

***Recombining Streams of Knowledge at  
the University of Canterbury  
Mātauranga Māori and Western Science***



**UC**  
UNIVERSITY OF  
CANTERBURY  
*Te Whare Wānanga o Waitaha*  
CHRISTCHURCH NEW ZEALAND

**6**  
MARINE ECOLOGY  
RESEARCH GROUP  
UNIVERSITY OF CANTERBURY, N.Z.



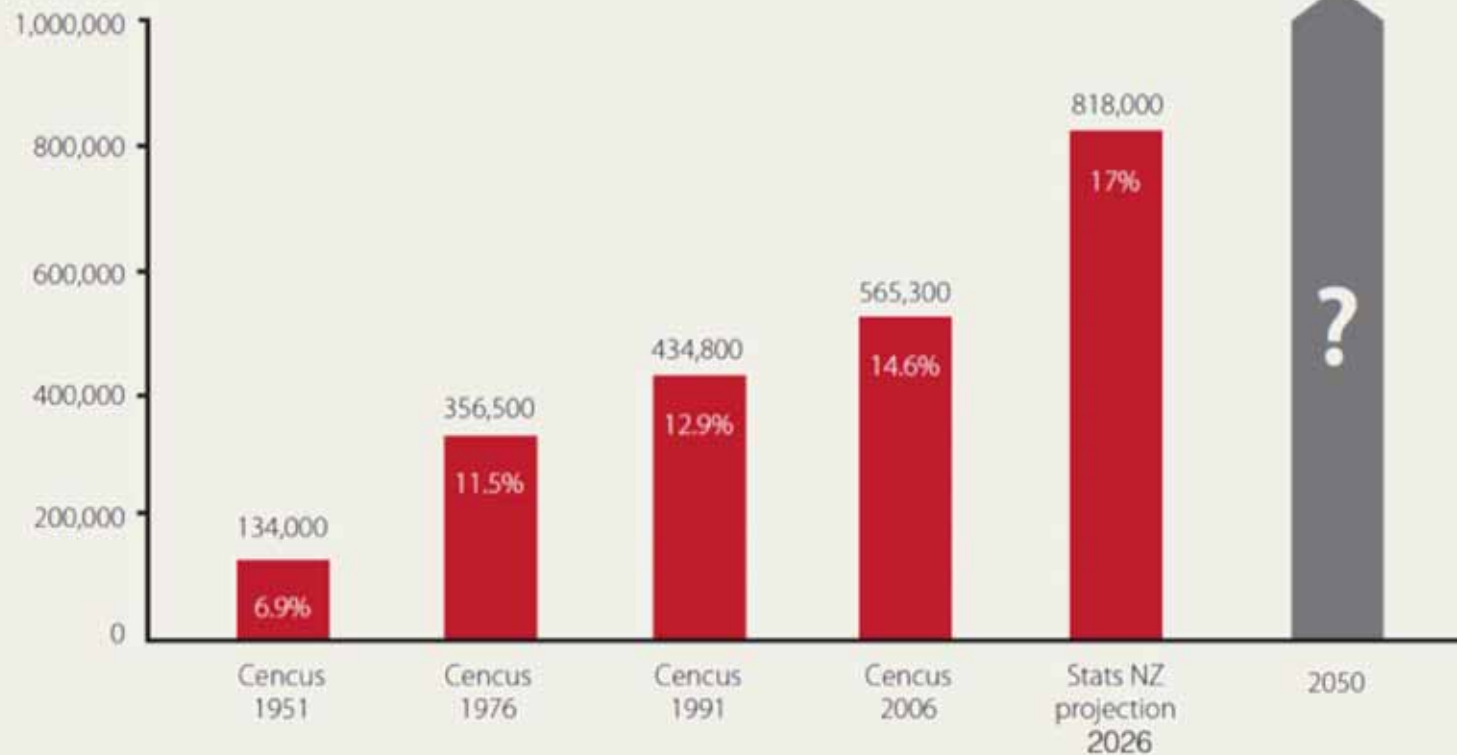
A National Inter-University Māori Academy for  
Academic and Professional Advancement

# Opportunities

- Becoming clear that our country's future economy is becoming BROWN
- Māori / Pacifica will be the workforce of our economy
- Iwi are the emerging economic giant
- Changing population demographics



## Growth of the Māori Population



Source: Statistics New Zealand

## Median age of Māori and all New Zealanders Census 2006



Source: Statistics New Zealand

# Opportunities

- The same may be said with regards to iwi involvement, influence and management of our taonga species in accordance with our traditional tikanga
- At the community level there appears to be an acceptance for the inclusion of indigenous knowledge in the management of the marine environment. In particular, community based fisheries management
- Communities becoming more receptive to a more bi-cultural approach to conservation



# Opportunities Community Management

- Fundamental shift in approaches to marine conservation management
- Ecosystem approach - mountains to the sea (ki uta ki tai)
- Shift to include humans in the ecosystem
- Now real opportunities for education and research partnerships between iwi and runanga and universities



## WAIKATO-TAINUI TAKE ON JOINT FISHERY MANAGEMENT

15 SEPTEMBER 2011

A new era in fisheries management starts on 22 September when recreational fishstocks in the lower Waikato River come into effect.

## EAST OTAGO TAIAPURE - LOCAL FISHERY

26 AUGUST 2011

The Ministry of Fisheries has announced a new Initial Position Paper for the East Otago Taiapure - Local Fishery. The four reserves are approximately 2.9 square kilometres in total.

This Initial Position Paper provides you with the Ministry of Fisheries' (MFish) initial position on a proposal by the East Otago Taiapure - Local Fishery Management Committee to recommend regulations for the East Otago Taiapure.

The Akaroa Taiapure Management Committee recommended recreational fishing in the Akaroa Harbour Taiapure. The Minister has approved the recommendation.

## Kaikōura Marine Strategy

Sustaining Our Sea

## AKAROA TAIAPURE - PROPOSED REGULATIONS

This Initial Position Paper provides you with the Ministry of Fisheries' (MFish) initial position on a proposal by the East Otago Taiapure - Local Fishery Management Committee to recommend regulations for the East Otago Taiapure.

