

**Reference Materials for June 5, 2007**

**DRAFT**

**Sustainable Forest Management Modeling Results**

For the  
Board of Natural Resources

**June 5, 2007**  
**Washington Department of Natural Resources**  
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# Contents: Comparison of 2004 Alternative 1 (No Action), 2004 BNR adopted and 2007 Sustainable Harvest Adjustment

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**Briefs Notes**

This reference material provides a comparison of modeling results between the No Action Alternative (Alternative 1) from the final EIS in 2004, the Board Adopted Sustainable harvest level and Department recommended 2007 Sustainable Harvest adjustment.

**Why adjust the 2004 Sustainable Harvest level?**

The Department's Policy for Sustainable Forests (Policy for Sustainable Forests, 2006) directs the Department to recalculate and adjust the sustainable harvest according to specific circumstances.

**Policy of Recalculation of the Sustainable Harvest**

- The department, with Board of Natural Resources approval, will recalculate the statewide sustainable harvest level, for Board of Natural Resources adoption no less frequently than every ten years.
- The department will adjust the calculation and recommend adoption by the Board of Natural Resources when the department determines changing circumstances within the planning decade suggest that an adjusted harvest level would be prudent. Such circumstances may include major changes in legal requirements, significant new policy direction from the Board of Natural Resources, new information about the resource base available for harvest, or changes in technology.

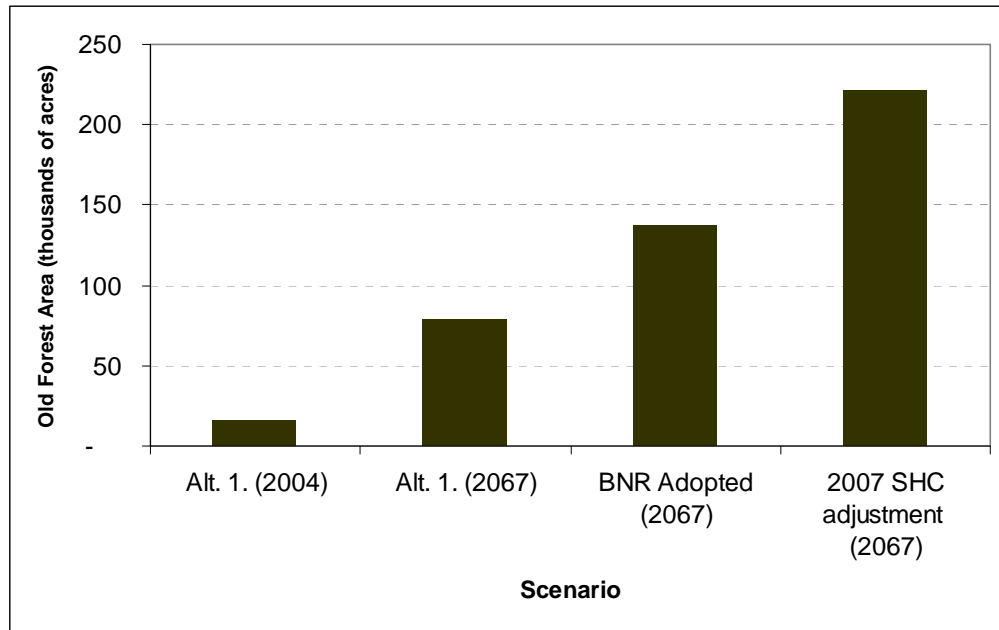
Two such circumstances arose since the Board's adoption of the sustainable harvest in 2004, suggesting that adjusting the harvest level for the decade would be prudent. The changing circumstances are:

1. New information about the resource base available for harvest in the form of the Riparian Forest Restoration Strategy and,
2. A legal requirement in the Settlement Agreement.

