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Tongass National Forest Timber Demand: Projections for 2025–2040

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Cover photo: Forest canopy in Tongass National Forest, Alaska. Forest Service photo by Brian Logan.

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Abstract

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The U.S. Department of Agriculture, Forest Service faces unique requirements to consider potential future demand for Tongass National Forest timber in their periodic land management planning efforts. In support of this need, the Forest Service’s Pacific Northwest Research Station has completed five prior timber demand analyses for southeast Alaska to assist with meeting statutory requirements to estimate planning-cycle demand for Tongass National Forest timber. Using the materials balance model (used in prior analyses) and updated harvest figures, mill production data, and export volumes, we project timber demand from 2025–2040 for three potential future scenarios—continuation of current trends, increased local demand, and expansion of Forest Service log exports. The continuation of current trends and increased local demand scenarios result in modest increases in timber demand for the Tongass National Forest relative to that seen at the end of the 2010s but still below that observed in prior years. In the increased log export scenario, projected timber demand increases markedly to well more than what has been experienced this century.

Keywords:

Tongass National Forest

Demand

Sawlogs

Export

Tongass Timber Reform Act

Alaska

Summary

The Tongass National Forest faces unique requirements to explicitly consider potential future demand for U.S. Department of Agriculture, Forest Service timber in their periodic land management planning efforts. In support of this need, we used the materials balance model (used in prior analyses) and updated harvest figures, mill production data, and export volumes, to project timber demand from 2025–2040 for three potential future scenarios—continuation of current trends, increased local demand, and expansion of Forest Service log exports. The continuation of current trends and increased local demand scenarios result in modest increases in timber demand for the Tongass National Forest relative to that seen at the end of the 2010s but still below that observed in prior years. In the increased log export scenario, projected Tongass National Forest timber demand increases markedly in the coming years.

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Introduction

The Issue

The Tongass Timber Reform Act (TTRA 1990) states that the Secretary of Agriculture shall, subject to certain limitations, “seek to provide a supply of timber from the Tongass National Forest which meets: (1) the annual market demand for timber from such forest; and (2) the market demand for timber from such forest for each planning cycle.” Although all U.S. national forests estimate demand during forest planning efforts, the language in TTRA that the supply of Tongass National Forest timber must seek to meet demand is unique. Since 1990, the U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station has conducted five planning cycle demand analyses (plus one addendum) in support of the Tongass Timber Reform Act requirement (Brackley and Haynes 2008; Brackley et al. 2006; Brooks and Haynes 1990, 1994, 1997; Daniels et al. 2016). These analyses have estimated the quantity of national forest timber needed to meet planning cycle demand, given likely harvest levels by other forest landowners and assumptions about future markets. The information presented here can be used by the Forest Service’s Alaska Region as one input to calculate annual timber demand for the Tongass National Forest (see Alexander and Grewe 2015) and to inform new efforts to amend the Tongass Land Management Plan.

The Tongass National Forest covers most of southeast Alaska. In this study, we define southeast Alaska as the region comprising the Haines Borough, Hoonah-Angoon Census Area, City and Borough of Juneau, Ketchikan Gateway Borough, Petersburg Borough, Prince of Wales-Hyder Census Area, City and Borough of Sitka, Municipality and Borough of Skagway, City and Borough of Wrangell, and City and Borough of Yakutat.

As part of this current analysis, we invited southeast Alaska wood products stakeholders to discuss local industry conditions and provide perspectives about the Tongass National Forest timber demand projections (Grewe and Trapp 2025).¹ The aim was to collect observations and perceptions regarding the status of the forest products industry, future demand for Tongass National Forest timber, and the greatest challenges in sustaining a local forest products industry. Twenty local organizations engaged in discussions on the Tongass National Forest timber industry in southeast Alaska. Participating stakeholders included nongovernmental conservation organizations, small businesses, and landowners. Other groups that engaged were development and industry organizations, professional services groups, and payment in lieu of taxes local government recipients.

¹ See Grewe and Trapp (2025) for details, including information about participants.

