

MacMILLAN BLOEDEL LIMITED

1998 ANNUAL REPORT

TREE FARM LICENCE

No. 39

AUGUST 1999

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STATEMENT OF AUTHORSHIP

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P.J. Kofoed, RPF
Planning Forester

MacMillan Bloedel Limited
Solid Wood Group

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1.0 SUMMARY

1998 was the third year of Management Plan #7 for TFL 39. It was the third year of the five-year cut control period 1996–2000.

1.1 General Comments

The continuation of poor markets in Japan, restricted access to the USA market and high costs (including stumpage) contributed to another difficult year.

Strategies initiated in 1997 were continued and expanded to improve safety in the workplace, business success and to become a highly respected forest products company.

- MB has a corporate commitment to become the safest forest company in North America. The indicator selected to measure safety is Medical Incident Rate (MIR) – the number of incidents per 100 workers that require a doctor's medical attention or result in lost work time. The target for 1998, to reduce the 1997 MIR by at least one third was achieved by MB Woodlands. A further 33% reduction has been targeted for 1999. In December, MB announced a new policy on safety, occupational health, and the environment.
- MB and the IWA initiated a program of co-designing operations, of involving all employees in improving safety and productivity and reducing costs. The co-design process is occurring at all coastal woodlands operations and sawmills. The process has been successful in improving safety and production efficiencies.
- In December “re-engineering the business” was announced as a top priority for 1999. The goal is to significantly improve performance in quality, productivity, and cost. Co-design is an example of re-engineering at the operations level.
- MB Paper (comprising the paper mills at Port Alberni and Powell River) was sold. MB has a fibre supply agreement with the new company, Pacifica Papers.
- In June of 1998, MB announced a New Forest Management Strategy (named the Forest Project). Key components include phasing out clearcutting over a five-year period to be replaced by variable retention and an increase in conservation of old-growth forests and wildlife habitat on BC lands managed by the company.

North Island Woodlands (TFL 39, Block 2 and some private land) initiated a program to apply for ISO (International Organization for Standardization) 14001 and CSA (Canadian Standards Association) Forest Certification in the first half of 1999. This process includes seeking public input (a Public Advisory Group was formed), expanding environmental management systems and implementing a Sustainable Forest Management System.

The intent is to utilize the experience from the North Island Woodlands exercise in applying for certification in other MB operations. Application

for Forest Stewardship Council (FSC) certification has been delayed, pending the development of Regional Standards.

Shutdowns of varying duration for different operations occurred throughout 1998, primarily because of markets, but also due to interruptions in log supply, weather and co-design efforts. The result was reduced harvest levels and lumber production below mill capacities.

The impacts of co-design and restructuring initiatives on reducing costs were noticeable, particularly in the latter part of 1998. In addition, operations began to benefit from reductions in stumpage payments and government implemented changes intended to streamline the Forest Practices Code.

1.2 1998 Highlights

- The MacMillan Bloedel allocation of the total TFL Annual Allowable Cut is 3 577 780 m³ for the current Cut Control Period. The total amount of timber harvested, including residue, in 1998 was 2 565 246 m³, or 71.7% of the allocated cut.
- Total contractor production was 1 098 017 m³, a compliance of 103.9%.
- New road construction totaled 210.9 km.
- Eight fires consumed a total of 72.6 ha during the year.
- Site preparation was completed on 524 ha.
- A total of 3 270 ha were planted using 3 197 800 trees. Fill planting 827 ha required 445 400 trees.
- Brushing and Weeding was done on 1 558 ha.
- Stand tending (spacing, fertilization and pruning) was completed on 2 625 ha.
- Public input continued to influence the various plans being developed by MacMillan Bloedel.

2.0 PRODUCTION AND CUT CONTROL

Total TFL 39 production and performance in relation to the AAC is discussed in this section. Individual TFL Block statistics and activities are covered in Section 3.

2.1 Volumes Harvested by MacMillan Bloedel

MacMillan Bloedel harvested volumes (including residue) on private and Crown land within the TFL as follows:

Private	94 514 m ³	4%
Timber Licenses	183 401 m ³	7%
Crown	<u>2 287 331 m³</u>	<u>89%</u>
TOTAL	<u>2 565 246 m³</u>	<u>100%</u>

A detailed summary of timber harvested by division, block, tenure, and species is shown in Table 1 of Appendix I. The percentage of log scale by species and Block is shown below.

Proportion of Log Scale Volume by Species and TFL Block (%)

Species	Block							
	I	II	III	IV	V	VI	VII	All
Douglas-fir	48	5		1	3			9
Cedar	19	10	8	24		42	35	24
Cypress	2	10		10	2	11	11	9
Spruce			4	4		9	6	4
Hemlock	21	43	82	43	46	37	32	38
Balsam	6	32	5	18	48		16	16
Other	4		1		1	1		
TOTAL	100	100	100	100	100	100	100	100

2.2 Production by Harvest Profile

Results are based on Divisional volume data (excluding residue) and on the inventory classification for operability. In 1998 there was 1 529 577 m³ of first growth harvested in the conventional economic class and 269 472 m³ in the non-conventional economic class. A further 43 374 m³ classified as marginal economic was logged. In addition 365 903 m³ of second-growth timber was harvested. These numbers differ from the BCFS billed volume (Table 1a) due to differing year end dates. Harvest Profile production is shown in Appendix 1, Table 1b. Appendix I, Table 1c details the volume cut by Operability Class in each of the TFL Blocks.

2.3 Volumes Harvested by SBFEP

Volume harvested on SBFEP timber sales totaled 45 571 m³ including residue, as shown in Table 2 of Appendix I. Note that the SBFEP harvest volumes are not required for the cut control calculations relative to MacMillan Bloedel's AAC allocation. The following table shows the volume harvested over the last five years. Note that residue may not be billed every year.

Year	1994	1995	1996	1997	1998
Volume Harvested (m ³)	128 380	179 606	151 798	160 854	45 571

2.4 Residue

Residue is measured and reported annually for the TFL. Residue applied to Cut Control is the volume processed through the Stumpage and Royalty system in the reporting year, regardless of the year scaled.

A total of 1 876 plots was established on 2 698 ha in 1998 to measure residue and waste for Cut Control purposes. A total of 85 987 m³ of residue was charged to the AAC in 1998.

2.5 Cutting Balance

This is the third of the Cut Control period from 1996 to 2000. The harvest in 1998 is 71.7% of the AAC. Cut Control status is shown below.

Year	1996	1997	1998	Total
MB AAC (m ³)	3 545 460	3 577 780	3 577 780	10 701 020
Actual Cut (m ³)				
• Log Scale	3 133 897	2 791 082	2 479 259	8 404 238
• Residue	159 971	128 581	85 987	374 539
Total Actual Cut (m ³)	3 293 868	2 919 663	2 565 246	8 778 777
Percent of AAC	92.9%	81.6%	71.7%	82.0%

1998 harvest levels compared to AAC contributions are shown below.

Block	AAC Contribution m ³	SBFEP Allocation m ³	MoF District	MB Allocation m ³	Volume Harvested including Residue m ³	Variance	
						m ³	%
I	445 000	21 462	Sunshine Coast	423 538	341 984	(81 554)	(19)
II	1 335 000	58 654	Campbell R	1 276 346	770 942	(505 404)	(40)
III, IV	415 000	14 884	Port McNeill	400 116	415 991	15 875	4
V	100 000	3 680	Campbell R.	96 320	61 952	34 368	(36)
VI	1 210 000	56 324	Queen Charlotte	1 153 676	717 340	(436 336)	(38)
VII	195 000	7 214	Mid-Coast	187 786	222 918	35 132	19
Decid.	40 000	--		40 000	34 119	(5 811)	(15)
Total	3 740 000	162 218		3 577 782	2 565 246	(1 012 536)	(28)

2.6 Harvest from Deciduous Stands

The deciduous AAC allocation of 40 000 m³ is not specifically assigned by Block, but is assigned to areas described as deciduous in the timber inventory. This includes stands with a deciduous species (usually red alder) as the leading or primary species.

In a letter dated August 18, 1998, the Regional Manager confirmed the procedure for reporting of harvest performance in deciduous stands. The following table shows the resulting estimates of deciduous stand volumes for 1996, 1997 and 1998. All of this “deciduous” harvest has occurred in Block 1 (Powell River).

Harvest from Deciduous Stands (1996 to 1998)

Year	Harvest Volume (000 m ³)
1996	24 306
1997	6 131
1998	34 119
Total	64 556

2.7 Contractor Production

The percent compliance achieved under the contractor clause regulation was 103.9%.

Summary of Contractor Production (m³)

Full		903 582 m ³	82%
Phase <i>(equivalent volume processed)</i>			
Roads	141 333		
F & B	3 480		
Yarding	29 790		
Loading	4 485		
Hauling	15 347		
		<u>194 435 m³</u>	<u>18%</u>
TOTAL		<u>1 098 017 m³</u>	<u>100%</u>

3.0 TFL 39 BLOCK HARVESTING ACTIVITIES

The AAC for TFL 39 is partitioned by Block to facilitate geographic distribution of the cut. This portion of the Annual Report contains comments on the harvesting activities in each Block.

Block I Powell River

Administered by
Stillwater Division



3.1 Block I (Powell River)

Block I is located to the north and east of Powell River, encompassing the Powell, Dodd and Lois Lake drainages and extending east to include the peninsula between Hotham Sound and Prince of Wales Reach. The Block contains 183 000 ha, of which 89 000 ha is productive forest supporting hemlock, balsam, cedar and Douglas-fir. The current AAC allocation for Block I of 445 000 m³ is approximately distributed as 21 462 m³ for SBFEP and 423 538 m³ for MB harvest. Stillwater Division, based in Powell River, administers this Block.

3.1.1 Annual Harvesting

Stillwater harvested 376 103 m³ in 1998. This includes 4 039 m³ of residue (1.1% of the total) charged to the cut. This material was harvested using conventional and heli-logging systems. Harvesting systems being considered for future use include variable retention, (group selection, seed tree, patch cuts) and some commercial thinning (selection). Stillwater harvested 56 ha of hardwood stands to prepare the area for conversion to coniferous timber.

3.1.2 Engineering Development

Access was extended along the Rainbow, Cypress and South Olsen mainlines. Bridge construction included work on 9 structures located throughout the active logging area.

3.1.3 Development Plans

A Five-Year Development Plan for Block I was approved in 1998. Public meetings were held at various sites within the Block I area.

3.1.4 Cutting Permits

The following Cutting Permits were active in 1998:

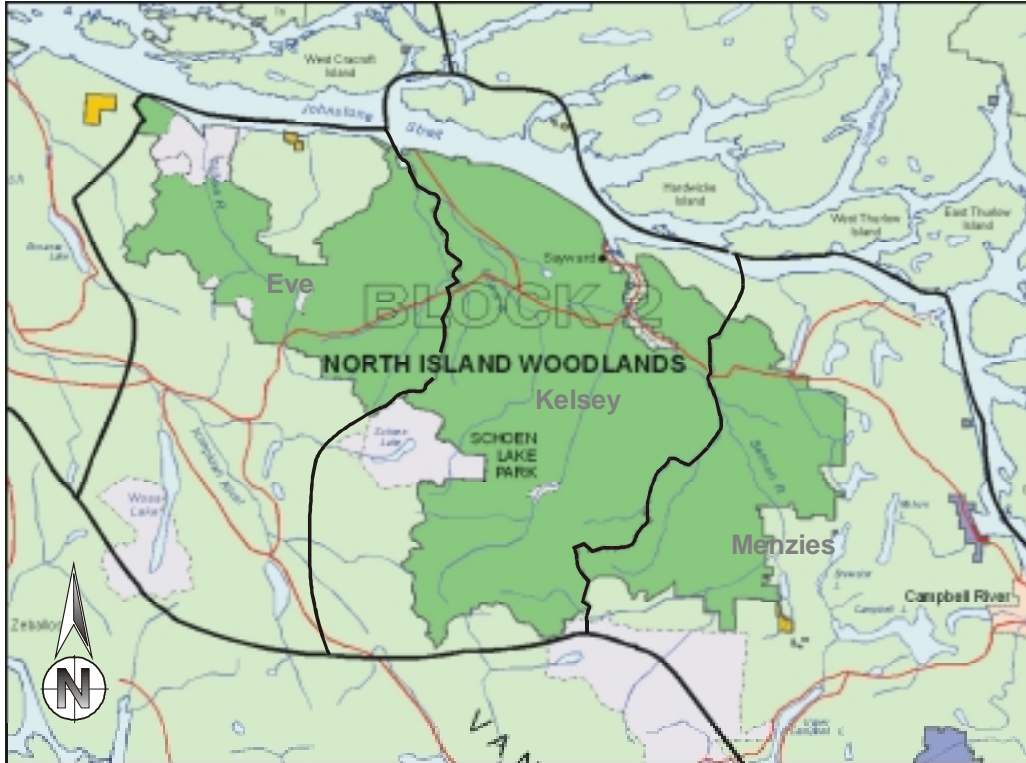
Cutting Permit No.	Location
2B	Stillwater
3, 3B, 3C, 3D, 3E	Powell/Daniels
5F	Chippewa
9D	Windsor Lake
90B	Stillwater
91E, 91F, 91G	Stillwater Valley
99A, 99B	Goat Island

3.1.5 Scaling

All harvested wood was 100% stick scaled at the Stillwater and Powell-Daniels dryland sorts. In addition, some weight scaling was done at the Stillwater dryland sort.

