

# Chatham Phosphate

**Advanced rock phosphate  
project in New Zealand**

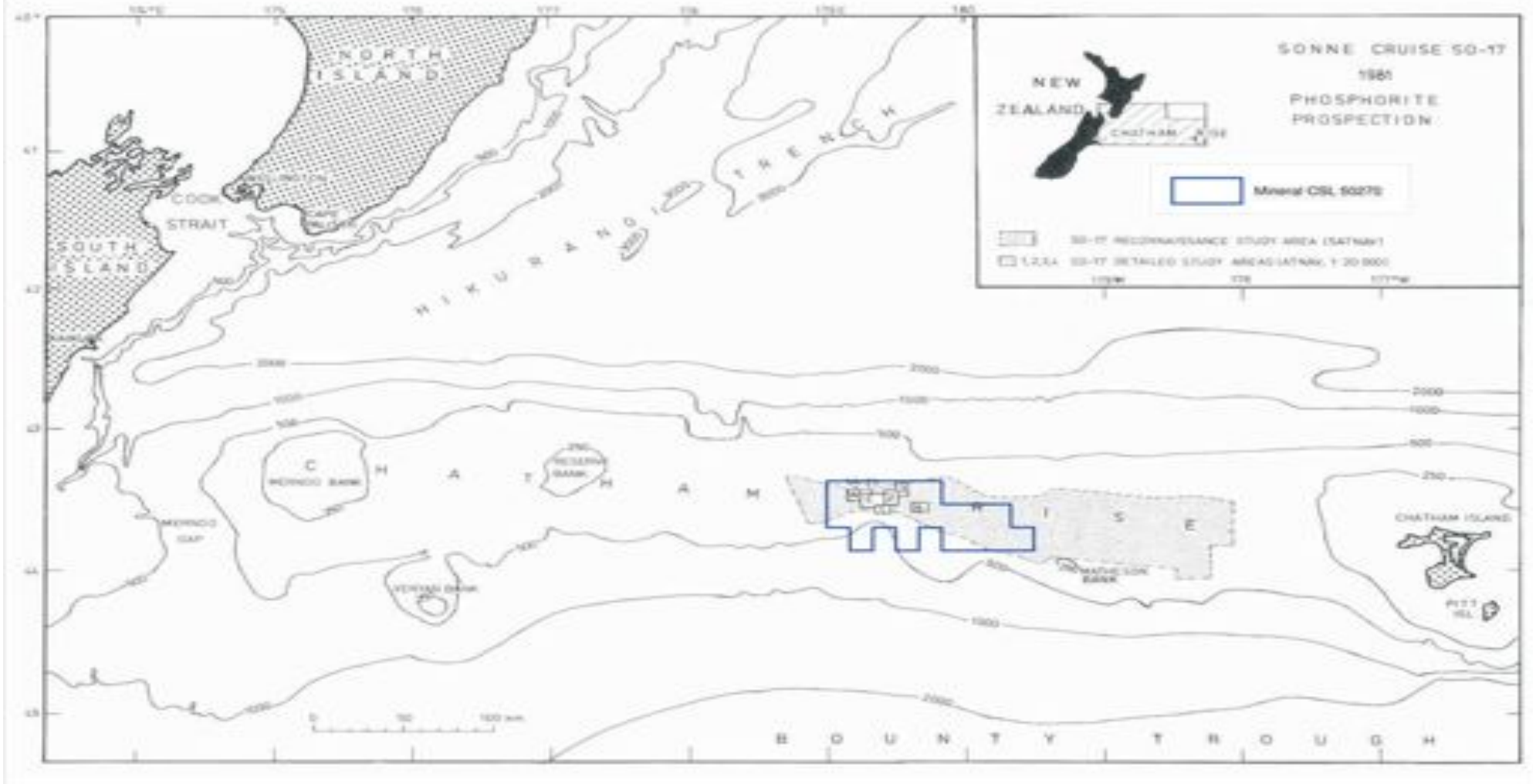
# The Opportunity

**Chatham  
Phosphate has  
rights to NZ's  
only major rock  
phosphate  
deposit of 30+  
million tonnes**



**NZ imports 1  
million tonnes  
annually,  
mostly from  
Morocco**

# Well defined shallow deposit offshore NZ



**MSL 50270 – map lines in metres beneath sea level**

**Scale: 450km from NZ to permit area**

# Chatham Phosphate

1

- **Commercial production targeted within 2 years**

2

- **High quality product**

3

- **All NZ phosphate imported thus Chatham has a significant freight advantage**

# Chatham Deposit

**Extensive exploration during  
7 voyages collecting  
thousands of samples from  
1952 to 1981 (spending some  
\$50 million) has defined  
Chatham deposit**



