork and structural elements, musical

instruments components, and alder, cottonwood, and birch furniture and interior woodwork. The US Forest Service established the Alaska Wood Utilization Research and Development Center in 1999, in part to explore such possibilities. Among their many projects and publications, Donovan et al. (2003) discuss niche markets for Alaska birch (*Betula papyrifera* var. *humilis*), red alder (*Alnus rubra*), and Alaska yellow-cedar (*Chamaecyparis nootkatensis*). The net volume, by percent, of growing stock on timberland in Southeast Alaska of commercial softwood species is comprised of about 10 percent Alaska yellow cedar, 27 percent Sitka spruce, 6 percent western redcedar, and 57 percent western and mountain hemlock (calculated from Table 13, van Hees 2003).

Tight-grained old-growth western hemlock (*Tsuga heterophylla*) is used to produce window and door casings. The Alaska Manufacturers' Association and the Alaska Science and Technology Foundation (ASTF) initiated a lumber-grading project in 1998. By 2002 about 90 percent of all lumber produced was graded (Alaska Manufacturing Association 2002). The expectation is that lumber grading will result in increased markets and higher prices. The ASTF created a testing laboratory in Ketchikan (Ketchikan Daily News 2002) to quantify the superior mechanical properties of Alaskan western hemlock, yellow-cedar, Sitka spruce (*Picea sitchensis*) and white spruce (*Picea glauca*). A number of mills in Southeast Alaska were awarded USDA grants to construct lumber dryers, so they can produce finished lumber products.

Brackley and Haynes (in press) assessed markets and types of products produced in southeast Alaska and competing regions, along with domestic and international demand for these wood products. They found that Alaska produces types of lumber that is high quality, largely unavailable elsewhere, and that will continue to be sought out. They state that “available shipment data suggest that Alaskan producers in spite of substantial cost disadvantages can find niche markets where they can compete with Canadian and Pacific Northwest producers in end uses that require high quality softwood lumber. Admittedly these are a small proportion of both domestic and export markets but even a small proportion is a large absolute number to the relatively small Alaskan softwood lumber industry.” They say that Alaska producers can still manufacture high value large dimension and clear lumber (more valuable wood products that are meant to be seen, as opposed to structural framing) whereas other regions such as Canada and the Pacific Northwest have limited and declining sources of this type of wood. They say that “these shifts have important implications for future markets for producers in southeast Alaska. That is, at the levels of current and expected production the producers can sell into robust markets for the high grades of softwood lumber. The size of these markets is fueled by the expected growth in the US domestic market and changes in Pacific Rim markets that will increase the demand for cants, shop and select, and some common grades of softwood lumber.”

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 supplied 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 supplier, producing over 50 MMBF and outstripping Forest Service production in 2001, 2002, and 2006 (see Appendix Table A-6). Native Corporation harvests have declined from a high of 434 MMBF in 1990 to a range of 71 to 106 MMBF in each of the last five years—a level close to earlier predictions of the long-term supply potential of Native Corporation lands (Knapp 1992). Sealaska Timber Corporation (STC) has been able to mitigate lost payroll in the forest products industry to some degree. STC direct spending in Southeast Alaska was \$37,583,094 in 2003, mostly for logging and ship loading. Their employment from timber harvest, ship loading, and silviculture activities was 330 annualized jobs and about \$16 million in payroll (Sealaska Timber Corporation communication, 2004). Sealaska Timber Corporation recently announced that their projected harvest levels will be declining in the near future.

According to Alaska State forestry specialists, Native Corporation, Mental Health Trust, and University timber, can be, and frequently is, exported in raw log form. By regulation, Tongass National Forest logs must be processed locally except where a special permit is obtained. 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).

Conclusion

Declining supply and shrinking demand has seemed to level off. The impacts on local communities of the continued struggles of the timber industry, combined with past downturns in other sectors such as fishing, have contributed to declines in employment and population in numerous small communities in Alaska. Due in part to tourism and fishing gains, the region experienced two years of consecutive job growth in 2005 and 2006. The future direction of the region's wood products industry continues to be uncertain. On the supply side, legal challenges, regulatory uncertainty and the crucial question of whether the Forest Service can put together profitable sales all point to continuing challenges. On the demand side, competition from producers in other regions means that price continues to be an issue. At the same time, though, new market opportunities are currently being explored. Assuming stable demand for the region's wood products, a more stable and orderly sale program in the future may alleviate uncertainty on the part of investors and improve the health of the industry.

