



HE KITENGA MĀORI

UNIVERSITY OF OTAGO MĀORI RESEARCH HIGHLIGHTS

UNIVERSITY
of
OTAGO



Te Whare Wānanga o Otāgo

NEW ZEALAND



COVER

Pounamu hei tiki (Southland):

D28.43, Otago Museum Collection.

The hei tiki, worn around the neck, is taonga (a cultural treasure) and an iconic symbol for Māori. There are several theories about its meaning: that it represents Tiki, the first human in Māori legend; that it is connected to Hine-te-iwaiwa, an ancestress representing fertility and other qualities of Māori womanhood; and that it represents the unborn embryo.

The hei tiki takes on the spirit of those who wear it, becoming a link between people, spanning time and distance.

He Kitenga reflects the concept of discovery. The Māori word “kitenga” derives from “kite” which translates to words such as “see”, “perceive”, “find” and “discover”. *He Kitenga Māori* recognises the University’s commitment to kaupapa Māori research, and research into aspects of Te Ao Māori, on a national and international scale.

Tēnā koutou katoa e rau rangatira mā, e ngā mana, e ngā reo, e ngā waka o ngā tai e whā o ngā karangataha maha, o tēnā pito, o tēnā pito. He mihi tēnei ki a tātou kātoa, ngā konohi ora.

Ki a rātou kua whetūrangitia, kua hinga mai, te rahi me te iti, e mihi ana, e tangi ana mātou ki a rātou, haere, moe mai, oki oki mai, kāti.

Ko te kaupapa nei o tēnei pukapuka kia whakanuia ngā pūkenga me te mahi o ngā rangahau Māori i roto i Te Whare Wānanga o Ōtākou. E whai ana rātou i te taumata o rātou kua wehe atu i te pō, ko Te Rangihiroa tērā, ko Tutere Wirepa tērā, ko Pohau tērā, ko Tom Ellison tērā, ko Paratene Ngata tērā, ko Rina Ropiha tērā, ko Dame Katerina Te Heikoko Mataira tērā, a wai atu, a wai atu, ko rātou ngā ihumānea o ngā rā o mua, hai aha? Hai whāinga mā tātou.

He Kītenga brings together a selection of Māori research at the University of Otago. These diverse research interests build on the strong foundations laid by predecessors,

many of whom have since passed on. Academic leaders such as Te Rangihiroa (Sir Peter Buck), Dr Tutere Wirepa, Dr Edward Pohau Ellison (Pohau), Dr Tom Ellison, Dr Paratene Ngata, Rina Ropiha and Dame Katerina Te Heikoko Mataira and others, all of whom were recognised by their iwi and, indeed, on a national scale for their vast achievements.

Ngāi Tahu Research Consultation Committee



Peter Ellison, Eleanor Murphy,
Dr Emma Wyeth, Rua McCallum.
Inset: Edward Ellison.

He Kitenga Māori

*Ā, ka **kitea** i reira, e tuhi ana, e rapa ana.*

*Yes, it was **discovered** there by its marking and sheen¹.*

We wish to welcome you to a very special edition of *He Kitenga*, celebrating the wealth of Māori research undertaken by academic staff and students across all of the University of Otago campuses. In keeping with our standing as New Zealand's top-ranked university for research quality, *He Kitenga Māori* depicts the breadth and depth of Māori research that occurs across numerous disciplines. Throughout this issue, you will find many examples of research excellence that reflect a partnership between Otago researchers, Māori and non-Māori, as well as whānau, hapū and iwi.

It has been 10 years since the University signed the 2001 Memorandum of Understanding with Te Rūnanga o Ngāi Tahu and established the Ngāi Tahu Research Consultation Committee. The value of this Treaty partnership is evident in the growth of Māori research across the University.

The University of Otago celebrates these research achievements and invites you to discover for yourself the outstanding Māori research depicted in *He Kitenga Māori*.



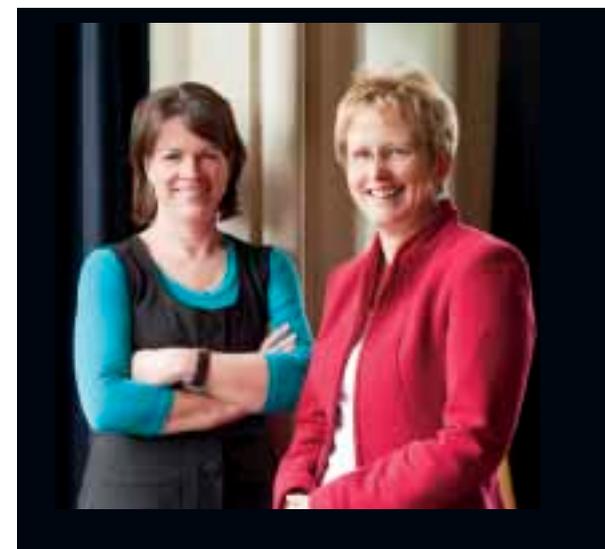
Professor Harlene Hayne

Vice-Chancellor



Professor Helen Nicholson

*Acting Deputy Vice-Chancellor
(Research and Enterprise)*



1. Mead, H.M. and Grove, N. (2001): *Ngā Pēpeha a Ngā Tipuna*. This whakatauki (proverb) refers to the discovery of a talent through its manifestation in a product or a piece of work.

The University of Otago, New Zealand

Te Whare Wānanga o Ōtākou, Aotearoa

Ko Te Whare Wānanga o Ōtākou, kua tū i te tau 1869, te whare wānanga tuauki o Aotearoa. I ēnei rā kei te rongonui te whare wānanga nei puta ki Aotearoa, puta atu ki te ao mātauranga hoki i tōna kaha ki te whai kounga, i te tauritenga anō hoki o āna tikanga o mua ki ngā ariā hou o ēnei rā, arā ko ngā karahipi, a, ko te angitu o āna mahi rangahau. He mea kua mōhiotia whānuitia e Aotearoa, e te ao mātauranga hoki. Kei te tihī o te maunga te Whare Wānanga o Ōtākou i āna mahi rangahau, koinā te pārekereke e matomato ai ana te tipu o āna akoranga katoa.

Founded in 1869, the University of Otago is New Zealand's oldest university. Today it has a national presence and enjoys a worldwide reputation for excellence, successfully balancing the traditions of its history with modern scholarship and world-class research. Otago is New Zealand's top-ranked university for research – research which underpins all areas of academic activity.

DUNEDIN

Main campus

Undergraduate and postgraduate courses
Humanities
Sciences
Commerce (School of Business)
Health Sciences
Research and clinical training
Centre for Innovation
Distance education
Administration

WELLINGTON

University of Otago, Wellington

Research and clinical training
Postgraduate courses
Distance education

CHRISTCHURCH

University of Otago, Christchurch

Research and clinical training
Postgraduate courses
Distance education

INVERCARGILL

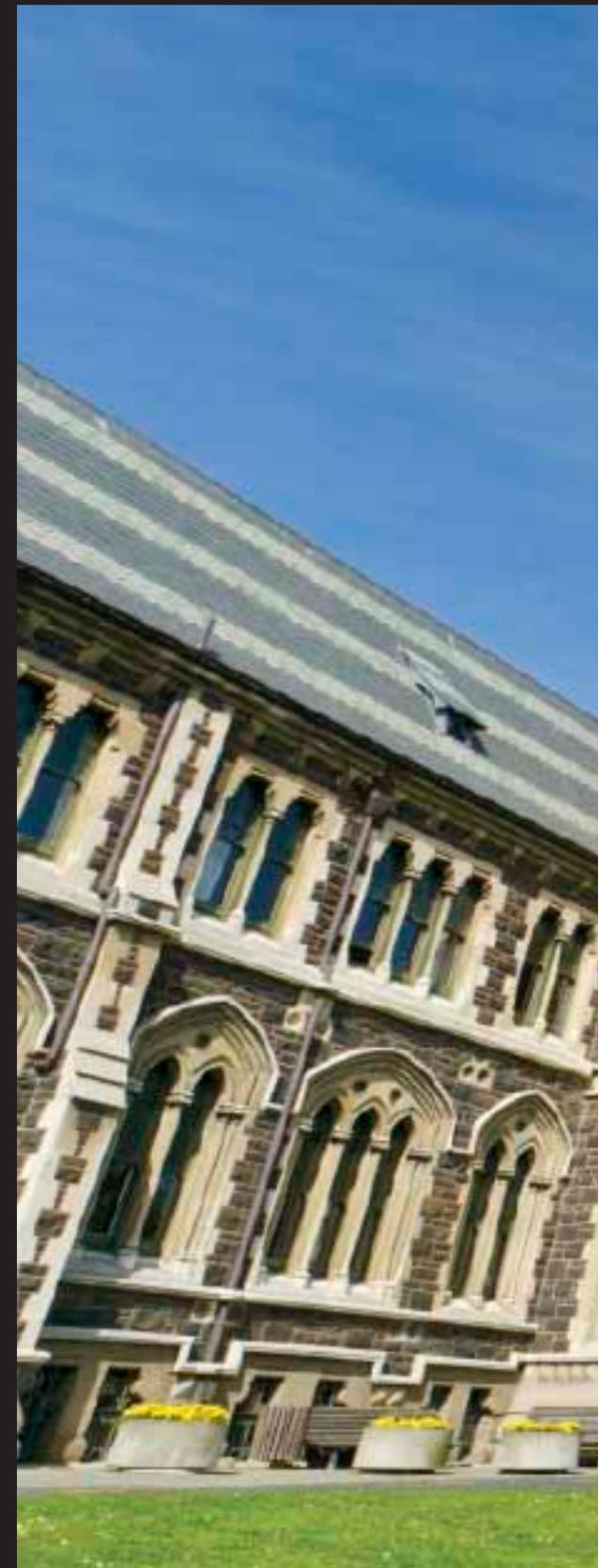
Southland Campus

University of Otago College of Education

AUCKLAND

Auckland Centre, University of Otago House

Marketing and Communications
Research and Enterprise
Distance education



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Dental partnerships

University of Otago researchers seeking to develop ways to reduce chronic dental disease among Māori children will be doing so as part of an international initiative.

The project is a partnership between Māori, Indigenous Australians and First Nations Canada, under the umbrella of the International Collaborative Indigenous Health Research Partnership. The Health Research Council (HRC) is putting more than \$2.3 million in funding into the New Zealand part of the project.

Associate Professor John Broughton (Department of Preventive and Social Medicine), who is director of the University-based Ngāi Tahu Māori Health Research Unit, is lead investigator for the New Zealand research and is working closely with Professor Murray Thomson and Kate Morgaine at the Faculty of Dentistry.

“Oral health disparities between indigenous populations and the rest of the population are a global thing,” says Broughton (Ngāi Tahu, Ngāti Kahungunu ki Heretaunga). “The cause is multifactorial: diet, oral health behaviours, fluoridation, social determinants of health – those sorts of things.”

Early childhood caries can become the focus of disease, pain and discomfort in the body, he says. “It can compromise their eating, their diet and their behaviour. It can impact upon

the quality of their life and impact on other members of the family.”

The New Zealand research is being conducted in partnership with Tainui through their health provider, Raukura Hauora O Tainui, and the Waikato Tainui College for Research and Development, established by the late Sir Robert Mahuta.

“They are leading the project on the ground so it is all being done within their tribal area. They have the clinical facilities, while the college has the strong research kaupapa.”

Broughton points to some startling statistics when putting the case for such research in New Zealand. For example, Waikato District Health Board data on preventable hospital admissions for 2007 indicate that 12.8 per cent of admissions involving children aged up to four years were for dental reasons, making it the second highest cause. In the next age group (5–14 years) the figure for admissions due to dental problems jumped to 30.8 per cent, making it the highest cause in that age group.

The project is looking at New Zealand Māori mothers and their babies, and hopes to safeguard the oral health of the mothers as well as that of the children.

“The thing about it is that all dental disease is preventable. And if you have a parent with poor oral health, and if you have a parent who

has a high caries rate and a virulent strain of bacteria in their mouths they can infect their babies – just by kissing them.”

By restoring and maintaining the oral health of the parents, and then other interventions along the way, it is hoped the babies can grow up without any oral pathology.

The researchers are currently recruiting 200 pregnant mothers for the 5-year study who will be split into two randomised groups – an intervention group and a delayed intervention group so that all participants get the benefits of the interventions.

The intervention has two components: dental treatments for mothers and motivational interventions.

“It is called motivational and participatory guidance. It’s not telling the participants what they should and shouldn’t do; it’s leading them into the position where they make those decisions themselves,” says Broughton.

“This is a good example of whānau ora. It’s not just focused on the individual; it’s focused on the family and the environment as well.”

FUNDING

Health Research Council of New Zealand

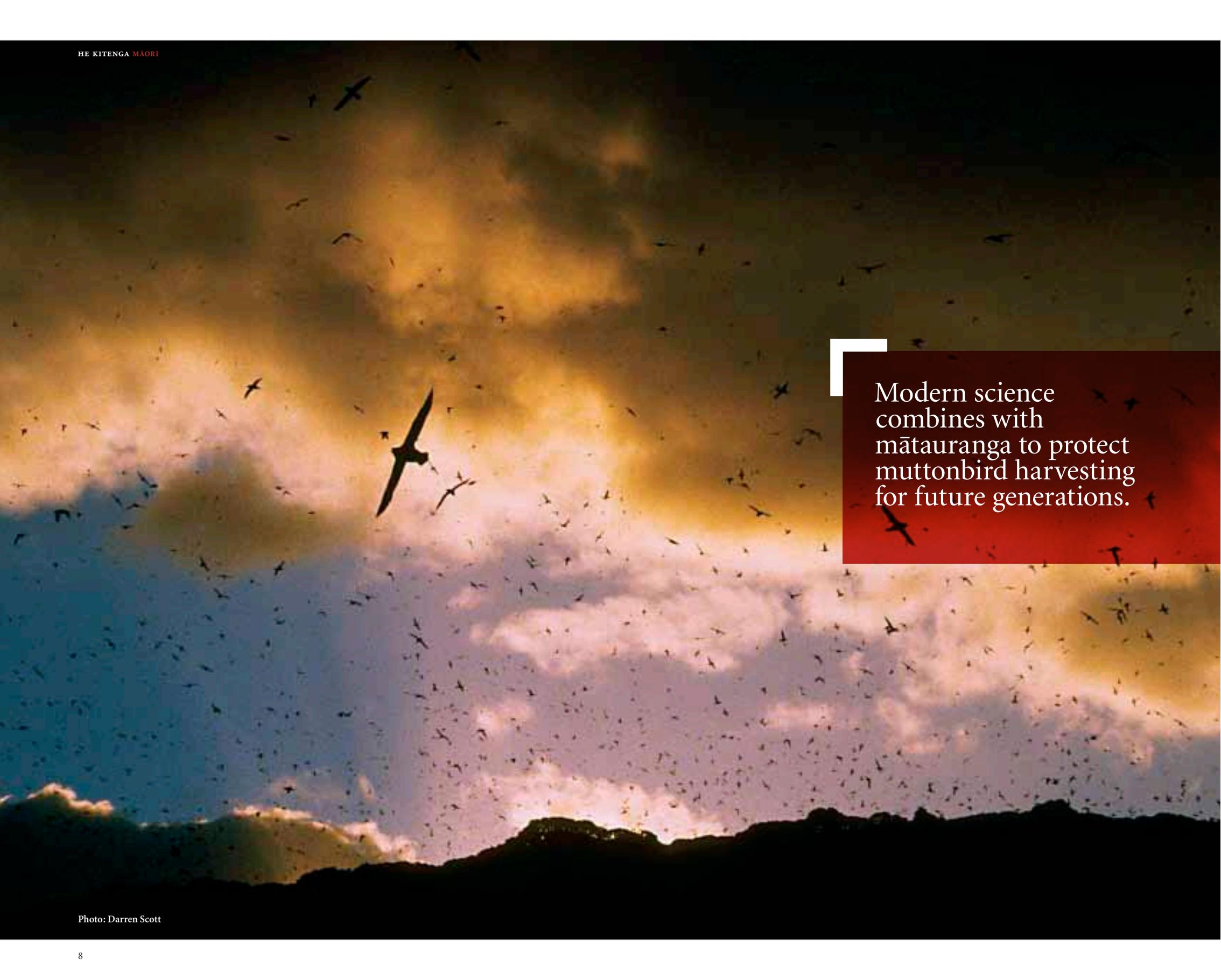
“This is a good example of whānau ora. It’s not just focused on the individual; it’s focused on the family and the environment as well.”



Associate Professor John Broughton:

Early childhood caries “can compromise their eating, their diet and their behaviour. It can impact upon the quality of their life and impact on other members of the family”.

Photo location: Otago Museum.

A large flock of muttonbirds is captured in flight against a dramatic sunset sky. The birds are silhouetted against the bright, orange and yellow light of the setting sun, which is partially obscured by soft, white clouds. The foreground shows the dark, silhouetted peaks of mountains. The overall scene is a beautiful representation of nature's cycle and the traditional practice of muttonbird harvesting.

Modern science
combines with
mātauranga to protect
muttonbird harvesting
for future generations.

Tītī traditions

Muttonbirding may be a Māori tradition going back centuries, but now it's using the latest technology. The long-term aim is to ensure the sustainability of harvesting tītī (juvenile sooty shearwaters, or muttonbirds), an important seasonal activity for the Kāi Tahu whānui.

Corey Bragg, a researcher at Kā Rakahau o te Ao Tūroa (Centre for Sustainability: Agriculture, Food, Energy, Environment), is working with families who have been muttonbirding on the Tītī Islands, off Rakiura (Stewart Island), for generations.

Bragg and a team at the University are building a computer program to support their record keeping, so current data can be combined with historical information and modelled to predict the future.

For Bragg (Kāi Tahu, Kāti Mamoe, Waitaha, Ngāti Kahungunu), it's a labour of love.

Originally from Bluff, he grew up muttonbirding – “we (muttonbirders) were the envy of other kids at school because we got to take time off to go harvesting each year” – and initially worked as a volunteer on research projects on the islands while completing his zoology degree.

Muttonbirding is one of few remaining native wildlife harvests managed entirely

by Māori, and holds cultural, social and economic importance.

For the last 14 years Rakiura Māori muttonbirders have collaborated with University of Otago researchers, led by Professor Henrik Moller, sharing data and knowledge, and developing research and monitoring capabilities among the birders.

Tītī, the most common seabirds in southern New Zealand, are top predators on the 36 islands. Learning more about them and what affects them – such as climate change, fisheries by-catch and pollutants – will help with wider conservation research.

Currently Bragg is developing computer aids to help the kaitiaki (guardians) choose the best harvesting strategies on their manu (ancestral birding grounds) and to ensure tītī numbers are plentiful for the next generation.

“We have a number of diaries kept by elders in the community – some going back to the late 1930s. It's amazing what they have done, keeping daily catch records, weather patterns, events on the islands and much more,” says Bragg.

“I don't think people keep records now in the same way, but, perhaps with our help, the next generation might be doing it with iPads, tablets or laptops ... the best

thing is that this technology allows them to do it down on the islands.”