Participants identified several significant challenges to a functional timber industry: workforce capacity, timber supply, infrastructure and machinery availability, and cost. Across the region, industry knowledge is waning as operators age out of the workforce. Mills face difficulties attracting and retaining workers, partly because there has been a shift in factors that motivate the contemporary workforce's career decisions. Small businesses also noted the lack of modern infrastructure and machinery as a challenge. There are few sawmills operating in the region and fewer that have the capacity to process large volumes of timber efficiently. Increasing operating costs and difficulty attracting investment are also challenges to expanding the wood products industry. Local operators noted that instability and uncertainty over return on investment had led to lost investment. We considered stakeholder observations and perceptions, along with the market data discussed below, in developing the scenarios for use in projecting future demand.

Developing the Demand Projections

Like previous timber demand studies, we adopted a scenario planning approach (see Wack [1985] for details of the original application). Scenarios encompassing a range of alternate futures also form the basis for the Forest Service's Resources Planning Act assessment activities (Haynes et al. 2007, USDA FS 2023). Past demand studies have focused on scenarios involving the reestablishment of an integrated timber industry, including larger sawmills producing for both the domestic and export markets including export chips, and industries that use residue (chips), such as those associated with medium density fiberboard mills and energy production. However, in the three decades since the first Tongass National Forest timber demand projections, no integrated timber industry has redeveloped in southeast Alaska. Instead, over the last three decades, the southeast Alaska timber market has been characterized by a small lumber industry (increasingly focused on local markets) and the development of a log export industry (increasingly focused on the Chinese and Japanese markets) (Simmons et al. 2024).² The export of sawlogs and woodchips constitutes the largest component of the Alaska wood products market (Simmons et al. 2024). In 2019, the volume of logs and chips exported from the Alaska wood products market was more than 10 times the volume of lumber and sawn products from the state's sawmills (Simmons et al. 2024). In 2025, this log export market was in turmoil when China instituted a ban on U.S. log imports. We acknowledge these long-term economic patterns by adopting a baseline projection (scenario 1) that includes limited local lumber production and continued participation by the Forest Service in a reduced log export market.

²See table A.1 for a breakdown of total softwood log exports by country destination.

In many past demand studies, log exports have been mostly assigned to private timber harvests, as it has been assumed that log export restrictions would continue for timber harvested from the Alaska national forests. Indeed, log exports from the Alaska Customs District increased in the mid-1980s as the Alaska Native Claims Settlement Act (1971) transferred land to Alaska Native Corporations, thereby expanding private Alaska timberlands (fig. A.1). Historically, the Forest Service granted a minimal number of Alaska national forest log export approvals—on a case-by-case basis—at the request of the purchaser after the sale was awarded. In 2007, the Alaska regional forester adopted a limited export policy (USDA Forest Service 2016). The policy modified how timber sales were appraised and allows timber purchasers the ability to ship certain small-diameter logs in national forest timber sales to the lower 48 states. In addition, up to 50 percent of the total sale sawtimber volume of unprocessed Sitka spruce (*Picea sitchensis* (Bong.) Carrière) and western hemlock (*Tsuga heterophylla* (Raf.) Sarg.) logs can be shipped to the most advantageous markets. Designed to allow flexibility for timber purchasers, the policy is applied by request of the timber purchaser after the contract offering is awarded or any time thereafter. Appropriation law governs appraisals for western redcedar (*Thuja plicata* Donn ex D. Don) and Alaska cedar (*Callitropsis nootkatensis* (D. Don) Oerst. ex D.P. Little). Once the sale is purchased, the purchaser can apply for export permits on volume sold for domestic processing (USDA Forest Service 2016). For 2020 through 2022 (prior to recent international trade disruptions), exports from the Tongass National Forest averaged 9.2 million board feet per year and now have become an established component of the log export market from southeast Alaska. The increase in log exports from Tongass National Forest timber sales, relative to prior decades, motivated our design of scenarios.

The export of logs harvested from Oregon and Washington (primarily from privately-owned forests) has generally decreased since the early 1990s (fig. A.1) with changes in demand in Asian markets and shifts in U.S. domestic markets. Alaska timber producers have benefited from that decline because they have become a primary source of older white wood (primarily western hemlock) logs that some international markets favor. More information about changes in the Alaska timber industry since the last demand study can be found in Simmons et al. (2024).