In September 2004, the Board approved a distinct policy direction that included:

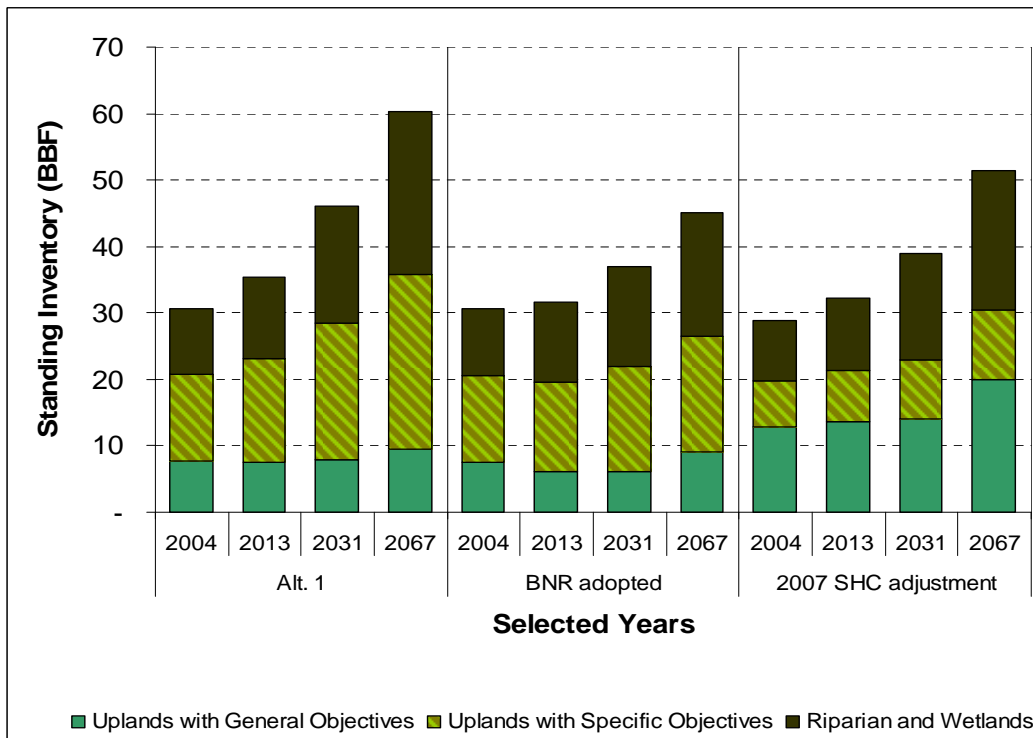
- Flexibility in the long-term sustainable harvest flow.
- Grouping of the federally granted and State Board Purchase ownerships into one Westside sustainable harvest unit.
- Active stewardship of as much of the landscape as allowable by law.
- Use innovative silvicultural practices (known as "biodiversity pathways") to address DNR's HCP commitments and forest health concerns by creating more structurally diverse forests while simultaneously increasing production of trust revenue.
- Annual average harvest level of 597 MMBF for the decade (2004-2014).