The project combines ecological science and computing power with mātauranga (traditional ecological knowledge) to gain a better understanding of harvesting to protect the practice for generations to come.

If the combination works well, the concept has the potential to be shared with other iwi as a tool to guide other customary harvests of taonga (treasured) species.

“We'll be trying to see if the computer package changes the way birders harvest tītī,” says Bragg. “When we have assessed current harvest levels we can make predictions about the future.”

Although Bragg's current work ends in July 2012, he is also a member of the Rakiura Tītī Islands Administering Body, following a family tradition – his grandmother, Margaret Bragg, has served on the committee for almost 50 years.

“No matter where my research takes me, I'll still be continuing what I'm doing now.”

FUNDING

Ngā Pae o te Māramatanga



Corey Bragg:

“When we have assessed current [tītī] harvest levels we can make predictions about the future.”

Entrepreneurial spirit

A photograph of three people walking on a sandy beach. On the left is a bald man in a brown leather jacket and blue jeans. In the center is a woman with short dark hair wearing a black puffer jacket and a patterned skirt. On the right is a man in a black zip-up jacket and dark pants. They are all smiling and looking towards the right. The background is a bright, hazy sky over the ocean.

Professor Paul Tapsell with co-principal investigator Associate Professor Merata Kawharu and master's student Hirini Tane:

“Some very fundamental shifts have taken place in terms of how Māori participate in the economy and we really know very little about the implications of this.”

At a time when many iwi have access to unprecedented economic resources, how can a history of Māori entrepreneurship help break the cycle of dependence?

Maui – adventurous, opportunistic, resourceful – should provide a strong clue that an entrepreneurial spirit has long been celebrated by Māori.

Indeed, records from early Europeans in Aotearoa describe Māori as canny businesspeople and willing traders. But, says Professor Paul Tapsell from Te Tumu, Otago’s School of Māori, Pacific and Indigenous Studies, generations of poverty, low literacy and eroded confidence left this cultural trait dormant – or badly misdirected – for many decades.

But circumstances are changing for Māori, says Tapsell, in ways that are casting a new spotlight on indigenous entrepreneurship. “Many tribal groups are facing an unprecedented phase of economic development: Treaty settlements are putting them in control of financial

and land-based assets on a scale they have never known before.”

Māori are also accessing higher levels of education and taking on roles as business leaders, both within their communities and on an international stage.

None of which should gloss over the fact that Māori remain over-represented in poor health, deprivation, crime and imprisonment statistics, and that jobs and wealth creation are central to improving Māori well-being. The stakes are therefore high, Tapsell believes, if Māori are to succeed as masters of their economic destinies.

“This is an important moment in Māori history to break the cycle of dependence and re-establish Māori as a people capable of generating their own resources that leave no one behind.”

To understand and support the entrepreneurial leadership roles with which Māori are now re-engaging – and ask what the business models they represent really mean for indigenous New Zealanders – Tapsell (Ngāti Whakaeu, Ngāti Raukawa) has joined forces with colleagues from the University of Otago and the James Henare Māori Research Centre at Auckland University, securing a \$650,000, three-year Marsden grant to fund a wide-reaching three-year research programme.

Tapsell and co-principal investigator Associate Professor Merata Kawharu

(Ngāti Whātua, Ngāti Rāhiri, Ngāti Kawa) are aiming to better understand “how the Māori history of entrepreneurship can help us today”.

“Are today’s Māori post-settlement business models being developed out of this rich background?” asks Tapsell. “How are today’s Māori entrepreneurs balancing their commercial ventures with those of their originating marae communities? What might lessons learned in Aotearoa mean for indigenous communities elsewhere in the world?”

“Some very fundamental shifts have taken place in terms of how Māori participate in the economy and we really know very little about the implications of this.”

These are questions that the multi-disciplinary group – comprising historians, anthropologists and an economist – are approaching from several directions.

In Northland, Hazel Petrie is revisiting missionary records, government documents and more to learn about Māori as entrepreneurs in their early contact with Europeans. Kawharu has also teamed up with master’s student Hirini Tane to investigate tribally organised innovative enterprises that are emerging in the north beyond Treaty settlement contexts. A recent research trip gave them the opportunity to meet indigenous north-west Pacific leaders and begin a cross-cultural comparison with Māori.

Economist Christine Woods is considering the historical record and contemporary social entrepreneurial ventures in light of similar research occurring in North American indigenous communities as she explores theories of indigenous leadership and what useful findings might be applied to the overall research.

In the Bay of Plenty, Tapsell and PhD student Whakarongotai Hokowhitu have begun focusing on pre- and post-settlement tribes, comparing their leadership strategies, examining the role of marae communities within successful tourism ventures and aiming to understand “to what degree is Māori women’s leadership still influencing economic redistribution of wealth within tribal contexts?”

And in Southland, Tapsell and Te Tumu historian Dr Michael Stevens are charting the history of the Titi Islands, the only Māori-controlled industry that has survived, unbroken, since pre-colonisation times.

It paints a diverse picture, reflecting something of the increasing reach of Māori business. The team hopes its work will lead to a new model of indigenous entrepreneurial leadership that demonstrates the centrality of culture and the complexities of entrepreneurship from an indigenous perspective.

However, being a Māori entrepreneur is not the same thing as being an entrepreneur who happens to be Māori, believes Tapsell.

“Historically, the concept of entrepreneurship was about harnessing resources to support your wider whānau or hapū. So it was very much related to broader concepts of leadership and duty.”

This brand of leadership works well in a marae context, where it has remained strong among Māori women who maintain significant control over bringing in resources and ensuring they are distributed among needy members of the community. But increasingly, he argues, the idea of entrepreneurship has become separated from its attendant responsibilities.

“There are many Māori who are willing to embrace the ‘brand’ of Māori to access grants and scholarships, or to give their products or tourism activities a point of difference, without any sense of the accountabilities that go with this.” They are using their identity, he claims, “but not honouring it”.

Self-interest is partly to blame, believes Tapsell. But it’s also an approach driven by the business environment Māori must work within, where talk of obligations to one’s community and whakapapa has no place. “Everything is focused on quarterly reports, and keeping banks and investors happy. Where do you see anyone producing a 150-year business plan?”

FUNDING

Marsden Fund

“How are today’s Māori entrepreneurs balancing their commercial ventures with those of their originating marae communities? What might lessons learned in Aotearoa mean for indigenous communities elsewhere in the world?”



Dr Michael Stevens:

Muttonbirding offers important insights into how Māori respond to instances of natural-resource security.

The bigger questions ...

For Dr Michael Stevens, exposure to what became his PhD topic started early in life. From the age of 2 he was taken muttonbirding by his family on one of Foveaux Strait's Titi Islands and one of his enduring childhood memories is his grandfather keeping detailed diaries, in which he recorded the number and condition of birds caught, weather conditions and moon phases.

Years later, this writing practice contributed to Stevens' reflections on the co-existence of continuity and change in the ideas and practices relating to muttonbirding. His PhD used muttonbirding to ask larger questions about culture contact, colonisation and the evolution of Māori knowledge in southern New Zealand.

It was also a way of filling in some of what he sees as a hole in our understanding of Māori history.

"We know a lot about Māori life 20 years before and after the Treaty of Waitangi was signed. Likewise, we know quite a lot about things since the so-called Māori Renaissance. But, in many ways, there is a 100-year gap in the middle," says Stevens (Kāi Tahu).

"What were people doing? What was the nature of being Māori throughout that time?"

Although most Kāi Tahu were landless by the 1890s, the Titi Islands remained the exclusive preserve of those with genealogical rights to them, and their descendants, in perpetuity.

"This was how all of New Zealand used to be – property rights determined by whakapapa."

Muttonbirding, therefore, offers some important insights into how Māori respond to instances of natural-resource security. Stevens focused on how aspects of traditional and modern knowledge were woven together into syncretic forms.

Examiners rated his thesis as exceptional in every respect and Stevens is now re-working it into a narrative history on muttonbirding and a series of journal articles dealing with the theoretical aspects of his work.

He currently holds a postdoctoral fellowship co-hosted by Te Tumu, the School of Māori, Pacific and Indigenous Studies, and the School of Business.

His ongoing interests in southern Kāi Tahu history and his hometown of Bluff continue to shape his research and he is currently investigating colonial maritime cultures in southern New Zealand.

FUNDING

Foundation for Research, Science and Technology (Tūāpapa Pūtaiao Māori Fellowship)

BRCSS Network Doctoral Completion Award

Te Rūnanga o Ngāi Tahu

Ngā Pae o te Māramatanga Publishing Support Grant

Outdoor outlooks

It's time to rethink stereotypes when it comes to planning for outdoor recreation, says Dr Anna Thompson (Department of Tourism).

Thompson, co-director of the Centre for Recreation Research, says policy-makers are not always giving enough consideration to the diversity of cultural preferences for the outdoors.

"Think outdoor recreation and the images that spring to mind usually involve relatively affluent European/Pākehā males enjoying individual activities," she says.

"But it's also important for families and groups, such as Māori and Pacific Islanders, who don't get much of a mention in the policy or research literature."

Sport and Recreation New Zealand funding enabled her to investigate diverse family groups' experiences of, and attitudes to, recreation in the great outdoors.

Thompson (Ngāpuhi, Ngāti Ruanui), and Dr Arianne Reis interviewed families in Wellington, Dunedin and Twizel, providing a range of urban and rural locations. Their findings are now published in a booklet *Planting the Seed: family preferences, experiences and benefits associated with outdoor recreation in Aotearoa/New Zealand* (available at www.crr.otago.ac.nz/pubs.aspx).

"I think people hold stereotypical ideas about what outdoor activities different cultural groups are partaking in," says Thompson. "There's an assumption that different cultures do different things. We've found there are more similarities than differences.

"Pacific Islands families were found to be visiting national parks and going camping in large family groups – often as part of an annual holiday rather than on a regular basis that can be common to regular outdoor participants.

"Māori family members are often fishing or hunting and can partake in tramping and kayaking as secondary activities.

"Their stories don't appear in research that local or national government policies are based on and minority groups are often overlooked. We hope that *Planting the Seed* is just the beginning of giving these marginalised groups a voice so they can be heard."

Thompson's research did identify different cultural perspectives on experiencing the natural world. Pacific Islands and Māori families tended to consider the outdoors as a place for food gathering or socially-focused activities rather than adventure.

Family group outings were common, yet there was a distinct lack of published research into the outdoors experiences of families rather than individuals.

"Conservation, national and maritime parks have great appeal for many family groups from all cultures – Māori, Pacific Islands and Pākehā – but we largely see reference to individual adventurers and individual activities in academic or contract research, and so planners tend to cater for them.

"Lower socio-economic groups are poorly represented, yet access to natural outdoor areas is important to them for activities like walking or hunting because they are the people who can't afford elite and expensive activities that are reliant on equipment needs, like skiing.

"These groups need to be considered when making decisions about the experiences they can afford.

"It's important to encourage families to enjoy the outdoors, no matter what their culture or their reasons for being there.

"We need to promote a broader view of who participates in general outdoor recreation."

FUNDING
Sport and Recreation New Zealand

“I think people hold stereotypical ideas about what outdoor activities different cultural groups are partaking in ... We’ve found there are more similarities than differences.”



Dr Anna Thompson:

“We need to promote a broader view of who participates in general outdoor recreation.”

Kina, he kai pai

Multidisciplinary research has revealed ways in which New Zealand's kina fishing industry can maximise its export potential.



Professor Phil Bremer and Pat Silcock:
 ... aiming to find ways to improve the consistent quality of kina roe.

Sea urchins, or kina, are a familiar sight on New Zealand's coastline, and their roe has long been a delicacy enjoyed particularly by Māori and Pacific peoples.

The largely iwi-based fishing industry that supplies the local market has done so with much the same practices for decades: the wild shellfish are harvested by free divers and their roe extracted, piled into pottles and sold, with little distinction made in product quality.

Currently New Zealand kina fishers realise \$NZ30 to \$70 per kilogram for their efforts. Professor Phil Bremer (Department of Food Science) and Pat Silcock, of Food Science's Product Development Research Centre, wondered what needed to happen to enable the local industry to successfully export kina roe to the lucrative, but extremely demanding Japanese market, where sea urchin roe can reach up to \$NZ1,300 a kilogram, depending on origin, flavour, colour and size.

To answer this question Bremer and Silcock set up a multidisciplinary research project working with Associate Professor Mike Barker in Otago's Department of Marine Science, Dr Alan Carne (Biochemistry), and Dr Mary Sewell in the School of Biological Sciences at the University of Auckland. Fifteen postgraduate students were also involved, including doctoral candidates Dan Garama (Ngāi Tahu), the recipient of a Te Tipu Pūtaiao Fellowship, Kylie Phillips and Wasseela Verachia.

The group's principal aim was to solve the major barrier that stood in the way of local fishers accessing this opportunity: namely, the inconsistency in New Zealand kina roe quality, by determining the causes of variables such as taste, colour, texture and shelf life that impact on roe quality, and what might be done to make these more predictable or controllable.

They focused on three areas: identifying the effect of season on roe quality, determining whether roe quality could be improved by controlling the diet of harvested kina held live in "sea cages" for several weeks, and improving processing and handling techniques.

A project of this scope required the participation of a number of people across the country, as well as the research team. Bremer and his colleagues enlisted the help of Ngāi Tahu Seafood fishers to supply them with freshly harvested kina for testing and ranching, and also worked with Nelson/Marlborough and North Island iwi members to supply kina and hold them in cages on their mussel farms. In addition, the project involved the training of teams of dedicated sensory panellists who rigorously analysed roe quality on a monthly basis.

Their findings were interesting – and even unexpected. The sensory tastings revealed a marked difference between the flavour of female and male roe, for example, with female roe generally being more bitter than the

sweeter male counterpart, and characterised by a metallic and/or sulphur taste. This difference was least pronounced in autumn prior to the roe increasing in size as the animals entered the spawning season.

Roe colour generally considered more attractive (more creamy yellow/orange than brown) was found to occur more frequently in smaller kina and those sourced from warmer North Island waters. The researchers believe this is due to the age of the animal and diet, as cold-water kina consume mainly kelp in contrast with the more varied diets of their warmer water counterparts.

This was borne out by trials with kina held in "sea cages" and labs, which were fed a variety of natural and artificial ingredients in soy-based diets. Bremer explains that the researchers were able to enhance the yield and the flavour of kina roe by manipulating the animals' diets.

The researchers also explored different handling techniques of live kina prior to processing, such as the temperature they're stored at. They found that the way in which the animals are handled and stored prior to processing impacts on the subsequent quality and shelf-life of the extracted roe.

Having found answers to many of the questions posed at the outset, Bremer and his team hope the industry will take advantage of the findings and adapt their processes to maximise the return on a resource which must, after all, be managed sustainably.

On the domestic market, harvest return is linked solely to gross weight rather than quality, therefore there's little incentive to alter harvesting practices to make them more conducive to product quality.

As a result, kina harvesting tends to be concentrated in the late spring, when the animals' roe size is at its largest. Yet the research team have proven the average roe flavour across both sexes is at its optimum in autumn. Furthermore, kina rely on relative population density to successfully reproduce, but a late spring harvest removes mature, reproductive adults at the peak of the breeding season.

The researchers have held industry workshops to present their findings and say the kina industry has picked up and acted on some of the data relating to harvesting.

"Our integrated, science-based approach combining ecology, biology, food science, chemistry and sensory science has provided information that will underpin the development of a successful kina export industry," says Bremer, who hopes the industry will utilise more of the information they've uncovered to help it make a mark on the international kina roe industry.

FUNDING

Foundation for Research, Science and Technology

Supporting te reo Māori

Māori speakers in Dunedin and Otago face an uphill battle to keep their language skills alive so they can pass them on to new generations. But soon they could be getting help, following collaboration among local families, Ngāi Tahu and a multidisciplinary team from the University of Otago.

Associate Professor Poia Rewi (Te Tumu, School of Māori, Pacific and Indigenous Studies), Dr Katharina Ruckstuhl (Research and Enterprise) and Dr Tamar Murachver (Department of Psychology) are running a pilot project to investigate and assist Māori language proficiency – “He Iho Reo: Developing a Tool-box to Support Maori Language Transmission and Maintenance”.

Dunedin and Otago have some of the lowest rates of Māori language use in the country, which makes it difficult for speakers to keep it going.

“If you don’t speak the language at home and in the community, the next generation isn’t going to pick it up,” says Ruckstuhl. “It could become an extinct language.”

Ruckstuhl (Ngāi Tahu, Rangitāne) had been involved for some time with Ngāi Tahu strategy to support the use of Māori in the home and realised that hard data would help prompt policy change.

Rewi (Tūhoe, Ngāti Manawa, Te Arawa), who this year won the New Zealand Society of Authors’ Best First Book award for *Whaikōrero: The World of Māori Oratory*,

a work acclaimed as a piece of significant scholarship, is keen to address the Māori language deficit in the region.

Their 2-year study began by recruiting and interviewing 10 local families who use the language to various degrees in a range of situations, in the home and community. The next phase was to leave recorders in their homes for a few weeks and then transcribe their conversations to find out how the language was used.

Murachver is analysing the use of language from a psychological perspective.

“By better understanding what motivates people to use Māori language and understanding the obstacles people face, we can build better tools that will work in different situations,” says Murachver.

“We know this will not be a ‘one size fits all’ solution, which is why we need to understand why some things work well for one whānau, but not for another.”

“Initially it’s a stock-take of where families are in terms of proficiency and to identify possible problems in speaking Māori, inside and outside of the home,” says Rewi. “Then we can see how we might be able to help them increase access to, and usability of, the Māori language.”

“Without a critical mass of local Māori language speakers, what these families are trying to do is quite difficult,” says Ruckstuhl. “Although it’s a small sample, it should identify promising areas for further exploration.

“It’s a start in providing hard data that could influence Māori language policy direction in this country. If we are trying to maintain a language, we have to think very carefully about what our decisions are based on – and research can help.”

The collaborative nature of the project is one of its strengths, according to Ruckstuhl.

“We need people to work together on this. It’s like saving the kiwi. One person or group on its own is unlikely to succeed, but, if a lot of people who care work together, then you stand a better chance.”

The research team appreciates its volunteer families, as well as BA student Nikita Hall, whose honours dissertation is part of the project.

Upcoming phases seek to include more students and to support Māori language communities, such as Kāinga Kōrerorero.

Rewi’s larger, more challenging goal is to see a New Zealand more receptive towards the use of the Māori language as a distinguishing feature of our country.

“There’s a negative vibe being presented at the moment and that really needs to change. People should feel welcome to use it. We want to reaffirm the Māori language in this area so that future generations in Otago will be encouraged to learn and speak Māori.”

FUNDING

Ngā Pae o Te Māramatanga
(a New Zealand Centre of Research Excellence)

“Ki te kore te ngako, te matū, me pēhea te kōrero e iri, te rangatira e takahi?” – Karetu, 1986

Without the essence of the language, how can rhetoric be retained? How can one stand noble?



