

Predicting likely timber purchases and offer levels on the Tongass National Forest—Fiscal Year 2012

January 24 2012

Elements	Notation	Limited Lumber	Expanded Lumber	Medium Integrated	High Integrated
Demand					
A. Installed and operable mill capacity (MMBF, log scale)	a	116	116	116	116
B. Industry rate of capacity utilization	b	33%	45%	66%	70%
C. Share of industry raw material provided by the Tongass	c	87%	87%	87%	87%
D. Percent usable wood in average NF timber sale	d	55%	65%	89%	89%
E. Annual Tongass timber consumption (MMBF, theoretical)	$e=((a*b)*c)/d$	61	70	75	80
F. Standard deviation of lead time (years)	f	1.03	1.03	1.03	1.03
G. Average lead time (years)	g	1.05	1.05	1.05	1.05
H. Prob. of meeting consumption (one-tailed test for 90% at infinity)	h	1.28	1.28	1.28	1.28
I. Timber inventory requirements (MMBF)	$i=(e*g)+((e*h)*f)$	144	166	178	189
J. Volume under contract as of September 30, 2011 (MMBF)	j	105	105	105	105
K. Projected harvest (MMBF), FY 12 from PNW	k	54	91	204	286
L. Projected inventory shortfall (MMBF)	$l=i-j$	39	61	73	84
M. Low range of expected timber purchases (MMBF), FY 12	$m=\text{if } l < 0, k+l, \text{ else } k$	54	91	204	286
N. High range of expected timber purchases (MMBF), FY 12	$n=\text{if } l < 0, k, \text{ else } k+l$	94	151	277	370
O. Expected timber purchases, FY 12	$o=\text{median}(m:n)$	74	121	241	328
Offer					
P. Fall-down between volume offered and volume sold	p	10%	5%	2%	2%
Q. Required offered to meet VUC sell objectives (MMBF), FY 12	$q=o+(p*o)$	81	127	245	335

Table 1. Estimate of Mill Capacity and Utilization for FY 2012 (model item A-C)

MANUFACTURING FACILITY NAME	MILL LOCATION	POTENTIAL CAPACITY (1) (MBF)	ACTUAL SAWN (MBF)	PERCENT FS (%)	VOLUME FS (MBF)
D&L Woodworks	Hoonah	1,750	120	100%	120
Icy Straits Lumber Co., Inc.	Hoonah	500	500	0%	0
Northern Star Cedar Products (2 companies)	Thorne Bay	9,000	250	0%	0
Porter Lumber Co.	Thorne Bay	2,500	30	100%	30
Falls Creek forest products	Petersburg	3,000	30	100%	30
The Mill	Petersburg	6,000	20	80%	16
Thorne Bay Wood Products	Thorne Bay	5,000	600	90%	540
Thuja Plicata Lumber Co.	Thorne Bay	7,500	165	88%	145
Viking Lumber Co.	Craig	80,000	13,892	91%	12,642
St Nick Forest Products	Craig	1,000	200	90%	180
		116,250	15,807	87%	13,703
Assumed Rate of Utilization MBF (limited lumber scenario) (2)			33%	38,363	
Assumed Rate of Utilization MBF (expanded lumber scenario)			45%	52,313	
Assumed Rate of Utilization MBF (medium integrated scenario)			66%	76,725	
Assumed Rate of Utilization MBF (high integrated scenario)			70%	81,375	

1. Mill capacity is based on 2 shifts per day for 250 days per year.

2. Assumed rates of utilization based Alaska State Forester's 2006 survey of mill owners for limited lumber scenario, Morse (October 2000), and on discussions with Chuck Kegan, Bureau of Business and Economic Research, University of Montana.

Table 1 Notes: Northern Star Cedar is comprised of Northern Star Cedar and Western Gold Cedar Products companies. The third company, Thorne Bay Enterprises, burned down in 2010. The owners of Thorne Bay Enterprises appear to be planning to rebuild the sawmill. Viking Lumber Co. is eliminated because the owner is parting out the sawmill and selling it. Icy Straits sawmill remains in the calculation although the primary sawmill itself was destroyed in 2010, the owners plan to rebuild, and the remaining facilities (finishing, storage, kiln, small sawmill etc) are intact.