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ANILCA 706(a) Timber Supply and Demand report

Statistical Appendix 2006

List of Tables:

Table A-1. Tongass National Forest Timber Sales Newly Offered and Sold in FY 2006.

Table A-2. Employment in the Wood Products Industry in Southeast Alaska, 1982-2006.

Table A-3. Volume of National Forest Timber Offered, Sold, and Harvested in the Alaska Region, FY 2002-2006.

Table A-4. Tongass National Forest Log Export Permits Issued in CY 2006 (MBF).

Table A-5. Tongass National Forest Log Exports CY 2002-2006 (MBF).

Table A-6. Timber Harvest and Imports for Southeast and South-Central Alaska, 1992-2006.

Table A-7. Exports of Softwood Logs and Lumber from Alaska (Anchorage Customs District), CY 1990-2006.

Table A-8. Woodchip Exports from U.S. West Coast, CY 1990-2006.

Table A-9. Value of Exports from Alaska (Anchorage Customs District) by Product and Country, CY 1997-2006.

Table A-10. Tongass National Forest Volume Under Contract, FY 2006.

Table A-1. Tongass National Forest Timber Sales Newly Offered and Sold in FY 2006¹

Sale Name	Type Prescription			Production Cost		Bid Information			
	Clear Cut (% Vol.)	Partial Cut (% Vol.)	Proportion Heli-Copter ³ (% Vol.)	Logging Cost (\$/MBF)	Fix Dev. ⁴ Cost (\$/MBF)	Expected Bid (\$/MBF)	Advertised Rate (\$/MBF)	High Bid (\$/MBF)	Bidders (No.)
Kensington Settlement #2 ²	100%	0%	0%	\$127.49	\$0	\$103.55	\$103.55	\$103.55	1
Lindenberg	100	0	42	344.83	10.61	9.95	9.95	11.50	1
Red Mountain ⁵	59	41	100	-----	4.57	6.27	6.27	6.53	1
Skipping Cow	87	13	0	325.31	16.64	7.68	7.68	7.68	1
Upper Carroll II	100	0	7	257.30	48.35	11.22	11.22	11.22	1
Weighted Average	93	7	26	310.88	21.18	10.65	10.65	11.23	1

Sale Name	S. Spruce Hemlock		Alaska Western		SS/Hem Utility (% Vol.)	Total Sale MBF
	Sawlog (% Vol.)	Sawlog (% Vol.)	Yellow Cedar (% Vol.)	Red Cedar (% Vol.)		
Kensington Settlement #2	42%	43%	0%	0%	15%	949
Lindenberg	29	50	5	0	16	23,239
Red Mountain	15	51	13	4	16	5,889
Skipping Cow	16	47	19	4	14	18,641
Upper Carroll II	17	55	9	4	16	16,495
Weighted Average	21	51	11	2	15	65,213

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.
2. Used the same logging coast as for Kensington Settlement #1.
3. "Proportion Helicopter" is the proportion of the sale that was helicopter logged, and can include clear-cut and partial cut prescriptions.
4. Fixed Development Cost – Sale fixed cost including specified road, temporary road, and log transfer facility construction. Amortized for "required" timber removal plus "optional" timber volume removal.
5. No appraisal summary done for Red Mountain (logging costs are unavailable). Appraisal based on minimum rates.

Table A-2. Employment in the Wood Products Industry in Southeast Alaska, 1982-2006.

Year¹	Tongass Logging²	Tongass Sawmill	Pulp Mill	Tongass- Related Employment³	Other sawmill	Other Logging	Total Industry Employment
1982	335	540	975	1,850	-	656	2,506
1983	574	429	854	1,857	-	436	2,293
1984	513	395	700	1,608	-	433	2,041
1985	559	363	580	1,502	-	445	1,947
1986	692	331	772	1,795	-	547	2,342
1987	862	375	861	2,098	-	683	2,781
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

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

1. 2000 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. From 2002 to 2005, this assumption no longer held. Data from Kilborn et al. (2004), Brackley et al. (2006b), and subsequent mill studies 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, and 62% in 2006. Tongass National Forest sawmill employment from 2002 through 2006 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), and subsequent mill studies (data on file with the Alaska Region Regional Economist).
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 2002-2006 (MMBF).¹