(Front from left) Nikita Hall, George-John Oneroa, Heneriata Oneroa, Tai Tutu Oneroa. (Back from left) Dr Tamar Murachver, Dr Katharina Ruckstuhl and Associate Professor Poia Rewi:

... collaborating with local families to reaffirm the Māori language for future generations.

Using kaupapa Māori methodology, University of Otago, Christchurch researchers are exploring risk factors in the prevalence of cardiac disease among rural Māori.

The rural heart

Half a century ago researchers travelled into the misty heart of Tūhoe country to study the heart health of a rural iwi. They gathered data on adults from the isolated Ruatahuna Valley in the Urewera region, central North Island, and found exceptionally high rates of coronary heart disease, obesity, smoking, high cholesterol, clinical gout and diabetes.

Since then, a lot of information has been collected on the cardiovascular health of Māori and non-Māori living in urban areas, but the 50-year-old Tūhoe study remained the most up-to-date, intensive research on rural Māori's cardiovascular health. Until now.

Researchers from the University of Otago, Christchurch have recently published a paper titled *Community screening for cardiovascular risk factors and levels of treatment in a rural community*, summing up the findings for 252 Māori participants living in the rural area of Wairoa, Hawke's Bay. It shows that little has changed in the past 50 years. Rural Māori participants still have worryingly high rates of cardiovascular disease and a lot of undetected cardiac risk factors.

The rural study is just one part of the Hauora Manawa Community Heart Study, which aims to look at the full range of cardiac risk factors of Māori within two community settings.

Māori comprise 15 per cent of New Zealand's population, but are three

times more likely to die of heart disease than non-Māori. While this disparity is recognised, no New Zealand studies have explored how the prevalence of heart disease risk factors differs in diverse communities across New Zealand.

The Hauora Manawa Community Heart Study was established by the Māori and Indigenous Health Institute (MIHI), in collaboration with the Christchurch Cardioendocrine Research Group (CCERG), more than 5 years ago. MIHI director Suzanne Pitama, who is from Ngāti Kahungunu on the North Island's East Coast, says there is great opportunity for her team to improve the statistics for Māori.

“Current data does not yet present us with the full story on Māori cardiac disease. The aim of this project is to see if we can find new information that might contribute to Māori health gain.”

The study compares randomly-selected populations from two Māori communities (one in rural Hawke's Bay, and Mana Whenua ki Waitaha in urban Christchurch) with a non-Māori community in Christchurch. Researchers have documented cardiovascular risk factors in Māori and are currently monitoring the implementation of treatment programmes, interventions and outcomes.

The project has a kaupapa Māori methodology, including Māori leadership and control of the project, and researchers are working alongside two tribal

authorities. Questionnaires, clinical protocols and recruitment approaches have been designed to be culturally appropriate.

Project co-leader Associate Professor Vicky Cameron (CCERG) says the study is unique in that it strives to understand a wide range of risk factors – from social factors and lifestyle to the role of genetics – in the prevalence of heart disease in Māori.

“The study will cover a much wider range of biochemical and social factors out in the community and, perhaps most importantly, how these interact with one another in relation to early onset of heart disease, or not.”

Community screening for cardiovascular risk factors and levels of treatment in a rural community is one of the first major papers to be published from the study.

Rural participants provided information on demographics, personal and family medical history, current medications, smoking status, alcohol consumption, physical activity levels and socioeconomics. Their blood pressure was taken and blood tested for glucose and insulin levels. Their Body Mass Index (BMI) was also calculated.

Significantly, the data identified high numbers of people with clear, but previously undetected, risk factors for cardiovascular disease. Twenty-five per cent of the sample had previously been diagnosed with hypertension. The study

uncovered an additional 22 per cent of participants who had hypertension, but were not aware of it.

Dyslipidaemia (high blood cholesterol) had been previously diagnosed in 14 per cent of participants; high blood cholesterol was found in an additional 43 per cent of participants. Type 2 diabetes had been previously diagnosed in 11 per cent of the participants, but only 21 per cent of this group had their blood sugar levels under control (an indication of whether they were managing their diabetes, or not).

These “surprising” levels of treatable risk factors were identified despite almost 70 per cent of participants having visited their GP within the past 6 months. Cameron says this suggests that additional opportunities for GPs to conduct cardiovascular disease screening should be taken when patients attended their doctor for illness or minor injury. Management of risk factors could be intensified further to achieve target levels within this rural Māori population.

Some cardiovascular disease risk factors were evident in much younger participants than the medical profession would usually screen. Government guidelines currently recommend Māori males be screened at 5-year intervals from the age of 35, and Māori women from age 45. Pitama says the findings indicate screening should begin at an earlier age

in Māori, particularly for those living in rural areas.

The study found that about 70 per cent of the rural sample was physically active at the level recommended by national guidelines – a much higher level of physical activity than the national average of about 51 per cent. However, despite being active, 80 per cent of participants were classified as having a BMI above the healthy range, compared with 63 per cent of the general population.

Smoking rates were high, with 43 per cent of participants reporting being a current smoker. Since these findings were presented to the local district health

board, two smoking cessation facilitators have been employed in the Wairoa district, just one example of the impact the study had on not just participants, but all Māori.

Pitama describes the opportunity to work on a project which will impact on such an important kaupapa as a “privilege”. She and Cameron hope that in 50 years Māori heart health will be in far better shape, thanks in part to the Hauora Manawa Community Heart Study, and the input of its participants.

FUNDING

Health Research Council of New Zealand
Heart Foundation of New Zealand

Additional support from:

PHARMAC
Hawke's Bay District Health Board
Canterbury District Health Board
Bestpractice©
Hubbards Cereals



Associate Professor Vicky Cameron and Suzanne Pitama:
“The aim of this project is to see if we can find new information that might contribute to Māori health gain.”

Pāua protection

Otago researchers are combining traditional Māori cultural practices with new scientific techniques to help restore local pāua stocks.



Marine scientists from the University of Otago are working closely with Kāti Huirapa Rūnaka ki Pūketeraki and the community at Karitāne on a reseeded programme to restore local stocks of pāua (abalone) on the East Otago coast.

Using locally-sourced genetic stock and community expertise in aquaculture breeding and the rearing of young pāua, the team plans to release about 100,000 young pāua on the coast over the next few years.

Project leader Dr Chris Hepburn and a team of 10 postgraduate students from the Department of Marine Science have been working with Ngāi Tahu for several years at Karitāne, Kākā Point (South Otago) and Koukourārata (Port Levy on Banks Peninsula), and with Ngāti Porou on the East Cape to help Māori communities protect, manage and restore their customary fisheries.

In just 2 years, their work in the East Otago taiāpure (shared fishery) forced a change in

legislation to reduce bag limits of pāua from 10 to 5 a day and closed an area around the Huriawa Peninsula near Karitane for 2 years to allow pāua stocks to recover.

Hepburn is a member of the East Otago taiāpure committee, which has a mandate to manage the fishery. Research by his team of postgraduate students in a range of disciplines in recent years has shown just how vulnerable pāua fisheries are to commercial and recreational exploitation.

“What we’re finding from our work now is that we know a lot of pāua fisheries have collapsed,” he says. “You can’t manage fisheries in isolation, but a lot of management strategies only focus on one species rather than a holistic approach from the mountains to the sea.

“You can’t have a fishery without a habitat, so that’s one of the key focuses of my research,” he says. “If we don’t change our practices, we won’t have a fishery left. In some places where we know there were pāua, they have gone already and the only way they will be restored – unless it is by some freak event – will be by reseeded. We don’t know how long that will take, but we know if we add stock it will recover much faster.”

Commercial pāua groups have done some reseeded work in the past, but their success rates are not well known because once young pāua are released they tend to disappear, Hepburn says. “We’re just trying to speed up that restoration, but this can’t happen in isolation. It has to be done alongside habitat and catchment restoration.”

Researchers are hoping to tap into a

combination of traditional Māori cultural practices and new scientific techniques to manage and monitor the reseeded programme. Engaging with traditional mātauranga (knowledge) may be as simple as not disturbing pāua when they are breeding, Hepburn says. The team is also investigating whether traditional Māori harvest strategies are effective.

The team’s long-term vision is for a sustainable harvest of pāua managed under traditional principles of tikanga (custom) and kaitiakitanga (guardianship).

To encourage local participation in the project, the team is hoping to involve the community in every stage of the reseeded programme – from spawning and growing young pāua in nurseries to restocking coastal waters.

If the plan works in the East Otago taiāpure, it may have wider application around the country and overseas. “We’re hoping to provide an example to iwi and communities in other regions to show them what they can do if they want to restore their fisheries.” Hepburn sees it as an opportunity to repay the Karitāne community for its support of his and other researchers’ work in recent years.

“The Karitāne rūnaka has a strong focus on education and treasures its links with the University,” he says. “Really, that’s where our roots are at this stage and we want to grow from that without trying to go too far too early.”

Marine science MSc student Peri Subritzky is exploring ideal nursery habitats for juvenile pāua at several sites around the country, including East Otago, Southland and

around his own rohe (district) in Northland. Researchers are also investigating the effects of climate change, ocean acidification, eutrophication, dredging, sediment and nutrient loading in the degradation of coastal habitats.

FUNDING

Foundation for Research, Science and Technology (Te Tipu Pūtaiao Postdoctoral Fellowships)

Te Tiaki Mahinga Kai



Dr Chris Hepburn:
“The only way [pāua fisheries] will be restored will be by reseeded.”

In women's words

Long-dead Māori women may soon be offering historians a whole new perspective on New Zealand life in the 19th century.

Two Otago researchers are combining their skills to trawl the archives for written records of Māori women's experiences, from domestic disputes to national politics.

Dr Angela Wanhalla (Department of History) and Dr Lachy Paterson (Te Tumu, School of Māori, Pacific and Indigenous Studies) realised that Māori women's voices were missing from many areas of 19th century history. They directed summer scholarship student Alyx King to carry out exploratory research to see if archives could provide hitherto untapped insights into the period.

There turned out to be abundant written material and now Wanhalla (Kāi Tahu) and Paterson are working on a collection of primary documents for a book. "Print culture scholars in New Zealand have tended to neglect Māori women's writings," says Wanhalla, "so this is a project that is the first of its kind.

"We are interested in the nature of women's writing, and structure and contents of that writing, among other things. We are examining writing in English and Māori, and the book will provide translations.

"What we hope is that we will produce a collection that gives insight into the variety and diversity of women's writings across a range of topics."

Paterson points out that Māori literacy was surprisingly high.

"It's hard to know the levels of literacy in the 19th century," he says, "but it is generally accepted that in the early period of New Zealand colonisation more Māori were literate in Māori than Pākehā were literate in English.

"A lot of Māori could read and write, and there's no reason why many of them shouldn't be women. And, of course, you don't have to be literate to use literacy. You can always get someone else to read and write for you."

The researchers are sourcing documents of the colonial period in archives and museums, manuscript collections and newspapers, looking for a variety of voices over a wide range of times and locations.

Although many personal writings may have been lost, official records offer a wealth of resources, from correspondence over land issues and evidence given in courts, to petitions to government bodies.

"Documents don't have to be produced by the women themselves, but as long as they are first-person records they are valid," says Paterson.

"We know a lot about Māori men's writing, but little about Māori women's writing. We're hoping to be able to get their points of view on such things as family and social issues and tribal and national politics. They could be quite different from those of the men."

FUNDING

University of Otago



Dr Lachy Paterson and Dr Angela Wanhalla:

"We hope [to] produce a collection that gives insight into the variety and diversity of women's writings across a range of topics."

"... it is generally accepted that in the early period of New Zealand colonisation more Māori were literate in Māori than Pākehā were literate in English."

Māori cohort for POIS

Ensuring that a large sample of Māori was included in the Prospective Outcomes of Injury Study (POIS) should provide researchers with meaningful insight into Māori experience of health services, ACC and recovery (or not) after injury.

The larger study, led by Dr Sarah Derrett (Injury Prevention Research Unit), followed an earlier Health Research Council (HRC) developmental grant awarded to Professor John Langley. The Māori arm of POIS is driven by Associate Professor Brendan Hokowhitu (Ngāti Pūkenga) of Te Tumu, School of Māori, Pacific and Indigenous Studies, Dr Emma Wyeth (Kāi Tahu Whānui, Te Ātiawa, Ngāti Mutunga, Ngāti Tama) of the Ngāi Tahu Māori Health Research Unit, and Derrett.

They consulted closely with Māori around the country to see how the study could best work and suggested measures such as having questions in te reo and having interviewers located in different regions to allow face-to-face interviews.

The aim was to have a quantitative component to the study, built around mainly telephone interviews of 2,856 participants (including 566 Māori) alongside a qualitative component involving in-depth interviews with 15 Māori. The latter are the focus of Wyeth's HRC Eru Pōmare Research Fellowship.

Associate Professor Brendan Hokowhitu, Dr Sarah Derrett and Dr Emma Wyeth:

Their study is designed to provide meaningful, stand-alone analysis of Māori health and disability outcomes.

“I have done two interviews with each participant: around 6 months after injury and again 12 months after injury,” she says. “It gives participants an opportunity to provide an update on how things have been going and they can also talk through issues that were raised in the first interview. It has allowed more of a rapport to be built.”

Derrett says they extended recruitment to ensure that 20 per cent of their cohort was Māori to allow meaningful, stand-alone analysis of Māori health and disability outcomes.

“One of the main aims of the study is to look at predictors of disability following injury and it is possible that the predictors for Māori are not the same as the predictors for non-Māori, so it was really important that we recruited enough Māori.”

Study participants are answering more than 600 questions over 2 years. Derrett says Māori they consulted at the beginning of the study believed that having a meaningful level of quantitative information, backed up by the qualitative study, would be valuable to policymakers and communities alike.

“If there are different factors influencing Māori recovery then health-service providers, ACC and other groups need to be aware of those factors when dealing with newly-injured Māori patients to ensure their recovery is better,” she says.

Analyses are now underway.

FUNDING

Health Research Council of New Zealand
ACC





Dr Cameron Lacey:

“It [the Hui Process] is firmly grounded in Māori culture, aligns well with standard medical practice, and we have had positive feedback from both students and patients.”

Harakeke and feather kete (Puketeraki): D67.2447, Otago Museum Collection.

Medicine meets Māori

“He was the first doctor that ‘got me’” – Māori patient and high user of the New Zealand health services for 30 years.

The comment above is not about a senior clinician, but a fourth-year medical student from Christchurch. What sets this medical student apart from other medics is his use of a novel teaching method developed at the University of Otago, Christchurch (UOC).

The Hui Process aims to increase medical professionals’ range of skills so they can better engage with Māori patients – and to improve Māori patients’ impressions of the medical profession.

Dr Cameron Lacey is a senior lecturer at the UOC and, along with its Māori Indigenous Health Institute (MIHI) team, is researching the use of the Hui Process as both a teaching tool and, potentially, a way for all clinicians to interact with Māori patients.

Lacey says that it is increasingly recognised that teaching cultural competence is critical in medical education. However, there is a lack of agreement about the best means of achieving this.

“It is a challenge to develop and teach cultural competencies which extend beyond tokenistic or oversimplified stereotypes,” he says.

The Hui Process has been developed over that past 8 years by MIHI. It draws on traditional cultural practices and marries them with the UOC’s model for interviewing in a clinical setting.

A hui is a central ritual of encounter in the Māori world (Te Ao Māori). This coming-together of parties offers the chance to talk and, ideally, gain a better understanding of the other’s perspective.

The Hui Process contains four key elements of Te Ao Māori:

Mihi. The medical student clearly identifies their self, their role and the specific reason for their visit. They also acknowledge that the patient identifies as Māori.

Whakawhanaungatanga. This is a step further than building rapport. It is about reaching a point of shared experience, with a focus on the patient’s connection to Te Ao Māori. The conversation may traverse the patient’s whenua (land connections), whānau involvement and use of te reo. Ideally, the medical student shares something of their experience of these things. The process encourages students to move beyond the usual avoidance of self-disclosure.

Kaupapa. This is when the clinical “interview” takes place. The UOC teaches its students to extend the typical history-taking process with Māori patients to include factors such as migration, colonisation, racism, marginalisation and Māori beliefs.

Poroporoaki. The student concludes the interview by checking they have understood what the patient has said, checking the patient understands what they have said and clarifying what happens next, such as a follow-up appointment.

Lacey says Christchurch medical students are introduced to the Hui Process in their fourth year through role-play with simulated patients. They are then shown videos of clinicians using the process. After becoming familiar with the process, students are encouraged to use it in all their clinical rotations when they encounter Māori patients.

A practical test of the Hui Process comes in the form of the Hauora Māori health day, where medical students provide health checks for people at Rehua Marae. Students also visit the Māori community at Ōnuku on the Banks Peninsula.

Lacey and the MIHI team have undertaken initial research into the

success of the Hui Process and are now doing further work to validate its use. He hopes this may lead to the Hui Process being adopted by other medical school campuses and, eventually, by the majority of clinicians.

“Evaluations are still in the early stages and limited conclusions can be drawn, but it seems the Hui Process meets requirements of an effective cultural competence. It is firmly grounded in Māori culture, aligns well with standard medical practice and, above all, we have had positive feedback from both students and patients, saying it has had a positive impact on patient experience.”

FUNDING

*University of Otago
Canterbury District Health Board
Partnership Health*



As the competing pressures on New Zealand's lakes and rivers continue to grow, resolving the complex issue of water rights becomes more urgent.

Jacinta Ruru:

“The idea of individual property rights is grounded in the Western legal system, whereas indigenous peoples tend to have more communal approaches to resources.”

Water connections

To Māori the essence of one's being descends from a unique and powerful bond with the lands and waters of one's ancestors. This connection to river, harbour or piece of coast is an inextricable part of who Māori are.

Alongside their mountain and their waka (canoe), a person's river gives a sense of self, a sense of place in the world and a connection to an eons-old tradition of living with the elements. For Māori, as with many cultures, it makes as little sense to talk of "owning" this essential property of life as it does to say one "owns" the oxygen in the air.

But conceptual difficulty has rarely been an insurmountable obstacle when potentially lucrative resources are at stake. And as desertification, pollution and fears for the world's potable water supply become major environmental issues, water is increasingly being touted as "liquid gold". There's no doubt, says Faculty of Law's Jacinta Ruru (Ngāti Raukawa, Ngāti Ranginui), that establishing who has the right to control and use water is now firmly on the global agenda.

With a long-standing research interest in Māori voices in resource management, the question for Ruru is, how can indigenous people participate in this debate? What legal rights protect their interests and how can their collective stake be sustained through generations?

In 2010, she edited the first journal issue to be entirely dedicated to exploring indigenous perspectives on water rights. As guest editor for the *Journal of Water Law*, Ruru drew together the work of researchers from Australasia and the Americas, exploring situations from conflicts between national and local governance in the Andes to the potential for recognising indigenous perspectives in managing Australia's strategically-vital Murray-Darling Basin.

Underpinning all of these contributions, Ruru says, is the reality that the legal framework for these discussions is far from clear.

"The idea of individual property rights is grounded in the Western legal system, whereas indigenous peoples tend to have more communal approaches to resources.

