



**Integrated Land  
Management  
Bureau**

# **Kalum LRMP Resource Monitoring Framework**

## **Version History**

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Version 1.1	August 24, 2007	Final Draft
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## Introduction

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The resource monitoring framework (RMF) summarizes the GIS analysis of indicators for the Kalum Land and Resource Management Plan (LRMP) and the Kalum Sustainable Resource Management Plan (SRMP). This framework is a technical document intended for internal use by the Integrated Land Management Bureau (ILMB). It includes indicator details, analysis methodology, results and data sources. The four chapter headings in the RMF represent a subset of the General Resource Management categories taken from the Kalum LRMP. Details regarding the full methodology of each indicator analysed, including detailed GIS scripts developed, are referenced in the corresponding appendix document entitled Kalum LRMP Resource Monitoring Framework (RMF) Appendices v. 1.0. The components of the Indicator Details tables within the RMF that remain blank are to be completed at a future date by ILMB.

The analysis of any indicator is driven by the data sets available within the BC government and, therefore, the following framework is written based on what is considered the best available data for the region within the LRMP area falls. Data sources are listed under each indicator heading, but with the understanding that these sources will change over time, and thus, any future analysis framework will change accordingly. Inventories and other spatial data sets that exist within the Ministry of Agriculture and Lands (MAL), Land and Resources Data Warehouse (LRDW) are often the first choice as a data source because they are known to have met a minimum standard for quality, accuracy and metadata. The data sets within the LRDW are also managed on a known schedule, which is convenient when planning an analysis for monitoring on a set schedule. However, not all data sets are sourced directly from the LRDW. In several cases, the LRDW data was combined with other sources, such as local data housed within ILMB project directories, to obtain a complete updated coverage.

The directions in this analysis framework are designed to utilize the Python scripting language in combination with ArcGIS (ArcMap, ArcInfo, 9.x). The framework is designed to use personal geodatabases created for each indicator grouping (i.e. km biodiversity.mdb, km admin.mdb). The main reason for the use of personal geodatabases is due to the formatting of the data within the LRDW, which consists of large corporate geodatabases. The data file names, whether attribute table or feature layer, and item names often exceed the maximum 10-13 characters used by other file formats such as Info and Dbase. If data extracted from the LRDW is stored within a personal geodatabases then there is no name concatenation and, thus, no confusion over attribute names. In addition, the Geoprocessing Environment (Python, ArcGIS) prefers to work with personal geodatabases. Personal geodatabases can be shipped and updated easily. Models, toolsets or scripts that run various analyses can be stored within them, providing some documentation of the analyses and making future analyses more efficient.

The Crown Forested Land Base (CFLB), a subset of the larger Land and Resource Management Plan (LRMP) area, is used as a base for all the analysis results presented. The CFLB within the Kalum LRMP area covers 687,800 hectares, extending across TSA, as well as TFL1 and TFL41 lands. Currently, Ministry of Forests is undergoing a timber reallocation process, where the boundaries of the TFL lands are under revision. As there are no updated TSA/TFL boundaries for release, for the purposes of the Kalum LRMP RMF, the CFLB is calculated as one data layer that combines the TSA and TFL lands.

## 2. Biodiversity

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### 2.1 Objective: Maintain a Range of Forest Seral Stages

Maintain a range of forest seral stages by biogeoclimatic variant, within each landscape unit, consistent with Kalum Sustainable Resource Management Plan (SRMP).<sup>1</sup>

Lead Agency:

#### 2.1.1 Indicator: Percent of Early, Mature Plus Old, and Old Seral Stages

Percent of early, mature plus old, and old seral stages within the Crown Forested Land Base, by landscape unit and by Biogeoclimatic Ecological Classification (BEC) variant.

##### 2.1.1.a Indicator Details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> LRMP	<b>Source</b> LRMP Section 2.2.4, Strategy 1.2, 1.3 SRMP Section 2.1.1 Objective 1	<b>Legal</b> Yes
<b>Data Required for Monitoring</b> See Section 2.1.1b Analysis Data Sources	<b>Data Available</b> See Section 2.1.1b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

<sup>1</sup> Kalum Sustainable Resource Management Plan, April 2006, Page 6. Integrated Land Management Bureau. Province Of BC.

### 2.1.1.b Analysis

#### Methodology<sup>2</sup>

The method to calculate the seral stage analysis:

- Union the landscape units (LU) with Biogeoclimatic Zones (BEC) data sets
- Intersect the resultant above with the Crown Forested Land Base (CFLB)
- Create a list of relevant landscape Units
- For each LU:
  - Create a list of existing BEC variants
  - For each BEC variant:
    - Calculate total CFLB
    - Calculate early seral stage as:  
BEC Zone = CWH or ESSF or ICH or MH<sup>3</sup>  
and projected age < 40
    - Calculate mature plus old seral stage as:  
BEC Zone = CWH and projected age > 80 or  
BEC Zone = ESSF and projected age > 120 or  
BEC Zone = ICH and projected age > 100 or  
BEC Zone = MH and projected age > 120
    - Calculate old seral stage as:  
BEC Zone = CWH or ESSF or ICH or MH  
and projected age > 250

The resultant text file is imported into Excel to calculate final summaries for Landscape Units and BEC Variants.

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<sup>2</sup> For detailed GIS methodology and scripts, see Kalum Resource Monitoring Framework Appendix A.

<sup>3</sup> Seral stage breakdowns taken from Biodiversity Guidebook, September 1995. Province of BC.

**Results**

**Table 2.1.1 Percent of Early, Mature plus Old, and Old Seral Stages within the CFLB of the Kalum LRMP Area**

<b>Landscape Unit</b>	<b>BEC Variant</b>	<b>Total CFLB (ha)</b>	<b>Early (ha)</b>	<b>Early (% CFLB)</b>	<b>Mature + Old (ha)</b>	<b>Mature + Old (% CFLB)</b>	<b>Old (ha)</b>	<b>Old (% CFLB)</b>
Beaver	CMA unsp	51.7						
	CWH ws 1	16,647.3	8,597.9	51.6	7,556.1	45.4	6,007.3	36.1
	CWH ws 2	13,752.8	1,563.8	11.4	11,088.8	80.6	10,020.3	72.9
	MH mm 2	11,999.9	66.5	0.6	11,147.7	92.9	10,519.2	87.7
<b>Beaver Total</b>		<b>42,451.8</b>	<b>10,228.2</b>	<b>24.1</b>	<b>29,792.5</b>	<b>70.2</b>	<b>26,546.8</b>	<b>62.5</b>
Dala	CMA unsp	358.8						
	CWH vm	10,135.0	1,919.3	18.9	7,691.1	75.9	6,363.0	62.8
	CWH ws 2	8,630.6	695.4	8.1	7,822.4	90.6	5,877.0	68.1
	MH mm 1	11,349.3	262.3	2.3	9,516.8	83.9	7,035.8	62.0
<b>Dala Total</b>		<b>30,473.7</b>	<b>2,876.9</b>	<b>9.4</b>	<b>25,030.4</b>	<b>82.1</b>	<b>19,275.8</b>	<b>63.3</b>
Dasque	CMA unsp	0.9						
	CWH ws 1	1,567.7	782.2	49.9	676.8	43.2	650.6	41.5
	CWH ws 2	1,612.8	336.2	20.8	1,276.6	79.2	1,259.7	78.1
	MH mm 2	684.8	29.8	4.4	652.5	95.3	649.9	94.9
<b>Dasque Total</b>		<b>3,866.2</b>	<b>1,148.2</b>	<b>29.7</b>	<b>2,605.9</b>	<b>67.4</b>	<b>2,560.2</b>	<b>66.2</b>
Exchamsiks	CWH vm	4,071.3			3,923.4	96.4	2,553.7	62.7
	MH mm 1	425.6			416.6	97.9	335.5	78.8
<b>Exchamsiks Total</b>		<b>4,496.9</b>			<b>4,339.9</b>	<b>96.5</b>	<b>2,889.3</b>	<b>64.3</b>
Exstew	CWH ws 1	2,789.5	887.8	31.8	1,773.8	63.6	1,261.9	45.2
	CWH ws 2	3,772.1	500.1	13.3	2,878.8	76.3	2,427.0	64.3
	MH mm 2	1,273.6	45.5	3.6	1,191.2	93.5	1,138.3	89.4
<b>Exstew Total</b>		<b>7,835.2</b>	<b>1,433.4</b>	<b>18.3</b>	<b>5,843.8</b>	<b>74.6</b>	<b>4,827.1</b>	<b>61.6</b>
Falls	CMA unsp	138.5						
	CWH vm	26,677.4	2,462.7	9.2	23,144.7	86.8	19,455.8	72.9
	CWH vm 1	208.1	1.1	0.5	182.4	87.7	181.2	87.1
	CWH vm 2	15.0			15.0	100.0	15.0	100.0
<b>Falls Total</b>		<b>7,816.3</b>	<b>114.7</b>	<b>1.5</b>	<b>6,722.6</b>	<b>86.0</b>	<b>5,750.4</b>	<b>73.6</b>
<b>Falls Total</b>		<b>34,855.3</b>	<b>2,578.5</b>	<b>7.4</b>	<b>30,064.7</b>	<b>86.3</b>	<b>25,402.3</b>	<b>72.9</b>
Foch	CMA unsp	39.5						
	CWH vh 2	2,318.0	5.2	0.2	2,296.5	99.1	2,162.1	93.3
	CWH vm	3,040.3	27.2	0.9	2,944.7	96.9	2,289.1	75.3
	MH mm 1	860.8			671.4	78.0	467.1	54.3
<b>Foch Total</b>		<b>6,258.6</b>	<b>32.4</b>	<b>0.5</b>	<b>5,912.6</b>	<b>94.5</b>	<b>4,918.3</b>	<b>78.6</b>

Landscape Unit	BEC Variant	Total CFLB (ha)	Early (ha)	Early (% CFLB)	Mature + Old (ha)	Mature + Old (% CFLB)	Old (ha)	Old (% CFLB)
Gilttoeyes	CMA unsp	109.7			501.9	98.7	471.3	92.7
	CWH vh 2	508.6			3,709.1	99.2	2,955.2	79.0
	CWH vm	3,740.7			1,434.6	82.2	1,303.4	74.7
	MH mm 1	1,744.5			5,645.7	92.5	4,730.0	77.5
<b>Gilttoeyes Total</b>		<b>6,103.5</b>			<b>8,717.5</b>	<b>96.6</b>	<b>5,884.4</b>	<b>65.2</b>
Gitnadoix	CWH vm	9,020.1			770.1	97.2	448.8	56.6
	MH mm 1	792.6			9,487.6	96.7	6,333.2	64.5
<b>Gitnadoix Total</b>		<b>9,812.7</b>						
Hawkesbury Island East	CWH vh 2	3,396.6	36.4	1.1	3,157.0	92.9	2,991.1	88.1
	CWH vm	0.5			0.5	100.0	0.5	100.0
	MH wh 1	257.8			257.6	99.9	257.6	99.9
<b>Hawkesbury Island East Total</b>		<b>3,654.9</b>	<b>36.4</b>	<b>1.0</b>	<b>3,415.1</b>	<b>93.4</b>	<b>3,249.3</b>	<b>88.9</b>
Hawkesbury Island West	CWH vh 2	8,703.0	23.8	0.3	8,579.9	98.6	8,109.8	93.2
	MH wh 1	634.2	3.4	0.5	586.1	92.4	522.7	82.4
<b>Hawkesbury Island West Total</b>		<b>9,337.2</b>	<b>27.2</b>	<b>0.3</b>	<b>9,166.1</b>	<b>98.2</b>	<b>8,632.5</b>	<b>92.5</b>
Hirsch	CMA unsp	567.2			22,403.4	80.4	19,801.1	71.1
	CWH vm	27,865.8	5,025.3	18.0	86.9	20.7	74.3	17.7
	CWH ws 1	419.4	327.8	78.2	255.3	93.3	213.3	78.0
	CWH ws 2	273.5	18.2	6.7	9,139.9	94.3	8,419.4	86.9
	MH mm 1	9,692.6	44.7	0.5	31,885.6	82.1	28,508.2	73.4
<b>Hirsch Total</b>		<b>38,818.5</b>	<b>5,415.9</b>	<b>14.0</b>				
Horetzky	CMA unsp	76.1			14.2	100.0	5.4	38.1
	CWH vm	14.2			1,601.6	81.8	1,339.0	68.4
	CWH ws 2	1,957.9	288.2	14.7	3,665.5	88.6	2,584.9	62.5
	MH mm 2	4,138.3	12.7	0.3	5,281.4	85.4	3,929.3	63.5
<b>Horetzky Total</b>		<b>6,186.5</b>	<b>300.9</b>	<b>4.9</b>	<b>2,722.9</b>	<b>54.7</b>	<b>1,824.3</b>	<b>36.6</b>
Hot Springs	CWH ws 1	4,978.5	2,122.7	42.6	1,402.1	97.3	1,136.7	78.9
	CWH ws 2	1,440.6	29.2	2.0	771.4	94.1	502.7	61.3
	MH mm 2	819.4			4,896.4		3,463.7	47.9
<b>Hot Springs Total</b>		<b>7,238.5</b>	<b>2,151.9</b>	<b>29.7</b>				



Landscape Unit	BEC Variant	Total CFLB (ha)	Early (ha)	Early (% CFLB)	Mature + Old (ha)	Mature + Old (% CFLB)	Old (ha)	Old (% CFLB)
Ishkheenickh	CMA unsp	64.8			110.6	100.0	110.6	99.9
	CWH vm	110.6			948.9	100.0	537.3	56.6
	CWH ws 1	948.9			3,933.4	100.0	1,779.3	45.2
	CWH ws 2	3,935.1			2,406.6	94.4	1,248.7	49.0
	MH mm 1	2,548.6			7,399.5	97.3	3,675.9	48.3
<b>Ishkheenickh Total</b>		<b>7,608.1</b>						
Jesse Bish	CMA unsp	33.0			0.9	100.0	0.9	100.0
	CWH vh 2	0.9			16,420.8	98.2	14,380.7	86.0
	CWH vm	16,716.8	102.8	0.6	3,452.6	80.5	2,736.7	63.8
	MH mm 1	4,287.3	11.8	0.3	19,874.3	94.5	17,118.3	81.4
<b>Jesse Bish Total</b>		<b>21,038.0</b>	<b>114.6</b>	<b>0.5</b>				
Kalum	CMA unsp	13.6			2,368.1	31.5	1,419.1	18.9
	CWH ws 1	7,508.0	3,537.9	47.1	2,466.2	71.5	2,395.8	69.5
	CWH ws 2	3,447.3	951.1	27.6	1,236.3	92.1	1,211.6	90.3
	MH mm 2	1,342.3	40.3	3.0	6,070.7	49.3	5,026.5	40.8
	<b>Kalum Total</b>		<b>12,311.2</b>	<b>4,529.3</b>	<b>36.8</b>			
Kasiks	CWH vm	1,098.7			1,064.7	96.9	332.2	30.2
	MH mm 1	197.1			197.1	100.0	65.9	33.4
<b>Kasiks Total</b>		<b>1,295.8</b>			<b>1,261.8</b>	<b>97.4</b>	<b>398.0</b>	<b>30.7</b>
Kemano	CMA unsp	147.3			3,565.1	95.7	1,604.0	43.1
	CWH vm	3,725.4	75.6	2.0	2,806.6	94.4	1,783.1	60.0
	CWH vm 1	2,974.3	22.2	0.7	1,372.3	96.1	718.3	50.3
	CWH vm 2	1,427.5			9,053.2	85.1	6,427.8	60.4
	CWH ws 2	10,636.1	1,461.8	13.7	181.7	96.6	173.9	92.4
	ESSFmk	188.1			2,747.7	87.0	1,819.0	57.6
	MH mm 1	3,157.1	0.3	0.0	9,161.1	88.4	6,415.7	61.9
	MH mm 2	10,357.4	85.3	0.8	28,887.7	88.6	18,941.8	58.1
<b>Kemano Total</b>		<b>32,613.2</b>	<b>1,645.2</b>	<b>5.0</b>				
Khtada	CWH vm 1	802.4	73.3	9.1	460.8	57.4	380.1	47.4
	CWH vm 2	469.4			469.4	100.0	368.4	78.5
	MH mm 1	92.2			89.8	97.4	53.5	58.1
	MH mmp	2.2			2.2	100.0	0.9	42.1
<b>Khtada Total</b>		<b>1,366.2</b>	<b>73.3</b>	<b>5.4</b>	<b>1,022.2</b>	<b>74.8</b>	<b>803.0</b>	<b>58.8</b>

