

# USING TPO DATA TO ESTIMATE TIMBER DEMAND IN SUPPORT OF PLANNING ON THE TONGASS NATIONAL FOREST

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**Abstract**—Projections of Alaska timber products output, the derived demand for logs, lumber, residues, and niche products, and timber harvest by owner are developed by using a trend-based analysis. This is the fifth such analysis performed since 1990 to assist planners in meeting statutory requirements for estimating planning cycle demand for timber from the Tongass National Forest. Results reflect the consequences of recent changes in the Alaska forest sector and trends in markets for Alaska products. Demand for Alaska national forest timber currently depends on markets for sawn wood and exports of softwood logs. Three scenarios are presented that display a range of possible future market conditions. The model was most sensitive to changes in Pacific Rim log demand. Areas of uncertainty include the prospect of continuing changes in markets and competition, the impact of the young growth transition, and the rates of investment in manufacturing in Alaska.

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## INTRODUCTION

The Tongass Timber Reform Act (TTRA, 1990) states that the Secretary of Agriculture will “... seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the market demand for timber from such forest for each planning cycle.” Although all national forests are required to estimate demand for timber during forest planning efforts, the “seek to meet” requirement is unique to the Tongass. The Pacific Northwest Research Station has been asked to assist planners in meeting the TTRA requirement for estimating planning cycle demand for timber from the Tongass National Forest. Current efforts were initiated by evolving USDA policy encouraging the harvest of younger second-growth forest stands. The Pacific Northwest Research

Station has published four previous studies in support of Tongass Land Management planning efforts. Brooks and Haynes (1990), Brooks and Haynes (1994), Brooks and Haynes (1997), and Brackley et al. (2006) all estimated demand for forest products from Southeast Alaska and projected the volume of timber required to satisfy that demand given harvest by other owners and assumptions about future market conditions. In the past, a dearth of reliable published data for the forest sector in Alaska meant that results were highly uncertain. However, two FIA Timber Products Output reports for the Alaska wood processing industry have been published since the last analysis (Halbrook et al. 2005, Berg et al. 2014). These provided data on the relationship between timber harvest and end markets not available for previous studies. Results will be used by the Alaska Region (R10) as an input in calculations of annual demand for Tongass timber, and to inform efforts to amend the Tongass Land Management Plan.

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## STUDY AREA

The study area is Southeast Alaska, defined as the boroughs of Haines, Skagway-Hoonah-Angoon, Juneau, Sitka, Wrangell-Petersburg, Ketchikan Gateway, and Prince of Wales-Outer Ketchikan.

## METHODS

Estimates of derived demand for Tongass National Forest timber were developed in four stages: (1) historic estimates of Southeast Alaska timber products output (by product market and destination) are gathered and projected to the year 2030; (2) the raw material requirements necessary to support this output are calculated by using explicit product recovery and conversion factors; (3) the timber harvest equivalent is calculated and allocated by timber owner; and (4) the analysis is repeated to estimate the impact on harvest from a baseline and three hypothesized alternative management scenarios.

After assembling the historic data sets necessary to represent SE AK timber markets, we developed a

baseline model based on projections and market shares for each market served by SEAK producers for the period 2015-2030. The baseline model was used to construct three management scenarios representing alternative futures for timber harvest in Southeast Alaska. The first scenario (S1) establishes a timeline for the young growth transition that reflects the current state of knowledge of regional forest managers. The second scenario retains the assumptions from S1, but builds in an expansion of demand for mill residue and utility logs for growing wood energy markets. Scenario 3 also retains the young growth transition assumptions from S1, but adds the recovery of the housing industry in the United States with corresponding increased demand for logs and lumber for construction.