Block II Adam River

Administered by
North Island Woodlands
Menzies



3.2 Block II (Adam River)

Block II is located north and west of Campbell River. It includes the Salmon, Adam, Eve, Tsitika and White River drainages. The Block contains a total of 208 000 ha, with 170 000 ha of productive land supporting a forest of hemlock, balsam, cedar and yellow cypress timber. The current AAC allocation for Block II of 1 335 000 m³ is approximately distributed as 58 654 m³ for SBFEP and 1 276 346 m³ for MB. Three MB Operations manage the block (Eve River, Kelsey Bay and Menzies Bay) under the newly (1998) organized North Island Woodlands.

3.2.1 Annual Harvesting

The three divisions in this Working Circle harvested a total of 770 942 m³, including 19 124 m³ of residue. The residue was 2.5% of the total cut. Eve River cut 245 416 m³, Kelsey Bay harvested 389 087 m³ and Menzies Bay logged 136 439 m³ including residue. Conventional logging systems were used in all Cutting Permits, supplemented in some cases with longline and heli-logging systems. Future systems being considered are several types of variable retention.

3.2.2 Engineering Development

The Eve River Operation extended the Alpha mainline in the Eve River drainage. Mainline extensions were constructed in the White and Salmon River drainages by the Kelsey Bay Operation. Road construction by the Menzies Bay Operation concentrated on spur roads. Bridges were built on the Alpha and South 65 mainlines in the Eve River drainage and on the Memekay River.

3.2.3 Development Plans

The Five-year Development Plan for the Menzies Bay Operation was approved in 1998. Consultations were held in the Menzies Bay office.

3.2.4 Cutting Permits

Cutting Permits active in Block II during 1998 were:

Operation	Cutting Permit No.	Location	Operation	Cutting Permit No.	Location
Eve	19, 800, 803, 804, 806, 807	Tsitika & Eve River	Kelsey	214	Memekay, Elk, White
	801	Tsitika River TS-45		220, 221	Salmon
	802, 808	Eve River, Kunnum 102	Menzies	105, 117, 118	Salmon River B
	805	Eve, TN-29		106	West Amour Main
	809	Tsitika Cath. Main		107	Salmon River A600
	810	Eve, South 901		108	Stove Creek
Kelsey	12, 204, 211, 215, 217, 218, 219	White		109	Memekay 1000
	200, 207	White River, Memekay, Adams		111	Leah 2
	202, 210	Adams		112	South Fork Main
	203, 209	Memekay		113	Memekay West/East
	205	White, Adams		115	M23 – Thunder Mt.
	206	Adams, Memekay		116	Amor de Cosmos
	212, 213	Memekay, White		119	Spirit Creek

3.2.5 Scaling

All wood processed through the dryland sorts at Eve River, Kelsey Bay and Menzies Bay were 100% stick scaled. Campbell River Fibre weight scaled logs. Some of the logs processed at Eve River and Kelsey Bay were also weight scaled.

Block III Coast Islands

Block IV Port Hardy

Administered by
Port McNeill Division



3.3 Block III (Coast Islands) and Block IV (Port Hardy)

Port McNeill Division administers Blocks III and IV. Block III includes property on North Broughton, Gilford, Turnour, Harbledown, Watson and Kinard Islands and a parcel on Vancouver Island at Beaver Cove. Block IV includes land in the Benson, Victoria, Alice and Marble River drainages and an area between Rupert Inlet and Port Hardy. The combined areas of the two Blocks is 68 000 ha, mostly in Block IV (77%). Total productive area is 54 000 ha, supporting a forest of hemlock, balsam, cedar and yellow cypress. The current AAC allocation for Blocks III and IV of 415 000 m³ is approximately distributed as 14 884 m³ for SBFEP and 400 116 m³ for MB harvest.

3.3.1 Annual Harvesting

Port McNeill Division harvested a total of 415 991 m³, including 11 431 m³ of residue in 1998. The residue was 2.7% of the total cut. The conventional logging system was the most common method used to harvest this timber. Heli-

logging was used at Gilford Pt. Group selection and group retention harvest systems are being considered for the future.

3.3.2 Engineering Development

Road development included work on the Skidder and Cabin mainlines.

3.3.3 Development Plans

A Forest Development Plan was approved in 1997. A revised plan will be submitted in 1999.

3.3.4 Cutting Permits

The following Cutting Permits were active in 1998:

Block	Cutting Permit No.	Location
III	302	Turnour
	304, 310	Port Elizabeth
	305	Gilford Pt.
	306, 308	Harbledown
IV	26, 401, 402, 404, 406-414, 416, 417	Port McNeill

3.3.5 Scaling

All production was 100% stick scaled at either Howe Sound (Block III) or Port McNeill (Block IV). Some pulp salvage material was weight scaled by the salvage contractor.

Block V Phillips River

Administered by
Stillwater Division



3.4 Block V (Phillips River)

Block V is located at the head of Phillips Arm and includes most of the Phillips River drainage. The total area is 48 000 ha, of which 15 000 ha is productive forestland. The major species include hemlock, balsam and cedar. The current AAC allocation for Block V of 100 000 m³ is approximately distributed as 3 680 m³ for SBFEP and 96 320 m³ for MB. Stillwater Division is responsible for the administration of Block V.

3.4.1 Annual Harvesting

Stillwater Division harvested a total of 61 952 m³ in 1998. This volume included 5 964 m³ of residue, or 9.6% of the total cut. Logging was done using conventional and heli-logging methods.

3.4.2 Engineering Development

The Clearwater 300 and East Main 6 mainline roads were extended during the year. A bridge was built on Hoet Creek. Two bridges were constructed on Shore Creek.

3.4.3 Development Plans

Five-year Plans were approved for this Working Circle in 1998.

3.4.4 Cutting Permits

The following Cutting Permits were active in 1998:

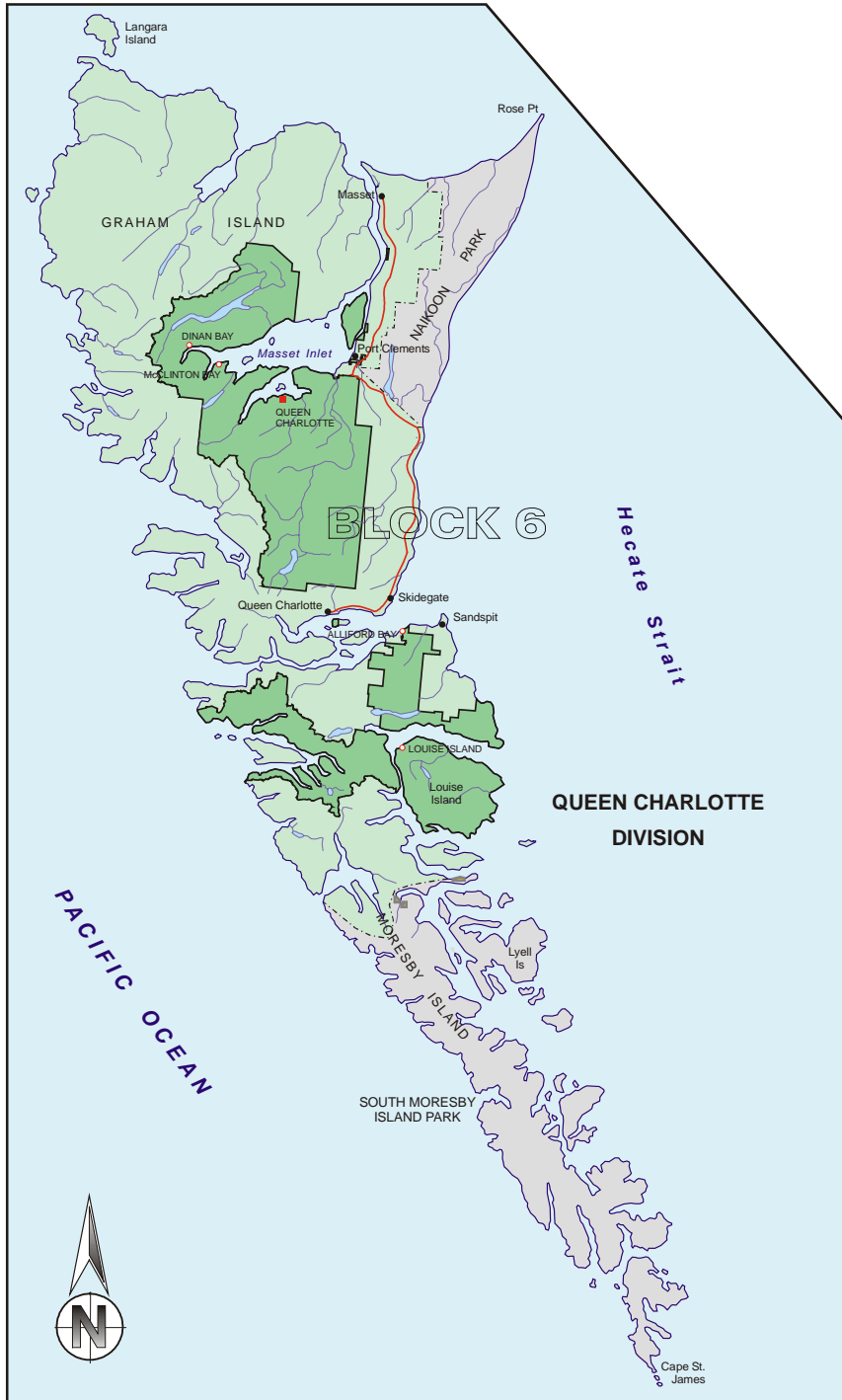
Cutting Permit No.	Location
41C, 41E, 41F	Phillips Arm

3.4.5 Scaling

All production was 100% stick scaled.

Block VI Queen Charlotte Islands

Administered by
Queen Charlotte Division



3.5 Block VI (Queen Charlotte Islands)

Block VI is located in the Queen Charlotte Islands. The timberland is located on Graham Island (north and west of Masset Inlet and south in the Yakoun drainage to Queen Charlotte City) and on the north end of Moresby Island. The total area is 242 000 ha, of which 191 000 ha is classified as productive forestland. The primary species are hemlock, cedar, and spruce. The current AAC allocation for Block VI of 1 210 000 m³ is approximately distributed as 56 324 m³ for SBFEP and 1 153 676 m³ for MB harvest. The Queen Charlotte Division operates in Block VI.

3.5.1 Annual Harvesting

A total of 717 340 m³ was harvested during 1998 by Queen Charlotte Division. This total included 33 817 m³ of residue, or 4.7% of the total cut. Conventional methods were used in all Cutting Permits. In the future, consideration will be given to variable retention logging.

3.5.2 Engineering Development

Access was extended or completed for 10 km of mainline roads in Datlamen, Canyon, South Manum Creek watersheds and at Ian Lake. Spur road construction added another 50 km.

3.5.3 Development Plans

The Five-year Plan for the Ferguson–Skidegate area was approved. New plans were submitted for the Dinan–McClinton Bay areas. Consultations were held in Masset, Port Clements and Queen Charlotte City.