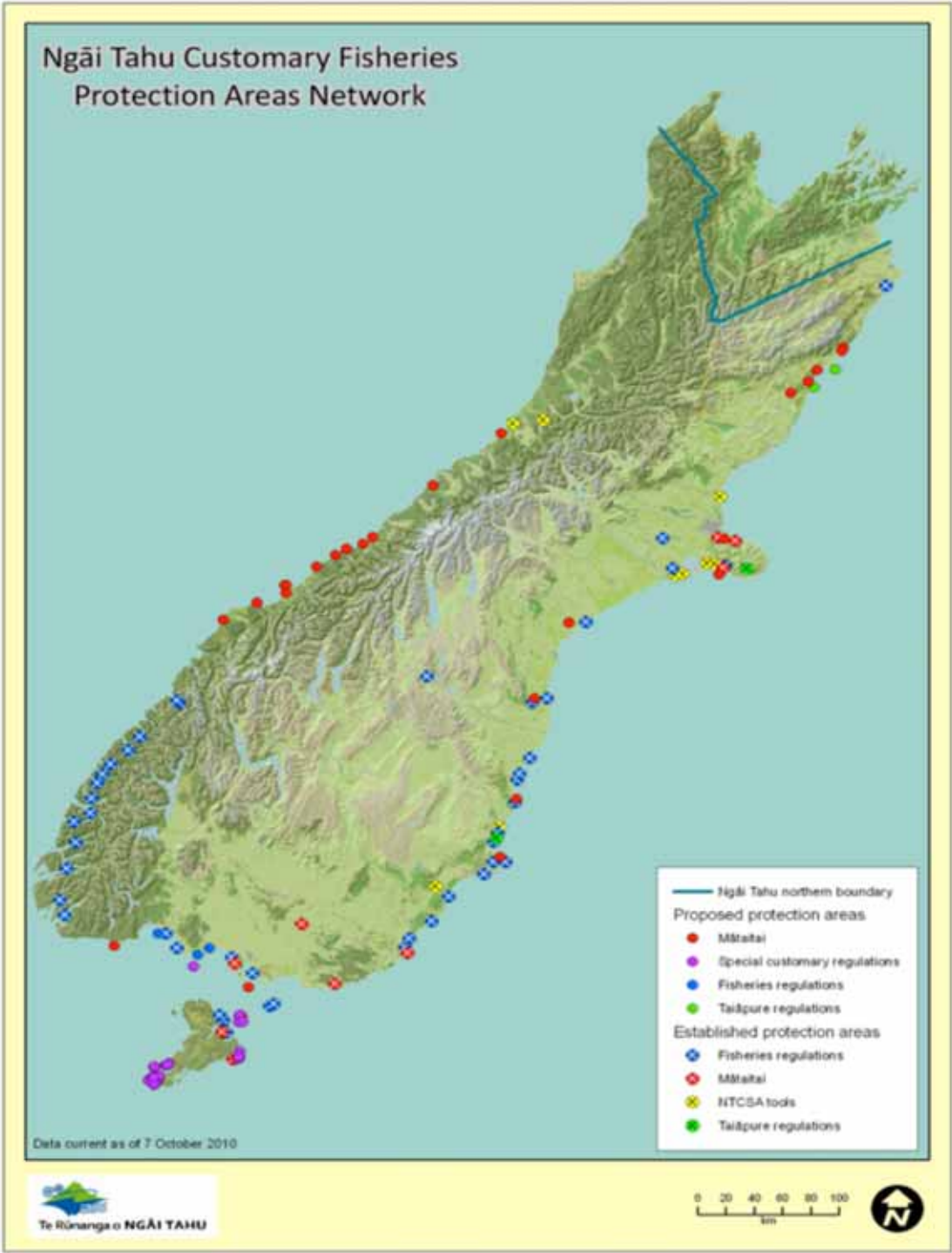
**Hon Kate Wilkinson**  
Minister of Conservation

20 August 2010

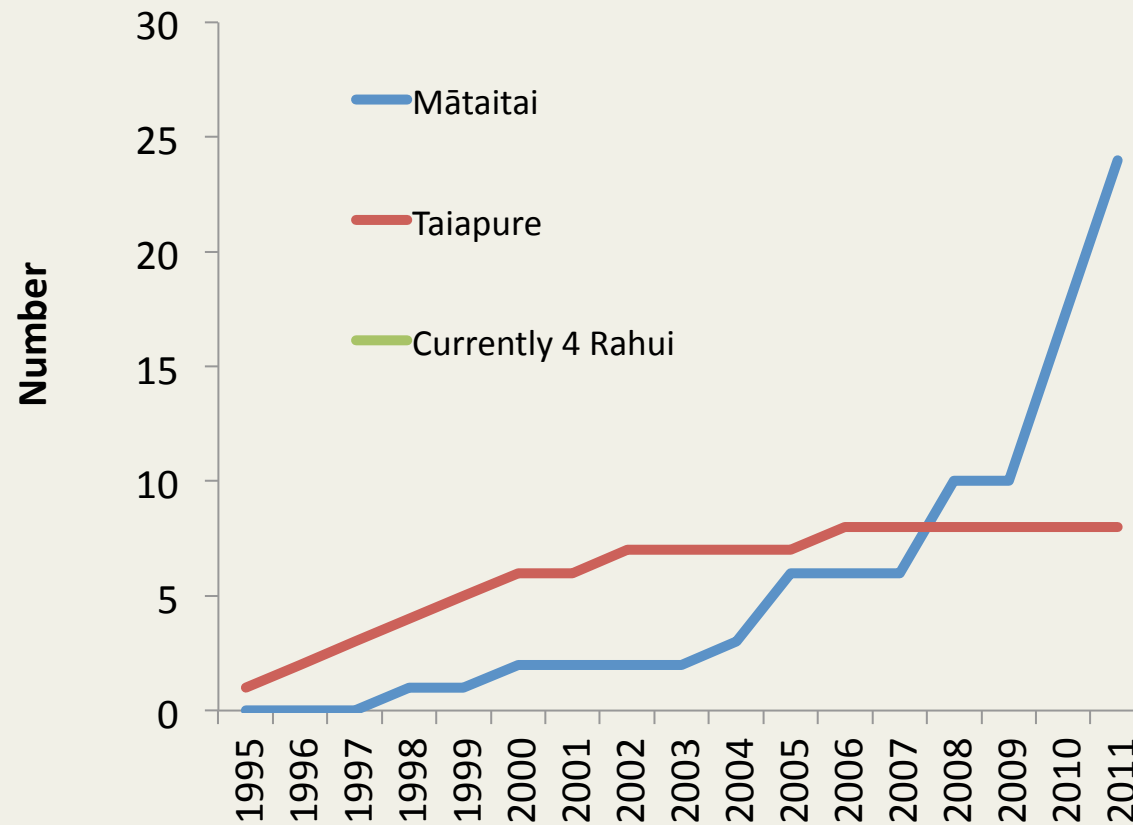
**Akaroa marine reserve proposal declined**  
Minister of Conservation Kate Wilkinson has today declined a proposal to create a marine reserve in Akaroa Harbour, Canterbury, after nearly 45 years of discussion.