**Change in Older Forest Conditions**



**Figure 1 Changes in Older Forest Conditions (Niche diversification and Fully functional stand development stages)**

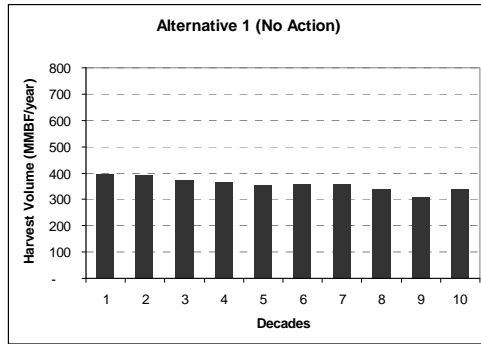
**Changes in Inventory**



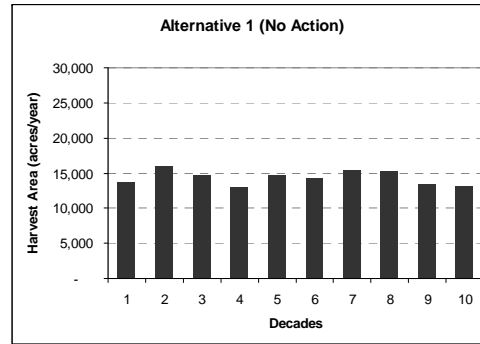
**Figure 2 Changes in Standing Volume**

**Alternative 1**

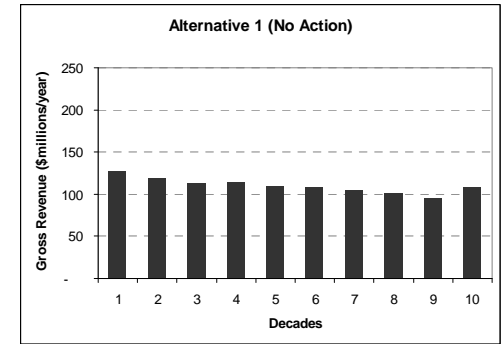
**Harvest Volume**



**Harvest Area**

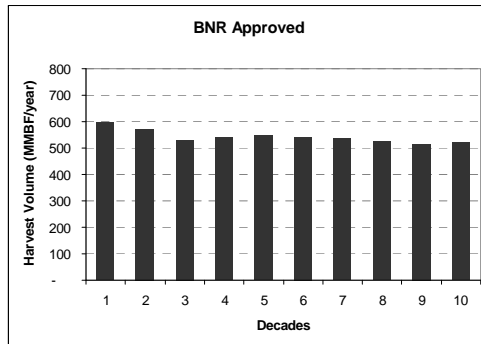


**Gross Revenue**

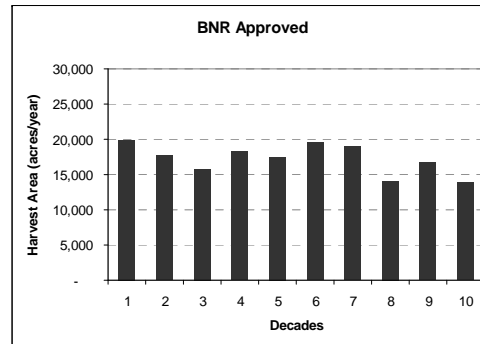


**BNR Adopted**

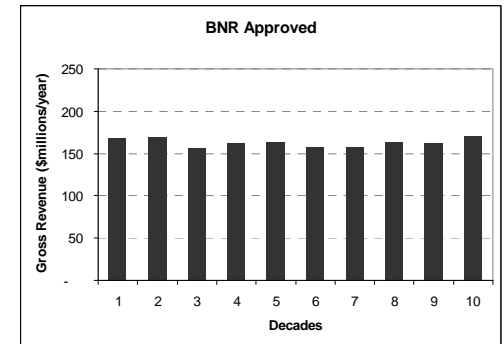