## RESULTS

Table 1 shows the timber harvest volume from the Tongass National Forest necessary to meet projected demand for each management scenario. Incorporating the young growth transition caused harvest to decline in 2025 in all scenarios. Scenario 2, which calls for a rapid

**Table 1—Projected harvest from the Tongass National Forest, 2015 to 2030, for three potential management scenarios (mbf, log scale).**

Year	Baseline scenario	Scenario 1: young growth transition (YGT)	Scenario 2: YGT + wood energy expansion	Scenario 3: YGT + US housing expansion
2015	40,858	40,858	40,858	40,784
2016	41,592	41,592	41,592	41,625
2017	42,325	42,325	43,382	42,466
2018	43,059	43,059	46,301	43,308
2019	43,792	43,792	49,220	44,149
2020	44,526	44,526	52,138	44,990
2021	45,259	45,259	55,057	45,831
2022	45,993	45,993	57,976	46,673
2023	46,726	46,726	60,894	47,514
2024	47,460	47,460	63,813	48,355
2025	48,193	44,034	62,980	45,037
2026	48,927	44,508	65,665	45,619
2027	49,661	44,983	68,350	46,201
2028	50,394	45,457	71,035	46,784
2029	51,128	45,932	73,720	47,366
2030	51,861	46,406	76,405	47,948

expansion of wood energy demand for space heating, results in the greatest increase in harvest, reaching almost 25 million board feet over the baseline. Scenarios 1 and 3 have nearly the same impact on harvest, suggesting that demand from expanding housing markets in the US may not offset the losses from the young growth transition relative to the baseline.

## DISCUSSION

Three different scenarios display alternative futures for Southeast Alaska and all incorporated the young growth transition on the Tongass National Forest. Taking these changes into account, our projections of the average demand for Tongass timber over the next 15 years (2015 to 2030) range from 46 to 76 million board feet. Whether Alaskan products will remain competitive during the young growth transition will depend on a variety of factors. The emergence of bioenergy markets could increase the profitability of operations owing to increased utilization of low quality material, especially utility grade logs and mill residues. Although economic feasibility will depend on capital investment and product prices, Southeast Alaska producers may find it difficult to compete with British Columbia in international markets. In addition, transportation challenges make it difficult for Southeast producers to ship material within Alaska itself. There is tremendous interest in developing markets for value added niche products. Whether demand for these products could be sufficient to sustain a timber industry in Southeast Alaska will likely be the subject of debate for many years to come.

The greatest challenge to this analysis was locating data on the Alaska forest products sector. In many cases, the most recent data were from 2011. Disclosure and confidentiality issues abound, owing to an industry structure characterized by a small number of producers. Traditional sources of international trade data were of little use because of confounding

problems with transshipments, conversion factors, and that trade data showed that export volume exceeded reported harvest volume by a significant amount. TPO reports are invaluable to understanding trends in forest industry across the western United States and were crucial to completing the 2015 Tongass timber demand analysis.

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## LITERATURE CITED

- Berg E.C.; Gale, C.B.; Morgan, T.A.; Brackley, A.M.; Keegan, C.E.; Alexander, S.J.; Christensen, G.A.; McIver, C.P.; and M.G. Scudder. 2014. Alaska's timber harvest and forest products industry, 2011. Gen. Tech. Rep. PNW-GTR-903. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 39 p.
- Brooks, D.J. and R.W. Haynes. 1990. Timber products output and timber harvests in Alaska: projections for 1989-2010. Gen. Tech. Rep. PNW-GTR-261. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 48 p.
- Brooks, D.J. and R.W. Haynes. 1994. Timber products output and timber harvests in Alaska: projections for 1992-2010. Gen. Tech. Rep. PNW-GTR-334. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 48 p.

Brooks, D.J. and R.W. Haynes. 1997. Timber products output and timber harvests in Alaska: projections for 1997-2010. Gen. Tech. Rep. PNW-GTR-409. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 17 p.

Brackley, A.M., Rojas, T.D., and R.W. Haynes. 2006. Timber products output and timber harvests in Alaska: projections for 2005-2025. Gen. Tech. Rep. PNW-GTR-677. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 33 p.

Halbrook, J.M.; Morgan, T.A.; Brandt, J.P.; Keegan, C.E., III; Dillon, T.; and T.M. Barrett. 2009. Alaska's timber harvest and forest products industry, 2005. Gen. Tech. Rep. PNW-GTR-787. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 30 p.