Methods

The Demand Model

We adopted a similar modeling approach to that used in past timber demand studies for southeast Alaska (Brackley and Haynes 2008; Brackley et al. 2006; Brooks and Haynes 1990, 1994, 1997; Daniels et al. 2016). The essential feature of this modeling approach is that the

volume harvested from various Alaska ownerships is equal to the volume of various forest products produced in Alaska. This equality is sometimes referred to as a materials balance—the materials entering the system (input) equal the materials exiting the system (output). Past studies have argued for the appropriateness of these types of models for forest sector studies, and this type of model is at the heart of forest sector models used in other timber demand assessments (see Adams and Haynes 2007).

Basic materials balance relation

The model relies on the fundamental economic premise that supply equals demand for a specific product at a specific point in time (t). The emphasis of the model is on explaining the flow of materials from raw inputs to finished products. This includes the production and consumption of byproducts generated in the course of producing the finished products. It is a flexible and robust model that can be expanded to include additional economic assumptions or characteristics of interest around supply and demand. In the context of timber markets in southeast Alaska, the model is expressed as the following:

$$S_t = D_t$$

Where

S_t = the linear summation of log supply expressed in log scale³ from different ownerships at time t , and

D_t = the sum of various forest products converted to log scale using product-specific conversion factors at time t .

The supply of timber (S_t) in Alaska is the sum of harvest volumes in thousand board feet, Scribner log scale across forest ownership groups in Alaska:

$$S_t = h_{nf} + h_{of} + h_s + h_p$$

Where

h_{nf} = harvest from the Chugach and Tongass National Forests,

h_{of} = harvest from other federally-owned timberlands, primarily Department of the Interior, Bureau of Land Management,

h_s = timber harvest from state-owned timberlands managed by Alaska State government entities, and

h_p = timber harvest from private timberlands, primarily Alaska Native Corporations and villages.

³Log scale is used to describe the volume of lumber that may be sawn from round logs of different sizes given their length and small-end diameter.

Demand for timber (D_t) in Alaska is specified as the following:

$$D_t = k_{lu} LU + k_{mp} LX + k_{cx} CX + k_{hl} HL + k_{mp} MP + k_{fwd} FWD$$

Where

$k_{lu}LU$ = lumber production in thousand board feet, lumber scale (multiplied by conversion factor k_{lu} to convert to log scale cubic feet),

$k_{mp}LX$ = the volume of logs (log scale) exported from the Alaska Customs District (see appendix for details) (multiplied by conversion factor k_{mp} to convert to log scale cubic feet),

$k_{cx}CX$ = clean chip exports in thousand tons (multiplied by conversion factor k_{cx} to convert to log scale cubic feet),

$k_{hl}HL$ = house logs produced in thousand linear feet (multiplied by conversion factor k_{hl} to convert to log scale cubic feet),

$k_{mp}MP$ = miscellaneous products (e.g., music wood, cultural wood), thousand board feet, log scale (multiplied by conversion factor k_{mp} to convert to log scale cubic feet), and

$k_{fwd}FWD$ = fuelwood production in thousand units (multiplied by conversion factor k_{fwd} to convert to log scale cubic feet).

The model converts all product (demand) and harvest (supply) volumes to a common unit, thousand cubic feet, using various conversion factors (see table A.2). All harvest numbers are in thousand board feet and are converted to thousand cubic feet using the board feet/cubic feet ratio in the latest Timber Products Output (TPO) data in Simmons et al. (2024).

Past demand studies separated lumber demand figures by market—local, domestic, and export—but that required additional assumptions about future lumber product market destination. Here, we treated lumber production demand as a single product using available data from Simmons et al. (2024). House logs are a product mostly produced in the Alaska interior and have not been widely produced in southeast Alaska (where cabin kits are produced as sawn products). Miscellaneous products refers to a variety of products, including music wood, cultural wood, specialty products (e.g., millwork, doors, large beams), and hobby products.

As in previous demand analyses, we projected derived demand for Tongass National Forest timber by calculating the volume of timber required to meet the shortfall between projected demand and the assumed future harvest from other ownerships, primarily Alaska Native Corporation and State of Alaska lands. In other words, we calculated derived demand for Tongass National Forest timber as a residual (the amount of national forest timber required to balance the market). We used historical trends and assumptions about the share of harvest by other ownerships in the

coming years to project the share of future harvests to be met by the Tongass National Forest.