Media Statement



## Customary Areas



# Rising to the Challenge

- We need more Māori in Science
- To effectively participate in management
- Provide leadership in science – promote a Māori world view across all subjects

# Perceptions

- Science is for non-Māori, in white lab coats stuck, in laboratories, staring at test tubes and looking down microscopes



# Māor172 / SCIM101: Science, Māori and Indigenous Knowledge

This is an integrated multi-disciplinary course study Māori and other indigenous people's Knowledge and its relevance to today's western science.

*Colleges of  
Science and Arts*

2011  
Semester 2

TIMING

Mon, Wed 1 - 2pm, A8.



# ***Mātauranga Māori and Western Science***

**SCIM101/MAOR172:Science, Maori and Indigenous Knowledge**

- Level 1 course established in 2005
- Originated from conversations between:
  - Professor Gail Gillon, (Kaiārahi Māori and Dean of Science)
  - Professor Ian Shaw (College of Science Pro Vice Chancellor)
  - Associate Professor Rawiri Taonui (HOS Aotahi)
- Developed and coordinated by Turi Hollis (Māori Theologian) and John Pirker
- Course housed in the School of Biological Science
- Hamuera Kahi and John Pirker continue to teach it (College of Science and College of Arts)

# Course Structure and Learning outcomes

- Course explores different types of indigenous and western knowledge, is co-coordinated and divided into two parts/terms:
- Aotahi coordinates the first half of the course
- Looks at the scientific elements of Mātauranga Maori and Indigenous Knowledge
  - Non-instrumental navigation
  - Astronomy
  - Weaving/Material Culture
  - Kaitiakitanga (traditional guardianship)

- School of Biological coordinates the second half
- Looks at how science interacts with Mātauranga Māori, indigenous knowledge and Māori communities.

The Hudson Bay Programme  
(HBP)

Settlement of Oceania: the  
challenge of navigation



Ngāi Tahu  
Customary Fisheries Management:  
Restoring Rangatiratanga


University of Canterbury  
26 September 2011

Ngāi Tahu

**THE GEOLOGY DEPT WAS CALLED ON  
AS EXPERT WITNESSES TO DISTINGUISH  
THE TYPES OF POUNAMU  
SAMPLES WERE COLLECTED FROM:**

- THE LEGAL SOURCE THAT THE ACCUSED CLAIMED THE POUNAMU WAS MINED FROM (BIG BAY)
- THE ILLEGAL SOURCE THAT NGAI TAHU ALLEGE THE POUNAMU WAS TAKEN FROM (CASCADE PLATEAU)
- THE ALLEGEDLY STOLEN SAMPLES ("OTHER" COLLECTED BY POLICE)

- Geologists
- Geographers
- Astronomer
- Ecologist
- Food Scientist
- Audiologists



# Mutual Benefits


## University / Students / Community

### University

- It helps the University / College of Science / School of Biology meet its Treaty of Waitangi goals

### Students

- The course provides an essential background in cultural awareness and the relationship between New Zealand scientific community and the Māori community.
- The course also develops competent non-Maori scientists with some familiarity in bi-cultural contexts.



# Mutual Benefits

## University / Students / Community

### Students

- Encourages engagement of Māori students with science
- All students are exposed to a range of indigenous experts, Māori and non-Māori scientists in an equal setting
  - First Māori PhD Astrophysics
  - Senior museum curator
  - Traditional material cultural expert
  - Ta Tipene O’Oregan
  - Nigel Scott – Ngāi Tahu Senior Environmental Advisor

# Mutual Benefits

## University / Students / Community

### Community

- The course includes a field trip to Kaikoura. We stay at the local marae, and work with the local Maori community to carry-on a paua (abalone) reseeding project to a rahui (no take) zone.