<u>Offered – Million Board Feet (MMBF)</u>			
Fiscal Year	Tongass NF	Chugach NF	Total
2002	56.9	0.0*	56.9
2003	88.8	0.0*	88.8
2004	72.6	0.0*	72.6
2005	110.4	0.0*	110.4
2006	23.7	0.0*	24.7
5 yr. Average	70.7	0.0*	70.7
<u>Sold/Released – Million Board Feet (MMBF)</u>			
Fiscal Year	Tongass NF	Chugach NF	Total
2002	24.4	0.1	24.5
2003	36.5	0.0*	36.5
2004	87.1	0.0*	87.1
2005	65.1	0.1	65.1
2006	85.0	0.0*	85.0
5 yr. Average	59.6	0.0*	59.6
<u>Harvested – Million Board Feet (MMBF)</u>			
Fiscal Year	Tongass NF	Chugach NF	Total
2002	33.8	0.2	34.0
2003	51.3	0.0*	51.3
2004	46.4	0.0*	46.4
2005	49.6	0.1	49.7
2006	43.2	0.0*	43.2
5 yr. Average	44.9	0.1	44.9

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 Issued in CY 2006 (MBF)

Permit							Total
Sale	Purchaser	Number	SS ¹	Hem.	AYC	WRC	MBF
Fusion	Viking	2004-11			45.83		45.83
Fusion	Viking	2006-2				390.55	390.55
Luck Lac II	Viking	2005-16				548.14	548.14
Luck Lac II	Viking	2005-17			363.02		363.02
Twin Bridges II	Viking	2004-2			33.51	1.48	34.99
Finger Point	Viking	2006-7			5.84		5.84
Summore Change	Viking	2003-8				79.94	79.94
Thorne Island	Viking	2005-9				1013.99	1013.99
Lindenberg	Viking	2006-8			1.84		1.84
Kogish Shinaku	Viking	2005-7			8.45	757.09	765.54
Kogish Shinaku	Viking	2005-6				309.76	309.76
Licking Creek	Pacific Log & Lumber	2006-5	373.16	96.2		215.47	684.83
Buckdance/Madder	Pacific Log & Lumber	unavailable				0.2	0.2
Dry Stream	Icy Straits	2005-18	20	10			30
Midway	Icy Straits	2005-19	15	13			28
Upside	Icy Straits	2005-20	40	10			50
Total			448.16	129.2	458.49	3,316.62	4,352.47

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 sitchensis*); 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 2002-2006 (MBF)

Year	Exported	Destination	SS	Hem.	AYC	WRC	Total
CY2002		Canada	672	625	185	0	1,482
		Lower 48	0	0	0	115	115
		Pacific Rim	134	99	803	22	1,058
		Total	806	724	988	137	2,655
CY2003		Canada	65	375	158	0	598
		Lower 48	0	0	112	288	400
		Pacific Rim	0	0	2,938	357	3,295
		Total	65	375	3,208	645	4,292
CY2004		Canada	0	0	0	0	0
		Lower 48	0	0	0	1,412	1,412
		Pacific Rim	6,831	1,236	1,681	0	9,748
		Total	6,831	1,236	1,681	1,412	11,160
CY2005		Canada	0	0	0	0	0
		Lower 48	0	0	49	3,888	3,937
		Pacific Rim	11,712	1,925	1,909	0.3	15,547
		Total	11,712	1,925	1,958	3,889	19,485
CY2006		Canada	0	0	0	0	0
		Lower 48	0	0	37	2,480	2,517
		Pacific Rim	448	129	421	837	1,836
		Total	448	129	458	3,317	4,353
5 Yr. Avg.		Canada	147	200	69	0	416
		Lower 48	0	0	40	1,637	1,676
		Pacific Rim	3,825	678	1,551	160	6,214
		Total	3,972	878	1,659	1,797	8,306

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

Table A-6. Timber Harvest and Imports for Southeast and Southcentral Alaska, 1992-2006¹

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<u>Southeast Alaska (MMBF)</u>																
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
	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
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
	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
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
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
	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
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
	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
	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
<u>Southcentral Alaska (MMBF)</u>																
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
	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
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
	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
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
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
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
<u>Alaskan Imports (MMBF)⁴</u>																
	Sawlogs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--	--	--
	Utility Logs	3.0	3.0	3.0	11.5	34.1	0.0	0.0	0.0	0.0	--	--	--	--	--	--
	Chips	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--	--	--

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. 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 1996-2006.