**BNR Approved**



**BNR Approved**

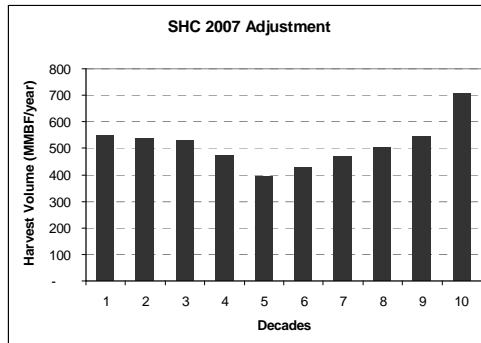


**BNR Approved**

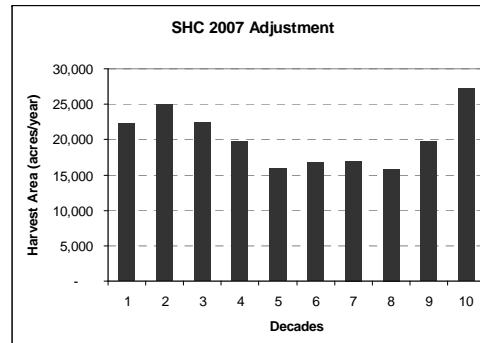


**2007 SHC adjustment**

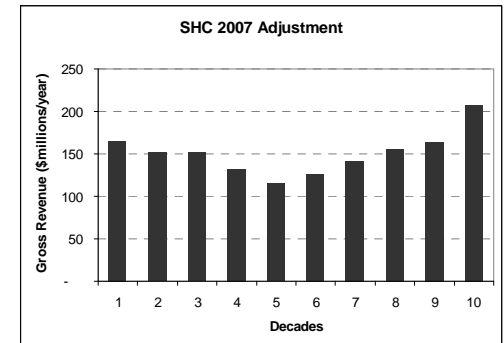
**SHC 2007 Adjustment**



**SHC 2007 Adjustment**

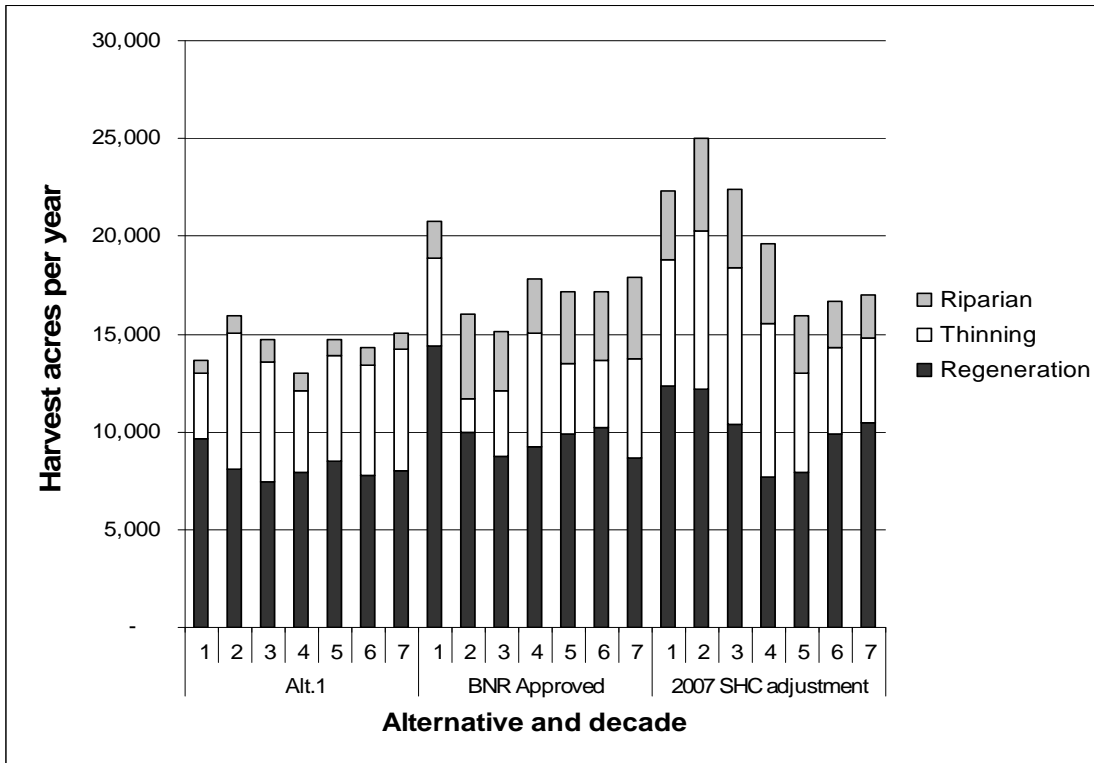


**SHC 2007 Adjustment**



**Figure 3 Harvest Volume, Harvest Area and Gross Revenue**

**Acres of Forest Management Treatments**



**Figure 4 Harvest Treatments**

**Information Presented to the Board of Natural Resources in May 1, 2007****Table 1 Effect of the Riparian Forest Restoration Strategy**

