Southeast Alaska CROP

A Summary of CROP Landscape Analyses Results

Presented by
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SE Alaska CROP

- 1 National Forest
  (9 Ranger Districts)
- State lands
- Alaska Mental Health Trust Authority lands
- Sealaska Corporation *('09 data only)*
- 10 Boroughs and Census Areas

Tongass National Forest: Ranger Districts

Craig	Hoonah	Juneau
Ketchikan	Petersburg	Sitka
Thorne Bay	Wrangell	Yukatat

State of Alaska lands:

Haines State Forest

Other State Lands

Alaska Mental Health Trust Authority lands:

Small portions located near

Haines, Juneau, Sitka, and Ketchikan

*Sealaska Corporation lands:**

Various land holdings in SE Alaska near:

Hoonah (Chichagof Island)

Kake (Kupreanof Island)

Prince of Wales Island

* **Sealaska is an Alaska Native Regional Corporation and the first privately-held corporation to participate in a CROP study in the US. The corporation supplied removal data for 2009, with 5-year reporting potential for future SE Alaska CROP data updates.**

*10 Boroughs and Census Areas:**

Haines Borough

Hoonah – Angoon Census Area

City and Borough of Juneau

Ketchikan Gateway Borough

Prince of Wales – Outer Ketchikan Census Area

City and Borough of Sitka

Municipality of Skagway Borough

City and Borough of Wrangell

Wrangell – Petersburg Census Area

City and Borough of Yakutat

* **All were contacted and either do not own forest land and/or plan no removal over the next 5 years.**

What we asked for:

- Volume (by mmbf, green tons, ccf, etc.)
- Diameter sizes <4” 4”-7” 7”-9” 9”-12” >12”
- Species (all species evaluated for resource flow)
- Harvest “type”: fuel load reduction, timber sale, etc.
- Location of resource offering
- Road accessibility

- NEPA Phase } Federal lands

= biomass (gT) plus all defect in all diameters.

= small logs (mmbf)

= large logs (mmbf))

So, let's take a look at the final results . . .

Overall Biomass *(up to 7" dbh + high defect in all diameter sizes):*

Total Biomass (1,847,813 gT)					
Year	**<7" dbh (245,002 gT)**	**High-defect >7" – 9" (20,270 gT)**	**High-defect >9" – 12" (78,236 gT)**	**High-defect >12" (1,504,304 gT)**	**% of 5-yr volume**
2008	**10,855**	**1,862**	**8,120**	**118,378**	**8%**
2009	**88,052**	**9,001**	**25,020**	**345,085**	**25%**
2010	**49,339**	**3,565**	**16,016**	**368,054**	**24%**
2011	**45,541**	**3,091**	**14,633**	**336,535**	**22%**
2012	**51,214**	**2,750**	**14,446**	**336,250**	**22%**

Biomass = 31% of total volume

Overall Small and Large Log:

Year	Total Small Log (67.66 mmbf)	% of 5-yr volume
2008	7.46	11%
2009	21.49	32%
2010	13.53	20%
2011	12.67	19%
2012	12.51	18%

Total Large Log (774.32 mmbf)	% of 5-yr volume
60.56	8%
178.16	23%
187.57	24%
174.00	22%
174.03	22%

Small Logs = 6%
(>7” – 12” dbh; no defect)

Large Logs = 64%
(>12” dbh; no defect)

Who's providing what?

Agency	5-yr total *Biomass (gT)*	5-yr total *High-Defect (gT)*	5-yr total *Small Log (mmbf)*	5-yr total *Large Log (mmbf)*	% of 5-yr total
Tongass NF	196,979	1,415,432	29.05	645.93	82%
State of Alaska	1,600	69,700	25.18	43.94	7%
Mental Health Trust	0	68,705	4.31	60.88	7%
Sealaska Corp.	46,423	48,972	9.12	25.56	4%

Tongass NF: *(gT= 1,612,411; Small log = 29.05 mmbf; Large log = 645.93 mmbf)*

Ranger Districts	5-yr total Biomass (gT)	5-yr total High defect (gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
Craig	4,326	14,684	1.10	9.65
Hoonah	9,249	35,406	1.98	21.62
Juneau	183	1,793	.03	.78
Ketchikan	18,146	219,947	4.98	97.66
Petersburg	34,704	489,468	9.50	218.99
Sitka	541	578	.01	.26
Thorne Bay	115,145	452,482	7.52	207.05
Wrangell	14,519	201,072	3.92	89.92
Yukatat	163	0	0	0

SE Alaska CROP

State of Alaska: *(gT = 71,300; Small log = 25.18 mmbf; Large log = 43.94 mmbf)*

State Lands	5-yr total Biomass (gT)	5-yr total High defect (gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
Haines State Forest	1,600	7,400	1.07	2.12
Other State Land	0	62,300	24.11	41.83

Other lands:

	5-yr total Biomass (gT)	5-yr total High defect (gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
Mental Health Trust	0	68,705	4.31	60.88
Sealaska Corp. (Prince of Wales only)	46,423	48,972	9.12	23.56