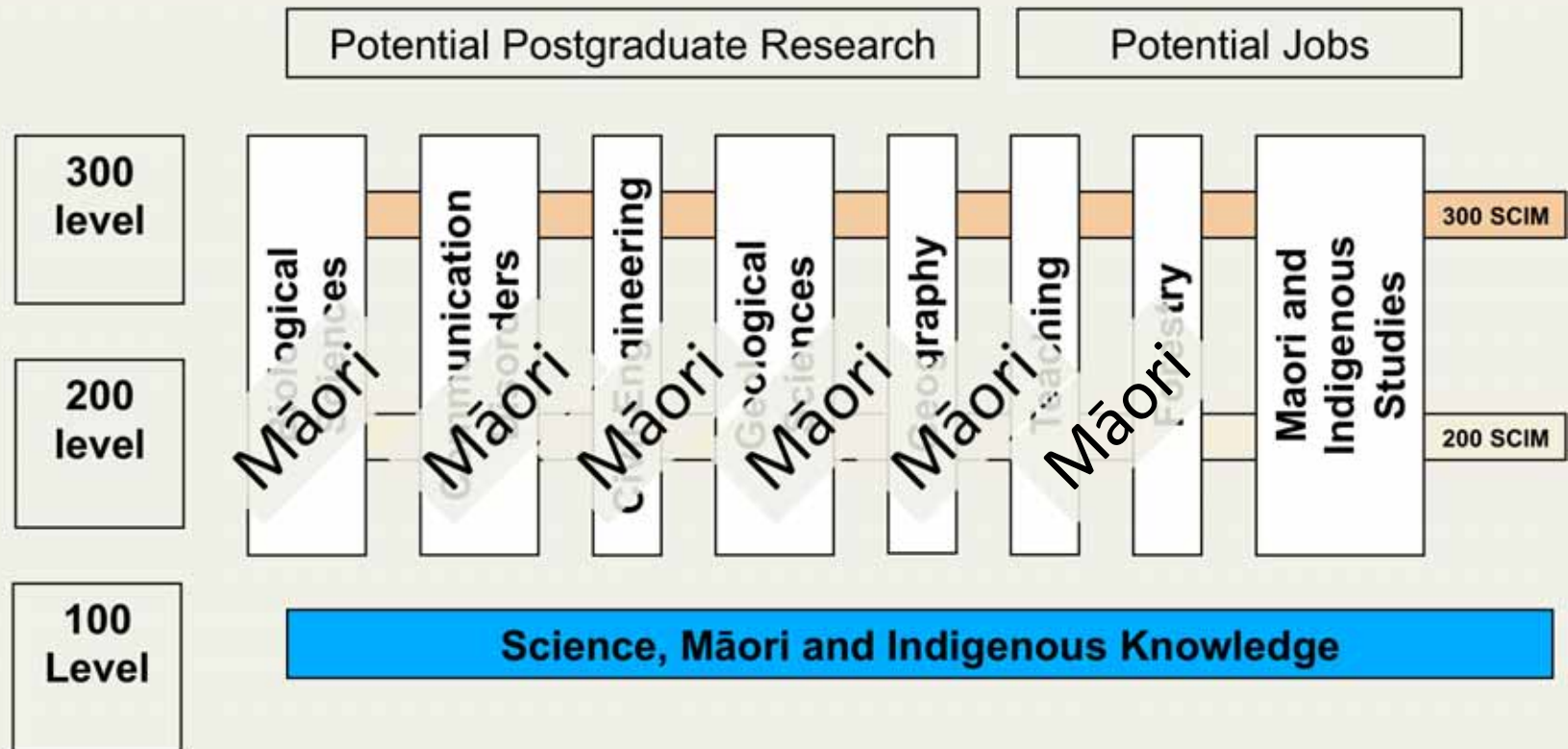


# Initial and Ongoing Challenges

- Seen as “not really science”
- FTEs sharing between Colleges / Departments / Schools
- Course now in jeopardy as now falls below the 50 minimum.
- Is a one-off, stand alone course that does not continue past level 1
- Fulfills Treaty obligations at the lower level without providing options at the higher levels



# SCIM101/MAOR172



# University of Canterbury and Te Runanga o Kaikoura

- Since August 2002, a rahui has been in place for an area of the Kaikoura Peninsula between the old and new wharves.
- The area has been closed for five successive two year terms.
- This fifth renewal will expire 2012

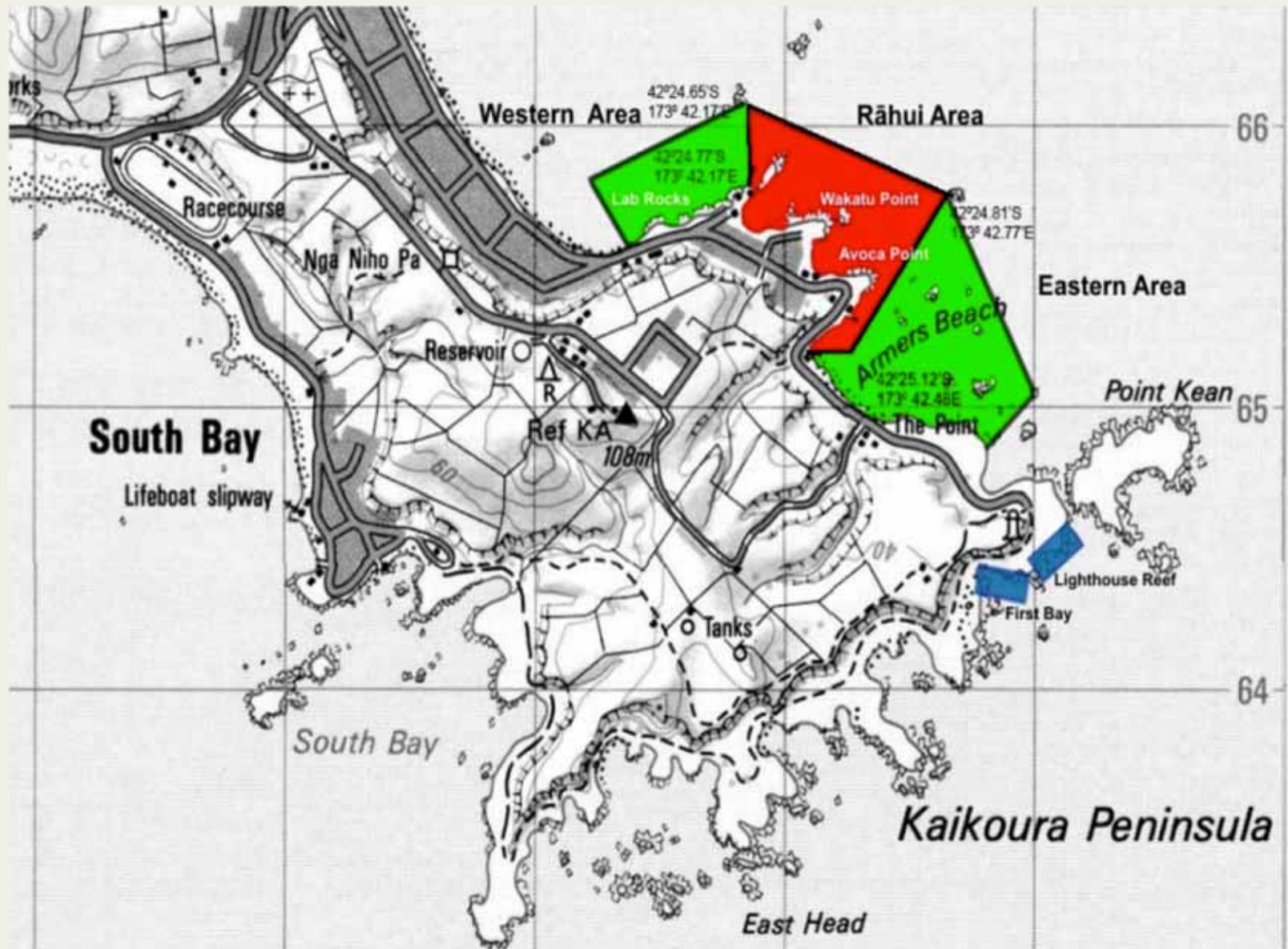


## Monitoring

- In 2002 initial transect lines were established to use for baseline and follow-up information. These transects were swum again on the 15th July 2003.
- Enhancement of paua has also been attempted within the rahui. In 2003 paua larvae were released into the area, possibly on a number of occasions.
- Again in 2003, paua spat (5-10 mm) are reported to have been released into the rahui with the help of PAU 3 (now PAUA MAC 3).
- From 2005 until present over 1000 paua have been tagged and reseeded into the rahui by students from the University of Canterbury as a component of a tag and release field exercise run by the Science, Maori and Indigenous studies course.

