

MARLBOROUGH SOUNDS

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1. Existing resource - Marlborough District

- (i) 23,000 hectares of exotic production forest, of which 18,000 hectares (78%) have been planted since 1970. Only 760 hectares (3%) are older than 30 years and these are mostly farm shelter belts.
- (ii) 16,000 hectares lies within Inland North Marlborough
6,000 hectares lies within the Marlborough Sounds
1,000 hectares lies within South Marlborough
- (iii) 10,000 hectares are managed by N.Z. Forest Service
13,000 hectares are privately owned, mostly by small companies, local bodies, farmers and businessmen.
- (iv) 21,000 hectares (91%) is radiata pine
2,000 hectares (9%) is mostly Douglas fir, Eucalypts and Corsican pine, and state-owned.

2. Future Resource - Marlborough District

- (i) 60,000 hectares of exotic production forest by the year 2000, based on planting 1850ha/year (a total of 37,000ha) for the next two decades.
- (ii) A total of 70,000 hectares of reverting and reverted farmland is available in the Sounds and inland North Marlborough to establish this 37,000 hectares. This excludes grazed farmland indigenous forest and substantially regenerated areas of "native bush", and is considered to provide a generous margin for reserves, riparian strips, residential buffer zones, visual amenity, unproductive areas and ownership wishes. Most of this will be established on steep hill country (25° - 35°) of land use capability class VI and VII.
- (iii) This resource will sustain an annual cut of around 1 million m³/year of sawlog quality roundwood. 0.25 million m³/year of pulplog-quality roundwood from the year 2000 onwards. Domestic requirements of 50,000 m³/year of sawlogs leave the vast majority of the resource (95%) potentially available for export, either as roundwood or as processed products.

3. Future Constraints

Coordination in harvesting, transportation, processing and marketing overseas face several constraints.

(a) A large number of small owners, with a small and scattered resource. (60% of the owners have stands under 50ha in size).

(b) A very limited roading network particularly in the Sounds, with the local roading authority (Marlborough County Council) opposed to the large-scale trucking of logs in the Sounds. Barging is the preferred mode of water-based transportation of roundwood and heavy machinery, but there are four distinct "Sounds" - Q. Charlotte, Pelorus, Port Underwood and the Croiselles - in which forest development is occurring. A canal at Linkwater would link Pelorus Sound to Queen Charlotte Sound, but the high costs of construction (\$12 million +) are likely to preclude its development if the forest resource has to carry the total cost.

Open-sea barging is another option, but could involve union problems and the Cook Strait storms could severely restrict the number of operating days.

Multiple handling involving a combination of barging and trucking appear to offer the greatest flexibility, unless helicopters, airships, or "cyclacranes" are used.

(c) An export port to handle forest produce is planned for Shakespeare Bay, by Port Picton, a superb sheltered deep-water harbour with adequate land for port-related industries and close to existing services and to a stable labour supply.

(d) The recent involvement of a large national forest company and a Nelson-based wood-processing company in the purchase of land and forests in the Marlborough District indicate that some of the local resource may be processed outside Marlborough.

(e) A total lack of skilled local logging contractors with experience in hauler operations on steep hill-country.

(f) The presence of a Maritime Park in the Sounds highlights the importance of the area for recreation and amenity, particularly water-based activities like boating and fishing. The park occupies a total of 45,000 hectares (31%), mostly indigenous forest, made up of former scenic reserves and State Forests. Most of the 750 km of shoreline in the Sounds has a 20m (1 chain) wide foreshore reserve which must be crossed to load roundwood into barges or place logs in the water.

(g) The rapid development of marine farming in nearshore waters near **exotic forests** will place additional pressure on logging planners to minimise the levels of sediment and to prevent logs and branches entering the seawater. It may preclude the possibility of harvesting directly into the sea.

