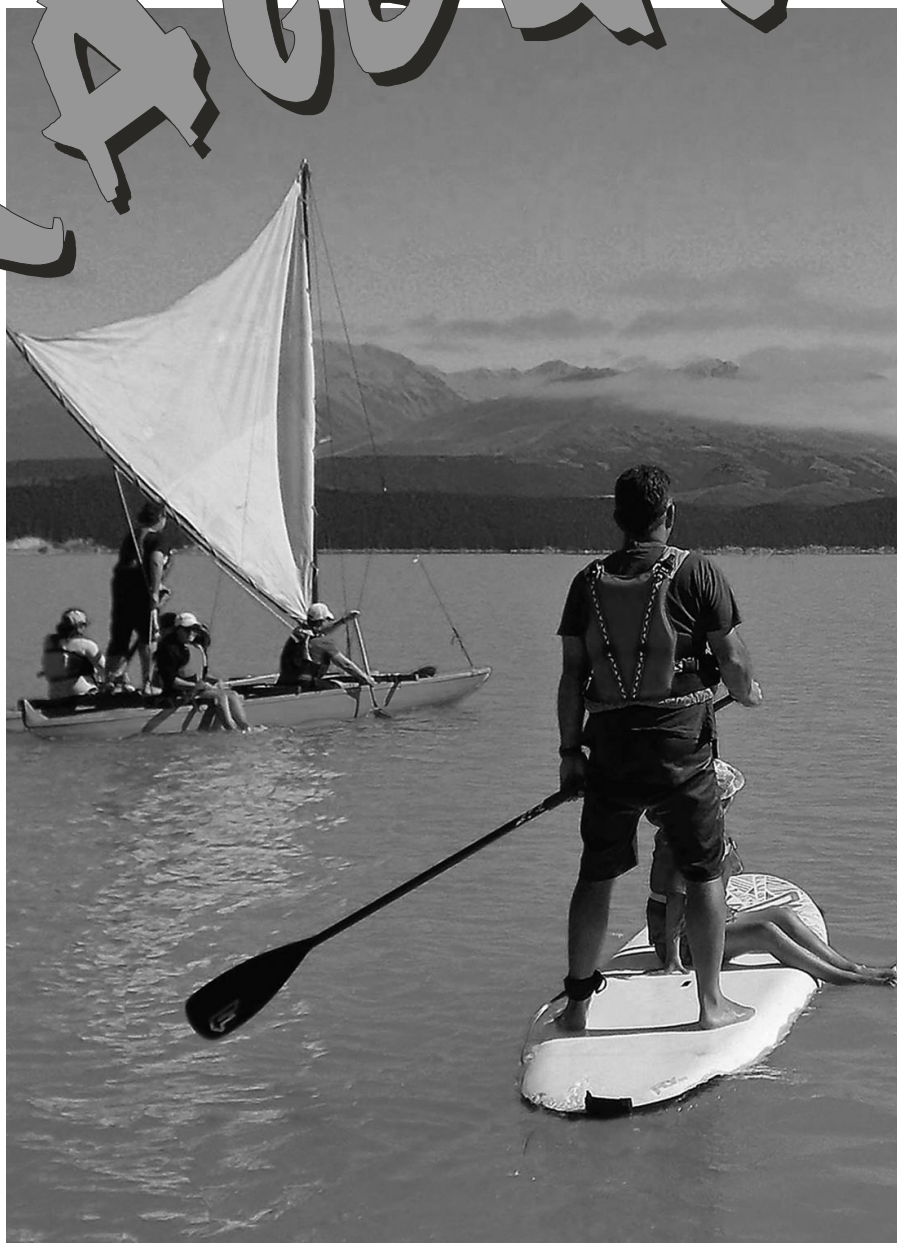




Out Aha Ahoout



This Issue

A Māori in the outdoors

Māori and the Natural World

**Atua to Matua: Māori Environmental Representatives in
Outdoor Education**

An Iwi-focused Science Outdoor Education Approach





Out and About

is published by

Education Outdoors New

Zealand (EONZ).

EONZ is committed to fostering

and advocating for quality

outdoor learning experiences

that can educate for a

sustainable future.

Editor

David Irwin

Phone: 03 940 8256

email:

David.Irwin@ara.ac.nz

Postal: David Irwin,

Ara Institute of Canterbury

PO Box 540,

Christchurch, 8015

Design and Layout

Dietlind Wagner

Cover Photo

Suzi Flack

Contributions

Material for publication

is welcome. Please send

contributions to the editor.