Table 2a. Timber Utilization in Southeast Alaska Sawmills (model item D)

Species/Grade	Use by SE Alaska Ind.	limited	expanded	medium	
		lumber	lumber	integrated	high
		scenario	scenario	scenario	scenario
Alaska Yellow Cedar (1)	Exported in Round Log	3%	3%	3%	3%
Western Red Cedar (2)	Exported in Round Log	8%	8%	8%	8%
Low Grade Sawtimber (3)	Exported or Chipped	21%	11%	0%	0%
Utility (4)	Chip,Export,Wood Residue	13%	13%	13%	13%
Higher Grade Sawtimber	Processed Locally	55%	65%	76%	76%
Total		100%	100%	100%	100%

Table 2b. Volume Harvested by Species, fiscal years 2007 through 2011

Species	FY 07	FY08	FY09	FY10	FY11	Five year	
						Annual Avg	Percent
Yellow Cedar (saw timber)	1,376	1,474	2,121	1,868	2,419	1,852	6.5%
Spruce/Hemlock (saw timber)	12,645	18,974	20,033	23,883	16,571	18,421	64.6%
Red Cedar (saw timber)	765	3,597	3,134	4,526	11,173	4,639	16.3%
Utility	3,807	3,946	2,882	5,028	2,357	3,604	12.6%
Total	18,593	27,991	28,170	35,305	32,520	28,516	100.0%

The percentages in Table 2a are determined by the averages in table 2b, and adjusted as in the notes below describe.

Several assumptions used in the original estimate of useable wood published in *Responding to the Market Demand for Tongass Timber, April 2000* (Table 6, page 18) have changed.

1. In the original calculation, 100% of Alaska yellow cedar was assumed to be shipped out of Alaska to domestic or foreign markets. This table assumes 50% of Alaska yellow cedar to be shipped to domestic or foreign markets, based on recent trends.

2. In the original calculation, it was assumed that 100% of western red cedar would be processed locally (no domestic shipments or foreign export). This table assumes 50% of western red cedar will be shipped out of Alaska, based on recent trends.
3. In the original calculation, about 33% of the sawlog volume was estimated to be chipped or shipped to domestic markets in the current market. This table assumes 33% would be chipped or shipped to domestic markets in the limited lumber scenario and 17% would be chipped or shipped to domestic markets under expanded lumber scenarios.
4. All utility volume will be sold but with the optional removal provision in the new sale contracts, a portion of utility volume will be left in the woods as wood residue.

Table 3. Lead Time for Timber sales (model item G)

Purchaser	Sale Name	Sale Qty. MBF	Bid	Award	1st Hvt.	Elaspsed Months
			Date MM/YY	Date MM/YY	Record MM/YY	
Viking Lumber Company	Luck Lac II	9,075	08/05	09/05	10/07	25
Alcan Forest Products	Skipping Cow	18,641	11/05	07/06	10/08	27
Viking Lumber Company	Lindenberg	23,248	11/05	12/05	03/06	3
Pacific Log and Lumber	Upper Carroll II	16,495	11/05	12/05	09/09	46
Alcan Forest Products	Red Mountain	5,955	03/06	03/06	06/07	15
Pacific Log and Lumber	Buckdance Madder Re.	15,423	02/06	05/06	10/06	5
R&R Conner Inc	Drumlin Reoffer II	1,106	05/06	06/06	05/08	23
H&L Salvage Inc	Setter Lake	684	12/06	02/07	04/08	14
Norsemen Wood	Backline	4,518	05/07	08/07	10/07	2
Viking Lumber Company	Tuxekan	14,161	08/07	09/07	09/07	0
Viking Lumber Company	Scratchings	11,337	09/07	09/07	05/09	20
Custom Cuts	Redtail Salvage	498	09/08	12/08	10/09	10
Sharp Lumber	POW Commercial Thinning	1,202	09/08	09/08	07/10	22
Ernie Eads	Single Pit	737	09/08	09/08	10/08	1
Michael B Allen Jr	Porcupine Salvage Reoffer	661	01/09	01/09	04/10	15
Viking Lumber Company	Diesel	23,853	12/09	12/09	02/10	2
Viking Lumber Company	Slake	18,839	09/10	09/10	10/10	1
Alcan Forest Products	Boundary II	755	09/10	09/10	03/11	6
Frantz Whale Bay Woods	Backline Helicopter	1,751	04/11	06/11	07/11	0
	Average Lead Time:					12.59
	Variance:					153.59
	Standard Deviation:					12.39

Data based on 1) sales over 500 MBF; 2) first harvest date = FY2007 to present; 3) excludes settlement, defaulted, non-resource stewardship (contract type not equal to 13/13T), and study sales.