"There are many ways of looking at contested ownership. There might be better answers than Crown ownership or public domain deriving from a Treaty of Waitangi shared governance model, or ideas contained in the United Nations Declaration on the Rights of Indigenous People, the common law doctrine of native title, tupuna ancestry or kaitiakitanga title, legal personality, or trust law such as whenua topu trusts.

"It is a very unsettled area, but there is exciting legal scope."

And politically, Ruru acknowledges, it's a minefield. "No government wants to touch it, but they know that at some point, they have to."

Within Aotearoa, the issue is gathering urgency, as New Zealanders confront the reality that the competing pressures on our lakes and rivers have rendered them rarely safe for drinking, increasingly unsavoury for swimming and compromised as habitats for wildlife. The acknowledgement that "we need to do something about it" saw Justice Joe William chair the Indigenous Legal Water Forum in 2009, organised by Ruru, bringing together government departments, energy companies, Federated Farmers, Fish and Game, iwi and more.

"It was a huge challenge, but very exciting. The conversation was extremely constructive and based on some real common ground: we all want healthy water for future generations. We all understand it is a difficult issue to reach agreement on and it is taken as given that Māori need to be included in this discussion."

But Ruru also points out that there is no single Māori "voice". "Some Māori groups seek to promote conservation, some seek utilisation for farming, others see new commercial opportunities."

The sheer logistical challenge of making progress in establishing water rights is, in

part, what makes it so interesting. "We are appealing to these very philosophical ideas of people's relationship with their environment and how this is reflected in law – but, at the end of the day, it is a very practical problem with very real implications."

And complex as identifying water rights in Aotearoa may be, it could be worse. Spare a thought for Ruru's colleagues in other countries addressing similar issues. "In the context of international and comparative water law, New Zealand has some significant advantages in reaching a long-term solution. At least we can communicate in the same language, we have good systems for participating in the discussions and rivers don't cross national boundaries."

FUNDING

*Foundation for Research, Science and Technology
Landcare Research*

When kaupapa Māori makes business sense

Lead researcher and lecturer in Management Dr Diane Ruwhiu (Ngāpuhi) and her colleague, senior lecturer Dr Malcolm Cone, are researching Māori stories of export business success based on kaupapa Māori approaches.

To illustrate their motivation, Cone tells a story about being deep in Inner Mongolia with a group of Māori entrepreneurs. Cone had made the 2010 trip to help the New Zealanders explore potential business opportunities in China. He tells how, after sharing a meal with their visitors, the group's Mongolian hosts stood and sang a song in welcome.

Of course, the Māori visitors did what came naturally to them – they reciprocated with a waiata of their own. The point, Cone explains, is the similarities that visitors and hosts shared, and the bond that was formed between the two groups from that point onwards.

The term “taken for granted” is what Cone and Ruwhiu call this kind of cultural connection, in which people from different cultures nonetheless share a cultural commonality that facilitates relationship building. They contrast that style of relationship building with the dominant Western approach to business relationship building, which is typically “transactional” in focus rather than based on cultural resonance.

Building relationships based on cultural resonance is nothing new for Māori, says Ruwhiu. In a traditional exchange economy, she explains, Māori didn't distinguish between social, cultural or economic aspects of their activities in terms of the value they brought to the goods being traded. But, in the Western paradigm, trade relationships tend to be quantified in terms of cost benefits.

Ruwhiu's and Cone's current research is about identifying the non-economic or sociocultural aspects of Māori business operations and quantifying the value they bring to the firms' supply chains.

The project stems from Ruwhiu's doctoral research, which investigated the practical utility of kaupapa Māori in companies' performance and the way in which value could be derived from Māori cultural resources and capabilities. It also reflects Cone's interests in Asia's business environment and in the effects of culture on organisational behaviour.

China is widely recognised as a giant potential trading partner for New Zealand companies, but Cone points out that, currently, most Kiwi companies export low-value primary products – such as logs or milk – to China, which is where the majority of the value is added.

Cone and Ruwhiu believe that distinctly Māori products traded through supply chain networks that are based on common cultural understandings have the potential to generate added value at the New Zealand end of the supply and value chain.

By focusing on agribusiness companies already successfully trading with Chinese partners, Cone and Ruwhiu hope to identify success factors that are distinctly Māori. These may even be a revelation to the companies themselves, who might not necessarily be conscious of what they are doing differently. By examining their business practices and exploring how kaupapa Māori factors enhance the value of their goods, this could potentially show them and other Māori companies how to succeed in today's global trading environment without losing touch with their cultural values.

“Business performance isn't just about economics,” says Ruwhiu. “Māori need to retain a sense of who they are while they operate within the dominant system. We've always adapted well to new experiences, but we've retained our own practices too. This research is about starting to undertake a robust examination of what that looks like.”

FUNDING
University of Otago Research Grant





Dr Diane Ruwhiu and Dr Malcolm Cone:
Distinctly Māori products traded through supply chain networks based on common cultural understandings have the potential to generate added value to New Zealand.

Words apart

A 5-year project looking at the colonisation of Murihiku has revealed the importance of literacy and the sharing of knowledge among Kāi Tahu and Pākehā settlers.



Popular conceptions of history tend to regard the discipline as being about events, but the research of Professor Tony Ballantyne and his colleagues illustrates how history can elucidate much more incremental and disparate processes – in this case, the development of knowledge.

Moreover, it demonstrates the value of doing this at a regional or, even, local level, and illustrates how knowledge about the wider context – in this instance, colonial New Zealand generally – can be drawn from investigating local specificities.

Ballantyne was the primary researcher alongside several other Department of History staff, a doctoral student and an Otago Polytechnic staff member on a 5-year project looking at the knowledge and colonisation of Murihiku (the region of the South Island south of the Waitaki River, also formerly known as the Otago province) between 1848 and 1914.

The project was shaped by a 2004 hui about research relationships the department held, together with representatives from the Ōtākou Rūnaka and Kāti Huirapa Rūnaka ki Puketeraki. Its aims, formulated in consultation with the rūnaka, were to chart the nature of Kāi Tahu's encounter with European learning and to examine the development of colonial knowledge, in particular within the broader framework of imperial knowledge production.

Ballantyne explains that this approach was largely unprecedented in New Zealanders' academic interrogation of their own history.

“Little historical consideration had been given to everyday communicative practices. Nor had any historian foregrounded the centrality of talking and writing in colonial democratic and intellectual culture, or explored indigenous reading and writing in an extensive way.”

Furthermore, Ballantyne says, local historians had paid little attention to the role of print and paper in challenging and transforming traditional Kāi Tahu knowledge.

Into this largely uncharted historiographical territory, Ballantyne and his co-researchers ventured. To their surprise, their pioneering forays were rewarded with an unexpectedly rich and largely unmined vein of primary source material, particularly in relation to popular colonial intellectual life, in repositories such as the Hocken Collections, Knox Archives, Hokonui Heritage Centre in Gore, Milton Historical Society and Invercargill Public Library.

Consequently, even more abundant avenues of enquiry than had been initially envisaged opened up, and the project has resulted in more than 80 research outputs to date, with still more to come.

One of the key findings was a rapid uptake in literacy and appreciation for words on paper among Kāi Tahu as early as the 1840s as a

result of their interaction with early whalers and sealers. They were also quick to adapt the use of paper for the production, storage and dissemination of their own knowledge – a transition which has never before been noted – and actively engaged with the new forms of knowledge they encountered as the Pākehā population expanded.

Whakapapa “books” from the 1860s are an example of Kāi Tahu's ingenious adaptation of this new-found means of recording information. The large number of Murihiku-based subscriptions to North Island Māori newspapers also point to Kāi Tahu's increasing sense of commonality with other iwi in the face of the ever-mounting tide of settlers and the value they consequently placed on being informed on issues of pan-Māori relevance.

Records further show that, at first, Kāi Tahu takata whenua (people of the land) readily shared their knowledge of the land and its riches with new settlers, or takata pora (boat people) as they called them. But as Kāi Tahu land disenfranchisement gained pace and the equal footing that had existed between local hapū and the settlers shifted in favour of the newcomers, the open exchange of information, particularly in relation to natural resources, diminished.

Meanwhile, colonial settlements seem to have become nigh on obsessed by knowledge. Ample evidence in the form of letters, postal records, newspaper distribution records

and leaflets from the likes of mutual improvement societies is testimony to an almost unquenchable thirst for intellectual stimulation and cultural appreciation among the nascent communities.

The statistics speak volumes. In 1860, when the Murihiku population numbered some 12,000, there were 62,000 letters sent out of the region and 62,000 received. By 1890, from a population of approximately 150,000, 4.9 million letters were sent and 4.8 million received.

Print culture also boomed. Myriad newspapers were produced and consumed at a local, metropolitan and provincial level. In 1865, when the province's population still numbered less than 20,000, 85,000 newspapers left Dunedin destined for other parts of the region, New Zealand or “mother” England. In 1893 alone, 1.9 million books made their way into the province.

Although these “torrents of words” in print sidelined the oral-based knowledge system of Kāi Tahu (and that of the earliest settlers), not all colonial knowledge was paper-based. Literary and debating clubs and mutual improvement societies – common throughout New Zealand, but more numerous in the Murihiku than in any other region – promoted cultural and political debate, as well as essay and storywriting.

One active participant in such activities was Herries Beattie, from Gore, which was nicknamed “the Chicago of the South” in

the 1890s in light of the town's commitment to innovation.

At the age of 11, Beattie had set himself the task of recording local history – his original, hand-written undertaking to the world to do so is safely stored in the Hocken Collections. He soon became a common sight riding his bike to and from remote settlements, both Pākehā and Māori, in and around the farming township on his quest for knowledge. After graduating to a cadetship at the *Mataura Ensign*, he would go on to become one of southern New Zealand's best-known and prolific ethnographers and historians.

Indeed, what we now consider small towns of Otago and Southland – places like Gore and Milton – were characterised by thriving cultural activity. It was almost as if, having left the “cultural establishment” of their homeland behind, settlers and their new establishments rushed to fill the vacuum and make their new home even better than – an improved version of – the one they had left behind.

Certainly churches, Ballantyne says, anxious about burgeoning social change and a large contingent of seemingly ill-directed itinerant young men, actively promoted involvement in the mutual improvement societies they set up. Ironically, women increasingly became active participants in these gatherings and, by the late 1880s, they had become the main public forum for debates over

suffrage. Indeed the very idea of “mutual improvement” – the improvement of one's person through the active acquisition of, and engagement with, knowledge – typifies the colonial attitude to knowledge generally, which was that it should be used for betterment of the land, the people, the communities and even “their” natives.

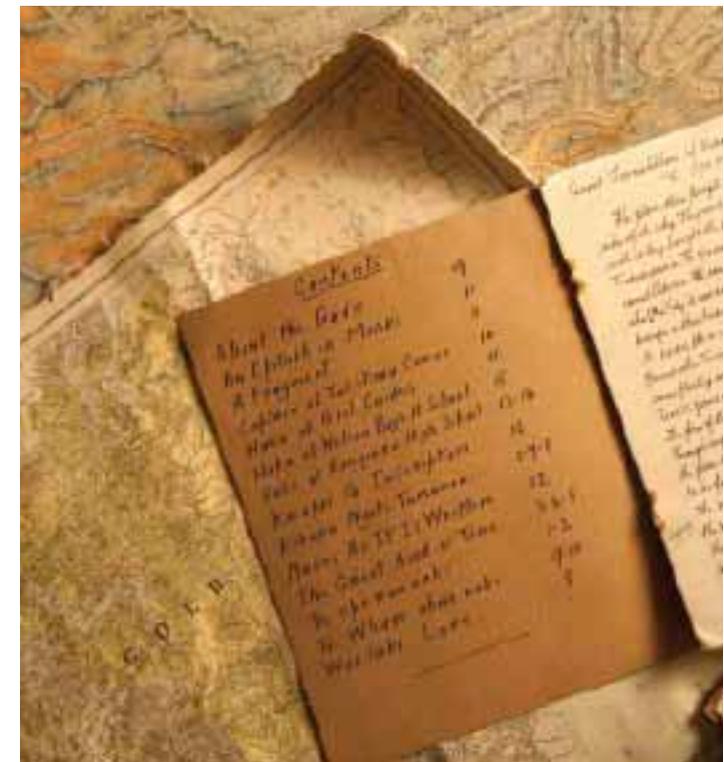
Their knowledge and its application, of course, reflected their Victorian-era proclivities. With 21st century hindsight it's sometimes easy to look back on what they did with a critical view, but it's important to remember that they genuinely acted with the aim of making their new home a better place.

“Take, for example, the colonists on the Taieri Plain,” says Ballantyne. “They believed they were improving the area by draining it and straightening the waterways to turn it into productive farmland, even though that disrupted Kāi Tahu transportation routes and food sources.”

In this way, says Ballantyne, certain ideas such as the desire to acquire knowledge, understand and improve shaped colonial society.

“Without Kāi Tahu knowledge, colonisation [of Murihiku] wouldn't have been possible, but the colonists also had a desire to understand, which shaped the process of colonisation. They really believed reading and writing changed the world.”

FUNDING
Marsden Fund





“Without Kāi Tahu knowledge, colonisation [of Murihiku] wouldn’t have been possible.”

Professor Tony Ballantyne:
An unexpectedly rich vein of primary source material was found in repositories such as the Hocken Collections ...



Otago research shows that iwi resource management plans help iwi establish their own priorities as well as relationships with local authorities and other resource users.

Associate Professor Michelle Thompson-Fawcett:

“Iwi management plans can be a really useful tool, but the value of them is highly dependent on the kind of ongoing relationships that are established.”

Planning, managing and engaging

Since the Resource Management Act 1991 expedited the way for iwi management plans, the results have been vastly different around the country.

The Department of Geography's Associate Professor Michelle Thompson-Fawcett (Ngāti Whātua) who, in conjunction with Jacinta Ruru and Gail Tipa (Kāi Tahu ki Otago), has been examining iwi resource management plans and their effectiveness, has found the approach taken to create and implement them has varied greatly.

“Iwi management plans have grown hugely in number, but they are also quite diverse in terms of the sorts of issues they cover, who the audience is and whether they sit at a philosophical level or get into detail.”

Thompson-Fawcett became involved after southern rūnanga began reflecting on the process of developing the plans and whether they were achieving the kind of environmental outcomes that iwi wanted, given the resources required to develop them.

“There was also the question of whether this was being achieved in a way that was consistent with traditionally-based, but contemporary, iwi modes of operation, or were such plans too tied to a Western style of thinking and working?”

To assess their effectiveness, she began examining iwi management plans and processes around the country, as well as carrying out more in-depth case studies in regional locations.

Iwi plans developed in the south were found to be quite comprehensive, with plenty of detail useful for iwi themselves, as well as local authorities and resource users. But in other parts of the country, for example Wellington, there was a move away from the iwi plan-based model. While Environment Bay of Plenty acted as the facilitator for the production of more than 20 iwi management plans, in Southland one local authority had a staff member seconded to help with the development of the local iwi plan.

However, almost everywhere they went there was overwhelming support for iwi management plans.

“What we found is that the plans are very useful for iwi in terms of setting down their priorities and working out processes of developing priorities. They're also really useful for establishing a practice of engagement between iwi and local authorities and other environmental managers and resource users.”

Thompson-Fawcett says results are best when relationships between iwi and local authorities are strong and the commitment from local authorities is high.

“Some local authorities do things like audit their own planning processes to see how closely they are aligning to the priorities in iwi management plans. That's an extremely good example - most local authorities aren't operating with that level of commitment.

“I guess what it all boiled down to in the end was the issue of relationships. Iwi management plans can be a really useful tool, but the value of them is highly dependent on the kind of ongoing relationships that are established.”

In places where there is high turnover of local authority staff, she says, corporate knowledge about iwi priorities can be lost very quickly and the plan can be left sitting unused on someone's shelf.

One of the questions they were asked was how detailed do these plans need to be and whether some were not working because they do not get down to specific mechanisms for implementation?

“I think the results of the research indicate that you don't need to go to that level of detail. More important is the development of the relationship.

“But you are going to be hamstrung if, say, the iwi management team is working on a market-oriented model of performance for their staff and the local authority is as well, then it's not easy to get together for a cuppa tea. In other words, the efficiency model makes the interaction more inefficient.”

FUNDING

University of Otago Special Strategic Grant

Fragmentary certainty

Our collective knowledge of pre- and early post-contact Māori life is less than complete. Researchers trying to shed light on this era of New Zealand’s past must function much like detectives, piecing together our understanding by identifying and interpreting the physical fragments of it that have survived.

Dr Bronwyn Lowe, Dr Debra Carr, Catherine Smith, postgraduate student Kate Blair and microscopist Andrew McNaughton are doing just this. Taking advantage of Otago’s cutting-edge microscope technology and privileged access to taonga held in museums, they instigated a project aimed at identifying the plants used to make items such as kākahu (cloaks), pāraerae (sandals) and kete (bags).

For Smith and Lowe, both lecturers in Applied Science – Clothing and Textile Sciences, the project grew from complementary interests: conservator Smith’s in pre-contact Māori materials and interdisciplinary approaches to their conservation; and materials engineer and plant ecologist Lowe’s in the cultural use of plant materials.

They knew that the materials used for many of the Māori artefacts held in museums throughout the world might have been incorrectly identified, or not

identified at all. They also knew Māori drew on detailed knowledge of the properties of the many plant materials they used and, perhaps, attached different cultural significance to them too.

Accurate identification of the plants used to create these artefacts could potentially reveal more layers of meaning around them, not least about the location and time of their creation, but also their cultural significance.

The dilemma facing researchers like Smith and Lowe is that the common method of identifying such materials – electron microscopy – is invasive and destructive because it requires the removal and dramatic modification of small pieces of the artefact as part of the laborious sample preparation. A chance conversation with McNaughton at Otago’s Centre for Confocal Microscopy, however, suggested that microcomputed tomography might offer a much less invasive, but just as accurate, method.

Smith wrote to the Auckland War Memorial Museum Tamaki Paenga Hira, the Museum of New Zealand Te Papa Tongarewa and Canterbury Museum seeking minute pieces of artefact – in most cases, small pieces of plant shed by the artefacts into their storage boxes. Nonetheless, the researchers adhered

to strict protocols in handling the tiny samples, as tikanga dictates that any part of the taonga is as sacred as the whole entity.

Microcomputed tomography produces x-ray images of objects in tiny consecutive sections, just like the images of someone’s body produced in a CT scan, albeit at the microscopic level. These images were then compared with images of various plant specimens obtained using other methods.