SE Alaska CROP

By Species (% of total CROP volume)		5-yr total Biomass (gT)	5-yr total High defect* (gT)	5-yr total Small log (mmbf)	5-yr total Large log (mmbf)
Western hemlock	(43% of 5-yr total)	150,560	682,364	33.57	316.37
Western redcedar	(26% of 5-yr total)	34,170	428,001	14.66	203.65
Sitka spruce	(17% of 5-yr total)	34,718	230,234	12.70	135.73
Alaska yellow cedar	(8% of 5-yr total)	12,419	128,887	4.84	57.77
Shore pine	(5% of 5-yr total)	3,136	98,474	.52	45.44
Mountain hemlock	(2% of 5-yr total)	9,393	34,045	1.10	14.79
Red alder	(<1% of 5-yr total)	472	394	0.18	.26
Pacific silver fir	(<1% of 5-yr total)	57	407	.01	.18
Black cottonwood	(<1% of 5-yr total)	75	<1	.07	.11
Paper birch	(<1% of 5-yr total)	0	0	.01	.02

High-defect volumes given for diameters sizes >7" dbh; all high-defect volume converted to green tons (gT)

How does it look for small log processing?

- **% volume split between >7”-9” and >9”-12” in small log favorable for pulling more grade out of overall volume:**
  - **8% of total is >7”-9”**
  - **92% of total is >9”-12”**

. . . but . . .

- **Annual volume *not* sufficient to look at establishing small log processing facility in region (~ 13 mmbf/yr)**

5-yr volume; mmbf (no defect)	*>7”-9”*	*>9”-12”*
Western hemlock	6.87	26.68
Western redcedar	2.45	12.2
Sitka spruce	2.7	10
Alaska yellow cedar	.95	3.88
Shore pine	.085	.432
Mountain hemlock	.238	.864
Red alder	.038	.114
Pacific silver fir	.003	.011
Black cottonwood	.011	.054
Paper birch	.002	.008
Totals	*13.36*	*54.29*

How does it look for biomass?

- After 2008, overall biomass offering is *fairly levelized* – especially for the top two biomass suppliers from the Tongass NF: Petersburg RD and Thorne Bay RD.
- Wrangell RD also offers fairly *levelized* biomass supply.
- Ketchikan RD is the only RD offering a notable amount of biomass that presents an *unlevelized* supply, with spikes occurring in 2010 and 2012.

Tongass NF	*Total Biomass (gT) ('08 – '12)*				
RDs	*2008*	*2009*	*2010*	*2011*	*2012*
Craig (1%)	2744	14277	663	633	633
Hoonah (3%)	2324	2177	9936	2177	28041
Juneau (<1%)	659	0	659	0	659
Ketchikan (15%)	56573	48045	82690	50710	75
Petersburg (33%)	1389	128158	131542	131542	131542
Sitka (<1%)	324	74	324	74	324
Thorne Bay (35%)	7370	108729	142219	140562	168746
Wrangell (13%)	54047	52299	35400	37922	39222
Yukatat (<1%)	32.63	32.63	32.63	32.63	32.63
Totals	*123463*	*353792*	*403466*	*363682*	*368006*

Resource Offering Maps (ROMS):

Here's what you get ***for each species*** . . .

- ✓ ***Who*** will supply?
- ✓ ***When*** will supply be offered?
- ✓ ***Where*** will supply be offered?
- ✓ ***How much*** will be offered?
- ✓ ***What diameter size*** will it be offered in?
- ✓ Will supply be consistent and ***levelized over time*** to invite purchase and investment?

For each species:

- ✓ *Locator map* **per specific supplier**
- ✓ *Summary sheet*
- ✓ *Detailed supply breakouts* **by volume, diameter, and year per supplier**

Let's look at Western Hemlock as an example . . .

SE Alaska CROP

SE Alaska: Western Hemlock CROP offering/removal '08 – '12
(gT = 832,925 / S = 33.567 mmbf / L = 316.374 mmbf)
(516.526 total mmbf)

ROM # WH 1.1

WH = Western hemlock

gT = green tons (solid wood up to 7" dbh & all high defect)
S = small log mmbf (>7"-12" dbh)
L = large log mmbf (>12" dbh)
def = high defect

Tongass NF:

- **A** ***Craig RD**** *(gT = 9,189 / S = .547 / L = 3.666)*
- **B** ***Hoonah RD*** *(gT = 20,959 / S = 1.014 / L = 8.139)*
- **C** ***Juneau RD*** *(gT = 1,327 / S = .023 / L = .519)*
- **D** ***Ketchikan RD*** *(gT = 133,945 / S = 3.13 / L = 53.735)*
- **E** ***Petersburg RD*** *(gT = 19,983 / S = .443 / L = 7.728)*
- **F** ***Sitka RD*** *(gT = 746 / S = .006 / L = .148)*
- **G** ***Thorne Bay RD*** *(gT = 349,997 / S = 4.868 / L = 117.498)*
- **H** ***Wrangell RD*** *(gT = 146,070 / S = 2.983 / L = 59.776)*
- **I** ***Yukatat RD*** *(gT = 163 / S = 0 / L = 0)*