Autumn 2016

by David Irwin

Editorial

Kia ora and welcome to this autumn special edition of *Out and About*, published by Education Outdoors New Zealand (EONZ). I hope you enjoy the reading, and if this is your first encounter with EONZ, I encourage you and/or your school to become a member of our community and to contribute to discussions about education outside the classroom into the future. As always, letters to the editor and both feature and minor articles are welcomed and can be sent to me via email.



Many years ago, I had a Pākehā student return from a Kura Kaupapa (Māori immersion school) that he and several other students had been working with and he remarked to me that there was no outdoor education at the kura. I was

• Continued on page 4

Contents

Editorial 2016	3
Comments from the Chair	4
Guest Editorial by Dr Anne-Marie Jackson – Ka ora te taiao, ka ora te tangata. A thriving environment, a thriving person	5
Te Ao Marama Apiata – A Māori in the outdoors. An exercise of trying to make sense of the outdoors from an urbanised Māori perspective	8
The National EOTC Coordinator Database	11
Chanel Phillips and Ngahuia Mita – Māori and the Natural World.	12
Chanel Phillips, Patricia Vanderburg, Brendan Flack – Application of Māori worldview, Ki Uta Ki Tai: From the Mountains to the Sea	12
Ngahuia Mita, Brendan Flack, Suzi Flack, Hinerangi Ferrall-Heath, Anne-Marie Jackson and Waiariki Taiapa-Parata – Application of Māori worldview, connecting with Te Ao o Takaroa	16
Ihirangi Heke – Atua to Matua: Māori Environmental Representatives in Outdoor Education	19
Hiria S. McRae – “An Iwi-focused Science Outdoor Education Approach”	24
Book Review	28
Game: Rocky shore study	29



surprised by this observation, and after some further discussion exploring his experience, we discovered that what the student meant was that there were no Pākeha interpretations of outdoor education visible at the school. What had not been apparent to the student was how learning in the outdoors was deeply woven through learning at the kura, from kappa haka to hangi, from marae visits to gathering kai moana. This was a reality check for both of us, a challenge to remove our cultural lenses and to look again with a

renewed appreciation of what was actually taking place in a space we were unfortunately unfamiliar with.

This special edition of *Out and About* has the aim to focus the attention of readers on this critical space in EOTC in this country, to hear Māori voices describing their perspectives and work outside the classroom. Guest editor Dr. Anne-Marie Jackson will introduce the authors and their articles, but I would like to take this opportunity to thank all

those who have contributed to this work.

I hope you enjoy this edition of *Out and About*, and wish you well for the coming winter months. Please consider sharing your own reflections on the issues facing EOTC through this forum.

Noho ora mai rā, nā Dave

David Irwin, PhD

Sustainability and Outdoor Education
Ara Institute of Canterbury

Comments from the Chair

Liz Thevenard Co Chair EONZ

Kia ora to this very special addition of *Out and About*. I must take this opportunity to thank our contributors who have challenged us to look more critically at our programmes and consider the Māori world view. I would hope that we will see more regular contributions such as these. Dr Anne-Maria Jackson struck a chord with me by highlighting the importance of our mountain, river and harbour as part of knowing ourselves and our sense of belonging. I feel a home when I explore and adventure in the Ruahine Ranges and the Oroua River where I grew up. This edition features many wise words and a variety of Māori perspectives. All emphasise the importance of our whakapapa, kaitiakitanga, turangawaewae and the importance of being connected to a place and to people.

The National Executive is committed to building a more bicultural approach to education outside the classroom and to acknowledge the importance of the Māori view of the outdoors. As leaders in the outdoor sector it is our role to challenge the traditional Pākeha view and to listen to the wise words of our Kamatua and the importance of place. EONZ with the expertise

of Dr Ihirangi Heke and the support of Ministry of Education provided Atuatanga wananga around the country. The wananga explored Māori connections to outdoor environments within the contexts of that place and provided insight into how the education sector can develop their thinking in relation to Māori informed outdoor education. The wananga were successfully run in Kaikohe, Waitakere – Auckland City, Uawa – Tolaga Bay, Whanganui, Whakaoriori – Masterton, Ōtautahi – Christchurch and Murihiku – Invercargill. These workshops were enlightening and encouraged the participants to look closely at their local surroundings and to appreciate, enjoy, connect and to learn about aspects of the environment and community.

The National EONZ Executive is committed to expanding and promoting Māori view and we look forward to a committed partnership.

Liz





Ka ora te taiao, ka ora te tangata.