For the baseline scenario, we assumed continuation of recent trends developed from the last four TPO studies (as reported in Simmons et al. 2024) and Zhou (2013). For the alternative scenarios, we modified the pertinent model assumptions for the scenario being considered (see “Results and Discussion”).

We calculated Tongass National Forest timber demand (D_x) from the identity $D_x = D_t -$ (all sources of supply except for the Tongass National Forest). We assume the resulting demand projections for the Tongass represent harvested sawtimber log volumes. Harvesting the sawtimber and processing logs into lumber generates other wood products (such as clean chips for export or animal bedding) and residues (such as fuelwood) and some fraction is waste wood (see “Results and Discussion”). Most residues remain underutilized in Alaska (Simmons et al. 2024) indicating that there are excess volumes of residues available for residue-based products.

Assumptions

Key product data for recent years and assumptions are shown in table 1,⁴ and key harvest data for recent years and assumptions by landowner are shown in table 2.

We derived production data from past studies and TPO reports. The lumber production estimates include all Alaska regions, with an estimated 89 percent of lumber produced in southeast Alaska (Simmons et al. 2024). Log export data is from Zhou (2013) and Maher (2024), and those logs mostly originated in southeast Alaska. We assume a modest increase in lumber production from recent levels to reflect slight increases in local consumption of lumber. Figure A.1 shows past Alaska and Pacific Northwest log exports and highlights the evolution of Alaska producers/landowners as significant participants in the log export market. Log exports from Alaska have been decreasing recently as major private timberland owners make market adjustments. We assume a quick decrease in log exports to the long-term average for Forest Service sources, and we assume low levels of log exports from Native corporation and state

⁴Berg et al. (2014) noted a substantial difference in Alaska timber volume harvested versus product volume output, particularly a difference in harvest versus timber export volumes. Specifically, the log export value of 279,398 thousand board feet shown for year 2011 in table 1 (herein) is markedly higher than the reported total harvest for the same year shown in table 2 (herein). Berg et al. (2014) examined possible reasons for this difference, including timing of harvest versus export, reported thousand cubic meters to thousand board feet export conversion factors, and scaling practices. They did not reach a consensus on reasons for this anomaly.

lands. These decreases reflect ongoing changes in forest products markets accompanying recent changes in international trade markets worldwide. In the past, the amounts of clean chip exports have been relatively modest, and we assume these exports will continue at those levels. House log production is an industry located in central and interior regions of Alaska, and we assume production levels will remain relatively constant in the future. In southeast Alaska, we expect a slight increase in lumber production for cabin kits. We assume a slow increase in miscellaneous wood (music wood, wood for personal and cultural uses) production from recent levels to pre-pandemic levels. We assume fuelwood use will remain relatively constant, reflecting modest population changes in the region and generally stable per capita use levels.

Table 1—Alaska product data and assumptions, select years

Year	Lumber production	Log exports	Forest Service log exports	Chip exports	House logs	Miscellaneous (e.g., music wood, cultural wood)	Fuelwood
	<i>Thousand board feet, lumber tally</i>	<i>Thousand board feet, Scribner</i>	<i>Thousand board feet, Scribner</i>	<i>Thousand tons</i>	<i>Thousand linear feet</i>	<i>Thousand board feet, Scribner</i>	<i>Units</i>
2005	55,404	216,021	15,500	55.4	805	930	79,700
2011	21,222	279,398	10,700	0.0	378	929	13,322
2015	32,793	161,418	13,410	6.6	328	707	14,969
2019	33,643	147,388	4,200	6.4	217	485	13,371
2025	34,000	30,000	TBD	7.0	220	500	13,371
2030	34,333	20,000	TBD	8.0	220	667	13,371
2035	34,667	20,000	TBD	9.0	220	733	13,371
2040	35,000	20,000	TBD	10.0	220	1,000	13,371

TBD = to be determined via model simulations.

Data sources: Maher (2024: table 17), Simmons et al. (2024), Zhou (2013: table 18).