Independent Impacts on 2004 SHC	1st decade harvest level	Net Present Value for 1 decade	Cumulative harvest volume 7 decades	Net Present Value over 7 decades	Older Forest in Riparian Areas after 7 decades
	MMBF/yr	\$ millions	BBF	\$ millions	Acres
<b>Board adopted</b>	597	\$804	38.3	\$1,980	57,000
<b>Riparian Forest Restoration Strategy Impact</b>	576	\$846	34.8	\$1,870	23,000
<b>Percentage difference</b>	-4%	5%	-9%	-6%	-60%

**Table 2 Effect of the Settlement Agreement**

Independent Impacts on 2004 SHC	1st decade harvest level	Net Present Value for 1 decade	Cumulative harvest volume 7 decades	Net Present Value over 7 decades	Older Forest Condition after 7 decades
	MMBF/yr	\$ millions	BBF	\$ millions	Acres
<b>Board adopted</b>	597	\$804	38.3	\$1,980	137,000
<b>Settlement Agreement</b>	575	\$851	38.4	\$2,040	213,000
<b>Percentage difference</b>	-4%	6%	0%	3%	55%

**Table 3 Combined Effect**

Combined Impacts on 2004 SHC	1st decade harvest level	Net Present Value for 1 decade	Cumulative harvest volume 7 decades	Net Present Value over 7 decades	Older Forest in Riparian Areas after 7 decades
	MMBF/yr	\$ millions	BBF	\$ millions	Acres
<b>Board adopted</b>	597	\$804	38.3	\$1,980	137,000
<b>Riparian Forest Restoration Strategy and Settlement Agreement</b>	550	\$793	33.8	\$1,780	213,000
<b>Percentage difference</b>	-8%	-1%	-12%	-10%	55%

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**Following Tables  
Present**

**A COMPARISON BETWEEN  
ALTERNATIVE 1 (NO ACTION)  
OF THE 2004 FINAL EIS  
AND THE  
2007 SUSTAINABLE HARVEST  
ADJUSTMENT**

**A Comparison between Alternative 1 of the 2004 Final EIS and the 2007 Sustainable Harvest Adjustment****SUMMARIES BY TRUST IN DECADE 1 (2004-2014)****Table 4 Trust Net Present Value (\$ millions) for decade 1**

Trust	Alt.1	2007 SHC adjustment	change between 2007 SHC adjustment and Alt.1	percent difference between 2007 SHC adjustment and Alt. 1
	<i>a</i>	<i>b</i>	<i>c=b-a</i>	<i>d=(c/a)*100</i>
		\$ millions		
Agricultural School	15.0	21.9	6.9	46%
Capitol Grant	51.5	54.1	2.6	5%
CEPRI	22.9	23.4	0.5	2%
Common School and Indemnity	157.1	213.0	55.9	36%
Community College Forest Reserve	2.0	2.9	0.9	45%
Escheat	2.6	1.6	(1.0)	-38%
Normal School	9.1	12.8	3.7	41%
Scientific School	34.9	55.0	20.1	58%
State Forest Board Purchase	54.5	55.8	1.3	2%
State Forest Board Transfer	252.4	343.2	90.8	36%
University - Original	1.4	1.3	(0.0)	-2%
University - Transferred	0	7.5	7.5	750%
	602.6	792.7	190	32%