**A thriving environment,
a thriving person**

Guest editorial by Dr Anne-Marie Jackson

<i>Ko Tokatoka te maunga</i>	<i>Tokatoka is the mountain I affiliate to</i>
<i>Ko Wairoa te awa</i>	<i>Wairoa is the river I belong to</i>
<i>Ko Kaipara te wahapū</i>	<i>The Kaipara is my ancestral harbour</i>

Each time I look at, engage with and think about the volcanic peak of one of my mountains in Northland called Tokatoka, there is a certain knowing and belonging of the exploits of my ancestors from that sacred peak. At the summit of Tokatoka there is a 360° view of our ancestral landscape of one of my tribes, Ngāti Whātua. Immediately in the foreground of Tokatoka is the mighty Northern Wairoa River. Its wide banks are carved from the travels of our guardian, the taniwha Pokopoko - which gave rise to the saying, Pokopoko-whiti-te-rā (Pokopoko who causes the sun to shine). As you cast your eyes westward, the Kaipara Harbour comes into view. But growing up in the far south of the South Island, it was only the summer just past that I had my first adventure beyond the edges

of the Northern Wairoa into the Kaipara Harbour. From a seaward view of the Kaipara, the ancestral landscape takes on a different form. You can make out the faint outline of Tokatoka in the distance. Tangaroa (God of the Ocean) is guiding you to your destination, with a gentle reminder that you are in his realm. In that moment, you are transported literally and metaphorically to a space where threads of whakapapa (genealogy), mātauranga (Māori knowledge), kaitiakitanga (Māori environmental ethic), tūrangawaewae (a place to stand), and your deep-rooted connectedness to a place, as well as the stories and the people of that place, collide in real time.

The experiences, like this small glimpse I have described, bring forward the value of engaging

Māori and Pākehā students alike in the outdoors and introduces the notion of what this might look like contextualised from a Māori standpoint. Māori understandings of the environment, outdoors, nature, the natural world are derived from our specific worldviews. Māori worldview is described by Marsden as “the central systemisation of conceptions of reality to which members of its culture assent and from which stems their value system. The worldview lies at the very heart of the culture, touching, interacting with and strongly influencing every aspect of the culture” (Marsden, 2003, p. 56). Each iwi (tribe), hapū (subtribe), whānau (family) will have their own particular view of the world. Understanding Māori worldview is a lifelong process; from creation narratives, Māori



language, values, lived experiences and the realities of living in a contemporary world for example. The articles in this Special Edition highlight the diversities in Māori approaches to understanding the outdoors.

Te Ao Marama (Jodi) Apiata provides a deeply personal and refreshing perspective of a lived experience questioning what it means to be Māori in an urban environment. In his article entitled *A Māori in the outdoors: An exercise of trying to make sense of the outdoors from an urbanised Māori perspective* he delves into his own experiences of growing up living outside of his tribal area, and being brought up with strong Māori values while being an avid outdoor enthusiast. He describes a similar story of many Māori in New Zealand today and eloquently states that the foundations laid by his parents were “the why, the way and the how (Kawa, Tikanga, Tinorangatiranga)”. He problematises being Māori in an urban environment and asks the reader “what does it mean to be a Māori in an urban environment, can we still participate as our Tipuna used to in the outdoors – do we need to refine what the outdoors means?” He gives an answer “that if kawa and tikanga are still living within whanau, that the wairua of our Tipuna can still exist in our everyday lives, bearing in mind it will change with the context of the modern and urbanised life we live in now”.

Emerging scholars, Chanel Phillips and Ngahua Mita preface their articles with a positioning

paragraph named *Māori and the Natural World* which gives insight to the two community groups they work with, both located within the boundaries of Kāti Huirapa ki Puketeraki, north of Dunedin. Both of the articles are examples of applications of Māori worldview.

Chanel’s article is written with members of the Ki Uta Ki Tai Volunteer Week, Patricia Vanderburg and Brendan Flack. Their paper *Application of Māori worldview, Ki Uta Ki Tai: From the Mountains to the Sea* describes the 4 day Ki Uta Ki Tai Volunteer Week residential programme which is centred on “cultural concepts and practices such as mahinga kai, whanaungatanga and kaitiakitanga”.

In Ngahua’s article *Application of Māori worldview, connecting with Te Ao o Takaroa*, written with members of Hauteruruku ki Puketeraki, Brendan Flack, Suzi Flack, Hinerangi Ferrall-Heath, myself and Waiariki Taiapa-Parata, the authors describe creation narratives, whakapapa (waka kōrero and connection to landscape), kaitiakitanga and manaakitanga as fundamental to Hauteruruku ki Puketeraki. The overall kaupapa (purpose) is “to connect and reconnect our members and whānau to the awa and moana using waka and Te Ao o Takaroa”.