Landscape Unit	BEC Variant	Total CFLB (ha)	Early (ha)	Early (% CFLB)	Mature + Old (ha)	Mature + Old (% CFLB)	Old (ha)	Old (% CFLB)
Kiteen	BAFAunp	12.2						
	CWH ws 2	15,945.9	1,828.2	11.5	14,085.4	88.3	11,935.8	74.9
	ESSFwv	6.3			6.3	100.0	6.3	100.0
	ICH mc 2	963.4	94.0	9.8	868.6	90.2	542.9	56.4
	MH mm 2	18,219.9	729.9	4.0	17,291.1	94.9	16,470.0	90.4
<b>Kiteen Total</b>		<b>35,147.7</b>	<b>2,652.0</b>	<b>7.5</b>	<b>32,251.3</b>	<b>91.8</b>	<b>28,955.0</b>	<b>82.4</b>
Kitimat	CMA unp	341.0						
	CWH vm	660.2	271.2	41.1	375.5	56.9	209.5	31.7
	CWH ws 1	22,452.5	13,394.9	59.7	8,216.2	36.6	6,244.2	27.8
	CWH ws 2	22,018.9	2,857.0	13.0	19,069.2	86.6	16,309.3	74.1
	MH mm 1	8,279.4	13.9	0.2	7,768.9	93.8	6,052.5	73.1
	MH mm 2	5,548.1	206.4	3.7	5,128.7	92.4	3,847.8	69.4
<b>Kitimat Total</b>		<b>59,300.2</b>	<b>16,743.3</b>	<b>28.2</b>	<b>40,558.5</b>	<b>68.4</b>	<b>32,663.2</b>	<b>55.1</b>
Kleanza Treasure	CMA unp	303.4						
	CWH ws 1	15,402.9	6,058.4	39.3	8,792.3	57.1	5,026.5	32.6
	CWH ws 2	27,788.8	4,459.1	16.0	22,890.5	82.4	20,780.4	74.8
	ICH mc 2	801.2	251.0	31.3	295.0	36.8	111.1	13.9
	MH mm 2	18,483.9	840.3	4.5	17,369.3	94.0	15,327.5	82.9
<b>Kleanza Treasure Total</b>		<b>62,780.2</b>	<b>11,608.8</b>	<b>18.5</b>	<b>49,347.2</b>	<b>78.6</b>	<b>41,245.5</b>	<b>65.7</b>
Kowesas	CMA unp	161.0						
	CWH vm	10,259.4	33.5	0.3	9,615.4	93.7	6,088.6	59.3
	CWH vm 1	6,501.6	65.0	1.0	6,123.0	94.2	3,868.8	59.5
	CWH vm 2	4,178.9	18.9	0.5	3,748.3	89.7	2,334.7	55.9
	MH mm 1	2,897.5	7.7	0.3	1,813.2	62.6	927.6	32.0
<b>Kowesas Total</b>		<b>23,998.4</b>	<b>125.2</b>	<b>0.5</b>	<b>21,299.9</b>	<b>88.8</b>	<b>13,219.6</b>	<b>55.1</b>
Ksedin	CMA unp	79.7						
	CWH ws 1	1,001.9	493.6	49.3	504.5	50.4	489.1	48.8
	CWH ws 2	3,231.7	392.6	12.1	2,839.1	87.9	2,634.2	81.5
	MH mm 2	3,551.1	5.2	0.1	3,410.7	96.0	3,164.6	89.1
<b>Ksedin Total</b>		<b>7,864.4</b>	<b>891.4</b>	<b>11.3</b>	<b>6,754.3</b>	<b>85.9</b>	<b>6,287.9</b>	<b>80.0</b>

Landscape Unit	BEC Variant	Total CFLB (ha)	Early (ha)	Early (% CFLB)	Mature + Old (ha)	Mature + Old (% CFLB)	Old (ha)	Old (% CFLB)
Lakelse	CMA unsp	133.7						
	CWH ws 1	6,921.8	2,987.2	43.2	3,535.3	51.1	2,600.0	37.6
	CWH ws 2	7,600.4	874.0	11.5	6,375.9	83.9	5,857.7	77.1
	MH mm 2	3,217.8	40.6	1.3	3,096.6	96.2	2,930.1	91.1
Lakelse Total		17,873.7	3,901.8	21.8	13,007.7	72.8	11,387.7	63.7
Nass River Kalum	ICH mc 1	124.1	1.4	1.1	112.9	91.0	11.3	9.1
Nass River Kalum Total		124.1	1.4	1.1	112.9	91.0	11.3	9.1
Nelson Fiddler	CMA unsp	127.1						
	CWH ws 1	19,082.3	10,460.6	54.8	6,959.0	36.5	4,400.5	23.1
	CWH ws 2	16,243.1	2,836.9	17.5	12,849.3	79.1	10,982.5	67.6
	ICH mc 2	154.7	1.2	0.8	135.6	87.7	135.6	87.7
	MH mm 2	13,910.5	492.7	3.5	12,818.3	92.1	11,508.1	82.7
Nelson Fiddler Total		49,517.6	13,791.5	27.9	32,762.3	66.2	27,026.7	54.6
Skeena Islands	CWH vm 1	1,152.0	745.5	64.7	70.1	6.1	4.1	0.4
	CWH vm 2	1.1			1.1	100.0	1.1	100.0
	MH mm 1	0.0			0.0	100.0	0.0	100.0
Skeena Islands Total		1,153.0	745.5	64.7	71.1	6.2	5.2	0.4
Skeena River Kalum	CWH vm	3,122.4	88.0	2.8	1,769.8	56.7	800.0	25.6
	CWH ws 1	16,862.0	3,135.6	18.6	9,250.0	54.9	4,899.4	29.1
	CWH ws 2	4,749.3	390.5	8.2	4,094.7	86.2	3,781.7	79.6
	ICH mc 2	2,594.3	209.9	8.1	1,828.8	70.5	1,215.1	46.8
	MH mm 1	30.3			30.3	100.0	2.9	9.6
	MH mm 2	1,623.9	6.5	0.4	1,543.0	95.0	1,382.8	85.2
Skeena River Kalum Total		28,982.1	3,830.5	13.2	18,516.5	63.9	12,081.9	41.7
Telkwa	CMA unsp	2,249.1						
	CWH ws 1	7,395.2	2,998.0	40.5	4,290.3	58.0	3,693.9	49.9
	CWH ws 2	15,160.4	1,888.0	12.5	12,237.3	80.7	11,181.7	73.8
	ESSFmk	616.3			616.3	100.0	333.9	54.2
	ESSFwv	48.3			48.3	100.0	48.3	100.0
MH mm 2	13,842.0	495.0	3.6	12,828.0	92.7	9,235.9	66.7	
Telkwa Total		39,311.3	5,381.0	13.7	30,020.2	76.4	24,493.7	62.3

Landscape Unit	BEC Variant	Total CFLB (ha)	Early		Mature + Old		Old (ha)	Old (% CFLB)
			Early (ha)	Early (% CFLB)	Mature + Old (ha)	Mature + Old (% CFLB)		
Tseax	CMA unsp	10.7						
	CWH ws 1	1,951.7	862.0	44.2	1,063.3	54.5	709.2	36.3
	CWH ws 2	12,146.5	827.6	6.8	11,295.9	93.0	9,006.0	74.1
	ICH mc 2	11,532.2	3,935.2	34.1	6,807.6	59.0	4,430.1	38.4
	MH mm 2	5,017.9	39.6	0.8	4,956.7	98.8	4,083.2	81.4
<b>Tseax Total</b>		<b>30,658.9</b>	<b>5,664.4</b>	<b>18.5</b>	<b>24,123.5</b>	<b>78.7</b>	<b>18,228.6</b>	<b>59.5</b>
Wedene	CMA unsp	138.3						
	CWH vh 2	331.7	17.7	5.3	272.9	82.3	239.4	72.2
	CWH vm	13,667.2	3,159.7	23.1	10,131.5	74.1	9,000.0	65.9
	CWH vm 1	5.4			1.7	32.1	0.3	5.4
	CWH ws 1	6,501.0	4,657.7	71.6	1,700.4	26.2	1,374.9	21.1
	CWH ws 2	5,573.3	1,684.8	30.2	3,837.5	68.9	3,206.2	57.5
	MH mm 1	4,109.5	33.3	0.8	3,521.9	85.7	3,165.8	77.0
MH mm 2	4,029.4	185.4	4.6	3,514.7	87.2	2,984.1	74.1	
<b>Wedene Total</b>		<b>34,355.8</b>	<b>9,738.5</b>	<b>28.3</b>	<b>22,980.7</b>	<b>66.9</b>	<b>19,970.8</b>	<b>58.1</b>

## Data Sources

Data Set: **Crown Forested Land Base**  
 Source: Compilation of VRI, TFL Data and Private Land Data  
 Project Location: kmbiodiversity.mdb/cflb\_kmv2

Data Set: **Biogeoclimatic Zones**  
 Source: WHSE\_FOREST\_VEGETATION.RES\_BIOGEOCLIMATIC  
 Project Location: kmbiodiversity.pgd/abec\_kmv2

**Landscape Units**  
 Data Set:  
 Source: giswhse.env.gov.bc.ca/corp/arcwhse/landuse/tlu\_bc  
 Project Location: kmbiodiversity.pgd/tlu\_kmv4

## 2.2 Objective: Maintain Old Seral Stage Forest within Undeveloped Watersheds

Maintain old seral stage forest within each undeveloped watershed listed in the Kalum SRMP.<sup>4</sup>

Lead Agency:

### 2.2.1 Indicator: Percent of Old Seral Stages within Undeveloped Watersheds

Percent of old seral stages within the Crown Forested Land Base in identified undeveloped watersheds by BEC site series.

#### 2.2.1.a Indicator Details

Supporting Agencies	Area to be Monitored	Source	Legal
	Identified Undeveloped Watersheds	LRMP Section 2.2.4 Strategy 9.1 SRMP Section 2.1.2 Objective 2	Yes
Data Required for Monitoring	Data Available	Prerequisites to Monitoring	
See Section 2.2.1b Analysis Data Sources	See Section 2.2.1b Analysis Data Sources		
Linkages to Other Initiatives	Monitoring History	Recommended Reporting Frequency	
In 2006 State of the Resource Report			

<sup>4</sup> Kalum Sustainable Resource Management Plan, April 2006, Table 4, Page 10. Integrated Land Management Bureau. Province Of BC.

## 2.2.1b Analysis

### Methodology<sup>5</sup>

This indicator was calculated by creating a feature class combining the Biogeoclimatic Zones (BEC), the Crown Forested Land Base and the identified undeveloped watersheds (IUW). The combined data set was then clipped to the boundary of the IUWs. The amount of old seral stages within the CFLB for each IUW<sup>6</sup> was calculated:

BEC Zone = CWH or ESSF or ICH or MH  
and Projected Age > 250

Note: this calculation was intended to include the BEC site series. This data was not recommended as reliable<sup>7</sup> and therefore BEC variant was included as an alternate data source.

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<sup>5</sup> For detailed GIS Methodology and scripts, see Kalum LRMP Resource Monitoring Framework Appendix A.

<sup>6</sup> Seral stage breakdowns taken from Biodiversity Guidebook, September 1995. Province of BC.

<sup>7</sup> As per discussions with ILMB Skeena Region Staff, May 2007.

## Results

**Table 2.2.1 Percent of Old Seral Stages within Identified Undeveloped Watersheds**

<b>Identified Undeveloped Watershed</b>	<b>BEC Variant</b>	<b>Percent of Old Seral</b>
Brim	CWH vm 1	42
	CWH vm 2	1
	MH mm 1	22
<b>Total Brim</b>		<b>64</b>
Emsley	CWH vm	92
	MH mm 1	5
<b>Total Emsley</b>		<b>97</b>
Hugh	CWH vm	64
	MH mm 1	18
<b>Total Old Hugh</b>		<b>82</b>
Jesse	CWH vm	62
	MH mm 1	14
<b>Total Jesse</b>		<b>76</b>
Owyacumish	CWH vm 1	28
	CWH vm 2	26
	MH mm 1	8
<b>Total Owyacumish</b>		<b>61</b>
Wahoo	CWH vm	23
	CWH ws 2	33
	MH mm 1	21
<b>Total Wahoo</b>		<b>77</b>
Wathlsto	CWH vm	72
	MH mm 1	24
<b>Total Wathlsto</b>		<b>97</b>

## Data Sources

Data Set: **Identified Undeveloped Watersheds**  
 Source: //slkgis2/work/srm/smt/workarea/malkow/kalum\_srmp/data/watershed/pda\_udw  
 Item Name: PDA\_NAME  
 Item Value(s): Jesse, Emsley, Wathlsto, Hugh, Brim, Wahoo, Owyacumish  
 Project Location: kmbiodiversity.pgd/undev\_wsheds

Data Set: **Crown Forested Land Base**  
 Source: compilation of VRI, TFL Data and Private Land Data  
 Project Location: kmbiodiversity.mdb/cflb\_kmv2

Data Set: **Biogeoclimatic Zones**  
 Source: WHSE\_FOREST\_VEGETATION.RES\_BIOGEOCLIMATIC  
 Item Name: zone, subzone, variant, phase, beclabel  
 Project Location: kmbiodiversity.pgd/abec\_kmv2

## 2.3 Objective: Maintain or Recruit Old Seral Stage Forest

Objective is to maintain or recruit old seral stage forests that are reflective of the full range of ecosystems, including old seral stages with interior forest conditions.<sup>8</sup>

Lead Agency:

### 2.3.1 Indicator: Percent Old Seral Forest Within OGMAs

Percent old seral forest within OGMAs by landscape unit by BEC variant.

#### 2.3.1a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> LRMP	<b>Source</b> LRMP Section 2.2.4 Strategy 3.1 and 3.2 SRMP Section 2.1.3 Objective 3	<b>Legal</b> No
<b>Data Required for Monitoring</b> See Section 2.3.1b Analysis Data Sources	<b>Data Available</b> See Section 2.3.1b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

<sup>8</sup> Kalum Sustainable Resource Management Plan, April 2006, Map 4. Integrated Land Management Bureau. Province Of BC.  
*Kalum LRMP Resource Monitoring Framework*



## 2.3.1b Analysis

### Methodology<sup>9</sup>

A feature class was created to union the Landscape Units, Biogeoclimatic Zones, and CFLB data sets. This resultant was clipped to the OGMAs data set. The total area of OGMAs for each landscape unit was calculated as well as the total area of old seral within the OGMAs. The following query extracts the old seral stages: BEC Zone = CWH or ESSF or ICH or MH and projected age > 250. The results are summarized by BEC variant and Landscape Unit.

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<sup>9</sup> For detailed GIS Methodology and scripts, see Kalum LRMP Resource Monitoring Framework Appendix A.  
*Kalum LRMP Resource Monitoring Framework*

## Results

**Table 2.3.1 Percent Old Seral Forest within OGMA's**

Landscape Unit	BEC Variant	Percent Old Seral
Beaver	CWH ws 1	95
	CWH ws 2	95
	MH mm 2	99
Dala	CWH vm	96
	CWH ws 2	99
	MH mm 1	100
Dasque	CWH ws 1	99
	CWH ws 2	100
	MH mm 2	100
Exchamsiks	CWH vm	100
	CWH ws 1	99
	CWH ws 2	100
Exstew	MH mm 2	100
	CWH vm	100
	CWH vm 1	100
Falls	CWH vm 2	100
	MH mm 1	99
	CWH vm	71
Gitnadoix	CWH vm	71
	CWH vh 2	100
	MH wh 1	100
Hawkesbury Island East	CWH vh 2	99
	MH wh 1	97
	CWH vm	100
Hawkesbury Island West	CWH ws 1	99
	CWH ws 2	100
	MH mm 1	99
Hirsch	CWH ws 2	100
	CWH ws 1	99
	MH mm 2	99
Horetzky	CWH ws 2	100
	MH mm 2	99
	MH mm 1	99

Landscape Unit	BEC Variant	Percent Old Seral
Hot Springs	CWH ws 1	89
	CWH ws 2	100
	MH mm 2	99
Ishkheenicckh	CWH vm	100
	CWH ws 1	92
	CWH ws 2	96
Jesse Bish	MH mm 1	100
	CWH vm	94
	MH mm 1	100
Kalum	CWH ws 1	76
	CWH ws 2	96
	MH mm 2	100
Kasiks	CWH vm	100
	CWH vm	63
	CWH vm 1	57
Kemano	CWH vm 2	100
	CWH ws 2	97
	ESSFmk	100
Kiteen	MH mm 1	100
	MH mm 2	99
	CWH ws 2	99
Kitimat	ICH mc 2	87
	MH mm 2	100
	CWH vm	88
Kitimat	CWH ws 1	92
	CWH ws 2	98
	MH mm 1	99
Kitimat	MH mm 2	100
	MH mm 1	99
	MH mm 2	100

Landscape Unit	BEC Variant	Percent Old Seral
Kleanza Treasure	CWH ws 1	88
	CWH ws 2	100
	ICH mc 2	91
	MH mm 2	99
Ksedin	CWH ws 1	98
	CWH ws 2	100
Lakelse	MH mm 2	100
	CWH ws 1	96
	CWH ws 2	96
	MH mm 2	13
Nass River Kalum	ICH mc 1	99
Nelson Fiddler	CWH ws 1	71
	CWH ws 2	76
	ICH mc 2	99
	MH mm 2	97
Skeena Islands	CWH vm	100
	CWH vm 1	100
	CWH vm 2	100
Skeena River Kalum	CWH vm	84
	CWH vm 1	100
	CWH vm 2	100
	CWH ws 1	80
	CWH ws 2	100
	ICH mc 2	98
Telkwa	MH mm 1	100
	MH mm 2	100
	CWH ws 1	88
	CWH ws 2	100
	ESSFmk	99
	MH mm 2	95

Landscape Unit	BEC Variant	Percent Old Seral
Tseax	CWH ws 1	1
	CWH ws 2	99
	ICH mc 2	93
	MH mm 2	100
Wedene	CWH vh 2	100
	CWH vm	97
	CWH ws 1	90
	CWH ws 2	92
	MH mm 1	98
	MH mm 2	99

## Data Sources

Data Set: **Crown Forested Land Base**  
 Source: compilation of VRI, TFL Data and Private Land Data  
 Project Location: kmbiodiversity.mdb/cflb\_kmv2

Data Set: **OGMAS - most recent version**  
 Source: <http://ilmbwww.gov.bc.ca/lup/srmp/northern/kalum/index.html> - May 2007  
 Project Location: kmbiodiversity.pgd/ogma\_may07

Data Set: **Biogeoclimatic Zones**  
 Source: WHSE\_FOREST\_VEGETATION.RES\_BIOGEOCLIMATIC  
 Item Name: zone, subzone, variant, phase, beclabel  
 Project Location: kmbiodiversity.pgd/abec\_kmv2

Data Set: **Landscape Units**  
 Source: [giswhse.env.gov.bc.ca/corp/arcwhse/landuse/tlu\\_bc](http://giswhse.env.gov.bc.ca/corp/arcwhse/landuse/tlu_bc)  
 Item Name: LU\_NAME  
 Project Location: kmbiodiversity.pgd/tlu\_kmv4

### 2.3.2 Indicator: Percent of OGMAs with Interior Forest Condition

Percent of OGMAS with interior forest condition by BEC variant.