Harvest data—derived from Zhou (2013: table 18); Maher (2024: table 17); and the latest TPO studies (as reported in Simmons et al. 2024)—and assumed projected harvest by landowner are shown in table 2. The Chugach National Forest harvests are expected to slightly increase from recent levels to long-term averages (table 2). Other federal land harvest, mostly from the Bureau of Land Management, has been episodic and no harvest on other federal land is reflected in our scenarios in the next 15 years. State of Alaska harvests have varied depending on different administrative goals, but with recent announcements that the state will be focusing on selling carbon credits from forests, we assume that state

harvests from various lands held in trust will decrease to 20 million board feet per year. Harvests from private timberlands (mainly Alaska Native Corporations and village lands) expanded with the export market until recently when Sealaska Corporation announced it was reducing harvest and instead focusing on selling carbon credits (Sealaska 2021). With that change, we assume that Alaska Native harvests from various lands held in trust will decrease to 20 million board feet per year in the next two decades as individuals, agencies, and villages conduct timber harvests to meet local needs for fuelwood and other wood product uses.

Table 2—Alaska harvest by landowner and assumptions, select years

Year	Forest Service		Other federal	State	Private
	Chugach National Forest	Tongass National Forest			
	Thousand board feet, Scribner				
2005	810	46,258	0	46,200	162,893
2011	494	28,194	0	17,890	125,016
2015	521	29,765	0	19,900	75,846
2019	187	10,662	0	40,400	113,619
2025	247 ^a	TBD	0	27,000	20,000
2030	282 ^a	TBD	0	20,000	20,000
2035	288 ^a	TBD	0	20,000	20,000
2040	297 ^a	TBD	0	20,000	20,000

TBD = to be determined via model simulations.

^a Assumed value under the baseline scenario.

Data sources: Maher (2024: table 17), Simmons et al. (2024), Zhou (2013: table 18).

Results and Discussion

Tongass Timber Demand Projections by Scenario

We examine three future scenarios:

- (1) **Baseline (continuation of current trends)**—This scenario focuses on the continuation of recent market trends and a continuation of an average of 9 million board feet per year of log exports from Forest Service timber sales.
- (2) **Modest expansion in Alaska timber demand to meet local needs (increased local demand)**—This scenario reflects potential outcomes from efforts to support local timber market activity and increase lumber production in southeast Alaska. This scenario assumes an additional (over that of scenario 1) 5 million board feet of old-growth harvest per year—half assumed to be going to local market wood product uses and half to the log export market.

- (3) Expansion of log exports from national forests to support stable demand for log exports from Alaska (expansion of Forest Service log exports)—This scenario assumes the Forest Service expands the volume of timber flowing into the log export market. This increase would provide market opportunities for Tongass National Forest second-growth timber that meets log export standards. This scenario assumes that a stable Pacific Rim (defined broadly as all countries bordering the Pacific Ocean) log export market is available to purchasers of Tongass National Forest timber sales, and log export market demand remains at one billion board feet per year.

Given these assumptions, projections of the derived demand for Tongass National Forest sawtimber under the three scenarios are shown in table 3.

Table 3—Projected derived demand for Tongass National Forest timber under three scenarios for selected years

Year	Scenario 1	Scenario 2	Scenario 3
<i>Thousand board feet, Scribner</i>			
2005	46,258	46,258	46,258
2011	28,194	28,194	28,194
2015	29,765	29,765	29,765
2019	10,662	10,662	10,662
2025	17,512	21,087	18,630
2030	14,974	19,685	46,712
2035	15,286	19,996	66,679
2040	15,794	20,505	87,885

Scenario 1 is continuation of current trends, scenario 2 is increased local demand, and scenario 3 is expansion of Forest Service log exports.

Data sources: Shaded values are from Maher (2024: table 17), Simmons et al. (2024), Zhou (2013: table 18).

Under scenarios 1 and 2, compared to scenario 3, there are relatively modest changes in the coming years in the derived demand for sawtimber from the Tongass National Forest. However, there are higher near-term fluctuations for scenario 2 as adjustments are made in demand for federal timber to compensate for reduced harvest levels on state and Alaska Native timberlands. Scenario 3 shows a large increase in derived demand for the Tongass National Forest as those logs are used to meet Pacific Rim export log market demand. Such increased harvest for log export markets could result in a “wall of wood” in southeast Alaska. This metaphor is frequently used to describe a key concern associated with the transition, over relatively short time periods, to managed forests⁵ where postharvest forest volume is concentrated in trees that are more uniform in size, age, and species. This phenomenon emerged in the U.S. South’s fourth/

⁵ Some of the stakeholders, who recognized the need to consider markets for second-growth timber from managed stands, expressed this concern.

fifth forest and the third forest in the U.S. Pacific Northwest (Haynes et al. 2007, USDA Forest Service 1988). These resulting managed forests have fewer log sorts because of their more uniform stand conditions and species mixes, and the logs are frequently destined for domestic markets producing commodity wood products (e.g., wall studs). Domestic commodity timber markets currently represent a small portion of the Alaska timber market (Simmons et al. 2024), and given transportation costs, distance from southeast Alaska to the Southeastern United States where most housing development is projected to occur (USDA Forest Service 2023), and competition with other domestic timber producing regions, that pattern seems unlikely to change in the coming years.