State of Alaska Lands:

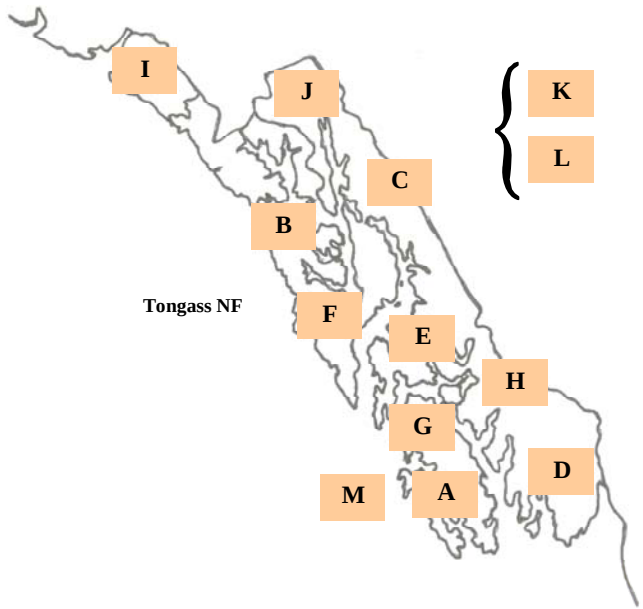
- **J** ***Haines State Forest*** *(gT = 2,210 / S = .406 / L = .658)*
- ***K*** ***Other State Lands*** *(gT = 45,185 / S = 13.799 / L = 22.37*

Alaska Mental Health Trust:

- **L** ***Trust Lands*** *(gT = 45,180 / S = 2.575 / L = 35.522)*

Sealaska Corporation:

- **M** ***Prince of Wales*** *(gT = 57,966 / S = 3.772 / L = 6.605)*



Locator map

italics/bold = species offering in CROP

Summary Sheet

SE Alaska CROP

SE Alaska: Western Hemlock CROP offering/removal '08 – '12
(gT = 832,925 / S = 33.567 mmbf / L = 316.374 mmbf)
(516.526 total mmbf)

ROM # WH 1

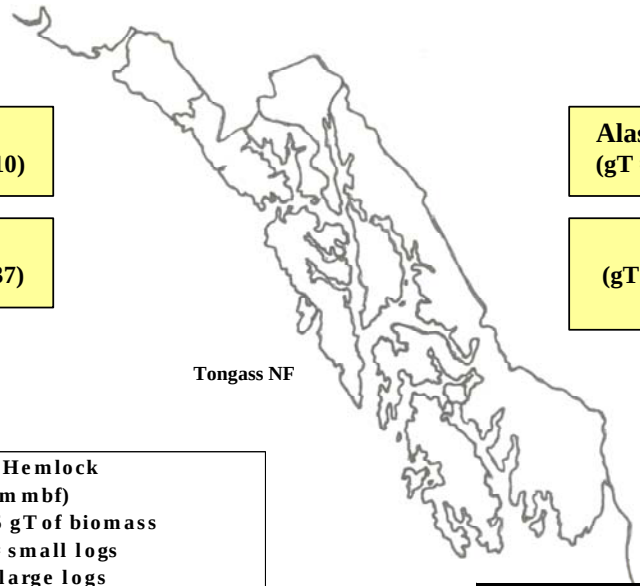
gT = green tons (solid wood up to 7" dbh & all high defect)
S = small log mmbf (>7"-12" dbh)
L = large log mmbf (>12" dbh)
def = high defect

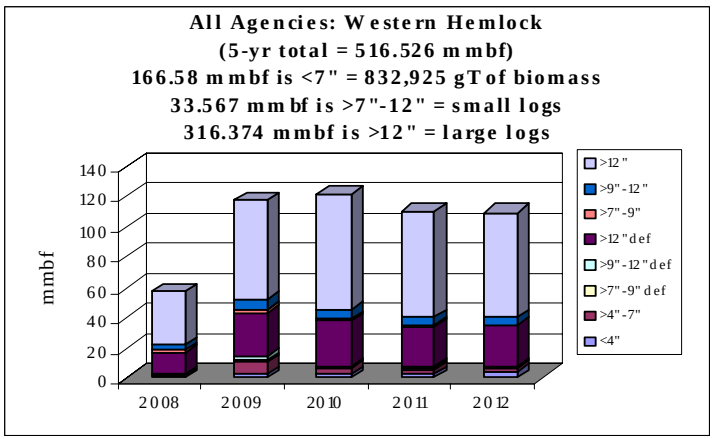
Tongass NF: 9 RDs – 78%
(gT = 682,382 / S = 13.015 / L = 251.210)

State of Alaska Lands: 9%
(gT = 47,395 / S = 14.205 / L = 23.037)