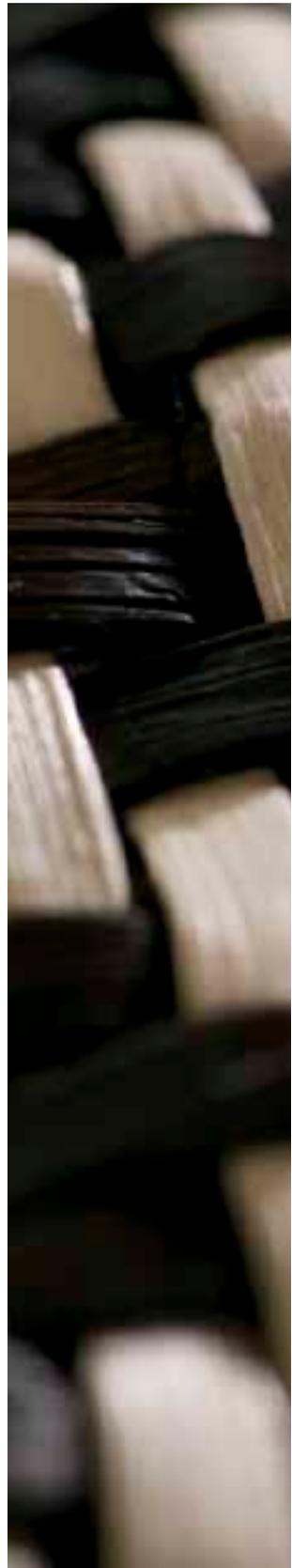
The researchers point out that the processes of harvesting, preparation, construction, and then aging and storage, have inevitably altered the material. More work is needed to understand the effect of these processes on the original material and the implications for conservation. Nonetheless, they successfully identified around 50 per cent of the samples and can now return them, intact, to the artefacts from which they came.

Lowe and Smith hope the technique will eventually assist with the identification of taonga held in museums all over the world. Most importantly, it means they can return valuable knowledge to tangata whenua.

“There’s a clear focus on outcomes that are relevant,” says Smith. “Why we do the research, and for whom, is always the most important question underpinning our work.”

FUNDING

*University of Otago Research Grant
University of Otago Division
of Sciences Summer Bursary
University of Otago Research
and Enterprise Publication Grant*



Accurate identification of the plants used to create these artefacts could potentially reveal more layers of meaning around them ... location, time and cultural significance.



Andrew McNaughton, Catherine Smith and Dr Bronwyn Lowe:

... using non-invasive microcomputed tomography to help identify the plants used in Māori taonga.

Harakeke kete (basket), by Hana Morgan (Kāi Tahu): X2011.15, Otago Museum Collection.

Early ecology

Dr Janice Lord dreams of a paradigm shift in how New Zealand plant ecology is studied and taught.

Her research into the plants used by pre-contact Māori reveals layers of meaning in our landscapes, as she helps to discover the ways in which New Zealand's tangata whenua managed the plants they found here.

Like many people, Lord grew up with the prevailing perception that environmental modification by pre-contact Māori was largely accidental, and that most natural resources were used where and when they became available. But a request from Otago Museum for assistance identifying the leaves found inside a kete held in its collection opened her eyes to a different truth.

Lord, an alpine plant specialist and senior lecturer in the Department of Botany, identified that the material in the kete was made of a species of mountain daisy, *Celmisia semicordata* or tikumu. But the kete's owners had not collected the entire leaf, choosing instead to strip off the top layer and retain the silvery, suede-like underside.

As a result of this and later work done to identify the sedge species used in a cloak at the Museum of New Zealand Te Papa Tongarewa, Lord began to look more closely at plants used by Māori for food or clothing. She started to notice that, instead of always conforming to distribution patterns that made ecological sense,

the distribution of certain plants – for example, the South Island distribution of the sedge kuta – was linked to known Māori travel routes. Similarly, the familiar cabbage tree, used to make hard-wearing sandals and as a source of carbohydrate in southern New Zealand where it is too cold for kumara to grow, was often strategically positioned along well-known pathways.

“It is clear that Māori were managing the environment long before Europeans came along,” says Lord. “But, unlike European New Zealanders, Māori saw themselves as part of the environment, working with it, not controlling it. By fleshing out this meaning, I can hopefully help produce students who are more able to move between two world views.”

FUNDING

*University of Otago Division of Sciences
Research and Study Grant*

*Department of Conservation (Canterbury,
Otago, Southland, Westland conservancies)*

*Foundation for Research, Science and
Technology (Te Tipu Pūtaiao Postdoctoral
Fellowship)*



Dr Janice Lord:

“... Māori were managing the environment long before Europeans came along. But, unlike European New Zealanders, Māori saw themselves as part of the environment, working with it, not controlling it.”

The writer's voice

The approach one takes to documenting on video the work and life of a playwright who has spent his life challenging traditional notions of authorial authority doesn't seem to have presented a dilemma to Hilary Halba, senior lecturer in Otago's Theatre Studies programme.

Eschewing a traditional Western directorial approach, Halba instead established a small research whānau comprising herself; writer, researcher, theatre director and commentator Roma Potiki; filmmaker John Irwin; and – unusually for the genre – the subject himself, Rore Hapipi. Their collaboration, which explores the contribution of this seminal, yet not widely known, playwright, has resulted in an oral history documentary with the working title *The Seeing Eye of the Writer*.

Hapipi, also known as Rowley Habib, is of Ngāti Tūwharetoa and Lebanese descent. He began writing in the 1950s while training to be a teacher and his short stories, described as “realist fiction”, were published in the quarterly journal *Te Ao Hou*, as well as *Landfall* and the *New Zealand Listener*. Influenced by American protest literature as well as New Zealand playwrights like Bruce Mason, his work, in its turn, proved influential to the development of a new generation of Māori writers.

Hapipi saw a need for Māori authorial voices in New Zealand theatre. His 1975 play, *Death of the Land*, proved a timely interrogation of the consequences of Māori land sales. In 1977 Hapipi went on to form Te Ika a Maui Players, a significant creative force in the Māori cultural renaissance of that time, and was commissioned by Television New Zealand to write the television plays *The Gathering* and *The Protestors*, for which he won a Feltex Award for Best Television Script in 1982. In 1984 he was awarded the Katherine Mansfield Memorial Fellowship to Menton, France.

Halba, whose research interests include New Zealand's bicultural and post-colonial theatre, describes Hapipi as “a man ahead of his time”. She recognised, along with fellow collaborator Roma Potiki, a need to tell Hapipi's story and celebrate his importance within the landscape of New Zealand literature and theatre. Given its collaborative nature and ability to capture words along with images – like theatre, albeit in a less ephemeral format – video seemed the best way to do this.

Despite being based in four locations between Taupo and Dunedin, the research

whānau, Halba explains, has worked together from initial project planning to viewing all footage and inputting ideas about the documentary's content and structure. If methodology determines results, the documentary should very much reflect Hapipi's authorial voice, with the research whānau having been the means of delivering and augmenting it, rather than articulating his words to fit someone else's vision.

FUNDING

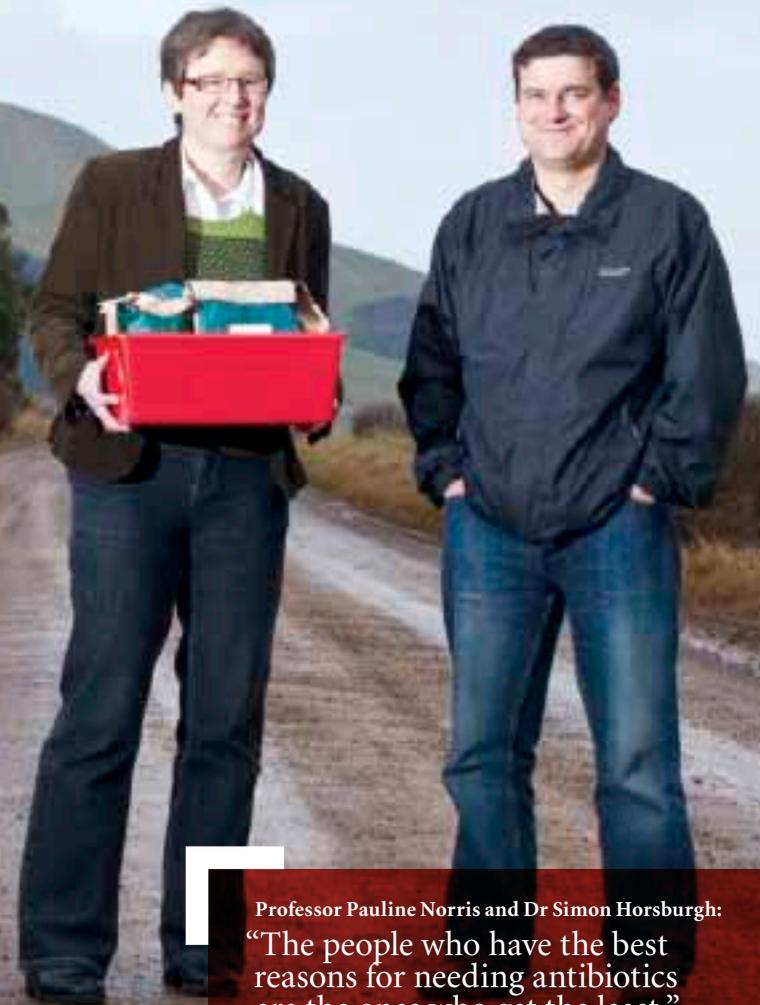
University of Otago Research Grant



Hilary Halba:
... telling writer
Rore Hapipi's life
through video.

Prescriptive insights

“Relying on people to go and get medical attention and get their medicines in remote locations is just placing too many barriers in their way.”



Professor Pauline Norris and Dr Simon Horsburgh:
“The people who have the best reasons for needing antibiotics are the ones who get the least.”

Inequalities in the levels of prescription medicines accessed by Māori have been highlighted by a School of Pharmacy study based in the Tairāwhiti region.

All prescriptions written in the region are dealt with through Gisborne pharmacies. Those that cannot be picked up directly from the pharmacy are sent to depots in outlying rural areas.

Professor Pauline Norris (School of Pharmacy) says being able to get data from the Gisborne pharmacies gives them a complete picture of all the medicines used region-wide. So far they have published two papers – one on antibiotics and the other on psychotropic drugs for the elderly – showing that the rates of use are much lower among Māori.

Norris and Dr Simon Horsburgh (Department of Preventive and Social Medicine) identified a particularly low use of antibiotics by rural Māori.

“This is very worrying because rates of infectious diseases are higher among Māori and, in particular, rheumatic fever is really high among the Māori population in Te Tairāwhiti,” Norris says. “The people who have the best reasons for needing antibiotics are the ones who get the least.

“I think this is a really important measure of access to health care.”

Many rural Māori live in small, remote communities, so they are not just a long way

from a pharmacy, they can also be a long way from the depot and along poor roads.

“People face a lot of practical problems in actually accessing health care and medicines. The combination of geographic distance and poverty is really a significant barrier.”

Horsburgh says that in urban Gisborne antibiotics use was about the same for non-Māori and Māori. “That’s not what you would expect if everyone got equal access to health care, because Māori tend to suffer from higher rates of infectious disease than non-Māori.”

The causes have not yet been investigated, but Norris says it seems likely that factors such as poverty, not being able to afford health care and medicines, as well as not being able to get to the health centre and depot are likely to be part of the problem.

“Relying on people to go and get medical attention and get their medicines in remote locations is just placing too many barriers in their way. You’ve got to be much more proactive about targeting high risk communities and really trying to eradicate diseases like rheumatic fever.”

Norris says a school-based programme in Flaxmere is a good example of what can be done. Throat swabs are taken from the children at school, medicine is delivered to the children’s homes and stickers are given as rewards for taking medicine. At the same time, it is ensured that their families

are getting all the social welfare help they are entitled to and arrangements are made to have houses insulated.

“I think our research really suggests that the approach of just hoping that it will work, and relying on people getting to the doctor and picking up the medicines themselves is just not working – it’s just not leading to the pattern of antibiotic use that you’d want.”

FUNDING

*Health Research Council of New Zealand
University of Otago School of Pharmacy*

Diabetes parallel

High rates of diabetes among Māori have been well documented, but Otago PhD student Shirley Keown, who is also clinical advisor at Turanga Health in Gisborne, is investigating the patterns of type 2 diabetes medication dispensings in the study period.

She found non-Māori type 2 diabetics were more likely to receive an anti-diabetic medication than Māori type 2 diabetics. She is now interviewing Māori with type 2 diabetes aged 25 years and older to find out, in greater detail, about their experience and perspective of having diabetes.

“I want to get a better sense of what it is like for Māori with type 2 diabetes,” she says. “A lot of emphasis is on nutrition, healthy lifestyle, education and therapeutic management, using the New Zealand guidelines. How and where do these all feature for Māori with type 2 diabetes?”

Keown says they need to understand why Māori haven’t received the same or more antidiabetic medication as non-Māori, and whether it is about access or other issues.

The next stage of the research will be to look at access to antidiabetic medications from depots to find out more about how people pick them up.

Balancing act

Issues involving Māori land resonate with many indigenous peoples.

Around the world there is pressure to make customary land more productive, highlighting global similarities in the problems faced and the reasons behind them, according to Dr David Goodwin (School of Surveying).

Goodwin has researched land issues involving Māori, African tribes and Scottish crofters, and sees strong parallels among them. As tribal authority structures give way to national systems of government, communal land with socially-based tenure is generally moving towards more individually-based tenure, says Goodwin.

The transition is in danger of unravelling traditional ties not just with the land, but also with communities owning it.

“Communal land holding is like a cord with twin strands – interpersonal/cultural links and land links. Individualised tenure tends to separate these strands. Ties with family and the natural and spirit world are kept separate from legal title and material securities.

“Today in New Zealand, shelter and sustenance have tended to be catered for by general land, while Māori land retains

special importance for its embedded interpersonal and cultural functions.”

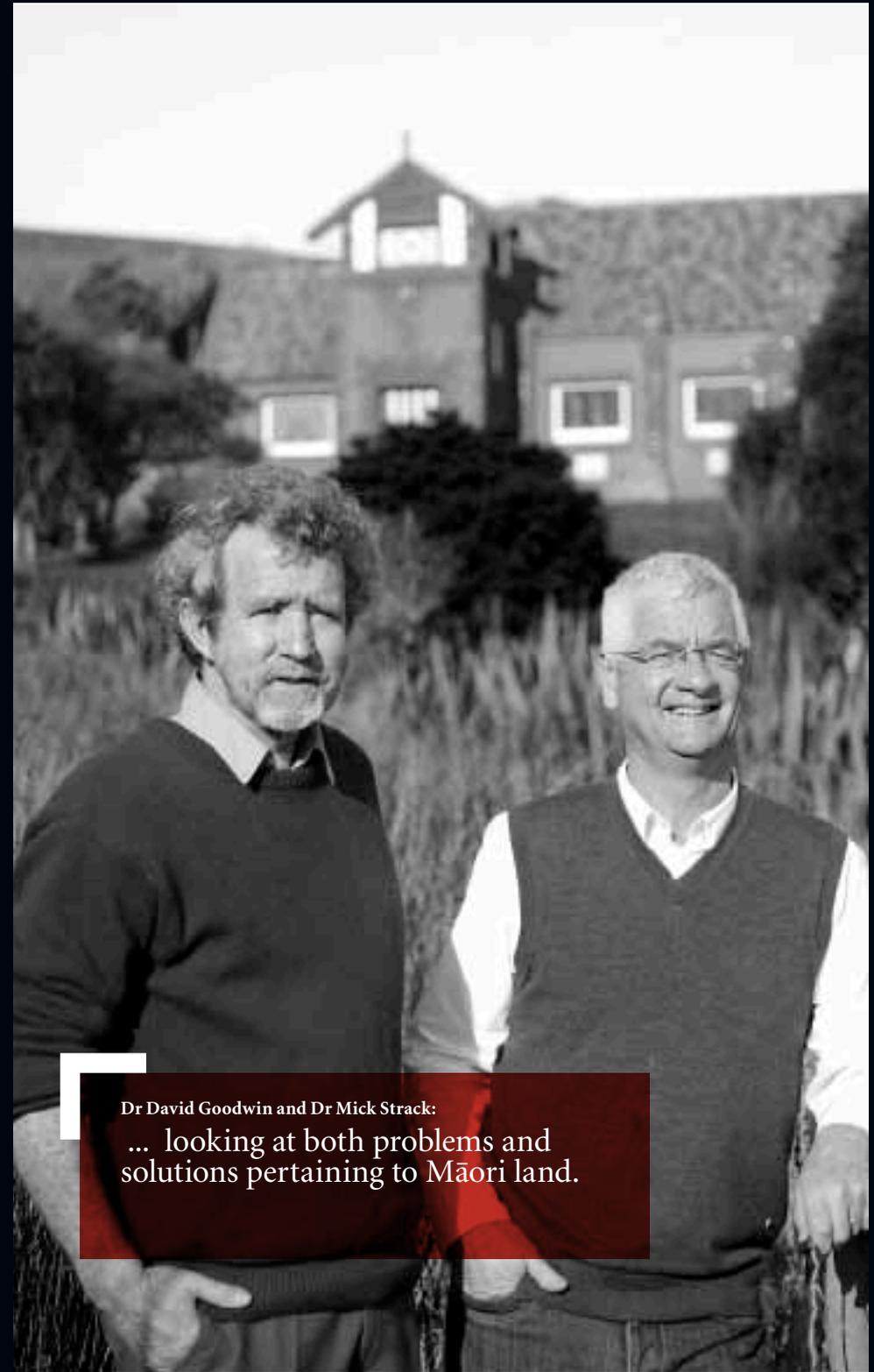
That raises important questions as to whether these functions can be accommodated in any moves to make the land more productive, says Goodwin.

He suggests that it may be possible to find a balance between productive and cultural use of Māori land by separating out and retaining intact wāhi tapu (treasured areas) when making provision for access.

“The less treasured parts of the land could then be brought under smaller management groups – either trustees, elected representatives of corporations or else individuals or families under a more traditional management model,” says Goodwin.

He emphasises that any proposed solutions should be non-coercive, and is working on case studies to see how acceptable the idea might be to Māori.

FUNDING
New Zealand Institute of Surveyors



Dr David Goodwin and Dr Mick Strack:
... looking at both problems and solutions pertaining to Māori land.

Surveying land issues

Surveyors have an important role to play in helping Māori make good use of their land, according to Dr Mick Strack (School of Surveying).

About 6 per cent of New Zealand is identified as Māori land – often parcels left over after the Crown purchased most of the best productive land in the time of the early settlers.

“Māori land is likely to be remote, marginal, landlocked and under-utilised,” says Strack, whose research reveals both problems and solutions relevant to Māori land issues.

Problems arise in that the historical boundaries of some lands are not clearly recorded and there are difficulties with access, fragmented titles and multiple owners. But, if surveyors learn to appreciate the complexities surrounding Māori land, they could be invaluable in solving many of the problems faced by Māori trying to use it productively, says Strack.

“Existing land registration systems don’t take into account the customary relationships that Māori had with their land and, as many hadn’t converted to the Western view of land as a commodity, they found themselves unable to hold their land in either world.”

The 1993 Te Ture Whenua Māori Act (TTWMA) states “it is desirable to recognise that land is a taonga tuku iho of special significance to Māori people and, for that reason ... to facilitate the occupation, development and utilisation of that land for the benefit of its owners, their whānau and their hapū”.

In 2005 the Māori Freehold Land Registration Project was set up to ensure all Māori land is listed on the Land Information New Zealand register, a process that is now almost complete. The Māori Land Court was created to convert customary title to freehold title, but now seeks to restore the relationship between Māori and their land.