Softwood Logs (MBF Scribner, \$/MBF)								
	All Species		Hemlock		Redcedar		Spruce	
	Volume	Average Value	Volume	Average Value	Volume	Average Value	Volume	Average Value
1990	568,597	592.33	251,500	457.05	62,609	439.35	213,334	781.02
1991	528,878	555.81	226,013	421.14	55,312	397.51	218,580	717.43
1992	531,993	619.85	212,684	464.73	47,444	517.52	225,266	726.64
1993	563,044	805.67	217,853	643.41	60,542	687.89	228,789	937.01
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	213,487	566.23	52,048	495.90	9,962	778.22	141,508	557.69
2006	249,705	427.78	57,967	491.19	6,299	750.69	177,427	379.20

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
1990	212,010	397.56	119,231	364.44	87,776	453.14	5,002	211.72	0	--
1991	170,308	412.31	95,478	364.64	69,782	480.80	3,069	369.83	1,979	363.32
1992	136,556	481.40	81,363	393.55	52,036	629.62	575	396.52	2,582	280.40
1993	151,894	507.35	95,005	454.06	55,856	598.18	59	355.93	974	505.13
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	--
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Source: U.S. Department of Commerce, at <http://dataweb.usitc.gov/> (last accessed June 2007); Warren 2007; and unpublished data from D. Warren (January 2008).

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 1996-2006

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
1996	589,989	95.97	1,230,966	108.51	314,280	109.65	199,862	83.79
1997	611,888	72.28	1,247,092	89.54	371,554	97.71	105,653	72.10
1998	835,594	62.27	1,076,786	96.78	255,546	95.16	145,837	73.80
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

Source: U.S. Department of Commerce, at <http://dataweb.usitc.gov/> (last accessed June 2007); Warren 2007; and unpublished data from D. Warren (January 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 1998-2006

(1,000 \$)	1998	1999	2000	2001	2002	2003	2004	2005	2006
<u>Logs</u>									
Canada	24,963	15,124	19,501	12,385	10,694	9,537	1,097	502	833
China	1,874	866	2,582	6,069	3,664	2,484	2,544	7,120	7,748
Japan	99,944	134,375	118,120	83,316	62,552	75,090	50,964	57,933	37,134
Korea	24,328	39,502	35,817	30,594	35,033	48,636	37,177	51,136	57,395
Taiwan	1,554	5,195	8,137	3,584	4,618	2,646	2,936	4,659	2,414
Other	1,425	0	1,865	0	1,028	1,189	0	0	2,015
Total	154,088	195,062	186,021	135,948	117,589	139,582	94,520	121,351	107,539
<u>Sawnwood</u>									
Canada	48	52	544	0	0	0	0	0	0
Japan	3,950	10,647	2,714	651	64	1,488	2,123	3,322	2,817
Other	251	174	0	0	4	33	0	27	23
Total	4,249	10,874	3,259	651	69	1,521	2,123	3,349	2,839
<u>Chips and Sawdust</u>									
Canada	1,477	4,674	6,142	3,954	1,915	909	1,097	1,136	287
Japan	11,673	10,987	1,930	5,615	4974	4,661	1,537	2,442	3
Other	0	0	9,404	1,388	0	0	12	3,734	0
Total	13,150	15,660	17,475	10,958	6,889	5570	2,645	7,312	290
<u>Other Wood Products</u>									
Canada	206	28	5	10	166	51	54	71	3
Hong Kong	341	221	175	226	389	341	351	206	237
Japan	1,298	1,229	432	929	574	1,932	762	269	600
Korea	36	74	807	304	131	1,403	623	28	335
Taiwan	19	177	23	179	98	140	125	35	126
Other	337	212	154	174	801	1,315	651	258	541
Total	2,237	1,940	1,595	1,822	2,159	5,182	2,566	867	1,841
<u>Grand Total</u>									
Canada	26,695	19,877	26,192	16,349	12,775	10,496	2,050	1,709	1,123
China	1,874	866	2,582	6,106	4,230	3,279	2,810	7,277	8,038
Hong Kong	341	221	175	340	393	1,527	363	211	237
Japan	116,864	157,238	123,195	90,568	68,164	83,171	55,387	63,966	40,554
Korea	24,363	39,576	36,623	30,949	35,164	50,039	37,800	54,894	57,730
Taiwan	1,589	5,269	8,944	3,763	4,716	2,786	3,061	4,694	2,546
Other	2,013	386	11,423	1,561	1,264	556	384	128	2,282
Total	173,740	223,432	209,134	149,636	126,705	151,854	101,855	132,879	112,510

Source: U.S. Department of Commerce, USITC Trade Database (<http://dataweb.usitc.gov/>, last accessed June 2007).