Alaska Mental Health Trust: 9%
(gT = 45,180 / S = 2.575 / L = 35.522)

Sealaska Corp: 4%*
(gT = 57,966 / S = 3.772 / L = 6.605)
(*data given only for 2009)





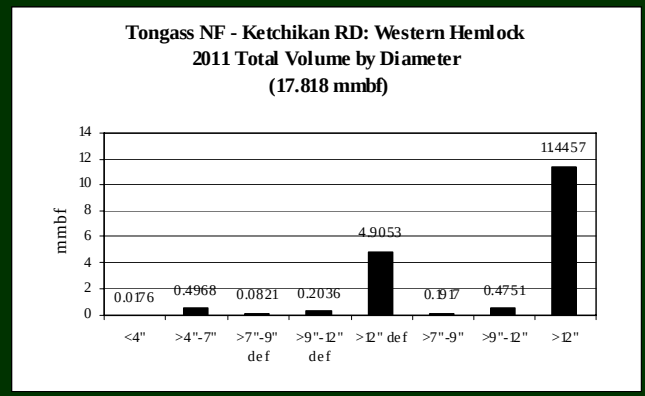
	gT	mmbf	
Western Hemlock	Biomass	Small Log	Large Log
2008	86236.11462	4.488797033	35.60031982
2009	211913.3947	9.857289414	65.51665811
2010	190894.0547	6.797559998	76.68183212
2011	171129.8861	6.285861278	69.75757964
2012	172751.5531	6.13752065	68.81803974
Totals	832,925.0	33.56702837	316.3744294
%	32%	6%	61%
mmbf	166.5850006		

516.5264584

Detailed Breakout by Supplier

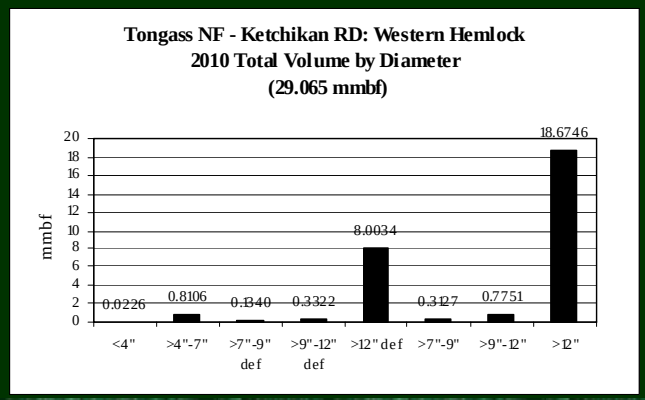
(Example - unlevel supply: 29 mmbf decrease over 2 years)

Western Hemlock Tongass NF: Ketchikan RD	*5-yr = 83.654 mmbf*
	• Unlevel supply from year to year
gT = 133,945	• <4" = <1% (.086 mmbf) • >4"-7" = 3% (2.332 mmbf) • >7"-9" def = <1% (.386 mmbf) • >9"-12" def = 1% (.956 mmbf) • >12" def = 28% (23.029 mmbf
S = 3.130	• >7"-9" = 1% (.900 mmbf) • >9"-12" = 3% (2.230 mmbf)
L = 53.735	• >12" = 64% (53.735 mmbf)



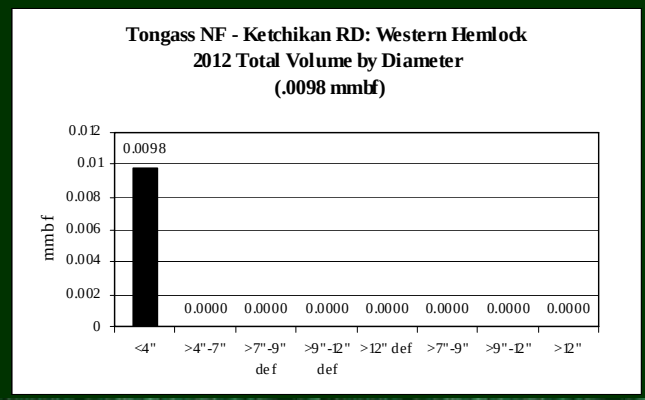
2011

17.818 mmbf



2010

29.065 mmbf



2012

.0098 mmbf

SO . . . with CROP, we're able to look at:

- ***performance between different public agencies*** **to identify needed coordination of supply; *and***

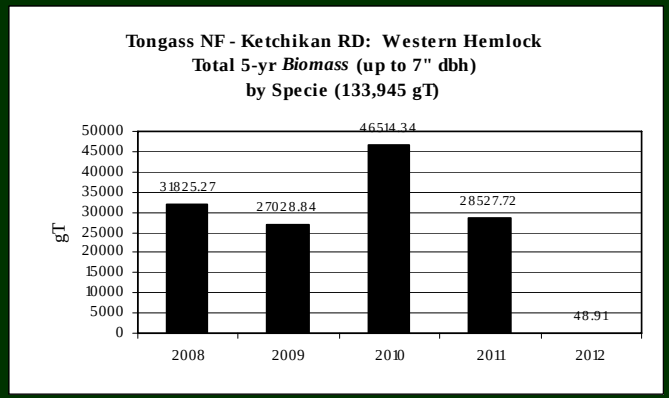
- ***performance between ranger districts in a single NF*** **to see where coordination of supply offering might be needed.**