#### 2.3.2a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> LRMP	<b>Source</b> LRMP Section 2.2.4 Strategy 3.1 SRMP Section 1.3 Objective 3	<b>Legal</b> Yes
<b>Data Required for Monitoring</b> See Section 2.3.2b Analysis Data Sources	<b>Data Available</b> See Section 2.3.2b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

### 2.3.2.b Analysis

#### Methodology

The following methodology was used to calculate this indicator<sup>10</sup>. Interior forest condition is defined as old seral forest greater than 200 meters from early seral forest<sup>11</sup>.

To calculate the areas of OGMAS within each BEC variant:

- BEC and CFLB data sets were clipped to OGMA areas
- The clipped BEC and CFLB data sets were combined
- Areas of OGMAS for each BEC variant were calculated using STATISTICS command.

To calculate areas of OGMAS with Interior Forest Condition (IFC):

- Union BEC and CFLB data sets of entire Kalum LRMP area
- Select early seral from above union (LRMP area) using query:  
BEC Zone = CWH or ESSF or ICH or MH and  
projected age < 40 and > 0
- Buffer early seral selection by 220 metres
- Select old seral areas from OGMAs using query:  
BEC Zone = CWH or ESSF or ICH or MH and  
projected age >250
- Intersect buffered early seral with old seral selection. Areas of intersection are sections of OGMAs that do not meet interior forest conditions.
- Subtract intersection results from OGMA areas to obtain areas of OGMAs with IFC

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<sup>10</sup> For detailed methodology and scripts see Kalum LRMP Resource Monitoring Framework Appendix A.

<sup>11</sup> Taken from 2006 State of the Resources with Legal Objectives in the Bulkley Timber Supply Area, DRAFT October 23, 2006.

## Results

**Table 2.3.2 Percent of OGMAs with Interior Forest Condition**

<b>BEC Variant</b>	<b>Percent of OGMA with Interior Forest Condition</b>
CWH vh 2	98
CWH vm	95
CWH vm 1	100
CWH ws 1	52
CWH ws 2	91
ESSFmk	100
ICH mc 1	100
ICH mc 2	78
MH mm 1	99
MH mm 2	99
MH wh 1	100

### Data Sources

Data Set: **Crown Forested Land Base**  
 Source: compilation of VRI, TFL Data and Private Land Data  
 Project Location: kmbiodiversity.mdb/cflb\_kmv2

Data Set: **OGMAS - most recent version**  
 Source: <http://ilmbwww.gov.bc.ca/lup/srmp/northern/kalum/index.html> - May 2007  
 Project Location: kmbiodiversity.pgd/ogma\_may07

### 2.3.3 Indicator: Percent of OGMAs with Forest Harvesting

#### 2.3.3.a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b>	<b>Source</b>	<b>Legal</b>
	LRMP	SRMP Section 2.1.3 Objective 3	Yes
<b>Data Required for Monitoring</b>	<b>Data Available</b>	<b>Prerequisites to Monitoring</b>	
See Section 2.3.3b Analysis Data Sources	See Section 2.3.3b Analysis Data Sources		
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

### 2.3.3b Analysis

#### Methodology<sup>12</sup>

The total area of OGMAs harvested is calculated as:

- Sum the total areas of OGMAs using STATISTICS command
- Intersect the OGMAs with the harvested areas
- Sum the areas of intersection. These areas represent the harvested areas of the OGMAs.

#### Results

The percentage of OGMAs with forest harvesting is 0.13%. In terms of hectares, the total OGMA area is 50,484 hectares, with 65 hectares showing as harvested.

#### Data Sources

Data Set: **OGMAS**  
Source: <http://ilmbwww.gov.bc.ca/lup/srmp/northern/kalum/index.html> - May 2007  
Project Location: [kmbiodiversity.pgd/ogma\\_may07](http://kmbiodiversity.pgd/ogma_may07)

Data Set: **Harvested Areas**  
Source: **WHSE\_FOREST\_VEGETATION.RSLT\_FOREST\_COVER\_POLY**  
Project Location: [kmbiodiversity.pgd/harvested\\_Erase](http://kmbiodiversity.pgd/harvested_Erase)

## 2.4 Objective: Provide Operational Flexibility in Managing OGMAs

Provide operational flexibility in managing OGMAs by allowing up to 10 hectares or 10% of the individual OGMA area, whichever is less, to be disturbed for one or more of the following purposes:

- Allowing road development where no practicable alternative exists.
- To better reflect physical features that were intended to form the actual boundaries of the OGMA.
- To improve harvest boundary alignment in a way that will contribute to the maintenance of the OGMA.
- To address a compelling forest health issue.
- To shift the location of the contiguous area of the OGMA to improve the retention of old forest attributes as identified through field assessment.

Lead Agency:

### 2.4.1 Indicator: Percent or Area (Ha) of OGMAs Harvested for Allowable Disturbances

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<sup>12</sup> For detailed methodology and scripts see Kalum LRMP Resource Monitoring Framework Appendix A.  
*Kalum LRMP Resource Monitoring Framework*

### 2.4.1.a Indicator Details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> LRMP	<b>Source</b> SRMP Section 2.1.3 Objective 4	<b>Legal</b> Yes
<b>Data Required for Monitoring</b> See Section 2.4.1b: Analysis Data Sources	<b>Data Available</b> See Section 2.4.1b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

### 2.4.1.b Analysis

#### Methodology

The methodology for this indicator looks at each individual OGMA to determine what area, if any, of the OGMA has been harvested. The approach used examines the OGMAs and harvested areas spatially as follows:

- Create a list of each OGMA with unique ID and corresponding area
- Remove harvesting areas from OGMAs and create second list with unique ID and corresponding area
- Write both lists to a text file
- In Excel, compare areas of individual OGMAs by subtracting areas from second list from areas in first list. The result is the area harvested for each OGMA.
- Calculate the percent of each OGMA harvested.

This method allows the unique OGMA IDs to be maintained throughout the analysis.

#### Results

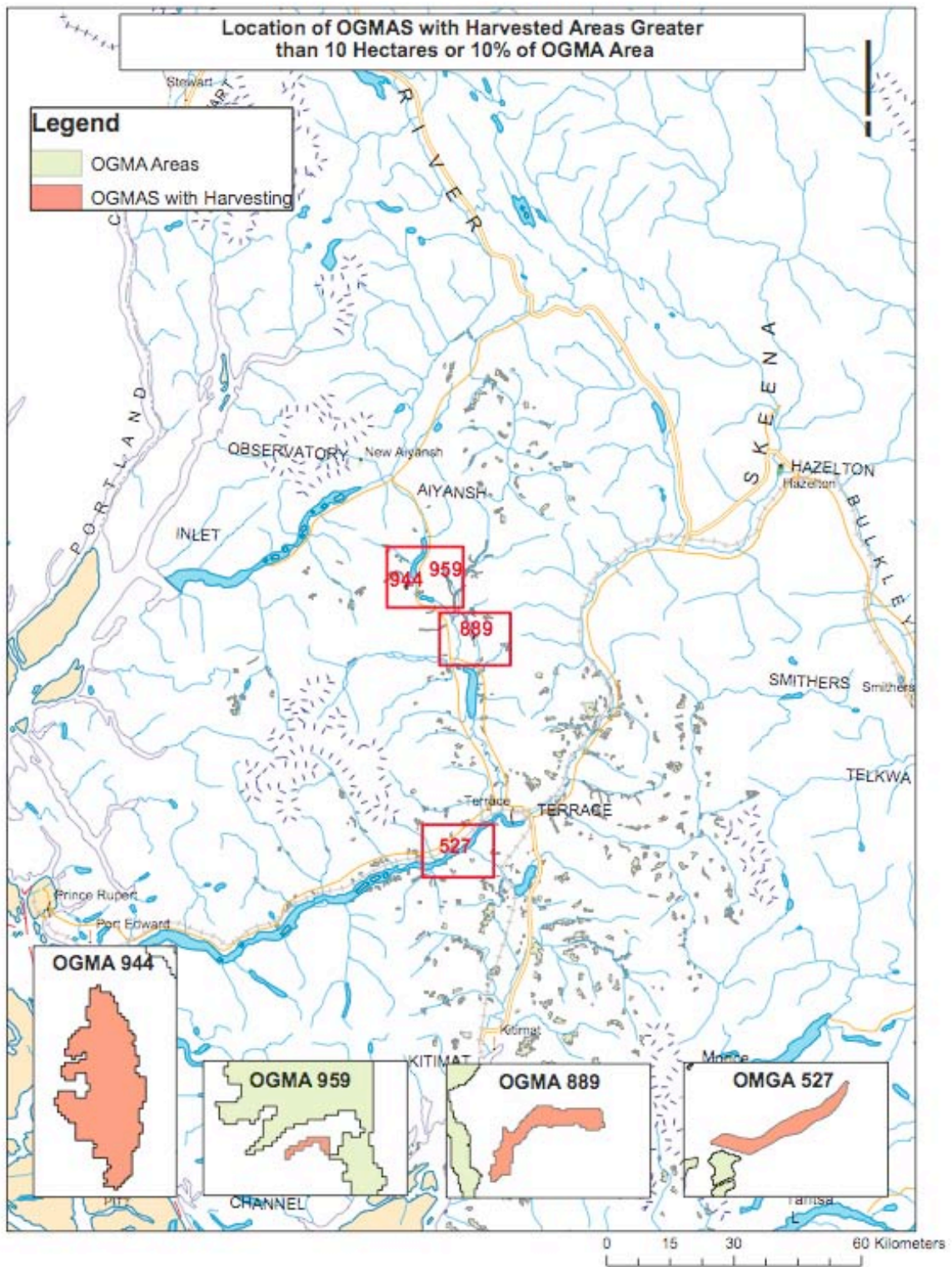
**Table 2.4.1 Percent and Area of OGMA Harvested for Allowable Disturbances**

<b>OGMA ID</b>	<b>Area of OGMA (ha)</b>	<b>Area Harvested (ha)</b>	<b>Percent of OGMA Harvested</b>
527	49.5	34.5	70
889	25.8	3.9	15
944	51.9	11.0	21
959	1.2	0.4	34

Table lists only those OGMAs, which have more than 10 ha harvested, or more than 10% of the OGMA area harvested. Total area harvested within these four OGMAs is 49 hectares.



Map 1



## Data Sources

Data Set: **OGMAS - most recent version**  
 Source: <http://ilmbwww.gov.bc.ca/lup/srmp/northern/kalum/index.html> - May 2007  
 Project  
 Location: [kmbiodiversity.pgd/ogma\\_may07](http://kmbiodiversity.pgd/ogma_may07)

Data Set: Harvested Areas  
 Source: WHSE\_FOREST\_VEGETATION.RSLT\_FOREST\_COVER\_POLY  
 Project  
 Location: [kmbiodiversity.pgd/harvested\\_Erase](http://kmbiodiversity.pgd/harvested_Erase)

## 2.4.2 Indicator: Percent or Area (Ha) Added to OGMAs to Replace Disturbed Areas

### 2.4.2a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> LRMP	<b>Source</b> SRMP Section 2.1.3 Objective 4	<b>Legal</b> Yes
<b>Data Required for Monitoring</b> See Section 2.4.2b Analysis Data Sources	<b>Data Available</b> See Section 2.4.2b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

### 2.4.2b Analysis

#### Methodology

This indicator detects any formal revisions made to the OGMA boundaries. Using the symmetrical difference command, the analysis compares, for each OGMA, the updated version of OGMAs with the previous version. The analysis sums the total area of the OGMAs that have been dropped from the older version, as well as the total area of the OGMAs that have been added to the updated version. The analysis calculates the difference in areas between the two versions.

## Results

**Table 2.4.2 Area added to OGMAS to replace disturbed areas**

<b>Area (ha) Disturbed (Original OGMAs)</b>	<b>Area (ha) added to updated OGMA version</b>	<b>Area (ha) Difference between OGMA versions</b>
3.0	8.3	5.3

This indicator monitors the OGMA boundaries to detect any changes between versions. Three hectares of OGMA were removed from the original version, and 8.3 hectares were added to the updated version. Overall, the area difference between the two versions is 5.3 hectares.

### Data Sources

Data Set: **OGMAS - most recent version**  
Source: <http://ilmbwww.gov.bc.ca/lup/srmp/northern/kalum/index.html> - May 2007  
Project Location: [kmbiodiversity.pgd/ogma\\_may07](http://kmbiodiversity.pgd/ogma_may07)

Data Set: **OGMAS - prior version**  
Source: <http://ilmbwww.gov.bc.ca/lup/srmp/northern/kalum/index.html> - Feb 2007  
Project Location: [kmbiodiversity.pgd/ogma\\_feb07](http://kmbiodiversity.pgd/ogma_feb07)

## 2.5 Objective: Maintain Structural Diversity in Managed Stands

Maintain structural diversity in managed stands by retaining wildlife tree patches in each cutblock<sup>13</sup> over the rotation, consistent with the targets in Kalum SRMP.<sup>14</sup>

Lead Agency:

### 2.5.1 Indicator: Percent of Cutblock Area or Cutblock Aggregate Retained as Wildlife Tree Patches

Percent of cutblock area or cutblock aggregate retained as wildlife tree patches, by landscape unit by BEC subzone.

<sup>13</sup> The wildlife tree patches may be external or internal to the cutblock.

<sup>14</sup> Kalum Sustainable Resource Management Plan, April 2006, Table 4, Page 10. Integrated Land Management Bureau, Province of B.C.

## 2.5.1a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> LRMP	<b>Source</b> LRMP Section 2.2.4 Strategy 2.2, 2.3, 6.2 SRMP Section 2.1.4 Objective 5	<b>Legal</b> Yes
<b>Data Required for Monitoring</b> See Section 2.5.1b Analysis Data Sources	<b>Data Available</b> See Section 2.5.1b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

### 2.5.1.b Analysis

#### Methodology

The methodology to analyse this indicator utilized the BEC Subzone field. In the BEC dataset, this field exists as two separate fields: the zone and subzone field. A new field was added to the working data set which concatenates the two separate fields into one field in order to simplify queries. The data sets were manipulated as follows:

- Union BEC and Landscape Unit data sets
- Union harvested areas with wildlife tree patch data
- Intersect the two unions above
- For each landscape unit:
  - Create a list of relevant BEC Subzones
  - Calculate the area of cutblocks within each subzone
  - Calculate the area of WTPs within each subzone
  - Write both area results to a file

The analysis only examines BEC Subzones within Landscape Units that have harvested areas. It also only examines WTPs within harvested areas. WTPs may exist outside of harvested areas, but located within the opening.

## Results

**Table 2.5.1 Percent of Cutblock Retained as Wildlife Tree Patch**

<b>Landscape Unit Name</b>	<b>BEC Subzone</b>	<b>Percent of Cutblock Retained as WTP</b>
Beaver	CWHws	2.2
	MHmm	8.1
Dala	CWHvm	1.7
	CWHws	0.0
Exstew	CWHws	9.1
Falls	CWHvm	0.0
Hawkesbury Island East	CWHvh	8.8
Hirsch	CWHvm	7.8
	MHmm	5.0
Horetzky	CWHws	0.0
	MHmm	0.0
Hot Springs	CWHws	2.3
Jesse Bish	CWHvm	0.0
Kalum	CWHws	2.0
Kemano	CWHws	0.0
Kiteen	CWHws	0.0
	MHmm	0.6
Kitimat	CWHws	0.0
Kleanza Treasure	CWHws	2.6
	MHmm	1.8
Lakelse	CWHws	4.3
	MHmm	9.2
Nass River Kalum	ICHmc	0.0
Nelson Fiddler	CWHws	16.8
	ICHmc	0.0
	MHmm	8.0
Skeena River Kalum	CWHvm	8.3
	CWHws	7.6
	ICHmc	17.0
Telkwa	CWHws	9.9
Tseax	CWHws	1.1
	ICHmc	0.0
Wedene	CWHvm	0.0
	CWHws	0.0
	MHmm	0.0

## Data Sources

Data Set: **Landscape Units**

Source: //giswhse.env.gov.bc.ca/corp/arcwhse/landuse/tlu\_bc

Project Location: kmbiodiversity.pgd/tlu\_kmv4

Data Set: **Biogeoclimatic**

Source: WHSE\_FOREST\_VEGETATION.RES\_BIOGEOCLIMATIC

Project Location: kmbiodiversity.pgd/abec\_kmv2

Data Set: **Harvested Areas**

Source: WHSE\_FOREST\_VEGETATION.RSLT\_FOREST\_COVER\_POLY

Project Location: kmbiodiversity.pgd/harvested\_Erase

Data Set: **Reserves: WTP**

Source: WHSE\_FOREST\_VEGETATION.RSLT\_FOREST\_COVER\_RESERVE\_SVW

Project Location: kmbiodiversity.pgd/reserves\_wtp

## 2.6 Objective: Maintain the Natural Composition of Dominant Tree Species

Maintain the natural composition of dominant tree species across each landscape unit.