(h) Residential development has occurred sporadically through out the Sounds. Many small bays adjoining hillcountry that was once farmed have been subdivided for holiday baches. Many forest owners find that they have small baches below their properties who depend on streams draining the adjoining exotic forest for drinking water and this could significantly affect the location of roads and choice of logging methods.

(i) Telephone and power lines have been reticulated across hillcountry farmland. With a change in land use from pastoral farming to exotic forestry there are situations where mid-slope powerlines divide a single hauler setting into two units. It is possible to install a temporary ground line at time of harvesting but it is difficult and expensive to place underground. Telephone lines can be more readily shifted.

(j) approval is required from the Marlborough Catchment and Regional Water Board for activities involving roading, tracking and harvesting, under Section 34 of the 1959 Amendment of the 1941 Soil Conservation and Rivers Control Act.

SOME STANDARD ASSUMPTIONS

1. External (off-forest) travel distances to Shakespeare Bay export port

- (i) 23km by water from log marshalling areas
- (ii) 31km by road from forest epi centre

2. Internal Travel Distances

- (i) 5km to log marshalling area from logging study area
- (ii) 15km to log marshalling area from adjoining forests (outside logging study area)

3. Capital Outlay

(a) Powered Barges

- (i) \$1 million for 480 tonne load, dimensions 42 x 13 x 2.5m, cruising speed 11km/hr, 4 man crew, twin 230kw (310HP) motors.
- (ii) \$600,000 for 190 tonnes load, dimensions 29 x 8.5 x 1.8m, cruising speed 13km/hr, 3 man crew, twin 175kw (230 HP) motors.

(b) Towed Barges

- (i) \$680,000 for 540 tonnes load - dimensions 42 x 13 x 2.5m.
- (ii) \$440,000 for 220 tonnes - dimensions 29 x 8.5 x 1.8m

(c) Logging Truck and Jinker

\$120,000; assume a cruising speed of 25km/hr.

(d) Road upgrading

\$100,000/km for a sealed tow-lane highway with Class I loading.
\$ 50,000/km for an unsealed road with Class I loading.

Study group members can draw on the expertise within the groups for other information viz costs for logging equipment, production rates, etc.

Appendix I : - LOGGING CASE STUDY AREA - AGE CLASS DISTRIBUTION

No. Charlotte S. F.	PLANTING YEAR	AREA (HA) IN RADIATA PINE		AREA (HA) IN DOUGLAS FIR CT 500
		CT 300	CT 500	
Cpt 1	1944	164		18
2	1951	167		
3	1951	204		
4	1952		198	
5	1952		237	
6	1953		200	
7	1955	180		
8	1956	56		
9	1954	150	44	
10	1953	72		
11	1941		214	
12	1942		208	
13	1959		80	
<u>Private Exotic Forest</u>				
Fisher	1952	66		
Williamson	1952		110	
Jones	1960		200	
	TOTAL	1059	1447	207

Total P. radiata 2506ha
 Total P. radiata & D. fir 2713ha

Appendix II:- PHYSICAL CHARACTERISTICS OF CROP TYPES

AGE (YRS)	STOCKING (S/HA)	DBH (CM)	HT (M)	TOTAL UTILISABLE VOLUME (m ³ /ha)	SAWLOG VOLUME (m ³ /ha)	AV. PIECE SIZE (m ³)
<u>Radiata Pine CT 300</u>						
25	300	45	32	391	361	1.3
30	298	49	36	538	504	1.8
35	295	53	40	685	651	2.3
40	290	57	44	832	803	2.9
<u>Radiata Pine CT 500</u>						
25	490	37	32	423	363	0.9
30	474	41	36	574	515	1.2
35	455	44	40	719	663	1.6
40	432	46	44	860	808	2.0

Douglas Fir CT 500 (Production Thinning at 10 year intervals)

	THINNED STOCKING				
	BEFORE (S/HA)	AFTER (S/HA)			
30	500	300	127	108	0.6
40	300	200	173	156	1.7
50	200	136	203	191	3.2