Let's take a look …

Western Hemlock: Tongass NF - 3 RDs - *biomass offerings*

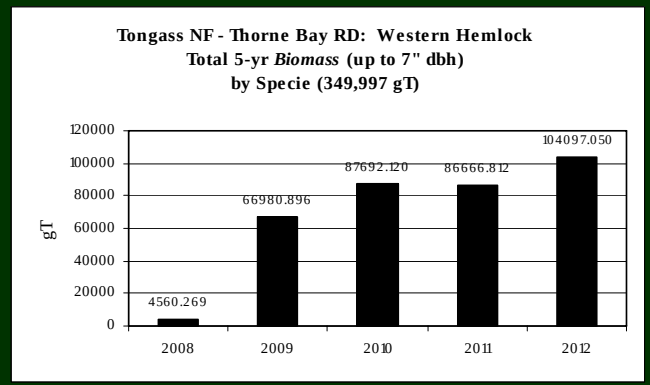
Ketchikan RD

16%



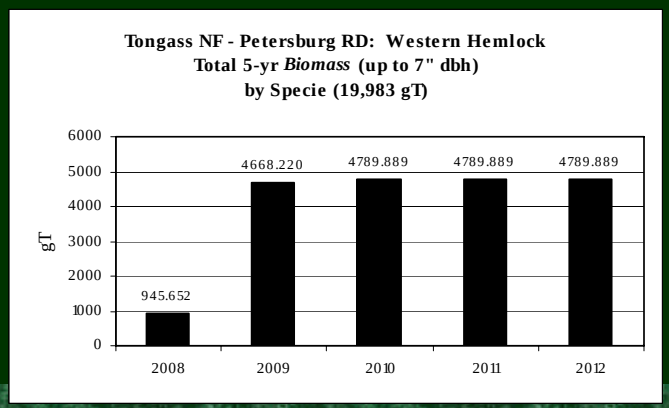
Thorne Bay RD

42%



Petersburg RD

2%

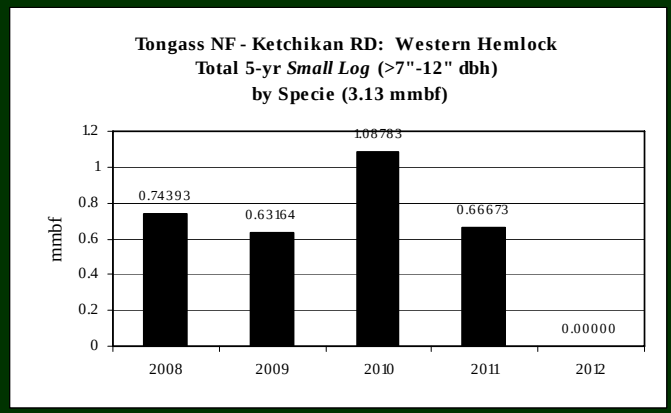


Petersburg RD has more levelized supply of biomass <7", but Thorne Bay RD has growing supply and provides 42% of total 5-year specie volume.