3.5.4 Cutting Permits

The following Cutting Permits were active in 1998:

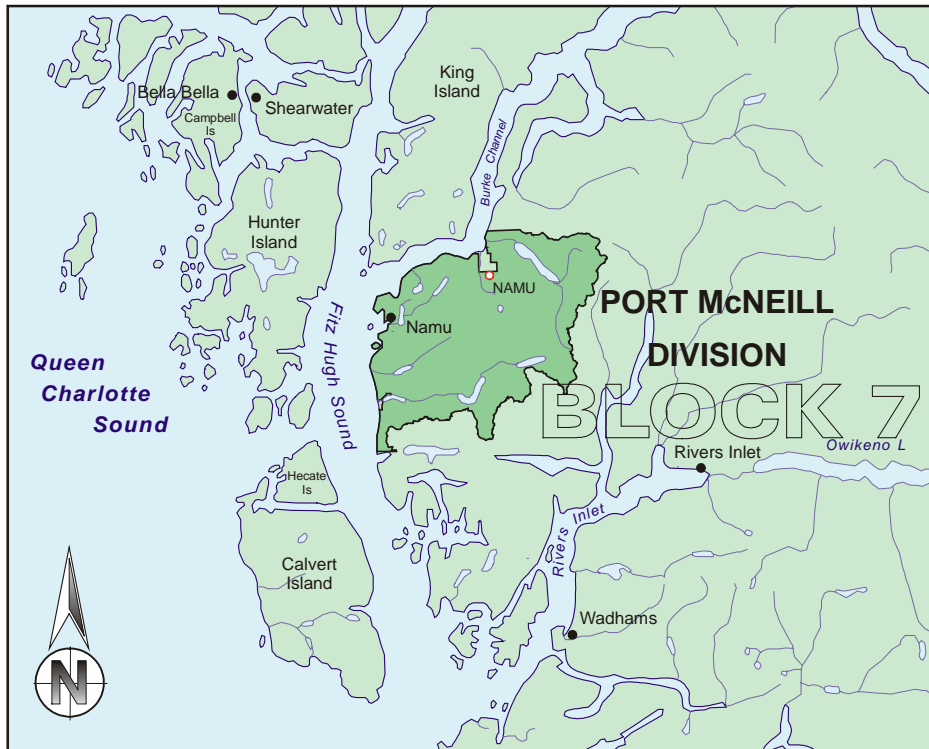
Cutting Permit No.	Location	Cutting Permit No.	Location
635	Sheila	922	Gold
653	Canoe, King, Mamin	926	Phantom
662	Honna, Skowkona	644, 910, 918, 925, 927, 928	Ian
669	Farm	664	McClinton ML
670	Blackwater	919	Ian Martin
688	Canoe	920	Ain
689, 909, 917	Canyon	923	Awun Lake
692	New Mainline	631	Shannon
693	Demon, Phantom	941, 944	Ira
905, 916	Mamin	619, 694, 900, 901	Chadsey
911, 946	Datlamen	621, 678, 931-940	Louise

3.5.5 Scaling

Production was 100% stick scaled at the following locations: Ferguson Bay, Skidegate, Louise Island, Dinan Bay, and McClinton Bay.

Block VII Namu

Administered by
Port McNeill Division



3.6 Block VII (Namu)

Block VII is located on the east side of Fitz Hugh Sound and includes the major drainages: Koeeye and Nootum Rivers. The total area is 56 000 ha with 30 000 ha classified as productive forestland, supporting hemlock, cedar and balsam. The current AAC allocation for Block VII of 195 000 m³ is approximately distributed as 7 214 m³ for SBFEP and 187 786 m³ for MB harvest. The Port McNeill Division is responsible for the administration of Block VII.

3.6.1 Annual Harvesting

The Division removed a total of 222 918 m³ of timber in 1998. Residue contributed 11 612 m³ or 5.2% to the total. All openings were logged using conventional systems. In addition, four of the areas were also logged using a helicopter.

3.6.2 Engineering Development

Road extensions along the Mighty Duck, Doosie, Pawlick and Upper Amy mainlines were completed during 1998.

3.6.3 Development Plans

Development Plans for Doc Creek were submitted in December 1998 after consultations in Bella Coola and Hagensborg.

3.6.4 Cutting Permits

The following Cutting Permits were active in 1998:

Cutting Permit No.	Location
703-707, 709	Doc Creek

3.6.5 Scaling

The production from Namu was 100% stick scaled at Doc Creek.

4.0 1998 GENERAL ACTIVITIES

The following sections describe the inventory, forest protection, silviculture and administrative activities completed during 1998.

4.1 Inventory Activities

Inventory Section, of Nanaimo Woodlands, is responsible for obtaining data and maintaining records pertaining to timber inventory.

4.1.1 Operational Cruising

A total of 3 495 ha of Operational Cruising were completed in 1998 to supply timber volume and grade information for 133 Cutting Permit Applications.

4.1.2 TFL 39 Inventory Audits

The Mature timber inventory in Block V was checked by establishing random plots in two strata defined according to classification of accessibility in the 1960s inventory. Seventy-four plots in the "Mature Accessible" timber and 59 random plots in the "Mature Inaccessible" timber were measured. The work will be completed in 1999 with the measurement of 27 plots in the "Accessible" timber and 41 plots in the "Inaccessible" timber. The statistical analysis will be done when the fieldwork is complete. The implications of this difference will be examined in the analysis for Management Plan #8.

4.1.3 Residue Sampling

Contractors retained by the Divisions measured residue on completed settings. Inventory Section crews audit the contractors to ensure the BC Forest Service standards are met. The two contractors established 1 876 plots on 141 openings, totaling 2 698 ha.

4.1.4 Inventory Maintenance

The annual updating of the forest cover and volume data is required to maintain current information for management and harvesting decisions. Updated information includes harvesting, reforestation, silvicultural treatment, road construction and land acquisition or disposal activities. The Inventory Revisions to December 1997 were completed in 1998.

4.2 Forest Protection

Forest protection includes a wide range of activities to eliminate or minimize the effects of fire, disease and insects.

4.2.1 Forest Fires

A total of eight fires burned a total of 73 ha. Escaped slash fires burned 63 ha and operational fires accounted for another 10 ha. The fires burned 10 ha of mature, 59 ha of immature timber and 4 ha of AAR (see Appendix I, Table 4).

4.2.2 Fire Control Planning/Protection

Prior to the fire season, each division prepared a pre-organization plan outlining the procedures and responsibilities for all phases of the divisional fire prevention and protection effort. Contact was maintained with operators in adjacent areas and with Small Business Forest Enterprise Program operators within the TFL to ensure coordination of prevention and suppression activities.

Roads providing fire protection access to inactive portions of the TFL were inspected prior to the onset of the fire season to ensure their usability.

4.2.3 Slash Disposal

All divisions used slash accumulation burning to reduce fire hazards at specified landings. A total of 110 ha of logging accumulations were burned in 1998. In addition, Port McNeill Division used a broadcast burn to reduce the hazard on 10 ha in Block IV.

4.2.4 Fuel Management Plans

Approved Fuel Management Plans are in place for all divisions and are reviewed periodically to ensure their validity.

4.2.5 Fire Patrols

Air or ground patrols are usually carried out within two hours after each shift whenever moderate fire hazard conditions exist for more than three days. During the past year, a total of 58 fire watches were flown by FIFT. In addition, 56 fire patrols were flown during periods of high fire hazard.

Additional ground fire patrols were performed during periods of extreme fire hazard.

4.2.6 Fire Suppression Equipment

Suppression equipment, including foam application equipment, required to meet or exceed required levels was maintained at all Divisions.

4.2.7 Weather Stations

Weather stations enhance the fire hazard prediction process. The following divisions are responsible for maintaining stations within their jurisdiction:

Stillwater: Three stations are located in Block I—one each in the Powell-Daniels, Powell Lake and Stillwater areas. One station is located in the Phillips River in Block V.

North Island Woodlands: A total of seven weather stations are maintained by MB within the operation area. They are located at: C Branch, Compton Creek, Iron River, M 386, Moakswa Creek, RL 121A and M366. The BCFS maintains one station at Grilse Creek.

Port McNeill: This division has weather stations in each of the Blocks managed by them. MB maintains the Benson River and Branch 22 weather stations in Block IV. Contractors maintain another three—one at Tracey Harbour on North Broughton Island and one on Turnour Islands in Block III and one on Nootum Main (Doc Creek) in Block VII.

- Queen Charlotte: MB in the Queen Charlottes maintains four stations. They are located at McClinton Bay, Dinan Bay, Juskatla, and Louise Island. The Forest Service has a weather station at Queen Charlotte City.

4.2.8 Insects

Salvage of the Douglas-fir bark beetle infestation in the lower Powell Lake area of Block I continued in 1998.

Conifer sawfly (*Neodiprion spp.*) infestation in the North Island Woodlands area has weakened or collapsed over the last year. The situation will continue to be monitored.

The management response to infestation of the conifer sawfly in Phillips River (Block V) has included harvesting to recover timber in high-risk areas. The situation is being monitored.

The Canadian Forestry Service is currently monitoring populations of the black headed budworm and Balsam wooly aphid in the Alliford area of the Queen Charlottes. All spacing work has been halted in the effected stands.

Evidence of the Sitka spruce weevil has been found in Block III as well as in the Benson drainage in Block IV. Planting of resistant Sitka spruce is being done in infested areas. The division is working with the MoF research branch on progeny testing of resistant genotypes.

4.2.9 Disease

Mistletoe in the Port McNeill Division is being treated with retention sanitation falling outside of cutting boundaries and planting high-risk areas with alternative species.

4.3 Forest Regeneration

The initial regeneration of harvested forests includes preparation of the growing site, production of seedlings, planting and measuring the results of regeneration activities.

4.3.1 Site Preparation

The following site preparation was completed in 1998. Details of these activities by Division are listed in Appendix I, Table 5.

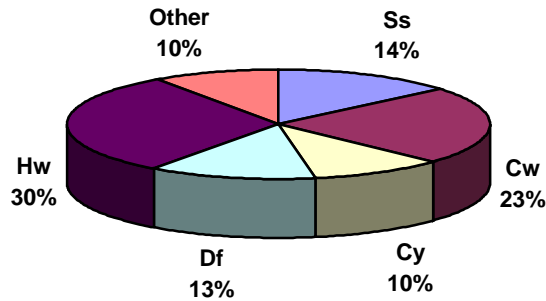
- Burning: All divisions used Accumulation Burns to reduce landing debris on 110 ha. In addition, Port McNeill broadcast burned 10 ha in Block IV.
- Mechanical: Excavators were used to prepare 52 ha for regeneration.
- Brush and Grass Control: Kelsey Bay Operation in Block II and Stillwater Division in Block V completed 74 ha of brush and grass control using swathing and aerial spray.
- Three-Metre Knockdown: A total of 232 ha of knockdown was completed using chain saws.
- Alder Seed Tree Control: Eve River Operation and Queen Charlotte Division controlled alder seed trees on 46 ha by girdling.

4.3.2 Artificial Reforestation

- Tree Improvement: The Coastal Tree Improvement Council has disbanded and an Interim Council was formed to develop a business plan for delivery of the Provincial Tree Improvement Program through FRBC. The business plan has been completed and presented to the Chief Forester and FRBC. The plan is to set up the Forest Genetics Council, use the business plan priority investment areas as a guide for FRBC investment and an arms-length company called SEEDCO to broker seed orchard seed purchases for members. The program would cover both breeding and seed orchard operations.
- Seed Procurement: No cone collections were made from seed orchards. Wild cone collections produced 36.32 hl of cones. Details by species are listed in Appendix II, Table 1.
- MB Seed Inventory: The 1998 seed inventory exceeds 765 kg. Details of the species distribution are found in Appendix II, Table 2.
- Planting Stock: The seedling inventory held by MacMillan Bloedel at the end of 1998 was 6 628 000 trees. The sowing requests for the fall of 1999 and the spring of 2000 totaled 7 781 000 seedlings. Table 3 in Appendix II shows the details of the inventory.
- Planting: Planting was completed on 3 270 ha of Area Awaiting Restocking (AAR) using 3 197 800 seedlings. Fill planting was done on 827 ha using 445 400 trees to bring the stocking level on those areas to Management Plan standards. Appendix I, Table 6 shows the number of trees planted by Division and Appendix I, Table 7 details the hectares planted by Division and tenure.