Lead Agency:

### 2.6.1 Indicator: Percent Species Composition

Percent species composition by landscape unit by BEC subzone

#### 2.6.1.a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b>	<b>Source</b>	<b>Legal</b>
	LRMP	LRMP Section 2.2.4 SRMP Section 2.1.5 Objective 6	No
<b>Data Required for Monitoring</b>	<b>Data Available</b>	<b>Prerequisites to Monitoring</b>	
See Section 2.6.1b Analysis Data Sources	See Section 2.6.1b Analysis Data Sources		
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

## 2.6.1.b Analysis

### Methodology<sup>15</sup>

The indicator was analysed as follows:

- Calculate BEC Subzone field
- UNION Landscape Units, BEC and CFLB data sets
- Create new fields to store calculated areas for leading species and secondary leading species:
  - Polygon area x percent leading species
  - Polygon area x percent secondary leading species
- Create list of relevant Landscape Units
- For each landscape unit:
  - Create a list of relevant BEC subzones
  - For each BEC Subzone in the list:
    - Calculate the total area of BEC subzone within the landscape unit
    - Calculate the total area for each leading species value
    - Calculate the total area for each secondary leading species value

Import results into Excel to calculate summaries for landscape unit and BEC subzone.

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<sup>15</sup> For detailed methodology and scripts see Kalum LRMP Resource Monitoring Framework Appendix A.  
*Kalum LRMP Resource Monitoring Framework*

**Results**

**Table 2.6.1a Percentage of Leading Species within Crown Forested Land Base**

Landscape Unit	BEC Subzone	CFLB (ha)	Western					Lodgepole Pine	Spruce	Yellow Cedar			
			Cottonwood	Aspen	Fir	Red Cedar	Red Alder				Birch	Hemlock	
Beaver	CMAaup	51.7			16.2					54.5			
	CWHws	29,389.8	1.9	0.1	9.9	0.8	0.2			46.8	2.4	0.8	
	MHm	11,898.8		8.6						57.5		0.0	
<b>Beaver Total</b>		<b>41,340.3</b>	<b>1.4</b>	<b>0.0</b>	<b>9.5</b>	<b>0.5</b>	<b>0.1</b>			<b>49.9</b>	<b>1.7</b>	<b>0.6</b>	
Dala	CMAaup	358.8			0.1					78.6			
	CWHvm	9,657.7	1.5		4.6	1.1	4.1			45.1		1.9	0.1
	CWHws	8,498.1			4.4	0.7	0.5			53.7		0.4	
<b>Dala Total</b>		<b>11,298.4</b>	<b>0.5</b>	<b>0.0</b>	<b>2.3</b>	<b>0.0</b>	<b>0.0</b>			<b>63.5</b>	<b>0.4</b>	<b>0.4</b>	
Dasque	CMAaup	0.9			3.6	0.6	1.5			54.9		0.9	0.0
	CWHws	3,124.9	1.1		25.8					64.9			
	MHm	684.8			7.4		1.1			60.0		0.2	
<b>Dasque Total</b>		<b>3,810.6</b>	<b>0.9</b>	<b>0.2</b>	<b>7.7</b>	<b>0.9</b>	<b>0.2</b>			<b>62.8</b>	<b>0.2</b>	<b>0.2</b>	
Exchamsiks	CWHvm	3,452.1	0.6							65.5		0.3	
	MHm	331.7								61.3			
	<b>Exchamsiks Total</b>	<b>3,783.8</b>	<b>0.6</b>	<b>0.0</b>	<b>0.0</b>	<b>0.2</b>	<b>0.2</b>	<b>0.2</b>		<b>65.1</b>	<b>0.2</b>	<b>0.2</b>	
Exstew	CWHws	5,906.4	1.2	0.2	7.6	0.2	0.0			50.6	0.2	2.1	
	MHm	1,052.3		0.0	6.6					61.8			
	<b>Exstew Total</b>	<b>6,958.7</b>	<b>1.0</b>	<b>0.2</b>	<b>7.4</b>	<b>0.2</b>	<b>0.0</b>	<b>0.0</b>		<b>52.3</b>	<b>0.2</b>	<b>1.8</b>	
Falls	CMAaup	138.5			3.5					66.0			
	CWHvm	26,672.0	0.1		2.9	7.0	1.3			39.7		1.6	2.3
	MHm	7,816.3			1.9	0.3				55.5		0.6	2.3
<b>Falls Total</b>	<b>34,626.9</b>	<b>0.1</b>	<b>0.1</b>	<b>2.7</b>	<b>5.5</b>	<b>1.0</b>	<b>1.0</b>			<b>43.3</b>	<b>1.4</b>	<b>2.3</b>	
Foch	CMAaup	39.5								72.8			
	CWHvh	2,316.3			3.1	8.1	0.1			35.7			4.2
	CWHvm	3,040.3			3.3	4.0	0.9			48.5	0.3	1.1	
<b>Foch Total</b>	<b>6,256.9</b>	<b>0.6</b>	<b>0.0</b>	<b>2.7</b>	<b>5.0</b>	<b>0.5</b>	<b>0.5</b>			<b>47.8</b>	<b>0.2</b>	<b>2.1</b>	
Giltroyees	CMAaup	109.7			0.1					79.2			
	CWHvh	508.6			0.2	17.1				33.3			0.7
	CWHvm	3,740.7	1.0		14.7	3.5	0.7			34.9		2.4	1.0
<b>Giltroyees Total</b>	<b>1,744.5</b>	<b>0.6</b>	<b>0.0</b>	<b>2.4</b>	<b>0.1</b>	<b>0.4</b>	<b>0.4</b>			<b>67.1</b>	<b>1.5</b>	<b>1.3</b>	
Gitnadoix	CWHvm	6,103.5	1.7		9.7	3.6	1.3			44.8		1.5	1.0
	MHm	8,868.2			1.9	0.3				47.0		7.7	
	<b>Gitnadoix Total</b>	<b>786.4</b>	<b>1.6</b>	<b>0.0</b>	<b>6.4</b>	<b>0.3</b>	<b>1.2</b>	<b>1.2</b>		<b>60.6</b>	<b>1.6</b>	<b>7.2</b>	



Landscape Unit	BEC Subzone	CFLB (ha)	Western					Lodgepole Pine		Yellow Cedar	
			Cottonwood	Aspen	Fir	Red Cedar	Red Alder	Birch	Hemlock		Spruce
Hawkesbury Island East	CWHvh	3,396.6		1.0	13.4	1.7		34.8		1.0	2.7
	CWHvm	0.5						50.0			
	MHwh	257.8		1.0	1.0			64.0			0.4
Hawkesbury Island East Total		3,654.9		1.0	12.5	1.6		36.8		1.0	2.5
Hawkesbury Island West	CWHvh	8,702.2		2.0	16.7	0.1		27.0		0.2	5.4
	MHwh	634.2		0.1	0.5			56.6			5.7
Hawkesbury Island West Total		9,336.4		1.8	15.6	0.1		29.0		0.2	5.5
Hirsch	CMAaup	567.2		0.4				79.7			
	CWHvm	27,518.9	0.7	4.0	2.2	0.4		53.1	0.1	0.4	0.7
	CWHws	691.5		5.7				57.8			
	MHm	9,652.8		4.5				64.3			0.3
Hirsch Total		38,430.4	0.5	4.1	1.6	0.3		56.4	0.1	0.3	0.6
Horetzky	CMAaup	76.1						76.6			
	CWHvm	14.2						60.0			
	CWHws	1,922.3		8.3	2.9	6.0		41.6		2.0	
	MHm	4,130.3		2.8	0.1			68.0		0.5	
Horetzky Total		6,143.0		4.5	1.0	1.9		59.8		0.9	
Hot Springs	CWHws	6,266.9	0.3	0.1	1.4	0.9		57.2	2.1	5.9	
	MHm	788.1		0.3				76.2		0.2	
Hot Springs Total		7,055.0	0.2	0.1	1.3	1.0		59.4	1.8	5.3	
Ishkheenicckh	CMAaup	64.8						60.0			
	CWHvm	110.6						61.6			
	CWHws	4,884.0		3.3				51.9		2.4	
	MHm	2,548.6		6.8				55.0		1.5	
Ishkheenicckh Total		7,608.1		4.4				53.2		2.1	
Jesse Bish	CMAaup	33.0		0.1				82.5			
	CWHvh	0.9						69.2			
	CWHvm	16,596.1		5.3	7.1	0.3		42.5	0.1	1.0	1.5
	MHm	4,287.3		5.1				62.3		0.1	1.2
Jesse Bish Total		20,917.3		5.3	5.6	0.3		46.6	0.1	0.8	1.5

Landscape Unit	BEC Subzone	CFLB (ha)	Cottonwood	Aspen	Fir	Western Red	Red Alder	Birch	Hemlock	Lodgepole Pine	Spruce	Yellow Cedar
Kalum	CMAunn	13.6			11.5				61.7			
	CWHws	10.684.8	0.4	0.1	10.2	0.4	0.8	0.1	48.4	1.7	0.7	
	MHmm	1.302.6			4.2				65.2		0.6	
<b>Kalum Total</b>		<b>12.001.0</b>	<b>0.3</b>	<b>0.1</b>	<b>9.5</b>	<b>0.3</b>	<b>0.7</b>	<b>0.1</b>	<b>50.2</b>	<b>1.5</b>	<b>0.7</b>	
Kasiks	CWHvm	1.027.3							48.1		4.5	1.0
	MHmm	196.9							57.8			
<b>Kasiks Total</b>		<b>1.224.3</b>							<b>49.6</b>		<b>3.8</b>	<b>0.9</b>
Kemano	CMAunn	147.3			2.7				76.7			
	CWHvm	8.127.2	2.3		7.3	1.7	1.4		37.9	0.2	5.1	1.0
	CWHws	10.402.8	0.7		9.1	0.8	1.3	0.1	47.4		2.2	
	ESSFmk	188.1			28.6				46.0			
<b>Kemano Total</b>		<b>32.366.6</b>	<b>0.8</b>	<b>7.3</b>	<b>0.8</b>	<b>0.7</b>	<b>0.7</b>	<b>51.0</b>	<b>0.1</b>	<b>0.1</b>	<b>2.2</b>	<b>0.4</b>
Khtada	CWHvm	1.254.4	0.6		2.0		15.4		46.2		0.3	
	MHmm	92.2			17.6				49.4			
	MHmmp	2.2			34.4				29.5			
<b>Khtada Total</b>		<b>1.348.8</b>	<b>0.6</b>	<b>3.1</b>	<b>0.8</b>	<b>14.3</b>		<b>46.4</b>	<b>0.3</b>	<b>0.3</b>		
Kiteen	CWHws	15.895.2	0.1		9.6				65.8	0.3	2.0	
	ESSFvw	6.3			41.7				38.8			
	ICHmc	963.5	1.4						66.7		9.7	
	MHmm	18.102.3			40.6				37.0		0.2	
<b>Kiteen Total</b>		<b>34.967.3</b>	<b>0.1</b>	<b>25.4</b>	<b>0.5</b>	<b>1.8</b>		<b>50.9</b>	<b>0.1</b>	<b>1.3</b>		
Kitimat	CMAunn	341.0			2.4				80.0			
	CWHvm	657.1	2.6			0.2	4.8		60.7		0.2	
	CWHws	43.801.4	0.9		5.2	0.6	2.4		57.4	0.7	1.6	
	MHmm	13.780.5	0.1		4.0	0.1			70.5		0.5	
<b>Kitimat Total</b>		<b>58.580.0</b>	<b>0.7</b>	<b>4.8</b>	<b>0.5</b>	<b>1.8</b>		<b>60.7</b>	<b>0.5</b>	<b>1.3</b>		
Kleanza Treasure	CMAunn	303.4			38.8				33.9		2.9	
	CWHws	41.807.1	0.5	0.1	5.7	0.3			64.6	1.1	0.8	
	ICHmc	767.7	0.1	3.4			0.3	4.7	41.4	9.4	1.3	
	MHmm	18.036.2			14.9				55.5		0.1	
<b>Kleanza Treasure Total</b>		<b>60.914.4</b>	<b>0.4</b>	<b>0.1</b>	<b>8.5</b>	<b>0.2</b>	<b>0.1</b>	<b>61.4</b>	<b>0.9</b>	<b>0.6</b>		
Kowesas	CMAunn	161.0			9.9				61.9			
	CWHvm	20.929.6	0.1		7.8	2.5	0.5		44.0	0.3	1.9	1.9
	MHmm	2.895.8			5.1				61.3		1.8	0.9

Kowesas Total		23,986.4	0.1	7.5	2.2	0.4	46.2	0.3	1.9	1.7		
Landscape Unit	BEC Subzone	CFLB (ha)	Cottonwood	Aspen	Fir	Western Red Cedar	Red Alder	Birch	Hemlock	Lodgepole Pine	Spruce	Yellow Cedar
Ksedin	CMAunn	79.7			64.1				4.4			
	CWHws	4,142.8			3.6				58.9		1.8	
	MHm	3,545.9			4.3				69.3		0.1	
<b>Ksedin Total</b>		<b>7,768.5</b>		<b>4.5</b>				<b>63.1</b>			<b>1.0</b>	
Lakelse	CMAunn	133.7							91.2			
	CWHws	13,531.5	0.4		2.0	0.3	0.1	0.2	62.6	0.8	0.7	
	MHm	3,092.1			2.3				77.4			
<b>Lakelse Total</b>		<b>16,757.2</b>	<b>0.3</b>	<b>2.0</b>	<b>0.2</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>65.6</b>	<b>0.6</b>	<b>0.6</b>	
Nass River Kalum	ICHmc	124.1	1.1	6.3					57.0	2.9	0.3	
<b>Nass River Kalum Total</b>		<b>124.1</b>	<b>1.1</b>	<b>6.3</b>					<b>57.0</b>	<b>2.9</b>	<b>0.3</b>	
Nelson Fiddler	CMAunn	127.1			9.0				61.5			
	CWHws	33,815.9	0.9	1.0	9.5	0.5	0.8	0.1	44.9	3.8	1.2	
	ICHmc	146.7		0.3	22.2				33.6			
	MHm	13,667.7	0.2		12.3	0.1			51.5		0.6	
<b>Nelson Fiddler Total</b>		<b>47,757.5</b>	<b>0.7</b>	<b>0.7</b>	<b>10.3</b>	<b>0.4</b>	<b>0.6</b>	<b>0.1</b>	<b>46.8</b>	<b>2.7</b>	<b>1.0</b>	
Skeena Islands	CWHvm	1,006.9	29.9				39.8		0.2		1.6	
<b>Skeena Islands Total</b>		<b>1,006.9</b>	<b>29.9</b>				<b>39.8</b>		<b>0.2</b>		<b>1.6</b>	
Skeena River Kalum	CWHvm	2,737.4	19.4		0.6	2.6	10.0		28.4		4.4	
	CWHws	19,876.4	8.1	0.7	3.1	0.2	2.6	0.8	45.2	3.4	1.3	
	ICHmc	2,378.7	1.0	0.7	1.8	0.1	0.2	4.2	47.7	4.7	0.4	
	MHm	1,648.5			8.3				57.4	0.3	0.5	
<b>Skeena River Kalum Total</b>		<b>26,641.0</b>	<b>8.1</b>	<b>0.6</b>	<b>3.0</b>	<b>0.4</b>	<b>3.0</b>	<b>0.9</b>	<b>44.5</b>	<b>3.0</b>	<b>1.5</b>	
Telkwa	CMAunn	2,249.1			58.3				25.7			
	CWHws	22,124.0	0.3		6.4	0.2			71.2	0.4	0.3	
	ESSFmk	531.3			62.3				23.5			
	ESSFvw	48.3			84.3				42.4		0.4	
	MHm	13,796.0			35.6							
<b>Telkwa Total</b>		<b>38,748.7</b>	<b>0.2</b>		<b>20.7</b>	<b>0.1</b>		<b>57.6</b>	<b>0.2</b>	<b>0.3</b>		
Tseax	CWHws	13,988.7	0.2		22.4	0.1	0.3		39.7	0.3	1.2	
	ICHmc	11,027.0	1.5		7.1	0.8	0.3		45.9	1.6	2.4	
	MHm	4,981.9			25.8				43.1			
<b>Tseax Total</b>		<b>29,997.6</b>	<b>0.6</b>		<b>17.3</b>	<b>0.3</b>	<b>0.2</b>	<b>42.6</b>	<b>0.8</b>	<b>1.5</b>		

Landscape Unit	BEC Subzone	CFLB (ha)	Western					Lodgepole			Yellow Cedar	
			Cottonwood	Aspen	Fir	Red Cedar	Red Alder	Birch	Hemlock	Pine		Spruce
Wedeeene	CMAunp	138.3						79.1				
	CWHvh	331.7				19.6	0.1	29.4				1.2
	CWHvm	13,492.3	0.5		5.8	1.2	1.6	52.8	0.1		0.3	1.6
	CWHws	12,036.6	1.4		8.4	0.1	1.8	53.8			2.6	
	MHmm	8,134.3			4.5	0.1		69.8				0.1
Wedeeene Total		34,133.1	0.7		6.3	0.7	1.3	57.1		1.0		0.7