Western Hemlock: Tongass NF – 3 RDs -- small log offerings

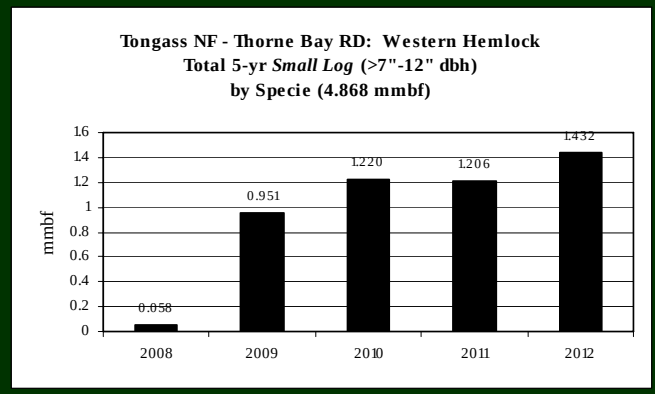
Ketchikan RD

9%



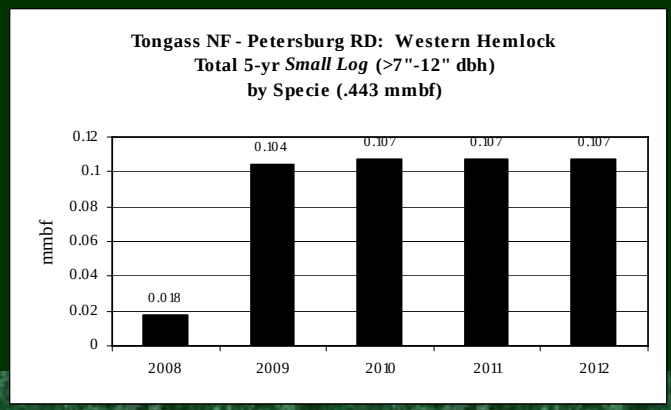
Thorne Bay RD

14%



Petersburg RD

1%

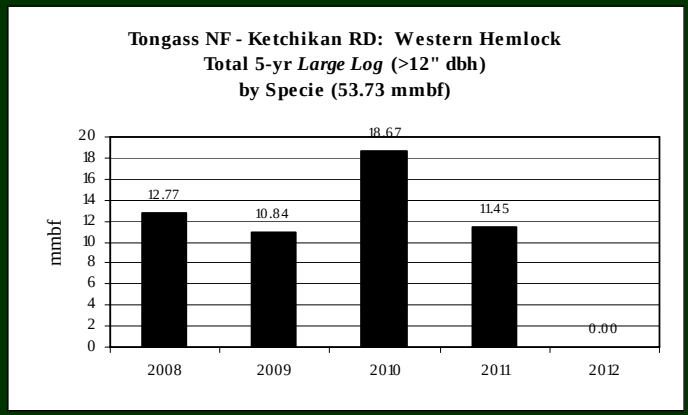


. . . same scenario with small logs . . .

Western Hemlock: Tongass NF – 3 RDs – *large log offerings*

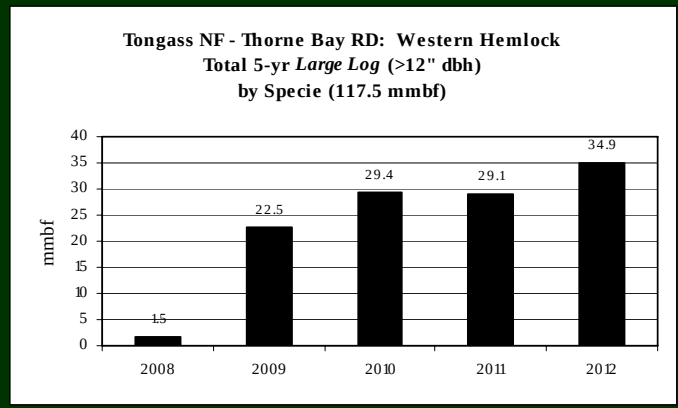
Ketchikan RD

17%



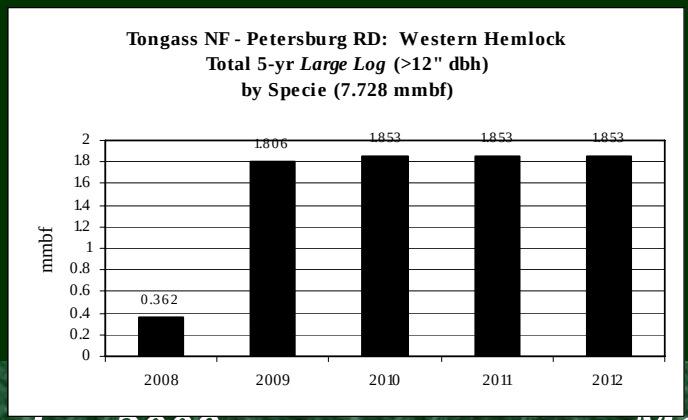
Thorne Bay RD

37%



Petersburg RD

2%



. . . and with large logs.

Let's look at species Summary Sheets for the other SE Alaska CROP species . . .

SE Alaska CROP

SE Alaska: Western Redcedar CROP offering/removal '08 – '12
(gT = 462,171 / S = 14.661 mmbf / L = 203.650 mmbf)
(310.746 total mmbf)

ROM # WRC 1

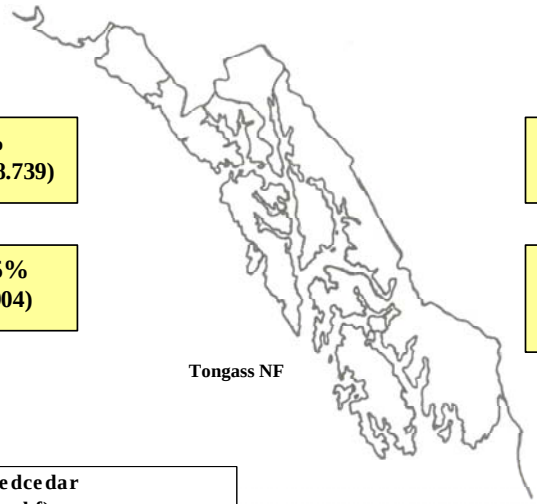
gT = green tons (solid wood up to 7" dbh & all high defect)
S = small log mmbf (>7"-12" dbh)
L = large log mmbf (>12" dbh)
def = high defect

Tongass NF: 7 RDs – 93%
(gT = 455,612 / S = 8.365 / L = 188.739)