Dr Ihirangi Heke’s *Atua to Matua: Māori Environmental Representatives in Outdoor Education* brings forward a challenge to the outdoor education sector and states that “at present,

a large number of current outdoor education initiatives, aimed at Māori, continue to be underpinned mostly by non-Māori concepts with Māori language as an afterthought or form of ‘cultural overlay’”. He offers a solution to this issue through the development of the “Atua to Matua Māori Health Framework” which is based on Māori environmental knowledge as a means to address Māori and indigenous health issues, but from a specifically indigenous standpoint. In the article Ihi draws parallels between systems science/ system theory and a whakapapa approach to improving Māori health. The Atua to Matua framework provides a strengths based approach to Māori health, drawing on Māori environmental knowledge and seeks to show the connections via whakapapa and the ‘system’, described as “Knowledge, human connection to that knowledge, metaphors provided from that knowledge, praxis of that knowledge”.

Dr Hiria McRae’s article is *An Iwi-focused Science Outdoor Education Approach*. She provides a *detailed* table which describes a “Ngāti Whakaue example of a science topic”. The enabling themes she outlines are “the importance of relationships; practical engagement with Māori culture; and marae as a central science learning site” and these themes are “a means to positively engage Māori students in science education”. She then makes linkages to *Te Marautanga o Aotearoa* (2008), the *New Zealand Curriculum* (2007) namely: “Partnerships and power-sharing – “How content is chosen?”; Shared values and aspirations –



“What content is to be included?”; Culturally responsive pedagogy – “How content will be delivered?”; Resourcing – “What support is needed?”; Collaboration – “Who delivers content?” and Local context – “Where is the programme delivered?”. In each of these sub theme areas, Hiria gives detailed examples of Ngāti Whakaue ideas, examples from science and then suggested activities. Hiria asserts a challenge as well and that is “science programmes need to acknowledge and include important relationships with people and places, in Māori students’ lives beyond the classroom, to improve their engagement”.

This Special Edition will showcase the nuances and diversities of understanding the outdoors from a Māori perspective; highlighting that there is not ‘a singular view’ or perspective of Māori and the outdoors. As Marsden (2003) states “the route to Māoritanga through abstract interpretation is a dead end. The way can only lie through a passionate, subjective approach” (p.2). Marsden’s (2003) point can be viewed in this context that the route to understanding the outdoors from a Māori perspective “through abstract interpretation is a dead end. The way can only lie through a passionate, subjective approach” (p.2).

References

Marsden, Māori. (2003). God, man and universe: A Māori view. In T. A. C. Royal (Ed.), *The woven universe: Selected writings of Rev. Māori Marsden* (pp. 2-23). Otaki, New Zealand: Estate of Rev. Māori Marsden.

About the guest editor:

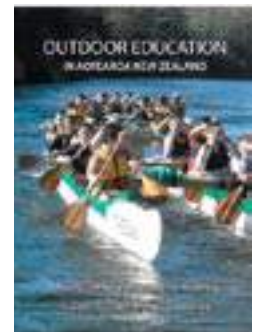
Dr Anne-Marie Jackson is a Senior Lecturer at the University of Otago, School of Physical Education, Sport and Exercise Sciences. She is from Ngāti Whātua, Ngāpuhi, Ngāti Wai and Ngāti Kahu o Whangaroa. Her research focuses on Māori physical education and health and she is particularly interested in Māori environmental health. Her email is anne-marie.jackson@otago.ac.nz.

Outdoor Education in Aotearoa New Zealand: A New Vision for the Twenty First Century

Edited by: Dave Irwin, Jo Straker and Allen Hill

Outdoor education in a variety of guises has a rich history in Aotearoa New Zealand, dating back more than 100 years. Outdoor learning experiences have a strong and often much-loved place in our collective education memories. However, the world in which we currently live is vastly different from the one which shaped those memories. What does that mean for education, and more specifically, what does that mean for outdoor learning experiences? This book attends to these questions from a forward looking position by providing a practical, insightful, and innovative reappraisal of outdoor education theory and practice. Embracing a critical socio-ecological perspective, the contributors celebrate aspects of creative practice and chart a direction for outdoor education which aspires to educate for a sustainable and more equitable future.

This is essential reading for outdoor educators, teachers, guides, and students who want to expand the possibilities and practices of education, especially education which builds a deeper understanding of our relationship to the world we depend on.



ORDER FORM Please fill out and return with your payment to:
Education Outdoors New Zealand, 354 Tram Road, R D 2 Kaiapoi 7692
Or, office@eonz.org.nz

\$NZ35.50 (incl GST and postage)
Reduced p&p on ordered multiple copies.