# 100% Ownership

**Permit covers 4726 sq km  
in shallow seabed and has  
bulk of resource**

**Deposit grade:  
20.5% P205**

# Geological Setting

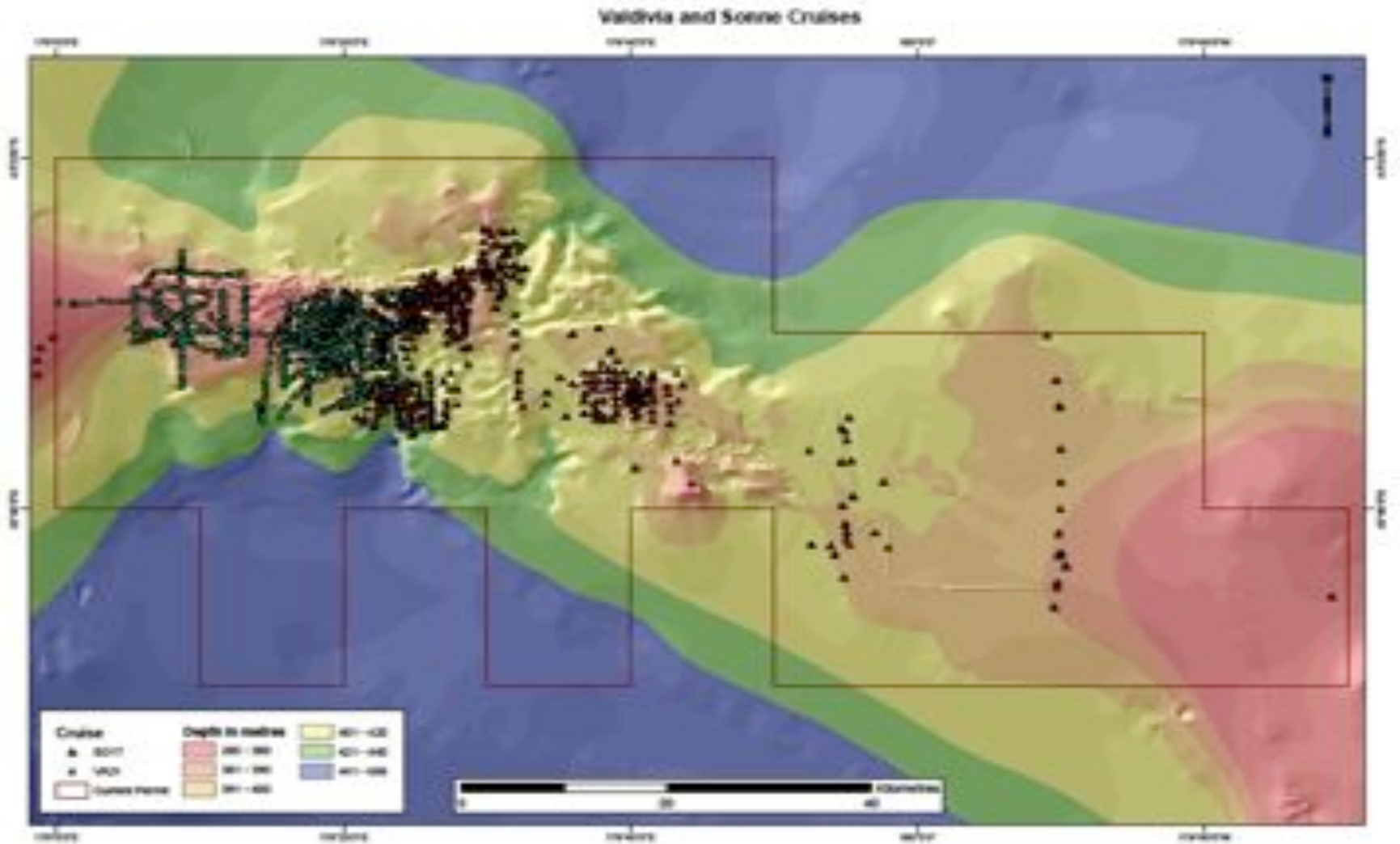
**Formed  
7-12  
million  
years ago  
by current  
action on  
limestone  
seabed**