**Table 5 Trust average Gross Revenue per year (\$ million/year) for decade 1**

Trust	Alt.1	2007 SHC adjustment	change between 2007 SHC adjustment and Alt.1	percent difference between 2007 SHC adjustment and Alt. 1
	<i>a</i>	<i>b</i>	<i>c=b-a</i>	<i>d=(c/a)*100</i>
		\$ million/year		
Agricultural School	3.1	4.4	1.3	42%
Capitol Grant	10.6	11.4	0.8	8%
CEPRI	4.5	4.7	0.2	4%
Common School and Indemnity	35.5	47.0	11.5	32%
Community College Forest Reserve	0.4	0.6	0.2	35%
Escheat	0.5	0.3	(0.2)	-34%
Normal School	2.1	2.8	0.8	36%
Scientific School	7.1	10.8	3.7	52%
State Forest Board Purchase	10.8	11.4	0.5	5%
State Forest Board Transfer	52.3	69.7	17.4	33%
University - Original	0.3	0.3	(0.0)	-1%
University - Transferred	0.4	2.0	1.6	428%
	127.6	165.4	38	30%

**Table 6 Trust average Harvest Volume per year (MMBF/year) for decade 1**

Trust	Alt.1	2007 SHC adjustment	change between 2007 SHC adjustment and Alt.1	percent difference between 2007 SHC adjustment and Alt. 1
	<i>a</i>	<i>b</i> MMBF/year	$c=b-a$	$d=(c/a)*100$
Agricultural School	9.3	14.3	5.0	53%
Capitol Grant	33.9	40.6	6.8	20%
CEPRI	14.2	16.1	1.9	13%
Common School and Indemnity	112.6	162.5	49.9	44%
Community College Forest Reserve	1.4	1.9	0.6	42%
Escheat	1.7	1.1	(0.6)	-35%
Normal School	6.4	9.3	2.9	46%
Scientific School	22.7	34.9	12.2	54%
State Forest Board Purchase	33.1	38.6	5.5	17%
State Forest Board Transfer	158.9	221.8	62.9	40%
University - Original	0.8	0.7	(0.0)	-6%
University - Transferred	1.3	8.1	6.7	508%
	396.2	550.0	154	39%

**SUMMARIES BY COUNTY FOR THE STATE FOREST BOARD TRANSFER AND STATE FOREST BOARD PURCHASE IN DECADE 1 (2004-2014)****Table 7 County average Gross Revenue per year (\$million/year) for decade 1**

County	Alt.1	2007 SHC adjustment	change between 2007 SHC adjustment and Alt.1	percent difference between 2007 SHC adjustment and Alt. 1
	A	b	c=b-a	d=(c/a)*100
	\$ million/year			
Clallam	4.3	12.4	8.1	191%
Clark	3.8	3.5	(0.4)	-10%
Cowlitz	1.6	2.0	0.4	24%
Grays Harbor	3.6	5.1	1.5	41%
Jefferson	1.6	2.4	0.8	52%
King	2.8	2.8	0.0	1%
Kitsap	0.9	0.8	(0.0)	-5%
Lewis	5.6	6.5	0.9	16%
Mason	2.6	2.1	(0.5)	-18%
Pacific	1.9	3.7	1.9	99%
Pierce	1.9	0.5	(1.4)	-74%
Skagit	10.2	11.2	1.0	10%
Skamania	1.6	2.0	0.4	27%
Snohomish	7.5	10.4	2.8	37%
Thurston	7.7	7.5	(0.3)	-3%
Wahkiakum	1.3	2.2	0.9	70%
Whatcom	4.3	6.0	1.7	40%
Grand Total	63.1	77.3	14.2	22%