The following graph details the percent of species planted in 1998.

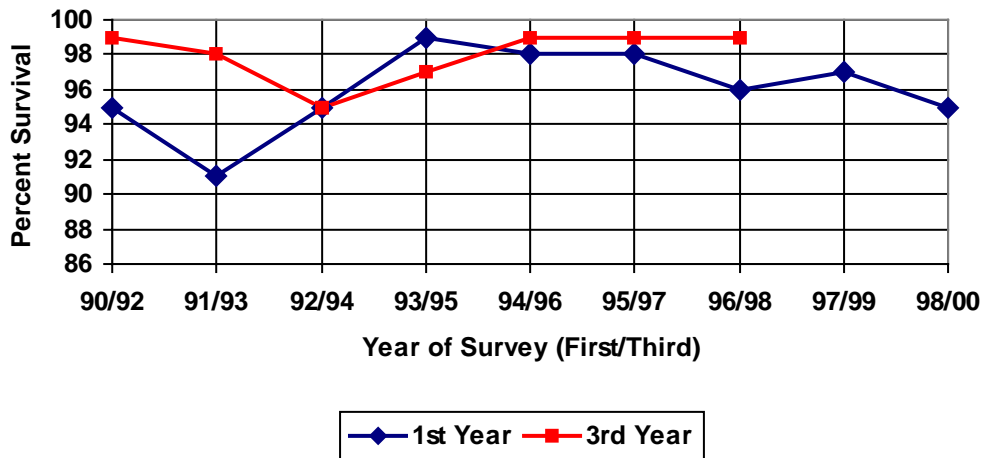
Species Planted (%)



4.3.3 Survival

Survival surveys, completed one year after planting, on 4 974 ha showed a survival rate of 95%. Three years after planting, the survival rate rose to 99% on the 4 314 ha surveyed. Individual Division details are reported in Appendix I, Table 8.

First- and Third-Year Regeneration Performance Comparison

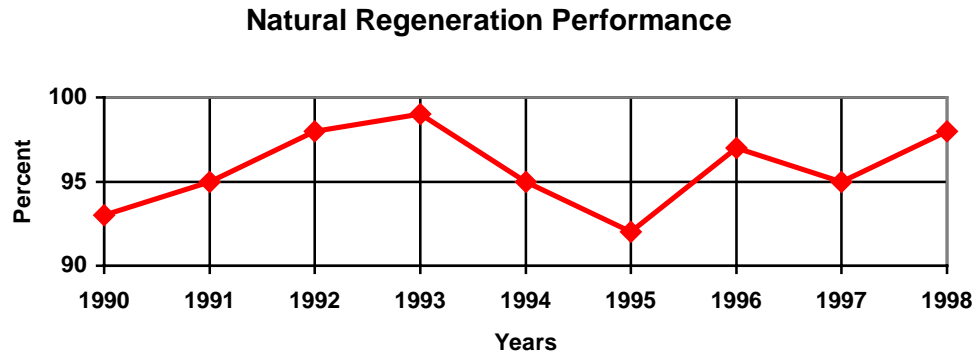


The first year survival rate has been at or above the 95% level for the last seven years. With the exception of 1995, the third-year survival has equaled or surpassed the first-year survival performance. Weather conditions are the probable cause for the lower survival rate in 1995. The third-year data does not include plantations that failed the first year.

4.3.4 Natural Regeneration

Stocking surveys were conducted on 1 989 ha and 40% were found to be stocked. After three years the naturally regenerated areas were 98% stocked, based on a survey of 4 647 ha. Details of these surveys by Division are found in

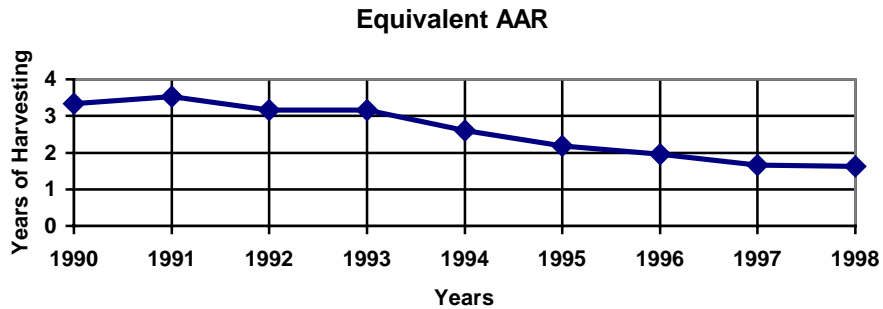
Appendix I, Table 8. Natural stand regeneration has remained above 92% since 1990.



4.3.5 Areas Awaiting Restocking (AAR) Status

The inventory of Areas Awaiting Restocking in TFL 39 at the end of 1998 was 6 805 ha, 502 ha less than December 1997 (refer to Appendix I, Table 9 for details). There were 192 of regeneration failures during the year due to animal damage, poor quality seedlings, poor planting quality, and frost.

When the total annual AAR for 1998 is compared to the average area harvested over the previous ten years, it represents 1.63 years of logging. The following graph shows the trend of AAR in terms of logging history.



4.3.6 Free-Growing Status

Appendix I, Table 13 summarizes areas that require MoF approval for free-growing status. These areas, generally, have been harvested since October 1, 1987.

4.4 Stand Tending

Silvicultural activities continue after reforestation. Several projects were completed in 1998; the details by Division are shown in Appendix I, Table 10.

4.4.1 Brushing and Weeding

Brushing and weeding projects were completed on 1 558 ha. Methods of treatment included hack and squirt, swathing, girdling, ground and aerial spray.

4.4.2 Juvenile Spacing

All Divisions except Port McNeill completed juvenile spacing work. A total of 805 ha were treated using chainsaws.

4.4.3 Fertilizing

A total of 1 714 ha were fertilized during the year, all done at the time of planting.

4.4.4 Pruning

Three Divisions completed pruning projects in 1998. Stillwater Division pruned trees on 15 ha, Eve River Operation completed a 45 ha project and Queen Charlotte Division pruned trees on 46 ha. Handsaws and clippers were the tools of choice.

4.4.5 Erosion Control

All Divisions were involved with erosion control, treating a total of 100 ha. The details of ha treated by Division are found in Appendix I, Table 11. Slide and roadside areas were treated either by hydro or dry seeding.

4.4.6 Hardwood Logging

The logging of hardwood stands in preparation for conversion to conifers continued in Block I. The area of converted stands over the last six years is shown below.

Year	1993 (ha)	1994 (ha)	1995 (ha)	1996 (ha)	1997 (ha)	1998 (ha)
Stands classed as hardwood in Forest Inventory	43	42	48	28	33	56

4.5 Assessments

4.5.1 Silvicultural Assessments

The results of various types of silvicultural assessments are used for planning future activities, monitoring the success of treatments, and to maintain up-to-date forest management records. Appendix I, Table 12 details the 11 276 ha surveyed for various assessments in 1998.

4.5.2 Silvicultural and Land Use Audits

Audits allow MacMillan Bloedel to evaluate performance compared to standards in a number of land use and forestry disciplines. Qualified personnel conduct these audits and the results are discussed with appropriate divisional staff.

4.6 Funding Credits

Funding credits received by MacMillan Bloedel in 1998 totaled \$1 997 770. FRBC funds were used for brushing and weeding, pruning, spacing, various kinds of assessments or surveys, fertilization, and recreation site maintenance. Details of Division funding are found in Appendix I, Table 14.

4.7 Public Involvement

A number of communities are within or adjacent to the licence. Many of the residents are directly or indirectly dependent on the forest.

Public interest in resource management planning has increased the need for review of development and management plans by the general public.

4.7.1 Development Plans

Review of Forest Development Plans included public consultations in Powell River, Menzies Bay, Masset, Port Clements, Queen Charlotte City, Bella Coola and Hagensborg. Divisional activity is reported in Section 3.

4.8 Operational Research

Operational research is carried out in several of MacMillan Bloedel's divisions and managed forests. Results can be applicable to TFL 39 when species, site index, terrain and biological conditions are considered.

4.8.1 Forest Renewal

Forest Renewal research in the Montane Alternative Silvicultural Systems (MASS) project focuses on performance of Douglas-fir, hemlock and western redcedar in various silvicultural systems in higher elevations forests. Activities/results during 1998 included:

A seedling experiment with two species (amabilis fir and western hemlock) and four treatments (fertilization, vegetation control, both and none) was established in 1996 on all five silvicultural settings (clearcutting, green-tree retention, shelterwood and patch cutting). Microclimate stations have been increased to two per silvicultural setting to provide replication. These are being operated by the CFS and a database has been created to allow all researchers access to the climate data. Preliminary results indicate the most significant single growth factor during the first four growing seasons is nitrogen nutrition. All seedlings, particularly western hemlock, had significantly higher first season growth with fertilization than with any other treatment. This effect has persisted but diminished through the four growing seasons. Excavations of whole trees and

biomass allocation assessments were completed this year to determine if the pattern of biomass allocation was different than the height and volume growth performance. Biomass allocation (total, root shoot and shoot root) essentially matched the height and volume growth responses. The reduction in growth response to fertilization is more apparent in the western hemlock, particularly in the open-grown clear-cut where supplemental Nutricote has caused no significant incremental growth response.

It is notable that silvicultural settings had limited effect on seedling growth other than exceptionally slow growth in the old-growth control. Seedling growth in clearcuts was not significantly different than growth under patch-cut, green tree retention or shelterwood. This was consistent with the microclimate evidence that indicated more similarity in temperature and light regimes than was expected.

4.8.2 Ecology

The forest ecology program in MacMillan Bloedel addresses issues pertaining to sustainable management of forest ecosystems. Its main project areas are silvicultural systems, site productivity, and ecosystem classification and mapping.

- **Montane Alternative Silvicultural Systems (MASS)**

Ecology research continued on the cooperative Montane Alternative Silvicultural Systems (MASS) project. The participating organizations include: MB, Canadian Forest Service, FERIC, UBC and UVIC. Forest Renewal BC provides funding. This project is designed to study the biological and economic consequences of various silvicultural systems in higher elevation forests. The systems being studied include: clearcutting, green tree retention, shelterwood and patch cutting. Harvesting was completed in 1993; post-harvest monitoring continued through 1998. MB studies included: regeneration, growth and yield, microclimate, hydrology, forest bird diversity and vegetation succession. Nearly 128 people visited the site in 1998, bringing the total number of visitors to almost 1,000. In addition, another 5,800 people around the world have participated in seminars given by the researchers. Activities in 1998 include:

- **Windthrow monitoring:** Windthrow is present in all of the cut blocks. A total of 50 newly windblown trees were observed in 1998. After five seasons, green tree retention has lost an average of 8 sph; patch cut—5.5 sph; shelterwood—10 sph and clearcut—8.5 sph due to windthrow. The greatest windthrow losses continue to be in the intermediate crown class. Trees in the more open green tree retention treatment were more vulnerable to wind damage; however, the shelterwood treatment resulted in greater numbers of windthrown stems because of the higher density of retention. Western redcedar appears to be more windfirm than either amabilis fir or western hemlock.
- **Conifer seedfall and regeneration:** Seedfall traps were sampled in May, August and November. The number of seeds collected was greatest in the first season, dropped off significantly in the second season, but rebounded in the last two seasons. Partial cutting seems to have stimulated the seed production as the greatest amount of seed has

been collected from the shelterwood areas in the last two years. Seedfall from all seasons combined, however, still show significantly more seedfall in the old growth than in any of the harvested areas. Hemlock seeds were more abundant than the other species on all treatments, except for western redcedar in the shelterwood during the past year. The old growth and all partially cut areas had the greatest production of the species with heavier seed (amabilis fir and yellow-cedar). Low numbers of seeds reached the center of the 69 ha clearcut; however, natural stocking through advanced regeneration and seedlings has been adequate in most areas. Stocking in the partially cut stands is typically high.