**Table 2.6.1b Percentage of Secondary Leading Species within Crown Forested Land Base**

Landscape Unit	BEC Variant	CFLB (ha)	Cottonwood	Aspen	Fir	Western Red Cedar	Red Alder	Birch	Hemlock	Lodgepole Pine	Spruce	Yellow Cedar
Beaver	CMAunp	51.7			20				10			
	CWHws	29,389.8			20	2			7		1	
	MHimm	11,898.8			26				5			
<b>Beaver Total</b>		<b>41,340.3</b>			<b>21</b>	<b>1</b>		<b>7</b>			<b>1</b>	
Dala	CMAunp	358.8			18						1	
	CWHvm	9,657.7			14	6	1		5		2	1
	CWHws	8,498.1			18	5			4		2	
	MHimm	11,298.4			21	1			2		1	2
<b>Dala Total</b>		<b>29,813.0</b>			<b>18</b>	<b>4</b>		<b>3</b>			<b>1</b>	
Dasque	CWHws	3,124.9			19	2			6			
	MHimm	684.8			13				3			
<b>Dasque Total</b>		<b>3,809.8</b>			<b>18</b>	<b>1</b>		<b>5</b>				
Exchamsiks	CWHvm	3,452.1			22	5					2	
	MHimm	331.7			32	4						
<b>Exchamsiks Total</b>		<b>3,783.8</b>			<b>23</b>	<b>5</b>					<b>2</b>	
Exstew	CWHws	5,906.4			16	3			9		1	
	MHimm	1,052.3			18				7			
<b>Exstew Total</b>		<b>6,958.7</b>			<b>16</b>	<b>2</b>		<b>9</b>			<b>1</b>	
Falls	CMAunp	138.5			17				1			6
	CWHvm	26,672.0			10	6			8		2	4
	MHimm	7,816.3			15	2			3		1	8
<b>Falls Total</b>		<b>34,626.9</b>			<b>11</b>	<b>5</b>		<b>7</b>		<b>2</b>	<b>5</b>	
Foch	CMAunp	39.5			18							1
	CWHvh	2,316.3			4	11			10		6	
	CWHvm	3,040.3			8	7			5		6	
	MHimm	860.8			7	1					8	
<b>Foch Total</b>		<b>6,256.9</b>			<b>7</b>	<b>8</b>		<b>6</b>			<b>6</b>	
Gilttoyes	CMAunp	109.7			18							2
	CWHvh	508.6			1	18			12		3	
	CWHvm	3,740.7			12	2			10		1	3
	MHimm	1,744.5			15	1			2		5	
<b>Gilttoyes Total</b>		<b>6,103.5</b>			<b>12</b>	<b>3</b>		<b>8</b>		<b>1</b>	<b>4</b>	
Gitnadoix	CWHvm	8,868.2			2	3			4		7	
	MHimm	786.4			19	1			4		4	
<b>Gitnadoix Total</b>		<b>9,654.6</b>			<b>2</b>	<b>3</b>		<b>4</b>		<b>7</b>		

Landscape Unit	BEC Variant	CFLB (ha)	Cottonwood	Aspen	Fir	Western Red Cedar	Red Alder	Birch	Hemlock	Lodgepole Pine	Spruce	Yellow Cedar
Hawkesbury Island East	CWHvh	3,396.6			5	11			9		1	3
	MHwh	257.8	2		2	12			1		2	9
<b>Hawkesbury Island East Total</b>		<b>3,654.3</b>			<b>5</b>	<b>11</b>			<b>9</b>		<b>1</b>	<b>4</b>
Hawkesbury Island West	CWHvh	8,702.2			4	9			13			5
	MHwh	634.2			4	3			4			17
<b>Hawkesbury Island West Total</b>		<b>9,336.4</b>			<b>4</b>	<b>8</b>			<b>13</b>		<b>1</b>	<b>6</b>
Hirsch	CMAaup	567.2			19							
	CWHvm	27,518.9			17	4			5			2
	CWHws	691.5			19	2			4		4	
	MHmm	9,652.8			24				3			1
<b>Hirsch Total</b>		<b>38,430.4</b>			<b>19</b>	<b>3</b>			<b>5</b>		<b>2</b>	
Horetzky	CMAaup	76.1			23							
	CWHvm	14.2			11						10	
	CWHws	1,922.3			10	6			8		2	
	MHmm	4,130.3			18	1			2		1	1
<b>Horetzky Total</b>		<b>6,143.0</b>			<b>16</b>	<b>3</b>			<b>4</b>		<b>1</b>	
Hot Springs	CWHws	6,266.9			12	3			5	1	1	
	MHmm	788.1			20	1			1			
<b>Hot Springs Total</b>		<b>7,055.0</b>			<b>13</b>	<b>3</b>			<b>4</b>		<b>1</b>	
Ishkheenicckh	CMAaup	64.8			30							
	CWHvm	110.6			33							
	CWHws	4,884.0			29				1		2	
	MHmm	2,548.6			27				2		2	
<b>Ishkheenicckh Total</b>		<b>7,608.1</b>			<b>28</b>				<b>2</b>		<b>2</b>	

Landscape Unit	BEC Variant	CFLB (ha)	Cottonwood	Aspen	Fir	Western Red Cedar	Red Alder	Birch	Hemlock	Lodgepole Pine	Spruce	Yellow Cedar
Jesse Bish	CMAunp	33.0			17							
	CWHvm	16,596.1			8	9			8		1	2
	MHimm	4,287.3			14	2			4			4
<b>Jesse Bish Total</b>		<b>20,916.4</b>		<b>9</b>	<b>8</b>			<b>7</b>				<b>3</b>
Kalum	CMAunp	13.6			19				8			
	CWHws	10,684.8			16	2			7	2	1	
	MHimm	1,302.6			22				4			
<b>Kalum Total</b>		<b>12,001.0</b>		<b>16</b>	<b>1</b>			<b>7</b>				
Kasiks	CWHvm	1,027.3			10	10			3		9	1
	MHimm	196.9			10	8					11	3
<b>Kasiks Total</b>		<b>1,224.3</b>			<b>10</b>	<b>10</b>			<b>3</b>		<b>9</b>	<b>2</b>
Kemano	CMAunp	147.3			11				1			
	CWHvm	8,127.2			9	4			7	1	3	2
	CWHws	10,402.8			14	4			6		3	
	ESSFmk	188.1			12				12			
	MHimm	13,501.2			17	1			3		1	3
	<b>Kemano Total</b>		<b>32,366.6</b>		<b>14</b>	<b>3</b>			<b>5</b>		<b>2</b>	<b>2</b>
Khtada	CWHvm	1,254.4	3		14	4			2		1	
	MHimm	92.2			23				8			
	MHimm	2.2			12				23			
<b>Khtada Total</b>		<b>1,348.8</b>		<b>15</b>	<b>3</b>			<b>3</b>		<b>1</b>		
Kiteen	CWHws	15,895.2			15				4	1	1	
	ESSFwv	6.3			10				10			
	ICHmc	963.5			3				3	3	9	
	MHimm	18,102.3			12				9			
	<b>Kiteen Total</b>		<b>34,967.3</b>		<b>13</b>				<b>7</b>		<b>1</b>	
Kitimat	CMAunp	341.0			15				2			
	CWHvm	657.1			11	3			1	1	1	
	CWHws	43,801.4			16	2			5		1	
	MHimm	13,780.5			20				3			
<b>Kitimat Total</b>		<b>58,580.0</b>		<b>17</b>	<b>1</b>			<b>4</b>		<b>1</b>		
Kleanza Treasure	CMAunp	303.4			12				11			
	CWHws	41,807.1			16	1			4	1		
	ICHmc	767.7		2	4	3		2	7	3	3	
	MHimm	18,036.2			18				9			
<b>Kleanza Treasure Total</b>		<b>60,914.4</b>		<b>16</b>	<b>1</b>			<b>6</b>				

Landscape Unit	BEC Variant	CFLB (ha)	Cottonwood	Aspen	Fir	Western Red Cedar	Red Alder	Birch	Hemlock	Lodgepole Pine	Spruce	Yellow Cedar
Kowesas	CMAaup	161.0			7				8			5
	CWHvm	20,929.6			9	5			6		1	5
	MHimm	2,895.8			10				4		1	7
<b>Kowesas Total</b>		<b>23,986.4</b>			<b>9</b>	<b>4</b>		<b>6</b>		<b>1</b>	<b>5</b>	
Ksedin	CMAaup	79.7			2				29			
	CWHws	4,142.8			27				3		1	
	MHimm	3,545.9			22				2			
<b>Ksedin Total</b>		<b>7,768.5</b>			<b>25</b>			<b>3</b>		<b>1</b>		
Lakelse	CMAaup	133.7			8							
	CWHws	13,531.5			14	3			7			
	MHimm	3,092.1			15				3			
<b>Lakelse Total</b>		<b>16,757.2</b>			<b>14</b>	<b>2</b>		<b>6</b>				
Nass River Kalum	ICHmc	124.1	1		6				1	2	11	
<b>Nass River Kalum Total</b>		<b>124.1</b>	<b>1</b>		<b>6</b>				<b>1</b>	<b>2</b>	<b>11</b>	
Nelson Fiddler	CMAaup	127.1			27				2			
	CWHws	33,815.9			17	1		1	8	1	1	
	ICHmc	146.7	2	1	18				20			
	MHimm	13,667.7			21				9			
<b>Nelson Fiddler Total</b>		<b>47,757.5</b>			<b>18</b>	<b>1</b>		<b>8</b>		<b>1</b>		
Skeena Islands	CWHvm	1,006.9	7		0			11			7	
<b>Skeena Islands Total</b>		<b>1,006.9</b>	<b>7</b>		<b>0</b>			<b>11</b>			<b>7</b>	
Skeena River Kalum	CWHvm	2,737.4	2		4	5			4		5	
	CWHws	19,876.4	1		11	2		1	5	1	1	
	ICHmc	2,378.7	1	2	13	1		3	7			
	MHimm	1,648.5			14				11		1	1
<b>Skeena River Kalum Total</b>		<b>26,641.0</b>	<b>1</b>	<b>1</b>	<b>10</b>	<b>2</b>	<b>2</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>2</b>	



Landscape Unit	BEC Variant	CFLB (ha)	Cottonwood	Aspen	Fir	Western Red Cedar	Red Alder	Birch	Hemlock	Lodgepole Pine	Spruce	Yellow Cedar
Telkwa	CMaup	2,249.1			8				7			
	CWHws	22,124.0			15	1			3		1	
	ESSFmk	531.3			6				8			
	ESSFwv	48.3							16			
	MHimm	13,796.0			12				9			
<b>Telkwa Total</b>		<b>38,748.7</b>			<b>13</b>			<b>5</b>			<b>1</b>	
Tseax	CWHws	13,988.7			18	1			10		2	
	ICHmc	11,027.0			13	4			6	1	3	
	MHimm	4,981.9			21				9			
<b>Tseax Total</b>		<b>29,997.6</b>			<b>17</b>	<b>2</b>		<b>8</b>			<b>2</b>	
Wedeeene	CMaup	138.3			20							
	CWHvh	331.7			3	12			13			2
	CWHvm	13,492.3			13	3	1		5		1	5
	CWHws	12,036.6			18	1	1		5		2	
	MHimm	8,134.3			18				3			1
<b>Wedeeene Total</b>		<b>34,133.1</b>			<b>16</b>	<b>2</b>		<b>5</b>			<b>1</b>	<b>2</b>

**Data Sources**

Data Set: **Landscape Units**  
 Source: //giswhse.env.gov.bc.ca/corp/arcwhse/landuse/tlu\_bc  
 Project Location: kmbiodiversity.pgd/tlu\_kmv4

Data Set: **Biogeoclimatic**  
 Source: WHSE\_FOREST\_VEGETATION.RES\_BIOGEOCLIMATIC  
 Project Location: kmbiodiversity.pgd/abec\_kmv2

Data Set: **Crown Forested Land Base**  
 Source: compilation of VRI, TFL Data and Private Land Data  
 Project Location: kmbiodiversity.mdb/cflb\_kmv2

**2.7 Objective: Attain a Landscape Pattern that Reflects Natural Disturbance Patterns**

Attain a landscape pattern of patchiness that, over a long term, reflects the natural disturbance patterns as per Kalum SRMP<sup>16</sup>.

Lead Agency:

**2.7.1 Indicator: Percent Distribution by Patch Size by Natural Disturbance Type**

**2.7.1.a Indicator details**

<b>Supporting Agencies</b>	<b>Area to be Monitored</b>	<b>Source</b>	<b>Legal</b>
	LRMP	LRMP Section 2.2.4 Strategy 2.1 SRMP Section 2.1.6 Objective 7	Yes
<b>Data Required for Monitoring</b>	<b>Data Available</b>	<b>Prerequisites to Monitoring</b>	
See Section 2.7.1b Analysis Data Sources	See Section 2.7.1b Analysis Data Sources		
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	

<sup>16</sup> Kalum Sustainable Resource Management Plan, April 2006, Table 7. Integrated Land Management Bureau, Province Of B.C.

### **2.7.1.b Analysis**

#### **Methodology**

The patch analysis was completed by delineating patches based on age classes and patch size classes as defined in the Biodiversity Guidebook. Age classes used in the patch analysis were based on previous analysis from the Kalum Biodiversity Summary – Technical Report<sup>17</sup>.

A field representing age class categories was added to the CFLB. For this analysis each contiguous age class polygon was considered a separate patch, no matter how close it was to another similarly aged polygon. This polygon layer was dissolved by age class to simplify the analysis. Additional data layers representing biogeoclimatic subzones, landscape units and natural disturbance type was incorporated for summarizing the data. Patch size classes were queried based on the patch area of age class polygon within the appropriate NDT, landscape unit and biogeoclimatic subzone.

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<sup>17</sup> Kalum Biodiversity Summary – Technical Report, Ardea Biological Consulting, March 2005.

**Results**

**Table 2.7.1a Percent Distribution by Patch Size for NDT1**

Landscape Unit	BEC Variant	Patch Size Class				CFLB (ha) Total
		< 40 Ha	40 - 80 Ha	80 - 250 Ha	250 + Ha	
Beaver	MH mm 2	2 722.3	1 491.6	2 081.7	5 633.6	11 929.1
Beaver Total		2 722.3	1 491.6	2 081.7	5 633.6	11 929.1
% of I.U.		22.8%	12.5%	17.5%	47.2%	100.0%
Dala	CWH vm	2 450.2	964.2	620.0	6 100.6	10 135.0
Dala Total	MH mm 1	5 119.9	1 184.1	1 480.2	3 565.1	11 349.3
Dala Total		7 570.1	2 148.3	2 100.2	9 665.7	21 484.3
% of I.U.		35.2%	10.0%	9.8%	45.0%	100.0%
Dasque	MH mm 2	643.5	41.4	0.0	0.0	684.8
Dasque Total		643.5	41.4	0.0	0.0	684.8
% of LU		94.0%	6.0%	0.0%	0.0%	100.0%
Exchamsiks	CWH vm	1 697.4	1 049.9	1 010.2	3 13.9	4 071.3
Exchamsiks Total	MH mm 1	425.6	0.0	0.0	0.0	425.6
Exchamsiks Total		2 122.9	1 049.9	1 010.2	3 13.9	4 496.9
% of LU		47.2%	23.3%	22.5%	7.0%	100.0%
Exstew	MH mm 2	388.1	75.3	255.9	526.4	1 245.7
Exstew Total		388.1	75.3	255.9	526.4	1 245.7
% of I.U.		31.2%	6.0%	20.5%	42.3%	100.0%
Falls	CWH vm	4 842.8	1 841.5	2 241.9	17 712.9	26 639.1
Falls	CWH vm 1	26.9	0.0	181.2	0.0	208.1
Falls	CWH vm 2	15.0	0.0	0.0	0.0	15.0
Falls Total	MH mm 1	3 127.7	487.8	1 008.9	3 191.9	7 816.3
Falls Total		8 012.3	2 329.2	3 432.0	20 904.8	34 678.4
% of LU		23.1%	6.7%	9.9%	60.3%	100.0%
Foch	CWH vh 2	3 15.0	96.5	229.0	1 677.4	2 318.0
Foch	CWH vm	1 259.3	394.1	877.9	509.1	3 040.3
Foch	MH mm 1	599.0	261.8	0.0	0.0	860.8
Foch Total		2 173.3	752.4	1 106.9	2 186.5	6 219.1
% of LU		34.9%	12.1%	17.8%	35.2%	100.0%

Landscape Unit	BEC Variant	Patch Size Class					CFLB (ha) Total
		< 40 Ha	40 - 80 Ha	80 - 250 Ha	250 + Ha		
Gilttoeyes	CWH vh 2	48.1	0.0	0.0	460.5	508.6	
	CWH vm	1,259.9	619.6	603.0	1,258.2	3,740.7	
	MH mm 1	930.4	378.5	435.6	0.0	1,744.5	
Gilttoeyes Total % of LU		2,238.4	998.1	1,038.5	1,718.7	5,993.8	
		37.3%	16.7%	17.3%	28.7%	100.0%	
Gitnadoix	CWH vm	3,325.7	1,453.0	2,131.6	2,078.6	8,988.9	
	CWH vm 2	0.0	0.0	0.0	0.0	0.0	
	MH mm 1	697.9	94.7	0.0	0.0	792.6	
Gitnadoix Total % of LU		4,023.6	1,547.8	2,131.6	2,078.6	9,781.5	
		41.1%	15.8%	21.8%	21.3%	100.0%	
Hawkesbury Island East	CWH vh 2	403.7	162.4	91.6	2,738.8	3,396.6	
	CWH vm	0.5	0.0	0.0	0.0	0.5	
	MH wh 1	86.3	67.0	104.5	0.0	257.8	
Hawkesbury Island East Total % of LU		490.6	229.4	196.1	2,738.8	3,654.9	
		13.4%	6.3%	5.4%	74.9%	100.0%	
Hawkesbury Island West	CWH vh 2	540.5	120.8	112.6	7,928.9	8,703.0	
	MH wh 1	317.5	0.0	0.0	316.7	634.2	
		858.0	120.8	112.6	8,245.7	9,337.2	
Hawkesbury Island West Total % of LU		9.2%	1.3%	1.2%	88.3%	100.0%	
	Hirsch	2,957.1	1,411.6	2,049.3	21,447.7	27,865.8	
Hirsch Total % of LU	MH mm 1	1,994.2	282.8	300.4	7,115.3	9,692.6	
		4,951.3	1,694.3	2,349.7	28,563.0	37,558.4	
		13.2%	4.5%	6.3%	76.0%	100.0%	
Horetzky	CWH vm	14.2	0.0	0.0	0.0	14.2	
	MH mm 2	1,251.5	478.7	456.4	1,951.6	4,138.3	
		1,265.7	478.7	456.4	1,951.6	4,152.5	
Horetzky Total % of LU		30.5%	11.5%	11.0%	47.0%	100.0%	