“Ancestral land, once held informally or by default, is now registered and even searchable online,” says Strack. “There’s been a lot of progress in the last 5 years. Now Māori need to grab the opportunities that have opened up and start getting the land productive – assuming that is what they want to do.

“There is an implied expectation that if you own land, you should use it, but sometimes there are alternative uses such as leaving it alone to promote biodiversity, so there can still be some tension there.”

Strack notes that there are still problems to overcome. General land laws are not effective in providing access to landlocked Māori land. The 2007 Property Law Act takes an adversarial approach to applications to unlock land, serving notice on affected and adjoining owners, who then need to defend their rights.

Under TTWMA, all affected and adjoining owners involving Māori land are joined together as parties to the application, allowing the Māori Land Court to apply a mediated approach instead, negotiating a mutually acceptable solution to access.

Although only eight applications have been processed in the first 6 years of the system, Strack believes things are heading in a positive direction. In a recent paper on Māori land title reconstruction, he

argues that surveyors have a responsibility to familiarise themselves with Māori customs and traditions (tikanga), so they can help the process.

The Māori Land Court understands tikanga Māori, says Strack, “but is poorly placed to see the land as a surveyor sees it. Once surveyors can demonstrate that they understand Māori-land relationships, it is they who should be driving Māori title reconstruction.

“Surveyors should ... be alert to the wider possibilities of using their professional skills to provide solutions that will add real value to the land and thus benefit the proprietors.”

FUNDING

New Zealand Institute of Surveyors

“There’s been a lot of progress in the last 5 years. Now Māori need to grab the opportunities that have opened up ...”



Archaeological data of early Māori fishing harvests provide valuable information for future fisheries management.

Associate Professor Ian Smith:

“The extinction of the moa took a maximum of 150 years ... and it’s likely that these kinds of events gave rise to the Māori kaitiakitanga.”

Taking stock

Planning the future of sustainable fishing involves peering into the murky waters of the past.

Associate Professor Ian Smith (Department of Anthropology and Archaeology) has been estimating Māori marine harvesting at North and South Island sites going back 600 years.

Smith is part of the Taking Stock project, a wide-ranging NIWA collaboration investigating long-term effects of climate variations and human impacts on the structure and functioning of New Zealand's marine shelf ecosystems.

His former Otago teacher, Associate Professor Foss Leach, had worked with NIWA for many years. He believed that fisheries management planning should merge physical and natural sciences, taking into account the archaeology of fishing in New Zealand, with an anthropological focus on early communities.

If Smith's archaeological data could help to calculate the magnitude of the Māori harvest from the sea in times gone by, NIWA would have baseline data for future work.

For the 3-year Taking Stock project, Smith focused on three dates: 1400, soon after Māori arrived in New Zealand;

1550, about the middle of Māori sole occupation; and 1750, just before European whaling and sealing.

"The project was all done by collating existing data for such things as climate records, geological processes, and anthropological and archaeological information," says Smith. "We had to find locations where we already had the data we needed."

Two sites fitted the bill: the Otago-Catlins coast in the south-east and the greater Hauraki on the north-east coast of the North Island.

Research showed that, over time, breeding fur seals and seabirds such as petrels, prions and shearwaters fled from human predation. As local food stocks declined, Māori targeted new species and catches increased, raising questions about early harvesting practices.

"This process of replacement of one food source by another was the single most important driver of change in Otago-Catlins, where the human population remained more or less stable throughout the study period," says Smith.

"In the greater Hauraki region growth of the human population was one of two main reasons for the increased harvests of most marine animals.

"In addition, the demand placed on most fish, shellfish and some bird species increased over time because seals, moa and some of the marine and coastal birds that made important contributions to earlier Māori diets ceased to be available. This matches observations that archaeologists have made about Māori resource use for a long time."

Smith believes that, for many Māori, the loss of some food species was a wake-up call.

"There are always going to be effects when you move into an area previously unoccupied. It's not necessarily carelessness – there is an inevitability about it.

"The extinction of the moa took a maximum of 150 years – maybe much less – and it's likely that these kinds of events gave rise to kaitiakitanga, the guardianship of the environment that supports us.

"When you see the impact of people on the environment within your own lifetime it's likely to have an effect on behaviour."

Other results include the first ever documentation of the entire catch history of a population of snapper. The combination of Smith's pre-European information, 19th and early 20th century records, and recent fisheries data shows

that half of all snapper ever taken from the areas investigated were caught in the last 60 years.

"Precise numbers of species harvested are impossible, but what we have gives us a clear indication of the orders of magnitude involved," says Smith. "There are many imponderables, but we can be confident that the numbers are likely to be of the order we have researched and that gives us a basis for investigating the bigger picture."

Archaeological data have given managers new tools to plan for the future.

"This kind of information shows to some extent the advantages you have working in a place like New Zealand, which is a large isolated island occupied by people only recently," says Smith.

"If we can build our whole history, we can model things that would be harder to do elsewhere in the world – and can apply them elsewhere."

FUNDING

Ministry of Fisheries

Working for mothers and babies

Dr Beverly Lawton is on a personal crusade. Raised in Wellington with her father from Ngāti Porou on the East Coast, she is now head of the Women's Health Research Centre on the University of Otago, Wellington campus and involved in several significant research studies to improve maternal and infant health care.

"This is really an interesting time for us with multiple new studies on the go," she says. "As the only centre of its kind in the country, our mission is to make a real difference to the health of mothers and babies in New Zealand.

"We're looking at improving the differences in health outcomes for all women and their infants, including Māori, and particularly Māori mothers under the age of 20, whose babies are more likely to have serious health problems."

In the coming year the centre will be extending a pilot study that looked at why mothers are admitted to intensive care units (ICU) with acute health problems before, during or after giving birth. The initial severe acute maternal morbidity (SAMM) study undertaken in one district health board area showed about one third of the 29 pregnant women admitted to ICU in one year had a "preventable event" within the health system, such as haemorrhaging, blood clots or life-threatening blood poisoning.

The extended study will examine maternal admissions to ICU in four district health boards. "We'll be looking at Māori women to see if the reasons for their problems are any different from non-Māori mothers," she says. "This kind of audit has never been done in New Zealand and we're using a well-established international model for the analysis.

"Negative outcomes associated with having a baby have considerable personal and public health costs. If we can determine some of the causes or indicators of maternal morbidity, this will benefit all mothers who are admitted to ICU," she says. However, Lawton points out admission rates for mothers to ICU in New Zealand are not high and match international rates, with only 1 – 2 per cent of pregnancies having a "severe event" and 33 per cent of those women being admitted to ICUs.

Concurrently, the Women's Health Research Centre is undertaking a wide-ranging retrospective investigation of the health of 55,000 women and infants in the first year after birth. "We're focusing here on avoidable hospitalisation, asking what are those things, such as vaccination rates, which keep infants and mothers out of hospital in the first year after birth?

"This large sample will give us robust data on how we can improve maternal and infant care in the first year. It'll also

improve care for mothers under the age of 20, who often have more health problems with their babies."

This will be extended in the "E Hine" study, researching the health journey of young Māori women under the age of 20, from pregnancy, through birth, to the first year of looking after their baby. This project, funded by the Health Research Council, will interview 40 pregnant under-20-year-old Māori women in Hawke's Bay and Wellington over 2 years.

"We know that children of young women have higher infant mortality rates and we need to look closely at the needs of this group. This study aims to find out what works in the system and what doesn't, the barriers that young Māori mothers experience, and how best to support them and their children."

Lawton says the findings will assist all young mothers in New Zealand. At the same time, she says, some of the factors that influence the health of babies of young Māori women may be different from those of non-Māori women of similar socio-economic groups.

"This is not just a socio-economic question," she says. "We believe the differences may well lie in provider and service issues."

All these projects are being carried out under a kaupapa Māori model, with Māori at the centre and research decisions

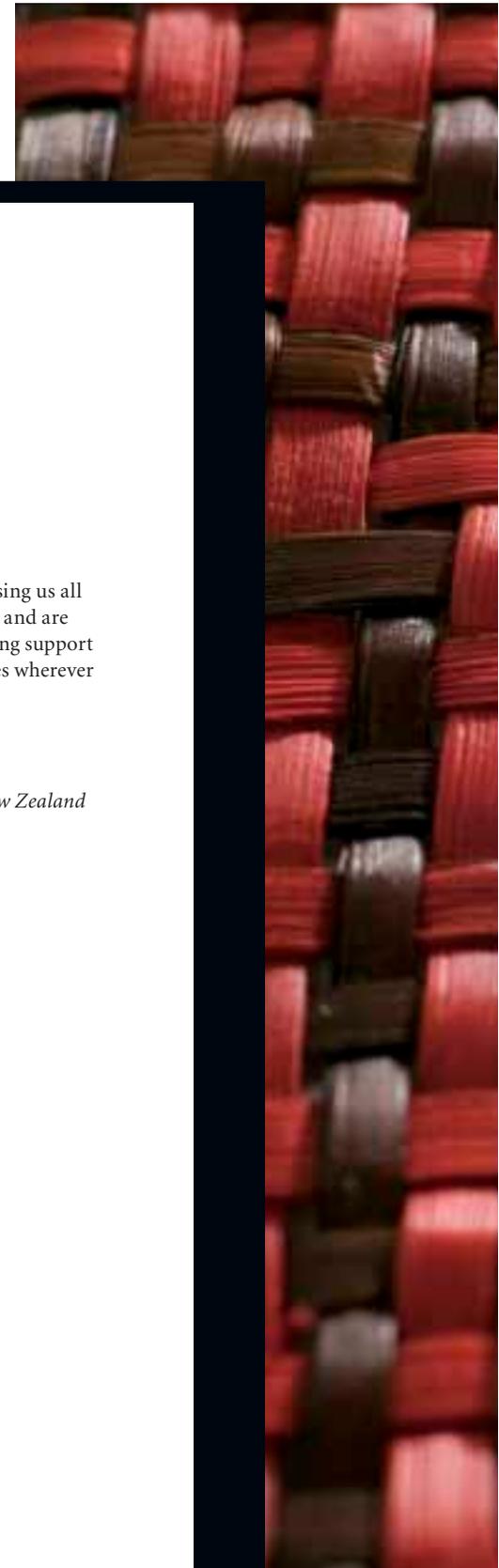
flowing from their needs.

"We have local kaumātua advising us all the way through these studies and are fortunate enough to have strong support from local Māori communities wherever we carry out our research."

FUNDING

Ministry of Health

Health Research Council of New Zealand



“This study aims to find out what works in the system and what doesn’t, the barriers that young Māori mothers experience, and how best to support them and their children.”

Dr Beverly Lawton:

“We’ll be looking at Māori women to see if the reasons for their problems are any different from non-Māori mothers.”



Seaweed studies

“At the very least, the quality of easily-sourced kelp is no longer good enough for it to be cured and manufactured into usable pōhā ... it just rots during processing.”

Katja Schweikert:

Pesticide and herbicide run-off, in particular, may be affecting kelp and other seaweed species such as karengo.





A food source, a material for using in food storage, or even a fertiliser – seaweed’s versatility is understood and utilised by many cultures the world over, including Māori.

Dr Katja Schweikert (Department of Botany) was granted a Te Tipu Pūtaiao Fellowship by the Foundation for Research, Science and Technology to investigate new and traditional uses of New Zealand seaweeds, as well as to measure and understand the potential impact of modern day pollutants.

Schweikert arrived in Dunedin from Europe in 2001 to do her PhD. Her marriage to a New Zealander of Māori descent sparked an interest in the area of mahinga kai (traditional food and natural resource areas) and the sustainability of coastal resource management.

One area of concern has been bull kelp (*Durvillaea antarctica*), known to Māori as rimurapa, which is customarily used to make pōhā or food storage vessels, most commonly used for preserved tītī (muttonbirds).

Tītī were traditionally pre-cooked and stored in their own congealed fat, but are now usually salted and preserved in a brine. Today most tītī are then packed into plastic buckets, but some people continue

to use pōhā. One such person is Tiny Metzger, a tangata tiaki from Bluff with whom Schweikert works.

During his lifetime Metzger has observed the deterioration of coastal marine areas to the point that bull kelp and other seaweeds have completely disappeared from traditional gathering areas. Species of shellfish have also died out.

“At the very least, the quality of easily-sourced kelp is no longer good enough for it to be cured and manufactured into usable pōhā. Usually it can be made into a product as durable as leather; now it just rots during processing,” Schweikert says. In the past, this occurrence has been a precursor to localised extinction.

Metzger’s lifelong experiential knowledge is a starting point for Schweikert’s research. Sewage, chemicals used in farming, the effluent from increased stock numbers as well as industrial effluent all reach our coastal waters through river catchments.

The fear is that pesticide and herbicide run-off, in particular, may be affecting kelp and other seaweed species such as karengo (*Porphyra sp.*). This inter-tidal seaweed, which is similar to Japanese nori, is similarly important to Māori. During World War Two karengo was sent to Māori troops as a chewing gum and thirst

quencher. Both bull kelp and karengo are taonga species for Ngāi Tahu.

Schweikert is currently examining the impact of one particular group of chemicals – organo phosphates – on these two species, as well as *Ulva sp.* (sea lettuce), a recognised bio-indicator.

Undaria pinnatifida (Japanese wakame), an accidentally introduced species, thrives in both coastal or harbour environments and has potential for commercial exploitation, but Schweikert is trying to assess whether exotic species can be harvested from natural substrate without damaging native seaweed.

“Ideally, we could keep this unwanted species under control, protect native species and achieve a commercial gain.”

There is also scope to see whether it is possible to transfer traditional Māori knowledge, methods and practices to these other species to provide a wider range of management options.

FUNDING

Foundation for Research, Science and Technology (Te Tipu Pūtaiao Fellowship)

Bridget Robson:

“Māori with acute coronary syndrome appear to be less likely to get the same treatment as non-Māori and are more likely to die earlier.”

Equality and quality: a health-care debate

Anecdotal debate within the health system and among researchers regarding poor outcomes for Māori patients has, for some time, revolved around whether there are systemic reasons for these inequalities, or differences.

Although the wider social, economic and environmental determinants of health play a large part in variations in health status, timely access to high-quality health care is important if you are unwell.

More recently research groups, such as Te Rōpū Rangahau Hauora a Eru Pōmare, at the University of Otago, Wellington, have focused attention on whether Māori are receiving unequal treatment in some areas of the health system and why this might be so.

Bridget Robson (Ngāti Raukawa), who heads the centre, has been interested in research in the United States showing that improvements in cardiovascular disease mortality have been due to more effective treatments. However, the strongest evidence of unequal treatment between ethnic groups was also found in studies of cardiovascular disease.

“Māori in New Zealand also have high heart disease mortality rates so this is one area where we focused our research: to see if there were differences in treatment that may affect Māori health outcomes

compared to non-Māori,” she explains.

The Unequal Treatment study looked at the receipt of cardiac procedures such as coronary bypass and graft, angioplasty and angiography. It selected a cohort of Māori and non-Māori first admissions to hospital, identifying their procedures and how long it took to have them. The study also controlled for a range of other factors that might affect whether people received these procedures: co-morbidity, type of hospital, socio-economic deprivation levels.

“We found a gap in outcomes for Māori. There’s inequality of treatment that can’t be fully explained by other factors such as co-morbidity,” she says.

“It seems that Māori with acute coronary syndrome appear to be less likely to get the same treatment as non-Māori and are more likely to die earlier. Indeed, this gap becomes apparent in the first few days after admission.”

Robson says it was an interesting – and somewhat stressful – moment when she presented the results to cardiologists. Some found it difficult to accept that Māori receive unequal hospital treatment and suggested a range of other reasons why treatment rates are worse, over and above the factors for which the study had controlled.

“However, we believe our study is robust.

For instance, outcome differentials were seen in both secondary and tertiary hospitals, so it’s not just an issue of hospital size or location.”

The Unequal Treatment study did not look at the reasons why there might be problems in how hospitals treat Māori. However, Robson is encouraged by the fact that the results have been taken on board by clinicians. A clinical cardiac equity group has been established in Auckland and there will be an ongoing audit of cardiac care in Hawke’s Bay. The Taranaki District Health Board is also starting to investigate its provision of cardiac revascularisation procedures for Māori.

“I’m hoping that these developments will encourage similar actions in other district health boards,” says Robson.

Other areas being investigated with regard to unequal treatment are obstetrics and cervical cancer, with the former focusing on higher rates of caesarean section for non-Māori compared to Māori.

“This study is looking at whether adverse outcomes in a cohort of Māori mothers and babies are related to differences in the rates of obstetric interventions. We’re also carrying out interviews with clinicians and patients.”

The results from the cervical cancer study

are more positive, showing that both the rate and mortality levels of cervical cancer in Māori women have dropped, and there are no inequalities in treatment for this disease.

“We think this is due to the great job Māori providers have done in raising awareness and supporting Māori women to be screened with a follow-up colposcopy, if necessary. Mainstream cervical cancer services have also made efforts to better respond to Māori women and their whānau. Essentially, there’s now standardised treatment for cervical cancer across the country,” she says.

“However, there’s still a problem for Māori women in terms of survivability, but this relates to being diagnosed at a later stage rather than unequal treatment.”

FUNDING

Health Research Council of New Zealand

Oral health agendas

The costs of accessing dental care have been identified as a significant contributor to the poor oral health among Māori and their whānau. This hidden but serious health problem is now being addressed through research by the University of Otago's Te Rōpū Rangahau Hauora a Eru Pōmare, in Wellington.

This year it published an assessment and research agenda regarding the pressing needs of Māori for better access to oral health. *Oranga Waha - Oral Health Research Priorities for Māori* details wide-ranging ways to improve the poor oral health of many Māori and to determine the best strategies for reaching this goal.

“This really is an urgent health problem in New Zealand,” explains lead author Associate Dean Māori Bridget Robson. “Cost is a huge factor in dental care for many, possibly the majority, of Māori. Although around \$1 billion a year is spent on oral health in New Zealand, only \$178 million is publicly funded and only \$9 million of that goes to low-income adults.”

As a result, Robson says, many Māori never go to a dentist after leaving school and some resort to drastic measures to deal with pain from rotten teeth. Poor oral health is also linked to other health problems such as diabetes, lung and heart disease. Others complain of drugs drying

out their mouth which increases their risk of tooth and gum disease.

Using the input and experience of several Māori health providers, NGOs and Te Ao Marama (the New Zealand Māori Dental Association), the *Oranga Waha* report recommends further research priorities and strategies needed to combat poor oral health in the Māori community.

Its key recommendations focus on increasing Māori providers of oral health services; upskilling dental services to manage patients who have disabilities or chronic conditions; the development of new models to make dental care more accessible to Māori; encouraging dentists to work in low-income or rural areas; and investigating how to increase Māori community control over environmental factors such as alcohol outlets, fluoride, and the marketing of food and tobacco.

“We now need to promote the findings to the dental community and then to carry out further detailed investigation into what are the most achievable priorities for the health system in the short term,” says Robson.

