

**CLOSED**

**IWI TRANSITION AGENCY : MANA ENTERPRISES**

**ME 6/19**

**Whakatohea Maori Trust Board**

Related files: ME 1104 Correspondence - Whakatohea Maori Trust  
Board

Vol 1: Feb 86-Nov 86

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Codafile Standard



### FILING SYSTEM TIPS

- A Filing System needs to work manually before it can work electronically.
- Similar instructions can be interpreted differently – create a precise records procedure manual.
- Colour code to identify different departments.
- Use a Year Code label to ensure fast identification of the correct file.
- Create a File Retention Document and archive or cull records at predetermined periods.
- Use a "File Out Guide" with a pocket, to house incoming information pertaining to the file out of the system.
- Develop internal security procedures for "Trade Secrets".
- Use internal file clips with your file covers. Loose paper only invites trouble.
- For extra help and advice talk to your Codafile stockist.



**FILE TITLE:** Whakatohea Maori Trust Board <sup>ME 6/19</sup> vol 1

Date

Refer to

Actioned

Date

Refer to

Actioned

CLOSED



File No. ME 6/19

Volume No. 1

SUBJECT (or NAME): Whakatane Maori Trust Board

File Opened ~~ME 6/19~~ 9/2/86 File Closed: 11/11/86

Previous File: 10A/19/1 Subsequent File: ME 6/19 Vol 2

OTHER RELEVANT FILES

Subject: File No.
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Table with 8 columns: Folio, Referred to, Date, Cleared, Initials, Folio, Referred to, Date, Cleared, Initials. The table is mostly empty with the handwritten text 'FORMER PAPERS' written across the middle.

DISPOSAL CATEGORY

Item 101

Steve

11 November 1986

Claude Edwards  
Chairman  
Whakatohea Maori Trust Board  
P O Box 207  
OPOTIKI

6/19

Tena koe Claude,

MANA ENTERPRISES : WHAKATOHEA MAORI TRUST BOARD HORTICULTURAL PROPOSAL APPLICATION

The Enterprise Development Committee of the Board of Maori Affairs referred back to your Authority the horticultural proposal submitted for loan endorsement. The Committee recommended that your Trust Board seek training funds from the Departments of Internal Affairs and Labour.

You will be aware that the Committee wishes to monitor the expenditure and progress for funds already allocated to your Trust Board.

Would you please pass on my appreciation to the Trust Board for their co-operation with MANA Enterprises during the time which I have been involved. I look forward to dealing with you in my new appointment.

Kia ora,

Ripeka Evans  
MANA Enterprise Project Team Leader

10A/19/1



11 November 1986

Claude Edwards  
Chairman  
Whakatohea Maori Trust Board  
P O Box 207  
OPOTIKI

Tena koe Claude,

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Would you please pass on my appreciation to the Trust Board for their co-operation with MANA Enterprises during the time which I have been involved. I look forward to dealing with you in my new appointment.

Kia ora,

A handwritten signature in dark ink, appearing to be 'Ripeka'.

Ripeka Evans  
MANA Enterprise Project Team Leader

POTIKIRUA INCORPORATION

10A119/4

W.P. Rika  
Professional Chambers  
Elliot Street  
P.O.Box 340  
OPOTIKI. Ph Bus 592  
A/H 369K

6 November, 1986



To: Horouta Executive,  
Mr Joe Phares.

J. Shepherd Application.

This is to confirm that at the Management Committee Meeting held 6.11.86, it was resolved that the thinnings from the Potikirua Station forest be available to Mr Jeffrey Shepherd for his venture.

Yours faithfully,

  
W.P. Rika,  
SECRETARY.

*Man  
/ Joe Phares*



# Whakatohea Maori Trust Board

ALL CORRESPONDENCE SHOULD BE ADDRESSED TO  
THE SECRETARY,  
WHAKATOHEA MAORI TRUST BOARD,  
P.O. BOX 207,  
OPOTIKI.

Opotiki, 26 October 1986

Ms Ripeka Evans  
MANA Enterprises Project Team  
Department of Maori Affairs  
Private Bag  
WELLINGTON 1

6/19/3.

Kia Ora Ripeka

... Please find enclosed, a report of our Mill project to date. I understand that monthly reports are a requirement of MANA Enterprise funding but as our report will show, we have just progressed from a series of negotiations and we are now into the stage of establishing the Mill. Once the Mill is operating, regular reports will be forthcoming. Also enclosed is our application for a horticultural development programme.

Yours faithfully

T A Taia  
Secretary

referred back  
no comment.  
See reply  
10/11/86.

## ADMINISTRATION REPORT

**Name of Authority:** Whakatohea Maori Trust Board  
**Legal Status:** Charitable Trust  
**Postal Address:** PO Box 207, OPOTIKI  
**Office Address:** Moody Place, OPOTIKI  
**Phone Numbers:** Opotiki 966  
**Office Holders:** **Chairman:** C A Edwards  
**Secretary:** T A Taia

**MANA Enterprise Committee Members/Assessment Committee Members:**  
C A Edwards, C F Matchitt, D G Riesterer, R Biddle.

**Enterprise Development Co-ordinator:**

**Name:** C A Edwards

**Date & Duration of Appointment:** 1st April 1986 to 31 March 1987

**Administration Expenditure 1/10/86 to 31/3/87:**

<u>Income</u>	<u><u>\$40,000.00</u></u>
<u>Expenditure</u>	
C A Edwards - Enterprise Development Co-ordinator	
- Negotiations and travel	2,616.05
N Perry - Board Consultant	
- Negotiations and travel	652.28
V R Wood - Forestry/Mill Establishment - Consultant	18,945.68
Office Administration and Rental premises	290.00
Land, plant and forestry investigations	2,096.94
	<u><u>\$24,600.95</u></u>

**Indicate facilities used by your Authority:**

- **Computer:** A feasibility study being conducted by Computer East Limited who will advise on the best possible option.
- **Accountant:** B D Riesterer, P O Box 423, OPOTIKI. Phone 575.
- **Legal:** Potts & Hodgson (I R Peterson), PO Box 18, OPOTIKI.

# Whakatohea Maori Trust Board

CORRESPONDENCE SHOULD BE ADDRESSED TO  
THE SECRETARY,  
WHAKATOHEA MAORI TRUST BOARD,  
P.O. BOX 207,  
OPOTIKI.

Opotiki.....

## REPORT ON THE MILL PROJECT

The Mana Scheme currently being undertaken by the Whakatohea Maori Trust Board stems from an idea conceived in late 1985 - "to maximise Whakatohea's involvement in their own forestry development and increase local job opportunities."

The original concept was based on the utilisation of *Pinus radiata* small log thinnings, from forestry plantings of various ownership adjacent to Opotiki.

It was intended that such utilisation would produce sawn lumber suitable for re-processing into the identified market for kiwi-fruit trays and other packaging componentry. This would be stages one and two of an ongoing development programme such as - waste fired kiln drying for additional value added processing e.g. furniture componentry, toy making, small batch indigenous processing (Rimu stair treads and balustrades to European markets etc.).

These considerations were prompted by the mid 1985 sawn timber shortages and relatively high prices, then pertaining. Subsequent currency fluctuations and other factors caused a reversal so that in mid 1986 it was possible to buy in sawn timber stocks more favourably than milling.

This development precipitated a decision to establish the boxmill first, in order to develop a cash flow situation as soon as possible.

In the event of later cyclical escalations of sawn timber prices then the sawmill part of the project can be insitigated.

Meantime it is proposed that downstream developments can proceed as market opportunities and financial resources permit.

While the boxmaking industry has never been a high profit operation it is labour intensive, and is the preferred packaging medium for all kiwifruit markets.

Although the current trading situation is highly competitive, kiwifruit tray manufacturers are facing a substantially increasing demand for their product, and with a large concentration of kiwifruit growing in the Opotiki area, has to be a complementary local industry.

Minutes of the Inaugural Meeting of the Mill Project Committee held at the Whakatohea Maori Trust Board on 8 September 1986, commencing at 10.00 a.m.

PRESENT: C Edwards, V Wood, T Taia.

GENERAL BUSINESS

This was a policy planning and direction meeting of the committee and the following aspects were agreed upon:

1. COMPOSITION OF THE COMMITTEE: The committee shall comprise of:
  - Executive Director/Chairman - C Edwards
  - Board Secretary - T Taia
  - Project Consultant - V Woodplus one other Board member if and when available.
2. SITE DEVELOPMENT AND BUILDING SPECIFICATIONS: An urgent requirement to establish these two aspects to enable a tender to be let. Identify market requirements for box componentry to enable suitable selection of machinery and plant.
3. VEHICLE: It was agreed that a vehicle be purchased for the Administrative Management of the project. The committee to investigate the best option at a reasonable cost.
4. CONSULTANTS REMUNERATION: It was agreed that the consultants basis for employment be on a six monthly management contract. extensions, termination or variations of the contract will be reviewed prior to the six month term being completed.

Because of the semi-permanent nature of employment, it was agreed that payments be changed from consultancy rates to monthly invoicing charges (\$20 per hour). GST will be applicable.

It was agreed that the consultants costs incurred in shifting be met.
5. ACCOUNTING AND REPORTING SYSTEMS
  - a) The secretary to establish the accounting system for the project, based on information from the consultant.
  - b) Design a diagramatical layout on how the project will function.
  - c) Monthly meetings for payments of accounts and summaries of cashflow.
  - d) Establish financial accounting system at ANZ Bank;
    - (i) Current Mill account to become the Mill Establishment Account which will cover the capital developments of the project.
    - (ii) Establish a Trading Account to cover the day to day operating costs of the project. Determine whether this account should operated in overdraft thereby requiring some security or that there be an injection of funds from other sources. This account to become functional when the mill operations and trading begins.
6. LEGAL ASPECTS: The committee will contact E Morgan to clarify the legal aspects of MANA Enterprises and the relationship between the Trust Board and the Mill project as regards a mortgage.
7. It was agreed that the committee will meet as and when required.

## REPORT ON THE MILL PROJECT

### Bank Accounts

The Mill Development Account was established at the Opotiki branch of the ANZ bank in July 1986. This was put in place to enable the development of the Mill project to proceed as soon as MANA Enterprise funds were received.

There was a requirement for a separate account to be established for MANA Enterprises funding. In August 1986 the MANA Development Account was opened at the ANZ bank.

### Consultants/Ongoing Investigations

V R Wood has been continuing his investigations in the marketing aspects of the project and the attached letter was sent to eight companies in the immediate Opotiki district involved in the Horticulture industry. To date, there has been some uncertainty due to the specific design of the box componentry of the kiwifruit tray not being finalised as yet, but there has been some encouraging replies to our letter. There has been a study of the kiln drying aspect of the project, which is destined for later stages of the development programme. A vehicle was purchased to enable the consultant to effectively utilise his time in his investigations.

### Land Purchase

The purchase of the land required for the project was finalised in August.

### Negotiations for the Construction of the Mill Building

A preliminary investigation on the site and building development was carried out Downard Estcourt, consulting Engineers. This was done in conjunction with a kiln drying study. Attached is their estimate. There were some aspects of their estimates and building plans that did not meet our requirements.

It was agreed that the firm of Kelly Browne and Spurr, in conjunction with the construction firm of R J Booth Ltd be approached to submit a similar development. Their subsequent proposals (attached) were found to be consistent with our requirements. There is still a need to determine more detailed costings of some aspects of the building construction but they will be within the projected costs as submitted. Approval to proceed with the construction of the building was given to R J Booth Ltd on the 25th September 1986. To date, the development is proceeding as planned.

### Plant and Machinery

The consultants preliminary investigations of the required items are as follows. Final costings are to be confirmed.

**MILL EXPENDITURE****1 January 1986 to 24 October 1986**

C A Edwards	Mtg & travel expenses	2,736.05
V R Wood	Consultant - Boxmill Preparations	27,283.40
NZPO	Telephone Fee - Consultants office	90.00
J Dawson	Deposit on Mill Site	100.00
Potts & Hodgson	Balance of Mill Site	116,420.05
P F Olsen	Re:Forest utilisation: Proposed plant, survey, budget report, travel, photocopying	996.94
Downard Estcourt	consultancy - Professional Services Re:Box Factory & dryshed buildings : Kiln Report : Site Plan	9,249.25
M P Donelley Sawmillers	Purchase of Multi-saw Edger	7,000.00
Magnus Lennie Ltd	Purchase of vehicle R & M of vehicle	7,700.00 130.95
Wakelin Motors Ltd	R & M of vehicle	67.60
Neil Abbot	Initial rent on house for project Manager	200.00
<b>TOTAL</b>		<b>171,974.24</b>

**NOTE:**

C A Edwards expenditure as Enterprise Development Co-Ordinator.

# Whakatohea Maori Trust Board

CORRESPONDENCE SHOULD BE ADDRESSED TO  
THE SECRETARY,  
WHAKATOHEA MAORI TRUST BOARD,  
P.O. BOX 207,  
OPOTIKI.

Opotiki, 17 June 1986

Dear Sir

## CASE MAKING SUPPLIES

We wish to advise you that the Whakatohea Maori Trust is intending to establish a timber case and pallets manufacturing facility in Opotiki.

This is seen as a work opportunity investment in the area as well as a business venture to service immediate local needs of the district.

In order to insure the viability of this operation we are currently seeking the opportunity to quote on all growers and other tray, pallets and bin users requirements for next season.

We believe we can at least be price competitive with supplies to date and can insure a consistently satisfactory quality of product to be attractive to prospective buyers.

In order to meet all possible market contingencies we need the earliest possible advice on - tray, bin and pallet construction component size specifications, and numbers of each required.

It is proposed to offer materials in either knocked down, or made up, form to suit customers requirements.

On receipt of this information it is proposed to respond with specific price offers.

We trust this information will be of interest to you and would be obliged to receive a response at your earliest convenience to the above address.

Thanking you in anticipation. I am,

Yours faithfully

Signed Consultant \_\_\_\_\_ Chairman \_\_\_\_\_

W H A K A T O H E A M A O R I T R U S T B O A R D

BOX FACTORY ESTIMATE

1.	<u>Preliminary and General</u>	
	Establish on site, strip and stockpile topsoil, backfill and compact, drill pole holes.	\$7,750.00
2.	<u>Floor Slab and Foundations</u>	
	150 mm floor slab to factory, 100 mm to amenities area, slab edge thickening pole foundations.	\$29,500.00
3.	<u>Factory Roof Framing</u>	
	Poles, trusses, bracing, purlins.	\$20,400.00
4.	<u>Factory Roof</u>	
	Trimline coloursteel, translucent panels, venting ridge, fascias, gutters and downpipes.	\$16,650.00
5.	<u>Factory Walls</u>	
	Wall girts, Trimline coloursteel, roller doors, workshop windows.	\$22,618.00
6.	<u>Amenities Area</u>	
	Timber framing, windows, doors, exterior cladding in Trimline coloursteel, interior linings, interior decoration.	\$51,572.00
7.	<u>Plumbing and Drainage</u>	
	WC's, showers, urinal, basins, cleaners sink, hotwater cylinder, PVC sewer piping septic tank, soak holes.	\$8,000.00
8.	<u>Electrical</u>	\$20,000.00
9.	<u>Plans, Specification, Supervision, Management.</u>	\$15,000.00
	<u>TOTAL ESTIMATE TO BOX FACTORY</u>	<u>\$191,490.00</u>

NOTE: G.S.T. NOT INCLUDED

DOWNARD ESTCOURT CONSULTANTS



WHAKATOHEA MAORI TRUST BOARD - BOX FACTORY ESTIMATE

12th. September 1986.

Estimated costs to Whakatohea Box Mill :

Design and supervision	10000.00
Siteworks to 4000sq.m      W.C.L.	13000.00
Completed shell	110000.00
Service area 1076 sq. ft.	27000.00
Plumbing and drainage	6000.00
Electrical ( inc. 3ph. and transformer )	<u>20000.00</u>
Nett total :	186000.00
Plus G. S. T.	18600.00
Total estimate	<u>\$ 204600.00</u>

R J Booth Limited

15A/4/411  
10A/19/4



13 August 1986

Mr C Edwards  
Whakatohea Maori Trust Board  
Private Bag  
OPOTIKI

Tena koe

TRANSFER OF MANA ENTERPRISE BASE FUNDING ALLOCATION 1986/87

On Tuesday, 19 August 1986 the Board of Maori Affairs via the Maori Trustee shall transfer MANA Enterprise funds of \$200,000 to the Whakatohea Maori Trust Board.

The transfer shall be made direct to the bank account of your authority or a nominated agency. You are advised to make investment arrangements forthwith to be able to place funds at best advantage and in order for an efficient transferral to proceed. Funds should be placed in a separate trust account along with administration funds already issued.

Authorities are advised that expenditure of funds transferred is subject to the endorsement by the Board of Maori Affairs of MANA Enterprise proposals approved by authorities. All proposals for endorsement by the Board of Maori Affairs are to be forwarded to the MANA Enterprise Project Team, Department of Maori Affairs, Private Bag, Wellington by Monday, 25 August 1986. Approved proposals must be submitted on the MANA Enterprise application form at Annex C of the MANA Enterprise Operating Instructions and Guidelines 13/8/86.

Endorsements/referrals shall be notified to authorities by Monday, 1 September. Further proposals for endorsement are to be forwarded by 25 September and endorsements/referrals shall be notified to authorities by 7 October.

Kia ora

B J Mackie  
Chairman  
Enterprise Development Committee  
Board of Maori Affairs

Mr C Edwards  
Whakatohea Maori Trust Board

flood

6/19

13 August 1986

Mr C Edwards  
Whakatohea Maori Trust Board  
Private Bag  
OPOTIKI

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B J Mackie  
Chairman  
Enterprise Development Committee  
Board of Maori Affairs

Mr C Edwards  
Whakatohea Maori Trust Board

6/19

7 July 1986

Mr Claude Edward  
Chairman  
Whakatohea Trust Board  
PO Box 207  
OPOTIKI

Tena koe Claude

MAORI ENTERPRISE DEVELOPMENT FUNDING SUPPORT

You will recall at the recent Maori Enterprise Development Co-ordinating Conference that I advised you that the funding allocated to the Whakatohea Trust Board would be made available within the next three months. I am also aware of the keenness of your Trustees to proceed with the box sawmill operation.

While the Project Team cannot give you an absolute guarantee to cover any bridging finance that you may need in the next three months, we can assure you that the funding available to you will be allocated in that period. You will also recall at the conference that it was proposed that a base funding amount would be made available to every authority as a Stage I allocation and that any further allocations would be made on the basis of the merit of applications. The base line allocation being considered at the moment will be in the order of \$200,000 per authority. I would suggest therefore that if you arrange any bridging finance that you should do so within that planning figure.

I trust that the above information can be of use to you should you wish to seek bridging finance from commercial sources.

Kia ora

Wira Gardiner  
Project Team Leader

19  
10A/3/1



7 July 1986

Mr John Burdett  
19 Bridge Street  
OPOTIKI

Tena koe John

Thank you for your letter of 3 July 1986 which I received this morning. You might have heard that we held a major co-ordinating conference in Whakatane last weekend. Had I received your letter prior to that conference, I would have taken the opportunity to discuss with you how we might best use your business acumen and expertise to help bring a professional sharpness to Maori Enterprise Development.

I would like to take the opportunity sometime in the next month to discuss with you some of the issues that are of concern to us. As I might have indicated in my earlier letter, we are attempting to launch a major exercise to create an economic base. The lack of Maori experts to assist us with guidance and to provide us with the direction means that the few entrepreneurs that we do have, such as yourself, will have to be called upon to assist where they can.

If you would like to take a break from operating your business, we could arrange for you to come down to Wellington for a briefing and discussions. Alternatively, I could drop in to see you next time I am through the area. Please let me know what your preference is and we will arrange. Thank you very much for your interest.

Kia ora

  
Wira Gardiner  
Project Team Leader

WJ

Cut Price Stores,  
19 Bridge Street,  
Opotiki.  
3.7.86.



To Wira Gardiner,  
Project Team Leader,  
Maori Enterprise Development Scheme,  
Department of Maori Affairs,  
Private Bag,  
Wellington.1.

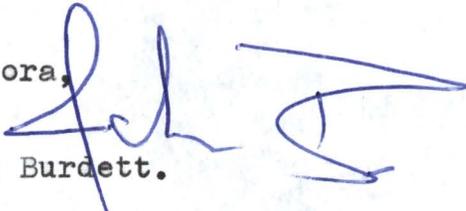
Mr Wira Gardiner,  
Tena koe,

Wira, all these months i have been under the impression that i had replied to your letter of the 12th Feb and have been wondering when i would hear from you.

I now find that your letter was filed and forgotten. Please accept my sorrow and take this as an acceptance of your offer. If i can help in any way i will. I am not expecting pay but would appreciate help by way of board and lodging where i need to travel and stay.

No doubt you have done an awesome task to date and i will now await your reply.

Kia ora,

  
John Burdett.

10A/19/4/1



7 July 1986

Mr Claude Edward  
Chairman  
Whakatohea Trust Board  
PO Box 207  
OPOTIKI

Tena koe Claude

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I trust that the above information can be of use to you should you wish to seek bridging finance from commercial sources.

Kia ora

Wira Gardiner  
Project Team Leader



29 June 1986

Ms Peta Butt  
Whakatane Motor Lodge  
Valley Road  
WHAKATANE

Tena Koe Peta

**RE: Maori Enterprise Development Coordinating Conference**

Please find attached a schedule of accommodation requirements for the Conference. We shall be contacting you by telephone later in the week to tidy up any further details for the Conference.

**ARRANGEMENTS FOR PAYMENT**

The following costs can be charged back to:

Department of Maori Affairs  
Private Bag  
WELLINGTON  
ATTENTION: Mr W Gardiner

- 1 Accommodation - all accommodation listed in the attached schedules. Any extra accommodation payment will only be met if approved by myself or Mr Gardiner. Accommodation payment includes bed/room charge only and does not include toll/laundry or bar charges.
- 2 Meal Costs - All meal costs will be met. This should include individual meals on thursday night and Friday, Tea/Coffee Friday evening, Breakfast/Morning Tea/Lunch/Afternoon Tea/Dinner Saturday, and Breakfast Sunday morning.
- 3 Conference Costs - Costs to be covered include Venue Hireage and small associated conference costs.



We are presently sorting out the detail of the conference agenda and Wira will discuss all final meal and interval times with you on Thursday night when he arrives.

I would prefer a not too heavy lunch on the Saturday. Unless otherwise informed all alcohol costs are to be met by participants.

Kia Ora

Ripeka Evans  
Employment/Enterprise Development Project Team

10/19/4/1.

Telegram Address: MAORIFAIRS



Our reference: .....

Your reference: .....



# DEPARTMENT OF MAORI AFFAIRS

Manchester Unity Building  
120-124 Lambton Quay  
Telephone 720 588

Private Bag  
WELLINGTON 1.

29 June 1986

Ms Peta Butt  
Whakatane Motor Lodge  
Valley Road  
WHAKATANE

Tena Koe Peta

**RE: Maori Enterprise Development Coordinating Conference**

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Private Bag  
WELLINGTON  
ATTENTION: Mr W Gardiner

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I would prefer a not too heavy lunch on the Saturday. Unless otherwise informed all alcohol costs are to be met by participants.

Kia Ora

A handwritten signature in black ink, consisting of several overlapping loops and a long horizontal stroke extending to the right.

Ripeka Evans  
Employment/Enterprise Development Project Team

10 A/19/11

*hu*



26 June 1986

Peta Butt  
Whakatane Motor Lodge  
P O Box  
WHAKATANE

Tena koe Peta

MAORI ENTERPRISE DEVELOPMENT CO-ORDINATING CONFERENCE

I have almost finished finalising arrangements for the Conference and will be forwarding a schedule of names, accommodation requirements and travel arrangements to you by Tuesday 1 July. At this stage we are expecting a minimum of 75 people but cannot estimate the number of locals that may boost the numbers to approximately 90 for the Saturday lunch. However, we shall have to remain reasonably flexible on the final head count. Some other participants will only require one night's accommodation but I shall indicate this to you on the schedule. In the meantime if you need to clarify any matters, could you contact me or Shelley Humphries, our Typist.

Kia ora

*RE*

Ripeka Evans  
Project team

6/19

10 June 1985

Claude Edwards  
Chairman  
Mataatua Maori Land Advisory Committee  
R D 6  
OPOTIKI

Tena Koe

Please find attached a letter of invitation and the agenda for the Maori Enterprise Development Co-ordinating Conference.

You will be aware from the meeting held recently with the Employment/Enterprise Development Project Team that only four Maori Land Advisory Committees are being utilised for the MEDS. For the Conference it will only be necessary for Chairmen of those Maori Land Advisory Committees to attend. You will be aware that most iwi are covered by an authority, hence the necessity to utilise only four Maori Land Advisory Committees. Given the firm insistence on restriction of numbers of participants, would you therefore notify the Project Team as to your attendance by Monday 13 June 1986.

I look forward to your attendance at the Conference.

Kia Ora

B J Mackie  
Chairman  
Enterprise Development Committee  
Board of Maori Affairs

6/19

19 May 1986

Claude Edwards  
Mataatua Maori Land Advisory Committee (Chairman)  
R.D.6  
OPOYIKI

Tena Koe

**RE: Maori Enterprise Development Scheme, 1 June 1986, applications and administrative budgets**

This letter is to remind all tribal and regional Maori authorities that applications approved in principle by your Authorities are required by the Board of Maori Affairs by 1 June 1986. The Project Team has pointed out that your approvals must be given subject to the availability of finance, ie. subject to the allocation which the Board of Maori Affairs will disburse to tribal/regional authorities after all tribal/regional proposals have been received.

In order to allocate funds for administration of the Maori Enterprise Development Scheme you are requested to forward an administrative budget to the Enterprise Development/Employment Project Team along with your approved proposals by 1 June 1986. Your administrative budget should be based on what your Authority anticipates to be the cost of administering its approved proposals.

Whilst a number of Authorities have requested an extension of this time limit, the Project Team regrets to advise that at the minimum a schedule of approved proposals and a total tribal/regional bid is required by the Board of Maori Affairs on 1 June 1986.

Should you have any further inquiries please contact the Project Team at Wellington 720.588 ext. 808 or Wellington 728.606.

Kia Ora

Ripeka Evans  
Employment Project Team

10A/19/1



19 May 1986

Claude Edwards  
Chairman  
Whakatohea Maori Trust Board  
PO Box 207  
OPOTIKI

Tena Koe

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Kia Ora

Ripeka Evans  
Employment Project Team

# Whakatohea Maori Trust Board

ALL CORRESPONDENCE SHOULD BE ADDRESSED TO  
THE SECRETARY,  
WHAKATOHEA MAORI TRUST BOARD,  
P.O. BOX 207,  
OPOTIKI.

Opotiki, 4 June 1986

TO: MEDS TEAM

Total borrowing and capital expenditure cash flow requirements are as enclosed consultants report states.