- Natural Vegetation: The cover, frequency and number of species of understory plants decreased after all harvesting treatments. Three years after treatment the cover increased in the harvested areas primarily due to herbaceous colonizers. The shelterwood areas retained the greatest diversity of understory trees, shrubs and bryophytes compared to other systems. Shelterwood species richness and abundance were greater three years after harvesting than before harvesting, but changes in species composition were quite variable. Presence of bryophytes and herbs that prefer moist, shaded habitats generally decreased after harvesting. More intensive sampling of bryophytes was done because of the sensitivity to treatments. Fifth year data was collected and results will be reported in 1999.

Vegetation cover was also assessed on sub-plots with herbicide and fertilizer treatments. Shrub cover was 9 to 10% in all plots immediately following harvest (pre-herbicide assessment). After 3 years, this cover (including *Iruba Pedatus*) has increased to about 30% in the untreated plots and has been reduced to less than 1% in the herbicide treated plots. Similarly, herb cover has been maintained at between 3 and 5% in the herbicide treated plots and has increased to about 35% in the untreated plots. Moss cover appears less affected by the herbicide treatments and ranges from 21 and 25% in both treated and untreated plots.

- Bird Diversity: Pre-harvest breeding bird communities were dominated by a few abundant species. Of the 26 species detected, 10 species accounted for 96% of the population. Different levels of canopy retention produced dramatic effects on the breeding birds. Species richness and bird abundance were reduced three years after harvesting. Most common species (9 species) showed evidence of population decline, 2 species showed significant increase, and 3 species showed unchanged abundance. Few species were completely lost or added to the avifauna. Only 17 species were recorded during winter surveys, of which 2 species accounted for the majority (68%) of detections. The vast majority (85%) of the winter resident birds was concentrated in the old growth and unlogged portions of patch cut blocks. Retention of relatively intact old-growth forest patches appears to be a more useful strategy for conservation of some plant and bird species and in maintaining stand structural elements than the uniform

distribution of leave trees. This approach also appears to have cost, wind-firmness and safety advantages.

- **Salal-Cedar-Hemlock Integrated Research Program (SCHIRP)**
MB has participated in a multi-agency cooperative Salal-Cedar-Hemlock Integrated Research Program (SCHIRP) since 1986. A field guide to site identification and treatment was published in 1996. In March 1996 a replicate trial was established near Ucluelet to test optimum combinations of species, fertilization, mechanical site preparation and planting density for CwHw-Salal sites. The new trial will expand the usefulness of the SCHIRP results to a wider range of sites.

After two growing seasons (data collected in 1997) at the Ucluelet site, western redcedar survival ranged from 95% to 98% while western hemlock ranged from 70% to 83%. Site preparation alone did not produce increased seedling height or stem volume. Fertilization significantly increased second year height growth of both species. Combining fertilizer with site preparation further increased western redcedar height and significantly increased second year stem volume over fertilization alone. Fertilization significantly increased second year western hemlock stem volume and more than tripled western redcedar stem volume. When using fertilizer, "tea-bags" or applying granular fertilizer 10 cm deep produced the best results.

- **Ecosystems 2000**
The objective of this project is to map the ecosystems (site series) on all of MacMillan Bloedel tenures at a scale of 1:20 000. This inventory will enable MacMillan Bloedel to meet the landscape-level planning recommendations in the Forest Practices Code Biodiversity Guidebook. Forest Renewal BC provides funding. All projects use TRIM (NAD 83) base and follow the provincial Resource Inventory Committee mapping and database standards. Final digital products were completed for the Phillips and Tsitika Rivers, Peel-Security Inlets in QCI and in Namu (Block V). Completed products for the Yakoun-Tlell, Adam-Eve, Mamin-Blackwater and Dian-McClinton areas are expected in early 1999. The project is expected to be complete in 2002.

4.8.3 Growth and Yield

MacMillan Bloedel maintains an inventory of permanent sample plots in mature and second-growth stands to evaluate long-term growth trends. These sample plots are periodically remeasured. Company wide a total of 130 Second-Growth, 31 Planting Assessment, 10 Sustained Yield, 39 Spacing Assessment, 31 Nutrition and 25 Mature plots were remeasured. Specifically, in TFL 39, 59 Second-Growth, 12 Planting Assessment, 8 Sustained Yield, 28 Spacing Assessment, 16 Nutrition and 18 Mature plots were measured in 1998.

4.9 Integrated Resource Management

MacMillan Bloedel is actively engaged in managing the forest resources within the TFL. This occurs in accordance with the Forest Practices Act (FPC) and Regulations and as directed by FPC Guidebooks. This involvement includes

maintaining information (inventories) on a number of non-timber forest values. These inventories are updated on a regular basis. It also includes research as well as specific management actions. The following summarizes activities in 1998.

4.9.1 Forest Renewal BC Multi-Year Agreement

The Multi-Year Agreement between MacMillan Bloedel and Forest Renewal BC (FRBC) was signed in May 1998. The agreement runs to the end of March 2003. FRBC provides funds under the agreement for MB to carryout and complete approved activities on the forest land base. The major work activities included: Backlog (brushing, planting), Enhanced (spacing, pruning), Operational Inventory (ecosystem mapping, fish inventory, water quality testing), and Watershed Restoration (road deactivations, in-stream works). Three minor project activities included: Enhanced Forest Management Pilot Project (see Section 4.9.2), Bridge Replacement and Recreation.

Specific activities in 1998 involved a number of First Nations in spacing, brushing, pruning and in-stream work projects. The First Nations partners include Winalaagalis, Slidegate, Old Massett, Kltn, and Sliamon Nations.

4.9.2 Forest Project

During 1998, Tom Stephens, the newly appointed President and CEO of MacMillan Bloedel, commissioned a comprehensive review of the company's forest policy. Led by MB's Chief Forester, Bill Cafferata, MB's Forest Project assembled a team of internal and external experts to develop options that would enable the company to meet the following three objectives:

- ensure that employee safety is not compromised;
- develop MB into North America's most respected forest company, and
- find solutions to forest issues in British Columbia that will enhance shareholder value through improved market access and earnings.

The recommendations of the Forest Project analysis were accepted by MB in May 1998 and publicly announced in BC in June 1998. The Project recommended that the company implement management policies and practices designed to:

- increase conservation of old growth forest;
- replace clearcutting with a more ecologically driven approach through the
- adoption of a system of stewardship zones, and the introduction of variable retention harvesting and silviculture systems, and
- achieve both of the above in ways that will enable the company to be certified under any of the private systems currently emerging for forest certification.

Further details on the recommendations of the Forest Project and new forest policy initiatives subsequently undertaken by MB are available. It is recognized by the company that implementation of the Project's recommendations will take time and will require the cooperation and support of other forest stakeholders in

BC, including First Nations, employees, local communities, environmental groups and the provincial government.

The ecological rationale for MacMillan Bloedel's new approach to forest management in the 21st century was developed in cooperation the UBC Center for Applied Conservation Biology. The rationale was established on two broad objectives:

- explicitly addressing the public fear of losses of options and economic opportunities, healthy ecosystems and biological diversity, and
- learning from our actions through adaptive management.

The project describes the relationship between redefined public values and biodiversity, and shows how vertebrate species and their habitat requirements can be a pragmatic proxy for biodiversity. A thorough review of current forest ecology, landscape ecology and biogeography literature led to the conclusion that the major forest habitat elements relevant to maintaining vertebrate richness are: cavity sites, downed wood, shrubs, deciduous broad-leaved trees, riparian areas, and early and late seral stages. Each of these can be created or changed by forest practices. The review focused on structural requirements for terrestrial vertebrates on MB tenure and indicates how these can be used to guide the implementation of variable retention in a landscape-zoning framework.

4.9.3 Recreation/Landscape

MacMillan Bloedel has built and maintains a number of campsites throughout TFL 39. The following activities were reported for 1998:

- Eve River: A new site was constructed on Montague Creek. A total of eight sites were enhanced at the Junction Pool (6) and the Tsitika Crossing (2) locations
- Queen Charlotte: QC Division maintains 35 sites with funds from the Ministry of Forests. These sites are located at Gray Bay (24), Marie Lake (1) and Papa Johns (10). The funds committed to park maintenance were significantly reduced in 1998.
- Port McNeill: The campsites maintained by Port McNeill are all located in Block IV. They include locations at Rupert Arm (2), Keogh Lake (8), Alice Lake (12), Dinch Creek (4), and Kathleen Lake (4). An additional three campsites were constructed at Keogh, making the total number of sites at this location eleven.
- Stillwater: Campsites in this Division are located on some of the many lakes found in the area. The Powell Lake Canoe Route has a total of 17 sites. All of these sites were maintained in 1998.

Recreation and visual landscape inventories were completed for Blocks I and VI and the data entered into the MB mapping system. A contractor started to update this type of information for the other Blocks. This job will continue into 1999.

4.9.4 Wildlife

Wildlife management focused on assessment and protection of important habitat. Ongoing adjustments were completed to the wildlife inventories in conjunction with agency staff during the development plan process. These assessments included deer winter ranges, elk summer ranges, and grizzly and goat habitat.

4.9.5 Fisheries

A fisheries habitat survey was conducted on the Lois River for Pacifica Paper and the DFO. The river runs through land managed by Stillwater Division. A report on the findings will be completed in early 1999.

Several watershed inventory projects were carried out in the past year. The studies were located on the Memekay River (North Island Woodlands), the Tlell River (Queen Charlotte Division) and in Namu (Block VII, Port McNeill Division). This work was funded through FRBC. Reports on these projects are expected in late 1999 or early 2000.

The instream restoration work on the Yakoun River watershed in Queen Charlotte Division was completed. The partners in this project, funded by FRBC, included MacMillan Bloedel, Old Massett Village and a number of government agencies.

A report detailing reconstruction of a section of a stream draining into the Skidegate Inlet near Queen Charlotte City was completed.

4.9.6 Water

Watershed assessments, carried out according to the Coastal Watershed Assessment Procedure, were done on the following drainages:

- Block I: Powell-Daniels
- Block II: Eve and Catherine
- Block IV: Cluzewe, Waukwaas
- Block VI: Gold, Mamin and Tlell

MacMillan Bloedel participated in a FRBC study to establish a hydrometric station on the Benson River in Block IV. The purpose of the project is to collect flow data on the river. The new information will be added to the Ministry of Environment Lands and Parks database containing information available from hydrometric and weather stations located in the Vancouver Island Region.

MacMillan Bloedel is committed, as a part of the corporate safety strategy, to developing regional rainfall shutdown criteria for the purpose of shutting down operations in the woods during periods of high landslide hazard. The water balance method cited in the WCB regulations is the standard. Local guidelines were established using rainfall regions based on biogeoclimatic maps and are calibrated for each region using available precipitation data on known landslide events. The guidelines outline work site procedures for working at a fixed

location (e.g., a cutblock or bridge site), variable work areas (e.g., timber cruising, road maintenance), and for road inspections. Guidelines were completed for the North Island Woodlands Operations in 1998 and will be completed for the balance of the TFL Divisions in 1999.

4.9.7 Soils

Terrain stability Terrain stability and surface erosion potential mapping commenced in Block I in conjunction with a FRBC terrain ecosystem mapping project. The project will continue over the next few years.

A total of 83 assessment reports were completed in TFL 39 covering the following topics:

- Terrain stability assessments of hillslopes and gullies for proposed roads and harvesting areas,
- Landslide investigations,
- Geotechnical assessments of problem areas on existing roads,
- Hydrotechnical assessments of floodplains, logged and unlogged stream channel fluvial geomorphology,
- Surface erosion potential for proposed harvesting areas, and
- Windthrow assessments.

A Woodlands Waste Management Standard was implemented in 1998. The standard was developed to reduce the environment impacts and liabilities associated with all aspects of waste management and in particular the ongoing problems of landfill fires, leachates and costly landfill closure requirements. Requirements for the storage and disposal of various waste materials are outlined and new 'best management practices' are proposed for implementation at all Divisions to reduce short- and long-term environmental risks from landfills, dryland sorts, debris burn sites, shops and camps. The first major revision will be completed in 1999 and the site-specific database containing geologic, hydrologic, site and maintenance data will be linked spatially in the GIS.