Table 4. Volume under contract: Tongass National Forest remaining timber sale volume (MBF) (model item J) as of Sept. 30 2011.

Purchaser	Sale Name	Volume Estimate	Volume Cut	Volume Remaining
Alcan Forest Products LLP	Backline	4,536	1,914	2,623
Alcan Forest Products LLP	Boundary II	755	453	302
Alcan Forest Products LLP	Frenchie Stewardship	25,904	0	25,904
Alcan Forest Products LLP	Heceta Stewardship	7,557	0	7,557
Alcan Forest Products LLP	Skipping Cow	18,641	6,525	12,116
Channel Construction Inc	Checkerboard	401	0	401
Channel Construction Inc	New Bridge Reoffer	52	0	52
CSL Farm & Supply	Kosciusko Stewardship	470	240	230
Custom Cut LLC	Microsale #165	12	0	12
Custom Cut LLC	Microsale #167	10	0	10
D&L Woodworks	Divide	233	146	87
D&L Woodworks	Fish Ladder	137	0	137
D&L Woodworks	TLC2ME	124	0	124
D&L Woodworks	Two Roads Special Salvage	446	0	446
DOT/PF State of Alaska	Juneau Access Settlement	3,601	0	3,601
Eagle Wood Products	Microsale #162	4	0	4
Ernie Eads	Fishtrap Special Salvage	208	119	89
Ernie Eads	Single Pit	737	571	166
Ernie Eads	Tidal	288	0	288
Gordon Chew	Last Call Reoffer	71	17	54
Gordon Chew	Trap Mountain	101	0	101
H & L Salvage, Inc	Bogo	233	0	233
H & L Salvage, Inc	Little Rock	145	90	55
H & L Salvage, Inc	Setter Lake	684	216	468
Hecla Greens Creek	3-D Settlement	19	0	19
Hecla Greens Creek	East Ridge Settlement	246	0	246
Hecla Greens Creek	Sand Pit Settlement	171	0	171
Icy Straits Lumber & Mill	Above Road	146	0	146
Icy Straits Lumber & Mill	Boomerang	176	0	176
Icy Straits Lumber & Mill	Catfal	279	0	279
Icy Straits Lumber & Mill	Clear Water	76	0	76
Icy Straits Lumber & Mill	Midway Reoffer II	8,222	98	8,124
Icy Straits Lumber & Mill	Outback	130	0	130
Icy Straits Lumber & Mill	Pit Run	104	0	104
Icy Straits Lumber & Mill	Small Otter	200	0	200
Icy Straits Lumber & Mill	Turbo Otter	248	0	248
Icy Straits Lumber & Mill	Two Creeks	247	0	247
ISL Enterprises LLC	Mt Marsh Special Salvage	52	0	52
James Harrison	La Brea	285	0	285
James Harrison	Power Lake	410	217	193

Keith Dahl	Bound	214	0	214
Keith Dahl	North Pole	312	0	312
Keith Dahl	Twin Shovel	373	339	34
Kevin Merry	Kake Microsale #2	8	6	2
Larry Trumble	Microsale #161	9	0	9
Larry Trumble	Microsale #163	3	0	3
Michael B Allen	Cove	313	250	63
Michael B Allen	Shady	4,432	3,742	690
Michael B Allen	Wedge Resale II	203	150	53
Pacific Log & Lumber Ltd	Buckdance Madder Reoffer	15,770	12,858	2,912
Pacific Log & Lumber Ltd	Upper Carroll II	16,495	1,473	15,021
Porter Lumber	Fishsticks	140	0	140
Scott Hill Skyline Logging	Hook Reoffer	244	69	175
Scott Hill Skyline Logging	Oxbox	249	12	237
Sharp Lumber	POW Coml Thinning Study	1,202	1,027	175
St. Nick Forest Products	Goose Reoffer	218	115	103
St. Nick Forest Products	Salt	256	0	256
Steve Little	Low Ridge	160	53	107
Steven L Brown	South Line ROW Microsale	19	0	19
Thorne Bay Wood Prod.	Lake #3	210	0	210
Viking Lumber Company	Finger Point	12,229	10,591	1,637
Viking Lumber Company	Lindenberg	23,265	17,215	6,050
Viking Lumber Company	Slake	18,839	14,718	4,121
Viking Lumber Company	Summore Change	10,986	7,770	3,216
Vincent S. Schafer	Three Moose	90	16	74
Western Gold Cedar Prod.	Copper	322	0	322
Western Gold Cedar Prod	Lead	258	0	258
Whale Bay Woods LLC	Backline Helicopter	1,751	161	1,590
William Kaufman	Microsale #168	11	0	11
William Kaufman	Microsale #169	47	0	47
William L.Cheney	6367 Small Sale #2 Reoffer	48	6	42
William Thomason	Dogleg Special Salvage	242	0	242
William Thomason	Mink Tail Special Salvage	153	87	66
William Thomason	Moxie Special Salvage	217	15	202
William Thomason	Winter Harbor Stewardship	612	44	568