Method for MEDS funding:

The Whakatohea Maori Trust Board will deposit, in a special account, the monies it receives from MEDS. The Board will then lend on to the Mill project, the loan monies that the Mill seeks on a monthly draw down basis. The Mill project has been set up as a separate cost centre entirely divorced from other Board activities. To this end we have arranged a Mill Account in the Opotiki Bank of Australia and New Zealand. All other Board business is conducted through the Opotiki Bank of New Zealand.

In the preamble of our application for MEDS Finance, we illustrate clearly the Boards investments over a number of years to create work opportunities. We believe those earlier investments, are more than sufficient to be regarded as asset equity alongside the Mill venture. Taken in that context, the Boards equity sits comfortable.

The Mill will make proper repayments with interest (charges) back to the account rolling fund. We are mindful that up to now, we have not received any personal applications from the Whakatohea Rohe Potae. Contractual teams for forestry harvesting will emerge as the project gets underway and will encourage competent people to borrow from MEDS for their machinery. The need for various services to the Mill will arise and this will generate more work which wherever possible, we will channel to our own people.

Kia Ora



C A Edwards  
Chairman





# U. R. Wood LTD.

Forest Marketing & Contracting Consultants

Establishment - Management - Assessment - Valuation  
Exporters - Log & Wood Brokers

11 VIEWMOUNT,  
STOKE,  
TELEPHONE 79 902  
or 87 718  
NELSON,  
NEW ZEALAND.  
TELEX - NZ 3506.

19/11  
The Secretary  
Whakatohea Maori Trust  
P.O.Box 207  
Opotiki.



8th. May '86

Dear Sir,

Your letter of 22nd. April to hand and contents noted.

My most recent visit to Opotiki was to identify the log resource material that is on offer to the scheme. It appears there is a quantity of private woodlots which could supply log needs for the first 3 months, thereafter we would be reliant on the Tasman forests resource at Waikeria forest, (which is estimated at providing up to 18 months log supply).

While this is a welcome offer, personally I would like to be able to see a bit further ahead. Tasman forests have additional thinnings resource material coming available in their Kererutahi & Waimana gorge forests and I have taken the liberty of writing to their marketing manager (copy enclosed for your information) requesting assurance for a continuous log supply.

It may be that we will need to appeal to their senior management to support the regional development concept of our proposal if my present request is not conceded to.

While the mill site Claude & I inspected between Brabant & Nelson St. is, eminently suited to our purpose, I believe it would be prudent to ~~Tae ho!~~ on the final purchase agreements until the log supply position is further clarified.

*The supply of logs has now been confirmed as more than adequate long term.*  
During my last visit I was also bringing together proposals for a small management control structure during the initial establishment / development - this involved speaking to a range of people who can assist with many of the basic skill requirements.

For example, utilisation thinning of steep country calls for very particular, light hauler skills - N.Z. Forest Products are leaders in this field and if necessary we could get initial training assistance for the Whakatohea contractors.

The Timber Industry Training Centre at Whakarewarewa conduct a variety of instruction courses at moderate cost, which could be of great value for initial staff training in sawmill operations, they also have a remanufacturing section which specialises in operation and mtce. of resawing, planer guaging & moulder equipment.

Various suppliers of equipment are able to meet most of our needs, while any fabrication and manufacturing can be catered for by a very competent sawmill/engineering business, of long standing, with whom I have been talking.

I propose that we should use the services of a small industrial engineering firm in Rotorua, to act as scheme co-ordinator & commissioning manager - I believe this will overcome any logistical hiccups we might otherwise experience in the establishment / start up phase.

On the basis of the above I would anticipate compiling an up dated summation of all parameters immediately prior to Whakatohea Trust Board finally committing itself to this scheme.

For your guidance I submit the following anticipated senario of events.

1. Acceptance by Tasman forests for access to additional thinnings log supplies, plus all local woodlot owners.
2. Aquisition of the Brabant/Nelson St. mill site.
3. Orders placed for machinery componentry.
4. Site works levelling & buildings.
5. Staff enrolment & training key personnel.
6. Sawmill start up will precede the boxmill by up to 1 month.

I anticipate it will be later in May before Tasman could confirm the additional log supplies and indeed may be as late as mid-June , however by that time we could move fairly quickly into the above sequence so that start up could occur say 2 months after the Tasman assurance is received.

I expect to be available at least 75% full time if needed, to expedite and manage the scheme - once the log supply is further assured I am prepared to move up to Opotiki. In this I may require some assistance to identify a rental property.

Because the additional log supply assurance is so vital to the scheme and virtually determines the timing of events thereafter, I am having some difficulty in compiling a financial requisition for the drawing of funds up to the sawmill start up, nevertheless I trust the following will provide a guide to work to.

Funding required as @ 10th.June '86.

Commissioning managers planning charges	3,000
Project Manager V.R.W consultant	2,500
Purchase price for mill site	125,000
Private woodlot 25% down payment	10,000
Machinery equipment;	
Scragg unit & transport systems- down payment	10,000
Debarker	20,000
Gang edger resaw	15,000
Multi-rip unit & docking saws	50,000
Packaging & saw shop mtce equip.	15,000
Kiln dryer down payment	10,000
	<hr/>
	260,500
	<hr/>

## Funding cont.

@ 10th. July '86

Commissioning managers co-ordinating charges	3,000
Project manager salary & expenses	3,200
Log royalties	12,000
Mill site preparation & consolidation	20,000
Circular resaw bench (salvage wings)	5,000
Slabb chipper or hogger	15,000
Anti-sapstain dip tank	5,000
Sawmill building	20,000
Drying & stock holding shed	5,000
Sawdust cyclones & exhaust system	12,500
Case making assembly unit	15,000
Boxmill building	20,000
	<hr/>
	135,700

@ 10th. August '86

Commissioning managers co-ordinating charges	3,000
Project manager salary & expenses	3,200
Sawmill workmen wages & Log royalties	12,000
Scragg unit & roll case assemblies	30,000
Sawmill building & power reticulation etc.	20,000
Drying & stock holding shed	5,000
Kiln dryer	70,000
Saw dust cyclones & exhaust systems	12,500
Box factory building & power reticulation	20,000
Contingencies	20,000
	<hr/>
	195,700
	<hr/>
Total	£491,900

This total exceeds that of the 5th. March scheme submission because I have included such additional items as:

1. Log royalties (not capital exp.)	£ 12,000
2. Mill site purchase price @	125,000
3. Kiln drying unit @	80,000

Investigations reveal that if we can find the capital cost of a small capacity 15 M<sup>3</sup> high temp. dryer it is a much more viable option to instal same from the outset as it:

- (a) guarantees product integrity
  - (b) immediate availability of suitable box mill stock
  - (c) minimises expensive stock holding for 2 to 3 months air drying.
- Clearly any delay in the log supply assurance from 10th. June would offset this finance requisition programme accordingly.

As to my own emoluments I have made an allowance, yet to be confirmed by your board - nevertheless I suggest any employment terms be based on say a 75% availability to be confirmed by a monthly salary allocation return submitted by me. I suggested to Claude that I should provide my own transport on a mileage cost basis (public service rates) supported by running book returns.

Because of recent movements in national salary levels I believe \$20 per hr. plus other reasonable exps. e.g. travel, phone, would be appropriate to the project managers work demands.

The position of project manager could be subject to a 6 monthly revue by both parties and should be defined as a management contract to be paid for at monthly intervals on receipt of invoices submitted for services rendered.

I suggest a change over once the additional log supplies are clarified, meantime my employment should proceed on a demand basis consistent with project research needs.

Please advise your comments re the above in due course.

I am,

Yours faithfully,

Vernon Wood.

P.S. Please find enclosed account rendered for my latest visit to Bay of Plenty.

5th.May '86

Tasman Forestry Ltd.  
Private Bag  
Rotorua.

Att. please: Peter Sigley

Dear Sir,

Whakatohea Trust log supplies - your ref. S10-0001

Further to our phone discussions last week re the above and my inspection of the Waikeria resource I wish to advise as follows.

While your field staff personnel were unable to give me very accurate information regarding total volumes - I was able to determine that the material to be thinned could indeed suit our purpose - it was intimated by Mike Colly that the inventory assessment could be completed around mid-July and more exact data could be available at that time.

It appears that there are some small private woodlot resources immediately available and on the strength of this plus your suggestions re Waikeria, planning for a mid year start up is proceeding. (a small sawmill site is currently being negotiated for in Opotiki).

As previously described to you it is proposed to develop the sawmill and boxmill complex together, (to service local needs) as this is the minimum viable level of activity we can consider to start with. Initially it is envisaged that this will provide jobs for a total of 25 personnel with an additional 5 people on later downstream processing e.g. small capacity kiln drying and possibly finger jointing moulding etc.

All indications from our studies indicate that it is an economically viable project and it appears that funding for its development is assured.

Because the Whakatohea forest resource is still very young, it is obvious that the success of this scheme will be highly dependent on the availability of an adequate resource base of some 6,000 M3 of roundwood per annum from forest owners such as Tasman - indeed it is looking increasingly like Tasman's support by way of resource material is absolutely vital for at least a 5 or 6 yr. period.

In this context I wish to enquire on behalf of Whakatohea Trust, if Tasman forestry could provide an assurance of future roundwood thinnings from the Kererutahi block. Clearly utilisation thinnings of this area would call for light hauler systems as in Waikeria. My feeling is that because Whakatohea Trust will have to develop suitable hauler expertise from the outset (and there are good people currently available) they will be able to offer a useful and reliable service for any later thinning operations.

This scheme contains very significant regional job opportunities and I hope that Tasman Forestry could see its way clear to help the socio-economic advantages to the Opotiki area.

I hope to be in the Bay of Plenty around mid-May and if convenient would like to come and discuss a number of points relevant to the Waikeria resource - meantime I would be obliged to receive your comments on the possibility of Tasman Forestry support from the Kererutahi resource.

I am,

Yours sincerely,

Vernon D. O. C.

---



Whakatohea Maori Trust Board  
P O Box 207  
OPOTIKI

18 April 1986



The Project Team Leader  
Maori Enterprise Development  
Department of Maori Affairs  
WELLINGTON

Tena ra koe, ara, koutou

Further to the submission on the Smallwood Boxmill projects:

The total cost in the 1986/1987 period is \$480,000:

Sawmill (Consultant Report - page 3)	\$170,000
Boxmill ( " " " ")	160,000
Site purchase and consolidation	110,000
Vehicles	30,000
Contingency	10,000
	-----
	\$480,000
	=====

The first eight (unemployed) have commenced forest operations as the 'Mahi Tahī Work Trust' under the guidance of the Board, with a suspensory loan to purchase their equipment.

Growth developments for 1987/1989 will be advised shortly.

pp C A Edwards  
Chairman

A handwritten signature in blue ink, appearing to read 'C A Edwards', written over the typed name.



Whakatohea Maori Trust Board  
P O Box 207  
OPOTIKI

19 April 1986

The Project Team  
Maori Enterprise Development  
Department of Maori Affairs  
WELLINGTON



Tena koutou

Your recent request for forward planning refers:

Extension developments for 1987-1989 are being studied at present by Consultants and assessed by the Board. They are estimated to be 'very viable options':

Tanalith type feature timber and pole treatment:  
Markets: local and Western Australia  
Cost estimates \$125,000. Jobs - 5 (initial)

Kiln drying and Turney:  
for indigenous species - Kanaka, Rewarewa ....  
Markets: for tool handles, parquet floors, etc ....  
Cost estimates \$245,000. Jobs - 6/8

Custom kiln - softwood - and Planer:  
Forest Research Institute technical support.  
Markets: finger-jointing beam manufacture, fascia  
panels, moulding; 'Makes considerable  
opportunity for job creating.'  
Cost estimates \$530,000. Jobs - 12/18 (initial)

Further proposals for employment, with good profit potential, are being considered, preliminary to feasibility studies:

Whakatohea Tourist Service  
'Conducted MAORI WORLD tours - remote rural and sea coast.'  
Estimated cost \$90,000. Jobs - 4 plus servicing and  
entertainment.

Spagnum Moss: 'Collection, drying, for export markets.' 'Low  
capital investment.' 'Unsatisfied export market.'  
'Relatively high labour inputs.'

<u>SUMMARY:</u>	Tanalith Timber	\$125,000
	Kiln and Turney	245,000
	Custom Kiln and Planer	530,000
	Tourist - Buses	90,000
	Spagnum Moss	45,000
		-----
		\$1,035,000
		=====

PP

C A Edwards  
Chairman  
*W. Edwards*

Final

6/19

14 April 1986

Mr Claude Edwards  
Chairman  
Whakatohea Trust Board  
P O Box 207  
OPOTIKI

Tena koe e Claude

Maori Enterprise Development : Smallwood Sawmill and Boxmill

I have received the papers which cover the sawmill proposal. While I have been aware of the progress of the proposal I was pleasantly surprised to read the formal proposal and note the employment opportunities which the project offers. The Whakatohea Trust Board must be commended for its endeavours in pursuing projects of this nature.

I am aware of the time frame and expense required to mount a thoroughly researched project. However, in my view, successful outcomes will only be achieved as a result of a great deal of preliminary work. If the other eighteen authorities involved in the Enterprise Development Scheme approached the task in a similar manner then it would make my job as national project team leader much easier.

You can be assured that the Enterprise Development Committee of the Board of Maori Affairs will welcome your proposal. I also have no doubt that they will endorse the aims and objectives of the project and move quickly once funds are available to ensure that the Whakatohea Trust Board receives the support that such a project deserves.

You will be aware that we are in the process now of determining the allocation of the \$12.5 million which is available for enterprise development in the coming year. I would anticipate that we would be able to secure an allocation of funding for the Whakatohea Trust Board in about June/July 1986. I understand your need to move with speed to implement the project. However it is unlikely that I can accelerate the transfer of funds to support you. In the interim it might be helpful for you to seek bridging finance to enable the project to proceed.

I would as Team Leader be prepared to support any application that your Trust Board may wish to put forward for bridging finance through a commercial institution.

Finally, may I on behalf of the Chairman of the Enterprise Development Committee of the Board of Maori Affairs wish you well in your endeavours.

Kia ora

Wira Gardiner  
Project Team Leader

10A/19/4/1

EW



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Chairman  
Whakatohea Trust Board  
P O Box 207  
OPOTIKI

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Kia ora

Wira Gardiner  
Project Team Leader

F1592

6/19

7 April 1986

Sir Norman Perry  
Whakatohea Trust Board  
P O Box 207  
OPOTIKI

Tena koe e Norman

Maori Enterprise Development : Smallwood Sawmill and Boxmill

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While the Project Team clearly cannot give a guarantee, I would nevertheless as Team Leader be prepared to support any application that your Trust Board may wish to put forward for bridging finance through a commercial institution.

Finally, may I on behalf of the Chairman of the Enterprise Development Committee of the Board of Maori Affairs wish you well in your endeavours.

Kia ora

Wira Gardiner  
Project Team Leader

10A/19/1

File

Whakatohea



7 April 1986

*Chairman*  
Sir Norman Perry  
Whakatohea Trust Board  
P O Box 207  
OPOTIKI

Tena koe e Norman

*Claude*

Maori Enterprise Development : Smallwood Sawmill and Boxmill

*The Papers*  
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Kia ora

Wira Gardiner  
Project Team Leader

# Whakatohea Maori Trust Board

ALL CORRESPONDENCE SHOULD BE ADDRESSED TO  
THE SECRETARY,  
WHAKATOHEA MAORI TRUST BOARD,  
P.O. BOX 207,  
OPOTIKI.

file



Opotiki, 7 April 1986

Mr Wira Gardiner  
Maori Enterprise Development Scheme  
C/- Department of Maori Affairs  
Private Bag  
WELLINGTON

Tena koe e Wira

Please find enclosed a copy of a letter that has been sent to Koro Wetere. It seeks his approval for expenditure in excess of our budget.

This of course has been brought about by our involvement in Government programmes such as Maatua Whangai and Maori Enterprise Development Scheme, and you are aware of our activities in these areas.

This copy is for your information to enable you to keep an over-all view of our financial position.

Heoi ano.

Yours faithfully

A handwritten signature in blue ink, appearing to be "T A Taia".

T A Taia  
Secretary

# Whakatohea Maori Trust Board

CORRESPONDENCE SHOULD BE ADDRESSED TO  
THE SECRETARY,  
WHAKATOHEA MAORI TRUST BOARD,  
P.O. BOX 207,  
OPOTIKI.



*Opotiki*, 7 April 1986

The Honourable K T Wetere  
Minister of Maori Affairs  
House of Representatives  
WELLINGTON

E Koro, Tena koe

Further to our letter of 31st January advising you of the salary scale for the new Secretary, employment and payments for certain Board members, the expansion/development, and seeking your formal consent:

With reference to the indications given; we now request your further approval for additional expenditure, estimated to be more than ten percent (10%) of the budget figure of \$177,800.

This situation has arisen partly from the increased costs and active participation in the programmes which your Government has introduced. Also the Board has since adopted the current meeting fees; presumably recommended by paper T79/101/25 - from the Department.

Expenditure will arise from a feasibility study by highly qualified and experienced forestry-timber consultants. The last sentence of our previous letter was anticipating this major project - to create employment for 25 plus spin-offs in related jobs and export earnings. The viability study is positive. The full submission for funding this utilisation of local natural resources; training programmes in many forest and timber skills; including middle and senior management, administration and marketing; has been lodged with Maori Enterprise Development. The consultancy and associated costs are being paid by the Board; not included in the budget which you approved on 11 December 1985.

We are pleased to say that the first ten unemployed - the 'Mahi Tahi Work Trust' of a 'disadvantaged group' - commenced the first forestry contract this week, leading to the initial stages of commissioning the Smallwood and Box Mills. Markets have been established for the products.

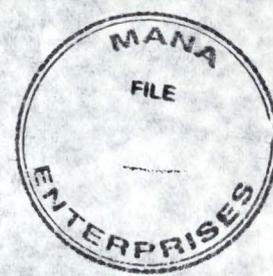
We would appreciate your confirmations and approvals where appropriate, in terms of Sections 19 (1); (4); 19A; 26; 27 and 37 (2) for our letter of 31 January 1986; and concerning this further advice and request - Section 32 (3).

Heoi ra. Kia ora.

Yours faithfully

T A Taia  
Secretary

FILE



File

27 March 1986

The Chairman  
Whakatohea Trust Board  
Private Bag  
OPOTIKI

Tena koe Claude

I am directed by the Enterprise Development Committee to advise you that they have allocated a sum of \$50,000 to support the Stoneware Project proposed by your Board. Enclosed is a cheque payable to your Trust Board.

You will be aware of the importance of the Enterprise Development Scheme and the need to ensure that the funds allocated are well used. I have no doubt that such will be the case in Whakatohea. I would appreciate it if you could advise as soon as possible what you propose to do with the funds. Would you please also let me know about the status of the two policy objectives of the Enterprise Development Scheme, i.e. how many people the Stoneware Project will support and an idea of how long it will take before the project is viable.

On behalf of the Chairman of the Enterprise Development Committee I wish you all success in the project. As I indicated at the meeting in Opotiki earlier this week, the Project Team will require a list of anticipated projects that your Trust Board proposes to support. Clearly we would need to be advised of those projects which have been well researched and are ready to go. In addition, we would need you to give us an indication of the projects that you have in the pipeline or that your Trust Board is in the process of evaluating and approving. This information is necessary to enable us to make a decision on the size of the allocation that Whakatohea will receive from the \$12.5 million which is available in the coming year.

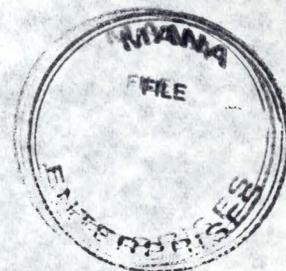
I look forward to your early response.

Kia ora

Wira Gardiner  
Project Team Leader

10A/19/1

File



27 March 1986

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Whakatohea Trust Board  
Private Bag  
OPOTIKI

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I look forward to your early response.

Kia ora

Wira Gardiner  
Project Team Leader



6/19

MEMORANDUM TO: Board of Maori Affairs - Enterprise Development  
Committee Members

FROM: Employment Project Team

DATE: 21 March 1986

SUBJECT: Enterprise Committee Meeting

A special meeting of the Enterprise Development Committee will be held on Saturday, 22 March 1986 from 10.00-11.30 am at 6 Somerville Road, Howick, Auckland.

Items for the Agenda include:

- 1) Reallocation of \$138,000 previously designated for Hoani Waititi Marae:
- 2) Management of Maori Enterprise Development (and ACCESS training) for the Auckland area.

... Enclosed are copies of proposal submitted by the Wanganui Employment Board for discussion under Agenda Item 1. Members should already have copies of Whakatohea Trust Board proposal which will also be discussed under the same Item. Members should also bring with them the memorandum regarding reallocation of the Hoani Waititi allocation - this memorandum/matter was held in abeyance subject to the meeting held at Hoani Waititi Marae on Wednesday, 19 March 1986.

Mr Gardiner will speak to Agenda Item 2 and a paper summarising Board Members and Project Team concerns and suggestions for a course of action to address the management of enterprise development situation in the Auckland area.

R Evans  
per B Mackie  
Chairman  
Enterprise Development Committee

... Encl.

10A/19/11

# the Whakatohea Maori Trust Board

File

P.O. BOX 207  
OPOTIKI  
15th March 1986



The Secretary,  
Board of Maori Affairs,  
WELLINGTON.

attn Maori Enterprise Development - Wira Gardiner

Tena ra koe, ara, koutou,

The Whakatohea Maori Trust Board hereby make an application for funding, and guidance:

PROJECT: The proposal is:

- to establish a Smallwood Sawmill & Box Mill, to commence site preparations and plant installation in May 1986;
- to utilise available, identified, raw materials;
- to increase employment opportunities, and skill training for 25 workers;
- to market products to known, named, outlets;
- to earn, in the second/third years, profits estimated by timber consultants to meet funding commitments and make further expansion;
- to engage an experienced, qualified, project manager to oversee the building, commissioning, and training programme; to co-ordinate technical aspects and monitor estimates and target controls. An Advocate role.

CONSULTANT:

The Consultant for this exercise is Mr Vernon Wood, of V.R. Wood Limited, Forest Marketing & Contracting Consultants, of Stoke Nelson. Mr Wood has had a life long work experience in the forestry and timber industry;

With the N.Z. Forest Service for 21 years (10 years as a station manager); also 10 years forestry manager for Dalhoff & King plus several years in forest consultant activities such as export log sales, forest valuations, workshop engineering and machinery operations.

He has had first hand experience in staff training, log trading out of Chile, ship chartering etc.

He currently owns a small forestry development property in Nelson and can identify closely with many of the problems private land owners and forestry developers experience.

INTRODUCING THE APPLICANT:

The six Hapu of Whakatohea form the Trust Board, of 12 members. The executive officers, relative to this submission are:

Chairman;	C.Edwards	Secretary;	T.Taia
Farm Supervisor	G.Riesterer	Consultant;	N.Perry
Maatua Whangai - Rehabilitation Liaison:			P.Aramoana

Policies & Programme:

Tribal elders of the 1950's persisted in their decision to decline the \$1600 offer; per annum in perpetuity; as compensation settlement for 'excessive confiscation' of Whakatohea lands in 1865.

Capitalisation was finally agreed, with the Government, at \$40,000 in 1955. This, with the assistance of a Maori Trust loan, purchased a dairy farm on the Opotiki flats. The policy for some years was to acquire adjoining lands till there are now two large, high producing dairy farms; a 33 $\frac{1}{3}$ % shareholding with a 438 Trust in another dairy unit, and a maize area.

To meet the aspirations of the Maori dimension and self determination in the Whakatohea area there have been precise moves in such programmes as Maatua Whangai, Maori Enterprise Development and Kohanga Reo. The Trust Board policy was widened to reflect the better utilisation of assets, to add industrial activities - making work opportunities for their beneficiaries and the community.

This was made possible by the provision of buildings and facilities for industry:

Industrial Footwear Factory	- built by the Board	(\$142000)
Textile Complex	- purchased " "	(\$190000)
Masonic Building	- " " "	
proposed Stoneware Unit		

With the land properties; including the farms and college horticulture training area, a kohanga reo section, pensioners flats site and Board administration offices; and the industrial activities, at 30th June 1985 (Annual Accounts) the Nett asset, book value, was \$1,122,700.

The Textile Complex has been an addition in this financial year to make the valuation \$1,302,700. (There has been no recent special valuation. The latest Government Valuation is now due.)

Mortgages, a Term Loan and Bank Overdraft make the liabilities to be \$455,226. There is a pending/possible guarantee of \$150,000 to the Trust in which the Board has the 33 $\frac{1}{3}$ % interest.

CONSULTANT REPORT: SUPPORTING OBSERVATIONS FROM THE BOARD:

The Report of V.R.Wood Limited (attached) is the summation of six progressive studies, and discussions in Opotiki, since October 1985.

The study itself, and significant supporting facts, and points perceived and proposed during the investigations, and conferences with the Consultants, gave us the confidence to proceed, smartly. Some of the key points and facts, are:

1. The principal of V.R.Wood Limited has agreed to accept the Board's proposal that he, himself, be the Project Manager; to live in Opotiki during this establishment stage, to stand beside the Board and key personnel and behind his own confidence in the economic viability and social advantages in the enterprise, including the development of jobs of worth.
2. At our request the Report is conservative; 'safe' at basic points, with additional 10% contingency allowances.
3. Mr Wood has assured himself on the availability of initial raw material and markets. (The partnership of the Board with Tasman Forestry and Opotiki Fruitgrowers Co-op - and others - in the East Coast Research & Development Association has some bearing).
4. The first year revenue is related to the need for training at all levels. However, we can anticipate that enthusiasm and Maori group rhythm will show an increase in productivity and cash flow.
5. The Labour Department agrees that the project qualifies for the Job Opportunities Scheme, at \$75/\$120 per week for 26 weeks.
6. The estimated annual 'mark up' (\$60,000 and \$56,000 - pages 5/6 in the report) is the Consultant's term for profit before loan repayments and interest and the budget; still to be arranged; for the Project Manager. (We have formed the conviction that the remuneration of Mr Wood, in that responsibility, will be well covered by economic returns through efficient operations).
7. Mr Wood has been meticulous in his examination, testing and selection of second hand plant, for the reasons stated.
8. Our positive experience with 'disadvantaged groups' in our Maatua Whangai - Rehabilitation programme, and currently in a forestry 'Mahi Tahī Work Trust', is a plus for extraction thinning as quoted by Tasman Forestry and for related mill work. For the same reasons, in the setting up construction and plant installation for the Mills, the use of outside contractors will be minimal.

MAORI ENTERPRISE DEVELOPMENT SCHEME:

The Operating Instructions and Guidelines, recently received, have helped us to finalise this submission. It seems clear to our Board that this enterprise dovetails into the basic principles for the control and development of Maori resources by Maori Authorities, with their built-in disciplines and current incentives.

As indicated by the Consultants - Cash Flow P.S.3 - 'Some initial loan or relief assistance will be required'. He also 'wondered if a capital repayment holiday period would be possible to ease demands on the initial profitability and cash flow needs'.