# Research Objectives

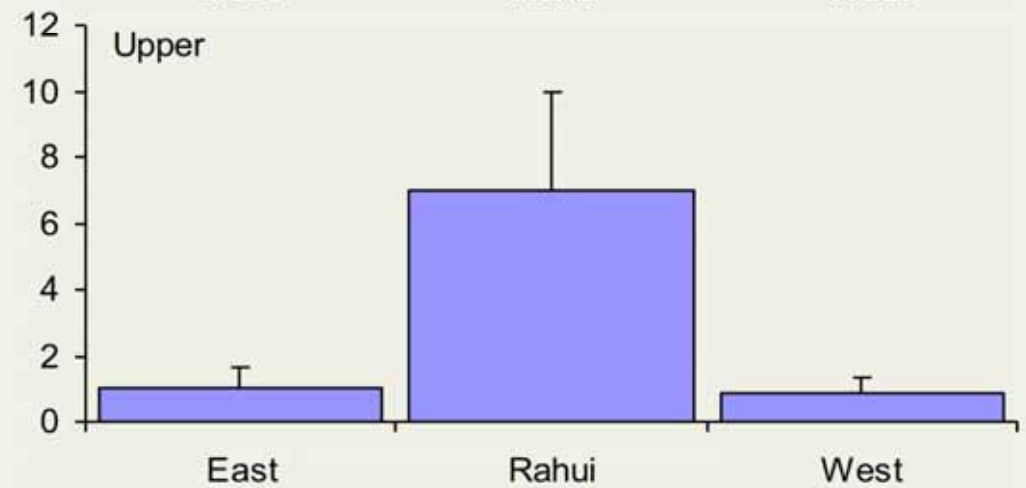
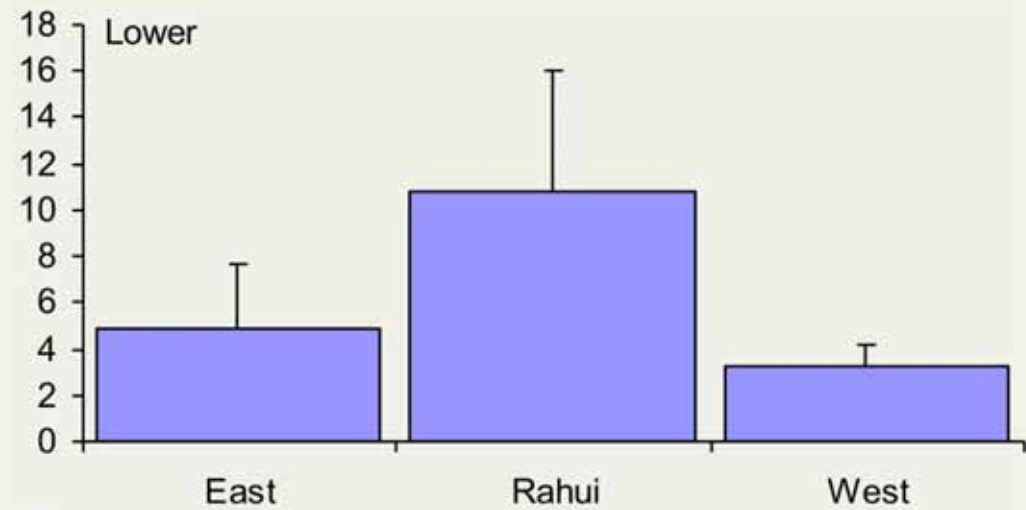
- Quantitatively investigate the anecdotal claims of increased abundance of taonga species within the Kaikoura 186B Rahui (provided by the University of Canterbury).
- To assess the effectiveness of a customary paua re-seeding (transplanting newly emergent paua to the rahui area) program





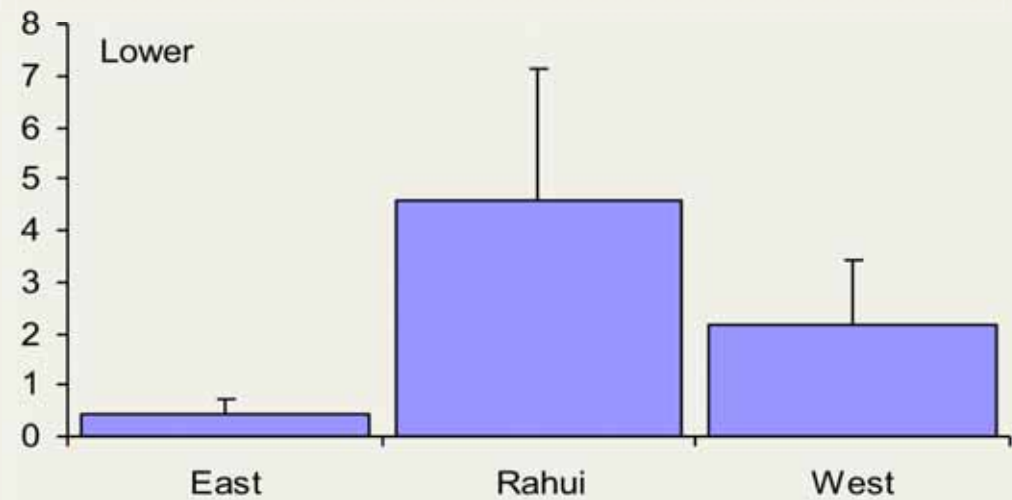
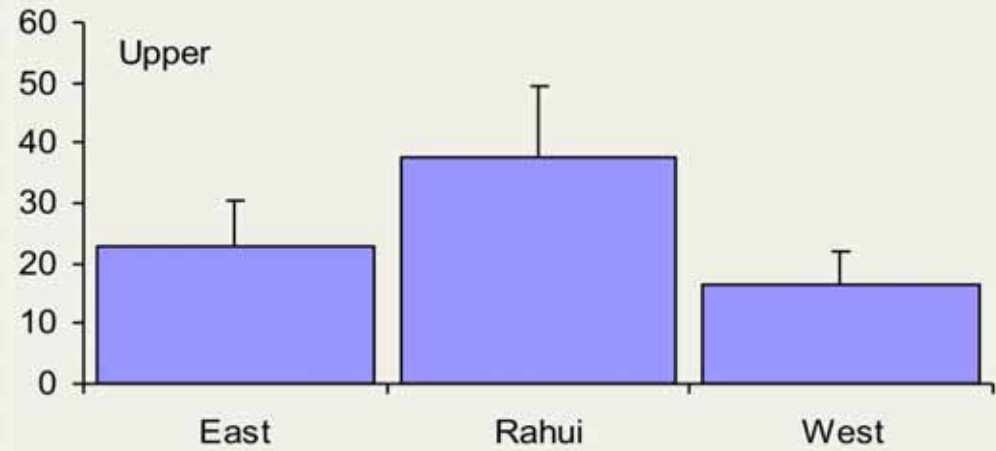


