



Topic: Estimating the Range of FY19 Expected Tongass National Forest Timber Purchase and Sale

Date: May 10, 2019

Contact: Dave Harris, Alaska Region

Phone: 907-586-7875

Email: dave.harris@usda.gov

Issue Summary:

Annual demand for timber from the Tongass National Forest is estimated to be 52 MMBF for FY2019, down from the FY2018 estimate of 58 MMBF. Since last year, several changes have contributed to the decline in volume for FY2019. These changes were incorporated into the Morse Method model, with both positive and negative impacts on annual demand calculation results, including:

- The share of industry total raw material provided from the Tongass National Forest dropped from 99 percent in FY2017 to 54 percent in FY2018. The previous 5-year average share was 87 percent from the Tongass National Forest and 12.8 percent from state lands. It is too early to tell if this major deviation from long-term trend will be sustained or if it represents a one-time departure from trend.
- Markets in southeast Alaska are small and especially volatile to changes in timber supply. Because the future share of material originating on state lands is uncertain, the Morse model input D was adjusted to the 5-year average Tongass share from 2013-2017 (80 percent), buffering impact on annual demand model results.
- The reduced share of raw material originating from the Tongass caused timber inventory required (model item I) to fall from 56 MMBF to 33 MMBF. When inventory falls, demand decreases, all else equal.
- Timber volume under contract (VUC) declined from 83 MMBF to 65.7 MMBF in FY2018. Tongass sales with remaining VUC declined from 42 in FY2017 to 33 sales in FY2018. VUC is a measure of future inventory and when VUC falls, demand increases, all else equal.
- The projected inventory shortfall of 10 MMBF for FY2018, down from 1 percent in FY 2017, decreased demand, all else equal.
- Long term projections in Daniels et al. (2016) show demand rising by 1 MMBF from 2018 to 2019, which triggers a 1 MMBF increase in model item K in the annual demand model.

Background:

The USDA Forest Service, in compliance with the Tongass Timber Reform Act (1990), *must seek to provide an annual supply of timber from the Tongass National Forest to meet market demand* to the extent consistent with providing for multiple use and sustained yield of all renewable forest resources. The 1997 Record of Decision for the Tongass Land and Resource Management Plan revision committed the Forest Service to develop procedures to ensure annual timber sale offerings would be 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* (Morse, 2000a). The Forest Service Pacific Northwest Research Station has published several studies that estimate derived demand for timber in Southeast Alaska, most recently, Daniels et al. (2016). The derived demand projections from Daniels et al. (2016) were incorporated into the Morse Methodology and used to estimate the volume of Tongass National Forest timber sale offerings for fiscal year 2019.

The **Morse Method** is a model used to estimate needed annual Tongass National Forest timber sale offering. The general approach of the Morse Methodology 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. Planning the annual timber program requires more than economic indicators. The model addresses the uncertainty associated with forecasting market conditions, considering the continuing transformation of the timber industry and the inability of the Forest Service to respond quickly to market fluctuations due to the time required to prepare and sell timber. Since the Morse Method was initially developed in 2000, inputs to the model adjusted to reflect new data and information, such as the share of raw material provided by the Tongass National Forest to local processors, amount of time between timber





sale purchases and harvest, and sawmill capacity. The model accounts for delays in timber sale preparation, objections, and/or litigation, and contingency volume that must be included to account for realistic rates of fall-down. Budget and organizational constraints limit the extent that the Forest Service can respond to economic cycles and the associated fluctuations in timber demand. The Morse Method adds flexibility to respond to changing market conditions when setting annual timber offerings from the Tongass National Forest.

Predicting Likely Tongass National Forest Timber Purchases and Offer Levels – Fiscal Year 2019

Model Item	Description	Notation	Baseline ¹	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	114	114	114	114
B	Industry Rate of Capacity Utilization ²	b	24%	24%	24%	24%
C ³	Share of Industry Raw Material Provided by Tongass National Forest	c	80%	80%	80%	80%
D	Percent of Useable Wood in Average Tongass National Forest Timber Sale	d	79%	79%	79%	79%
E	Annual Tongass National Forest Timber Consumption [MMBF, Theoretical]	$e = ((a*b)*c)/d$	28	28	28	28
F	Standard Deviation of Lead Time [Years]	f	0.65	0.65	0.65	0.65
G	Average Lead Time [Years]	g	1.19	1.19	1.19	1.19
H	Probability of Meeting Consumption [One-Tailed Test for 90% at Infinity]	h	1.28	1.28	1.28	1.28
I	Timber Inventory Requirements [MMBF]	$i = (e*g)+((e*h)*f)$	56	56	56	56
J	Volume Under Contract [MMBF]	j	66	66	66	66
K	Projected Harvest [MMBF], 2019 [per PNW]	k	44	44	49	44
L	Projected Inventory Shortfall [MMBF]	$l = i - j$	-10	-10	-10	-10
M	Low Range of Expected Timber Purchases [MMBF], FY18	$m = \text{if } l < 0, k + 1, \text{ else } k$	34	34	39	34
N	High Range of Expected Timber Purchases [MMBF], FY18	$n = \text{if } l < 0, \text{ else } k + 1$	44	44	49	44
O	Expected Timber Purchases, FY2019	$o = \text{median}(m:n)$	39	39	44	39
Offer						
P	Fall-Down Between Volume Offered and Sold	p	33%	33%	33%	33%
Q	Offer Needed to Meet Volume Under Contract (VUC) Objectives	$q = o+(p*o)$	52	52	59	52

Note: Table information represents fiscal year 2018 data and may not represent current fiscal year data.

¹Baseline included for illustrative purposes only and should not be used for project planning or decision-making.

²Based on standard 250-day per year, two shifts per day annual operating schedule

³ Calculated as the 5-year average share from 2012-2017.