Payment by cheque: Make cheques out to Education Outdoors New Zealand Inc
Payment by Direct Credit: Kiwibank: 38-9014-0056233-00 (In Particulars please write OE in NZ)

Name and postal
address:



A Māori in the outdoors

An exercise of trying to make sense of the outdoors from an urbanised Māori perspective

By Te Ao Marama Apiata

This article is from a personal perspective of growing up as an Urban Māori in Otepoti, and during that time being one of the only Māori in many of my classes at school, in sporting teams, or groups of friends in Dunedin.

For the past 44 years I have worked, lived or played in the outdoors either as an instructor, facilitator or business owner. As an instructor, I would take groups for day missions in the bush, round the coast or out rock-climbing. As a facilitator of Adventure Therapy programs, it was clear to me what the outdoor environment could offer. The way we worked depended on what the needs of our clients were and the understanding of the outdoors they had. As a business owner I had a clear vision and

**Hutia te rito o te harakeke
Kei hea te komako e ko
Ki mai ki ahau
He aha te mea nui i te ao
Maku e ki atu**

**He tangata, he tangata, he tangata
Tihei Mauri Ora**

**Ko Pou e rua toku Maunga
Ko Waitangi toku Awa
No Nga Puhi toku iwi
Ko Rahiri raua ko Ngati Hine oku Hapu
Ko Oromahoe toku Marae
Ko Atawhai raua ko Patrica oku Matua
Ko Te Ao Marama Apiata au**

understanding of how I wanted to be perceived by my staff and customers, and how the culture of the environment in which I was building and developing was being received by them. All of this I believe has been influenced by the tikanga which has been laid as a foundation by my parents.

For me the outdoor environment has been an ever present part of my upbringing, and as a whanau, our life revolved around the outdoors. The outdoors is from my urban

understanding of how it might be defined as, compared to what other people would say is the true outdoors. Our whanau outdoor experiences were based around playing in the garden, helping mum and dad gathering pūhā and other vegies from the garden, running around

the neighbourhood, playing sport, exploring the bush near the local reservoir, catching fresh water crayfish and as a family gathering mussels, paua, pipi and fishing. We would be doing this nearly every weekend. Later on in life I would be tramping and rock climbing whenever I could, playing sport all the time. At the time it was just what we did as a whanau, to either have fun or have fun and eat. Nothing more nothing less. How does this relate to Te Ao Māori as modern society may be comparing



it too? This question is what I will be attempting to clarify in this article.

Mum and Dad moved us to Otepoti when I was round 3 years old. Dad is originally from Oromahoe in Northland and is Ngapuhi. He was one of 20 siblings living in a single room shack on the family farm near Patukauwe. Mum is Pākehā and was born and raised in Dunedin.

Dad grew up in a time of Māori being assimilated and the language and tikanga were being actively worked out of their lives through the schooling systems. Because of this the communities were moving further and further away from their hau kainga due to the need (perceived or real) for employment to support whanau.

My Dad's farther died reasonably young, so Nana had to take care of

all her tamariki as best as she knew. This I believe is the starting point of the tikanga which still lives strongly within my dad. By this I mean the simple ways which she was able to maintain such a large whanau by herself, the why, the way and the how (Kawa, Tikanga, Tino rangatiratanga). This would possibly be known as good clean hard living now.

As a whanau we would travel to dad's family farm which was still just the one bedroom shack. The memories of this included hangi, taking Ginger the horse for rides, and chasing a pig around the paddock for fun. Nana had this big old tree in her yard and she would leave little plastic toys or bottles in it for the weta to hide in. Sometimes we would find huhu grubs in the dead wood which were then cooked on the hot plate. Clean simple living. When you needed water for the hopper you

went down to the creek with Ginger and filled the old milk containers, you went and set the hinaki for tuna and picked watercress for kai.

My brother and sister's talk about other trips when I was only but a glimmer in the eyes of my folks. There were Christmas trips to the beaches around the Whanganui heads. The family would pitch an old marque and they would then live off the land either by fishing or gathering shellfish. This continued in Dunedin. I can remember Christmases under the tent and doing exactly the same at a beach called Warrington.

I now look back to these days and can see that even though reo Māori was not used (although there was some reo used when one of us kids played up for mum or dad and they would call us a little kutu) I look now and can see aspects of tikanga in how we lived as a





whanau. The basic principles of Manaki, Kaitiaki, whanaungatanga and Māoritanga were present in the way we as a family functioned; working the land, gathering kai, how we operated as a family unit.