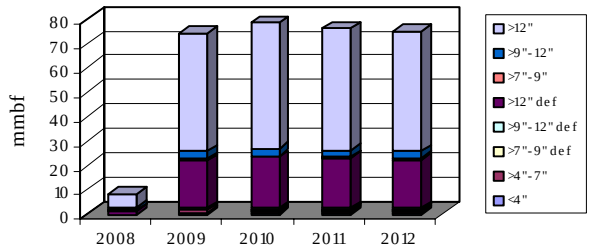
State of Alaska Lands: 5%
(gT = 0 / S = 5.491 / L = 8.904)

Alaska Mental Health Trust: 2%
(gT = 5,649 / S = .357 / L = 5.049)

Sealaska Corp: 1%*
(gT = 910 / S = .448 / L = .959)
(*data given only for 2009)



All Agencies: Western Redcedar
(5-yr total = 310.746 mmbf)
92.434 mmbf is <7" = 462,171 gT of biomass
14.662 mmbf is >7"-12" = small logs
203.650 mmbf is >12" = large logs



	gT	mmbf	
Western Redcedar	Biomass	Small Log	Large Log
2008	8320.093304	1.199420974	5.450338051
2009	110147.0674	3.750879207	48.30371489
2010	117584.1665	3.296480565	51.28260576
2011	114119.8518	3.202747257	49.76938604
2012	112000.4661	3.212028963	48.84411213
Totals	462,171.6	14.66155697	203.6501569
%	30%	5%	66%
mmbf	92.43432903		
			310.7460429

SE Alaska CROP

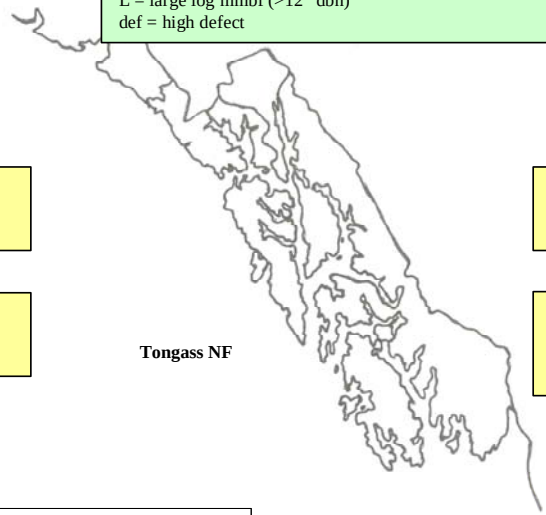
SE Alaska: Sitka Spruce CROP offering/removal '08 – '12
(gT = 264,953 / S = 12.703 mmbf / L = 135.735 mmbf)
(201.429 total mmbf)

ROM # SS 1

gT = green tons (solid wood up to 7" dbh & all high defect)
S = small log mmbf (>7"-12" dbh)
L = large log mmbf (>12" dbh)
def = high defect

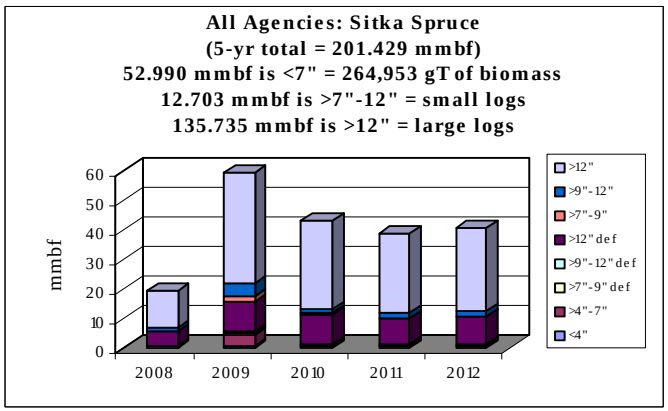
Tongass NF: 8 RDs – 65%
(gT = 190,582 / S = 2.073 / L = 90.012)

State of Alaska Lands: 10%
(gT = 23,755 / S = 4.775 / L = 10.857)



Alaska Mental Health Trust: 12%
(gT = 15,930 / S = 1.288 / L = 19.094)

Sealaska Corp: 14%*
(gT = 34,686 / S = 4.567 / L = 15.773)
(*data given only for 2009)



	gT	mmbf	
Sitka Spruce	Biomass	Small Log	Large Log
2008	27625.06381	1.094757761	12.70128034
2009	78970.28132	6.134678036	37.38980517
2010	56532.82804	1.832824814	29.94714625
2011	49347.11722	1.800480847	27.26944924
2012	52477.67073	1.84009843	28.4277884
Totals	264,953.0	12.70283989	135.7354694
%	26%	6%	67%
mmbf	52.99059222		

201.4289015

Looking at *Western Hemlock* . . .

Here's how it looks on an agency-by-agency basis . . .

SE Alaska CROP

Levelized Annual Supply?

(Total 5-yr volume)

Not a bad picture.

Over 60% of specie volume supplied by *relatively levelized* supply, and specie equals *78%* of total 5-yr. volume.