Landscape Unit	BEC Variant	Patch Size Class					CFLB (ha) Total
		< 40 Ha	40 - 80 Ha	80 - 250 Ha	250 + Ha		
Hot Springs	MH mm 2	225.6	66.6	160.9	366.3	819.4	
Hot Springs Total		225.6	66.6	160.9	366.3	819.4	
% of LU		27.5%	8.1%	19.6%	44.7%	100.0%	
Ishkheenickh	CWH vm	0.1	0.0	109.6	0.0	109.7	
	CWH vm 2	0.0	0.0	0.0	0.0	0.0	
	MH mm 1	1,134.1	105.3	476.2	833.0	2,548.6	
Ishkheenickh Total		1,134.2	105.3	585.9	833.0	2,658.3	
% of LU		42.7%	4.0%	22.0%	31.3%	100.0%	
Jesse Bish	CWH vh 2	0.9	0.0	0.0	0.0	0.9	
	CWH vm	1,916.9	416.3	536.7	13,806.5	16,676.3	
	MH mm 1	1,933.2	478.8	506.0	1,369.3	4,287.3	
Jesse Bish Total		3,851.0	895.0	1,042.8	15,175.8	20,964.5	
% of LU		18.4%	4.3%	5.0%	72.4%	100.0%	
Kalum	MH mm 2	467.3	221.7	328.5	285.1	1,302.6	
Kalum Total		467.3	221.7	328.5	285.1	1,302.6	
% of LU		35.9%	17.0%	25.2%	21.9%	100.0%	
Kasiks	CWH vm	751.5	258.5	88.7	0.0	1,098.7	
	MH mm 1	197.1	0.0	0.0	0.0	197.1	
Kasiks Total		948.6	258.5	88.7	0.0	1,295.8	
% of LU		73.2%	19.9%	6.8%	0.0%	100.0%	
Kemano	CWH vm	1,739.0	619.9	870.7	495.8	3,725.4	
	CWH vm 1	1,349.6	287.6	799.7	537.3	2,974.3	
	CWH vm 2	818.9	240.3	368.3	0.0	1,427.5	
	MH mm 1	2,272.1	493.8	391.1	0.0	3,157.1	
	MH mm 2	4,837.5	1,672.7	1,576.8	2,270.5	10,357.4	
Kemano Total		11,017.1	3,314.3	4,006.7	3,303.6	21,641.7	
% of LU		50.9%	15.3%	18.5%	15.3%	100.0%	

Landscape Unit	BEC Variant	Patch Size Class					CFLB (ha) Total
		< 40 Ha	40 - 80 Ha	80 - 250 Ha	250 + Ha		
Khtada	CWH vm	0.0	0.0	0.0	0.0	0.0	0.0
	CWH vm 1	202.4	280.0	0.0	320.0	802.4	
	CWH vm 2	122.7	49.2	0.0	297.5	469.4	
	MH mm 1	92.2	0.0	0.0	0.0	92.2	
Khtada Total % of LU		417.2	329.2	0.0	617.6	1,364.0	
		30.6%	24.1%	0.0%	45.3%	100.0%	
Kiteen	ESSFwv	6.3	0.0	0.0	0.0	6.3	
	MH mm 2	2,225.1	1,018.0	1,872.6	13,053.1	18,168.8	
Kiteen Total % of LU		2,231.4	1,018.0	1,872.6	13,053.1	18,175.1	
		12.3%	5.6%	10.3%	71.8%	100.0%	
Kitimat	CWH vm	218.3	67.0	374.8	0.0	660.2	
	MH mm 1	1,648.5	539.3	1,042.2	5,049.4	8,279.4	
	MH mm 2	1,532.6	973.8	1,176.5	1,865.2	5,548.1	
Kitimat Total % of LU		3,399.4	1,580.2	2,593.5	6,914.6	14,487.7	
		23.5%	10.9%	17.9%	47.7%	100.0%	
Kleanza Treasure	MH mm 2	2,749.0	1,290.8	2,366.6	11,896.4	18,302.8	
		2,749.0	1,290.8	2,366.6	11,896.4	18,302.8	
Kleanza Treasure Total % of LU		15.0%	7.1%	12.9%	65.0%	100.0%	
Kowesas	CWH vm	4,781.2	1,285.6	2,798.3	1,394.3	10,259.4	
	CWH vm 1	2,825.8	1,057.6	1,695.8	922.4	6,501.6	
	CWH vm 2	2,933.4	655.9	589.6	0.0	4,178.9	
	MH mm 1	2,470.7	248.0	178.8	0.0	2,897.5	
Kowesas Total % of LU		13,011.0	3,247.1	5,262.5	2,316.7	23,837.4	
		54.6%	13.6%	22.1%	9.7%	100.0%	
Ksedin	MH mm 2	651.0	165.3	0.0	2,734.8	3,551.1	
		651.0	165.3	0.0	2,734.8	3,551.1	
Ksedin Total % of LU		18.3%	4.7%	0.0%	77.0%	100.0%	

Landscape Unit	BEC Variant	Patch Size Class				CFLB (ha) Total
		< 40 Ha	40 - 80 Ha	80 - 250 Ha	250 + Ha	
Lakelse	MH mm 2	721.5	253.1	901.5	1,341.5	3,217.6
Lakelse Total		721.5	253.1	901.5	1,341.5	3,217.6
% of LU		22.4%	7.9%	28.0%	41.7%	100.0%
Nelson Fiddler	MH mm 2	3,857.0	1,868.1	3,158.3	4,866.7	13,750.0
Nelson Fiddler Total		3,857.0	1,868.1	3,158.3	4,866.7	13,750.0
% of LU		28.1%	13.6%	23.0%	35.4%	100.0%
Skeena Islands	CWH vm	0.0	0.0	0.0	0.0	0.0
	CWH vm 1	816.5	334.1	0.0	0.0	1,150.6
	CWH vm 2	1.1	0.0	0.0	0.0	1.1
	MH mm 1	0.0	0.0	0.0	0.0	0.0
Skeena Islands Total		817.6	334.1	0.0	0.0	1,151.6
% of LU		71.0%	29.0%	0.0%	0.0%	100.0%
Skeena River Kalum	CWH vm	1,499.9	615.6	704.3	0.0	2,819.8
	MH mm 1	30.3	0.0	0.0	0.0	30.3
	MH mm 2	554.1	129.5	940.2	0.0	1,623.9
Skeena River Kalum Total		2,084.3	745.1	1,644.5	0.0	4,473.9
% of LU		46.6%	16.7%	36.8%	0.0%	100.0%
Telkwa	ESSFwv	48.3	0.0	0.0	0.0	48.3
	MH mm 2	1,582.4	971.1	2,060.8	9,227.1	13,841.4
Telkwa Total		1,630.7	971.1	2,060.8	9,227.1	13,889.7
% of LU		11.7%	7.0%	14.8%	66.4%	100.0%
Tseax	MH mm 2	897.3	280.4	619.8	2,475.8	4,273.4
Tseax Total		897.3	280.4	619.8	2,475.8	4,273.4
% of LU		21.0%	6.6%	14.5%	57.9%	100.0%



Landscape Unit	BEC Variant	Patch Size Class					CFLB (ha) Total
		< 40 Ha	40 - 80 Ha	80 - 250 Ha	250 + Ha		
Wedeeene	CWH vh 2	209.7	121.9	0.0	0.0	0.0	331.7
	CWH vm	2,220.3	691.8	697.2	10,040.1	13,649.4	
	CWH vm 1	5.4	0.0	0.0	0.0	5.4	
	MH mm 1	1,370.4	436.7	1,005.0	1,297.4	4,109.5	
	MH mm 2	1,708.1	658.1	721.1	942.1	4,029.4	
Wedeeene Total		5,514.0	1,908.6	2,423.2	12,279.6	22,125.4	
% of LU		24.9%	8.6%	11.0%	55.5%	100.0%	

**Table 2.7.1b Patch Size Distribution for NDT2**

Landscape Unit	BEC Variant	Patch Size Class					CFLB (ha) Total
		< 40 Ha	40 - 80 Ha	80 - 250 Ha	250 + Ha		
Beaver	CWH ws 1	3,001.6	2,445.2	4,176.1	6,874.7	16,497.6	
	CWH ws 2	2,071.6	1,265.5	2,139.5	7,702.6	13,179.2	
Beaver Total		5,073.2	3,710.7	6,315.6	14,577.3	29,676.8	
% of LU		17.1%	12.5%	21.3%	49.1%	100.0%	
Dala	CWH ws 2	2,032.2	1,377.3	1,523.8	3,697.3	8,630.6	
Dala Total		2,032.2	1,377.3	1,523.8	3,697.3	8,630.6	
% of LU		23.5%	16.0%	17.7%	42.8%	100.0%	
Dasque	CWH ws 1	359.2	245.2	466.6	496.8	1,567.7	
	CWH ws 2	745.8	274.9	592.0	0.0	1,612.8	
Dasque Total		1,105.0	520.1	1,058.6	496.8	3,180.5	
% of LU		34.7%	16.4%	33.3%	15.6%	100.0%	
Exstew	CWH ws 1	961.7	410.4	631.3	743.9	2,747.2	
	CWH ws 2	985.2	431.2	510.6	1,465.8	3,392.7	
Exstew Total		1,946.9	841.6	1,141.8	2,209.6	6,140.0	
% of LU		31.7%	13.7%	18.6%	36.0%	100.0%	
Hirsch	CWH ws 1	159.2	47.8	212.5	0.0	419.4	
	CWH ws 2	18.3	41.9	213.3	0.0	273.5	
Hirsch Total		177.4	89.6	425.8	0.0	692.9	
% of LU		25.6%	12.9%	61.5%	0.0%	100.0%	
Horetzky	CWH ws 2	582.1	247.1	105.6	1,023.1	1,957.9	
		582.1	247.1	105.6	1,023.1	1,957.9	
Horetzky Total		29.7%	12.6%	5.4%	52.3%	100.0%	
% of LU							
Hot Springs	CWH ws 1	1,059.7	803.5	664.5	2,384.1	4,911.8	
	CWH ws 2	219.7	173.8	225.3	821.8	1,440.6	
Hot Springs Total		1,279.4	977.3	889.8	3,205.9	6,352.4	
% of LU		20.1%	15.4%	14.0%	50.5%	100.0%	

Landscape Unit	BEC Variant	Patch Size Class				CFLB (ha) Total
		< 40 Ha	40 - 80 Ha	80 - 250 Ha	250 + Ha	
Ishkheenickh	CWH ws 1	197.8	183.3	203.0	364.8	948.9
	CWH ws 2	841.0	568.2	981.3	1,544.5	3,935.1
Ishkheenickh Total		1,038.8	751.6	1,184.3	1,909.3	4,884.0
% of LU		21.3%	15.4%	24.2%	39.1%	100.0%
Kalum	CWH ws 1	1,777.4	1,165.9	2,068.4	2,383.3	7,395.0
	CWH ws 2	539.9	397.6	744.3	1,762.2	3,443.9
Kalum Total		2,317.2	1,563.5	2,812.7	4,145.5	10,838.9
% of LU		21.4%	14.4%	25.9%	38.2%	100.0%
Kemano	CWH ws 2	3,431.9	1,517.8	2,857.7	2,828.7	10,636.1
	ESSFmk	44.2	0.0	144.0	0.0	188.1
Kemano Total		3,476.1	1,517.8	3,001.7	2,828.7	10,824.3
% of LU		32.1%	14.0%	27.7%	26.1%	100.0%
Kiteen	CWH ws 2	1,574.0	1,239.1	1,410.1	11,722.7	15,945.9
	ICH mc 1	0.2	0.0	0.0	0.0	0.2
	ICH mc 2	266.2	117.1	321.9	258.2	963.4
Kiteen Total		1,840.4	1,356.1	1,732.0	11,980.9	16,909.4
% of LU		10.9%	8.0%	10.2%	70.9%	100.0%
Kitimat	CWH ws 1	2,480.5	1,208.3	4,303.1	14,457.0	22,448.8
	CWH ws 2	2,862.7	1,381.0	2,860.3	14,914.9	22,018.9
Kitimat Total		5,343.2	2,589.3	7,163.4	29,371.9	44,467.7
% of LU		12.0%	5.8%	16.1%	66.1%	100.0%
Kleanza Treasure	CWH ws 1	2,945.0	1,749.5	3,350.1	7,291.3	15,335.9
	CWH ws 2	3,341.3	1,757.3	2,486.9	19,905.1	27,490.5
	ICH mc 2	85.9	151.9	557.8	0.0	795.6
Kleanza Treasure Total		6,372.3	3,658.6	6,394.8	27,196.4	43,622.1
% of LU		14.6%	8.4%	14.7%	62.3%	100.0%

Landscape Unit	BEC Variant	Patch Size Class				CFLB (ha) Total
		< 40 Ha	40 - 80 Ha	80 - 250 Ha	250 + Ha	
Ksedin	CWH ws 1	205.7	212.4	583.8	0.0	1,001.9
	CWH ws 2	358.1	348.1	171.0	2,354.5	3,231.7
Ksedin Total % of LU		563.8	560.4	754.7	2,354.5	4,233.5
		13.3%	13.2%	17.8%	55.6%	100.0%
Lakelse	CWH ws 1	1,358.1	730.8	1,699.4	2,951.1	6,739.4
	CWH ws 2	756.1	920.8	789.8	4,796.9	7,263.6
Lakelse Total % of LU		2,114.2	1,651.6	2,489.3	7,747.9	14,003.0
		15.1%	11.8%	17.8%	55.3%	100.0%
Nass River Kalum	ICH mc 1	31.5	0.0	92.6	0.0	124.1
		31.5	0.0	92.6	0.0	124.1
Nass River Kalum Total % of LU		25.4%	0.0%	74.6%	0.0%	100.0%
Nelson Fiddler	CWH ws 1	3,991.3	1,837.0	4,421.4	8,376.0	18,625.7
	CWH ws 2	4,005.0	2,908.8	2,938.8	5,922.6	15,775.2
Nelson Fiddler Total % of LU	ICH mc 2	11.3	0.0	135.5	0.0	146.7
		8,007.5	4,745.8	7,495.7	14,298.7	34,547.7
		23.2%	13.7%	21.7%	41.4%	100.0%
Skeena River Kalum	CWH ws 1	6,007.7	3,502.7	3,459.0	3,326.4	16,295.7
	CWH ws 2	935.0	579.3	1,582.4	1,561.5	4,658.2
Skeena River Kalum Total % of LU	ICH mc 2	370.4	337.8	304.7	1,395.0	2,407.9
		7,313.1	4,419.8	5,346.1	6,282.8	23,361.9
		31.3%	18.9%	22.9%	26.9%	100.0%
Telkwa	CWH ws 1	1,861.0	1,140.3	1,113.7	3,280.1	7,395.2
	CWH ws 2	1,427.1	906.3	1,393.3	11,433.4	15,160.1
Telkwa Total % of LU	ESSFmk	17.5	76.5	249.0	273.3	616.3
		3,305.6	2,123.1	2,756.0	14,986.9	23,171.6
		14.3%	9.2%	11.9%	64.7%	100.0%

Landscape Unit	BEC Variant	Patch Size Class					CFLB (ha) Total
		< 40 Ha	40 - 80 Ha	80 - 250 Ha	250 + Ha		
Tseax	CWH ws 1	436.6	528.7	471.2	515.1	1,951.7	
	CWH ws 2	1,011.6	890.6	1,062.0	7,788.4	10,752.5	
	ICH mc 2	2,354.8	1,308.2	2,782.6	4,261.1	10,706.7	
Tseax Total		3,803.1	2,727.4	4,315.8	12,564.6	23,410.9	
% of LU		16.2%	11.7%	18.4%	53.7%	100.0%	
Wedeeene	CWH ws 1	1,009.7	867.0	831.7	3,784.2	6,492.6	
	CWH ws 2	1,498.8	1,213.9	910.8	1,949.8	5,573.3	
Wedeeene Total		2,508.5	2,080.9	1,742.5	5,734.0	12,065.9	
% of LU		20.8%	17.2%	14.4%	47.5%	100.0%	

## Data Sources

Data Set:	<b>Landscape Units</b>
Source:	giswhse.env.gov.bc.ca/corp/arcwhse/landuse/tlu_bc
Project Location:	kmbiodiversity.pgd/tlu_kmv4
Data Set:	<b>Biogeoclimatic</b>
Source:	WHSE_FOREST_VEGETATION.RES_BIOGEOCLIMATIC
Item Name:	zone, subzone, variant, phase, beclabel
Project Location:	kmbiodiversity.pgd/abec_kmv2
Data Set:	<b>Natural Disturbance Type</b>
Source:	Manual table created from Biodiversity Guidebook/BEC data set
Project Location:	kmbiodiversity.pgd/abec_km
Data Set:	<b>Crown Forested Land Base</b>
Source:	compilation of VRI, TFL Data and Private Land Data
Project Location:	kmbiodiversity.mdb/cflb_kmv2

## 2.8 Objective: Maintain Forest Stand Structure and Function Between Kiteen and Cedar Drainages

Maintain forest stand structure and function for continued wildlife movement through:

- Within polygon “A”, the pass between Kiteen and Cedar drainages.
- Within polygon “B”, the level pass between the Kiteen (Ksi Gahl’t’in) and Cedar drainages harvested with partial cutting systems.