We believe this project qualifies for the suspensory loan - Funding Option 3.4b - in which case the enterprise would have the added incentive to take the first objective, and move on without subsidy to make room for more Maori employment.

CONCLUSION:

The Feasability Study, the observations and significant points have resulted in the firm decision by the Board to launch the Smallwood Sawmill & Box Mill, "subject to the approval of the Board of Maori Affairs, and finance".

We see also the remarkable opportunity, and capacity, to expand into alternative processing units as a steady growth strategy. There are stumpage agreements, and forest thinnings to be available from Whakatohea forests. They will come on stream for the long term operations and advantages. This tribal Authority will then be in position, ready to process its own resources by its own people in their own mills; and hopefully for their own bi-product industries.

We rely on your assessment and advice/decision in the light of the full picture which we have endeavoured to present in this paper.

The approach is made in the determination that the enterprise will be a credit to Whakatohea and to your Board through the Maori Enterprise Development Scheme.

If you, or your Project Committee, wish to clarify any points with us, and/or with Mr Wood, kindly let us know.

Yours faithfully,



C.A. Edwards,  
Chairman.

Enclosures: Consultant Report  
Tasman Forestry & Opotiki Fruitgrowers Co-op  
-correspondence.

10A/19/11

Mr Gardner.

Maungaroa Trust,  
c/o P.O. Box 207,  
OPOTIKI,

*File  
Whakatane*

*Plse discuss  
with me next  
week 19/3/86*

10th March 1986

The Secretary,  
Department of Maori Affairs,  
Private Bag,  
WELLINGTON.

*Mush*



Dear Sir, attention N. Baker.

Further to the meeting with you on March 5th; with Mr Bruce Manning:

This is to confirm the Trust agreement with the discussions concerning a part time contract or arrangement for Bruce Manning MSc to spend up to 100 days; commencing March 1986 at staged periods covering the next 12 months; to assist and guide the Trust and associated mussel growers to establish mussel farms in the Eastern Bay of Plenty. The licences have been approved for this first 'open sea' enterprise.

Bruce Manning gained his MSc degree in the field of aquaculture with research and practical application on oyster spat and related aspects which are also relevant to mussels. We had the encouragement from Dr Buisson, DSIR, and Dr Hickman, Fisheries Research, to bring him in if the opportunity could be found. His scientific background and keen interest in the area will also be helpful to the renewed eel farming trials.

As Mr Manning indicated, he has agreed to make himself available and intends to be on site as a working advisor alongside the Trust and people. He can do this for periods of 3/4 weeks when he will be on shore from his duties (on contract to MAF) as observer of overseas fishing companies and specific boats. He will be based in Auckland and will use his own car.

The understanding is that funds for these services, and Auckland - Coast travel, would be granted to the Trust which will be responsible for payment to him. We assume the amount will reflect his MSc qualifications and experience.

The Trust greatly appreciate the support offered by the Department and will make every effort to achieve the objectives and be ready to pass on findings for the benefit of other tribal areas.

Yours faithfully, *N. Perry*  
(pp W. Herewini, J.H. Waititi, N. Perry,  
R.R. TeMoana. TRUSTEES)

Telegraphic Address: MAORIFAIRS



Our reference: .....

Your reference: .....



## DEPARTMENT OF MAORI AFFAIRS

Manchester Unity Building  
120-124 Lambton Quay  
Telephone 720 588

Private Bag  
WELLINGTON 1.

12 March 1986

MEMORANDUM TO : Board of Maori Affairs

### ALLOCATION OF \$138,000 TO HOANI WAITITI MARAE

You will recall that the Board allocated \$138,000 to the Hoani Waititi Marae for enterprise development. You will also be aware of the continuing difficulties between the Marae and Te Whanau Waipareira.

Despite a number of contacts made with the West Auckland groups and the personal visit by the Enterprise Development Committee, no enterprise proposals have been forthcoming from the Hoani Waititi Marae. In view of the lack of progress in this area it is recommended that the Board move to reallocate funding to other areas which are ready to move immediately to employment/enterprise development projects.

The two areas which are ready and have demonstrated a capacity to use the funds available are Whakatohea and Wanganui. The Board is aware of the effectiveness and efficiency of the Whakatohea Trust Board. Whakatohea has a number of proposals ready to go, including a pottery workshop and retail outlet.

The Wanganui Regional Employment Board is probably the most active of the newly formed Runanga and Employment Authorities. The Wanganui Employment Board has raised nearly \$40,000 by way of contributions from tribal members. Moreover it has already moved to support enterprise development in establishing a one-man mobile mechanical repair operation.

It is recommended that the Board reallocate funding from Hoani Waititi to Wanganui (\$50,000) and Whakatohea (\$50,000). The balance of \$38,000 should be used to effect Board policies such as development of a monitoring and evaluation system (see supporting paper).

Therefore it is recommended that the Board -

- (a) Notes the contents of this paper.
- (b) Endorses the actions of the Enterprise Development Committee.
- (c) Agrees the reallocation of funding to Wanganui and Whakatohea.

2.

- (d) Utilise the balance of funding for other projects which may arise including the monitoring/evaluation consultancy.

*W Gardiner*

Wira Gardiner  
Project Team Leader



# the Whakatohea Maori Trust Board

10A/19/1

P.O. BOX 207  
OPOTIKI  
1st March 1986

The Secretary,  
Department of Maori Affairs,  
WELLINGTON.

Dear Sir,

## Maori Enterprise Development

A background submission paper, and estimates for moving into the stoneware manufacturing enterprise is enclosed. This continues the Board policy to provide career and job opportunities for Maori school leavers and unemployed people; with spin-off benefits in the community.

In the manufacturing industry the Board has invested cash, and also arranged loan funding and bank accomodation -

to build the footwear factory; - \$142,000  
and for the textile plant complex - \$190,000.

The Masonic Order has moved into new premises. Their original building, adjoining the textile factory, is also now the property of our Trust Board. With alterations; and upgrading to meet required standards; local builders confirm that it will sound and very suitable for the purpose, with ample room for expansion.

Subject to this enterprise gaining the approval of your Board it is proposed to commence operations as from 1st April, with two staff. In consultation with the Department of Labour an Arts and Crafts Training Assistance centre, including stoneware, is being planned to replace the WSD Programme. As the stoneware unit develops the centre will be a recruitment area for those who reveal, or find an interest in this type of work with the several skills involved.

We propose progressive expenditure - subject to results and quarterly review. As the enterprise learns from experience and expertise the second year and cash flow budgets will have comparative figures to study.

This is probably new territory for your programme, as it is for our Board as the background paper indicates. Therefore we would welcome your assessment and recommendations, or revision of this application, to ensure that this and other Whakatohea efforts, which are related to Maori Enterprise Development, can achieve the declared goals.

Yours faithfully,

  
Claude Edwards,  
Chairman.

# the Whakatohea Maori Trust Board

10A/19/11

Maori Enterprise Development

P.O. BOX 207,  
OPOTIKI.

## STONEWARE PROJECT:

The Trust Board set up a Work Skill Development Programme to experiment with a new stoneware product; funded by the Labour Department with assistance from the Board and Maori Affairs Department supporting the Boards own investment in the project.

### The Purpose was:

To test the interest and skills, and train unemployed young people with another possible industry in view.

### Preliminary:

The chairman and consultant (Edwards & Perry) were appointed as a committee to explore prospects and oversee the project.

A local well known potter (John Walker) undertook the position/role as tutor - supervisor.

The exercise commenced with two young people in a small wash-house at the Parker home; using his wheel and equipment; before transferring to the empty run-down Masonic lodge; beside the textile factory in Opotiki.

### The Aim:

The immediate goal was;

to create an interest in life and regular work in unemployed youth;

to teach this particular skill to any who revealed themselves as potential participants in taking the unit on to a viable enterprise.

In the process; the first aim succeeded in motivating most of those who passed through the WSDP stages. For the longer term there is the encouragement that a youth who has gained the basic skills, and quality of workmanship, has declared his commitment for his part in building this into an enterprise. (The tutor and committee appreciate his attitude and efforts and support his aspirations).

### The Product is:

Stoneware, from high grade NZ clay, carved and with Maori and other ethnic design; kiln fired to produce a striking range of manaia, tiki and other design art forms. (Photos attached).

### Feasibility Studies & Trials:

The general interest study, and market background preparation has included:

1. Items placed with three cabinet Ministers two MPs and two departments for use (display) in their office suites;
2. Eight pieces in stock in Wellington for presentation items for visiting VIPs; as alternative to wood carving or other craft gifts;
3. Exhibition (\$2800 value) now in Seattle for a USA reaction;
4. Two manaia lampstands (made by pupils of the unit and donated by the Board) for the carved Maori room in the NZ Embassy in Peking, China - to be opened by the Prime Minister in March.

(The stands were readily approved by consultants Para Matchitt and Cliff Whiting for quality and design)

For consumer reaction, first steps in tourist gift selling and to help identify the popular sales items, the committee agreed for the tutor to place a range with some of his contacts.

To this end:

5. Displays were located at several centres . Rainbow Springs - Rotorua; NZ Heritage Park - Auckland; and a few other tourist outlets. Report: Up to mid December slow sales but by mid January/February sales were moving well; with references to a late tourist season and a 'new' product alongside the traditional wood carvings.

To prepare the way for possible support, or when trials gave reasonable prospects for developing an economic unit alongside a training base under the government schemes:

Visits were made, and conferences held at the pottery:

1. Cabinet Ministers Koro Wetere and Kerry Burke gave good advice and encouragement; and took items for their offices.
2. Para Matchitt assisted with design and, with Cliff Whiting can be quoted in support in the event of the inevitable criticism of this style and material.
3. Neville Baker, keeping informed and to be ready to introduce to contacts for possible business chain buyers for offices or for gift purposes.

### The Present Stage now plans:

To move from WSDP; then on to a combination of TAP and self funding enterprise;

To move into aggressive marketing;

To seek advice from Maori Enterprise Development and/or Massey Business Management department team on recommendations for a sales programme.

To follow up Joseph Lo companies in Auckland, Asia and Seattle - he being keen to assist with contacts to hotel chains; and also Tohu NZ Limited to include in their tourist package plans.

To bring in an older person of some maturity and artistic ability who is really willing to learn pottery and the wheel in particular; to encourage production of items from the wheel. (The young people are not too happy on the wheel but do very well on the 'slab' form; such as those going to China).

#### Management and Supervision:

The Trust Board has been associated with consultants and the companies involved in the footwear and textile factories; both of which are now property of the Trust Board.

These two factories started as small units. They grew from 3 to 42, and from 5 to 65 staff respectively. A vital element has been the understanding and encouragement of Maori group rhythm. This is the hope and plan for the stoneware unit.

The local trainees, cum supervisors of the early days of the two factories are now the local managers.

In the stoneware project the tutor and his reliable trainee provide this base. It may well be that Andre Tai will fit this role. In-service, or seminar production training will be arranged.

The accountancy, with regular computer analysis and productivity and profitability figures will be in position.

The Board has the committee for liaison, support to staff and monitoring performance.

#### APPLICATION to Maori Enterprise Development:

<u>Stage I</u>	Capital Plant	Kiln	\$ 3500
		Slab Roller	660
	Marketing & Working Capital		25000
<u>Stage II</u>	Further Plant	Kiln	3500
	Building Alterations - Upgrading		20000
			<u>\$ 52660</u>

Appendix- Budget Estimates attached.

*Atchards*  
Chairman

APPENDIX:Whakatohea Ethnic Stoneware Unit

budget estimates year ending 31st March 1987:

<u>Income</u>	Sales: Ethnic Pots; Vase; Lamp Stands...	21700
	Manaia, Tiki, Arts Crafts...	35328
	Cottage/Home crafts sell on	1200
	Reimbursement Labour Department	5000
		<u>\$ 63228</u>

Expenditure

Materials	3580
Wages	25520
Rent	1200
Accountancy	600
Advertising	750
Marketing	5000
Travel-Accommodation	750
Consultancy - design	550
Printing	450
Packaging	3000
Firing Fuel	2380
Power	700
Freight	1200
Postages Phones	450
R & M Plant	300
Insurance	350
General Expenses	500
Shop Facilities	500
Buy-in:	
Cottage - Home industry	1000
	<u>\$48780</u>

## Provisions for:

Interest; Loan Repayment;	
Profit -	\$ 14448
	<u>\$ 63228</u>

Notes: The Board has, debt free, on site:  
(The building;) Kiln, Pug Mill, Potters Wheel, Tools  
costing \$5138.

It is recognised that the marketing budget is too low for the establishment year. Sales and income above budget or extra finance would be priority for sales promotion.

When seen that there is some real market response; stage II covers additional firing capacity and building upgrading.

The Trust Board can offer the Unit building and guarantees as security for Maori Enterprise Development funding.

## GAINED HELP FROM EMPLOYMENT BOARD



Grant Matthews (pictured) created history when he began his Action Auto Tune business last week — he is the first person in New Zealand to be helped financially by a regional employment board, according to Whanganui Regional Employment Board secretary Dennis Ratana.

Action Auto Tune Ltd is a mobile business. Mr Matthews, with the help of an A grade mechanic, will make tune-ups a speciality.

The vehicles can be worked on at home, or at a business; which is convenient for those who may not be able to drop their cars into a garage, Mr Matthews said.

Mr Matthews bought the business from Palmerston North. The tune-up specialist business was popular right throughout the North Island, he said.

The business will tune CNG and LPG powered vehicles, as well as the more conventional petrol driven motors.

Mr Matthews said he had quite a few customers lined up already.

Mr Ratana said as far as he was aware, Mr Matthews was the first in the country to be sponsored by a regional employment board.

Mr Ratana said Mr Matthews was the first person to come to the board with a proper project, with pricing, costing and schedules already worked out.

He said the board tried to give as much help financially as the person needed.

“With Grant we were lucky as his costs weren’t expensive, and he didn’t need such a high cash flow.”

Two other projects, one at Ranana, and one at Pipiriki, were being looked at by the board, Mr Ratana said.

He said the Whanganui Regional Employment Board would be by far the most progressive in the country.

10A/1/1



# U. R. Wood LTD.

Forest Marketing & Contracting Consultants

Establishment - Management - Assessment - Valuation

Exporters - Log & Wood Brokers

10A/19/1

11 VIEWMOUNT,  
STOKE,  
TELEPHONE 79 902  
or 87 718  
NELSON,  
NEW ZEALAND.  
TELEX - NZ 3506.

5th March 1986

The Chairman  
Whakatohea Maori Trust Board  
P O Box 207  
OPOTIKI

ATTENTION: Mr Claude Edwards

Dear Sir

Following is a summation of my studies to date.

## The Proposal

1. Purchase and sawmilling of small piece sized P.radiata logs in the eastern Bay of Plenty utilising local resource material as much as possible.
2. Manufacturing Kiwifruit trays plus pallet and fruit bin components for local industry needs.
3. Extension of utilisation and marketing opportunities as the future trading climate indicates.
4. Increase badly needed employment opportunities in the Opotiki area, by way of two factory operations plus forest harvesting contractor work.

## Utilisation

Because of some special aspects of the Whakatohea Maori Trust Boards situation, I believe the best strategy would initially be to buy in P.radiata thinnings roundwood and convert to case grade sawn timber for further manufacture into pallet ben and fruit case components. Immediate district needs could be supplied, with any surplus production going outside.

It is likely that additional processing can be undertaken as a logical development progression.

This could involve:

1. Tanalith CCA timber treatment.
2. Small capacity (10 M3) kiln drying of furniture componentry.
3. Treated pole manufacture.

Consideration should be given to an extension of these utilisation/marketing opportunities as future circumstances indicate their viability.

### Resource Base

While there is a roundwood resource undersupply predicted for the next few years, investigations reveal that several company and private woodlot owners are prepared to support the relatively small resource required to make the scheme viable.

Annual roundwood requirements are 6,000 M3 (cubic metres) and we have initial assurances of 15,000 M3 so far. Pretty clearly, once the scheme is up and rolling, adequate log supplies will become available from a variety of so far uncommitted sources.

Until the Whakatohea Trust Board's own forest thinnings come on stream within the next six years, it is proposed to buy in round from various operations within a 100 kilometre radius of Opotiki.

Indicative costings suggest that the log buying price at mill would be more competitive than current pulp log prices while producing a higher value product.

From the best information presently available, there are sufficient log supplies available for the next three or more years and there is every confidence that the future supply position is assured.

### Market Research

There is a potential case grade sawn timber market in Opotiki for approximately 3,500 M3 per annum. This accrues from the present requirement for pallets, fruit bins, and kiwifruit trays currently used in the district but supplied in a manufactured form from outside.

Numerous case and pallet manufacturers from Auckland, Hamilton, Tauranga and Hastings have stated their interest in procuring sawn timber supplies as well as their anxieties about obtaining sufficient for their total needs as affected by the Australian export timber trade.

Indicative pricing ranges from \$230 M3 down to \$175 M3 but in my opinion is not likely to fall below \$180 M3. It appears that the case grade sawn timber market has an assured market at least until the present log famine is relieved in seven years time.

### Market Prospects

Opotiki Fruit Growers Co-op advise that they would happily support this proposal and that their kiwi tray requirements based on existing orchard yield increases are:

1985/86	(present season)	700,000 trays
1986/87		8 to 900,000 trays
1987/88		1,000,000 trays
Early 1990's		1.5 to 2,000,000 trays

This represents 50 % of Opotiki kiwifruit production.



Opotiki Fruit Growers Co-op have a need of some 3,500 M3 of log supplies to meet their present fruit tray needs plus 5,000 pallets and 1,000 fruit bins.

This alone could utilise half the envisaged plant capacity, while there are numerous alternative sales opportunities within easy transport distance.

#### Processing Facilities and Capital Costs

Sawmill - It is recommended that the sawmill unit comprises:

1 only Scragg breakdown head rig	\$ 25,000
1 only multi-saw edger	15,000
1 only circular re-saw bench	5,000
Log and timber transport rollcase assemblies	15,000
Log de barker and live deck transport system	20,000
Slab chipper (250mm throat)	15,000
Anti sapstain dip tank	5,000
Sawmill building and power reticulation (20m x 18m)	40,000
Drying and stock holding shed	10,000
Contingency items construction & commission costs	20,000
	<u>\$170,000</u>

#### Boxmill:

2 only resaw units plus docking saw and transport systems	\$ 50,000
Saw dust cyclones and exhaust systems	25,000
Case assembly unit	15,000
Packaging and saw shop maintenance equipment	15,000
Factory building and power reticulation (20m x 18m with 150mm concrete floor)	40,000
Installation and commissioning	15,000
	<u>\$160,000</u>

In order to minimise capital costs as much as possible, it is proposed to:

1. Procure reliable second hand surplus milling and factory equipment plus economy style industrial buildings.
2. Develop the utilisation facilities on Whakatohea Trust Board land or conveniently situated lease property.

3. Hire such equipment as log/timber loaders and custom saw maintenance services.
4. Sub contract thinning harvesting and trucking operations.

Manning Scale

Sawmill operations would require:

- 5 work people
- 2 trainee staff
- 1 manager-overseer to control milling operations and log delivery needs

Boxmill operations require:

- 10 staff for resawing
- 3 trainee staff
- 3 staff on case assembly
- 1 factory foreman

—  
25 Total  
—

It is recommended that an independant project manager be appointed to establish and co-ordinate all technical aspects of the total operation.

These duties to specifically include monitoring budget estimates and expenditure control, production attainments, sales outlets, targets, and progress reporting to Whakatohea Trust Board satisfaction.

Service administration needs such as, wages compilations and banking could be processed by the existing office facility whilst preparation and presentation of annual accounts should be the separate responsibility of the Trust Board Accountant.

An appropriate and separate cost allowance should be made for the project manager salary and expenses, to cover start up expenses etc. This item has not been allowed for in either of the utilisation profitability analysis.

ProfitabilitySawmill

At mill buy in log prices	\$ 40 per M3
Sawing conversion rate - 40% of input	
Nett cost of recovered material	\$ 100 per M3
Estimated daily out turn	15 M3 cost \$1500 per day
Machinery operating costs including power and fuel	\$ 75 per day
Anti sapstain spray costs	\$ 25 per day
Wages 5 men @ \$10 per hour including ACC levies}	\$ 760 per day
Foreman 1 man @ \$15 per hour	
Trainees - 2	
Loader Hire	\$ 80 per day
Ground lease	\$ 20 per day
Plant and machinery maintenance and replacement allowance (based on 20% capital cost p.a.)	\$ 155 per day
Production cost based on \$2625 + 15 M3	\$ 175 per M3
Selling price	\$ 200 per M3
Mark up	\$ 5 per M3

Sawmill is scheduled to come into profit 25 months after start up and revenue is based on \$1,500 per month first six months thereafter at \$5,000 per month to allow for increased efficiency and training programme payment rebates - this is reflected in the cash flow projections.

Profitability is based on -

Sawn out turn	3,000 M3 per annum
Turnover	\$540,000 per annum
Mark up	\$ 9,000 1st 6 months thereafter
	\$ 60,000 per annum

Boxmill

Buy in sawn timber price	\$ 180 per M3
Boxmill is expected to take half the sawmill production	
Conversion rate 60%	
Per tray nett wood volume .0015745 M3	
Nett cost recovered material \$234 M3	
Estimated daily out turn	\$ 1474
(based on 4000 tray i.e. 960,000 p.a.)	
Machinery operating costs	\$ 250 per day
(including electricity, loader hire, ground rent etc.)	

Wages 10 x \$8 per hr including ACC levies	\$ 640 per day
Trainees 3 x \$6 per hr including ACC levies	\$ 144 per day
Supervisor 1 x \$10 per hr including ACC levies	\$ 80 per day
Plant maintenance and replacement allowance	\$ 248 per day
total daily production cost	\$ 2836 per day
+ 4,000 trays=	70.9 ¢ tray
Indicative retail price tray components	78 ¢ tray
Profit =	7.1 ¢ tray

P.S. 3 case assembly staff not included as this is a separate and additional cost, customers may wish to avoid.

Box mill is scheduled to come into profit 14 months after start up and profitability is based on annual turnover (i.e. 800,000 trays)	= \$624,000
Annual mark up	<u>\$ 56,800</u>

SAWMILL CASH FLOW

	1 mnth	2 mnth	3 mnth	4 mnth	5 mnth	6 mnth	7 mnth	8 mnth	9 mnth	10 mth	11 mth	12 mth		
Bt Fwd		53,594	80,188	79,782	79,376	78,970	78,564	76,658	74,752	72,846	70,940	69,034		
Mth Db	53,594	53,594	53,594	53,594	53,594	53,594	53,594	53,594	53,594	53,594	53,594	53,594		
Mth Rev		27,000	54,000	54,000	54,000	54,000	55,500	55,500	55,500	55,500	55,500	55,500		
Nett	53,594	80,188	79,782	79,376	78,970	78,564	76,658	74,752	72,846	70,940	69,034	67,128	Dr	
					<u>BOX MILL CASH FLOW</u>									
Bt Fwd				57,911	53,422	48,933	44,444	39,955	35,466	30,977	26,488	21,999		
Mth Db			57,911	57,911	57,911	57,911	57,911	57,911	57,911	57,911	57,911	57,911		
Mth Rev				62,400	62,400	62,400	62,400	62,400	62,400	62,000	62,400	62,400		
Nett			57,911	53,422	48,933	44,444	39,955	35,466	30,977	26,488	21,999	17,510	Dr	
Combined	53,594	80,188	137,693	132,798	127,903	123,008	116,613	110,218	108,323	103,428	98,533	93,638	Dr	

.7.

- P.S.
1. These projections assume all stock being sold each month - something which rarely happens!
  2. Other customers seldom pay accounts on time.
  3. Monthly production costs, overdraft charges computed at 2.1% per month. Some loan or relief assistance will be required with the total monthly overdraft for each operation.
  4. No allowance has been made for capital loan service charges against repayments.

O.F.C

OPOTIKI FRUITGROWERS CO-OP. LTD.

P.O. BOX 42 - OPOTIKI

Stoney Creek Rd., Opotiki Telephone 1130 - 1160 Opotiki

25 February 1986

V.R. Wood Ltd  
11 Viewmount  
Stoke  
NELSON

ATTENTION: Mr V.R. Wood

Dear Sir,

Thank you for your letter dated 9 February 1986.

In answer to your questions, we would prefer that we only get into the assembly of the trays, as there could be a conflict of labour requirements during the packing season. For this reason, we would be more than willing to look at selling the re-saw equipment to you, providing we could ensure ourselves of a supply of product.

Point 2. This would always be tied to market forces which is normal practice.

Points 3. & 4. I believe that the wooden tray in its present form with a reduced single bottom, i.e. 98mm will be in use for the foreseeable future.

Point 5. We are currently paying 16.25 cents per end and 8.0 cents per side.

The specification on timber is set by the Kiwifruit Authority of which a copy is enclosed.

Please do not hesitate to contact me if I can be of further help.

Yours faithfully,

*Ronald G Wells*

R.G. Wells  
GENERAL MANAGER

10A/19/11

Tasman Forestry  
Limited

Ngahere House  
Private Bag, Rotorua, New Zealand,  
Vaughan Road, Rotorua  
Telephone (073) 474-899

25 February 1986

Ref: S10-0001

V.R. Wood Ltd  
11 Viewmount  
Stoke  
NELSON

Attention: Mr V.R. Wood

Dear Sir

Re: Whakatohea Trust Log Supplies

Thank you for your letter of 11th February 1986.

Our forest management staff have now had the opportunity to consider your enquiry on behalf of Whakatohea Trust and I can advise as follows.

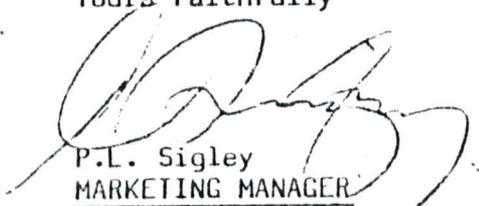
The only material we have that is likely to be of interest to you is in our Waikerea Forest which is 6km from Opotiki. This forest includes 125ha of unpruned 1971, 72 and 73 stands. The areas were thinned to a nominal 400 s.p.h. in 1982 although some areas are probably at 500 s.p.h. Tree form is good and an extraction thinning to 300 s.p.h. in the next year or two is planned. The total yield is expected to be 5 000 - 10 000 m<sup>3</sup>.

I imagine this material is ideally suited to Whakatohea and you may be interested in inspecting it.

The major drawback is that the country the trees are on consists of short steep slopes and cable extraction will be essential. Tasman Forestry does not have a suitable crew available and this would have to be provided by Whakatohea.

Should the above be of interest to you, would you kindly contact me at your convenience.

Yours faithfully

  
P.L. Sigley  
MARKETING MANAGER

Pub. 1985

Memo:  
Neville.

ISSN 0110-1765



We assume the well presented Fisheries Research papers are not just academic exercises, for their own credit, but are to be regarded as basis for "regional development and Maori enterprise" (to quote their own reports).

The potential mussel farmers all have a copy of this. After all, it was the Maungaroa Trust which gave them the opportunity to do this preliminary research and now the Trust has to proceed on trials.