FUNDING

Ministry of Health

Health Research Council of New Zealand



Bridget Robson and research assistant Ruruhira Rameka of the Te Rōpū Rangahau Hauora a Eru Pōmare:

... looking at ways to improve the poor oral health of many Māori.

“Although around \$1 billion a year is spent on oral health in New Zealand, only \$178 million is publicly funded and only \$9 million of that goes to low-income adults.”

Destination culture

A new guide to southern Māori tourist operations has been launched, following research headed by Associate Professor Juergen Gnoth (Department of Marketing).

Gnoth was a member of a Research and Enterprise advisory board involving University staff and the Dunedin City Council, asking what could be done to promote Māori tourism and development in the area.

Gnoth's team researched the potentials for Māori cultural tourism in and around Ōtepoti Dunedin, looking at what international tourists might want to see, and investigating the practicalities and willingness of local businesses to provide appropriate experiences.

“The popular perception is that visitors see the North Island as the destination for culture, while the South Island is all about adventure and landscape,” says Gnoth, “so we were astonished at the interest shown in cultural tourism in Dunedin.

“The more exposure tourists get to cultural experiences the more they want to get involved. If you can sow the seeds with them that you can provide a great experience, they'll come. There is a real demand.”

To help meet that demand, the Southern Māori business network, Te Kupeka Umaka Māori ki Araiteuru (KUMA), has spearheaded the creation of a Tiki Tour Māori Guide to the lower South Island. The tourist guide showcases 18 Māori companies offering a range of experiences, from adventure to culture.

The Gnoth report showed there is potential for more and identified interest in developing cultural tourism, particularly in Ōtākou and

Karitāne. It also found Māori businesses face many challenges, including the need for cultural sensitivity, appropriate consultation and good business models.

“It's particularly hard for Māori because of the top-down structure of decision-making,” says Gnoth. “There is a great deal of discussion necessary and, although there are many entrepreneurial Māori in Dunedin, if they are not local it's a hurdle because it is not their land.”

Support from the top is vital, says Gnoth.

“Any impetus needs to be steered from Te Rūnanga o Ngāi Tahu, which is based in Christchurch. Fortunately there's been encouragement from [former Chief Executive Officer] Tahu Potiki.

“It needs that strong involvement to make it work.”

Two Māori companies have explored providing a cultural experience for cruise ship visitors, so far unsuccessfully.

“The increase in cruise ship tourism is certainly a big attraction,” says Gnoth. “One of the secrets to success is designing a service around how cruise ships function. “You have to sell the product on the ship, long before it arrives. Unless you get your foot in the door on board, there is little chance of attracting custom just by chance.

“Professional experience will count a lot in the success of any new venture.”

FUNDING

Dunedin City Council
University of Otago

Associate Professor Juergen Gnoth:
“We were astonished at the interest shown in cultural tourism in Dunedin.”

“The more exposure tourists get to cultural experiences the more they want to get involved.”

Forestry values

For Māori owners of tribal lands under long-term lease to forestry companies, the growing of exotic forests has proved a positive experience compatible with their core cultural values.

That finding was a surprising revelation for Centre for Sustainability: Agriculture, Food, Energy, Environment (CSAFE) researcher Stephanie Rotarangi, whose PhD thesis documents the experiences of two groups of Māori landowners in the central North Island.

Rotarangi has spent most of her working life in environmental and social roles in the forestry industry in that region. Her husband and children have family connections to Ngāti Tūwharetoa and Tūhoe tribes. Her thesis is based on two case studies of Māori tribal landowners who negotiated 99- and 70-year afforestation leases of their lands in 1969 and 1972.

“Both leases were taken out at a time when Māori land was under pressure to be developed,” she says. “People believed, at the time, that if they didn’t use it they would lose it.

“For me, the really surprising thing is how these whānau groups have adapted to protect their core cultural values. Despite the leases being quite different, the owners’ passion to retain the land, safeguard the environment and act collectively didn’t change throughout the time I looked at their stories,” she says.

One study looks at the Lake Taupo Forest Trust, the largest lease of its type covering 33,000ha of Ngāti Tūwharetoa tribal lands in the Lake Taupo catchment. The land is owned by 10,000 beneficial owners from 66 different hapū (family groups).

This lease is regarded as a remarkable partnership for its time between Māori and the Crown because of the priorities written into the lease requiring forest management companies to protect waterways, wildlife and wāhi tapu (sacred sites) ahead of profits. The landowners have subsequently renegotiated the term of the lease to allow them to take over the land and forests in the next few years.

The second study of Maraeroa C Incorporation (Rereahu/Ngāti Maniapoto) was typical of smaller leases of the time, with 5,000ha owned by about 1,000 beneficial owners, predominantly from a single hapū. This group represents the opposite extreme, with the lease changing hands four times, despite landowner opposition, and the hapū appears unable to renegotiate their way out of a lease that still has 67 years to run.

Rotarangi says this lease could have been detrimental for Rereahu landowners, but the small rural community “just got on with it” and has successfully renegotiated a number of beneficial outcomes, such as the return of parcels of land and owner participation in the forest cycle. They have also taken an innovative approach to

running secondary businesses such as a ginseng crop, salvaging firewood and punga logs, a hydro-electric scheme, operating a native plant nursery and a tourism complex.

“The Rereahu story is remarkable because the landowners have innovated within the constraints of the original lease,” Rotarangi says.

“In both case studies, without exception, everybody I talked to felt the forests were compatible with their non-negotiable values for the land and none of them would change the land use.

“That was a pretty outstanding finding which, I think, would challenge what a lot of people would expect about these leases.”

She says Māori have far more concerns about the complexity of issues related to land tenure, governance and regulation of forestry land. She also found that relationships between foresters and landowners would benefit from better communications and improved access to land. In many cases, landowners simply want more avenues to participate in land management and could provide practical solutions in forest management.

FUNDING

Foundation for Science, Research and Technology (Te Tipu Pūtaiao Fellowship)



“Everybody I talked to felt the forests were compatible with their non-negotiable values for the land and none of them would change the land use.”

Stephanie Rotarangi:

“The owners’ passion to retain the land, safeguard the environment and act collectively didn’t change throughout the time I looked at their stories.”



Research by Māori for Māori has become an important focus of diabetes studies at Otago.

Dr Lisa Te Morenga and Professor Jim Mann:

“The test that we’ve been working on ... involves a tiny injection of insulin and a couple of blood tests. [It] has the potential to revolutionise research of this kind in the future.”

Diabetes: the new “pandemic”

In 2011 the highly respected medical journal *The Lancet* began calling diabetes a pandemic.

“It used to be a disease, then it became an epidemic and now it’s qualified as a pandemic,” says Professor Jim Mann (Edgar National Centre for Diabetes and Obesity Research).

That change in status resonates particularly strongly in New Zealand which has the world’s fourth highest rate of type 2 or adult onset diabetes, with Māori, Pacific and Asian – particularly those from the Indian subcontinent – figuring prominently in the statistics.

Although rates among Māori are the lowest of those three population groups, they still make sobering reading. Figures drawn from research involving Ngāti Porou on the North Island’s East Coast show that among Māori over the age of 25 almost half have either diabetes or pre-diabetes: that is, showing signs of insulin resistance, impaired glucose tolerance, impaired fasting glucose.

Mann and his team have conducted extensive research into a variety of dietary and lifestyle interventions to tackle diabetes in its earliest stages. Research by Māori for Māori has been an important part of that process and has led to the development of a new generation of

researchers such as Dr Lisa Te Morenga (Ngāti Whātua, Te Rarawa).

After leaving the forestry industry, Te Morenga headed to Otago where she studied nutrition, gaining her PhD and moving into postdoctoral research. She says she did not set out to do kaupapa Māori research as such, but still wanted to pursue research relevant to Māori, particularly in areas such as diabetes and cardiovascular disease.

One of her first pieces of research was a dietary intervention study using off-the-shelf products and easy recipes to find a simple dietary intervention to reduce key risk factors associated with increase of diabetes and cardiovascular disease. As it worked out, the high protein, high fibre diet was fairly similar to the traditional Māori diet.

“I showed that people following that diet, without strict dietary or weight-loss advice, experienced a little bit of weight loss and improvement in body composition and lipids – a general improvement in all factors that are associated with increased risk for diabetes.”

A second study, comparing high fibre and high protein diets, showed that the latter appeared to have benefits for people at high risk of developing diabetes. That study echoed earlier work from the

department that suggested that Māori preferred a high protein diet.

Te Morenga has also been working in close collaboration with colleagues at the University of Canterbury, developing a simple test for insulin sensitivity, a precursor to type 2 diabetes where the body becomes resistant to insulin. Mann describes this research as ground-breaking.

“The current tests for measuring insulin sensitivity are very complicated and it takes half a day to do one simple test. The test that we’ve been working on – and Lisa has been pivotal in this – involves a tiny injection of insulin and a couple of blood tests. So it is a very simple, very easy test to do which has the potential to revolutionise research of this kind in the future.”

Te Morenga is also involved in research into the dietary determinants of gout, a condition to which Māori are particularly prone. While the genetic component of gout is recognised, Mann’s team is now focusing on the role of sugar in the development of uric acid crystals, which build up in the joints to cause the inflammation associated with gout.

“Now there is a huge interest in sugar and that is terribly relevant to Māori,” he says.

Another Māori researcher from the group, Dr Lorraine Brooking, has also compared the effects of a high protein diet compared

to a high carbohydrate diet in people who either had diabetes or were pre-diabetic. That research suggested that the high protein diet was infinitely better.

“That’s very important because so much emphasis has gone into high carbohydrate and high fibre, but that is not a dietary preference of Māori people,” says Mann. “This has practical potential in terms of the advice dietitians give to their Māori patients.”

If any sort of proof of concept was needed to show the potential benefits of lifestyle modification in reducing the risk of diabetes then it was provided by the “Ngāti and Healthy Prevent Diabetes Project”, a collaborative project involving Ngāti Porou Hauora and the University of Otago.

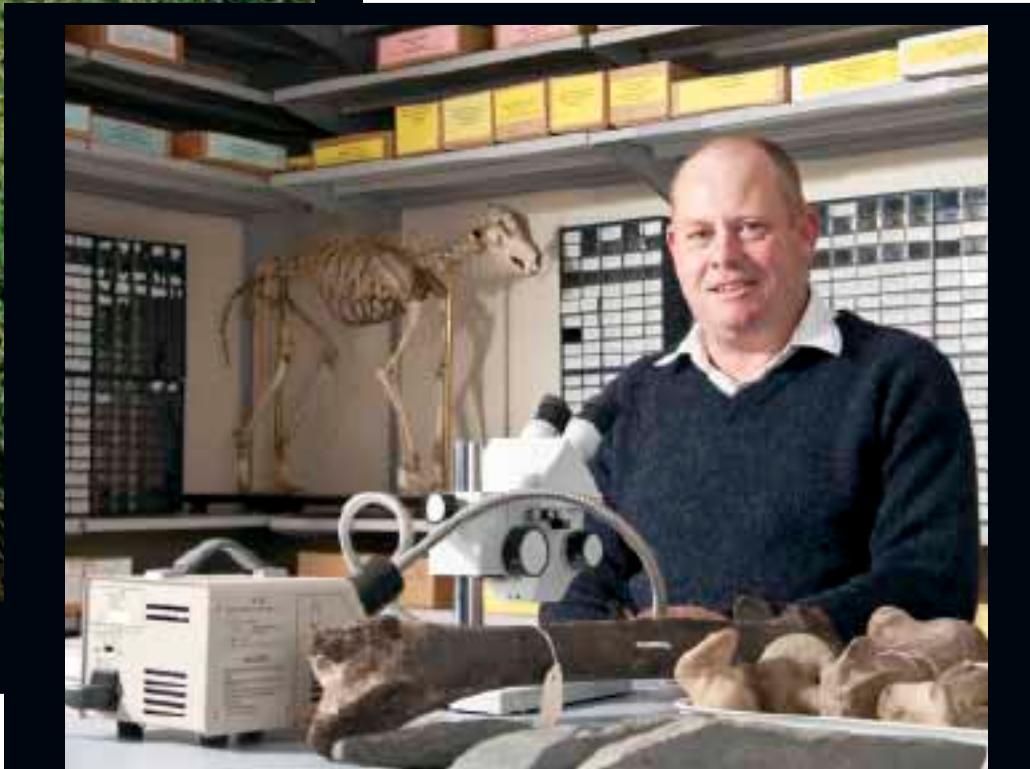
That project was expanded into a community-based, whole-health approach on the East Coast of the North Island. Mann says the model for successful intervention, regardless of race or culture, has been established through projects such as “Ngāti and Healthy”. “It just has to be extended. It is a model that could be used anywhere around the country.”

FUNDING

*Health Research Council of New Zealand
Riddet Institute (Massey University)
Edgar National Centre for Diabetes and Obesity Research*



A collaborative archaeological project on beautiful Moutohorā is reaping benefits for both local iwi and Otago scientists.



Professor Richard Walter:
“The outcomes of this are about conserving and managing resources for the children and future generations, as well as developing a resource management plan that is compatible with the iwi’s economic development.”

Science reaches out to Tangata Whenua

A successful partnership between a Māori community and the University of Otago holds great potential for both the iwi and researchers involved.

An archaeological survey of Moutohorā (Whale Island) should help Ngāti Awa develop and manage their heritage resources, while also advancing research into New Zealand's human history.

Professor Richard Walter (Anthropology and Archaeology), co-director of the University of Otago research and consulting unit Southern Pacific Archaeological Research (SPAR), led a 2-week project in collaboration with Ngāti Awa and heritage consultants In Situ.

Moutohorā, a remnant volcanic cone, lies 7 kilometres off Whakatane in the eastern Bay of Plenty and is managed by a committee, Te Tapatoru a Toi, that comprises representatives of Ngāti Awa and the Department of Conservation.

The existing conservation management plan for the island aimed to protect and enhance Moutohorā's natural and historical values, enhance the iwi's traditional association with the island, ensure the community appreciates its special character and provide sustainable visitor access.

However, discussions between Ngāti Awa, In Situ and SPAR revealed that the heritage aspects of the plan needed additional support. They joined forces to carry out a comprehensive review of the nature and state of preservation of archaeological and other heritage sites on Moutohorā, and to develop

an enhanced conservation and management plan for the island.

SPAR's survey produced an updated inventory of existing sites, recorded new site information and made recommendations for future action and research.

"The outcomes of this are about conserving and managing resources for the children and future generations, as well as developing a resource management plan that is compatible with the iwi's economic development, particularly in areas such as heritage tourism," says Walter.

"This is a really good example of collaboration between Māori and the scientific community. The Ngāti Awa tribal organisation is working in conjunction with science for outcomes that are both of economic significance to iwi as well as contributing to the history and science of New Zealand.

"For us, the island offers outstanding opportunities for future research.

"In archaeology, islands are always a very good indicator of what's going on in the wider environment. Because of its location, Moutohorā has had a very low impact during the European period and now it is a wildlife reserve. The archaeological record there is much better preserved than in many other places in the Bay of Plenty. It would be very unusual to find such a clear record anywhere on the mainland."

Sites on the island date from the 14th through to the 19th centuries. "They cover most of New Zealand's prehistory, which

makes the archaeology there very exciting.

"This offers an opportunity to understand the entire New Zealand sequence within the context of a single area, so it's really important and gives good comparisons with the rest of the country."

The project needed to link the interests and objectives of Māori and scientists, says Walter.

"The connection between our interests as scientists and iwi interests as Tangata Whenua isn't always obvious. Iwi draw on historical sources to support their contemporary needs in spiritual, political and economic ways.

"As scientists, we have very different ways of looking at these landscapes and these sites. What we have to do is seek common ground and, frequently nowadays, that lies in the areas of conservation and development.

"We want to preserve the sites for intrinsic and scientific reasons, while iwi are keen to preserve and control them so they are available for them to draw on in a range of ways that are important to them culturally and economically.

"We listen to what the sites mean to them, while communicating what they mean to us in a wider research context."

The project included mapping Raetihi Pā, assessing gardening evidence at Rāwhiti, and surveying sites and artefacts at Camp Valley and the western dunes.

"Māori are custodians of a much larger historical and heritage base than they

sometimes realise. Their interest in the landscape is often focused on places that are referenced in oral tradition – but that only represents a very small number of sites on any landscape.

"One of the most interesting things for us is when we are able to show how many more archaeological sites are located on these landscapes that are not directly referenced in their oral traditions and history."

Sites need protection, even in a reserve. Human visitors threaten fragile archaeological landscapes on the western dunes and muttonbird burrows are disturbing Raetihi Pā and Rāwhiti.

"The muttonbirds introduce an interesting cultural quandary," says Walter. "Iwi want to increase the traditional harvest, so they hope the bird population will increase, but the burrowing is damaging sites."

It should be possible, through careful planning, to manage these competing demands so as to maximise benefit for all, he says.

"In the past, iwi have often been wary of outside scientists, but this has been a very positive partnership. These programmes are of enormous benefit not just to us as a university, but also in a much wider community sense.

"For me, the most important part of this is about developing these really strong partnerships with iwi."

FUNDING

Mātauranga Kura Taiao Fund

Making sense of memories

When Otago researchers reported in 2000 that Māori have the youngest first memories of any culture ever studied, their study raised as many questions as it answered¹.

While Pākehā New Zealanders – in common with others of European ancestry – recall memories from an average age of 3½, Māori adults could remember events that occurred from when they were an average of 2½ years old. Chinese adults, in contrast, develop their first memories around the age of 4, and even as late as 6 for women.

To try to understand these discrepancies, the team from Otago’s Department of Psychology carried out further research in which they asked mothers to tell their children the stories of their births. They found that Māori women told more elaborate stories than Pākehā mothers, enriched with details and interactions with their children’s questions.

Story-telling is a known aid to memory, and the Otago researchers argued that this rich narrative environment enables Māori to attach meaning to events from an early age and retain those memories throughout their lives.

Now, Associate Professor Elaine Reese and doctoral students Tia Neha and Ella

Myftari, along with Associate Professor Qi Wang from Cornell University, are taking this research several steps further, with projects that aim to better understand the communications environment in Māori homes, and draw upon links between early memories and people’s abilities to make sense of their lives.

“When we ask people to tell us the story of their lives,” says Reese, “one of the things a psychology researcher might listen for is how coherent the story is. Is there a narrative structure to it? Does the narrator draw connections between past and the present, or develop themes through the story? This demonstrates an ability to think in an abstract way and to make sense of the events they have experienced as part of their understanding of who they are now.”

The ability to tell a coherent life story, she continues, is associated with greater well-being and resilience, and less risk of depression. And, with youth mental health a matter of national urgency, “the greater our ability to understand what kind of environment can support emotionally robust adolescents, the better”.

There is a catch, says Reese. “While the ability to tell a more coherent life story is better in the long run, as adolescents first develop this capability they may go through a period of vulnerability where

they are at greater risk of depression. What we hypothesise is that Māori children may reach the point at which they are able to draw meaning from life events, and link that meaning to well-being, earlier than those from Western or Chinese cultures.”

Reese and Wang’s study, supported by an \$821,000 grant from the Marsden Fund, involves interviewing Māori, Pākehā and Chinese adolescents, aged between 12 and 20 years old. As well as describing their earliest memories, the participants are asked to talk about their lives, identifying highs, lows, turning points and their visions of their futures.