As an avid outdoor enthusiast, one could say that I have a passion for being in the outdoors, and that my hobbies happened to be about being fit, healthy and active in the outdoors. However there is a deeper layer to it; something about my wairuatanga that is fed by the elements which you interact with by being in the outdoors. The teachings which can happen in the outdoors have and continue to enhance my life on a daily basis. You are able to get direct feedback from the elements, you then have the opportunity to learn from this and then apply and transfer this to other aspects of your life.

I am confident that how my wairua is influenced by the outdoors is a direct result of the underlying tikanga which our family maintained. The kawa was very Māori in the way that the values of manaaki, tiaki, aroha

were lived by the family, however the tikanga was influenced by our environment which was very urban, even more so when I was growing up in Dunedin. I used to joke that I was the most Pakeha Māori that you would ever meet. Now I'm not so sure, what does it mean to be a Māori in an urban environment, can we still participate as our Tipuna used to in the outdoors – do we need to refine what the outdoors means?

In my recent working life, my role has been to run and facilitate programs based in the outdoors for young people aged between 13 years old to 18 years of age, and there has been a mix of ethnic groups and backgrounds. These young people could be considered disengaged from the education system and at-risk. The program would usually be a 10 – 12 week program, one day a week. The group would have up to 10 participants ranging in needs and skills.

Our day would consist of meeting and greeting, reflection, laying out the day and the activity. After the activity we would reflect on the day.

During the day depending on how the activity and the relationships were going we would then process and discuss what was happening. It is a very simple formula which the outdoors helped to enhance by having concrete and easily understood parameters.

Most if not all of the young people came from very urban backgrounds, no sports, no outdoors or connection to it. But yet there is an innate relationship to the outdoors. You were able to witness this by simply observing the young people when exploring such things as the coast line, when they would transform from teenagers who think they are adults discussing adult themes, to young people exploring rock pools.

I believe the outdoors enhance young people's lives by stripping away the themes which pollute the western world presently. When I first started this mahi I may not have associated the connection of Te Ao Māori to this mahi but now witnessing the connections for the young people and analysing our work and also analysing my



own upbringing I can see that the concepts which are held in high regard for Māori such as kawa, tikanga, manaaki and whanau are very important for the development of a young person and that the outdoors is an important and convenient medium to enhance their development.

If we are becoming more urbanised as a people, how will our young people develop? I truly believe that if kawa and tikanga

are still living within whanau, that the wairua of our Tipuna can still exist in our everyday lives, bearing in mind it will change with the context of the modern and urbanised life we live in now. If the young people don't have these important concepts in their lives or they aren't exposed to the outdoor environment, what do we lose as a community, as a nation and as a Māori people?

Na Te Ao Marama (Jodi) Apiata

About the author:

Te Ao Marama (Jodi) Apiata is in his 3rd and final year of the Bachelor of Māori and Indigenous studies, Te Ohoka, at CPIT Aoraki Christchurch. Te Ao Marama also has been the team leader of the Adventure Therapy program for St John of God Hauora Trust Waipuna Community Services. He is able to be contacted on sarahjodi@outlook.com



The National EOTC Coordinator Database

EONZ, with assistance from the Ministry of Education have set up a national database for EOTC coordinators across primary and secondary schools nationwide. The new initiative forms a component of core EOTC support for all schools and aims to build capability and competency within the role.

Registration will create a direct pathway of communication between EONZ and EOTC coordinators widely across the country, to enable targeted, direct support into schools.

EONZ contact people in member schools are encouraged to sign up if they are their school EOTC coordinator and to pass on this notice to right person if they are not.

Registration is a really simple process and takes less than a minute to complete. The registration page is accessible from anywhere on the EONZ website through the EOTC Coordinator Registration button at the top right of every page. Check it out at www.eonz.org.nz.

Registration and currency on the database is identified as an element of good practice in EOTC management and noted in the updated Ministry of Education EOTC Guidelines 2016 – Bringing the Curriculum Alive. Ensuring that the information stays current is easy. An action point should be added to the annual EOTC Coordinator review checklist and on the EOTC Coordinator job description.

The database will be promoted to principals and schools boards through Ministry of Education communications during the course of the year.