## *Turbo smaragdus* (pupu, cat's eye)



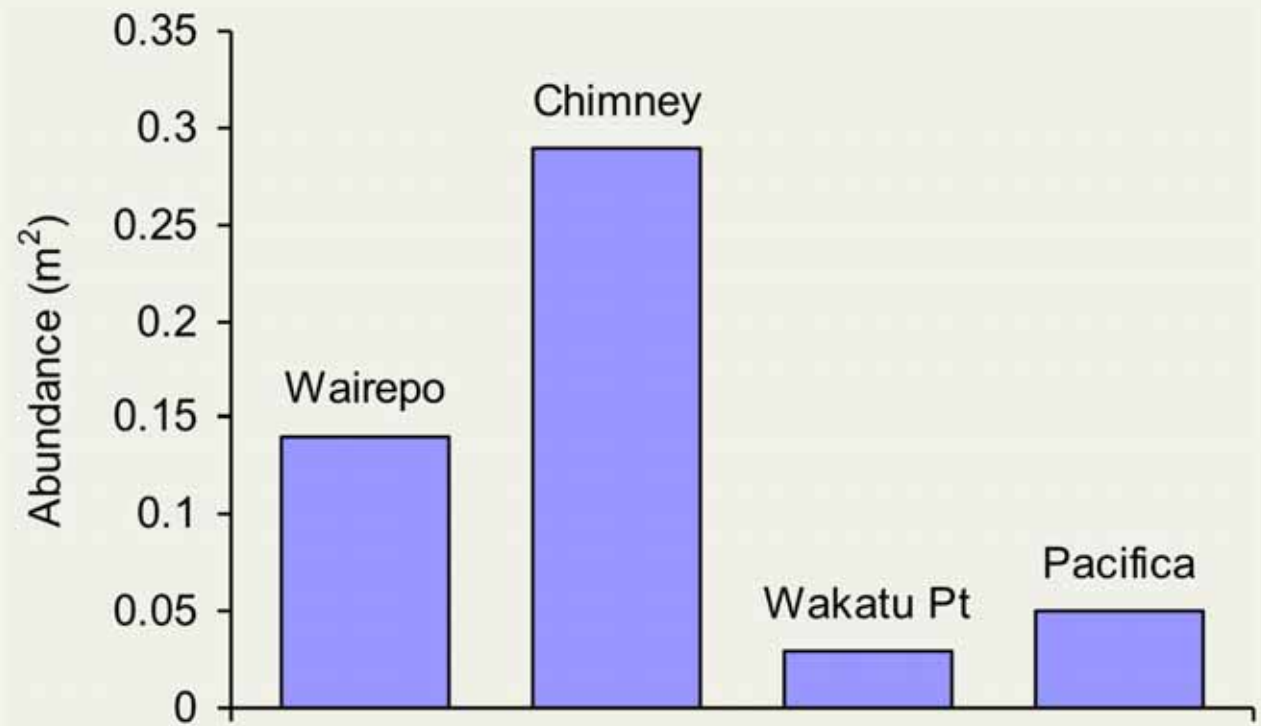


## *Melagraphia aethiops* (maihi periwinkle)





## Subtidal *Haliotis iris* (Paua)





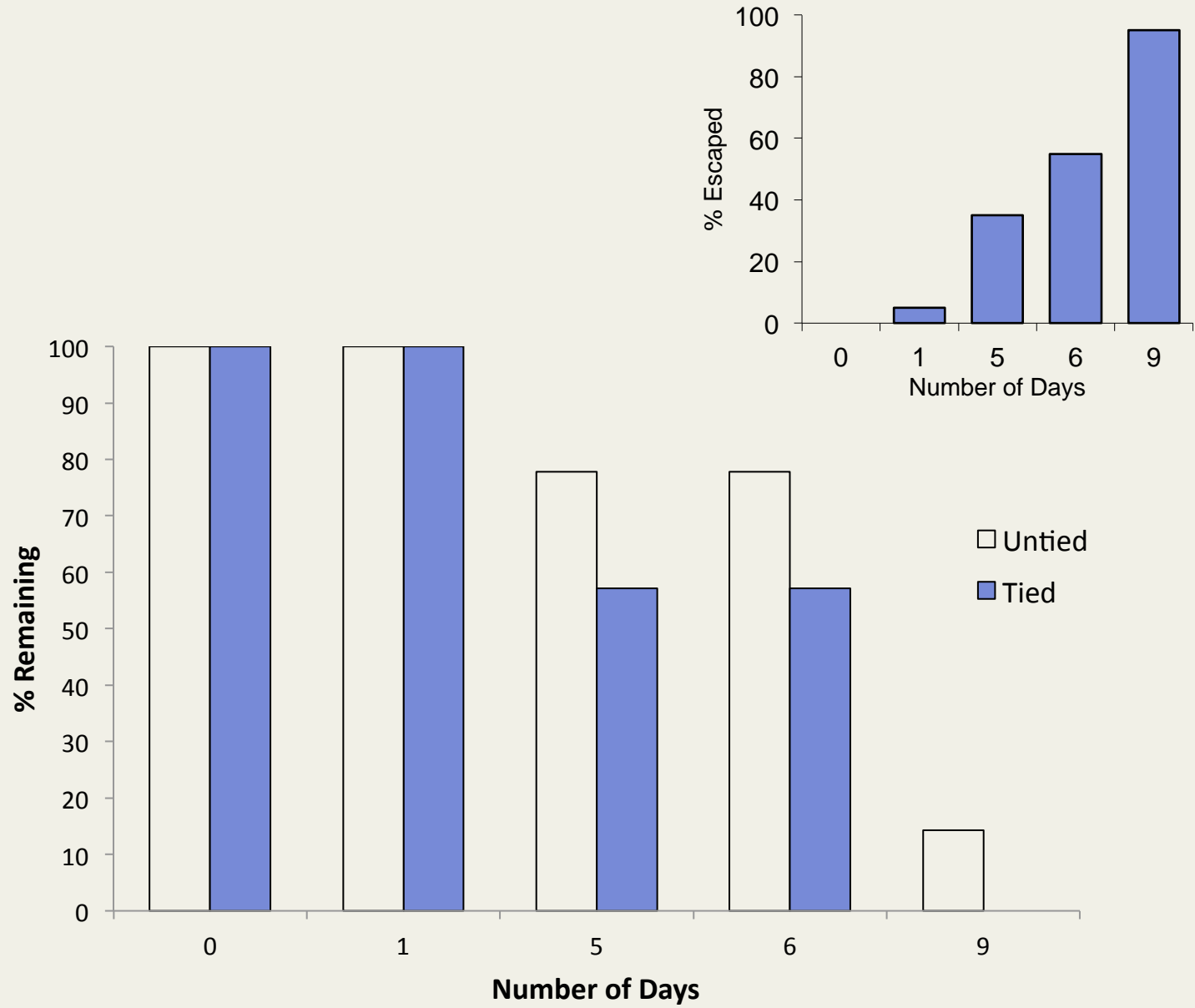
# Ōnuku Rūnanga and Wairewa Rūnanga on behalf of the Akaroa Harbour Taiāpure Management Committee.