When public lands are involved and maximizing the present net value of timber stands is not a primary consideration in stand management decision making, stands can be managed for longer rotations that can promote larger trees and more desirable species. While advocates for managing forests in this way—to produce higher quality logs—focus on theoretical market opportunities, the associated revenues suggest that the costs exceed the benefits (see Haynes 2005). In the case of Alaska, the shift to managed stands over time means that most harvested trees will be domestic sorts and as such are likely not competitive in U.S. markets (primarily located in the U.S. South) against logs from mainland origins. Instead, Alaska, with its lower shipping costs, is better able to compete in the Pacific Rim markets against domestic sorts coming from other U.S. regions (hence our scenario 3).

In past demand studies, there was speculation about utilization opportunities for expected mill residues. Based on the values reported in Simmons et al. (2024) and our projections in the present study, mill residue volumes in Alaska are extensive (table 4). Because log exports generate little mill residue, the expected residue generation in scenarios 2 and 3 are identical. However, stakeholder engagement for this demand assessment seldom included discussion of residue utilization (beyond it being a persistent challenge and one that will hinder timber sales that contain significant volumes of small sawtimber). These residue volumes suggest that there are abundant utilization opportunities if a biomass market were to materialize.

Table 4—Residual volumes in southeast Alaska associated with each scenario, select years

Year	Scenario 1			Scenario 2			Scenario 3		
	Chips	Fuelwood	Waste	Chips	Fuelwood	Waste	Chips	Fuelwood	Waste
<i>Thousand cubic feet, Scribner</i>									
2005	2,950	1,850	1,006	2,950	1,850	1,006	2,950	1,850	1,006
2011	1,130	871	649	1,130	871	649	1,130	871	649
2015	1,746	1,126	647	1,746	1,126	647	1,746	1,126	647
2019	1,791	1,079	542	1,791	1,079	542	1,791	1,079	542
2025	1,731	1,053	539	1,808	1,092	552	1,808	1,092	552
2030	1,748	1,107	616	1,904	1,187	642	1,904	1,187	642
2035	1,765	1,134	648	1,921	1,214	674	1,921	1,214	674
2040	1,782	1,215	770	1,938	1,296	796	1,938	1,296	796

Shaded values are from Simmons et al. (2024). Estimates do not include logging residues or any nonsawtimber logs left on the harvest site. Projected volumes are estimated from modeled product assumptions.

Comparisons Among Tongass Timber Demand Studies

The changes in the Alaska timber market over the past 35 years reflect the relentless nature of economic and policy realities. It is not only changes in southeast Alaska but a mix of local, national, and international private sector and governmental decisions that have led to the economic changes the Alaska timber market faces. Over the past decades, the U.S. forest sector has changed from primarily obtaining wood from dispersed natural forests to primarily obtaining wood from managed forests growing on a smaller portion of the landscape. Within the same period, forest products manufacturing has shifted to larger, more efficient mills that focus on commodity lumber and engineered wood products and use more homogeneous log inputs. Although in the past, mills in the Pacific Northwest were typically located near the forest resource, current manufacturing facilities tend to be located near urban areas convenient to consumers (e.g., Crandall et al. 2025). In addition, in the 1990s, two pulp mills central to the timber market in southeast Alaska closed. All these dynamics work against Alaskan manufacturers as they sell into local markets and try to find select high-value products for export or shipment to mainland domestic markets. Also at play is the volatile nature of trade flows that are often determined more by national policies than economic or market considerations. The Chinese ban on softwood log imports in 2025 is a recent example of such governmental actions.