**Deposit on  
seabed  
surface in  
1 metre  
layer of  
fine sandy  
silt**



**Nodules  
2-150 mm  
in size and  
form about  
13% of  
seabed  
layer  
volume**



▲ Sample locations



# Production Costs

**Leading companies plan to use dredging technology to recover phosphate**

**Recovery costs much lower than cost of importing equivalent product**

**Current freight costs from Morocco  
\$US75 per tonne**

# Dredging Technologies

1

- Seabed recovery unit with downpipe vessel

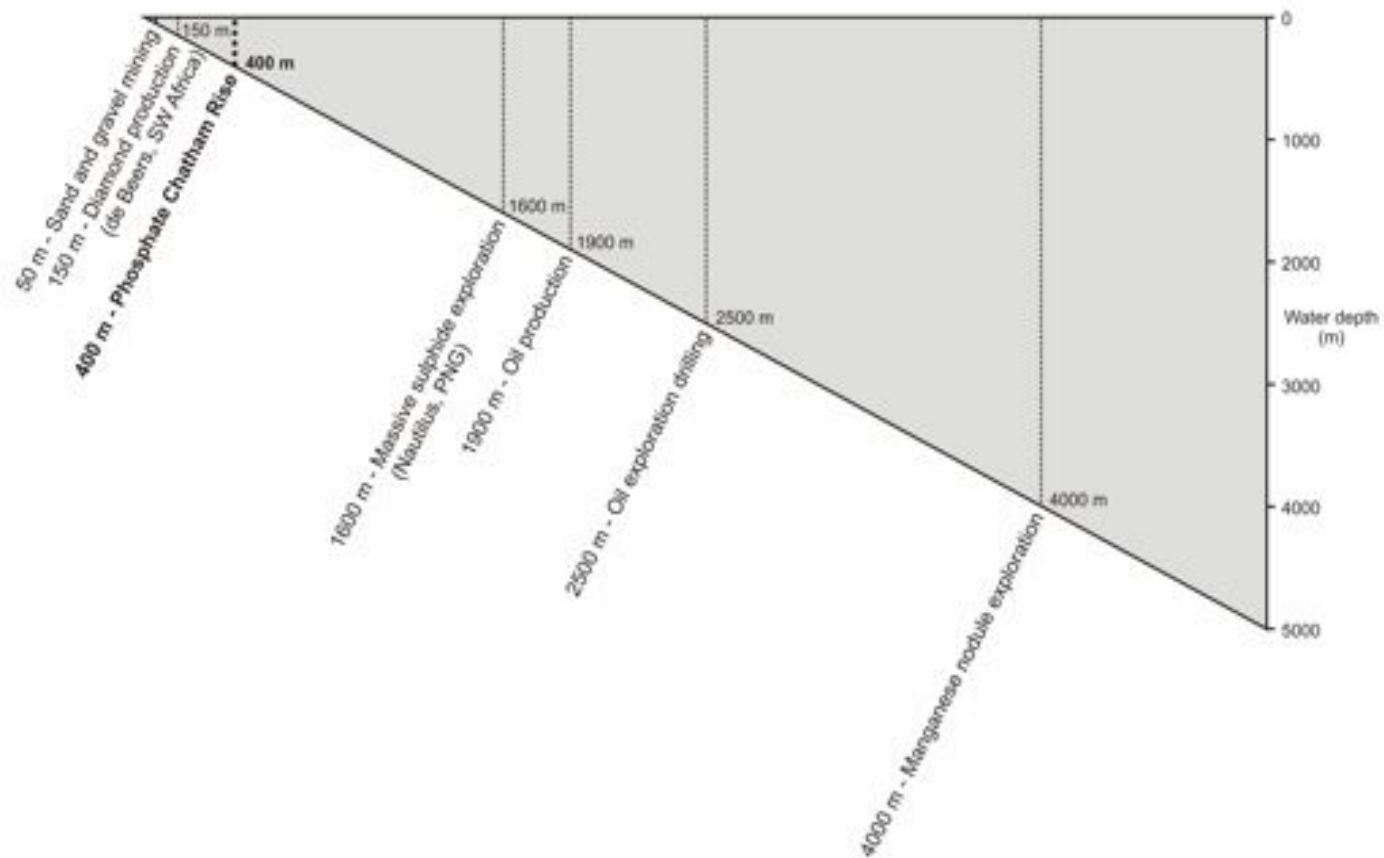
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- Hopper dredge with multiple clamshell buckets