A project was initiated in mid-1998 to examine the management options associated with wood residue generated at dryland sorts and sawmill operations. The intent of this project is to look at MB's recycling and disposal options as well as ways in which MB can reduce the amount of wood waste generated. The expected project results include:

- determining where open burning is still necessary and acceptable at some remote sites,
- a review of existing and emerging technologies with respect to wood residue recycling,
- a decision framework as to which technologies or management strategies are best suited to MB's operating areas, based on site specific criteria, and
- progressive improvement in management strategies by continually looking for the best solutions, taking into account environmental, business, community, and esthetic needs at each site.

- The results will be announced in 1999 together with implementation plans for adopting different technologies or management strategies at various sites.

4.9.8 Biological Diversity

The biodiversity model developed at UBC's Institute for Applied Conservation Biology for the MoF has been incorporated into the MB GIS framework. The model has been calibrated to coastal conditions using our PSP data and help from Resource Analysis Section (RAS) and a graduate student. Partial harvesting and natural disturbance data has been successfully incorporated into the model and was tested in a new case study with the Adam/Eve landscape unit in 1998.

MB has reviewed the modeling approach with the MoF and MoELP biodiversity and planning specialists and received positive feedback suggesting that these analyses could provide an important comparative element for assessing alternative total resource plans. This approach will be tested in the context of Higher Level planning using the Enhanced Forest Management Pilot Project during 1999.

4.10 Administration

The administration activities necessary to operate the TFL in 1998 are described in the following sections.

4.10.1 TFL 39 Amendments

There were no amendments made to the TFL 39 Agreement in 1998.

4.10.2 Property Additions/Deletions

A total of 101.5 ha were added to the TFL through the boundary resolution with Western Forest Products Ltd.

Two parcels of land were removed from the TFL in 1998, including 8.49 ha for a private Crown Grant and 6.78 ha for the Port McNeill sewage treatment plant.

4.10.3 Managed Forest 21

Managed Forest 21 includes all the land privately owned by MB within the TFL, and is managed as an integral part of the Licence and to the same standards. The total area for the Tree Farm is 17 597 ha.

4.10.4 Annual Allowable Cut

The AAC for TFL 39, as approved by the BC Forest Service in a letter dated June 27, 1996, is 3 740 000 m³ for the period July 1, 1997 to July 1, 2001. This volume includes the SBFEP portion of the AAC, which totals 162 218 m³. The total licensee AAC for MacMillan Bloedel is 3 577 782 m³.

4.10.5 Regional and Landscape Planning

Refer to the 1997 Annual report for a summary of recent initiatives.

The Vancouver Island Land Use Plan report on the locations and management objectives and strategies for Enhanced Development and General Management Zones has not yet been approved. Blocks 2 and 4 of TFL 39 are on Vancouver Island.

The Regional Landscape Unit Planning Strategy is also awaiting approval.

MB is participating in the Central Coast Land and Resource Management Plan (LRMP) process. The Central Coast planning area includes Block 3 (Coast Islands), Block 5 (Phillips River) and Block 7 (Namu) of TFL 39.

MB is also participating in the Tlell Local Resource Use Plan (partly within Block 6 of TFL 39) and in the Haslam Lake/Laing Creek Integrated Resource Management Plan (partly within Block 1).

4.10.6 Management Plan Process

The process for developing Management Plan #8 for TFL 39 commenced in 1998. The target date for approval of MP #8 is by the end of 2000.

Steps completed in 1998 include:

Public review of MP #7: Copies of MP #7 were made available for public review at specified MB and MoF offices during July and August. The opportunities for review including locations and times were advertised in regional and local newspapers. In addition a copy of the advertisement and a short newsletter were sent to those on the mailing list for TFL 39. Sixty-one responses were received. Copies of this public input, the responses from MB and a summary of the process were submitted to the Regional Manager (MoF) in early October.

The proposed public review strategy for MP #8 was submitted in August 1998 and was approved in October of 1998.

The draft Statement of Management Objectives, Options and Procedures (SMOOP) and Objectives and Strategies for Employment and Economic Opportunities (EEO) were made available for public input in December of 1998. The opportunity for review and the locations and times for obtaining a copy of the draft documents were included in advertisements in regional and local newspapers. Copies of the draft SMOOP and EEO were also sent to those on the TFL 39 mailing list. The review period extends through until mid-February of 1999. After this date changes will be made according to input received and the proposed SMOOP and EEO will be submitted to the Regional Manager (MoF). A report on the process, input received and any changes made will also be submitted to the Regional Manager in the Spring of 1999.

In addition, considerable effort was directed at developing inventory and other data for use in the MP #8 analyses. This included meeting with MB operations and MoF Districts during the Fall of 1998 to discuss and agree on various inventory and harvest projection issues and assumptions. Work is proceeding on new recreation and visual landscape inventories, a review of operability mapping and an update and recompilation of the timber inventory.

A major project has been the shifting of all inventories to a different map datum (from NAD 27 to NAD 83) that will be more consistent with that used by Government Agencies and other companies.

MB is discussing with the MoF approaches for modeling the impacts of variable retention on current and future timber supplies.

Work on these inventory and data initiatives will continue in 1999.

4.10.7 TFL Annual Report

The Annual Report for the activities in TFL 39 during 1997 was submitted in September 1998.

APPENDIX I - Table 1a

TFL 39 Volume Harvested in 1998
Based on Cut Control Letter Issued by Vancouver Forest Region
Volumes (m³)

Block	Division	Tenure	Ha	Fir	Pine	Cedar	Cypress	Spruce	Hemlock	Balsam	Decid	Total Billed	Residue	Total Cut Control	
I	Stillwater	Private	46	27,387	5	2,163		279	6,209	28	1,621	37,692		37,692	
		TL				16		44	12	1,756	804	2,632		2,632	
		Crown	417	152,876	107	67,795	7,510	633	69,908	20,658	12,253	331,740	4,039	335,779	
		Total	463	180,263	112	69,974	7,554	924	77,873	21,490	13,874	372,064	4,039	376,103	
II	Eve River	Private	32	22		4,853		77	13,305	7,582		25,839	1,061	26,900	
		TL		58	66	8,316	32,153		98,340	75,353		214,286	4,230	218,516	
		Crown	224												
	Total	256	80	66	13,169	32,153	77	111,645	82,935		240,125	5,291	245,416		
	Kelsey Bay	Private		794	1	543		333	329		111	2,111		2,111	
		TL	41	1,344	24	15,392	1,588	38	12,192	7,756	5	38,339	2,771	41,110	
		Crown	420	20,876	77	30,666	37,136	1,530	137,448	111,753	107	339,593	6,273	345,866	
	Total	461	23,014	102	46,601	38,724	1,901	149,969	119,509	223	380,043	9,044	389,087		
	Menzies Bay	Private	9	1		2,863	135		2,455	2,532		7,986	286	8,272	
		TL		159	11,361	8	10,458	8,053	30	56,080	37,400	274	123,664	4,503	128,167
		Crown	159												
	Total	168	11,362	8	13,321	8,188	30	58,535	39,932	274	131,650	4,789	136,439		
	Total	Private		794	1	543		333	329		111	2,111		2,111	
		TL	82	1,367	24	23,108	1,723	115	27,952	17,870	5	72,164	4,118	76,282	
		Crown	803	32,295	151	49,440	77,342	1,560	291,868	224,506	381	677,543	15,006	692,549	
		Total	885	34,456	176	73,091	79,065	2,008	320,149	242,376	497	751,818	19,124	770,942	
III	Port McNeill	Private		1		1	1		4			7		7	
		TL		168	2	5,676	261	2,326	57,293	3,726	2	69,454	1,597	71,058	
		Crown	44												
Total	44	169	2	5,677	262	2,326	57,297	3,726	2	69,461	1,597	71,058			
IV	Port McNeill	Private	26	1	161	5,217	3	9,313	27,573	3,989	368	46,625	1,737	48,362	
		TL	127	2,816	39	42,299	1,880	1,362	31,336	7,730	11	87,473	1,648	89,121	
		Crown	268	298	87	34,114	31,010	939	85,397	49,138	18	201,001	6,449	207,450	
Total	421	3,115	287	81,630	32,893	11,614	144,306	60,857	397	335,099	9,834	344,933			
V	Stillwater	Private													
		TL													
		Crown	68	1,656	2	-147	1,270	132	25,820	27,074	181	55,988	5,964	61,952	
Total	68	1,656	2	-147	1,270	132	25,820	27,074	181	55,988	5,964	61,952			
VI	QCD	Private	10	2		3,370	834	877	1,266			6,349		6,349	
		TL	20		518	8,686	938	413	3,742			14,297	1,062	15,359	
		Crown	881		8,475	275,388	75,756	59,527	243,723		8	662,877	32,755	695,632	
Total	911	2	8,993	287,444	77,528	60,817	248,731		8	683,523	33,817	717,340			
VII	Port McNeill	Private													
		TL													
		Crown	301	1	122	74,607	23,012	13,381	66,794	33,387	2	211,306	11,612	222,918	
Total	301	1	122	74,607	23,012	13,381	66,794	33,387	2	211,306	11,612	222,918			
ALL		Private	82	28,184	167	11,293	837	10,802	35,377	4,017	2,100	92,777	1,737	94,514	
		TL	229	4,184	581	74,110	4,586	1,902	64,790	26,404	16	176,573	6,828	183,401	
		Crown	2,782	187,294	8,946	506,873	216,161	78,498	840,803	358,489	12,845	2,209,909	77,422	2,287,331	
		Total	FALSE	219,662	9,694	592,276	221,584	91,202	940,970	388,910	14,961	2,479,259	85,987	2,565,246	

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Appendix 1 - Table 1b

TFL 39 Production by Harvesting Profile and System - 1998

As Reported by the Woodlands Divisions⁽¹⁾

Excludes Residue

Harvesting System	Harvest Profile ⁽²⁾													
	Conventional				Non-conventional				Total				Grand Total	
	Economical		Marg. Economical		Economical		Marg. Economical		Economical		Marg. Economical		Volume	ha
	Volume	ha	Volume	ha	Volume	ha	Volume	ha	Volume	ha	Volume	ha	Volume	ha
First Growth														
Clear Cut	793 444	1 156	22 676	46	114 531	125	14 577	20	907 975	1 281	37 253	66	945 228	1 347
Clear Cut with reserves	695 451	1 002	6 120	8	124 590	160			820 041	1 162	6 120	8	826 161	1 170
Two Pass	4 073	6							4 073	6			4 073	6
Variable Retention	16 711	23			30 351	24			47 062	47			47 062	47
Seed Tree	19 898	4							19 898	4			19 898	4
Total	1 529 577	2 191	28 796	54	269 472	309	14 577	20	1 799 049	2 500	43 373	74	1 842 422	2 574
Second Growth														
Clear cut	49 864	67							49 864	67			49 864	67
Clear cut with reserves	271 893	380			8 228	11			280 121	391			280 121	391
Patch Cut with reserves	23 678	31							23 678	31			23 678	31
Selection					1 799				1 799				1 799	
Thinning	2 952	6							2 952	6			2 952	6
Hardwood Conversion	6 594	23							6 594	23			6 594	23
Variable Retention	895	1							895	1			895	1
Total	355 876	508			10 027	11			365 903	519			365 903	519
Grand total	1 885 453	2 699	28 796	54	279 499	320	14 577	20	2 164 952	3 019	43 373	74	2 208 325	3 093

⁽¹⁾ Volume data (m³) based on Divisional records and may not agree with official BCFS billed volumes due to differing year-end dates.

⁽²⁾ Conventional, Non-conventional and Marg-economic categories are based on inventory classification and not actual harvest method.

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Appendix I - Table 1c

TFL 39 Production by Harvest Profile and Block - 1998

As Reported by the Woodlands Divisions ⁽¹⁾

Excludes Residue

Volumes (m³)

Block	First Growth				Second Growth			Grand Total
	Conventional	Non-conventional	Marg. Economic	Total	Conventional	Non-conventional	Total	
I	51,643	48,074		99,717	229,804	10,027	239,831	339,548
II	583,934	50,767		634,701	29,395		29,395	664,096
III, IV	257,781	21,585		279,366	49,658		49,658	329,024
V	35,683	30,128		65,811				65,811
VI	461,379	63,764	43,373	568,516	47,019		47,019	615,535
VII	139,157	55,154		194,311				194,311
Total	1,529,577	269,472	43,373	1,842,422	355,876	10,027	365,903	2,208,325

⁽¹⁾ Volume data (m³) based on Divisional records and may not agree with official BCFS billed volumes due to differing year-end dates.