Lead Agency:

### 2.8.1 Indicator: Amount of Harvesting Within Polygon “A”

Amount of harvesting within polygon “A”<sup>18</sup>, the pass between Kiteen and Cedar drainages.

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<sup>18</sup> Kalum Sustainable Resource Management Plan, April 2006, Map 5. Integrated Land Management Bureau. Province of B.C.

## 2.8.1a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> Polygon "A"	<b>Source</b> LRMP Section 2.2.4 Strategy 5.3 Section 2.2.18, Strategy 4.1 SRMP Section 2.1.7 Objective 8i	<b>Legal</b> Yes
<b>Data Required for Monitoring</b> See Section 2.8.1b Analysis Data Sources	<b>Data Available</b> See Section 2.8.1b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

## 2.8.1b Analysis

### Methodology

Harvested areas are clipped to polygon "A", which represents the pass between Kiteen and Cedar drainages. The area of polygons representing harvested areas as well as the area of CFLB within polygon "A" are summed using the STATISTICS command.

### Results

The pass between Kiteen and Cedar covers an area of 93 hectares. The analysis results show 1.4 hectares of harvesting in the pass. This could represent sliver polygons and indicate harvesting adjacent to the pass.

### Data Sources

Data Set: **Harvested Areas**  
 Source: WHSE\_FOREST\_VEGETATION.RSLT\_FOREST\_COVER\_POLY  
 Project Location: kmbiodiversity.pgd/harvested\_Erase

Data Set: **Kalum SRMP Polygon "A" (Pass between Kiteen and Cedar)**  
 Source: slkgis2/work/srm/smt/workarea/Malkow/kalum\_srmp/data/wildlife/akice\_smz  
 Project Location: /kmadmin.pgd/poly\_a

Data Set: **Crown Forested Land Base**  
 compilation of VRI, TFL Data and Private Land  
 Source: Data  
 Project Location: kmbiodiversity.mdb/cflb\_kmv2

## 2.8.2 Indicator: Percent of Harvested Area within Polygon “B”

Percent of harvested area within polygon “B” , the level pass between the Kiteen and Cedar drainages harvested with partial cutting systems.

### 2.8.2 a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> Polygon “B”	<b>Source</b> LRMP Section 2.2.4 Strategy 5.3 Section 2.2.18, Strategy 4.1 SRMP Section 2.1.7 Objective 8i	<b>Legal</b> Yes
<b>Data Required for Monitoring</b> See Section 2.8.2b Analysis Data Sources	<b>Data Available</b> See Section 2.8.2b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

### 2.8.2.b Analysis

#### Methodology

Harvested areas are clipped to polygon “B”, which represents the pass between Kiteen and Cedar drainages with partial harvesting. The area of polygons representing harvested areas as well as the area of CFLB within polygon “B” are summed using the STATISTICS command.

#### Results

The pass between Kiteen and Cedar designated as partial harvesting covers an area of 96 hectares. The analysis results show no harvesting in this section of the pass.

#### Data Sources

Data Set: **Harvested Areas**  
 Source: WHSE\_FOREST\_VEGETATION.RSLT\_FOREST\_COVER\_POLY  
 Project Location: kmbiodiversity.pgd/harvested\_Erase

Data Set: **Kalum SRMP Polygon "B" (Area on either side of pass between Kiteen and Cedar)**  
 Source: //slkgis2/work/srm/smt/workarea/Malkow/kalum\_srmp/data/wildlife/akice\_smz  
 Project Location: /kmadmin.pgd/poly\_b



## 2.9 Objective: Maintain Forest Stand Structure Between Williams and Thomas/Clore Watersheds

Maintain forest stand structure and function to facilitate wildlife movement, in the level pass between the Williams and Thomas/Clore watersheds<sup>19</sup>.

Lead Agency:

### 2.9.1 Indicator: Percent of Old and Mature Seral Stages

Percent of area in old and mature seral stages in the level pass between the Williams and Thomas/Clore watersheds.

#### 2.9.1.a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b>	<b>Source</b>	<b>Legal</b>
	Level Pass between Williams and Thomas/Clore watersheds	LRMP Section 2.2.4 Strategy 5.4 Section 2.2.18, Strategy 4.1 SRMP Section 2.1.7 Objective 9	No
<b>Data Required for Monitoring</b>	<b>Data Available</b>	<b>Prerequisites to Monitoring</b>	
See Section 2.9.1b Analysis Data Sources	See Section 2.9.1b Analysis Data Sources		
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

#### 2.9.1.b Analysis

##### Methodology

The level pass polygon was intersected with the CFLB and biogeoclimatic zones. The mature + old seral stage is queried as:

Bec Zone = CWH and Projected Age > 80 or

Bec Zone = ESSF and Projected Age > 120 or

<sup>19</sup> Kalum Sustainable Resource Management Plan, April 2006, Map 5. Integrated Land Management Bureau. Province of B.C.  
*Kalum LRMP Resource Monitoring Framework*

Bec Zone = ICH and Projected Age > 100 or  
 Bec Zone = MH and Projected Age > 120

The area of the mature and old selection is summed, as well as the area of CFLB within the level pass polygon.

## Results

The area of the level pass between the Williams and Thomas/Clore watersheds is 714 hectares. Ninety nine percent of the pass within the CFLB is in old and mature seral stages.

## Data Sources

Data Set: **Crown Forested Land Base**  
 compilation of VRI, TFL Data and Private Land  
 Source: Data  
 Project Location: kmbiodiversity.mdb/cflb\_kmv2

Data Set: **Pass between Williams and Thomas/Clore Watersheds ("Level Pass")**  
 Source: /srm/smt/workarea/Malkow/kalum\_srmp/data/wildlife/ws\_cc  
 Project Location: kmadmin.pgd/level\_pass

Data Set: **Biogeoclimatic**  
 Source: WHSE\_FOREST\_VEGETATION.RES\_BIOGEOCLIMATIC  
 Item Name: zone, subzone, variant, phase, beclabel  
 Project Location: kmbiodiversity.pgd/abec\_kmv2

## 2.10 Objective: Conserve Rare Plant Communities on the Skeena Islands

Conserve rare plant communities on the Skeena Islands identified in Kalum SRMP.<sup>20</sup>

Lead Agency:

### 2.10.1 Indicator: Hectares of Harvesting on the Skeena Islands

#### 2.10.1.a Indicator details

Supporting Agencies	Area to be Monitored	Source	Legal
	Skeena Islands	LRMP Section 2.2.18 Strategy 2.3 SRMP Section 2.1.8 Objective 10	No
Data Required for Monitoring	Data Available	Prerequisites to Monitoring	
See Section 2.10.1b Analysis Data Sources	See Section 2.10.1b Analysis Data Sources		

<sup>20</sup> Kalum Sustainable Resource Management Plan, April 2006, Map 6. Integrated Land Management Bureau. Province of B.C.  
*Kalum LRMP Resource Monitoring Framework*

### 2.10.1.b Analysis

#### Methodology

A feature class was created by intersecting harvesting areas with Skeena Islands polygons. The sum of harvested areas is calculated, as well as the total CFLB within the Skeena Islands.

#### Results

The Crown Forested Land Base within the Skeena Islands covers 6,059 hectares. Of this area, 2.8 percent, or 171 hectares, is indicated as harvested.

#### Data Sources

Data Set: Skeena Islands Polygons  
Source: /slkgis2/srm/smt/workarea/Malkow/kalum\_srmp/data/Ske\_island/ske\_2005  
Project Location: kmbiodiversity.pgd/sk\_islands

Data Set: Harvested Areas  
Source: WHSE\_FOREST\_VEGETATION.RSLT\_FOREST\_COVER\_POLY  
Project Location: kmbiodiversity.pgd/harvested\_Erase

Data Set: Crown Forested Land Base  
Source: compilation of VRI, TFL Data and Private Land Data  
Project Location: kmbiodiversity.mdb/cflb\_kmv2

## 2.11 Objective: Maintain Wildlife Habitat and Biodiversity within the Lakelse River Special Resource Management Zone

Maintain wildlife habitat and biodiversity within the Lakelse River Special Resource Management Zone<sup>21</sup>.

- In Subzone 1 - no harvesting of timber or blowdown salvage will occur.
- In Subzone 2 - the maximum opening size is 15 hectares

Lead Agency:

<sup>21</sup> Kalum Sustainable Resource Management Plan, April 2006, Map 8. Integrated Land Management Bureau. Province of B.C.  
*Kalum LRMP Resource Monitoring Framework*

## 2.11.1 Indicator: Percent of Area Harvested within Subzone 1, Lakelse River SRMZ

Percent of area harvested within Subzone 1, Lakelse River SRMZ.

### 2.11.1a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> Subzone 1, Lakelse River SRMZ	<b>Source</b> LRMP Section 3.1.3 Strategy 3.1 SRMP Section 4.1 Objective 12	<b>Legal</b> No
<b>Data Required for Monitoring</b> See Section 2.11.1b Analysis Data Sources	<b>Data Available</b> See Section 2.11.1b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>  <b>In 2006 State of the Resource Report</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	

### 2.11.1b Analysis

#### Methodology

A feature class is created by intersecting harvesting areas with Subzone 1. The total area of harvested areas is calculated, as well as total CFLB within Subzone 1.

#### Results

The Subzone1 Lakelse River SRMZ is 211 hectares, with 68 hectares indicating harvesting. The harvesting is 32% of the total area of the subzone.

#### Data Sources

Data Set: **Kalum LRMP RMZ Lakelse Subzones 1 and 2**  
 Source: //slkgis2/work/srm/smt/workarea/Malkow/kalum\_srmp/data/admin/atzn\_ka  
 Project Location: /kadmin.pgd/lakelse\_diss

Data Set: **Harvested Areas**  
 Source: WHSE\_FOREST\_VEGETATION.RSLT\_FOREST\_COVER\_POLY  
 Project Location: kmbiodiversity.pgd/harvested\_Erase

Data Set: **Crown Forested Land Base**  
 Source: compilation of VRI, TFL Data and Private Land Data  
 Project Location: kmbiodiversity.mdb/cflb\_kmv2

## 2.11.2 Indicator: Percent of Early Seral within Subzone 2, Lakelse River SRMZ

Percent of early seral within Subzone 2, Lakelse River SRMZ.

### 2.11.2a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> Subzone 2 Lakelse River SRMZ	<b>Source</b> LRMP Section 3.1.3 Strategy 1.1 SRMP Section 4.1 Objective 12	<b>Legal</b> No
<b>Data Required for Monitoring</b> See Section 2.11.2b Analysis Data Sources	<b>Data Available</b> See Section 2.11.2b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>  In 2006 State of the Resource Report	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	

### Analysis

### Methodology

A feature class is created by intersecting the CFLB with subzone 2 polygon and biogeoclimatic zones. The early seral stage is selected as:

Bec zone = CWH or ESSF or ICH or MH and  
projected age < 40

The area of the early selection is summed, as well as the area of CFLB within subzone 2 polygon.

### Results

The Subzone 2 Lakelse River SRMZ comprises 240 hectares, with 170 hectares, or 71 percent, in the early seral stage.

### Data Sources

Data Set: **Kalum LRMP RMZ Lakelse Subzones 1 and 2**  
Source: //slkgis2/work/srm/smt/workarea/Malkow/kalum\_srmp/data/admin/atzn\_ka  
Project Location: /kadmin.pgd/lakelse\_diss

Data Set: **Crown Forested Land Base**  
Source: compilation of VRI, TFL Data and Private Land Data  
Project Location: kmbiodiversity.mdb/cflb\_kmv2

Data Set: **Biogeoclimatic**  
 Source: WHSE\_FOREST\_VEGETATION.RES\_BIOGEOCLIMATIC  
 Project Location: km biodiversity.pgd/abec\_kmv2

### 2.11.3 Indicator: Size of Openings within Subzone 2, Lakelse River SRMZ

Size (ha) of openings within Subzone 2, Lakelse River SRMZ.

#### 2.11.3a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> Subzone 2, Lakelse River SRMZ	<b>Source</b> LRMP Section 3.1.3 Strategy 1.1 SRMP Section 4.1 Objective 12	<b>Legal</b> No
<b>Data Required for Monitoring</b> See Section 2.11.3b Analysis Data Sources	<b>Data Available</b> See Section 2.11.3b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

#### Analysis

#### Methodology

The openings data set is clipped to Subzone 2, Lakelse River SRMZ polygon. The areas of opening are selected and saved to a list.

## Results

**Table 2.11.3 Area of Openings within Subzone 2, Lakelse River SRMZ**

Hectares of Openings	
3.8	20.8
4.0	31.7
4.1	35.0
5.5	35.6
6.7	36.0
8.0	36.8
8.5	50.5
8.5	52.9
9.5	55.3
10.7	58.9
11.1	67.7
11.3	75.4
12.3	79.9
12.7	82.3
13.4	82.7
14.2	84.9
16.5	98.3
19.5	112.5
20.6	124.5
	182.5

## Data Sources

Data Set: **Kalum LRMP RMZ Lakelse Subzones 1 and 2**  
Source: //slkgis2/work/srm/smt/workarea/Malkow/kalum\_srm/data/admin/atzn\_ka  
Project Location: /kadmin.pgd/lakelse\_diss

Data Set: **Openings**  
Source: WHSE\_FOREST\_VEGETATION.RSLT\_OPENING\_POLY  
Project Location: kadmin.mdb/openings\_km

## 2.11.4 Indicator: Retention within Cutblocks in Subzone 2, Lakelse River SRMZ

Percent retention within cutblocks within Subzone 2, Lakelse River SRMZ.

### 2.11.4a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> Subzone 2, Lakelse River SRMZ	<b>Source</b> LRMP Section 3.1.3 Strategy 1.1 SRMP Section 4.1 Objective 12	<b>Legal</b> No
<b>Data Required for Monitoring</b> See Section 2.11.4b Analysis Data Sources	<b>Data Available</b> See Section 2.11.4b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

### 2.11.4b Analysis

#### Methodology

This analysis uses the openings data instead of the cutblock data because the cutblock data may not contain all the reserves. The openings data will capture all the reserves within the opening polygon.

The openings data was clipped to Subzone 2, Lakelse River SRMZ. The reserves data was clipped to the openings polygons. These two feature classes were intersected to capture the reserves only within openings. The total areas for reserves within the openings polygons was calculated, as well as the total areas for openings.

#### Results

The total area of openings within Subzone 2 Lakelse River SRMZ is 1,612 hectares. No reserves are detected within these openings.

#### Data Sources

Data Set: **Kalum LRMP RMZ Lakelse Subzones 1 and 2**  
 Source: //slkgis2/work/srm/smt/workarea/Malkow/kalum\_srmp/data/admin/atzn\_ka  
 Project Location: /kadmin.pgd/lakelse\_diss



Data Set: **Openings**  
 Source: WHSE\_FOREST\_VEGETATION.RSLT\_OPENING\_POLY  
 Project Location: kmadmin.mdb/openings\_km

Data Set: **Reserves: WTP, Riparian**  
 Source: WHSE\_FOREST\_VEGETATION.RSLT\_FOREST\_COVER\_RESERVE\_SVW  
 Project Location: kmbiodiversity.pgd/reserves

## 2.12 Objective: Maintain Biological Diversity within Upper Kitsumkalum

Maintain biological diversity and ecosystem representation within the Upper Kitsumkalum Valley by not harvesting timber within the Upper Kitsumkalum SRMZ.<sup>22</sup> Road construction is acceptable to access the timber outside of SRMZ where there is no other practicable route alternative.

Lead Agency:

### 2.12.1 Indicator: Amount of Timber Harvesting within Upper Kitsumkalum

Amount (ha) of timber harvesting within the Upper Kitsumkalum SRMZ.

#### 2.12.1a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> Upper Kitsumkalum	<b>Source</b> LRMP Section 3.1.3 Strategy 1.1 SRMP Section 4.1 Objective 13	<b>Legal</b> No
<b>Data Required for Monitoring</b> See Section 2.12.1b Analysis Data Sources	<b>Data Available</b> See Section 2.12.1b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

<sup>22</sup> Kalum Sustainable Resource Management Plan, April 2006, Map 8. Integrated Land Management Bureau. Province of B.C.  
*Kalum LRMP Resource Monitoring Framework*

## 2.12.1b Analysis

### Methodology

To calculate this indicator, the harvesting areas were intersected with the Upper Kitsumkalum polygon. The total area of harvested areas is calculated, as well as the total CFLB within Upper Kitsumkalum polygon.

### Results

There are no harvested areas detected in the Upper Kitsumkalum SRMZ.

### Data Sources

Data Set: **Harvested Areas**  
Source: WHSE\_FOREST\_VEGETATION.RSLT\_FOREST\_COVER\_POLY  
Project Location: kmbiodiversity.pgd/harvested\_Erase

Data Set: **Crown Forested Land Base**  
Source: compilation of VRI, TFL Data and Private Land Data  
Project Location: kmbiodiversity.mdb/cflb\_kmv2

Data Set: **Kalum LRMP RMZ Kitsumkalum**  
Source: //slkgis2/work/srm/smt/workarea/Malkow/kalum\_srmp/data/admin/atzn\_ka  
Project Location: kmadmin.mdb/kitsum\_v2

## 2.13 Objective: Conserve Reticulated Fens

Conserve uncommon reticulated fens within the Miligit Valley area<sup>23</sup>.