247,322	142,384	104,938
Current	Volume	Volume
Volume	Harvested	Remaining
Estimate		

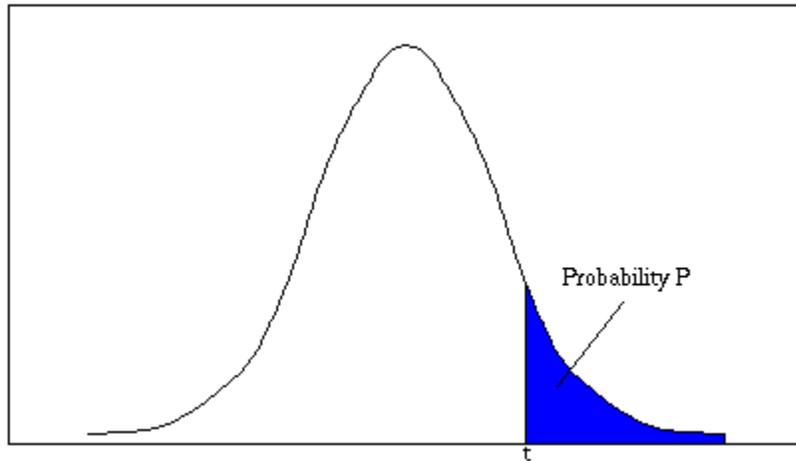
Table 5. Projected Tongass National Forest timber harvest (model item K); actual harvest (million board feet, sawlog and utility volume) (1)

Fiscal	1. Limited lumber	2. Expanded lumber	3. Medium integrated	4. High integrated
Year	scenario (2)	scenario	scenario (3)	scenario
2005	46.8	52.8	45	45
2006	48.3	57.3	55	55
2007	49.8	61.9	67	67
2008	49.8	66.4	139	139
2009	51.3	72.4	151	151
2010	52.8	78.5	166	166
2011	52.8	84.5	184	184
2012	54.3	90.5	204	286
2013	55.8	98.1	204	291
2014	57.3	105.6	204	295
2015	58.9	113.2	204	299
2016	58.9	122.2	204	303
2017	60.4	131.3	204	308
2018	61.9	140.3	204	312
2019	63.4	150.9	204	317
2020	64.9	162.3	204	325
2021	66.4	175	204	333
2022	67.9	187.1	204	342
2023	69.4	200.7	204	351
2024	70.9	215.8	204	360
2025	72.4	230.9	204	370

Adapted from Brackley, A.M.; Rojas, T.D.; Haynes, R.W. 2006. Timber products output and timber harvests in Alaska: projections for 2005-25. Gen. Tech. Rep. PNW-GTR-677. Portland, OR, USDA Forest Service, PNW Research Station.

1. Scenarios 1 and 2 are adjusted from Brackley et al. (2006) by about 34% to include utility volume (14.6%) and grade 3 volume (19.2%). Scenarios 3 and 4 are not adjusted from Brackley et al.
2. The limited and expanded lumber scenarios include saw logs, cedar exports, and chip volumes available from sawmill production in Brackley et al. but no low-grade and utility volume, so these figures are adjusted to include utility and grade 3 volume.
3. The medium and high integrated scenarios include saw logs, cedar exports, chip volumes, low-grade material, and utility in Brackley et al. These scenarios are not adjusted.

Model item H. t distribution for one-tailed test.



t distribution critical values												
	p for one-tailed test											
Degrees of freedom	0.250	0.200	0.150	0.100	0.050	0.025	0.020	0.010	0.005	0.003	0.001	0.001
inf.	0.674	0.841	1.036	1.282	1.640	1.960	2.054	2.326	2.576	2.807	3.091	3.291

Notes: For 2009 to 2012, changed probability of meeting consumption to from 99% to 90% given poor market conditions.