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APPENDIX I - Table 2

TFL 39 SBFEP Timber Harvested - 1998
 Based on Billing from Vancouver Forest Region
 Volume (m³)

BCFS District	Timber Sale	Billed Volume	Billed Residue	Total Volume
Port McNeill	39536	6,682	177	6 859
Sunshine	42736	9,296	448	9 744
	L40380	90		90
	Total	9,386	448	9,834
QCD	43696	9,819		9 819
	43697	2		2
	45989	967		967
	45997	11,554		11 554
	45998	1,734	730	2 464
	49780	54		54
	53007	2,993	467	3 460
	59769	558		558
	Total	27,681	1,197	28,878
Total				45 571

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APPENDIX I- Table 3

TFL 39 Road Construction Report - 1998

Block	Division	New Construction (km)			Debuilt Road (1) (km)
		Mainline Branch	Spur	Other	
I	Stillwater	7.8	29.5		44.9
II	Eve	2.7	12.3		1.6
	Kelsey Bay	3.7	21.2		3.5
	Menzies Bay		13.9		1.0
	Total	6.4	47.4		6.1
III	Pt McNeill	1.0	5.2		
IV	Pt McNeill	18.0	12.0		
V	Stillwater	4.2	1.0		20.0
VI	QCD	10.8	49.6		3.5
VII	Pt McNeill	11.0	7.0		5.0
Total		59.2	151.7		79.5

- (1) Debuilt roads are defined as those in which the road structure has been rehabilitated as close to the original land profile as is feasible and, where practicable, restored to forest growing production.

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APPENDIX I - Table 4

TFL 39 Fire Report - 1998

Block	Division	Number and Causes of Fires										
		Lightning		Escape Slash		Operational		Public		Total		
		No.	Ha	No.	Ha	No.	Ha	No.	Ha	No.	Ha	
II	Kelsey Bay			1	2.0						1	2.0
III	Port McNeill							1	Spot		1	Spot
IV	Port McNeill			4	60.8	1	9.7				5	70.5
VI	QCD					1	0.1				1	0.1
Total				5	62.8	2	9.8	1			8	72.6

Area Burned by Forest Fires (ha)						
Block	Division	Mature	Immature	AAR	NSR	Total
II	Kelsey Bay		2.0			2.0
III	Port McNeill	Spot				Spot
IV	Port McNeill	9.7	57.3	3.5		70.5
VI	QCD	0.1				0.1
Total		9.8	59.3	3.5		72.6

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APPENDIX I - Table 5

TFL 39 Site Preparation - 1998
(Hectares)

Block	Division	Tenure	Broadcast Burn	Burn Accum. ⁽¹⁾	Mechanical	Brush/ Grass Control	Three Metre Knockdown	Alder Seed Tree Control	Total Hectares
I	Stillwater	Private Crown		8	4				12
		Total		8	4				12
II	Eve River	Private Crown		1	4			45	50
		Total		1	4			45	50
	Kelsey Bay	Private Crown				1	2		3
		Total		25	5	6	44		74
	Menzies Bay	Private Crown							
		Total		25	6	46			77
	Total	Private Crown		6	13				19
		Total		6	13				19
	Total	Private Crown				1	2		3
		Total		32	22	23	44	45	143
III	Port McNeill	Private Crown							
		Total							
IV	Port McNeill	Private Crown	10	53	6				69
		Total	10	53	6				69
V	Stillwater	Private Crown		4		28			32
		Total		4		28			32
VI	QC	Private Crown		2	5		232	1	240
		Total		2	5		232	1	240
VII	Port McNeill	Private Crown		11	14				25
		Total		11	14				25
All Blocks		Private Crown	10	110	51	72	232	46	521
		Total	10	110	52	74	232	46	524

⁽¹⁾ Actual hectares of roadside accumulations burned.

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APPENDIX I - Table 6

TFL 39 Summary of Planting - 1998
(000s of trees)

		Woodlands Operation										
		Bk I	Bk II				Bk III	Bk IV	Bk V	Bk VI	Bk VII	Grand
Type of Planting	Species	Stillwater	Eve	Kelsey	Menzies	Total	McNeill	McNeill	Stillwater	QCD	McNeill	Total
		No. Trees (000s)	No. Trees (000s)	No. Trees (000s)	No. Trees (000s)	No. Trees (000s)	No. Trees (000s)	No. Trees (000s)	No. Trees (000s)	No. Trees (000s)	No. Trees (000s)	No. Trees (000s)
Normal	Ax	14.3										14.3
	Ba		47.2	28.4		75.6		60.6			40.3	176.5
	Cw	88.2	79.5	31.2	12.2	122.9	6.9	209.0	32.1	196.5	80.2	735.8
	Cy	2.2	58.9	60.2	4.3	123.4		119.3		29.7	56.0	330.6
	Df	206.3	23.0	44.6	91.1	158.7		32.8	6.5			404.3
	Ds							0.8				0.8
	Dg		0.3			0.3						0.3
	Hm		3.2			3.2		0.7				3.9
	Hw	1.0	99.8	434.0	58.4	592.2	1.4	75.7	28.5	213.7	54.4	966.9
	Pl		0.3	3.3		3.6		0.4		107.2		111.2
	Ss		1.0			1.0		0.4		403.7	42.9	448.0
	Sx		4.9			4.9						4.9
	Ct										0.3	0.3
	Total	312.0	318.1	601.7	166.0	1 085.8	8.3	499.7	67.1	950.8	274.1	3 197.8
Fill	Ax	3.4										3.4
	Ba	8.1		2.4		2.4						10.5
	Bg			1.2		1.2						1.2
	Cw	76.3	18.4	12.2	4.1	34.7			17.9			128.9
	Cy		3.6	6.4	12.9	22.9		2.3	3.2			28.4
	Df	40.3	5.0	2.9	32.3	40.2			2.1			82.6
	Dg		0.2			0.2						0.2
	Hm	3.2										3.2
	Hw	6.7		77.3	46.7	124.0		1.0	19.8	15.2		166.7
	Pl		0.3	0.3		0.6				6.0		6.6
	Pw				0.2	0.2						0.2
	Ss			1.0		1.0			2.1	10.4		13.5
	Total	138.0	27.5	103.7	96.2	227.4		3.3	45.1	31.6		445.4

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Appendix I - Table 7

TFL 39 Hectares Planted - 1998
(hectares)

Block	Division	Tenure	Normal	Fill	Total Hectares	Plant + Fertilize
I	Stillwater	Private	8	21	29	29
		Crown	228	326	554	474
		Total	236	347	583	503
II	Eve River	Private				
		Crown	325	38	363	57
		Total	325	38	363	57
	Kelsey Bay	Private				
		Crown	667	158	825	50
		Total	667	158	825	50
	Menzies Bay	Private				
		Crown	146	120	266	177
		Total	146	120	266	177
	Total	Private				
		Crown	1 138	316	1 454	284
		Total	1 138	316	1 454	284
III	Port McNeill	Private				
		Crown	9		9	
		Total	9		9	
IV	Port McNeill	Private				
		Crown	491	6	497	68
		Total	491	6	497	68
V	Stillwater	Private				
		Crown	68	87	155	50
		Total	68	87	155	50
VI	QCD	Private	39	1	40	
		Crown	1 032	70	1 102	805
		Total	1 071	71	1 142	805
VII	Port McNeill	Private				
		Crown	257		257	2
		Total	257		257	2
All	Total	Private	47	22	69	29
		Crown	3 223	805	4 028	1 683
		Total	3 270	827	4 097	1 712

Note: Planted and Fertilize hectares included in hectares planted.

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APPENDIX I - Table 8

TFL 39 Plantation Survival And Regeneration Performance Report - 1998

Block	Division	Natural			Plantation		
		Examined (ha)	Stocked (ha)	Percent Stocked	Examined (ha)	Successful (ha)	Percent Successful
		Stocking Survey			Survival Survey (First Year)		
I	Stillwater	133	22	17	108	108	100
II	Eve	481	140	29	172	171	99
	Kelsey Bay	700	70	10	1 358	1 358	100
	Menzies Bay				791	726	92
	Total	1 181	210	18	2 321	2 255	97
III	Pt McNeill				135	135	100
IV	Pt McNeill	56	56	100	265	262	99
V	Stillwater	31			144	144	100
VI	QC	585	502	86	1 922	1 752	91
VII	Pt McNeill	3	3	100	79	79	100
	Total	1 989	793	40	4 974	4 735	95

		Regeneration Performance (Third Year)			Regeneration Performance (Third Year)		
I	Stillwater	536	536	100	44	44	100
II	Eve	509	507	100			
	Kelsey Bay	1 606	1 593	99	3 092	3 088	100
	Menzies Bay				463	445	96
	Total	2 115	2 100	99	3 555	3 533	99
III	Pt McNeill				53	53	100
IV	Pt McNeill				311	308	99
V	Stillwater	484	484	100	84	84	100
VI	QC	1 512	1 411	93			
VII	Pt McNeill				267	267	100
	Total	4 647	4 531	98	4 314	4 289	99

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APPENDIX I - Table 9

TFL 39 Restocking Statement to December 31, 1998
(Hectares)

Reconciliation of Denuded Lands ⁽¹⁾	Backlog ⁽²⁾	MP# 1-5 1962-87	MP #6 1988-95	MP #7				Grand Total
				1996	1997	1998	Total	

DENUDEATION HISTORY

- Logging	37 320	102 974	36 564	3 828	3 157	3 146	10 131	186 989
- Fire		2 203				43	43	2 246
- Other ⁽³⁾	50	4 674						4 724
Total Denuded	37 370	109 851	36 564	3 828	3 157	3 189	10 174	193 959

RESTOCKING RECONCILIATION

- Total at previous year end			2 526	2 168	2 613		4 781	7 307
- Add total denuded current year						3 189	3 189	3 189
- Regeneration failures			182	3	6	1	10	192
- Adjustments ⁽⁴⁾			46	63	4	- 81	- 14	32
Total AAR for Reclassification			2 754	2 234	2 623	3 109	7 966	10 720

RESTOCKING CLASSIFICATION FOR 1998

-Non-productive⁽⁵⁾			1	1	1	174	176	177
- Stocked ⁽⁶⁾								
. Planted			1 178	988	911	193	2 092	3 270
. Seeded								
. Natural			338	85	41	4	130	468
Total stocked			1 516	1 073	952	197	2 222	3 738
Total Awaiting Restocking			1 237	1 160	1 670	2 738	5 568	6 805
Total Classified During 1998			2 754	2 234	2 623	3 109	7 966	10 720
AAR as of December 31, 1998			1 237	1 160	1 670	2 738	5 568	6 805
Net Change from 1997			-1 289	-1 008	- 943	2 738	787	- 502

(1) TFL 7 data to 1987 was sorted to match TFL 39 time periods and added to the appropriate TFL 39 MP

(2) Logged or unstocked land, including TFL 7, which existed in 1961 when TFL 39 was established.

(3) Includes property additions with existing denuded lands requiring reforestation at the time of addition to the TFL.

(4) Adjustments due to area remeasurements, correction of denuded data, etc.

(5) Reclassification of Non-productive areas (roads, rock, swamp, etc.)