*Thomas*

A manual  
in semi-ex  
with a report  
at Te Kaha, e  
New Zealand,

by  
T. G. Johns  
and  
R. W. Hickman



Pub. 1985

ISSN 0110-1765



# A manual for mussel farming in semi-exposed coastal waters,

with a report on the mussel research  
at Te Kaha, **eastern Bay of Plenty,**  
New Zealand, 1977-82

by  
T. G. Johns  
and  
R. W. Hickman

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## Abstract

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## Abstract

Johns, T. G., and Hickman, R. W. 1985: A manual for mussel farming in semi-exposed coastal waters; with a report on the mussel research at Te Kaha, eastern Bay of Plenty, New Zealand, 1977-82. *Fisheries Research Division Occasional Publication, N.Z. Ministry of Agriculture and Fisheries, No. 50.* 28 p.

The feasibility of farming green-lipped mussels, *Perna canaliculus*, in the semi-exposed conditions of an open coastline was investigated. Mussel farming equipment and mooring systems suited to the conditions were developed and evaluated during the 5-year investigation. Aspects of mussel biology (particularly settlement, growth, and condition index) relevant to open coast farming were also studied. Procedures for establishing and operating a farm in a semi-exposed site are described. These include site and equipment selection and farming practices from settlement to harvesting. The biology of mussels grown under the experimental farming conditions in the eastern Bay of Plenty is described and discussed. A low profile mini-longline with a maximum loading capacity of 9 t of mussels is recommended as most appropriate for semi-exposed sites. Spatfall monitoring over several years identified potential spat catching areas and enabled commercial quantities of spat to be caught and on-grown to marketable size (59- to 109-mm shell length) in 12-22 months. The condition of the mussels was high for at least 5 months of the year.

## Introduction

An abundance of sheltered coastal water was probably the single most important factor favouring the development of mussel farming in the Marlborough Sounds. However, conflict over the many alternative uses to which such waters can be put was a significant factor in the initially slow expansion of the industry.

Intense interest in mussel farming during the late 1970s, and an increasing awareness that limitations would need to be put on the spread of mussel farms in the Sounds, stimulated discussion of the suitability of other, less sheltered, waters for mussel farming. In response to the widespread interest and the mounting pressures on the most sheltered stretches of coastal water around New Zealand, the Ministry of Agriculture and Fisheries (MAF) initiated a programme to investigate the possibility of farming green-lipped mussels (*Perna canaliculus*) in semi-exposed situations, on an open coastline, in an area free from competition with blue mussels (*Mytilus edulis aoteanus*). The Te Kaha Aquaculture Station provided the base for this research, which was started by Fisheries Management Division in early 1977 and continued by Fisheries Research Division from February 1978 to May 1982.

This manual details the methods and equipment developed during the programme. It outlines the operations and techniques of mussel farming in

semi-exposed conditions and describes the development of a commercial mussel farming operation from site selection to harvesting. It provides guide-lines for establishing and operating a mussel farm in exposed conditions, and it should be used in conjunction with the standard text on New Zealand mussel farming, "Mussel Cultivation in the Marlborough Sounds (New Zealand)" (Jenkins 1979)\*. Other published information is documented in Hickman (1983) and can also be found in New Zealand journals such as *Catch* (and its quarterly supplement *Shellfisheries Newsletter*), *Commercial Fishing*, and the *N.Z. Fishing Industry Board Bulletin*.

The report on the research at Te Kaha describes and discusses the results of the mussel farming experiments during 1977-82. Although these results are specific to the eastern Bay of Plenty study area, they are included in the manual because they are indicative of the results likely to be obtained at semi-exposed mussel farming sites throughout New Zealand, and they are the basis for the guide-lines and recommendations given in the manual.

\* This publication is being revised and a second edition is expected in 1986. Throughout this manual, references are made to specific sections of Jenkins (1979), and these may differ in the revised edition.

# Mussel farming in semi-exposed coastal waters

## Site selection

Careful site selection is essential for any mussel farm, but perhaps more so in exposed coastal areas. It is important to know the typical weather patterns and normal sea conditions and be aware of the extremes which may be experienced.

The following criteria should be considered, and the potential site should be examined under as wide a range of environmental conditions as possible.

- Shelter.** Some shelter from the prevailing wind is essential to permit the equipment to be maintained on site and the site to be worked as often as possible.
- Sea conditions.** Maximum wave height and prevailing direction will determine the type of equipment and its size and construction.
- Current.** A minimum requirement of, for example, 0.1 knots (kn) (0.05 m/s) movement at some stage of the tide is unlikely to be a problem in exposed situations, but too great a flow, for example, over 1 kn, will necessitate heavier mooring systems and could lead to problems in farm management practices.
- Water depth.** A minimum of 6 m at low water spring tides is necessary to provide clearance between the ropes and the sea bed for the standard 5-m culture ropes; in depths over 20–25 m establishment costs will be increased because longer anchor lines and possibly heavier mooring blocks will be needed.
- Bottom type.** The composition of the sea bed — whether it is mud, sand, gravel, or rock — will determine the type of mooring block or anchor required.
- Access.** Ease of access to the site and the distance over which servicing and harvesting vessels must travel are significant factors in the amount of productive time which can be spent at the farm and the overall economics of the operation.

## Application procedure

Marine farming is regulated under the Marine Farming Act 1971 and its 1975, 1976, and 1977 amendments. The Act is administered by Fisheries Management Division, but the granting of a lease or licence requires the concurrence of the Ministry of Transport (MOT). Applications for marine farming leases or licences are handled at the regional level. The initial approach should be made to the appropriate MAF regional office, which can supply general information and the application form (Anon. 1981a, 1981b). Prospective mussel farmers should be fully conversant with the Act and these procedures before starting an application.

## Equipment

During the research at Te Kaha several systems and items of equipment were developed and evaluated in an attempt to design a suspension structure and anchorage system suited to the exposed situation and able to withstand the adverse wind and sea conditions.

Initial attempts with a longline system composed of the large (250 kg displacement) floats used on Marlborough Sounds mussel farms were unsuccessful. The substantial resistance offered by the large area of buoy exposed to the wind made the unit (of nine buoys) highly vulnerable, and it was driven ashore in a westerly gale after only 2 weeks in the water. Subsequent structures were designed with a low profile and a single mooring, so that they offered minimal wind resistance and allowed the structure to adjust to prevailing weather and sea conditions.

A prototype raft measuring 3 × 2 m was built from tanalised timber with polystyrene floatation and anchored, by a single mooring to a concrete-filled tyre, about 300 m off the Te Kaha shoreline in August 1977. This raft remained on site until March 1978, when its centre span broke. It had survived several periods of bad weather and proved in principle the suitability of the low profile design. Three rafts were subsequently built to the same basic design, but they varied from 5 × 2.5 m to 7.5 × 3 m.

In September 1980 the buoyed line suspension system was evaluated further by the deployment of a mini-longline composed of a series of small floats supporting a single headline to which could be attached the mussel culture ropes or droppers. The performance of this unit, and similar mini-longlines subsequently deployed, was recorded up to the end of the project in May 1982.

## Rafts

The 1977 prototype raft at Te Kaha provided the basic design for a standard low profile unit suitable for semi-exposed sites. The standard design is composed of a 5 × 3-m rectangular framework built from 100 × 50-mm tanalised timber supported by four 5-m lengths of 300 × 175-mm polystyrene (Fig. 1). The polystyrene is supported and protected by 25-mm-thick planks top and bottom, and the whole raft is fastened together with galvanised bolts. The centre span is 6.5 m × 200 × 150 mm and projects forward from the framework and provides the attachment point for the mooring. Material and construction details for the standard raft are shown in Fig. 2, and a costing for the unit is given in Table 1. The framework and floatation units were assembled separately. The frame was then attached to the centre span, and the floatation units were

bolted to the framework. The whole structure can be assembled by two persons in 1 day. The loading capacity of the raft was calculated from the displacement provided by the four polystyrene floatation units and by using an average value for the weight of a rope of mature mussels which was derived from mussel farming observations in the Marlborough Sounds (see Jenkins 1979, pages 51–52) (Table 2).

## Mini-longlines

**30-m unit.** The first mini-longline established at Te Kaha, in September 1980, consisted of a 30-m length of 16-mm-diameter headline, supported at 0.5-m intervals by 60 small (200 mm diameter) polystyrene floats threaded on to the line (Fig. 3a). At the usual spacing of 0.5 m for the culture ropes the unit would be able to carry 60 ropes. Further floatation would need to be added as the size and weight of the mussels increased. Although the polystyrene floats have a low capital cost, they also have a limited life, because the headline tends to chafe through the polystyrene as the increasing weight of the mussels drags it down. The chafing can be reduced by inserting a length of plastic hose pipe through the hole in the float before it is threaded on to the headline. These floats were subsequently discarded in favour of more costly, but more durable, inflatable plastic buoys (Fig. 3b).

**40-m unit.** Most of the mini-longlines used during the Te Kaha experiments consisted of a 40-m-long headline of 16-mm-diameter carbon black polypropylene rope, with a galvanised thimble spliced into each end, supported by 30 small (13 kg displacement) inflatable plastic buoys spaced at 1.35-m intervals. The 40-m units were aligned into the prevailing wave direction and anchored at either end to 220-kg concrete mooring blocks by 24-mm-diameter polypropylene rope (length three times the depth) and 5 m of 20- or 24-mm black chain. Twin anchor lines to separate mooring blocks may be required for the forward mooring in more exposed situations.

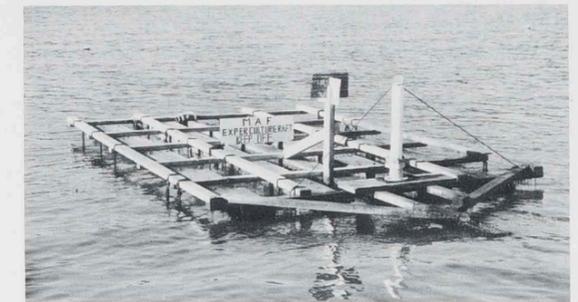


Fig. 1: The standard 5 × 3-m mussel raft.

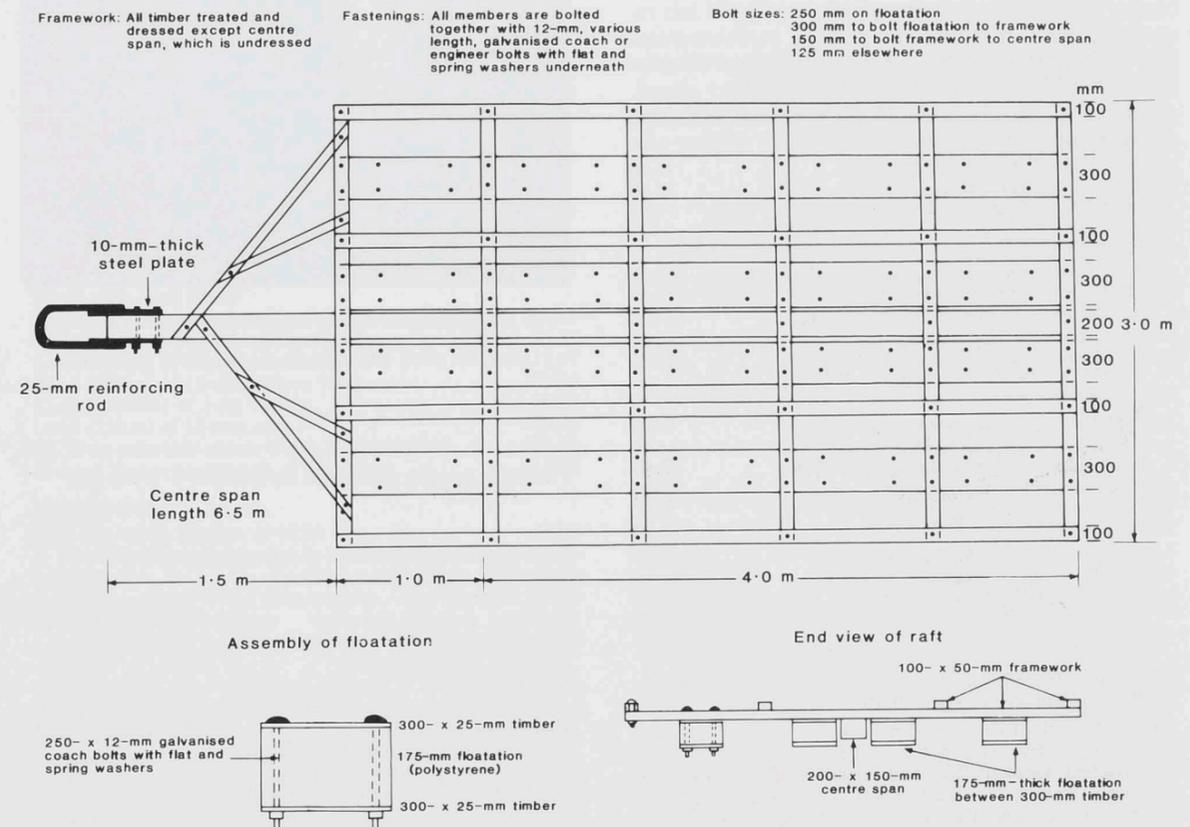


Fig. 2: Construction details for the standard 5 × 3-m raft.

The 40-m longline is theoretically capable of carrying 80 culture ropes at the usual 0.5-m spacing. Additional floatation to support the weight of the mature mussels is supplied in the form of large (55 kg displacement) inflatable plastic buoys, which are lashed with 10-mm rope to the headline between the smaller floats. These buoys are added gradually as the weight of the crop increases. In practice the spacing between culture ropes should be increased to 0.75 m to prevent any possibility of the ropes tangling under the more turbulent conditions of these semi-exposed experimental farming sites. At this spacing the 40-m unit can carry up to 53 culture ropes.

**60-m unit.** Near the end of the project the 40-m mini-longline was superseded by a 60-m unit with only the large, 55-kg-displacement floats, rather than a combination of smaller and larger floats. It had been found that by the time the 40-m unit was carrying about 75% of its optimum crop weight the smaller (13 kg) floats were totally submerged. For the 60-m unit the headline diameter was increased from 16 to 24 mm; thus the same thickness of rope was used for both the headline and the anchor lines. This longer line, with its larger floats, performed satisfactorily under load in various weather and sea conditions with single fluke, pick-type anchors fore and aft.

TABLE 1: Materials and costs (as at May 1983) for construction of the standard 5- x 3-m raft for mussel culture

	Cost (\$)
<b>Timber*</b>	
40 m of 300 x 25 mm @ \$2.89/m	115.60
50 m of 100 x 50 mm @ \$1.72/m	86.00
6.5 m of 200 x 150 mm @ \$11.94/m	77.61
<b>Rope and chain†</b>	
72 m of 24-mm polypropylene anchor line @ \$1.48/m	106.56
1 coil (220 m) of Christmas tree rope	114.97
1 coil (220 m) of 12-mm carbon black rope	107.20
1 coil (1 000 m) of 3-ply lashing	60.00
10 m of 20-mm black chain @ \$31.20/m	312.00
<b>Miscellaneous</b>	
20 m of 300- x 175-mm polystyrene	70.00
8, 24-mm black shackles @ \$8.00 each	64.00
6, 24-mm galvanised thimbles @ \$7.00 each	42.00
Bolts (galvanised) of various sizes	250.00
Brackets for anchor attachment	20.00
Flashing light	60.00
2, 500-kg mooring blocks (home-made)	100.00
50 weights for culture ropes	15.00
1 box (1 000 m) of reseeding stocking	60.00
	1,660.94

\* Tanalised, dressed timber is used throughout, except for the 200- x 150-mm centre span, which is rough sawn.

† A water depth of 8 m is assumed; so 24-m anchor lines and 6 m of chain forward and 4 m of chain aft are needed. Twin anchor lines forward attach to a single 500-kg mooring block; the single anchor line aft attaches to a 500-kg mooring block. Christmas tree rope is used for spat catching, 12-mm carbon black rope for reseeding, and 3-ply lashing for attaching the culture ropes to the raft.

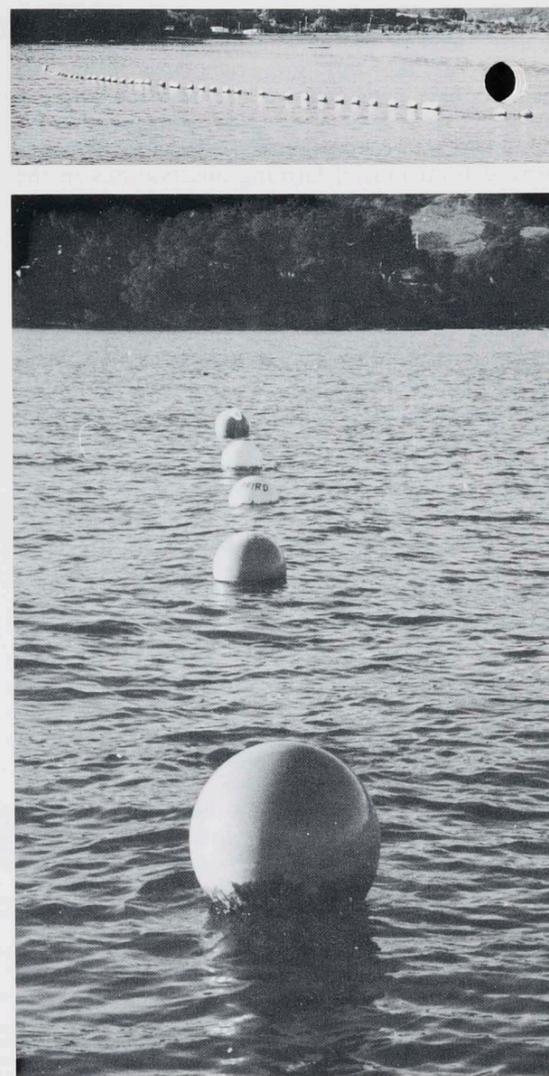


Fig. 3: Experimental mussel longlines; (a) a prototype mini-longline using polystyrene for floatation, (b) a mini-longline using inflatable plastic buoys for floatation.

TABLE 2: Loading capacity of the standard 5- x 3-m raft

	Capacity (kg)
Total displacement from 4, 5-m polystyrene floats (each 5.0 x 0.3 x 0.175 m)	1 765
Total weight of raft	550
Therefore, available floatation	1 215
20% margin for safety	243
Therefore, usable floatation	972
Average weight of a 5-m-long culture rope of mature (100 mm) mussels at optimum density (300/m)	
} in air 112.5*	
} in water 28.0*	
Therefore, carrying capacity of raft is $972 \div 28 = 34.7$ ; i.e., 35 ropes	
Therefore, production capacity of raft (35 x 112.5)	3 937.5

\* Derived from Jenkins (1979).

Materials and design details for the standard 60-m mini-longline are shown in Fig. 4. The loading capacity of the unit, based on the same mussel data used for the standard raft loading estimate, is given in Table 3, and a costing is outlined in Table 4. This information, with appropriate adjustments for numbers of culture ropes and numbers of floats, can be used to determine the loading capacity and costs for the smaller, 40-m units.

The 60-m mini-longline gives a 33% increase in optimum crop loading over the 40-m unit.

The mini-longline design (up to 110 m long) is accepted by the MOT as a suitable structure for mussel farming in the eastern Bay of Plenty. However, for any unit over 60 m long, or for 40-m units in more exposed sites, it may be necessary to use heavier mooring blocks and at least 24-mm chain.

TABLE 3: Loading capacity of the standard 60-m mini-longline

	Capacity (kg)
The 60-m unit can carry 80 culture ropes (at 0.75-m spacing)	
Average weight of a 5-m-long culture rope of mature (100 mm) mussels at optimum density (300/m)	
} in air 112.5*	
} in water 28.0*	
Therefore, weight of 80, 5-m culture ropes	9 000
Therefore, floatation required for crop	2 240
20% margin for safety	448
Therefore, total floatation requirement	2 688

50 of the 55-kg displacement floats spaced at 1.2-m intervals along the 60-m headline will provide 2 750 kg of buoyancy; adequate for the optimum crop, with a slightly more than 20% safety margin.

\* Derived from Jenkins (1979).

TABLE 4: Materials and costs (as at May 1983) for construction of the standard 60-m mini-longline for mussel culture

	Cost (\$)
<b>Rope, chain, and floats*</b>	
72 m of 24-mm anchor line @ \$1.48/m	106.56
65 m of 24-mm headline @ \$1.48/m	96.20
1 coil (220 m) of Christmas tree rope	114.97
1 coil (220 m) of 12-mm carbon black rope	107.20
1 coil (1 000 m) of 3-ply lashing	60.00
1 coil (220 m) of 10-mm rope	60.00
50, 55-kg inflatable plastic buoys @ \$33.00 each	1,650.00
10 m of 20-mm black chain @ \$31.20/m	312.00
<b>Miscellaneous</b>	
8, 24-mm black shackles @ \$8.00 each	64.00
8, 24-mm galvanised thimbles @ \$7.00 each	56.00
Light	60.00
2, 500-kg mooring blocks (home-made)	100.00
80 weights for culture ropes	20.00
1 box (1 000 m) of reseeding stocking	60.00
	2,866.93

\* A water depth of 8 m is assumed; so 24-m anchor lines and 6 m of chain forward and 4 m of chain aft are needed. Twin anchor lines forward attach to a single 500-kg mooring block; the single anchor line aft attaches to a 500-kg mooring block. Christmas tree rope is used for spat catching, 12-mm carbon black rope for reseeding, 3-ply lashing for attaching the culture ropes to the headline, and 10-mm rope for attaching the floats to the headline. Culture ropes are spaced at 0.75-m intervals.

## Moorings

Two different types of mooring were used during the project. A 220-kg concrete block was suitable for use on sand or mud bottoms, where it gradually embedded itself into the sea bed until only the anchor chain was visible. A single fluke, pick-type anchor was locally available and was satisfactory for both sand and gravel bottoms. The use of this type of anchor requires that a diver inspect it immediately after it has been laid to ensure that the single fluke is firmly embedded in the substrate.

These two types of mooring were successful for both rafts and longlines. The few failures in the mooring systems which occurred during the research resulted from broken anchor ropes — the moorings remained firmly embedded in the sea bed.

At least 5 m of 20- or 24-mm chain was used for all moorings, though 3 m may be sufficient for the aft mooring of a longline in fairly sheltered situations or if a pair of moorings is used forward. Connections between the headline, anchor lines, and moorings were by galvanised thimbles and 20- or 24-mm shackles; shackle pins were wired to prevent them from working loose.

A 500-kg mooring block suitable for use with a 60-m mini-longline could be made as a scaled-down version of the 2.5-t blocks used in the Marlborough Sounds (Fig. 5). Although this wedge-shaped design is untried in the eastern Bay of Plenty, experience in the Marlborough Sounds suggests that it would have excellent holding capabilities if it was properly aligned and pulled into position, so that it was firmly embedded when initially placed on the sea bed. The design of the block is critical; for example, the pulling eye should be one-third of the distance

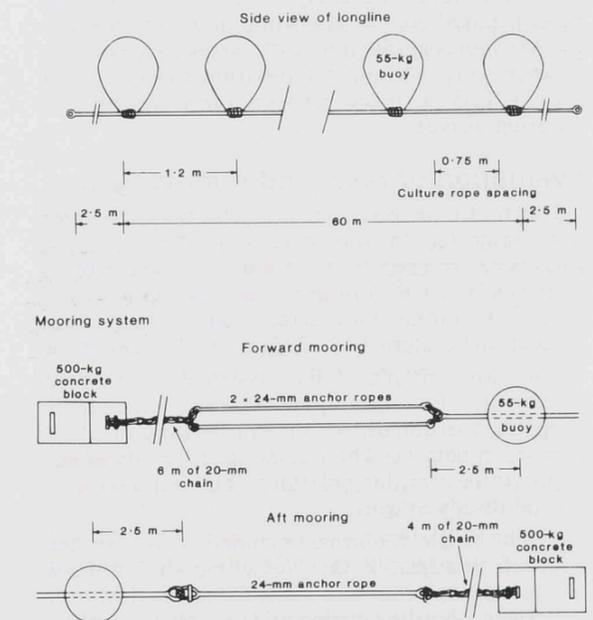


Fig. 4: Construction details for the standard 60-m mini-longline.

from the top surface — if it is too low, the block will lift out, if it is too high, the block will tilt over. The concave bottom helps locate the block's leading edge and provides suction once the block is embedded. The lifting eye must be off-centre towards the rear, so that the block tips forward during placement. Reinforcing rod spikes may be incorporated into the block to enable it to function effectively on hard bottoms.

No precise specifications can be recommended for mooring systems in view of the many variables between potential farming sites. Other types of mooring block may be satisfactory. The prospective farmer must ensure that the mooring system is appropriate to the type of sea bed and the degree of exposure and, most importantly, is capable of holding a fully loaded longline under the most adverse weather conditions that can occur in the area.

As a very rough guide-line, the typical longline mooring block used in the Marlborough Sounds for a 110-m longline is a 2.5-t wedge-shaped concrete block. If a maximum crop loading of 50 t is assumed for the longline, this gives a 20:1 ratio between crop weight and anchor weight. To achieve a similar ratio for the standard raft and mini-longline, based on the production capacities given in Tables 2 and 3, the mooring blocks should be 200 kg and 450 kg respectively. Therefore, twin forward anchor lines to one 500-kg mooring block, as suggested for the standard mini-longline, should provide sufficient anchorage, with an adequate safety margin, for the maximum crop. Twin anchor lines to a pair of 220-kg mooring blocks would barely meet the 20:1 crop to mooring ratio, whereas a pair of 500-kg moorings forward should provide a substantial safety margin, even under the most exposed conditions. Some mussel farmers in the Marlborough Sounds, with farms in areas with stronger currents, use 4-t mooring blocks, which give a 12.5:1 ratio between crop weight and mooring weight.

### Evaluation of rafts and mini-longlines

During the project the rafts and mini-longlines were subjected to very diverse weather and sea conditions, ranging from periods of extreme calm to swells of up to 5 m and winds of up to 50 kn (recorded during the passage of cyclone Sina through the eastern Bay of Plenty in March 1980).

The low profile rafts designed and built specifically for this project were acceptable supporting structures for mussel farming in semi-exposed situations. These rafts have the advantage of providing a working platform, but they also have several disadvantages:

1. The single mooring, intended to permit the raft to adjust to the prevailing wind and sea conditions, may also allow the raft to drift over the anchor line during calm weather and slack water, with the consequent tangling of the culture ropes around the anchor line. This can

be resolved by providing a second (aft) mooring to angle the raft permanently into the prevailing wind and sea conditions.

2. Even with the low profile system the violent movement of the raft during adverse conditions can severely strain the forward anchor line, cause significant wear on the shackles and thimbles, and chafe the ropes.
3. Over an extended period the unprotected polystyrene tends to become waterlogged, which reduces its buoyancy. In addition, the 300- x 25-mm tanalised timber supporting the floats is prone to attack and destruction by wood-boring shipworms (*Bankia* and *Lyrodus* species). During the 3 years one of the rafts spent in the water at Te Kaha, shipworms virtually hollowed out the 300- x 25-mm timber, though the framework of the raft itself was mostly untouched.