	R = relatively	Western hemlock (516.526 mmbf; includes gT) yes	no	Comments
Tongass NF	(78% of 5-yr vol.)			
	Craig (1%)		✓	From .4 mmbf to 4.1 mmbf/yr
	Hoonah (3%)		✓	From .6 mmbf to 7.7 mmbf/yr
	Juneau (1<%)		✓	.3 every other year, none '09 & '11
	Ketchikan (16%)		✓	From 20 mmbf in '08 to no offering in '12
	Petersburg (<1%)	R		.6 mmbf in '08, then ~ 2.9 mmbf/yr
	Sitka (<1%)		✓	Alternates between .04 & .09 mmbf/yr
	Thorne Bay (37%)	R		Growing from 37 to 57 mmbf after '08
	Wrangell (18%)	R		From 15.1 mmbf to 22.3 mmbf/yr
	Yukatat (<1%)	✓		.0065 mmbf/yr
State of Alaska	(9% of 5-yr vol.)			
	Haines State Forest	R		Gradual increase from .27 to .33
	Other State Land	R		From 8.4 mmbf to 10.2 mmbf/yr
Mental Health Trust	(9% of 5-yr vol.)			
	Trust Land		✓	From 1.1 mmbf to 15.7 mmbf/yr
Sealaska Corporation	(4% of 5-yr vol.)			
	Prince of Wales	NA	NA	'09 data only

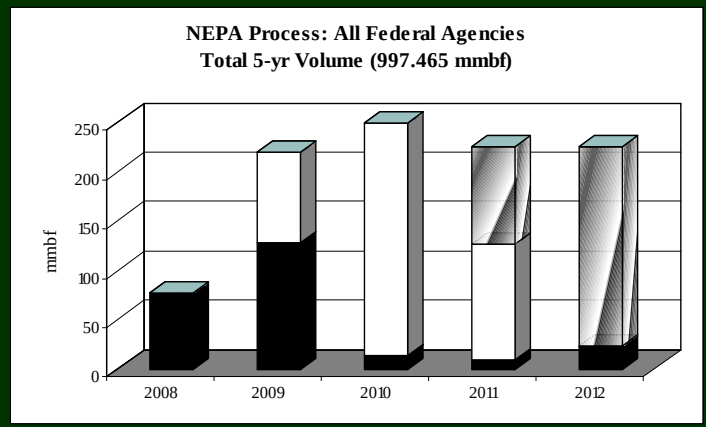
What about NEPA?
It's important to know!

. . . here's how it looks

NEPA Picture for CROP Landscape

All federal land (Tongass NF):
82% of 5-yr total = (997.465 mmbf; includes gT as mmbf)

	mmbf	% of total
Approved	248.28	25%
In process	447.95	45%
Just started	300.92	30%
Not started	.31	<1%



70% of CROP resource offering either NEPA approved or in-process; but little approved for 2010 - 2012 and almost a third has just started NEPA process.

. . . but story best told on agency-by-agency basis.

NEPA Risk Rating

1 Lowest	2 Low	3 Medium	4 *High*	5 *Highest*

For low risk rating, 3 key desired attributes:

- ✓ **Volume *approved* in first 2 years, followed by *in-process*.**
- ✓ **Consistency in supply; no dramatic gaps from year to year (eg: *approved/not started/in-process*).**
- ✓ **Overall – no major emphasis on *just started* or *not started*.**

NEPA Risk Rating Summary:

Tongass NF	Total 5-yr volume	NEPA Risk Rating
Craig	14.55 mmbf	2
Hoonah	32.53 mmbf	2
Juneau	1.21 mmbf	2
Ketchikan	150.26 mmbf	4
Petersburg	333.32 mmbf	3
Sitka	.49 mmbf	5
Thorne Bay	328.10 mmbf	3
Wrangell	136.96 mmbf	3
Yukatat	.03 mmbf	1

1	2	3	4	5
Lowest	Low	Medium	*High*	*Highest*

What about road access to supply? ***Here's how it looks . . .***

Agency	5-yr total volume	Affected by No Current Road Access		
	mmbf	mmbf	% of total volume with no road access	Species affected
Tongass NF	997.46	175.61	18%	WH, WRC, SS, AYC, ShP, MtH, RA, PSF
State of Alaska	83.38	16.67	20%	WH, WRC, SS, AYC, RA, Cot, PB
Mental Health Trust	78.93	15.79	20%	WH, WRC, SS, AYC
Sealaska	51.76	0	0%	
Total	1211.54	208.07	17%	

Some conclusions for SE Alaska CROP . . .

- ✓ *A fairly good picture for biomass projects*. Almost *1.9 million green tons* expected to be offered during the next five years,with over 60% coming from Petersburg and Thorne Bay areas

but . . .

- ✓ *Small log volume appears not sufficient* to support investment in small log processing to help offset access cost to biomass and additional mill residual that could be used in biomass projects.

- ✓ Almost *one-third* of five-year federal volume *just started* in NEPA process . . .

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