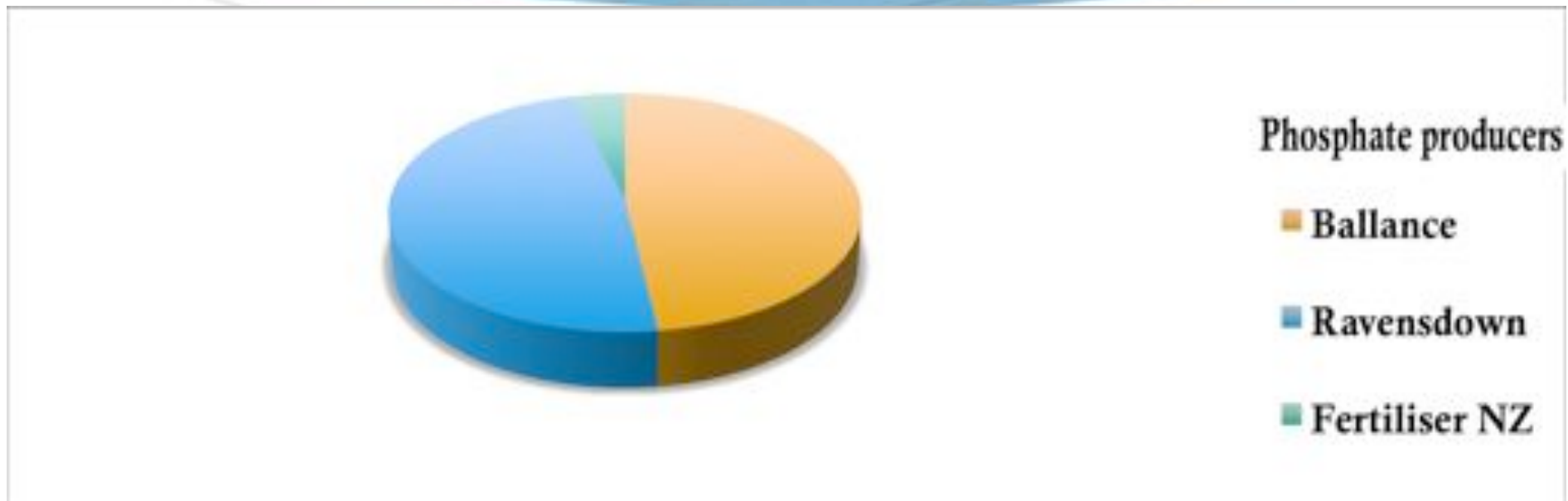
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- Trailing suction hopper dredge

# Seafloor Mining Depths



# The NZ Market



- **All NZ fertiliser companies showing strong interest in product and Australia also a market**

# Growth Profile

**Phase 1: 100,000 – 300,000 tonnes**

**Years 1 & 2**

**Phase 2: 500,000 – 750,000 tonnes**

**Years 3 & 4**

**Phase 3: 1 – 1.5 million tonnes**

**Year 5 onwards – exports to Australia**



# Expected Operating Margin

- **Imported material** **\$225/t**
- **Chatham Phosphate** **~\$160/t**
- **Chatham Phosphate operating cost** **\$75-\$100/t**
- **Chatham Phosphate margin** **\$\$85-60/t**

# Strong Technical Expertise

**Chris Castle - Project Leader**

**Robin Falconer - Technical Lead, Chief Scientist**

**Cam McKenzie - Project Geologist**

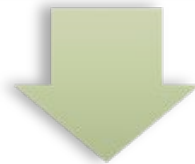
**GNS Sciences – exploration programme  
management**

**NIWA – environmental studies**

**(GNS and NIWA – Crown Research Institutes)**

# Status of Commercial Evaluation

**Pre feasibility study and valuation confirms commercial development is realistic**



**Reviewed data, environmental studies, underwater radiometric and seismic surveys**

# 2011 Objectives

**Developing extraction options with dredging companies**

**Environmental data collection**

**IPO to fund project to commercial production**

**Defining resource**

**Seabed sampling**

**Building market links**



# Environmental Benefits

**Very low in cadmium**

**Less than one tenth of 1% of Chatham Rise seafloor  
will be harvested**

**Technologies used will minimise seafloor disturbance**


**Lower carbon footprint through reduced transport costs**

**Can be applied directly – more effective than super-  
phosphate**



# Wider Economic Benefits

**Cheaper source with no foreign  
exchange risk**



**NZ balance of payments;  
reduced imports and possible  
export**

# IPO Preparedness

**Massive  
information  
base available to  
complete 43-101**

**43-101 -  
approve April  
2011**

# IPO Strategy

**Complete  
bulk samples,  
mining  
recovery  
system  
design, and  
all project  
approvals**



**Comprehensive  
trial mining  
programme**



**Mid 2012 –  
definitive  
feasibility  
study and  
economics**

# Use of Funds

\$3m

- **Environmental approvals**

\$7m

- **Pilot mining**

\$10m

- **Complete feasibility study**

\$20m

- **Total**

# Timetable

**June 2011:  
Complete  
\$25m IPO**

**June 2011:  
Start detailed  
mining design  
followed by  
pilot mining**

**H2 2013:  
Start  
commercial  
production**

\*

**\* Definitive feasibility study (commercial decision)**



# Chatham Phosphate

**A long life deposit uniquely  
positioned to supply the existing  
NZ and Australian market**



**Contact Chris Castle**

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