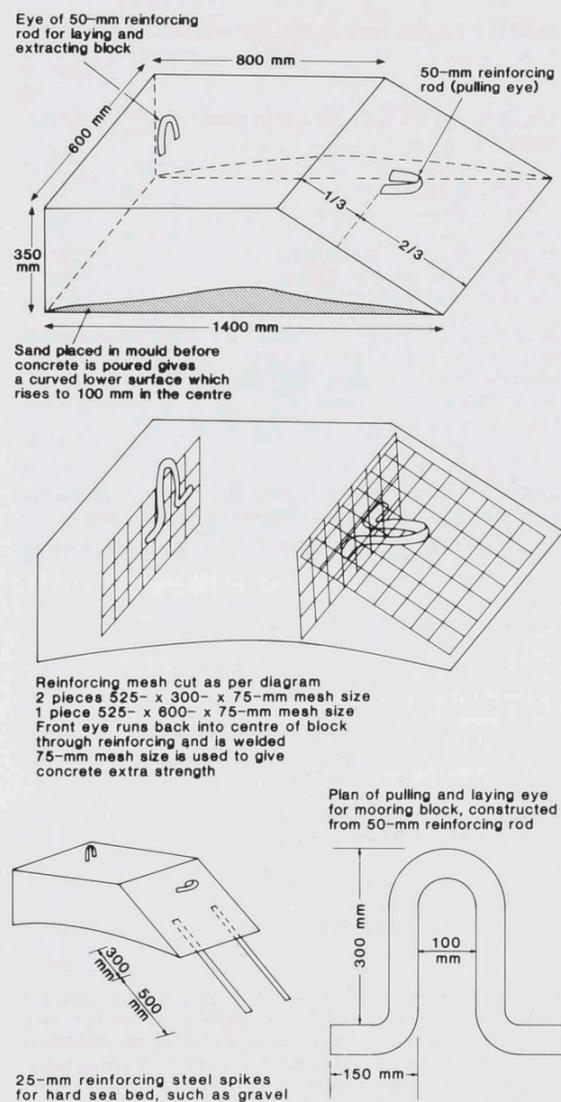


Fig. 5: Construction details for a 500-kg mooring block. (Drawn from data supplied by J. L. Meredith-Young.)

The mini-longline system evolved during the project was highly suitable for the conditions. The system has several advantages over rafts:

1. The low profile streamlined system presents minimal resistance to weather and sea, particularly when oriented into the prevailing conditions. The much smoother movement of the longline as it rides the waves places much less strain, and causes much less wear, on anchor lines, shackles, and thimbles.
2. The longline unit is much lighter, more easily transported, and much easier to construct and set up than the raft unit.
3. Whereas the total quantity of buoyancy has to be provided for the raft during construction, it can be added gradually to the longline to maintain minimum floatation, consistent with crop weight and safety, throughout the growing period. This permits more economic and versatile use of available floatation.
4. Virtually all the floatation provided in the mini-longline system is available to support the crop, whereas a significant proportion of the buoyancy of the raft (about 30% for the standard 5- x 3-m raft) is required to support the raft structure itself.
5. With the experience of the longlines in the Marlborough Sounds, the MOT accepts the longline design as an appropriate mussel farming structure, up to a maximum length of 110 m. Ministry of Transport acceptance of a raft design requires that it be drawn up and certified by a qualified structural engineer, which can be time consuming and expensive.

From the results of the Bay of Plenty experiments the mini-longline system is recommended as a more appropriate mussel farming structure in exposed conditions. The 60-m mini-longline is considered to be a suitable size unit for initial mussel farming attempts in terms of costs, carrying capacity, and ease of operation.

Substantial improvisation is possible, particularly in the type and arrangement of the buoyancy. This allows the individual farmer to optimise his production and to use the best farm management practices. However, it is considered that the specifications provided here for construction of mini-longlines, rafts, and moorings are the minimum consistent with safe operation under semi-exposed conditions.

### Other equipment

**Culture ropes.** Several types of culture ropes are readily available for catching and on-growing mussels. The so-called Christmas tree rope (Fig. 6) has particularly good catching and retaining characteristics for mussel spat. This rope, which is three-strand, 12-mm-diameter, carbon black polypropylene, has one of the three lays covered in fibrillated sacking offcuts, which effectively increases the diameter of the rope several times when it is

immersed in water. It is used extensively by mussel farmers in the Marlborough Sounds. Culture rope length is best determined by the farmer after various lengths have been evaluated at the farm site. The preferred length on most farms in the Marlborough Sounds is 5 m, but longer or shorter ropes may be appropriate to particular farm sites.

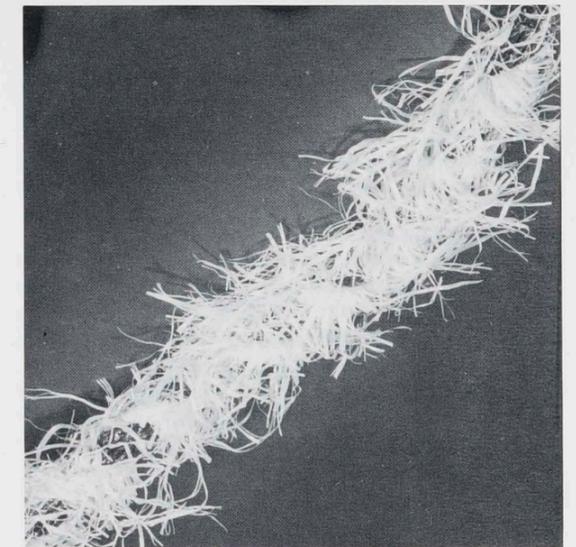


Fig. 6: Christmas tree rope.

**Weights.** Weights must be attached to the lower ends of all culture ropes when they are initially set out on the longline or raft. The weights keep the ropes suspended vertically in the water column, which prevents tangling of the ropes and chafing of the young mussels. This is particularly important in the turbulent water conditions of more exposed sites. The weights may be removed once the mussels have attained sufficient weight (after about 9 months).

Weights can be conveniently and cheaply made from concrete-filled 600-ml cardboard milkshake cups, into each of which is inserted a short length of wire or rope to attach the weight to the culture rope. Galvanised wire has only a short lifespan once the galvanising is cracked, which happens as soon as the wire is bent. The use of stainless steel wire or rope offcuts makes the weights much more durable.

**Marine farm lights.** Ministry of Transport regulations (Anon. 1980) require that all marine farms exhibit a quick-flashing yellow or white light, visible all round the horizon at a range of not less than 800 m (Anon. 1981). The mussel farmer will be informed by the MOT of the number of lights required on his site.

Several commercially made lights are available, but a farmer could easily build his own after buying only the flashing unit. Specifications and

construction details for the type of flashing light used during the Te Kaha experiments are shown in Fig. 7.

**Mussel stocking.** To enable mussels to be re-attached to ropes after they have been stripped off for thinning (see page 15), a mesh stocking has been developed. The knitted, cotton-mesh tube is made in New Zealand and is supplied in various diameters from 50 to 100 mm (Fig. 8). It is designed to rot away in sea water, so that the mussels attach to a rope inserted down the centre of the stocking. The life of the stocking can be extended by including polyester in the knit with the cotton. In addition, a fully synthetic stocking has been made from the black polypropylene used for mussel ropes, and it can be used for seed mussels without a culture rope.

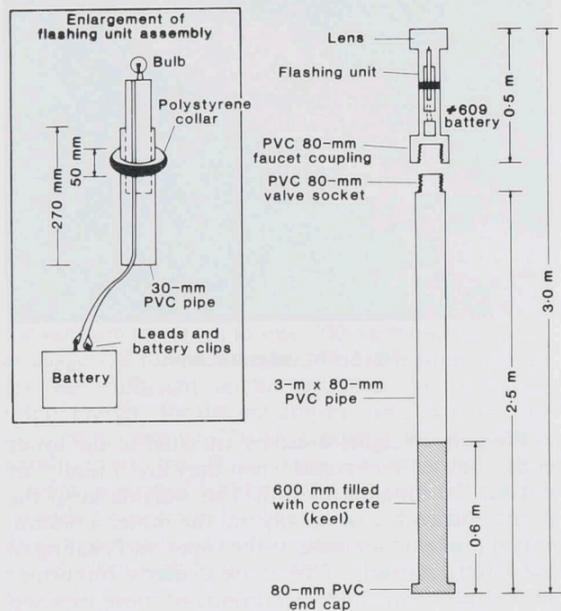


Fig. 7: Construction details for a mussel farm light.

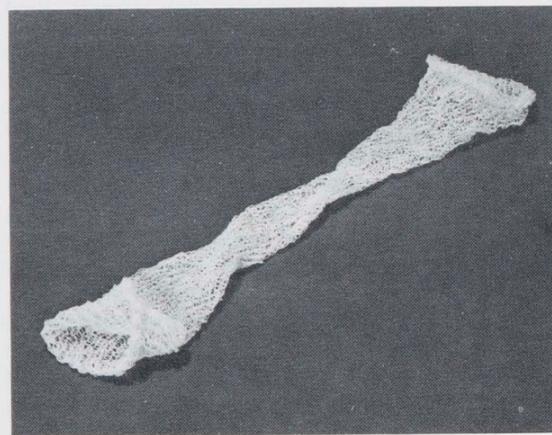


Fig. 8: Cotton mesh reseeding stocking.

**Service vessels.** Two vessels were used extensively at Te Kaha during the project — a 4.0-m aluminium dinghy and a 6.7-m aluminium jet boat. Both were satisfactory, though the dinghy could be used only in calm conditions. There are no precise rules for service vessel design and individual farmers will have different requirements. Many different vessels have been used in the Marlborough Sounds mussel farming industry (see Jenkins 1979), and, recently, vessels have been designed and custom-built for mussel farming (Fig. 9). The mussel farmer will need to consider safety and weather and sea conditions, as well as the sort of mussel farming work involved at these semi-exposed sites, before making any decision about the type of vessel required.



Fig. 9: Aluminium, catamaran-style vessel, custom-designed for mussel farm operations in the Marlborough Sounds.

### Farm establishment

In semi-exposed areas sites for mussel farming should be as sheltered as possible from the prevailing weather. Several sites in the eastern Bay of Plenty were investigated during this project before those considered to best meet this criterion were determined. Local knowledge is invaluable for this preliminary evaluation.

The procedure for applying for a marine farming lease or licence is clearly explained in the MAF leaflets *Fishdex No. 10* and *Fishdex No. 12* (Anon. 1981a, Anon. 1981b), which outline the MAF and MOT requirements.

There are no established rules or recommendations for mussel farm layout in exposed situations. The typical arrangement for Marlborough Sounds farms — a 3-ha (150 x 200 m) rectangular site with up to twelve 110-m longlines oriented parallel to the shoreline — may not be the most appropriate layout for more exposed sites.

**Orientation of the marine farming structures into the prevailing sea and weather conditions is advisable, and an initially cautious approach in respect to size and spacing of the structures is strongly recommended.**

From the results of the Te Kaha project, farm sites of 3–6 ha seem appropriate to semi-exposed conditions. A possible site layout for the Te Kaha study area (Fig. 10), based on the use of up to 10, 60-m mini-longlines per site, is given as an example for semi-exposed situations. The 15- to 20-m spacing between lines will allow ample room for service vessels and for lateral movement of the lines during rough weather. This layout provides for eight separate licensed areas varying in size from 3.3 to 4.8 ha, with one site reserved for communal spat catching longlines. The detailed arrangement of a farm in a semi-exposed situation must be site specific and will be determined through consultation between the farmer and the controlling authorities (MAF and MOT) after consideration of the site selection criteria.

### Farm operation

There are three phases in the mussel farming operation: firstly, the farm must be supplied with spat or seed to stock the culture ropes; secondly, the mussels must be grown to a size suitable for marketing; and thirdly, the crop must be harvested.

### Settlement monitoring

Mussel larvae are commonly found in the plankton of most coastal waters for most of the year, and there is probably some settlement throughout the year. However, there are seasonal peaks of settlement which vary annually and locally. If a farmer can both catch and grow his mussels in his licensed area, his seed supply operation will be much simplified.

Settlement monitoring is essential for the commercial spat catching operation in the Marlborough Sounds, and MAF publishes a weekly "Mussel Spatfall Bulletin". Settlement patterns in exposed farming sites must also be known if local spat supply is to be used.

The technique for settlement monitoring by use of plastic tubing I-frames (Fig. 11), which hold one or more lengths of catching material and are usually immersed for 7 days, and the examination and counting of the settled spat has been described (see Jenkins 1979, page 21). However, Jenkins described the use of strands of coir as the monitoring material, whereas Christmas tree rope is now used because

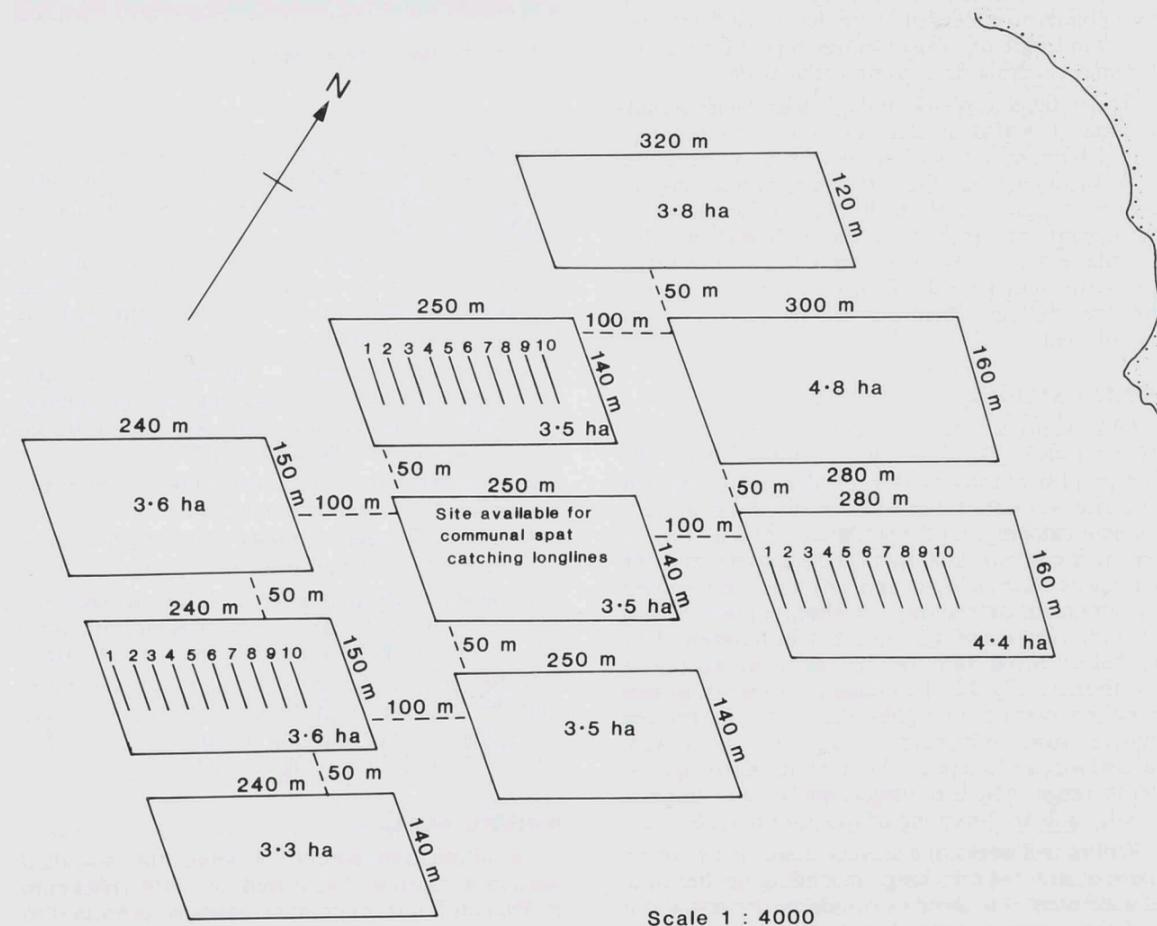


Fig. 10: An example of a possible commercial farm site layout for the Te Kaha study area.



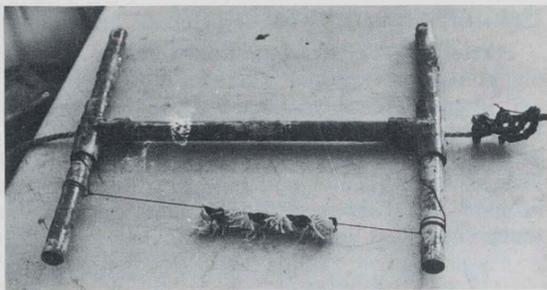


Fig. 11: Plastic tubing I-frame spat collector, with a 200-mm length of Christmas tree rope as a settlement monitor.

it has become the standard commercial spat catching material for the Marlborough Sounds mussel industry. I-frames should be suspended at various depths to determine the optimum spat catching depth. By immersing several lengths of Christmas tree rope on a single I-frame, and by subsequently examining them at varying time intervals, an assessment of survival and initial growth of the spat can also be made.

Experience in the Marlborough Sounds suggests that counts in excess of 80 settled mussel spat per 200-mm length of Christmas tree rope are necessary for spat catching on a commercial scale.

The settlement period in the Marlborough Sounds is long; it begins in October and continues until about June, usually with a major peak towards the end. In other areas the settlement period may be longer or shorter, and in the Bay of Plenty, major settlements occurred from May to September, but in different months in different years. Therefore, the settlement period will need to be determined over several years before a reliable pattern can be established.

### Spat catching

Observations over many years in the Marlborough Sounds have shown that the topography, hydrology, and local weather patterns of a site will determine whether it will be suitable for spat catching. As the settlement period may be only a few weeks long, spat catching ropes must be set out as soon as high counts of spat are recorded by settlement monitoring. Catching ropes 5 m long are doubled up and tied together in bundles of 5–10 before being hung in the water on a suitable length trace (Fig. 12). Doubling the ropes facilitates handling, permits a weight (needed to sink the very buoyant rope) to be readily attached at the bottom of the loop, and keeps all the rope in a fairly narrow depth range, which is important because there is usually a 2- to 3-m zone of maximum settlement.

Within 6–8 weeks of a successful spat catch, when the spat are 2–4 mm long, depending on the time of settlement, the bundles should be separated out and the ropes re-suspended, still doubled up, but not in bundles, on the raft or longline. At this stage



Fig. 12: Bundles of culture ropes prepared for spat catching.

the ropes can be hung more closely than they would be for the ultimate optimum spacing, particularly if they are heavily settled, because they will require further handling.

Frequent surveillance of the catching ropes is essential, so that the bundles can be separated (and transferred to the farming site if this is remote from the spat catching area) as soon as possible to:

1. minimise problems caused by the spat migrating and concentrating on the outside ropes of the bundles, thus leaving the inside ones with insufficient settlement;
2. minimise the weight and bulk of the ropes when they are being handled;
3. minimise losses of larger spat, which tend to be easily detached from the ropes;
4. permit early diagnosis of failure to secure a successful catch and/or the presence of a non-viable catch, in which the spat fail to grow.

If the catch is unsuccessful, the bundles of ropes must be removed from the site and reconditioned, by drying in air or washing in running fresh water for 2–4 days, before being re-used.

### Kaitaia seed

An alternative source of seed, the so-called Kaitaia seed, was discovered in 1974 (Hickman 1976), and it has become increasingly important to the mussel farming industry. Seaweed, heavily encrusted with minute seed mussels, is gathered

from Ninety Mile Beach, Northland and transferred to the Marlborough Sounds for seeding on to culture ropes. The seaweed strandings occur irregularly, probably because of particular weather conditions (Hickman 1980, 1982a), and this source of seed is therefore unpredictable. However, the ease with which the seaweed can be transported (by air in sealed plastic containers) and the prodigious quantities of seed which are attached to it (sufficient in a single 20-litre bucket to seed out a full 110-m longline) make this material an extremely valuable alternative to *in situ* spat catching.

Although the Kaitaia seed will remain viable out of water for 2–3 days if kept cool and damp, it should be seeded on to culture ropes as soon as possible. Seeding is effected in a similar way to the reseeded of small mussels (see below). The smallest diameter cotton mesh stocking is used and the weed is spread as thinly as possible along the rope, which may be doubled at this stage and subsequently separated out to reduce the seeding density. A synthetic mesh stocking, made from the black polypropylene used to make mussel rope, is also suitable for the initial on-growing of Kaitaia seed. The seaweed is simply fed into the stocking, if necessary with some packing material to reduce the stocking density and prevent the meshes closing up. This stocking provides sufficient support for the mussels up to the reseeded stage without the need for a culture rope.

The seed-encrusted seaweed is gathered, as soon as possible after it has been stranded on Ninety Mile Beach, by several commercial operators. Information on how to obtain this spat is available from the Kaitaia office of Fisheries Management Division.

### Reseeding

The density of settlement of mussels, whether on collectors or on spat catching ropes, will vary between sites, years, different settlement periods in the same year, and even different ropes in a bundle. To overcome this variability and obtain the optimum settlement density on the culture ropes, it will almost invariably be necessary for the farmer to reseed his ropes at some stage in the farming cycle.

Reseeding is done by stripping the small mussels (ideally when they are 15–20 mm long) from the catching ropes and redistributing them at the optimum density of 200–300 mussels per metre on to the 5-m culture ropes. Reseeding stocking is stretched over a 300-mm length of PVC tube, of appropriate diameter, installed in a small table (see Jenkins 1979, Fig. 38). After a knot is tied in the end of the stocking it is pushed down through the plastic tube by means of the doubled-up 5-m culture rope around which it forms a sleeve. At the same time, the small mussels are fed into the tube between the stocking and the rope. The seeding density is determined by initially counting out the optimum number of mussel seed (1000–1500) for

the first rope and by using the appropriate diameter stocking (50, 80, or 100 mm) for the size of mussels being reseeded. The quantity of seed required for subsequent ropes can be estimated by volume. Maintaining tension on the stocking as it is pushed down through the tube will help to give an even distribution of mussels along the rope. The reseeded rope, doubled up and knotted at each end and with a weight attached at its mid point, is hung from the raft or longline by a short expendable length of three-ply polypropylene mussel lashing.

If the small mussels are not thinned and reseeded, but are left to grow in high density, their growth rate is reduced and there is noticeable variation between individuals on the outside and those on the inside of the clumps of mussels.

Reseeded ropes should be checked frequently to see if the mussels have re-attached to the culture rope and to note any fish predation, because the mussels seem to be more prone to predation when they have been disturbed. If predation is occurring, preventive measures (see below) may be necessary.

### Fouling and predation

Fouling of the mussel ropes and of the mussels themselves by competitive organisms is a potential problem at all mussel farming sites. Solitary tunicates (sea squirts), acorn and goose barnacles, and hydroids are the most likely fouling organisms in semi-exposed sites. They will attach and grow readily on any bare rope, on weights, or on the undersides of floats. A well-settled rope of mussels is generally less heavily fouled, possibly because the mussels filter out the settling stages of the fouling organisms, but the longer the mussels remain in the water the greater will be the fouling.

Experience in the Marlborough Sounds suggests that the critical periods for fouling are:

1. between setting out the catching ropes and making a successful catch of spat, when fouling can interfere or prevent mussel settlement;
2. immediately after settlement, when the fouling organisms can compete with the mussel spat for food and/or space (Jenkins 1979).

Fouling has been suggested as a possible cause, either directly or indirectly, of the "off-migration" (detachment from the rope) or mortality of spat that has occurred at certain times in the Marlborough Sounds. Fouling is likely to be site specific and to vary seasonally and perhaps annually. The degree and the likely impact of fouling should be considered during site selection.

Predation on farmed mussels by fish, mainly snapper (*Chrysophrys auratus*), spotty (*Pseudolabrus celidotus*), and leatherjacket (*Parika scaber*), is a significant, but highly variable, problem in the Marlborough Sounds. It is a particular problem on reseeded ropes or recently seeded-out Kaitaia spat. The pattern of predation as observed in the Sounds and in the Bay of Plenty suggests it is related to the degree of handling or manipulation of the

mussel ropes — greater disturbance of the ropes leading to higher levels of predation. It is also seasonal, in relation to the behaviour patterns of the predatory fish.

Fish predation is more prevalent in shallow areas where the mussel ropes are closer to the sea bed. To overcome the problem of predation after reseeding, the reseeded ropes may need to be hung as close to the surface as possible (by looping the ropes) until the mussels have stabilised and become securely attached. Reducing the fish population by netting, potting, or line fishing may be an effective method of minimising predation.

Both fouling and fish predation are probably minimised by maintaining well-stocked growing ropes with a uniform covering of mussels over the entire length of rope, with no bare patches or excessive clumping from incorrect densities.

### Condition

To find a ready market, whether domestic or export, farmed mussels need to be in good condition and an appropriate size for the intended product form — live-in-shell, half-shell, or processed. The condition or "fatness" of a mussel can be judged in various ways. The simplest and least precise method is by visual examination of the flesh. The mussel is in best condition just before spawning, when the mature males are mainly creamy white and mature females are a reddish apricot colour (see Warwick 1984, page 5).

A condition index measurement which is adequate for mussel farming and can be performed simply and rapidly in the field (it requires only a pair of kitchen scales) was defined by Hickman and Illingworth (1980) as:

$$CI_{\text{commercial}} = \frac{\text{wet meat weight}}{\text{whole (live) weight}} \times 100$$

The annual condition index cycle in mussels grown at Te Kaha during April 1981-March 1982,

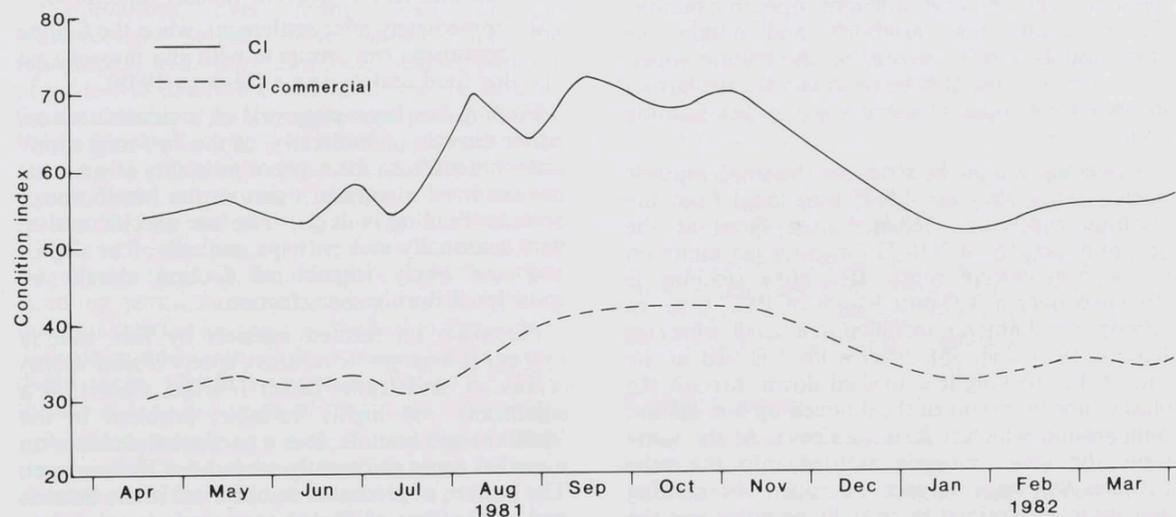


Fig. 13: Condition index cycle of rope-grown mussels at Te Kaha, April 1981-March 1982.

calculated by this method and by the more scientifically precise method of:

$$CI = \frac{\text{wet meat weight}}{\text{whole weight} - \text{shell weight}} \times 100$$

is shown in Fig. 13.