The differing potential futures that we studied and the consistent decline in projected demand for Tongass National Forest timber from the six Tongass timber demand studies (table 5) reflect continuing evolution in the present and potential future conditions facing the southeast Alaska timber market. Each of the previous studies represents different considerations about potential future market conditions and industry structure that reflected expectations at the time. In Brooks and Haynes (1990), projections

assumed continued production at the two pulp mills in southeast Alaska and long-term timber sale contracts from the Tongass National Forest. The projections of Brooks and Haynes (1994) assumed only one pulp mill remained open in southeast Alaska. The projections of Brooks and Haynes (1997) accounted for no pulp mills in southeast Alaska but considered expansions in lumber production in southeast Alaska to partially offset lost production in the Pacific Northwest from protections for spotted owl (*Strix occidentalis*) habitat. That study also assumed the development of industrial facilities that used pulp chips produced by southeast Alaska sawmills. The projections of Brackley et al. (2006) and Daniels et al. (2016) assumed only a limited expansion of local lumber production. Our projections (this study) assume limited local production and modest log exports.

Table 5—Derived demand for Tongass National Forest timber under six demand studies, select years

Period	Brooks and Haynes (1990)	Brooks and Haynes (1994)	Brooks and Haynes (1997)	Brackley et al. (2006): scenario 1	Daniels et al. (2016): scenario 1	This study: scenario 1
<i>Million board feet, Scribner</i>						
1985	281.0	281.0	281.0	281.0	281.0	281.0
1990	414.0	414.0	414.0	414.0	414.0	414.0
1995	404.0	300.0	192.0	200.2	200.2	200.2
2000	403.0	315.0	113.0	93.3	93.3	93.3
2005	397.0	332.0	152.0	30.0	46.6	46.6
2010	401.0	335.0	174.0	34.7	35.6	35.6
2015	—	—	—	38.7	40.9	59.5
2020	—	—	—	43.0	44.5	19.4
2025	—	—	—	46.7	44.0	17.5
2030	—	—	—	—	46.4	15.0
2035	—	—	—	—	—	15.3
2040	—	—	—	—	—	15.8

— = no data.

Bold cells represent model future projections for that study.

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Appendix: Softwood Log Export Volumes and Conversion Coefficients

Log exports from Pacific Coast customs districts from the Production Prices Employment and Trade database (Maher 2024) are shown in table A.1 and figure A.1. Log export volume for each U.S. state is approximated based on U.S. International Trade Commission reporting on customs districts: Oregon (Columbia-Snake Customs District), Washington (Seattle Customs District), and Alaska (Anchorage Customs District). Some harvest is transported across customs districts or state borders, but these estimates do not account for this trade flow.

Table A.1—Softwood log export volume from Alaska, 2013 through 2024

Year	Canada	China	Japan	South Korea
	Percent			
2013	2	71	11	16
2014	1	75	17	7
2015	0	76	16	7
2016	0	83	9	8
2017	0	78	12	10
2018	5	78	11	6
2019	3	74	15	8
2020	6	83	6	4
2021	10	80	10	0
2022	12	86	2	0
2023	2	94	5	0
2024	0	95	5	0

Totals may not add to 100 percent because of rounding.

Data source: Maher (2024).