**Table 8 County average Harvest Volume per year (MMBF/year) for decade 1**

County	Alt.1	2007 SHC adjustment	change between 2007 SHC adjustment and Alt.1	percent difference between 2007 SHC adjustment and Alt. 1
	A	b	c=b-a	d=(c/a)*100
	MMBF/year			
Clallam	12.7	38.8	26.1	206%
Clark	12.3	12.9	0.6	5%
Cowlitz	4.8	6.8	2.0	41%
Grays Harbor	11.3	17.9	6.5	58%
Jefferson	5.3	7.4	2.1	40%
King	8.9	8.9	(0.1)	-1%
Kitsap	2.8	2.6	(0.2)	-7%
Lewis	16.9	23.1	6.2	37%
Mason	8.3	6.5	(1.8)	-22%
Pacific	6.0	13.4	7.4	122%
Pierce	6.0	1.6	(4.3)	-73%
Skagit	30.0	32.6	2.5	8%
Skamania	5.4	6.4	1.0	18%
Snohomish	22.9	32.8	9.9	43%
Thurston	23.5	25.0	1.5	7%
Wahkiakum	3.6	7.5	3.8	107%
Whatcom	11.3	16.5	5.3	47%
Grand Total	192	260.4	68	36%

**Following Tables  
Present**

**A COMPARISON BETWEEN  
THE  
2004 BOARD'S ADOPTED  
SUSTAINABLE HARVEST LEVEL  
AND THE  
2007 SUSTAINABLE HARVEST  
ADJUSTMENT**

**A Comparison between 2004 Board's Adopted Sustainable Harvest level and the 2007 Sustainable Harvest Adjustment****SUMMARIES BY TRUST IN DECADE 1 (2004-2014)****Table 9 Trust Net Present Value (\$ millions) for decade 1**

Trust	BNR Adopted	2007 SHC adjustment	change between 2007 SHC adjustment and BNR adopted	percent difference between 2007 SHC adjustment and BNR adopted
	<i>a</i>	<i>b</i>	<i>c=b-a</i>	<i>d=(c/a)*100</i>
	\$ millions			
Agricultural School	21.5	21.9	0.3	2%
Capitol Grant	73.3	54.1	(19.2)	-26%
CEPRI	27.4	23.4	(4.0)	-15%
Common School and Indemnity	242.9	213.0	(29.8)	-12%
Community College Forest Reserve	0.8	2.9	2.2	272%
Escheat	1.9	1.6	(0.3)	-16%
Normal School	11.8	12.8	1.1	9%
Scientific School	42.7	55.0	12.3	29%
State Forest Board Purchase	60.4	55.8	(4.6)	-8%
State Forest Board Transfer	313.0	343.2	30.2	10%
University - Original	0.5	1.3	0.8	171%
University - Transferred	8.4	7.5	(0.9)	-11%
	804.7	792.7	(12)	-1%

**Table 10 Trust average Gross Revenue per year (\$ million/year) for decade 1**

Trust	BNR Adopted	2007 SHC adjustment	change between 2007 SHC adjustment and BNR adopted	percent difference between 2007 SHC adjustment and BNR adopted
	<i>A</i>	<i>b</i>	<i>c=b-a</i>	<i>d=(c/a)*100</i>
	\$ million/year			
Agricultural School	4.4	4.4	(0.0)	0%
Capitol Grant	15.0	11.4	(3.6)	-24%
CEPRI	5.5	4.7	(0.8)	-14%
Common School and Indemnity	52.5	47.0	(5.5)	-10%
Community College Forest Reserve	0.2	0.6	0.4	199%
Escheat	0.4	0.3	(0.1)	-13%
Normal School	2.6	2.8	0.2	7%
Scientific School	8.6	10.8	2.2	25%
State Forest Board Purchase	12.2	11.4	(0.9)	-7%
State Forest Board Transfer	65.1	69.7	4.6	7%
University - Original	0.1	0.3	0.1	114%
University - Transferred	2.1	2.0	(0.2)	-7%
	168.7	165.4	(3)	-2%