A measure of condition which is particularly applicable to mussels being harvested for processing, as opposed to sale-in-the-shell, is based on the steamed meat weight. It is really a measure of meat recovery, rather than meat condition, and is calculated from:

$$\text{Percent yield} = \frac{\text{steamed meat weight}}{\text{whole (live) weight}} \times 100\%$$

For any of these condition assessments it is necessary to take a representative random sample of no less than 25 mussels, which should be clean and have had any protruding byssus removed before weight measurements are made. Steaming time (standardised at 5 minutes) is critical to the meat recovery, because mussels tend to lose water the longer they are cooked.

Good quality mussels over 80 mm long should have condition indices of over 30  $CI_{\text{commercial}}$  or a meat yield over 30%. Minimum acceptable values for harvesting would be about 22  $CI_{\text{commercial}}$  or a 20% yield.

Mussel condition is closely related to the reproduction cycle. Spawning causes a rapid drop in condition, the meat becoming thin, translucent, and watery. The period of time required for the mussels to recover good condition depends on water temperature and food supply. The condition cycle (Fig. 13) shows that under semi-exposed conditions farmed mussels can maintain good condition for much of the year. The condition cycle may vary from year to year as well as between sites, even those that are close together (Hickman and Illingworth 1980), and it will need to be regularly assessed at each site, particularly before harvesting.

An example of the timing of operations at a semi-exposed site is given in Table 5. The timing is based on the Te Kaha experiments and may vary in other parts of the country.

TABLE 5: Timing of operations for mussel farming at a semi-exposed site\*

Month	Procedure
0	Catch spat or obtain Kaitaia seed
2	Transfer to farm site; separate ropes and hang singly, still doubled up
6-8	Thin and reseed
8-10	Release any doubled up culture ropes; prepare new spat ropes
6-21	Regularly check all lines for growth, fouling, and predation; every 3-4 months check all shackles, thimbles, and lashings for wear and tear
18-21	Assess condition; harvest

\* The timing is based on the Te Kaha experiments and may vary in other parts of the country.

## Harvesting, processing, and marketing

### Harvesting

In the Marlborough Sounds, harvesting is mainly done by several contracting companies using sophisticated machinery capable of harvesting 20-30 t per day.

The small-scale farmer, far from the major mussel farming areas, will need to consider a suitable harvesting vessel. This could be a simple catamaran-style pontoon, 5-6 m long and 3 m wide, with large plastic barrels or drums providing floatation. The wooden working area should have either a lift-out central area or a central well through which the mussel ropes could be lifted. Derricks or a gantry would be required for lifting the heavy culture ropes. The working area should have sufficient room for a simple declumping machine, which can be made from a large metal drum (see Jenkins 1979, Fig. 40). It could be used for stripping, declumping, and washing the mussels. After washing, the mussels would be bagged and stacked at one end of the pontoon or loaded on to the service vessel if its size permitted. The pontoon would need to be of an appropriate size and design to be readily towed to and from the farm site.

High quality is all important for both the local and export markets for green-lipped mussels. Attention to the handling of the product from the moment of harvest is essential to maintain the highest quality. A code of practice which covers harvesting, processing, and storage of the green-lipped mussel has been prepared by the N.Z. Fishing Industry Board (Warwick 1984).

### Processing

The farmer and processor both need to be fully aware of the market requirements, particularly for mussel size. Farmed mussels are currently processed for the local and export markets. Product forms include marinated, smoked, and crumbed mussels, mussel pâté, steamed, frozen, and vacuum-packed mussels in bulk or individually quick-frozen packs, and mussels on the half-shell specifically for the Japanese and United States markets. Mussels are also sold live in New Zealand and are exported live, mainly to the United States. Other product forms have been suggested, and these include mussel burgers, pies, sausages, soups, and chowders.

For the connoisseur, there is an excellent cookery book specifically written about New Zealand green-lipped mussels, "Marvellous Mussels" (LeHeron 1981).

### Marketing

Ever since the rapid expansion in the Marlborough Sounds mussel farming industry from the late 1970s, which saw a ten-fold increase in production between 1977 and 1982, the most persistent problem for the industry has been the development of a co-ordinated marketing strategy (Cameron 1981, 1982; Hickman 1981, 1982b, 1982c).

Marketing and economic analyses of mussel farming, based on surveys of the Marlborough Sounds conditions, have been made by the Economics Division of MAF (Cameron 1981, 1982), the N.Z. Fishing Industry Board (N.Z. Fishing Industry Board 1981), and the Development Finance Corporation (Martin 1981, Penlington 1983).

For the small-scale mussel farming operation likely to be established in a semi-exposed situation, several of the economic parameters may differ from those in the larger Marlborough Sounds industry. At least in the initial stages of development, the production would be aimed at local processing and local market outlets, particularly the live-in-the-shell trade to retail, restaurant, and hotel outlets.

During the farming experiments in the Bay of Plenty there were signs of interest in processing small mussels (50-65 mm) as a specialist product. Mussels of this size could possibly be grown in 9-12 months without needing the time-consuming and labour-intensive reseeding operation. The economics of growing these small mussels, or those of small-scale mussel farming, have yet to be determined. Whether the price the farmer receives — \$500 per tonne (live shell weight) or \$1.80 per kilogram (meat weight) — will provide an adequate return for a small-scale mussel farmer will depend on the labour content of the operation and the availability of local market outlets.

# Mussel research at Te Kaha

## Introduction

The Te Kaha research programme had two main aims:

1. to develop appropriate mussel farming equipment suited to the exposed conditions of the local area;
2. to show if mussel spat could be caught locally and grown to marketable size in an acceptable time.

The programme was also expected to provide information on aspects of the biology of the green-lipped mussel relevant to semi-exposed farming conditions and specific to the lack of competition from blue mussels.

## Study area

Te Kaha is in the eastern Bay of Plenty, about half way between Opotiki, the nearest town, and Cape Runaway (Fig. 14). The work was done over about 20 km of coastline at sites from Whitianga Bay (37° 50' S 177° 36' E) in the south to Maraehako\* (37° 41' S 177° 47' E) in the north.

## Weather and sea conditions

The predominant wind in the eastern Bay of Plenty is the north-westerly; the typical weather pattern changes first to the west and then to the south-west, with a decrease in wind strength. The north-westerlies, being the strongest winds, generate the biggest wave and swell conditions in the coastal waters. There is a prevailing current along the coastline which sets from the north-east to the south-west and flows at 1-1.5 kn (N.Z. Hydrographic Office 1977). Although large swells from the west or south-west are not uncommon, they are less damaging to moored floating structures than the more violent wind and wave action from the north-west.

Extreme wind and sea conditions, generally a result of the occasional cyclone, can produce swells of up to 4-5 m from the north-west or west.

## Rainfall run-off

Only one river flows into any of the experimental mussel farming sites; the Haparapara River at Little Awanui\*. For most of the year the river mouth is closed by a shingle bar through which the river water filters. In winter the mouth is open, but the river flow is not heavy, and in a dry summer, flow can be reduced to a mere trickle. During the 5 years of the project the Little Awanui site was only once affected by flood water, which dispersed within 3 days.

\* These names have not been approved by the N.Z. Geographic Board as at 2 September 1985.

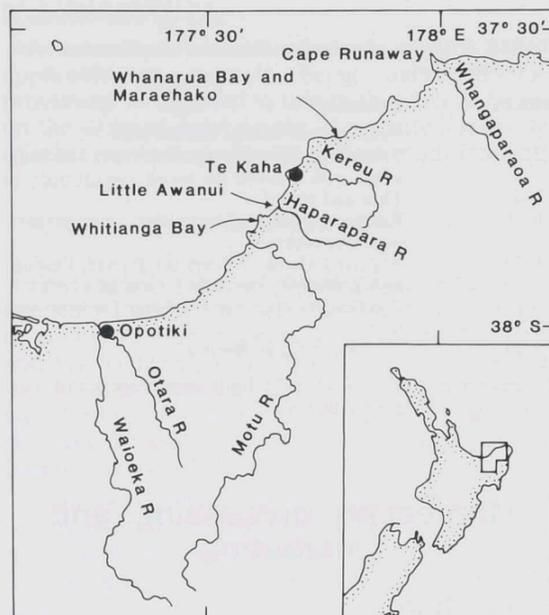


Fig. 14: The eastern Bay of Plenty with places mentioned in the text.

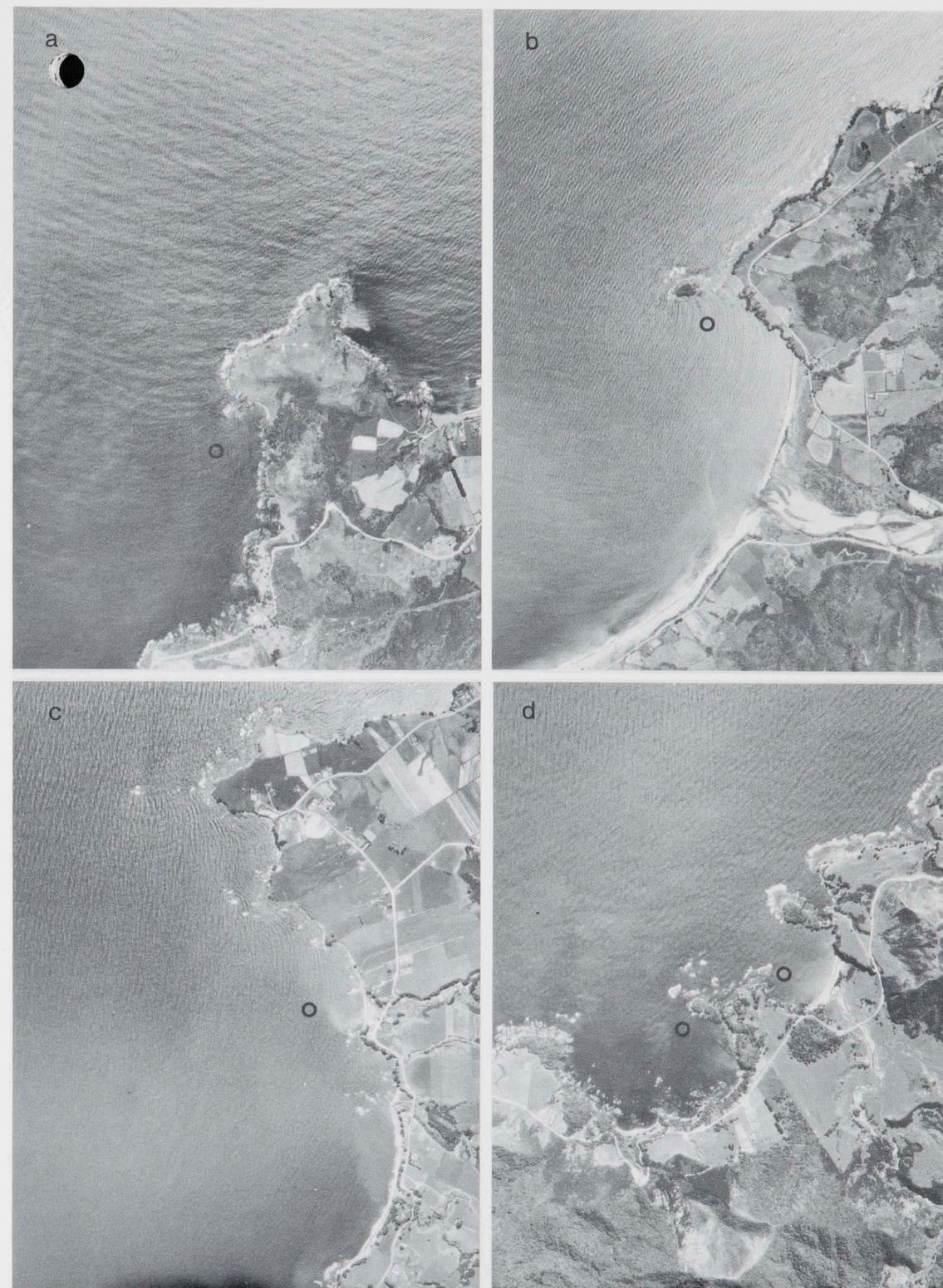
## Experimental sites

Five sites were studied during the programme (Fig. 15). Three of the sites were used for both experimental farming and spatfall monitoring; two were used only for spatfall monitoring.

Whitianga Bay, 10 km south-west of Te Kaha, is sheltered from the prevailing north-west winds, semi-exposed to the west, and fully exposed to the south-west. The 15.6 ha considered suitable for mussel farming are at the northern end of the bay, in water depths of 7-22 m at mean low water (MLW). The sea bed is composed of small rocks. The 40-m experimental longline in this area was oriented into the westerly sea conditions.

Little Awanui, 5 km south-west of Te Kaha, is exposed to the wind and sea from the south and south-west. It is protected from heavy westerly swells by a reef running between Motunui Island and the mainland. In the three potential mussel farming areas, totalling 13.1 ha, water depth is 5-8 m at MLW, and the bottom is sandy. The two 40-m experimental longlines and one raft moored at this site were oriented into the south-westerly sea conditions.

Te Kaha is the most exposed of the experimental sites, being fully open to the west and south-west, though sheltered from the prevailing north-westerlies. Water depth in the 34.0 ha of potential mussel farming area ranges from 7 to 22 m at MLW, and the sea bed is firm sand. Three 40-m



[Department of Lands and Survey photographs.]

Fig. 15: The experimental sites; (a) Whitianga Bay, (b) Little Awanui\*, (c) Te Kaha, (d) Whanarua Bay (left) and Maraehako\* (right). Circles show the location of the experimental equipment. (\*These names have not been approved by the N.Z. Geographic Board as at 2 September 1985.)

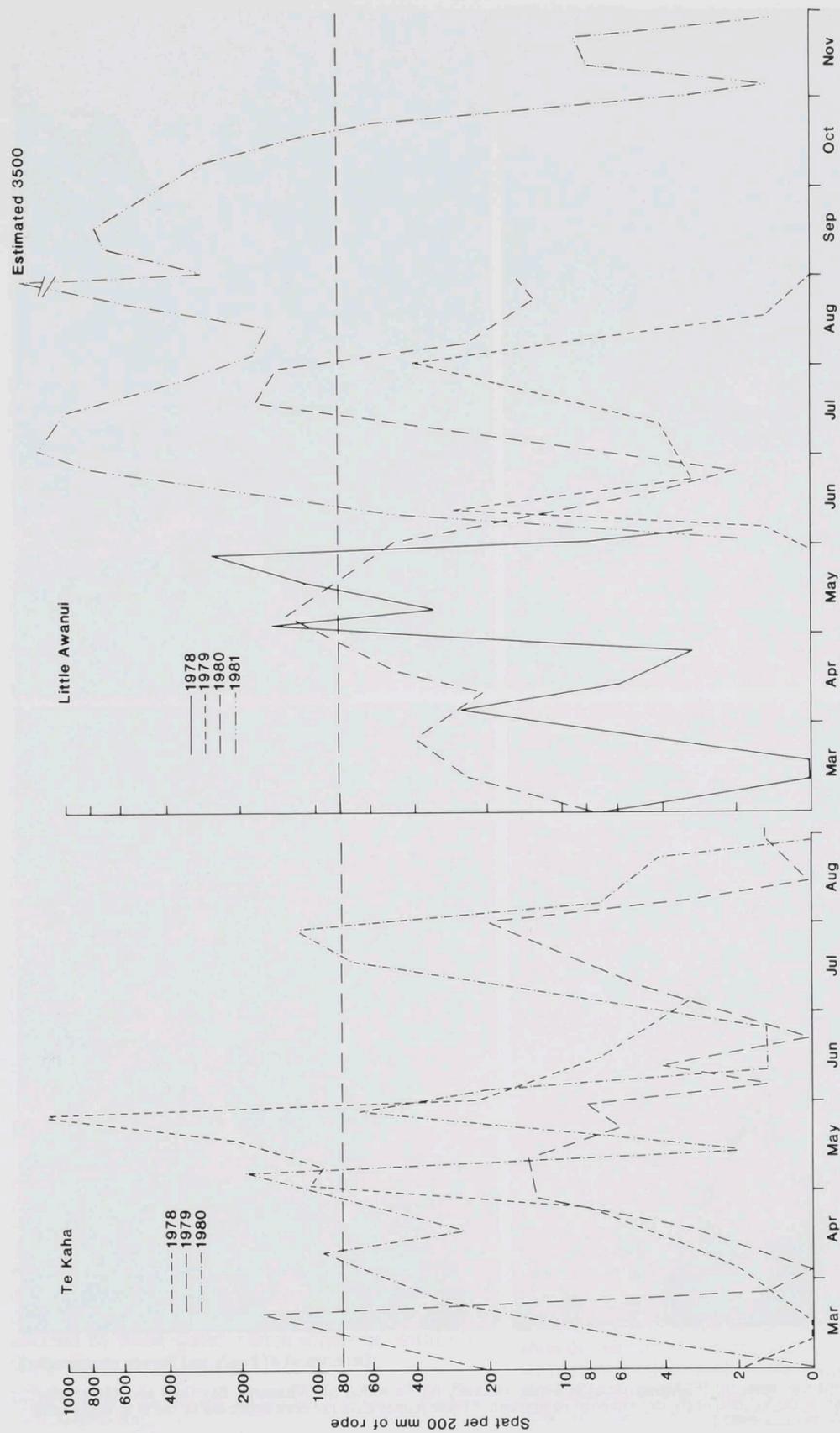


Fig. 16: Spat settlement at (a) Te Kaha and (b) Little Awanui during 1978-81, on Christmas tree monitors at a depth of 2 m.

experimental longlines and two rafts moored at this site were all oriented into the westerly sea conditions.

Whanarua Bay and Maraehako are adjacent bays about 13 km north-east of Te Kaha and were both sites for spatfall monitoring experiments. Whanarua Bay has a small area of 3-4 ha in its north-east corner that is suitable for mussel farming, with water 12 m deep at MLW and a sandy sea bed. Maraehako has a narrow entrance and is shallow (3-4 m at MLW), and this causes large swells to build up during westerlies. These swells can break midway across the bay and thus make the site unsuitable for mooring mussel farming structures.

### Methods

During the first 12 months most effort was put into the development of equipment for research and experimental farming in the semi-exposed conditions. Details of the types of equipment and their performance have been described and discussed (see page 6).

Settlement of the green-lipped mussel was studied to determine the seasonal pattern and variation in density throughout the study area. Spatfall was monitored at a depth of 2 m at the five sites for up to 5 years during 1978-82. The methods used were those successfully used for several years in the Marlborough Sounds (see page 13 and Jenkins 1979). Christmas tree rope was used mainly for the spatfall monitors, but because the earliest spatfall monitors had used coir instead of Christmas tree rope a 6-month comparison of the two types of monitoring material was run in 1980-81.

Variation in settlement with depth was also studied, by suspending a series of spat collectors below a single float at the surface and at depths of 2, 5, and 8 m. Collectors were changed weekly, as weather permitted, during late 1981.

During April-August 1981 an attempt was made to correlate numbers of mussel larvae in the water with the mussel settlement recorded on spatfall collectors. The plankton was sampled quantitatively with a vertical, free-fall, cone-type net with 120-mm mesh (as described by Booth 1977).

The growth of mussels suspended from a raft at Te Kaha was determined by measurement of the length frequency of random samples taken at about monthly intervals over 22 months, from settlement at the end of May 1978 to harvest in March 1980. Growth measurements were also recorded at about monthly intervals, from 100 individually tagged mussels held in a sea cage on the Te Kaha raft between June 1980 and June 1981, to show seasonal variations in growth rate.

The condition index of rope-grown mussels at Te Kaha was measured fortnightly during April 1981-March 1982.

Observations on fouling and predation on mussel ropes were recorded throughout the programme.

Water temperature, at a depth of 2 m, was recorded weekly (as weather permitted) at Te Kaha from 1978 and at Little Awanui from 1980.

### Results

#### Settlement

Only two sites, Te Kaha and Little Awanui, provided settlements in commercial quantities (that is, over 80 spat per 200-mm collector). The duration of the commercial settlement period varied in different years from 2 weeks (at Te Kaha in 1979) to 4 months (at Little Awanui in 1981) (Fig. 16). Settlement fluctuated greatly, but usually lasted for up to 6 months, between March and November. Settlements were also recorded in January and February; however, they were not viable (the spat did not grow to reseeding size).

The major and most reliable settlements of *Perna* in the eastern Bay of Plenty were recorded during the autumn-winter-spring period and began in March in 1979, in April-May in 1978 and 1980, and in June in 1981. With only one exception, settlement in commercial quantities occurred at some stage during autumn-winter in each year from 1978 to 1981 at both of the successful spat catching sites. The exception was Little Awanui in 1979, when the settlement season was very short and never reached commercially acceptable levels. Little Awanui also had the highest spat counts and the most extensive period of commercial-scale settlement — during 1981.

Settlement at Te Kaha recorded at the four different depths between June and November 1981 shows a preferred settlement depth on ropes between 2 and 5 m (Fig. 17). Greatest settlements occurred at 5 m, with significant numbers of spat also at 2 m, but lower settlements occurred above and below these depths. Commercial quantities of spat were recorded from mid August to the end of October on the 5-m monitors, whereas on the standard 2-m monitors commercial settlement ceased at the end of August.

The comparison of the spat catching ability of Christmas tree rope and coir, run during October 1980-March 1981, showed that the Christmas tree rope caught significantly more spat than the coir throughout most of the period (Fig. 18). On five occasions during the 6-month comparison the Christmas tree monitors caught spat in commercial quantities, but the catch on coir never exceeded 60 spat per 200 mm.

Bivalve larvae were common in all the plankton samples collected during April-August 1981. At least two different mytilid species were present in the samples and were identified as *Perna canaliculus* and *Xenostrobus pulex* (the small black mussel). Comparisons with numbers of spat settling on the monitors were inconclusive: although many *X. pulex* larvae were caught in some of the plankton samples, there was no corresponding settlement on the monitors or the spat catching ropes.

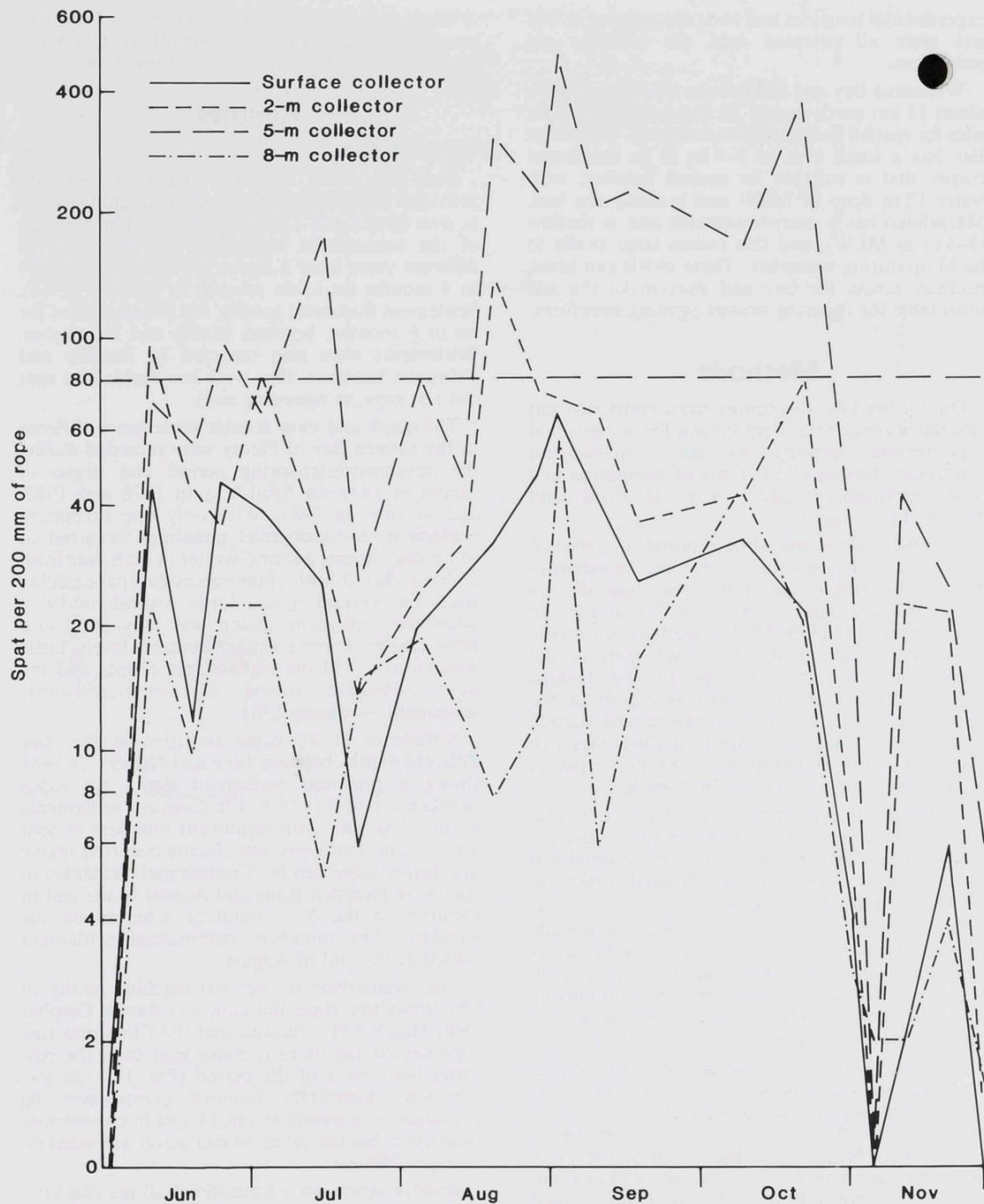


Fig. 17: Comparison of spat settlement at different depths at Te Kaha, June-November 1981.

### Growth

After an initially very slow rate of growth, mussels from the autumn 1978 settlement at Te Kaha reached an average length of 59 mm 12 months after settlement; 2% of the population reached 80 mm and 2% were less than 40 mm (Fig. 19). Growth

continued steadily throughout the second year, and by March 1980 when the mussels were 22 months old the average length was almost 110 mm.

