Estimating the FY 2024 Range of Expected Tongass National Forest Timber Purchase and Sale Offer

Key Message

The Tongass National Forest, in compliance with the 1990 Tongass Timber Reform Act (Public Law 101-626), seeks to provide an annual supply of timber to meet market demand to the extent consistent with providing for multiple use and sustained yield of all renewable forest resources.

Issue

The 1997 Record of Decision for the *Tongass Land and Resource Management Plan* committed the Forest Service to develop procedures to ensure annual timber sale offerings are consistent with implementing the "seek to meet market demand" language of the Tongass Timber Reform Act. In April 2000, the Forest Service published its procedures in *Responding to the Market Demand for Tongass Timber: Using Adaptive Management to Implement Section 101 of the 1990 Tongass Timber Reform Act*[1] .

The Forest Service Pacific Northwest Research Station has published several studies that estimate long term derived demand for timber in Southeast Alaska, most recently, Daniels et al. (2016)[2]. The long-term derived demand projections from Daniels et al. (2016) were incorporated into the Morse Method and used to estimate Tongass National Forest timber sale offering for fiscal year 2024. A new long term derived demand analysis was initiated in January 2024 to support Tongass National Forest Plan revision efforts.

Background

The Morse Method continues to be used to estimate annual Tongass National Forest timber sale offerings. The general approach of the Morse Method is to consider the timber requirements of Southeast Alaska's sawmills at different levels of operation and under different assumptions about market conditions and technical processing capacity. The procedures address the uncertainty associated with forecasting market conditions, the continuing transformation of the timber industry, and the inability of the Forest Service to respond quickly to market fluctuations due to the time involved in preparing timber for sale.

The method allows for adaptation to current situations. Since the Morse Method was developed in 2000, model inputs have been adjusted to reflect new understanding and information, such as share of raw material provided by the Tongass National Forest to local processors, amount of time between timber sale purchase and harvest, and sawmill capacity. Several changes and noteworthy events impacted results of the FY2024 model. Lack of response to the annual Southeast Alaska sawmill survey conducted by Alaska Region staff continues to introduce uncertainty in the sawmill capacity, utilization rate, and Forest Service share of industry raw material calculations (Model Elements A, B, and C). Like calendar year 2022, the useable wood input (Model Element D) was adjusted because the volume of log exports (16,863 MBF) exceeded total harvest (16,640 MBF). This result is explained by the sizeable volume of Tongass young growth Sitka spruce timber exported as logs from Good Neighbor Authority sales administered by the State of Alaska. To account for this in the model, the proportion of Sitka spruce exported as logs was adjusted from 113% to 100%. For fiscal year 2024, Model Element H (probability of meeting consumption) remains at 80% to account for modest timber offerings in the prior year.

As reflected in the model, planning the annual timber program requires more than economic factors. Budget and organizational constraints such as delays in timber sale preparation, policy changes, administrative

[1] https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd560110.pdf
[2] Daniels, J.M.; Paruszkiewicz, M.D.; Alexander, S.J. 2016. Tongass National Forest timber demand: projections for 2015 to 2030. Gen. Tech. Rep. PNW-GTR-934. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 53 p. View online at https://www.fs.usda.gov/treesearch/pubs/50909

appeals, and/or litigation, limit Forest Service can response to economic cycles and associated fluctuations in timber demand. These factors are included in the model to estimate annual market demand for timber.

The 2024 model results are provided in the table below. Historic reports are available at https://www.fs.usda.gov/detail/r10/landmanagement/resourcemanagement/?cid=fsbdev2_038785 .

For More Information

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Predicting Tongass National Forest Timber Purchases and Offer Levels – Fiscal Year 2024

Model Item	Description	Notation	Baseline	Scenario 1 Young Growth Transition	Scenario 2 Wood Energy Growth	Scenario 3 Housing Market Rebound
Demand						
A	Installed and Operable Sawmill Capacity [MMBF, Log Scale]	A	128	128	128	128
B	Industry Rate of Capacity Utilization	B	13%	13%	13%	13%
C	Share of Industry Raw Material Provided by Tongass National Forest	C	35%	35%	35%	35%
D	Percent of Useable Wood in Average Tongass National Forest Timber Sale	D	99%	99%	100%	99%
E	Annual Tongass National Forest Timber Consumption [MMBF, Theoretical]	E = ((A*B)*C)/D	6	6	6	6
F	Average Lead Time [Years]	F	1.34	1.34	1.34	1.34
G	Standard Deviation of Lead Time [Years]	G	1.05	1.05	1.05	1.05
H	Probability of Meeting Consumption [One-Tailed t-Test for 80% at Infinity]	H	0.84	0.84	0.84	0.84
I	Timber Inventory Requirements [MMBF]	I = (E*G) + ((E*H)*F)	12.7	12.7	12.7	12.7
J	Volume Under Contract [MMBF]	J	23	23	23	23
K	Projected Harvest [MMBF], 2024 [per PNW Research Station]	K	47	47	64	48
L	Projected Inventory Shortfall [MMBF]	L = I - J	-10	-10	-10	-10
M	Low Range of Expected Timber Purchases [MMBF], FY24	M = if L < 0, K + L, else K	37	37	54	38
N	High Range of Expected Timber Purchases [MMBF], FY24	N = if L < 0, K, else K + L	47	47	64	48
O	Expected Timber Purchases, FY24	O = median (M:N)	42	42	59	43
Offer						
P	Difference Between Volume Offered and Sold	P	24%	24%	24%	24%
Q	Offer Needed to Meet Volume Under Contract (VUC) Objectives	Q = O + (P*O)	52.5	52.5	72.8	53.6

Notes on model item data and calculations:

A. CY23 from Southeast Alaska mill survey, held constant over scenarios. Estimated from equipment installed in the mills, based on industry standard 250-day per year, two shifts per day annual operating schedule.
B. Five-year average from mill surveys held constant over scenarios
C. Five-year average from mill surveys held constant over scenarios
D. With Limited Export Policy (2007), all timber considered "useable" minus utility.
E. Auto calculation
F. Amount of time needed to replenish inventory. Sales selected for inclusion based on 1) Sale volume over 50 MBF; 2) Award date = FY16 to present. Excludes settlement, non-resource stewardship (IRSC), defaults, and study sales. Held constant over scenarios
G. Auto calculation
H. Statistical t-distribution critical value p value for one-tailed t-test
I: Auto calculation
J: Sum of Tongass remaining volume under contract as of December 31, 2023 held constant over scenarios
K: Projected Tongass harvest for 2024, Table 5 from Daniels et al. (2016)
L: Auto calculation
M: Auto calculation
N: Auto calculation
O: Auto calculation
P: Ten-year average of difference between Tongass timber offered and sold held constant over scenarios
Q: Auto calculation