Meanwhile, for her PhD research that was funded by the Foundation for Research, Science and Technology, Neha is working with 60 whānau (immediate and extended families) recording conversations with children in their homes on topics from remembering cultural rituals through to sharing a repeated whānau story from the parents’ own childhoods.

Her aim is to gain “a wider understanding of how families communicate, including fathers, siblings and members of the wider whānau”. Neha suspects that it’s not just the richness of language used in a whānau setting that is important, but the weight given to karakia (spiritual affirmations in a range of contexts), ritual

and whakapapa, instilling in children a sense of their place in their world within a wider historical narrative.

One of the reasons suggested for the late age for Chinese first memories is the de-emphasising of the individual in favour of the collective group, potentially meaning a single person’s experiences receive little weight or celebration.

However, while the collective values of Māori are often highlighted, the concepts of individual identity and belonging to a wider group do not conflict, suggests Neha. Rather, they are inescapably entwined. From her own childhood, Neha recalls being schooled in the history and traditions of her people from Northland and the East Coast of the North Island, while also being singled out to attend a private school, learn and obtain more skills to eventually give back and help her whānau in multiple ways.

“Even in the word whānau,” she reflects, “‘au’ means self.”²

FUNDING

Marsden Fund

Foundation for Research, Science and Technology

1. MacDonald, S., Uesiliana, K., & Hayne, H. (2000). *Crosscultural and gender differences in childhood amnesia*. *Memory*, 8, 365–376.

2. This discussion on the words “whānau” / “au” was sourced from Dr Rose Pere who was chosen from her tohunga (experts in Māori knowledge, customs and practices) to learn the ancient customs of the Māori world under their teachings.



Tia Neha, Associate Professor Elaine Reese and Ella Myftari:
“Māori children may reach the point at which they are able to draw meaning from life events, and link that meaning to well-being, earlier than those from Western or Chinese cultures.”



Professor Henrik Moller and Dr Janet Stephenson:

... examining ways in which legislation and policy implementation could be altered to better meet Māori aspirations for kaitiakitanga.

“This isn’t just about honourable partnership – that’s important – it’s also about getting the job done of finding a new sustainable way of living together in the same place, in a way that achieves healthy and abundant local fisheries.”

To find a new way ...

Barriers to full Māori participation in the management of traditional food-gathering areas are being investigated by a University of Otago-led research team, with the aim of finding better ways to support kaitiaki (guardians) as they seek to restore ecosystem vitality.

The project is titled *Tirohia he Huarahi*, or “find a new pathway”. One of the principal investigators, Dr Janet Stephenson (Centre for Sustainability: Agriculture, Food, Energy and Environment [CSAFE]) says the first step in the process has been to get a picture of the experiences of kaitiaki from different iwi and hapū around the country in the face of serious declines in the abundance of seafoods that have been integral to their way of life.

“Particularly over the last 30 years or so, there have been huge depletions in coastal food resources. Māori groups have long been concerned about this and have been seeking greater participation in management at a local level.”

Stephenson says the Resource Management Act and the Fisheries Act both allow for local management through transfers of power, joint management agreements, taiāpure and mātaītai, but Māori are frustrated in their attempts to implement or use these mechanisms.

Researcher Jonathan Dick has interviewed people from 14 different iwi and hapū, gathering the experiences of kaitiaki and other community members who have been trying to restore the health of their mahinga

kai (traditional food gathering areas). The team has also talked to local and central government organisations, and interviewed former government ministers and policymakers involved in developing the legislation, in order to better understand their original intentions.

Professor Henrik Moller explains they are examining ways in which legislation and policy implementation could be altered to better meet Māori aspirations for kaitiakitanga – a point made strongly in the recent WAI 262 report by the Waitangi Tribunal.

“But we also need to find ways of getting stronger partnership between iwi and the wider society, because everyone wants to have abundant local fisheries. So, it’s partly about what blocks good partnerships and also what blocks Māori from having any real influence on what their local environment should be like,” he says.

“There’s also a much bigger issue and that is that indigenous peoples’ voices and worldview can help re-theorise planning and resource management from an indigenous perspective, because they are nearly always conceptualised from a Western perspective. It’s clear that kaitiaki and their communities are heavily involved in planning and resource management, and are doing it their own way.”

Team member Rauru Kirikiri says many locals would say the decision-making and the mana has always been in their hands, but they have not always been able

to express it openly and in a form that is accepted by others.

“I think largely what we’ve been doing is to try and open that up a bit more so that people will not only accept, but also acknowledge and go as far as to incorporate some of these ways in which Māori have managed sea resources, even when that might be in conflict with the current quota management system and fisheries regulations,” he says.

“For example, MFish [Ministry of Fisheries] says crayfish have to be bigger than a particular length. But, in the past, a good number of Māori communities have said that instead of looking at the size you might actually look at the family and its structure. Do you need more big pāua to breed little ones, or do you want to keep more of the little ones to grow?”

However, he also acknowledges that it is not simply a case of science learning from Māori.

“This is also about how communities look at science – in this case Māori communities where they may never have considered science as a legitimate way of managing resources and I think, increasingly, Māori are now. It’s a two-way street in many respects.”

Stephenson says they are challenging the “one size fits all” approach.

“Every mahinga kai, every coastal ecosystem is going to be very different, yet the way we manage them as a nation is to have the same regulations covering vast areas. But where you get the local knowledge of people

who have lived in places for generations, and who understand the particular characteristics of that ecology versus another one up the coast a bit, then there might be quite different individualised management systems.”

Kaitiaki are frustrated by the difficulties involved in putting in place locally-crafted management systems for the purposes of restoring local abundance, she says. “We hear stories of taiāpure committees working for years to get one regulation changed to limit the take of one species.”

Moller says it isn’t simply about meeting Treaty of Waitangi responsibilities. There are gains in terms of bringing back a resource for everyone to enjoy, as well as the deeper spiritual aspects of sharing a space and sharing their collective knowledge.

“This isn’t just about honourable partnership – that’s important – it’s also about getting the job done of finding a new sustainable way of living together in the same place, in a way that achieves healthy and abundant local fisheries.”

And Kirikiri adds that the findings are likely to challenge the existing legal and regulatory framework. “That is an important aspect. We are not just doing this research to come up with some numbers.”

FUNDING

Marsden Fund

Fishy mysteries

Nothing captures the imagination of scientists more than a good mystery.

For Dr Mark Lokman, a senior lecturer in the Department of Zoology, a childhood fascination with fish – and freshwater eels in particular – has provided the motivation for most of his academic career.

Mystery surrounds much of the freshwater eels' life cycle and the hormonal triggers that drive them to swim thousands of kilometres back to their oceanic spawning grounds to breed. Until recently, scientists' knowledge of eel reproduction has been limited to captive breeding experiments to understand these hormonal changes that lead to migration and reproduction.

Lokman says eels are outstanding research subjects because of their unusual biology. They are physically strong, resilient and easy to keep in captivity. But they are also difficult to farm commercially and among the most difficult finfish to induce to reproduce.

"When we take eels from the wild when they start their spawning migration and place them in a fish tank, they just stop what they were doing and go on stand by," he explains. "Most fish will continue spawning, but eels don't.

"It is a superb model for a reproductive biologist to study the role of hormones because the animal is just on stand-by waiting for the right hormone signals to resume sexual development."

Lokman believes eel migration is almost certainly triggered by hormonal change, but the challenge is to find which one. Hormones work like a radio broadcast transmitted through the bloodstream of an animal, he says. If cells have the right receptors to dial into a certain frequency, they can then respond to the message carried in the hormones.

"It's an exciting time because the fish in our fish tanks are spawning right now and we'll probably never get to see it again."

Lokman says there are so many unresolved mysteries surrounding this fascinating creature, his research will keep him occupied for years.

FUNDING

*Foundation for Research, Science and Technology Postdoctoral Fellowship
Marsden Fast-Start Grant*

Tertiary Education Commission Primary Partnership Grant (in conjunction with the Cawthron Institute)

Zoology master's student Matt Wylie has a similar challenge as his supervisor (Lokman), unravelling the mysteries of the reproductive biology of the giant kōkopu, one of a number of native galaxiid species that make up the whitebait family.

Because of an incomplete understanding of how this threatened species reproduces, Wylie is monitoring two groups of giant kōkopu, regarded as a taonga species by his Ngāi Tahu iwi.

To assess the potential to farm this species commercially, one group is monitored in the wild and the other is held in fish tanks in the Department of Zoology's laboratory.

Wylie's research shows that giant kōkopu held in captivity continue their sexual development and produce eggs like fish in the wild. He has collected eggs from both wild and captive fish and incubated them in the laboratory with various degrees of success.

"I can hatch the fish in large numbers, but there is a huge mortality rate. But at least, it can be done."

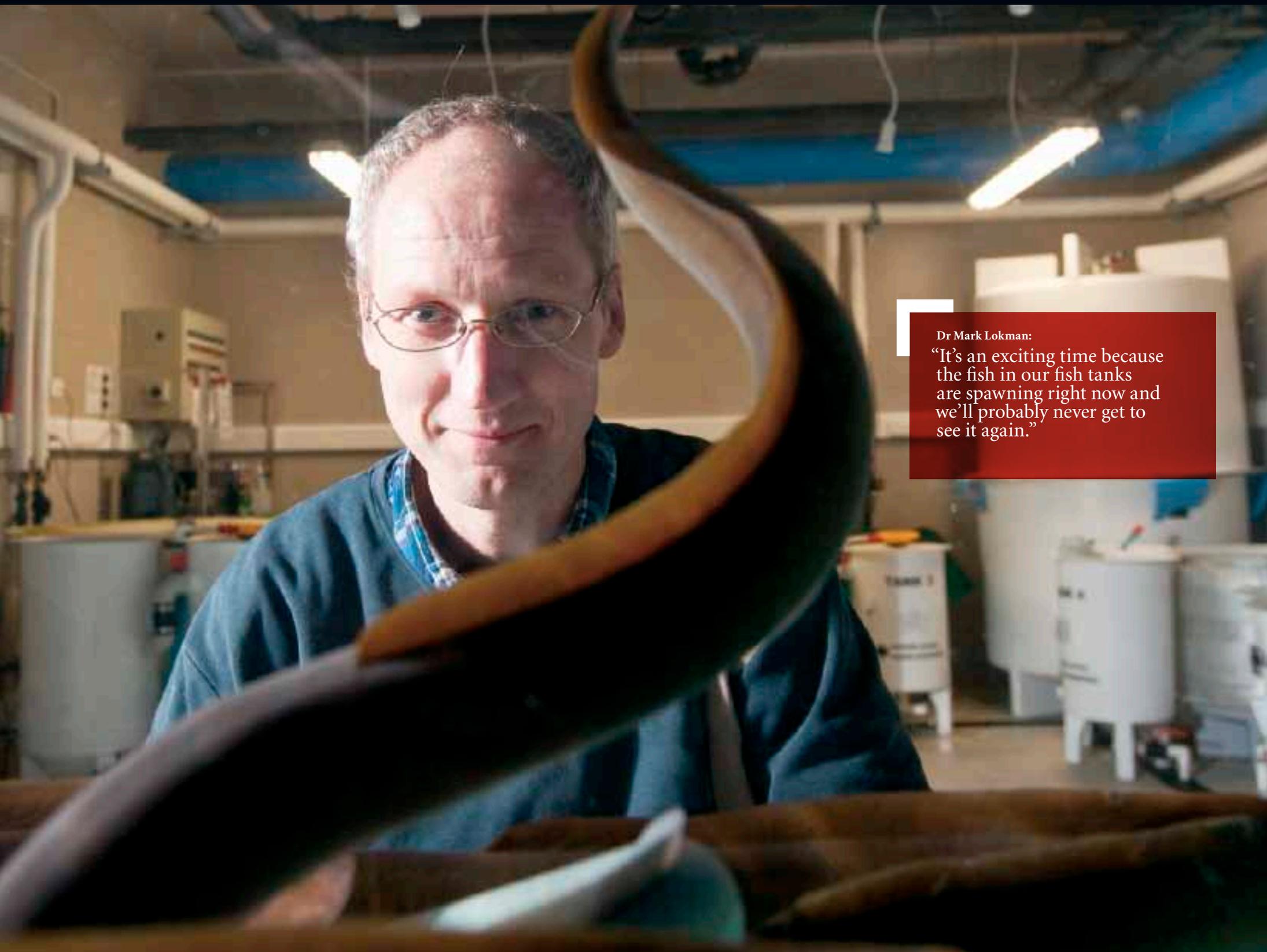
Wylie says his study is important for the conservation or potential commercial cultivation of whitebait.

"I don't think giant kōkopu will become commercialised anytime soon, but this information is a safeguard for conservation. I'd like to see it commercialised. I definitely think they can be farmed."

FUNDING

Foundation for Research, Science and Technology (Te Tipu Pūtaiao Fellowship)





Dr Mark Lokman:
“It’s an exciting time because the fish in our fish tanks are spawning right now and we’ll probably never get to see it again.”

Pukapuka Hauora: healthy lungs

New Zealand has a high asthma rate, with one in four primary-school-age children experiencing asthma symptoms. It is not clear exactly why these rates are so high, nor why Māori children are twice as likely to be admitted to hospital with asthma compared to non-Māori children.

The issues Māori parents face with asthma management raise questions which Bernadette Jones (Ngāti Apa, Ngā Wairiki) and Dr Tristram Ingham (Ngāti Kahungunu, Ngāti Porou), from Wellington's Asthma Research Group, have been exploring in their Pukapuka Hauora (Healthy Lungs) study.

“The aim of this longitudinal study has been to interview in-depth a group of Māori parents about their children's asthma,” says Jones, a Māori researcher with a nursing background. “This involved multiple interviews over several months to develop a comprehensive understanding of how these 32 families are coping and what issues they are facing in managing this chronic disease.”

Ingham says a lot has been done to describe asthma, particularly the environmental and biomedical factors associated with this condition, including medication compliance. However, relatively little is known about Māori

parents' experiences in managing asthma and the challenges they face on a daily basis, which could have a critical effect on how well their child is doing.

“We're interested in the practical issues that confront Māori parents. For instance, their understanding and concerns of how and when to use inhalers and steroid medications, their confidence in recognising the signs of deterioration and when to take their child to the doctor, as well as environmental factors affecting their asthma, such as housing conditions and allergen triggers.”

Preliminary results of the study show there is a range of issues of concern for Māori parents which could be amenable to intervention. Parents talked about their experiences accessing various health-care services and their interactions with health professionals.

“There are sometimes inconsistencies in messages involving asthma medication and treatment, and parents often noted a lack of continuity in their dealings with health professionals, such as not getting the same GP because of locums or staff shortages.”

Parents also say schools do not always fully understand the needs of children with asthma, with issues such as puffers having to be kept where they are not easily accessible, students being

in trouble for disturbing the class by coughing, difficulties doing physical education and asthma plans not being followed while at school.

“This is where boards of trustees need to make sure that there are clear guidelines and protocols to protect the health of these children,” says Ingham.

However, overall, Jones and Ingham say Māori parents are doing well with their children's asthma. They found that community asthma services by nurse educators from the Hutt Valley's Tū Kotahi Māori Asthma Trust are especially valued and provide clear and consistent information.

“All parents we spoke to have a thirst for knowledge about asthma, so it's not as though they don't care. They care deeply about their child's welfare and are trying to do their best,” says Jones.

One of the additional spin-offs of Pukapuka Hauora is that its findings are informing the Hauora Māori programme which teaches fourth- and fifth-year medical students how to relate more effectively with Māori patients.

Underlying this and other Māori health studies by Jones and Ingham has been the development of their Whānau Tuatahi (Families First) research framework, a practical way of conducting kaupapa

Māori research. This means recognising from the outset that Māori culture has different ways of relating, putting participants and their needs at the centre of the research process.

As urban Māori in the Wellington region come from multiple iwi or tribal backgrounds, the researchers believe it is particularly important to have a framework that is Māori-centred throughout the investigatory process.

“We developed a series of principles for engaging with Māori participants and then applied them to the Pukapuka Hauora study, and it worked extremely well,” says Jones. “This meant having a whānau-focused, ‘appreciative’ approach, rather than a deficit model in which Māori feel they are being held to account for ostensible shortcomings in managing their child's health.”

The researchers say it's made a big difference in involving the participants. The principles include: whakawhirinaki (trust), whakawhanaungatanga (relationship building), whakamana (empowerment), ngāwari (flexibility), utu (reciprocity) and hurihuringa (reflexivity).

The approach built relationships with Māori parents over some months, involving them from the outset of the project, giving them a chance to ask

questions about the research and asthma, and empowering the community as a whole in the research process.

Much of the guidance in developing this framework came through assistance from the Tū Kotahi Māori Asthma Trust which has been working in the Hutt Valley near Wellington for more than a decade.

“I think the fact that we had a 100 per cent retention rate in this study using the Kaupapa Māori framework speaks for itself,” says Jones. “It’s all about engaging and empowering whānau on their terms. Then you find that they’re really involved, interested in taking part in research and in getting their voices heard.”

FUNDING

Health Research Council of New Zealand



Bernadette Jones and Dr Tristram Ingham:
“We’re interested in the practical issues that confront Māori parents.”

“We developed a series of principles for engaging with Māori participants and then applied them to the Pukapuka Hauora study, and it worked extremely well.”



“Ki Uta Ki Tai”, a pou rāhui installed on Huriawa Peninsula by the East Otago Taiāpure Management Committee, to acknowledge the link between the inland areas and the marine environment.

The Ngāi Tahu Research Consultation Committee

The Ngāi Tahu Research Consultation Committee (NTRCC) is an external committee to the University of Otago that was developed under the auspices of the Memorandum of Understanding between the University of Otago and Te Rūnanga o Ngāi Tahu, with both parties recognising the need to be proactive and responsive to Ngāi Tahu and Māori in research.

The Policy for Research Consultation with Māori was a product of those discussions and the NTRCC the mechanism by which the policy is articulated. The NTRCC comprises two representatives from each of the Papatipu Rūnaka ki Arai-Te-Uru, Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki and Te Rūnanga o Ōtākou. It began considerations in September 2003.

The NTRCC provides clarity regarding issues of interest to Māori and ensures participation of Ngāi Tahu Rūnanga in the decision-making processes of specific research activity within their takiwā. The NTRCC aims to enhance and support Ngāi Tahu rangatiratanga in research relationships, and has links and relationships with Ngāi Tahu and Māori¹ communities. It connects researchers with these communities from which input, direction and information are gathered and disseminated. The NTRCC aims to ensure that Māori aspirations are systematically strengthened across all fields of research.

1. For the purposes of the report the definition recognises iwi hapū and whānau, and pan-Māori organisations in the community.

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Whale ivory hei matau
(St Clair, Dunedin):
D40.51, Otago Museum Collection.

A fishhook-shaped pendant, the hei matau is taonga (a cultural treasure), representing prosperity, strength, fertility and respect for the sea.



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Te Whare Wānanga o Otāgo

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