# Estimating the 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), must seek 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 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)[1]. The derived demand projections from Daniels et al. (2016) were incorporated into the Morse Methodology and used to estimate needed Tongass National Forest timber sale offering for fiscal year 2021.

## Background

The Morse Methodology is used to estimate annual Tongass National Forest timber sale offerings. 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. 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 it takes to prepare timber for sale.

Since the Morse Methodology was initially developed in 2000, inputs to the model 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 purchase and harvest of a timber sale, and sawmill capacity. The methodology allows for adaptations to current situations. For FY21, the model has been modified in three ways. First, fuelwood was added as an industry use for harvested material to explicitly include market demand for wood energy products in Southeast Alaska. The volume of timber harvested for fuelwood has been growing over time, which supports inclusion in the Morse annual demand model. Second, spruce and hemlock species were decoupled to improve tracking of trends of usable wood calculations at the individual species level. Lastly, the time frame for calculations for useable wood has been adjusted so that all inputs are delineated in calendar years. These changes respond to current conditions and were reviewed by subject matter experts and resource specialists before finalizing results. Overall, these changes resulted in an additional 0.8 MMBF of required timber offerings, a difference of 1.6 percent.

As indicated in the model, planning the annual timber program requires more than merely economic factors. To account for delays in timber sale preparation, objections, and/or litigation, sufficient contingency volume must be included in the annual timber sale program. Furthermore, budget and organizational constraints limit the extent to which the Forest Service can respond to economic cycles and the associated fluctuations in timber demand. All of these factors must be considered in evaluating the annual market demand for timber and setting annual timber offerings.

[1] 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

# Estimating the Range of Expected Tongass National Forest Timber Purchase and Sale Offer, FY21

## For More Information:

Brie Darr
Director of Natural Resources, Alaska Region
(907) 738-5767
bridget.s.darr@usda.gov

**Predicting Likely Tongass National Forest Timber Purchases and Offer Levels – Fiscal Year 2021**

| 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 | 135 | 135 | 135 | 135 |
| **B** | Industry Rate of Capacity Utilization[2] | B | 14% | 14% | 14% | 14% |
| **C** | Share of Industry Raw Material Provided by Tongass National Forest | C | 68% | 68% | 68% | 68% |
| **D** | Percent of Useable Wood in Average Tongass National Forest Timber Sale | D | 94% | 94% | 94% | 94% |
| **E** | Annual Tongass National Forest Timber Consumption [MMBF, Theoretical] | E = ((A*B)*C)/D | 14 | 14 | 14 | 14 |
| **F** | Standard Deviation of Lead Time [Years] | F | 0.78 | 0.78 | 0.78 | 0.78 |
| **G** | Average Lead Time [Years] | G | 0.93 | 0.93 | 0.93 | 0.93 |
| **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) | 27 | 27 | 27 | 27 |
| **J** | Volume Under Contract [MMBF] | J | 43 | 43 | 43 | 43 |
| **K** | Projected Harvest [MMBF], 2021 [per PNW] | K | 45 | 45 | 55 | 46 |
| **L** | Projected Inventory Shortfall [MMBF] | L = I - J | -16 | -16 | -16 | -16 |
| **M** | Low Range of Expected Timber Purchases [MMBF], FY21 | M = if L < 0, K + L, else K | 29 | 29 | 39 | 30 |
| **N** | High Range of Expected Timber Purchases [MMBF], FY21 | N = if L < 0, K, else K + L | 45 | 45 | 55 | 46 |
| **O** | Expected Timber Purchases, FY21 | O = median (M:N) | 37 | 37 | 47 | 38 |
| **Offer** | | | | | | |
| **P** | Fall-Down Between Volume Offered and Sold | P | 34% | 34% | 34% | 34% |
| **Q** | Offer Needed to Meet Volume Under Contract (VUC) Objectives | Q = O + (P*O) | 49.8 | 49.8 | 62.9 | 50.4 |

Note: Table information represents fiscal year 2020 data and may not represent current fiscal year data.
[1]Baseline included for illustrative purposes only and should not be used for project planning or decision-making.
[2]Based on standard 250-day per year, two shifts per day annual operating schedule.