Comparing Traditional and  
Contemporary Pāua Reseeding  
Methods within the Akaroa Taiāpure

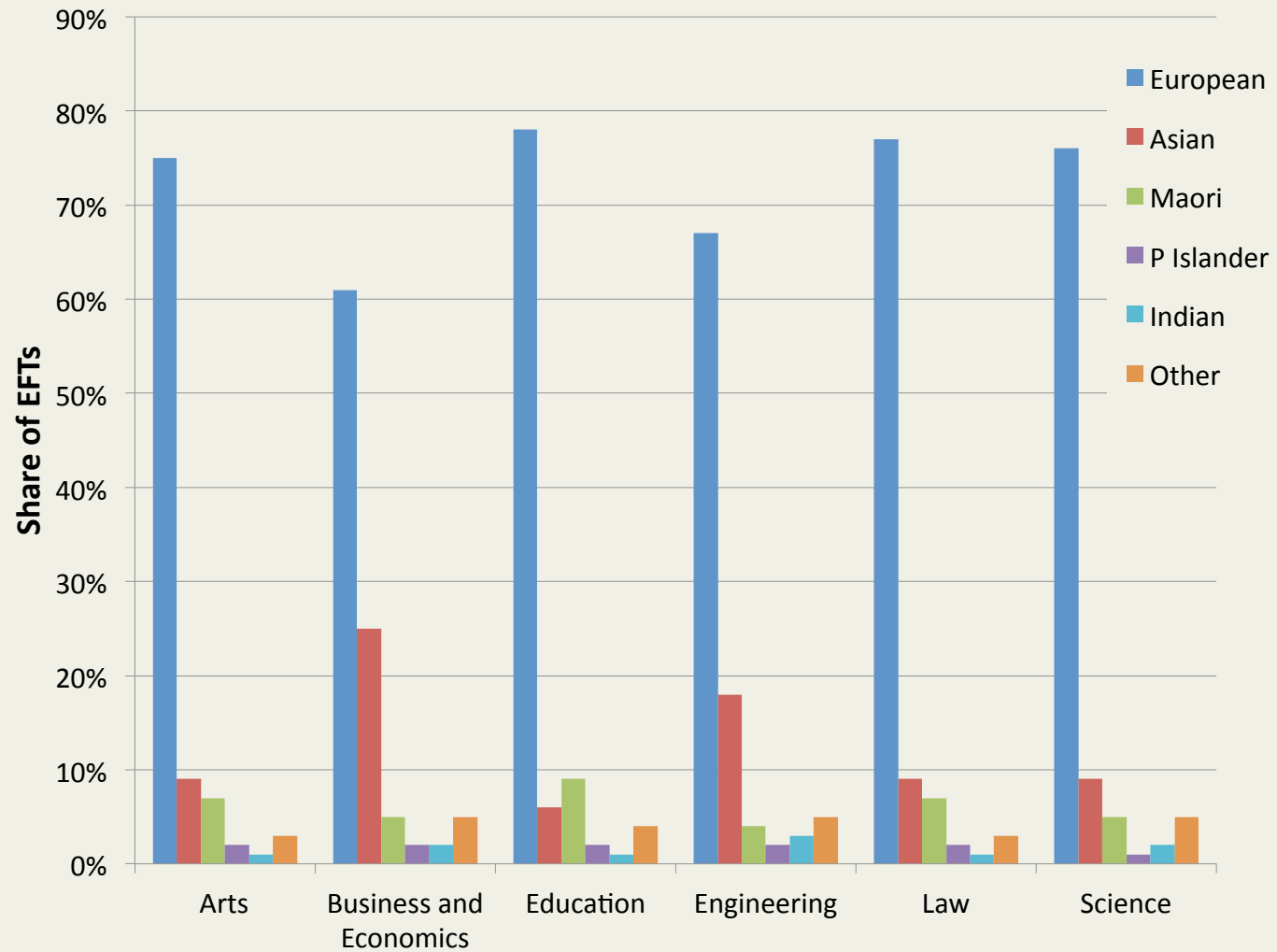
*To actively promote the use of traditional tikanga  
(customs) and kawa (protocol) such as rāhui (temporary  
closures) within the management of the Taiāpure (using  
'lore' to create the 'law').*