Seasonal growth for each of the 12 incremental periods during June 1980-June 1981 showed a gradual increase from winter (July-August) through

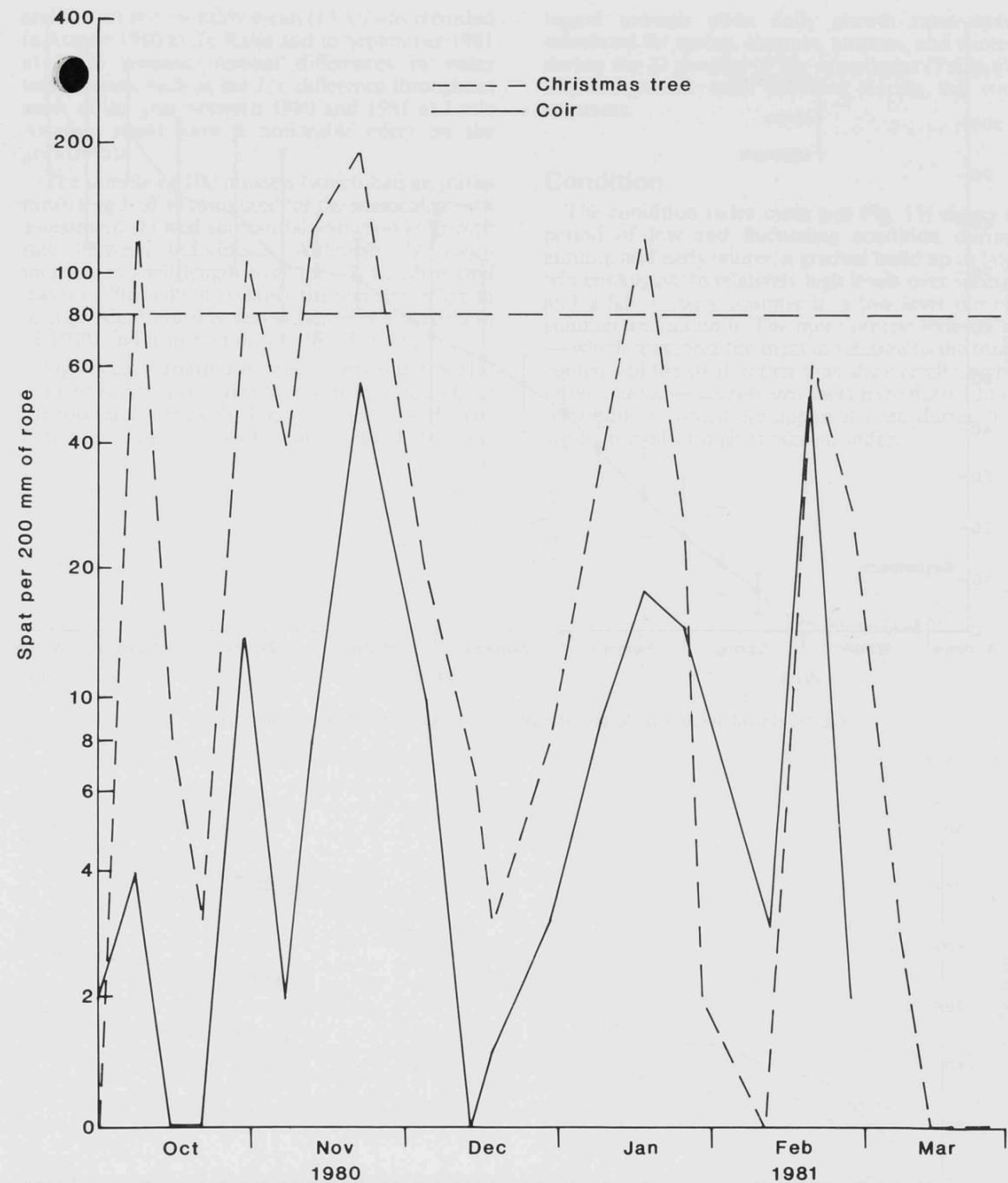


Fig. 18: Comparison of spat settlement on coir and on Christmas tree rope at a depth of 2 m at Te Kaha, October 1980-March 1981.

spring to a peak in summer (February), followed by a decrease through autumn to winter (Fig. 20). Only one incremental period, in early spring (August-September), did not fit this pattern. The seasonal growth rate varied between 0.04 mm per day (June 1981) and 0.11 mm per day (February 1981 and August-September 1980).

This seasonal growth pattern parallels the annual cycle of sea water temperature measured over several years at both Te Kaha and Little Awanui (Fig. 21). These sites are only 5 km apart and show little difference in mean monthly temperatures. The warmest month was February, which reached a high of 24 °C in 1981 at both Te Kaha and Little Awanui,

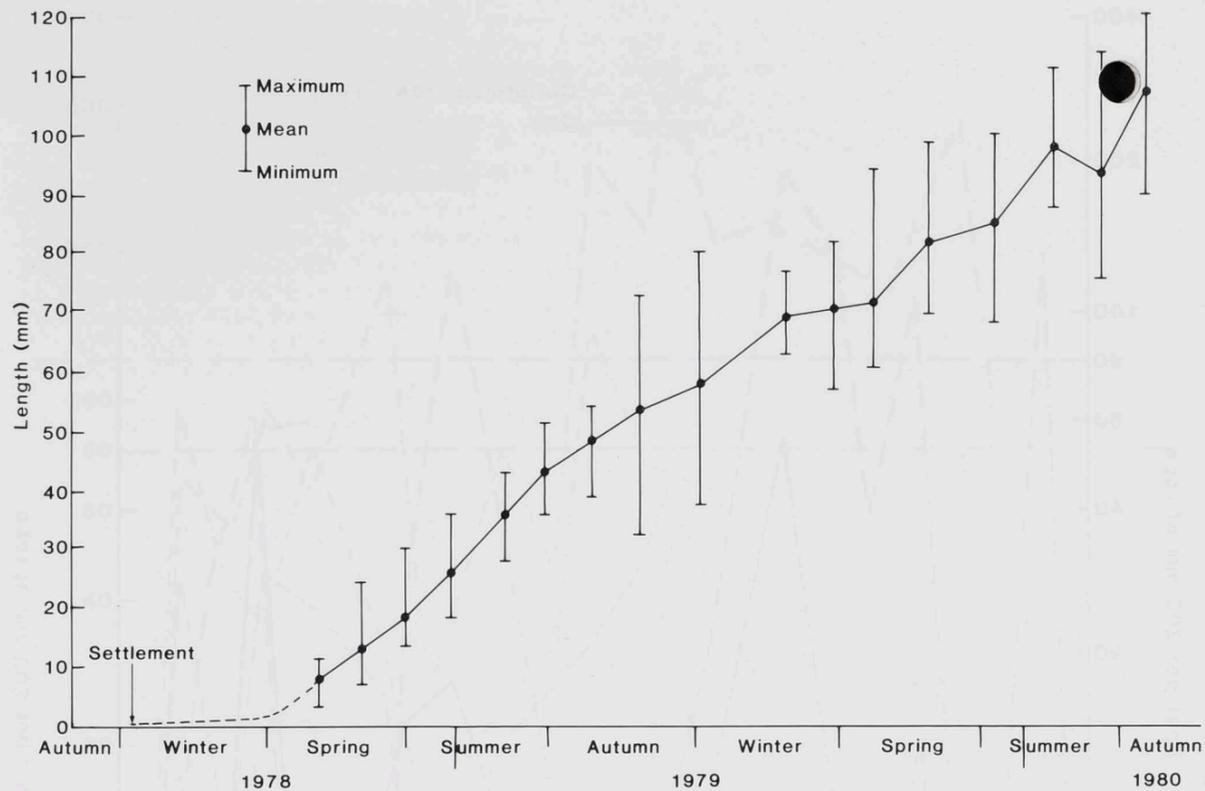


Fig. 19: Growth (mean shell length) of rope-grown mussels at Te Kaha during 1978-80.

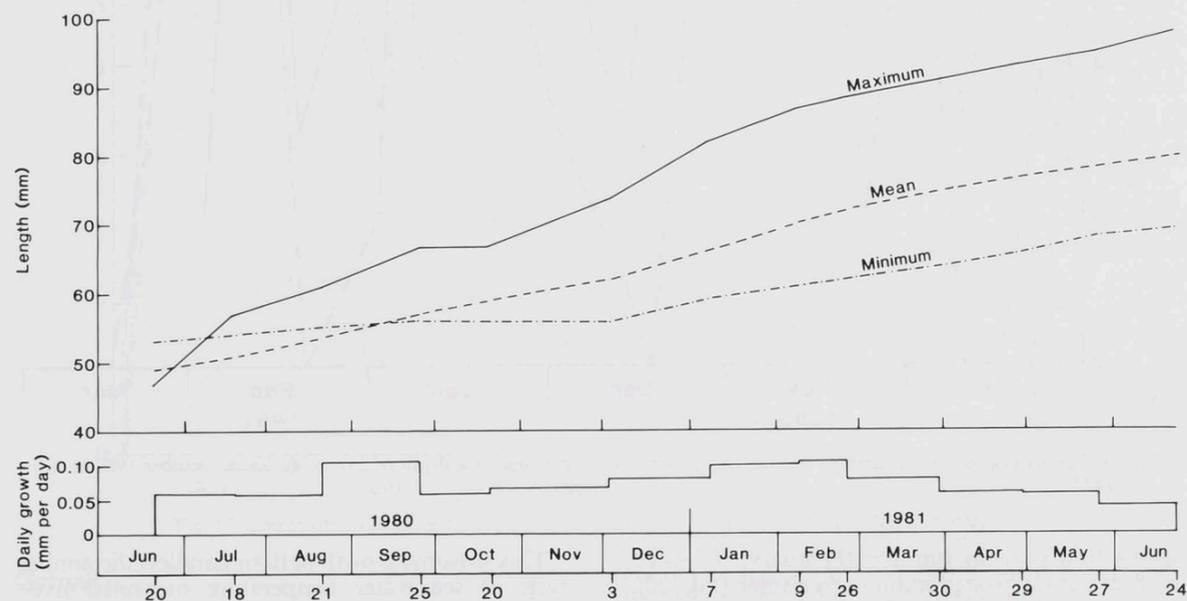


Fig. 20: Seasonal growth of sea cage mussels at Te Kaha, June 1980-June 1981. (The data are from 100 individually tagged mussels. Mean represents the increase in length for all surviving mussels. Maximum is the increase in length for the individual mussel which showed the greatest overall increase. Minimum is the increase in length for the individual which showed the least overall increase. Mean growth rate for each incremental period is also shown. Sampling dates are shown along the bottom line.)

and the coldest monthly mean (13 °C) was recorded in August 1980 at Te Kaha and in September 1981 at Little Awanui. Annual differences in water temperature, such as the 2 °C difference throughout most of the year between 1980 and 1981 at Little Awanui, could have a noticeable effect on the growth rate.

The sample of 100 mussels (which had an initial mean length of 49 mm) used for the seasonal growth assessment showed substantial variation in growth rate between individuals. Although the mean increase in shell length over the 12-month period was 63% (from 49 to 80 mm), the increase in length of individual mussels varied between a maximum of 109% and a minimum of 30% (Fig. 20).

Significant variation between individuals is also evident in the size range found in each sample of the rope-grown mussels (Fig. 19). This stock showed a similar seasonal growth pattern to that of the

tagged mussels when daily growth rates were calculated for spring, summer, autumn, and winter during the 22 months of the experiment (Table 6). Highest growth rates occurred during the two summers.

### Condition

The condition index cycle (see Fig. 13) shows a period of low and fluctuating condition during autumn and early winter, a gradual build up in late winter (August) to relatively high levels over spring, and a fall in early summer to a low level during summer and autumn. The more precise index (CI) — which measures the meat in relation to the total contents of the shell, rather than the overall weight of the mussel — accentuates short-term fluctuations in condition, which are apparent even during the spring period of high condition index.

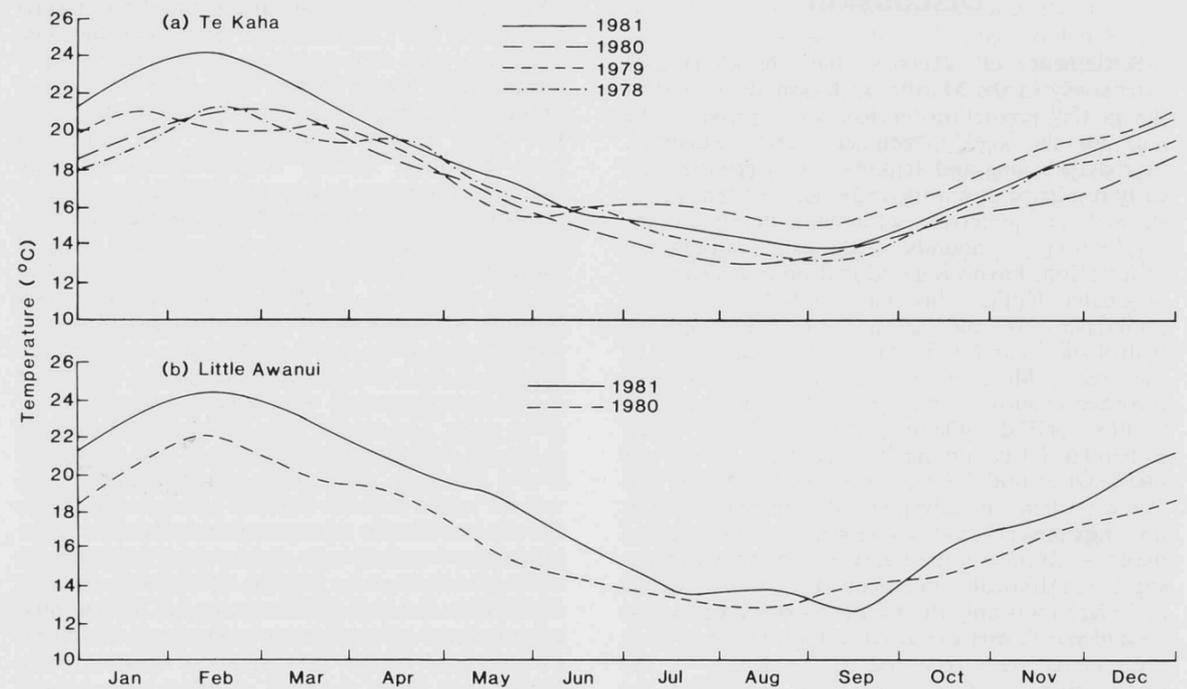


Fig. 21: Water temperature measured at a depth of 2 m at (a) Te Kaha and (b) Little Awanui during 1978-81.

TABLE 6: Seasonal growth of rope-cultivated mussels at Te Kaha, eastern Bay of Plenty, June 1978-March 1980

Year	Season	Growth period (days)	Growth (mm)			Daily growth rate (mm/day)
			From	To	Increase	
1978	Winter	92	1.0	3.0	2.0	0.02
	Spring	89	3.0	18.2	15.2	0.17
1978-79	Summer	90	18.2	44.5	26.3	0.29
	Autumn	99	44.5	58.8	14.3	0.14
1979	Winter	85	58.8	71.9	13.1	0.15
	Spring	92	71.9	86.5	14.6	0.16
1979-80	Summer	96	86.5	109.7	23.2	0.24
Total		643			108.7	
Mean						0.17

## Fouling and predation

Settlement of competitive fouling organisms was minimal throughout the project, and it occurred mainly on bare ropes and on ropes with large old mussels.

Predation by fish, mainly snapper, was only evident during the final stages of the programme. During February-May 1982 heavy predation occurred on ropes which had been reseeded at both Te Kaha and Little Awanui. Ropes of the same size mussels which had not been reseeded suffered no noticeable predation. The pattern of predation was variable; at Little Awanui the ropes were completely stripped, whereas at Te Kaha some ropes were completely stripped, some were only attacked over the lower 0.5-1.0 m, and some were untouched.

## Discussion

Settlement of mussels has been studied extensively in the Marlborough Sounds as part of the spatfall prediction service, which provides the data for the weekly "Mussel Spatfall Bulletin". Meredyth-Young and Jenkins (1978) reported the early results of this work and suggested that *Perna* showed no preferred settlement depth in the Marlborough Sounds, though subsequent observations have suggested that more *Perna* settle at greater depths. This may result from a depth preference by the larvae, or from specific hydrological conditions existing at certain times of the year. Meredyth-Young and Jenkins also recorded extensive settlements of *Perna* over a 6-month period (October-April), though peak settlement (at commercially acceptable levels) was restricted to mid February-mid April. *Mytilus* and *Perna* settlements during the Marlborough Sounds investigations (1975-76) were separated in time and depth — *Mytilus* settled earlier and mainly in the top 2 m. Although settlement in relation to depth at Te Kaha was only studied during one short period — and not during the autumn months when peak settlements were recorded at Te Kaha — the observations tend to confirm a preference for settlement in the depth range of 2-5 m.

The comparison made during this investigation suggests that Christmas tree rope tends to catch larger numbers of mussel spat than does coir. Christmas tree rope has now been used for spatfall prediction work in the Marlborough Sounds for several years, and weekly settlements of 200-400 spat per 300 mm of rope have been recorded frequently, and there have been occasional catches of over 1000 spat per 300 mm.

Settlement monitoring is considered to be a more reliable spatfall prediction system than larval monitoring because it records the number of spat actually settling rather than the number of larvae

in the water. If a rapid response to the weekly settlement data can be effected, commercial spat catching can be successful.

The mean growth rate of the mussels grown on ropes at Te Kaha was lower than the average rate of 72.5 mm in 12 months recorded from several sites around the North Island (Hickman 1979). This may have resulted from two factors. Firstly, settlement took place during autumn and no substantial growth occurred during the succeeding winter months (June-September) — 2 mm over 92 days represents a daily growth increment of only 0.02 mm. Secondly, these ropes were not thinned or reseeded, and, though no counts were made, mussel density on the ropes probably exceeded the 250-300 mussels per metre considered optimal for commercial mussel farming.

Mussel growth has been shown to be directly correlated with water temperature (Hickman 1979). The mean daily increase in length of the tagged mussels for the 12 incremental periods during June 1980-June 1981 shows a similar pattern to the water temperature; higher growth rates over the warmer months (December-March) and lower growth during the colder months (May-August). The additional peak recorded during August-September may represent a response to improved feeding conditions resulting from a late winter-early spring plankton bloom. Comparison of the daily growth rates of these tagged mussels with average daily growth rates of *P. canaliculus* at other experimental mussel farming sites in less exposed situations (Table 7) suggests that their lower growth rate is either site specific or the result of the experimental technique — the tagged mussels were held in a closed, large-mesh cage. The growth rate of the tagged mussels in the sea cage was much lower than that of mussels grown freely on ropes. The annual mean growth rate for tagged mussels was 0.07 mm per day (Table 7), whereas that for rope-grown mussels of a similar initial size was 0.18 mm per day (derived from the daily growth rates for autumn 1978-79 to summer 1979-80 in Table 6). Furthermore, all the seasonal growth rates of rope-grown mussels at Te Kaha, except those of the very smallest mussels, were higher than those recorded at other less exposed sites (compare column 7 in Table 6 with column 3 in Table 7).

TABLE 7: Comparison of seasonal growth of tagged mussels in a sea cage at Te Kaha and on experimental rafts at other, less exposed, sites around New Zealand

Season	Daily growth rate (mm/day)	
	Te Kaha	Less exposed sites*
Winter	0.07	0.10
Spring	0.08	0.12
Summer	0.09	0.13
Autumn	0.05	0.11
Annual mean	0.07	0.12

\* Mean values for eight sites, from Hickman (1979).

The condition index ( $CI_{\text{commercial}}$ ) cycle recorded at Te Kaha was similar in amplitude, and range of values to that recorded from an experimental mussel raft in Wellington Harbour during 1974 — this latter site had the highest condition indices of any of the seven study sites around the northern

half of New Zealand (Hickman and Illingworth 1980). However, the timing of the cycle, with one major period of high condition, more closely resembles that at sites in Whangaroa Harbour and Great Barrier Island (Hickman and Illingworth 1980) and the Marlborough Sounds (Jenkins 1979).

## Summary

The experiments carried out in the eastern Bay of Plenty between 1977 and 1982 showed that mussel farming is possible in this type of semi-exposed situation.

Various low profile farming structures were designed, constructed, and evaluated for use under these conditions, and anchorage systems appropriate to these structures were evolved.

The mini-longline system developed during the research programme was suitable for the sea and weather conditions of the area and is acceptable to the Ministry of Transport as a marine farming structure. Its length and buoyancy can be adapted to suit the specific nature of the site or to meet the availability of, or mussel farmer preference for, particular floatation equipment. When constructed to the strength, buoyancy, and safety standards detailed in this manual, the mini-longline is recommended as the most appropriate equipment for semi-exposed mussel farming sites.

The factors which must be considered in the selection of a potential mussel farming site are discussed. Only sites offering some shelter from the extremes of adverse weather and sea conditions should be chosen for mussel farming development.

This manual provides information on the procedures to be followed, the types of equipment appropriate to the conditions, and the farming practices from settlement through to harvesting which are likely to determine the success of a mussel farming operation in a semi-exposed situation.

As a result of the experiments in the eastern Bay of Plenty, two areas were identified as potential spat catching sites, and the general pattern of settlement in these areas was established. Seasonal and annual variation is discussed.

Commercial quantities of spat were caught over several consecutive years, reseeded, and on-grown to marketable size in 12-22 months (59- to 109-mm shell length), depending on the preferred size for harvesting.

The condition of the mussels grown experimentally was high during at least 5 months of the year and did not drop to the minimum value considered acceptable for harvesting throughout the 12-month assessment period.

Fouling and predation were not significant problems during the experiments, but the increase in fish predation during the late stages of the programme suggests that this potential problem may be related to the size of the farming operation.

## Acknowledgments

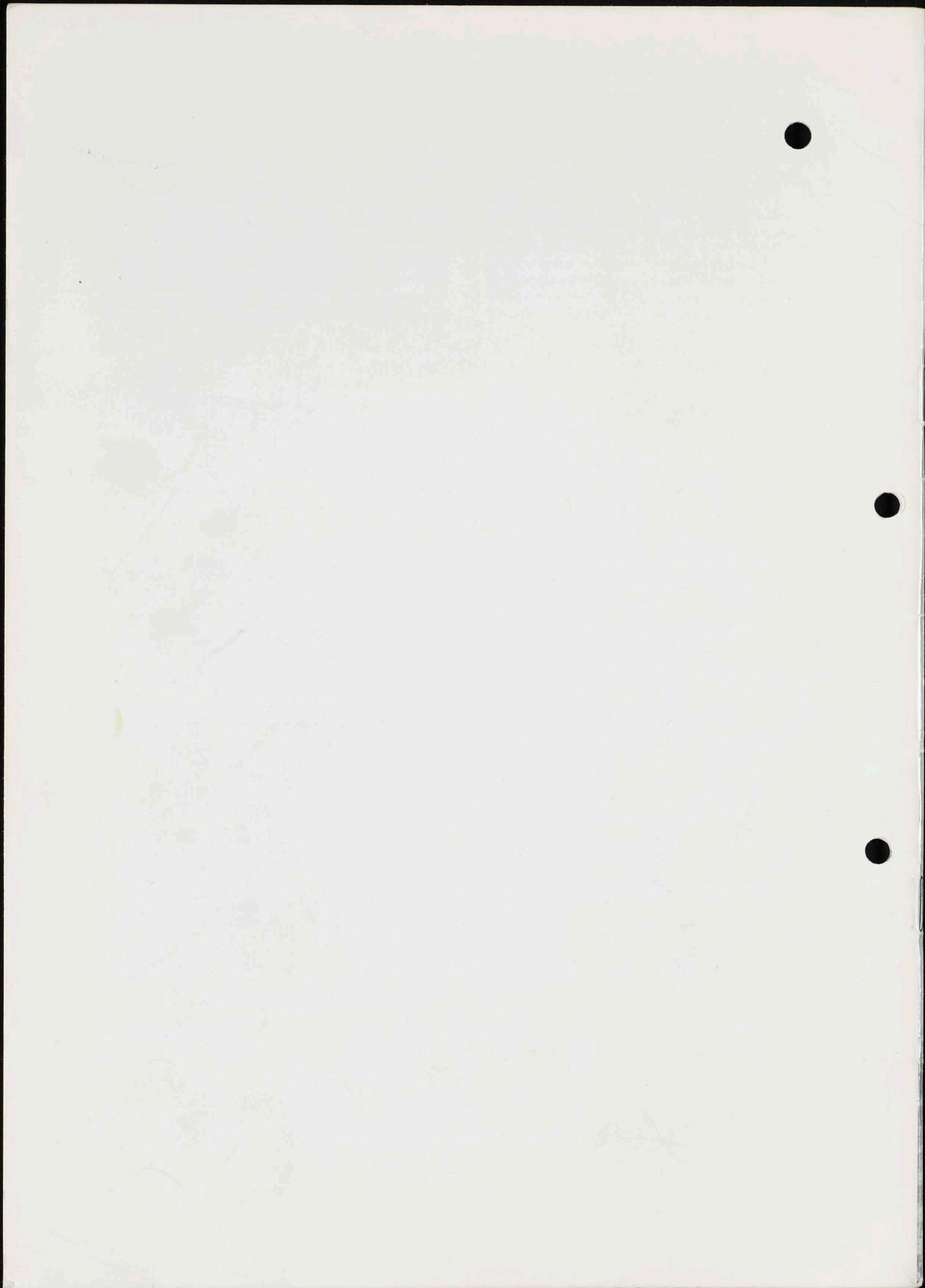
We gratefully acknowledge the assistance willingly provided by many people in the Te Kaha community during these experiments; without their input the project would not have achieved the results it did. The research was initiated in 1969 by the interest of the local Maori co-operative in local marine resources. Particular thanks are due to: the staff of the Te Kaha Aquaculture Station, all of whom assisted in the field work; the FRD divers who regularly inspected the equipment, especially Dr J. B. Jones; Mr G. D. Lawn of the

Agricultural Engineering Institute, Lincoln College for working out the loading capacities; Dr P. Dinamani, FRD for assistance in identification of mussel larvae; Mr L. Harvey, factory manager of Horouta Industries, Te Kaha for practical advice; Mr T. Foy who financed the first experimental raft; the Department of Lands and Survey for the aerial photographs; the Meteorological Service, Wellington for access to their weather records for the eastern Bay of Plenty; and colleagues at FRD for advice during the preparation of this manual.

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Feb 1986.

# the Whakatohea Maori Trust Board



① Whakatohea

⑧

The Secretary,  
Board of Maori  
WELLINGTON.

attn Maori Ent

Tena ra koe, a

The Whakatohea  
funding, and g

PROJECT: The p

- to establish a Smallwood Sawmill & Box Mill, to commence site preparations and plant installation in May 1986;
- to utilise available, identified, raw materials;
- to increase employment opportunities, and skill training for 25 workers;
- to market products to known, named, outlets;
- to earn, in the second/third years, profits estimated by timber consultants to meet funding commitments and make further expansion;
- to engage an experienced, qualified, project manager to oversee the building, commissioning, and training programme; to co-ordinate technical aspects and monitor estimates and target controls. An Advocate role.