Lead Agency:

### 2.13.1 Indicator: Amount of Industrial Activity within Miligit Valley

Amount (ha) of industrial activity within the Miligit Valley Sensitive Area.

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<sup>23</sup> Kalum Sustainable Resource Management Plan, April 2006, Map 8. Integrated Land Management Bureau. Province of B.C.  
*Kalum LRMP Resource Monitoring Framework*

### 2.13.1a Indicator Details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> Miligit Valley	<b>Source</b> LRMP Section 3.1.3 Strategy 1.2 SRMP Section 4.1 Objective 14	<b>Legal</b> No
<b>Data Required for Monitoring</b> N/A	<b>Data Available</b> N/A	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

### 2.13.1b Analysis

#### Methodology

This indicator was not analysed as the definition of industrial activity is currently too broad to represent with current GIS data.

### 2.13.2 Indicator: Number of Kilometers of Roads Constructed in Riparian Areas

Number of kilometers of roads constructed in riparian areas, wildlife habitat areas and forest ecosystem networks.

### 2.13.2a Indicator Details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> LRMP	<b>Source</b> LRMP Section 2.2.1 Strategy 2.5	<b>Legal</b> No
<b>Data Required for Monitoring</b> See Section 2.13.2b Analysis Data Sources	<b>Data Available</b> See Section 2.13.2b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

## 2.13.2b Analysis

### Methodology

The analysis incorporates only reserves data, which includes riparian areas and wildlife tree patches. Forest ecosystem networks data was not available.

Create reserve buffers for all areas of interest:

- Create a 20 metre buffer around reserve areas
- Create a 100 metre buffer around reserve areas

Intersect roads with reserve areas, 20m buffered areas, and 100 m buffered areas.

Calculate the length of roads within reserves, 20m buffered areas, and 100 m buffered areas.

### Results

**Table 2.13.2 Length of Roads within Riparian Areas**

<b>Area of Interest</b>	<b>Length of Road (km)</b>
Within Reserves	8.5
Within 20 meters of reserves	20.1
Within 100 meters of reserves	35.2
<b>Total Kilometers</b>	<b>63.8</b>

### Data Sources

Data Set: **Reserves: WTP, Riparian**  
Source: WHSE\_FOREST\_VEGETATION.RSLT\_FOREST\_COVER\_RESERVE\_SVW  
Project  
Location: kmbiodiversity.pgd/reserves

Data Set: **TRIM Roads (1:20,000)**  
Source: WHSE\_BASEMAPPING.TRIM\_TRANSPORATION\_LINES  
Project Location: kmadmin/roads\_km

### 3. Aquatic Resources

---

#### 3.1 Objective: Maintain Flow Regimes in Community Watersheds

Maintain the quality, quantity, and natural flow regimes of water in newly established community watersheds<sup>24</sup>. Ensure a clearcut equivalency of less than 20% of the watershed area in sub-basins larger than 250 hectares, unless a different threshold is determined as being more appropriate as a measure of maintenance of natural flow regimes.

Lead Agency:

#### 3.1.1 Indicator: Equivalent Clearcut Area (ECA) for Community Watersheds

##### 3.1.1a Indicator Details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> Community Watersheds	<b>Source</b> LRMP Section 3.1.3 Strategy 3.1 SRMP Section 6.1 Objective 17	<b>Legal</b> Yes
<b>Data Required for Monitoring</b> See Section 3.1.1b Analysis Data Sources	<b>Data Available</b> See Section 3.1.1b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b> In 2006 State of the Resource Report	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	

##### 3.1.1b Analysis

##### Methodology

The Kalum LRMP area contains six existing community watersheds and five proposed community watersheds. Of these watersheds, only the Deep Creek watershed is greater than 250 ha and contains harvested areas. The methodology followed to calculate ECA is taken from the Watershed Assessment Procedure Guidebook. According to the guidebook, ECA values should not be a management target.<sup>25</sup>

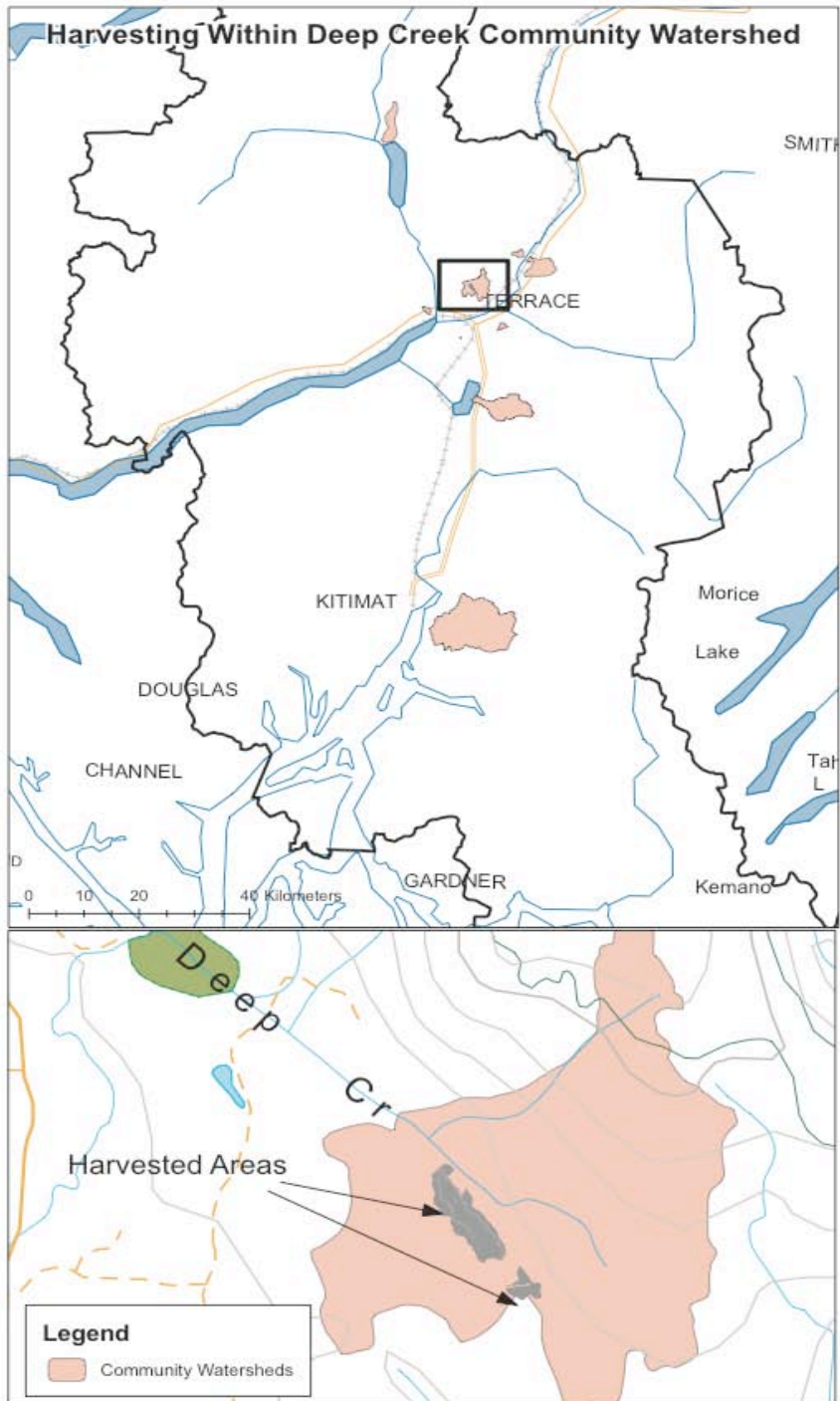
<sup>24</sup> Kalum Sustainable Resource Management Plan, April 2006, Map 9. Integrated Land Management Bureau. Province of B.C.

<sup>25</sup> Watershed Assessment Procedure Guidebook, 2<sup>nd</sup> Edition, Page 25. Ministry of Forests, 2001.

## Results

The Deep Creek Community Watershed covers 1,744 hectares. Two areas in the lower section of the watershed indicate past harvesting, covering 53 hectares in total.

Map 2



## Data Sources

Data Set: Harvested Areas  
Source: WHSE\_FOREST\_VEGETATION.RSLT\_FOREST\_COVER\_POLY  
Project  
Location: kmbiodiversity.pgd/harvested\_Erase

Data Set: Community Watersheds  
Source: //slkgis2/work/srm/smt/workarea/Malkow/kalum\_srmp/data/admin/atzn\_ka  
Project Location: kmadmin.pgd/com\_wsheds

## 4. Grizzly Bear

### 4.1 Objective: Maintain Natural Level of Forage Supply for Grizzly Bears

Maintain natural level of forage supply for grizzly bears in the watersheds identified<sup>26</sup> by:  
 Providing an adequate supply of berry feeding;

- Within McKay-Davies and Copper watersheds, no more than 30% of the forested land base, excluding hardwood, will be between 25 and 100 years old.

Lead Agency:

#### 4.1.1 Indicator: Amount of Mid-Seral Forest in the McKay-Davies and Copper Watersheds

Amount of mid-seral forest within the forested land base, excluding hardwood in the McKay-Davies and Copper watersheds.

##### 4.1.1a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b>	<b>Source</b>	<b>Legal</b>
	McKay – Davies and Copper Watershed	LRMP Section 2.2.11 Strategy 2.1 SRMP Section 3.1.1 Objective 11	Yes
<b>Data Required for Monitoring</b>	<b>Data Available</b>	<b>Prerequisites to Monitoring</b>	
See Section 4.1.1b Analysis Data Sources	See Section 4.1.1b Analysis Data Sources		
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

##### 4.1.1b Analysis

###### Methodology

Hardwood is defined as cottonwood, red alder, and birch as per the VRI Data Dictionary. The indicator was analysed as follows:

The Copper and McKay – Davies Watersheds were unioned together, and then intersected with the CFLB and the BEC data sets. The mid - seral forest, excluding hardwoods, was calculated as follows:

BEC Zone = CWH or ESSF or ICH or MH and  
 Projected age greater than 24 and less than 101 and

<sup>26</sup> Kalum Sustainable Resource Management Plan, April 2006, Map 7. Integrated Land Management Bureau. Province of B.C.  
*Kalum LRMP Resource Monitoring Framework*



Leading species not equal to cottonwood or red alder or birch

## Results

**Table 4.1.1 Amount of Mid Seral within Copper and McKay – Davis Watershed**

<b>Watershed</b>	<b>CFLB (ha)</b>	<b>Mid Seral (ha)</b>	<b>Mid Seral (%)</b>
Copper	31,643.2	5,106.4	16.1
McKay - Davies	28,466.6	2,580.6	9.1
<b>Total</b>	<b>60,109.8</b>	<b>7,687.0</b>	<b>12.8</b>

## Data Sources

Data Set: **Crown Forested Land Base**  
 Source: compilation of VRI, TFL Data and Private Land Data  
 Project Location: kmbiodiversity.mdb/cflb\_kmv2

Data Set: **Biogeoclimatic**  
 Source: WHSE\_FOREST\_VEGETATION.RES\_BIOGEOCLIMATIC  
 Item Name: zone, subzone, variant, phase, beclabel  
 Item Value(s):  
 Project Location: kmbiodiversity.pgd/abec\_kmv2

Data Set: **McKay Davis Watershed**  
 Source: //slkgis2/srm/smt/workarea/Malkow/kalum\_srmp/data/wildlife/gbws\_ka  
 Item Name: IWG\_NAME  
 Item Value(s): McKay - Davis  
 Project Location: kmbiodiversity.pgd/md\_wshed

Data Set: **Copper Watershed**  
 Source: //slkgis2/srm/smt/workarea/Malkow/kalum\_srmp/data/wildlife/gbws\_ka  
 Item Name: IWG\_NAME  
 Item Value(s): Copper  
 Project Location: kmbiodiversity.pgd/copper\_wshed

### 4.1.2 Indicator: Number of Stems per Hectare within Watersheds

Number of stems per hectare within free growing managed forests on rich and wetter sites within identified watersheds<sup>27</sup>.

<sup>27</sup> Kalum Sustainable Resource Management Plan, April 2006, Map 7. Integrated Land Management Bureau. Province of B.C.  
*Kalum LRMP Resource Monitoring Framework*

#### 4.1.2a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> Identified Watersheds	<b>Source</b> LRMP Section 2.2.11 Strategy 2.2 – 2.4 SRMP Section 3.1.1 Objective 11	<b>Legal</b> Yes
<b>Data Required for Monitoring</b> N/A	<b>Data Available</b> N/A	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

#### 4.1.2b Analysis

##### Methodology

This indicator was not analysed due to insufficient data.

## 5. Visual Resources

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### 5.1 Objective: Maintain Pristine Viewscape on the Upper Copper River

Maintain a feeling of remoteness and pristine viewscape on the Upper Copper River (Zymoetz River) above the Limonite Creek, within the Kalum SRMP area. The following are practice requirements:

- a) Permit only one bridge crossing at any time.
- b) Retain a minimum of 100 metres no harvest reserve on both sides of the river. Less than 100 metres reserve is acceptable where this makes “best” operational/environmental practice, or for other site-specific reasons, provided the objective is met.

Lead Agency:

#### 5.1.1 Indicator: Number of Bridge Crossings on Upper Copper River

Number of bridge crossings on the Upper Copper River upstream of confluence with Limonite Creek (within Class 1 waters) at any given time.

### 5.1.1a Indicator Details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b>	<b>Source</b> SRMP Section 4.1 Objective 15a	<b>Legal</b> Yes
<b>Data Required for Monitoring</b> See Section 5.1.1b Analysis Data Sources	<b>Data Available</b> See Section 5.1.1b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

### 5.1.1b Analysis

#### Methodology

This indicator is visually analysed by displaying transportation features, such as roads and bridges, over satellite imagery for the Upper Copper River watershed.

#### Results

The transportation network shows no bridge crossings within the Upper Copper River Watershed.

### Map 3

## Data Sources

Data Set: TRIM Roads (1:20,000)  
 Source: WHSE\_BASEMAPPING.TRIM\_TRANSPORATION\_LINES  
 Project Location: kmadmin/roads\_km

Data Set: Harvested Areas  
 Source: WHSE\_FOREST\_VEGETATION.RSLT\_FOREST\_COVER\_POLY  
 Project Location: kmbiodiversity.pgd/harvested\_Erase

Data Set: Copper Watershed  
 Source: //slkgis2/srm/smt/workarea/Malkow/kalum\_srm/data/wildlife/gbws\_ka  
 Project Location: kmbiodiversity.pgd/copper\_wshed

### 5.1.2 Indicator: No Harvest Reserve Along Upper Copper River

Width (metres) of no-harvest reserve along both sides of the Upper Copper River above Limonite Creek.

#### 5.1.2a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> Upper Copper River	<b>Source</b> LRMP Section 3.1.3 Strategy 4.1 SRMP Section 4.1 Objective 15a	<b>Legal</b> No
<b>Data Required for Monitoring</b> See Section 5.1.2b Analysis Data Sources	<b>Data Available</b> See Section 5.1.2b Analysis Data Sources	<b>Prerequisites to Monitoring</b>	
<b>Linkages to Other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

#### 5.1.2b Analysis

##### Methodology

This indicator is visually analysed by displaying transportation features, such as roads and bridges with a base of satellite imagery for the Upper Copper River watershed. A buffer of 100 metres is displayed to represent the no-harvest zone. Harvested areas are displayed to determine if any harvesting has taken place within the no-harvest zone.

## Results

As seen in Figure 2, there appears to be no harvesting within the 100 metre no-harvest zone.

### Data Sources

Data Set: TRIM Roads (1:20,000)  
 Source: WHSE\_BASEMAPPING.TRIM\_TRANSPORATION\_LINES  
 Project Location: kmadmin/roads\_km

Data Set: Harvested Areas  
 Source: WHSE\_FOREST\_VEGETATION.RSLT\_FOREST\_COVER\_POLY  
 Project Location: kmbiodiversity.pgd/harvested\_Erase

Data Set: Copper Watershed  
 Source: //slkgis2/srm/smt/workarea/Malkow/kalum\_srm/data/wildlife/gbws\_ka  
 Project Location: kmbiodiversity.pgd/copper\_wshed

## 5.2 Objective: Maintain Visual Quality – Sue Channel

Maintain the visual quality of the area visible from the Sue Channel/Hawkesbury Island protected area by:

- Applying single tree or group selection silviculture system.
- Limiting the maximum opening size to 1-2 tree lengths.

Lead Agency:

### 5.2.1 Indicator: Size of Harvest Openings Visible from Sue Channel

Size (metres) of harvest openings visible from the Sue Channel/Hawkesbury Island Protected Area.

#### 5.2.1a Indicator details

<b>Supporting Agencies</b>	<b>Area to be Monitored</b> Area surrounding Sue Channel/Hawkesbury Island Protected Area	<b>Source</b>	<b>Legal</b> Yes
<b>Data Required for Monitoring</b>	<b>Data Available</b>	<b>Prerequisites to Monitoring</b>	
<b>Linkages to other Initiatives</b>	<b>Monitoring History</b>	<b>Recommended Reporting Frequency</b>	
<b>In 2006 State of the Resource Report</b>			

## **5.2.1b Analysis**

### **Methodology**

This indicator was not analysed with GIS. It is recommended that a site visit take place to determine the harvest openings visible from Sue Channel/Hawkesbury Island Protected Area.

### **Results**

N/A

### **Data Sources**

N/A