**Table 11 Trust average Harvest Volume per year (MMBF/year) for decade 1**

<b>Trust</b>	<b>BNR Adopted</b> <i>a</i>	<b>2007 SHC adjustment</b> <i>b</i> MMBF/year	change between 2007 SHC adjustment and <b>BNR adopted</b> <i>c=b-a</i>	percent difference between 2007 SHC adjustment and <b>BNR adopted</b> <i>d=(c/a)*100</i>
Agricultural School	16.2	14.3	(1.9)	-12%
Capitol Grant	56.4	40.6	(15.8)	-28%
CEPRI	19.1	16.1	(3.0)	-16%
Common School and Indemnity	188.9	162.5	(26.4)	-14%
Community College Forest Reserve	0.8	1.9	1.1	140%
Escheat	1.4	1.1	(0.3)	-22%
Normal School	9.1	9.3	0.1	2%
Scientific School	31.5	34.9	3.4	11%
State Forest Board Purchase	41.8	38.6	(3.2)	-8%
State Forest Board Transfer	222.3	221.8	(0.5)	0%
University - Original	0.4	0.7	0.3	63%
University - Transferred	8.6	8.1	(0.6)	-7%
	596.8	550.0	(46.8)	-8%

**SUMMARIES BY COUNTY FOR THE STATE FOREST BOARD TRANSFER AND STATE FOREST BOARD PURCHASE LANDS IN DECADE 1 (2004-2014)****Table 12 County average Gross Revenue per year (\$millions/year) for decade 1**

County	BNR Adopted	2007 SHC adjustment	change between 2007 SHC adjustment and BNR adopted	percent difference between 2007 SHC adjustment and BNR adopted
	<i>a</i>	<i>b</i>	$c=b-a$	$d=(c/a)*100$
	\$ million/year			
Clallam	11.3	12.4	1.0	9%
Clark	3.6	3.5	(0.1)	-3%
Cowlitz	1.4	2.0	0.6	43%
Grays Harbor	5.0	5.1	0.1	3%
Jefferson	1.6	2.4	0.8	53%
King	2.1	2.8	0.7	32%
Kitsap	0.6	0.8	0.2	28%
Lewis	5.7	6.5	0.8	14%
Mason	1.4	2.1	0.7	48%
Pacific	4.9	3.7	(1.1)	-24%
Pierce	1.9	0.5	(1.4)	-74%
Skagit	12.7	11.2	(1.5)	-12%
Skamania	5.0	2.0	(3.0)	-60%
Snohomish	7.6	10.4	2.8	37%
Thurston	5.5	7.5	1.9	35%
Wahkiakum	1.8	2.2	0.4	25%
Whatcom	5.2	6.0	0.8	15%
Grand Total	77.3	77.3	-	0%

**Table 13 County average Harvest Volume per year (MMBF/year) for decade 1**

County	BNR Adopted	2007 SHC adjustment	change between 2007 SHC adjustment and BNR adopted	percent difference between 2007 SHC adjustment and BNR adopted
	<i>a</i>	<i>b</i>	$c=b-a$	$d=(c/a)*100$
	MMBF/year			
Clallam	41.7	38.8	(2.9)	-7%
Clark	12.3	12.9	0.6	5%
Cowlitz	4.9	6.8	1.8	37%
Grays Harbor	15.9	17.9	1.9	12%
Jefferson	5.7	7.4	1.7	31%
King	7.4	8.9	1.5	20%
Kitsap	2.2	2.6	0.4	18%
Lewis	19.7	23.1	3.3	17%
Mason	4.9	6.5	1.5	31%
Pacific	16.3	13.4	(3.0)	-18%
Pierce	7.4	1.6	(5.8)	-78%
Skagit	38.3	32.6	(5.8)	-15%
Skamania	20.1	6.4	(13.7)	-68%
Snohomish	26.6	32.8	6.3	24%
Thurston	19.0	25.0	6.0	31%
Wahkiakum	5.6	7.5	1.8	33%
Whatcom	16.0	16.5	0.5	3%
Grand Total	264	260.4	(3.8)	-1%



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