CONSULTANT:

The Consultant for this exercise is Mr Vernon Wood, of V.R. Wood Limited, Forest Marketing & Contracting Consultants, of Stoke Nelson. Mr Wood has had a life long work experience in the forestry and timber industry;

With the N.Z. Forest Service for 21 years (10 years as a station manager); also 10 years forestry manager for Dalhoff & King plus several years in forest consultant activities such as export log sales, forest valuations, workshop engineering and machinery operations.

He has had first hand experience in staff training, log trading out of Chile, ship chartering etc.

He currently owns a small forestry development property in Nelson and can identify closely with many of the problems private land owners and forestry developers experience.

Feb 1986.

# the Whakatohea Maori Trust Board

P.O. BOX 207  
OPOTIKI

15th March 1986

The Secretary,  
Board of Maori Affairs,  
WELLINGTON.

attn Maori Enterprise Development - Wira Gardiner

Tena ra koe, ara, koutou,

The Whakatohea Maori Trust Board hereby make an application for funding, and guidance:

PROJECT: The proposal is:

- to establish a Smallwood Sawmill & Box Mill, to commence site preparations and plant installation in May 1986;
- to utilise available, identified, raw materials;
- to increase employment opportunities, and skill training for 25 workers;
- to market products to known, named, outlets;
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He has had first hand experience in staff training, log trading out of Chile, ship chartering etc.

He currently owns a small forestry development property in Nelson and can identify closely with many of the problems private land owners and forestry developers experience.

INTRODUCING THE APPLICANT:

The six Hapu of Whakatohea form the Trust Board, of 12 members. The executive officers, relative to this submission are:

Chairman;	C.Edwards	Secretary;	T.Taia
Farm Supervisor	G.Riesterer	Consultant;	N.Perry
Maatua Whangai - Rehabilitation Liaison:			P.Aramoana

Policies & Programme:

Tribal elders of the 1950's persisted in their decision to decline the \$1600 offer; per annum in perpetuity; as compensation settlement for 'excessive confiscation' of Whakatohea lands in 1865.

Capitalisation was finally agreed, with the Government, at \$40,000 in 1955. This, with the assistance of a Maori Trust loan, purchased a dairy farm on the Opotiki flats. The policy for some years was to acquire adjoining lands till there are now two large, high producing dairy farms; a 33 $\frac{1}{3}$ % shareholding with a 438 Trust in another dairy unit, and a maize area.

To meet the aspirations of the Maori dimension and self determination in the Whakatohea area there have been precise moves in such programmes as Maatua Whangai, Maori Enterprise Development and Kohanga Reo. The Trust Board policy was widened to reflect the better utilisation of assets, to add industrial activities - making work opportunities for their beneficiaries and the community.

This was made possible by the provision of buildings and facilities for industry:

Industrial Footwear Factory	- built by the Board	(\$142000)
Textile Complex	- purchased " "	(\$190000)
Masonic Building	- " " "	
proposed Stoneware Unit		

With the land properties; including the farms and college horticulture training area, a kohanga reo section, pensioners flats site and Board administration offices; and the industrial activities, at 30th June 1985 (Annual Accounts) the Nett asset, book value, was \$1,122,700.

The Textile Complex has been an addition in this financial year to make the valuation \$1,302,700. (There has been no recent special valuation. The latest Government Valuation is now due.)

Mortgages, a Term Loan and Bank Overdraft make the liabilities to be \$455,226. There is a pending/possible guarantee of \$150,000 to the Trust in which the Board has the 33 $\frac{1}{3}$ % interest.

CONSULTANT REPORT: SUPPORTING OBSERVATIONS FROM THE BOARD:

The Report of V.R.Wood Limited (attached) is the summation of six progressive studies, and discussions in Opotiki, since October 1985.

The study itself, and significant supporting facts, and points perceived and proposed during the investigations, and conferences with the Consultants, gave us the confidence to proceed, smartly. Some of the key points and facts, are:

1. The principal of V.R.Wood Limited has agreed to accept the Board's proposal that he, himself, be the Project Manager; to live in Opotiki during this establishment stage, to stand beside the Board and key personnel and behind his own confidence in the economic viability and social advantages in the enterprise, including the development of jobs of worth.
2. At our request the Report is conservative; 'safe' at basic points, with additional 10% contingency allowances.
3. Mr Wood has assured himself on the availability of initial raw material and markets. (The partnership of the Board with Tasman Forestry and Opotiki Fruitgrowers Co-op - and others - in the East Coast Research & Development Association has some bearing).
4. The first year revenue is related to the need for training at all levels. However, we can anticipate that enthusiasm and Maori group rhythm will show an increase in productivity and cash flow.
5. The Labour Department agrees that the project qualifies for the Job Opportunities Scheme, at \$75/\$120 per week for 26 weeks.
6. The estimated annual 'mark up' (\$60,000 and \$56,000 - pages 5/6 in the report) is the Consultant's term for profit before loan repayments and interest and the budget; still to be arranged; for the Project Manager. (We have formed the conviction that the remuneration of Mr Wood, in that responsibility, will be well covered by economic returns through efficient operations).
7. Mr Wood has been meticulous in his examination, testing and selection of second hand plant, for the reasons stated.
8. Our positive experience with 'disadvantaged groups' in our Maatua Whangai - Rehabilitation programme, and currently in a forestry 'Mahi Tahī Work Trust', is a plus for extraction thinning as quoted by Tasman Forestry and for related mill work. For the same reasons, in the setting up construction and plant installation for the Mills, the use of outside contractors will be minimal.

MAORI ENTERPRISE DEVELOPMENT SCHEME:

The Operating Instructions and Guidelines, recently received, have helped us to finalise this submission. It seems clear to our Board that this enterprise dovetails into the basic principles for the control and development of Maori resources by Maori Authorities, with their built-in disciplines and current incentives.

As indicated by the Consultants - Cash Flow P.S.3 - 'Some initial loan or relief assistance will be required'. He also 'wondered if a capital repayment holiday period would be possible to ease demands on the initial profitability and cash flow needs'.

We believe this project qualifies for the suspensory loan - Funding Option 3.4b - in which case the enterprise would have the added incentive to take the first objective, and move on without subsidy to make room for more Maori employment.

CONCLUSION:

The Feasability Study, the observations and significant points have resulted in the firm decision by the Board to launch the Smallwood Sawmill & Box Mill, "subject to the approval of the Board of Maori Affairs, and finance".

We see also the remarkable opportunity, and capacity, to expand into alternative processing units as a steady growth strategy. There are stumpage agreements, and forest thinnings to be available from Whakatohea forests. They will come on stream for the long term operations and advantages. This tribal Authority will then be in position, ready to process its own resources by its own people in their own mills; and hopefully for their own bi-product industries.

We rely on your assessment and advice/decision in the light of the full picture which we have endeavoured to present in this paper.

The approach is made in the determination that the enterprise will be a credit to Whakatohea and to your Board through the Maori Enterprise Development Scheme.

If you, or your Project Committee, wish to clarify any points with us, and/or with Mr Wood, kindly let us know.

Yours faithfully,

  
C.A. Edwards,  
Chairman.

Enclosures: Consultant Report  
Tasman Forestry & Opotiki Fruitgrowers Co-op  
-correspondence.



# U. R. Wood LTD.

Forest Marketing & Contracting Consultants

Establishment - Management - Assessment - Valuation

Exporters - Log & Wood Brokers

11 VIEWMOUNT,  
STOKE,  
TELEPHONE 79 902  
or 87 718  
NELSON,  
NEW ZEALAND.  
TELEX — NZ 3506.

5th March 1986

The Chairman  
Whakatohea Maori Trust Board  
P O Box 207  
OPOTIKI

ATTENTION: Mr Claude Edwards

Dear Sir

Following is a summation of my studies to date.

### The Proposal

1. Purchase and sawmilling of small piece sized P.radiata logs in the eastern Bay of Plenty utilising local resource material as much as possible.
2. Manufacturing Kiwifruit trays plus pallet and fruit bin components for local industry needs.
3. Extension of utilisation and marketing opportunities as the future trading climate indicates.
4. Increase badly needed employment opportunities in the Opotiki area, by way of two factory operations plus forest harvesting contractor work.

### Utilisation

Because of some special aspects of the Whakatohea Maori Trust Boards situation, I believe the best strategy would initially be to buy in P.radiata thinnings roundwood and convert to case grade sawn timber for further manufacture into pallet ben and fruit case components. Immediate district needs could be supplied, with any surplus production going outside.

It is likely that additional processing can be undertaken as a logical development progression.

This could involve:

1. Tanalith CCA timber treatment.
2. Small capacity (10 M3) kiln drying of furniture componentry.
3. Treated pole manufacture.

Consideration should be given to an extension of these utilisation/marketing opportunities as future circumstances indicate their viability.

### Resource Base

While there is a roundwood resource undersupply predicted for the next few years, investigations reveal that several company and private woodlot owners are prepared to support the relatively small resource required to make the scheme viable.

Annual roundwood requirements are 6,000 M3 (cubic metres) and we have initial assurances of 15,000 M3 so far. Pretty clearly, once the scheme is up and rolling, adequate log supplies will become available from a variety of so far uncommitted sources.

Until the Whakatohea Trust Board's own forest thinnings come on stream within the next six years, it is proposed to buy in round from various operations within a 100 kilometre radius of Opotiki.

Indicative costings suggest that the log buying price at mill would be more competitive than current pulp log prices while producing a higher value product.

From the best information presently available, there are sufficient log supplies available for the next three or more years and there is every confidence that the future supply position is assured.

### Market Research

There is a potential case grade sawn timber market in Opotiki for approximately 3,500 M3 per annum. This accrues from the present requirement for pallets, fruit bins, and kiwifruit trays currently used in the district but supplied in a manufactured form from outside.

Numerous case and pallet manufacturers from Auckland, Hamilton, Tauranga and Hastings have stated their interest in procuring sawn timber supplies as well as their anxieties about obtaining sufficient for their total needs as affected by the Australian export timber trade.

Indicative pricing ranges from \$230 M3 down to \$175 M3 but in my opinion is not likely to fall below \$180 M3. It appears that the case grade sawn timber market has an assured market at least until the present log famine is relieved in seven years time.

### Market Prospects

Opotiki Fruit Growers Co-op advise that they would happily support this proposal and that their kiwi tray requirements based on existing orchard yield increases are:

1985/86	(present season)	700,000 trays
1986/87		8 to 900,000 trays
1987/88		1,000,000 trays
Early 1990's		1.5 to 2,000,000 trays

This represents 50 % of Opotiki kiwifruit production.



Opotiki Fruit Growers Co-op have a need of some 3,500 M3 of log supplies to meet their present fruit tray needs plus 5,000 pallets and 1,000 fruit bins.

This alone could utilise half the envisaged plant capacity, while there are numerous alternative sales opportunities within easy transport distance.

### Processing Facilities and Capital Costs

Sawmill - It is recommended that the sawmill unit comprises:

1 only Scragg breakdown head rig	\$ 25,000
1 only multi-saw edger	15,000
1 only circular re-saw bench	5,000
Log and timber transport rollcase assemblies	15,000
Log de barker and live deck transport system	20,000
Slab chipper (250mm throat)	15,000
Anti sapstain dip tank	5,000
Sawmill building and power reticulation (20m x 18m)	40,000
Drying and stock holding shed	10,000
Contingency items construction & commission costs	20,000
	<u>\$170,000</u>

### Boxmill:

2 only resaw units plus docking saw and transport systems	\$ 50,000
Saw dust cyclones and exhaust systems	25,000
Case assembly unit	15,000
Packaging and saw shop maintenance equipment	15,000
Factory building and power reticulation (20m x 18m with 150mm concrete floor)	40,000
Installation and commissioning	15,000
	<u>\$160,000</u>

In order to minimise capital costs as much as possible, it is proposed to:

1. Procure reliable second hand surplus milling and factory equipment plus economy style industrial buildings.
2. Develop the utilisation facilities on Whakatohea Trust Board land or conveniently situated lease property.

3. Hire such equipment as log/timber loaders and custom saw maintenance services.
4. Sub contract thinning harvesting and trucking operations.

Manning Scale

Sawmill operations would require:

- 5 work people
- 2 trainee staff
- 1 manager-overseer to control milling operations and log delivery needs

Boxmill operations require:

- 10 staff for resawing
- 3 trainee staff
- 3 staff on case assembly
- 1 factory foreman

—  
25 Total  
—

It is recommended that an independant project manager be appointed to establish and co-ordinate all technical aspects of the total operation.

These duties to specifically include monitoring budget estimates and expenditure control, production attainments, sales outlets, targets, and progress reporting to Whakatohea Trust Board satisfaction.

Service administration needs such as, wages compilations and banking could be processed by the existing office facility whilst preparation and presentation of annual accounts should be the separate responsibility of the Trust Board Accountant.

An appropriate and separate cost allowance should be made for the project manager salary and expenses, to cover start up expenses etc. This item has not been allowed for in either of the utilisation profitability analysis.

ProfitabilitySawmill

At mill buy in log prices	\$ 40 per M3
Sawing conversion rate - 40% of input	
Nett cost of recovered material	\$ 100 per M3
Estimated daily out turn	15 M3 cost \$1500 per day
Machinery operating costs including power and fuel	\$ 75 per day
Anti sapstain spray costs	\$ 25 per day
Wages 5 men @ \$10 per hour including ACC levies}	\$ 760 per day
Foreman 1 man @ \$15 per hour	
Trainees - 2	
Loader Hire	\$ 80 per day
Ground lease	\$ 20 per day
Plant and machinery maintenance and replacement allowance (based on 20% capital cost p.a.)	\$ 155 per day
Production cost based on \$2625 + 15 M3	\$ 175 per M3
Selling Price	\$ 180 per M3
Mark up	\$ 5 per M3

Sawmill is scheduled to come into profit 25 months after start up and revenue is based on \$1,500 per month first six months thereafter at \$5,000 per month to allow for increased efficiency and training programme payment rebates - this is reflected in the cash flow projections.

Profitability is based on -

Sawn out turn	3,000 M3 per annum
Turnover	\$540,000 per annum
Mark up	\$ 9,000 1st 6 months thereafter
	\$ 60,000 per annum

Boxmill

Buy in sawn timber price	\$ 180 per M3
Boxmill is expectd to take half the sawmill production	
Conversion rate 60%	
Per tray nett wood volume .0015745 M3	
Nett cost recovered material \$234 M3	
Estimated daily out turn	\$ 1474
(based on 4000 tray i.e. 960,000 p.a.)	
Machinery operating costs	\$ 250 per day
(including electricity, loader hire, ground rent etc.)	

Wages 10 x \$8 per hr including ACC levies	\$ 640 per day
Trainees 3 x \$6 per hr including ACC levies	\$ 144 per day
Supervisor 1 x \$10 per hr including ACC levies	\$ 80 per day
Plant maintenance and replacement allowance	\$ 248 per day
total daily production cost	\$ 2836 per day
+ 4,000 trays=	70.9 ¢ tray
Indicative retail price tray components	78 ¢ tray
Profit =	7.1 ¢ tray

P.S. 3 case assembly staff not included as this is a separate and additional cost, customers may wish to avoid.

Box mill is scheduled to come into profit 14 months after start up and profitability is based on annual turnover (i.e. 800,000 trays)	= \$624,000
Annual mark up	<u>\$ 56,800</u>

SAWMILL CASH FLOW

	1 mnth	2 mnth	3 mnth	4 mnth	5 mnth	6 mnth	7 mnth	8 mnth	9 mnth	10 mth	11 mth	12 mth		
Bt Fwd		53,594	80,188	79,782	79,376	78,970	78,564	76,658	74,752	72,846	70,940	69,034		
Mth Db	53,594	53,594	53,594	53,594	53,594	53,594	53,594	53,594	53,594	53,594	53,594	53,594		
Mth Rev		27,000	54,000	54,000	54,000	54,000	55,500	55,500	55,500	55,500	55,500	55,500		
Nett	53,594	80,188	79,782	79,376	78,970	78,564	76,658	74,752	72,846	70,940	69,034	67,128	Dr	
					<u>BOX MILL CASH FLOW</u>									
Bt Fwd				57,911	53,422	48,933	44,444	39,955	35,466	30,977	26,488	21,999		
Mth Db			57,911	57,911	57,911	57,911	57,911	57,911	57,911	57,911	57,911	57,911		
Mth Rev				62,400	62,400	62,400	62,400	62,400	62,400	62,000	62,400	62,400		
Nett			57,911	53,422	48,933	44,444	39,955	35,466	30,977	26,488	21,999	17,510	Dr	
Combined	53,594	80,188	137,693	132,798	127,903	123,008	116,613	110,218	108,323	103,428	98,533	93,638	Dr	

- P.S.
1. These projections assume all stock being sold each month - something which rarely happens!
  2. Other customers seldom pay accounts on time.
  3. Monthly production costs, overdraft charges computed at 2.1% per month. Some loan or relief assistance will be required with the total monthly overdraft for each operation.
  4. No allowance has been made for capital loan service charges against repayments.

10A/19/1

O.F.C

OPOTIKI FRUITGROWERS CO-OP. LTD.

P.O. BOX 42 - OPOTIKI

Stoney Creek Rd., Opotiki Telephone 1130 - 1160 Opotiki

25 February 1986

V.R. Wood Ltd  
11 Viewmount  
Stoke  
NELSON

ATTENTION: Mr V.R. Wood

Dear Sir,

Thank you for your letter dated 9 February 1986.

In answer to your questions, we would prefer that we only get into the assembly of the trays, as there could be a conflict of labour requirements during the packing season. For this reason, we would be more than willing to look at selling the re-saw equipment to you, providing we could ensure ourselves of a supply of product.

Point 2. This would always be tied to market forces which is normal practice.

Points 3. & 4. I believe that the wooden tray in its present form with a reduced single bottom, i.e. 98mm will be in use for the foreseeable future.

Point 5. We are currently paying 16.25 cents per end and 8.0 cents per side.

The specification on timber is set by the Kiwifruit Authority of which a copy is enclosed.

Please do not hesitate to contact me if I can be of further help.

Yours faithfully,

*Ronald G Wells*

R.G. Wells  
GENERAL MANAGER

10A/19/11

Tasman Forestry  
Limited

Ngahere House  
Private Bag, Rotorua, New Zealand,  
Vaughan Road, Rotorua  
Telephone (073) 474-899

25 February 1986

Ref: S10-0001

V.R. Wood Ltd  
11 Viewmount  
Stoke  
NELSON

Attention: Mr V.R. Wood

Dear Sir

Re: Whakatohea Trust Log Supplies

Thank you for your letter of 11th February 1986.

Our forest management staff have now had the opportunity to consider your enquiry on behalf of Whakatohea Trust and I can advise as follows.

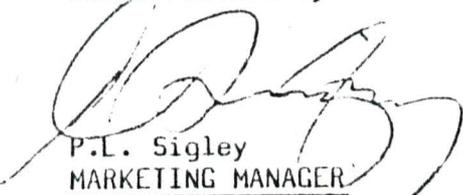
The only material we have that is likely to be of interest to you is in our Waikerea Forest which is 6km from Opotiki. This forest includes 125ha of unpruned 1971, 72 and 73 stands. The areas were thinned to a nominal 400 s.p.h. in 1982 although some areas are probably at 500 s.p.h. Tree form is good and an extraction thinning to 300 s.p.h. in the next year or two is planned. The total yield is expected to be 5 000 - 10 000 m<sup>3</sup>.

I imagine this material is ideally suited to Whakatohea and you may be interested in inspecting it.

The major drawback is that the country the trees are on consists of short steep slopes and cable extraction will be essential. Tasman Forestry does not have a suitable crew available and this would have to be provided by Whakatohea.

Should the above be of interest to you, would you kindly contact me at your convenience.

Yours faithfully

  
P.L. Sigley  
MARKETING MANAGER

1986

11/9/11

Consistency



12 February 1986

Sir Norman Perry  
Whakatohea Maori Trust Board  
PO Box 207  
OPOTIKI

Tena koe Norman

... Thank you for your note of 9 February 1986 which sets out the proposal for the stoneware project. Rather than comment in detail on your draft, I enclose a copy of one of the successful applications for funding under the Maori Enterprise Development Scheme.

Your letter has also prompted me to respond to one or two other matters.

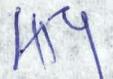
Neville has asked me to prepare a consultancy contract for you to cover your work with Taitokerau and the kumara chip project. I would be grateful if you would drop me a couple of lines about each project so I can incorporate them in my submission.

You might also like to advise when it is convenient for you, Bert, Neville and myself to visit the Marlborough site.

I have not developed any further the public relations concept we discussed. However when we next meet we could perhaps progress it a little further.

Finally, in my letter to Joe Phares I pointed out the need to advance with caution and to seek the advice and judgment of people such as yourself.

Kia ora

  
Wira Gardiner  
Project Team Leader



10A/19/1/1

EG.15



12 February 1986

Mr John Burdette

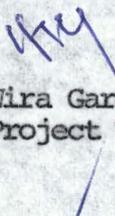
OPOTIKI

Tena koe John

You will recall when I passed through Opotiki two weeks ago that I discussed with you the Maori Enterprise Development Scheme. I also raised with you the concept of registration of a pool of Maori business men and women who would be prepared to provide consultancy advice to Maori Enterprise Development applicants. You indicated then that you would be prepared to provide that advice in the area of retail operations. I am now writing to ask you to confirm that intention. At this stage we have yet to establish the consultancy rates which we would expect to pay for the advice of the Maori business experts. I anticipate that the rates set may be in line with those set by the Development Finance Corporation.

... I enclose for your information a copy of the draft set of instructions detailing the principles associated with the Maori Enterprise Development Scheme.

Kia ora

  
Wira Gardiner  
Project Team Leader

6/19

12 February 1986

Sir Norman Perry  
Whakatohea Maori Trust Board  
PO Box 207  
OPOTIKI

Tena koe Norman

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Finally, in my letter to Joe Phares I pointed out the need to advance with caution and to seek the advice and judgment of people such as yourself.

Kia ora

Wira Gardiner  
Project Team Leader

Memo:

Wira

Whakahaere

R.D.2



This is a draft, to be completed with funding budget capital & working capital figures. We have quotes coming for the building (to factory regulations) & plant.

Just asking if this is the form (background) of presentation the board will require.

The proposed M&B project is coming on for feeling. PTO  
Keoi ka, Kia tea hōwhiri



P.S. The meeting/discussions  
at Whangarei were  
very positive & have  
set in train the kelp  
harvesting.

Met Graham T.T.T. Bice

Joe Williams  
Fisheries Regional  
Group Chairman

Ked Brown  
Regional Port  
Authority - for  
Māori issues

MA

John Booth Secy.

Wera / Ripaka. (re <sup>your</sup> ~~the~~ report): 10A/3/11

In terms of your letter of 14/4/86 to bland Ewanas. The ~~Box-~~ ~~mill~~ project is under way & the land "agreement for purchase" ready. (All agreed as a bargain buy.) It is in the industrial area & near to drainage etc etc. The price \$116,000 + LSP date 31 July. 86 - copy attached.

The boys / men<sup>10</sup> on the job in the forest & Controller's report to trend "quality of their work 100%". ~~the~~ They are a work trust jointly with the Board.



You rang about the \$50,000. & the ~~pottery~~ ~~Stone~~

The Board is in the process of setting the unit up as a partnership or company or Co-operative for the staff, with (or not essential) Board shareholding & marketing plan etc being finalised and selection of items for production range... training programme etc.

\$50,000.00 ready to lend; in stages & interest etc probably free or low for first year.

W.

SPECIAL CONDITIONS OF SALE

Jul./Aug 1986

12. (a) This agreement is conditional upon the following approvals being obtained by 31 July 1986:

(i) the Approval of the Minister of Maori Affairs to the Purchaser purchasing the land herein described;

(ii) the approval of the Opotiki County Council to the proposed use to which the purchasers wish to put the land.

(iii) the approval of the Whakatohea Maori Trust Board.

(b) Should either of such approvals not be obtained by 4 pm on 31 July 1986 then this agreement shall be voidable at the option of either party, and if so voided, all monies paid hereunder shall be refunded in full and neither party shall have any right of claim against the other.

13. The purchaser acknowledges that the cottage and curtilage enclosed within the inner fencing on the land are presently occupied rent-free by Bert Kerse, and agrees to allow the said Bert Kerse to continue to occupy the said cottage and curtilage rent-free for a period of 12 months from the possession date. Such right of occupancy shall not be transferable.

WARNINGS (These warnings do not form part of this contract)

- 1. This is a binding contract. If either party has any doubts professional advice should be sought before signing.
2. Before signing this contract the purchaser should make sure that the status of the property under the Town and Country Planning Act 1977 is satisfactory for his intended use of it.

Signature of vendor(s)



Signature of purchaser(s)

THE COMMON SEAL of WHAKATOHEA MAORI TRUST BOARD was hereunto affixed as Purchaser in the presence of:

Handwritten signature of R. Beale

Handwritten signature of the Secretary

Secretary Trust Bd

Handwritten signature of the Chairman

Chairman

# AGREEMENT FOR SALE AND PURCHASE OF REAL ESTATE

This form is approved by the Real Estate Institute of New Zealand and by the New Zealand Law Society.

© JANUARY 1984

DATE:

VENDOR: HAURERE FARMS LIMITED at Opotiki

PURCHASER: WHAKATOHEA MAORI TRUST BOARD

Address of property: Nelson Street, Opotiki

Legal description: Estate: **FREEHOLD** (unless otherwise described)

Allotment 436 Section 2 Town of Opotiki

~~DX~~ ~~XR~~ CT: 1C/1087  
(Gisborne Registry)

Area: 2.0234 ha

Purchase price: \$116,000.00

(including chattels at \$ 500.00)

Deposit: \$ 100.00

Balance of purchase price to be paid or satisfied as follows:

In cash in full on the 1st day of August 1986.

LSP date: 31 July 1986

Possession date: 1 August 1986

Interest rate for late settlement: 24 % p.a.

Financial conditions: **FIRST MORTGAGE** (unless otherwise stated)

INSTITUTIONAL:

OR OTHER MORTGAGE:

Amount required:

Amount required:

Lending institution(s):

Term:

Term:

Interest rate

% p.a.

Interest rate:

% p.a.

Penalty rate

% p.a.

LAST DAY FOR ARRANGING FINANCE

Details of tenancies (if any): ~~None~~

~~None~~

~~None~~

See Clause 13 hereof.

CHATELS: The following chattels if now situated on the property, are included in the sale (strike out those not applicable): **STOVE**

~~WATER PUMP TELEVISION SET FLOOR COVERINGS BUSINESS EMERALDS DRAPES LIGHT FIXTURES~~

(Add other chattels included in the sale (if any):

Sale by (name of real estate agent)

NIL

It is agreed that the vendor sells and the purchaser purchases the above described property, and the chattels included in the sale, on the terms set out above, on the general conditions attached and any special conditions hereinafter appearing.