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

Table A-10. Tongass National Forest Remaining Volume Under Contract FY 2006¹

Purchaser Name	Sale Name	Original Volume (MBF)	Volume Cut (MBF)	Remaining Volume (MBF)
Alaska Timber Wolf	Midpoint Special Salvage	115.79	0	115.79
Alcan Forest Products	Red Mountain	5,888.7	0	5,888.7
Alcan Forest Products	Skipping Cow	18,640.91	0	18,640.91
Brent Cole	Micosale #118	65.11	10.44	54.67
Coeur Alaska Inc	Kensington Gold Project	1,128.22	150.87	977.35
Coeur Alaska Inc	Kensington Settlement	949.2	0	949.2
CSL Farm and Supply	Kosciusko Stewardship	470.4	0	470.4
D&L Woodworks	Big Bear	149.9	0	149.9
D&L Woodworks	Divide	233	0	233
Ernie Eads	Bucktooth Special Salvage	213.14	0	213.14
H&L Salvage Inc	Ambrosia	142.64	0	142.64
H&L Salvage Inc	Little Rock	143.74	0	143.74
H&L Salvage Inc	Rocky Ratz Special Salvage	54.99	33.03	21.96
H&L Salvage Inc	Swingset Special Salvage	228	0	228
H&L Salvage Inc	Vientos Cinco #5	69.68	0	69.68
Icy Straits Lumber & Mill	Midway Reoffer II	8,222.48	44.81	8,177.67
Icy Straits Lumber & Mill	Tall Tree	235.59	0	235.59
Icy Straits Lumber & Mill	Twist	74	0	74
James Harrison	Beaver Tail Special	218.93	63.1	155.83
Keith Dahl	Lucky Duck Reoffer	494.08	381.74	112.34
Kevin Kriener	Microsale #132	2	0	2
Last Chance Enterprises	Angel	101.15	34.66	66.5
Last Chance Enterprises	Brisket Special Salvage	196	0	196
Orlando B Bell	Mustang Salvage Reoffer	125.48	0	125.48
Pacific Log & Lumber Ltd	Buckdance Madder Reoffer	15,422.67	0	15,422.67
Pacific Log & Lumber Ltd	Licking Creek	15,365.87	12,932.17	2,433.7
Pacific Log & Lumber Ltd	Orion North	8,374.68	0	8,374.68
Pacific Log & Lumber Ltd	Upper Carroll II	16,494.56	0	16,494.56
Porter Lumber	Wrong Arm Special Salvage	2.14	0	2.14
Porter Lumber	Yatuk Creek Salvage	272.7	205.98	66.72
R&R Conner Inc	Drumlin Reoffer II	1,105.96	0	1,105.96
Richard Blauvelt	Red Bull Salvage Sale	73	0	73
SE Alaska Wood Products	Shady	4,092.27	2,441.89	1,650.38
Steve Little	Low Ridge	159.89	0	159.89
The Mill Inc	Wedge	643.95	0	643.95
Tom Stearns	Sleepy Cedar Firewood	110.5	0	110.5
Viking Lumber Co.	Finger Point	12,263.09	8,823.32	3,439.76
Viking Lumber Co.	Lindenberg	23,248.4	7,440.3	15,808.1
Viking Lumber Co.	Luck Lac II	8,586.04	6,036.33	2,549.71
Viking Lumber Co.	Summore Change	11,016.01	7,005.11	4,010.9

Table A-10. Tongass National Forest Remaining Volume Under Contract FY 2006(cont.)

Purchaser Name	Sale Name	Original Volume (MBF)	Volume Cut (MBF)	Remaining Vol (MBF)
Wesley Baird	Microsale #123	16	0	16
William Kaufman	Microsale #125	13	0	13
William Kaufman	Microsale #128	9	0	9
William Thomason	Dogleg Special Salvage	242	0	242
William Thomason	Lucky Cahrm Reoffer	38.79	0	38.79
William Thomason	Microsale #126	26	0	26
William Thomason	Mink Tail Special Salvage	152.89	4	148.89
William Thomason	Moxie Special Salvage	217	0	217
Larry Trumble	Microsale #114	8	0	8
Commercial Firewood	permit	18.82	0	18.82
Commercial Firewood	permit	6.27	0	6.27
Commercial Firewood	permit	5	0	5
Commercial Firewood	permit	10	0	10
Commercial sawlog	permit	1.44	0	1.44
Total		156,159	45,608	110,551

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. All volumes rounded to nearest MBF.