Registration with the database provides EOTC coordinators with:

- Direct updates and need-to-know information from the Ministry of Education
- Information to help strengthen processes and systems including EOTC systems review, internal incident reporting and review, reporting to the Board and more
- Relevant professional development information
- Notifications of opportunities to up-skill
- Pathways for relevant qualifications across EOTC management and delivery



Māori and the Natural World

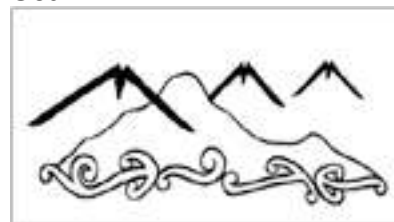
By Chanel Phillips and Ngahuia Mita

Preface

Māori have a strong connection to the natural world – to our oceans, rivers, lakes, trees, mountains, earth and sky (Marsden, 2003; Panelli & Tipa, 2007). Beginning with the primordial parents Ranginui (Sky Father) and Papa-tū-ā-nuku (Earth Mother), our whakapapa (genealogy) is personified in the natural world (Roberts, Norman, Minhinnick, Wihongi & Kirkwood, 1995). Ki Uta Ki Tai: From the Mountains to the Sea Volunteer Week and Hauteruruku ki Puketeraki

Waka Club are two examples of community engagement and positive connection to the ocean and realm of Tangaroa as well as Papa-tū-ā-nuku, the earth. Both community initiatives connect to aspects of a Māori worldview and engage the volunteers, students and the wider public to Māori values and practices of mahinga kai, whanaungatanga, kaitiakitanga, whakapapa and manaakitanga. Here are their stories of teaching and learning about Māori and the natural world.

Application of Māori worldview, Ki Uta Ki Tai: From the Mountains to the Sea



Chanel Phillips
Patricia Vanderburg
Brendan Flack.

Ko wai mātou? Who we are

Ki Uta Ki Tai: From the Mountains to the Sea Volunteer week is a residential volunteer programme run twice a year in the Karitāne/ Waikouaiti area with four coastal community groups: River Estuary Care: Waikouaiti – Karitāne, the East Otago Taiāpure Management Committee, the Hawksbury Lagoon group, and Kāti Huirapa



PE student volunteers with community groups at Puketeraki Marae, October 2015.



Volunteers undertake cockle surveys with East Otago Taiāpure, September 2013.

ki Puketeraki rūnaka (council); all of whom fall within the takiwā (district) of Kāti Huirapa hapū (sub-tribe). Ki Uta Ki Tai is about restoring, protecting and sustaining the natural environment through habitat restoration, conservation and fisheries management. The four groups are passionate about their place and work tirelessly to restore the mauri (life essence) of the land, sea, river and lagoon. In addition to reviving the natural environment surrounding them, Ki Uta Ki Tai is also important for bringing people together and strengthening the bonds within the community. Cultural concepts and practices such as mahinga kai, whanaungatanga and kaitiakitanga lie at the heart of the volunteer week, impacting on the volunteers,

the communities they support and the environments they work in.

Mahinga kai – traditional food gathering sites and practices

Mahinga kai is described as a traditional Māori food gathering practice with significance also attached to the food gathering sites; ‘mahinga’ meaning a place where work is done and ‘kai’ referring to food (Moorfield, 2003). Mahinga kai is a practice that allows Māori to work and source from the land in a reciprocal relationship between tāngata whenua (people of the land) and Papa-tū-ā-nuku (Earth Mother) who holds mana whenua (authority over the land). This is expressed in the whakataukī (Māori proverb):

*Toitū te whenua,
whatungarongaro te tangata*

*People pass on but the land
remains.*

This proverb shares an ecocentric view point; an environmental ethic of protecting and sustaining the land for future generations. It is a further reminder of our position as humans in this world. As Marsden (2003) reminds us “the resources of the earth did not belong to man but rather, man belonged to the earth” (p. 67). We as humans have user rights, but not ownership. This is important for our understandings of mahinga kai as it is not only about going out to collect food such as kai moana (seafood) it



is also about protecting those places where our food is sourced from. During the volunteer week, participants engage with both of these interpretations.

The significance of mahinga kai is demonstrated in the habitat restoration work and food gathering that we carry out during Ki Uta Ki Tai. The various places we work, such as the Waikouaiti estuary and Hawksbury lagoon, were once abundant food sources, or mahinga kai sites. The aim is to restore the mauri of these areas through replanting and other habitat restoration work, in the hope that the food will return and continue to feed and nourish our future generations. On one day we will go out and collect cockles,

fish and mussels for our dinner and on another day we will be replanting native trees and shrubs on the banks of the estuary to help filter run off from the town and surrounding farmlands that flows into the estuary. The volunteers are taught the importance of protecting our natural places 'from the mountains to the sea'. What happens on land will always have an impact on what happens to the ocean and its inhabitants. We teach our volunteers positive ways to engage with the natural world; collecting healthy seafood and replanting native trees for restoring the habitats of our kai species to ensure they stay healthy. Alongside mahinga kai, another concept volunteers are introduced to at Ki Uta Ki Tai is whanaungatanga, the

importance of connections and relationships.