(6) Does not include "fill" planting (i.e., intensification of stocking) or planting in the 30-year reserve in Block I, Stillwater

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Appendix I - Table 10

TFL 39 Stand Tending - 1998
(hectares)

Block	Division	Tenure	Brushing/ Weeding	Spacing	Fertilize	Plant + Fertilize	Pruning	Total Hectares
I	Stillwater	Private	158			32		190
		Crown	657	200		474	15	1 346
		Total	815	200		506	15	1 536
II	Eve River	Private						
		Crown		121		57	45	223
		Total		121		57	45	223
	Kelsey Bay	Private	2					2
		Crown	44	79		50		173
		Total	46	79		50		175
	Menzies Bay	Private						
		Crown	10	31		177		218
		Total	10	31		177		218
	Total	Private	2					2
		Crown	54	231		284	45	614
		Total	56	231		284	45	616
III	Port McNeill	Private						
		Crown						
		Total						
IV	Port McNeill	Private						
		Crown	17			68		85
		Total	17			68		85
V	Stillwater	Private						
		Crown	176	18		50		244
		Total	176	18		50		244
VI	QCD	Private	7					7
		Crown	487	356		804	46	1 693
		Total	494	356		804	46	1 700
VII	Port McNeill	Private						
		Crown				2		2
		Total				2		2
All	Total	Private	167			32		199
		Crown	1 391	805		1 682	106	3 984
		Total	1 558	805		1 714	106	4 183

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Appendix I - Table 11

TFL 39 Erosion Control Seeding - 1998
(Hectares)

Block	Division	Hydro Seeding	Dry Seeding	Total Hectares
I	Stillwater	24		24
II	Eve River	11		11
	Kelsey Bay	21		21
	Menzies Bay	14		14
	Total	46		46
III	Port McNeill			
IV	Port McNeill	14		14
V	Stillwater			
VI	QCD		6	6
VII	Port McNeill	10		10
All	Total	94	6	100

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APPENDIX I - Table 12

TFL 39 Miscellaneous Stand Surveys and Assessments - 1998
(hectares)

Block	Division	Pre-log Prescript	Post-log Prescript	Stand Maintenance Prescript	Post- Treatment Evaluation	Pre-Treat. Mechanical Site Prep	Free Growing	Total Area Assessed
I	Stillwater	590	93	1 226	3		274	2 186
II	Eve River	57	437	169	121	35		819
	Kelsey Bay	409	856	82	47		995	2 389
	Menzies Bay	154	231	85	25		199	694
	Total	620	1 524	336	193	35	1 194	3 902
III	Port McNeill	54		77				131
IV	Port McNeill	193	164	751	5		354	1 467
V	Stillwater	125	171		42		69	407
VI	QCD	982	1 267		431			2 680
VII	Port McNeill	260	206	33	4			503
Total		2 824	3 425	2 423	678	35	1 891	11 276

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APPENDIX I - Table 13

TFL 39 Free Growing Status Report for Openings Requiring MoF Approval⁽¹⁾
As of December 31, 1998

Block	Division	Openings Not Free Growing					Openings Free Growing ⁽³⁾	
		Number of Openings	Treatment Required (ha)	FG Survey Pending (ha)	Declared FG ⁽²⁾ (ha)	Total (ha)	Number of Openings	Hectares
I	Stillwater	197	3,572	1,464		5,036	13	263
II	Eve River	108	211	1,434	160	1,805	10	318
	Kelsey Bay	253	995	6,722		7,717	1	31
	Menzies Bay	78	1,856	1,016	92	2,964	3	66
	Total	439	3,062	9,172	252	12,486	14	415
III	Port McNeill	30	322	375		697		
IV	Port McNeill	122	521	3,177	200	3,898	1	22
V	Stillwater	50	1,166			1,166		
VI	QCD	391	13,178	2,152	244	15,574		
VII	Port McNeill	74	711	1,749		2,460		
Total		1303	22,532	18,089	696	41,317	28	700

Notes:

- (1) Only openings/cut blocks with a date of felling on or after October 1, 1987 or negotiated with the MoF, where felling spanned the cut-off date.
- (2) Partial FG openings. An opening is not reported in the next column until it is declared completely Free Growing by MacMillan Bloedel.
- (3) Openings declared Free Growing by MacMillan Bloedel and not yet approved by MoF.

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APPENDIX I - Table 14

TFL 39 Funding Credits - 1998

Block	Division	Source ⁽¹⁾	Activity/Description	\$	Ha
I	Stillwater	FRBC	Pruning	45 073	15
		FRBC	Spacing	473 109	208
		FRBC	Surveys	72 419	1 201
		Total		590 601	1 424
II	Eve River	FRBC	Recreation Site Maintenance	2 350	
	Kelsey Bay	FRBC	Free Growing Surveys	11 502	947
	Total			13 852	947
IV	Pt McNeill	FRBC	Brushing	77 800	550
		FRBC	Fertilization	26 352	
		FRBC	Juvenile Spacing	156 692	56
		FRBC	Pruning	84 730	32
		FRBC	Enhanced Forestry - Surveys	6 319	300
		FRBC	Fish Inventory	1 706	
		FRBC	Detailed Assessments	57 842	64
		FRBC	WRP - Road Deactivation	249 196	
Total			660 637	1 002	
V	Stillwater	FRBC	Brushing	145 761	122
VI	QC	FRBC	Pruning	123 373	46
		SMFRA	Spacing	289 009	204
		Total		412 382	250
VII	Pt McNeill	FRBC	Spacing	2 101	
		FRBC	Fish Inventory	8 857	
		FRBC	SR	15 932	
		FRBC	Detailed Assessments	36 529	
		FRBC	Road Deactivation	86 708	
		FRBC	Enhanced Forestry - Surveys	24 410	1 110
Total			174 537	1 110	
Total				1 997 770	4 855

⁽¹⁾ Industry Outstanding, Forest Renewal Fund, FRDA, SMFRA, etc.

APPENDIX II - Table 1

MacMillan Bloedel I Cone Collection - 1998
as of December 31, 1998

Species	Cone Collection (hectolitres)		
	MB Orchards	Wild Collections	Total
Yc		36.32	36.32
Total		36.32	36.32

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APPENDIX II - Table 2

MacMillan Bloedel Seed Inventory - 1998

Species	MacMillan Bloedel Seed Inventory ⁽¹⁾				
	Seed Orchard Seed (gm)	Seed Orchard Control Cross (gm)	Wild Seed ⁽²⁾ (gm)	Total Seed (gm)	Approx. Seedlings (000's)
Ba			388 734	388 734	1 703
Bg			14 360	14 360	150
Bn			44 205	44 205	213
Cw	222		19 235	19 457	3 763
Fd	151 077		26 566	177 643	5 692
Hm			521	521	56
Hw	33 883		41 249	75 132	9 726
Lw			617	617	24
Plc			2 941	2 941	400
Pli			40	40	6
Pw			890	890	13
Py			755	755	3
Ss	8 565		3 063	11 628	1 763
Sx			2 923	2 923	361
Sxs			611	611	34
Yc			25 093	25 093	683
Total	193 747		571 803	765 550	24 590

⁽¹⁾ Does not include seed from 1998 collections

⁽²⁾ Wild seed from all seed zones are included

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APPENDIX II - Table 3

Planting Stock Inventory and Sowing Request
December 31, 1998

Species	Planting Stock Inventory plus Request		
	000s of Trees		
	Spring 1999	Fall 1999 / Spring 2000	Total
Ba	124	108	232
Bg	1	1	2
Bn	10	12	22
Cw	1 820	1 755	3 575
Dg	4	1	5
Fd	1 623	3 236	4 859
Hm	4	54	58
Hw	1 648	1 194	2 842
Plc	60	281	341
Pw	22	63	85
Ss	820	286	1 106
Sx	21	3	24
Yc	451	772	1 223
Ac	20	15	35
Total	6 628	7 781	14 409

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APPENDIX I - Table 1

TFL 39 Volume Harvested in 1998
Based on Cut Control Letter Issued by Vancouver Forest Region
Volumes (m³)

Block	Division	Tenure	Ha	Fir	Pine	Cedar	Cypress	Spruce	Hemlock	Balsam	Decid	Total Billed	Residue	Total Cut Control	
I	Stillwater	Private		27 387	5	2 163		279	6 209	28	1 621	37 692		37 692	
		TL				16	44	12	1 756	804		2 632		2 632	
		Crown		152 876	107	67 795	7 510	633	69 908	20 658	12 253	331 740	4 039	335 779	
		Total		180 263	112	69 974	7 554	924	77 873	21 490	13 874	372 064	4 039	376 103	
				48.4%	0.0%	18.8%	2.0%	0.2%	20.9%	5.8%	3.7%	100.0%			
II	Eve River	Private		22		4 853		77	13 305	7 582		25 839	1 061	26 900	
		TL													
		Crown		58	66	8 316	32 153		98 340	75 353			214 286	4 230	218 516
		Total		80	66	13 169	32 153	77	111 645	82 935			240 125	5 291	245 416
	Kelsey Bay	Private		794	1	543		333	329			111	2 111		2 111
		TL		1 344	24	15 392	1 588	38	12 192	7 756		5	38 339	2 771	41 110
		Crown		20 876	77	30 666	37 136	1 530	137 448	111 753		107	339 593	6 273	345 866
		Total		23 014	102	46 601	38 724	1 901	149 969	119 509		223	380 043	9 044	389 087
	Menzies Bay	Private		1		2 863	135			2 455	2 532		7 986	286	8 272
		TL													
		Crown		11 361	8	10 458	8 053	30	56 080	37 400		274	123 664	4 503	128 167
		Total		11 362	8	13 321	8 188	30	58 535	39 932		274	131 650	4 789	136 439
	Total	Private		794	1	543		333	329			111	2 111		2 111
		TL		1 367	24	23 108	1 723	115	27 952	17 870		5	72 164	4 118	76 282
		Crown		32 295	151	49 440	77 342	1 560	291 868	224 506		381	677 543	15 006	692 549
		Total		34 456	176	73 091	79 065	2 008	320 149	242 376		497	751 818	19 124	770 942
				4.6%	0.0%	9.7%	10.5%	0.3%	42.6%	32.2%	0.1%	100.0%			
III	Port McNeill	Private		1		1	1		4			7		7	
		TL													
		Crown		168	2	5 676	261	2 326	57 293	3 726		2	69 454	1 597	71 051
		Total		169	2	5 677	262	2 326	57 297	3 726		2	69 461	1 597	71 058
				0.2%	0.0%	8.2%	0.4%	3.3%	82.5%	5.4%	0.0%	100.0%			
IV	Port McNeill	Private		1	161	5 217	3	9 313	27573	3 989	368	46 625	1 737	48 362	
		TL		2 816	39	42 299	1 880	1 362	31336	7 730	11	87 473	1 648	89 121	
		Crown		298	87	34 114	31 010	939	85397	49 138	18	201 001	6 449	207 450	
		Total		3 115	287	81 630	32 893	11 614	144 306	60 857		397	335 099	9 834	344 933
				0.9%	0.1%	24.4%	9.8%	3.5%	43.1%	18.2%	0.1%	100.0%			
V	Stillwater	Private													
		TL													
		Crown		1 656	2	- 147	1 270	132	25 820	27 074		181	55 988	5 964	61 952
		Total		1 656	2	- 147	1 270	132	25 820	27 074		181	55 988	5 964	61 952
				3.0%	0.0%	-0.3%	2.3%	0.2%	46.1%	48.4%	0.3%	100.0%			
VI	QCD	Private		2		3 370	834	877	1 266			6 349		6 349	
		TL			518	8 686	938	413	3 742			14 297	1 062	15 359	
		Crown		8 475	275 388	75 756	59 527	243 724			8	662 878	32 754	695 632	
		Total		2	8 993	287 444	77 528	60 817	248 732			8	683 524	33 816	717 340
				0.0%	1.3%	42.1%	11.3%	8.9%	36.4%	0.0%	100.0%				
VII	Port McNeill	Private													
		TL													
		Crown		1	122	74 607	23 012	13 381	66 794	33 387		2	211 306	11 612	222 918
		Total		1	122	74 607	23 012	13 381	66 794	33 387		2	211 306	11 612	222 918
				0.0%	0.1%	35.3%	10.9%	6.3%	31.6%	15.8%	0.0%	100.0%			
ALL	Private	TL		28 184	167	11 293	837	10 802	35 377	4 017	2 100	92 777	1 737	94 514	
		Crown		4 184	581	74 110	4 586	1 902	64 790	26 404	16	176 573	6 828	183 401	
		Total		187 294	8 946	506 873	216 161	78 498	840 804	358 489	12 845	2 209 910	77 421	2 287 331	
		Total		219 662	9 694	592 276	221 584	91 202	940 971	388 910	14 961	2 479 260	85 986	2 565 246	
				8.9%	0.4%	23.9%	8.9%	3.7%	38.0%	15.7%	0.6%	100.0%			

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