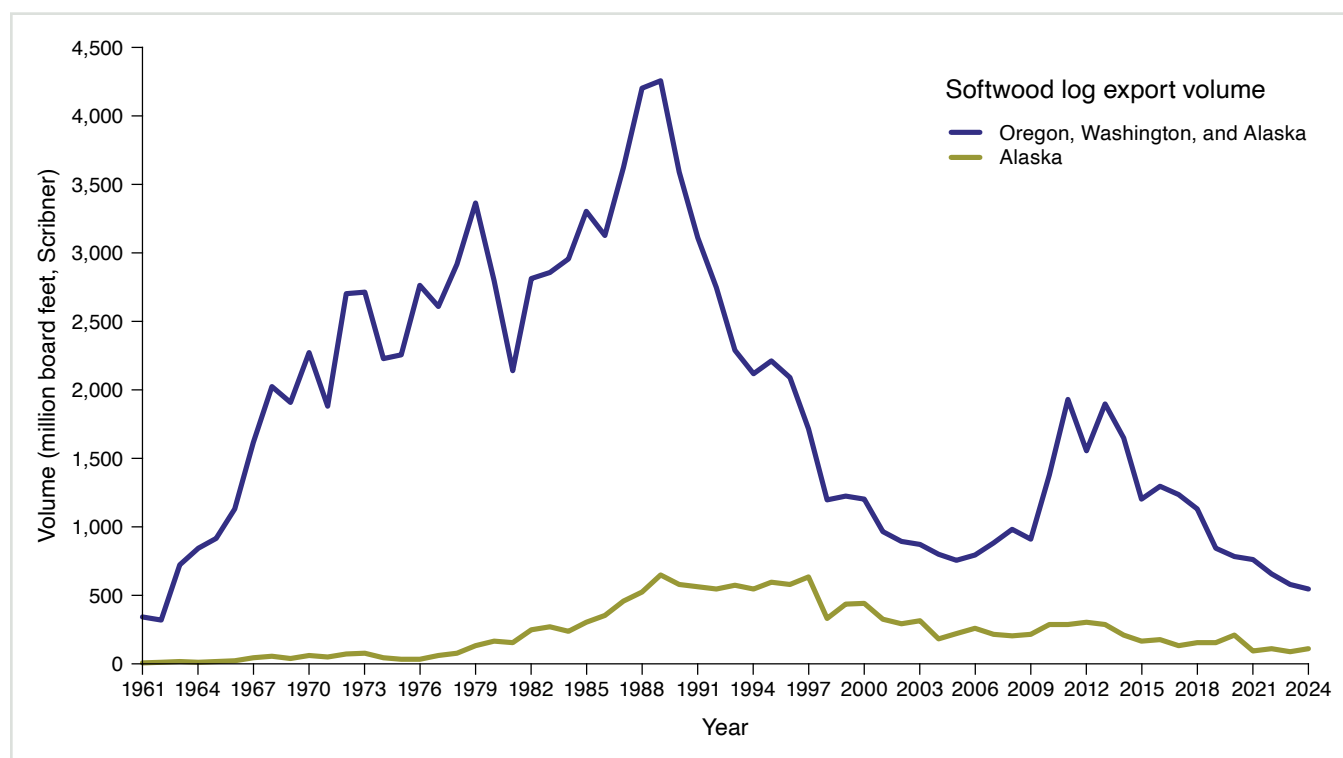


Figure A.1—Total softwood log export volume from Oregon, Washington, and Alaska, and Alaska only. Source: Maher (2024).

Table A.2—Conversion factors used in this study

Conversion	Factor	Citation (if applicable)
Overrun (lumber scale/log scale)	1.33	Simmons et al. (2024)
Board feet/cubic feet	4.89	Simmons et al. (2024)
Lumber recovery factor (lumber scale, board feet/cubic feet)	6.50	N/a
Weight (pounds)/cubic feet	28.5	N/a
Export (clean) chip volume/(short) tons	70.17	N/a
House logs (cubic feet/linear feet)	2.17	N/a
Residues, fuelwood (pounds/unit)	3,600	N/a
Residues, dirty chips (cubic feet/unit)	126.3	N/a

N/a = not applicable.

Table A.3—Projected uses of harvested Tongass National Forest sawtimber under three study scenarios

Scenario	Year	Lumber production	Log exports	Chip exports	House logs	Miscellaneous	Fuelwood	Total
<i>Million board feet, Scribner</i>								
Scenario 1	2025	6.2	9.1	0.0	0.1	0.1	2.0	17.5
	2030	4.3	9.1	0.0	0.1	0.1	1.4	15.0
	2035	4.5	9.1	0.0	0.1	0.1	1.4	15.3
	2040	4.9	9.1	0.0	0.1	0.2	1.5	15.8
Scenario 2	2025	7.3	11.6	0.0	0.1	0.1	2.0	21.1
	2030	6.5	11.6	0.0	0.1	0.1	1.4	19.7
	2035	6.8	11.6	0.0	0.1	0.1	1.4	20.0
	2040	7.1	11.6	0.0	0.1	0.2	1.5	20.5
Scenario 3	2025	7.3	9.1	0.0	0.1	0.1	2.0	18.6
	2030	6.2	39.1	0.0	0.1	0.1	1.2	46.7
	2035	6.2	59.1	0.0	0.1	0.1	1.2	66.7
	2040	6.3	80.2	0.0	0.1	0.2	1.2	87.9

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