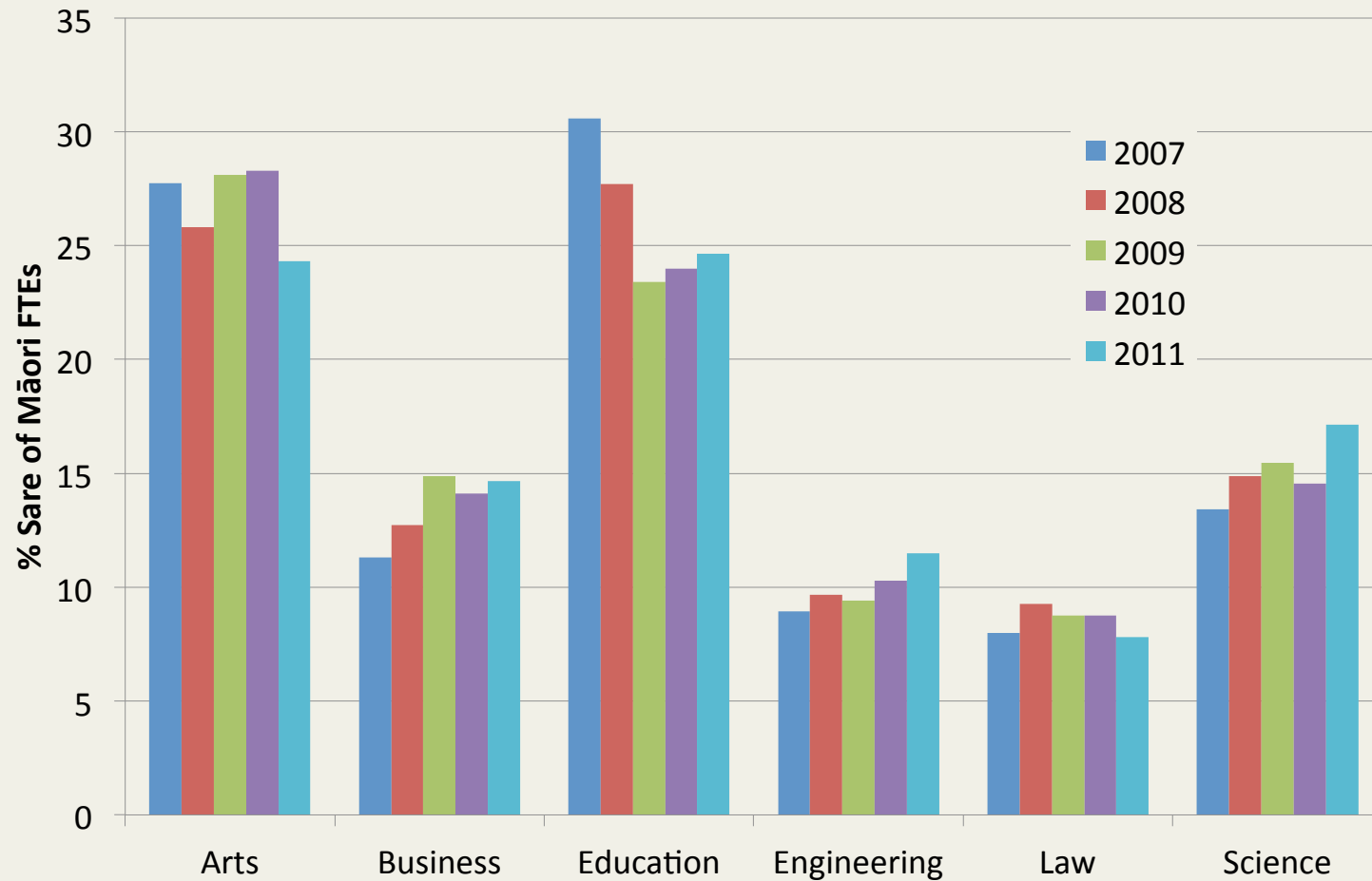




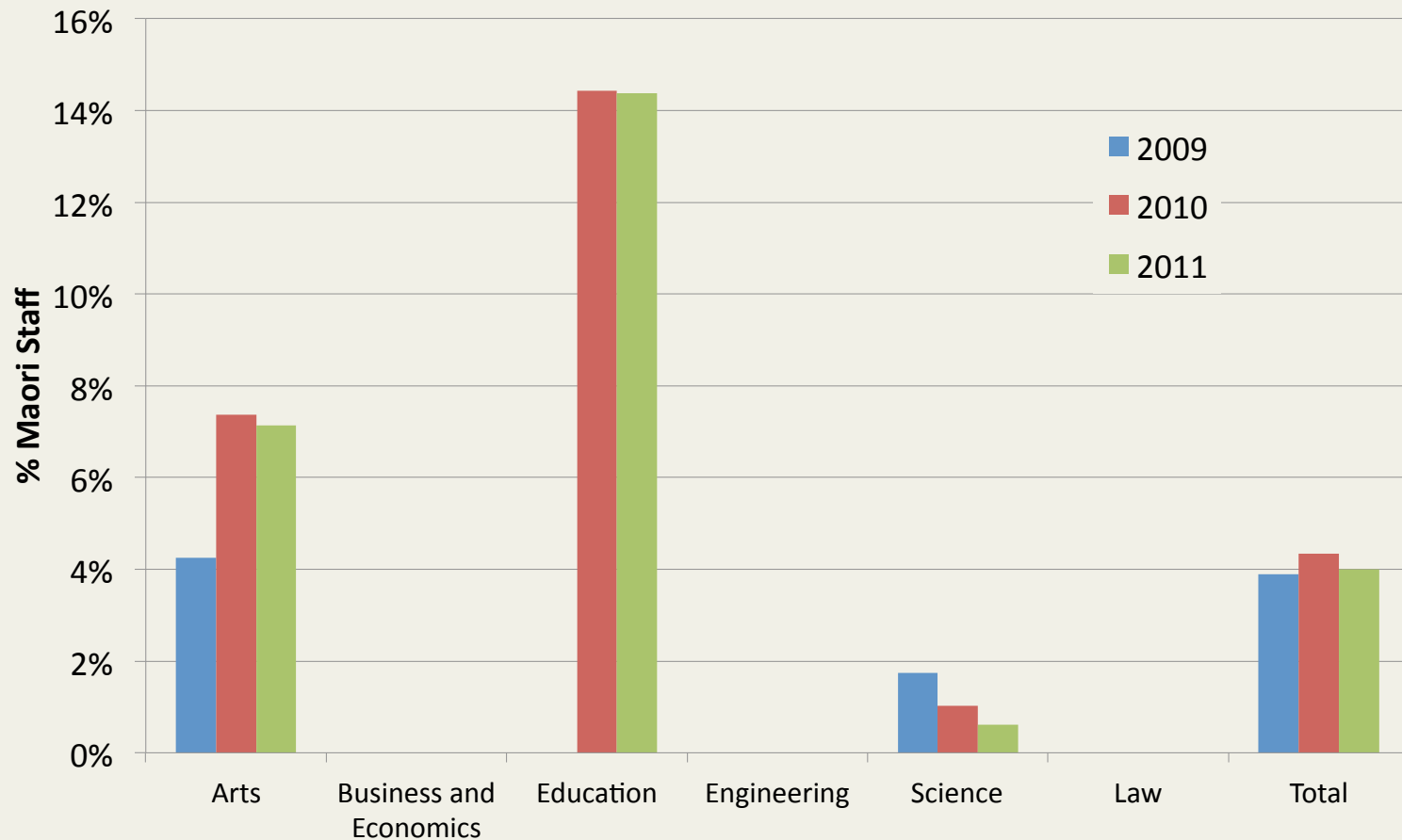
# Enrolment by Ethnicity



# Māori Enrolments Across Colleges



# Colleges and Schools Māori Academic



# Changing Landscape

Assistant Vice-Chancellor Māori

- Mr Darryn Russell

Pro Vice-Chancellor College Science

-Professor Paul Flemming

Professor of Maori Research

- Professor Angus Angus Macfarlane

Ngāi Tahu Research Centre

- Associate Professor Rawiri Te Maire Tau

# Acknowledgments

The Ministry of Fisheries

Ngāi Tahu

Nigel Scott

Te Runanga o Kaikoura

Owen Woods

Taikorekore Stirling

Raewyn Solomon

Marine Ecology Research Group

Aotahi: School of Māori and Indigenous Studies

Hamuera Kahi