Whanaungatanga – relationships to people and place

Broadly, whanaungatanga refers to the relationships and connections we have to all living and non-living things. Deriving from the words whānau – meaning family and whanaunga – meaning relative, whanaungatanga depicts the forming of relationships and the familial bond we all share. Whanaungatanga between each other as people, and whanaungatanga between people and place are the two main understandings evident throughout Ki Uta Ki Tai. Over the four days relationships or whanaungatanga to people and to place are formed. Student volunteers work alongside community members sharing each other's stories and learning about one another and the places important to them. The volunteers are able to engage with the community and learn from one another. This has always proven a highlight for our volunteers, especially those from the university. Many students comment on the lack of experience they have working within the community during their studies, and it is often a humbling and opportune experience for them. The volunteers are also hosted by Kāti Huirapa ki Puketeraki hapū at Puketeraki Marae. The opportunity to stay at the marae promotes the idea of whanaungatanga; it provides



Volunteer James Stevenson-Wright thanking community members, September 2013.



Volunteer Nick Morgan planting at Hawksbury Lagoon, September, 2013.

the structure where volunteers stay and eat together, sharing, and learning about one another.

Whanaungatanga between people and place also occurs at the volunteer week. By planting and working with the earth or wading through the ocean to collect kaimoana we are connecting to Papa-tū-ā-nuku and Tangaroa; we are building a relationship with them. We treat this relationship with respect, remembering our familial origins. Ki Uta Ki Tai is about providing a connectedness to place that motivates one to protect it. It affirms for the community groups the importance of kaitiakitanga, protecting their place in Karitāne/Waikouaiti and further motivates volunteers to think about their own special places back home that also need their attention. This is how the final concept of kaitiakitanga manifests at Ki Uta Ki Tai.

Kaitiakitanga – protection and guardianship of place

Kaitiakitanga is a term used to mean “guardianship, preservation, conservation, fostering, protecting [and] sheltering” (Marsden, 2003, p. 67). In relation to the volunteer week we define kaitiakitanga as the preservation and protection of mahinga kai sites and practices important to the four community groups involved. On a deeper level, kaitiakitanga is not only about looking after the resources of the



natural environment but more importantly the mauri that resides within them. We often tell the volunteers that the mauri of a place is restored through their planting and habitat restoration efforts as we have witnessed the return of native birds, the self-seeding of native trees and the gradual resurgence of food species to these replanted areas. When the mauri of a place is restored, so too is the mauri of the people. The volunteers leave with a renewed sense of self and comment about how they feel rejuvenated and recharged. We believe that through restoring and reviving the mauri of the land, it will reciprocate and heal us also.

The phrase ‘ki uta ki tai’ means to sustain and maintain our natural environment from the mountains to the sea – the philosophy of kaitiakitanga. It also embodies the delicate relationship between land and sea and how they depend on the health of one another. This phrase encapsulates the interconnectedness of our whole

environment. The Ki Uta Ki Tai volunteer week therefore represents kaitiakitanga from the mountains and inland lakes, down the rivers to the lagoons and estuaries and then out to sea.

Kupu whakamutunga – the last word

Ki Uta Ki Tai is a great community initiative that continues to attract students and the general public in habitat restoration, conservation and fisheries management. More significantly, it engages participants with an understanding of a Māori worldview as volunteers and community members connect to and engage with Tangaroa and Papa-tū-ā-nuku. Restoring habitats for food sources, surveying the coastline, paddling on the waves, gathering seafood, staying at Puketeraki Marae, working together in the field and other aspects of the volunteer week reveals to participants the importance of mahinga kai, whanaungatanga and kaitiakitanga; concepts central to a Māori worldview.



Application of Māori worldview, connecting with Te Ao o Takaroa



Ngahuia Mita
Brendan Flack
Suzi Flack
Hinerangi Ferrall-Heath
Anne-Marie Jackson
Waiariki Taiapa-Parata

Ko wai mātou? Who we are

Hauteruruku ki Puketeraki is a waka (canoe) club based in Karitāne, a small coastal settlement 40km North of Dunedin. Our club originated through a passion for waka (canoes), surfing, stand up paddling and being on, in and around the moana (ocean). In 2011 we launched Hauteruruku the waka

we built (pictured below) sharing the same name as our club. The idea for building the waka came from Brendan Flack of Karitāne who had experienced sailing waka haurua (double-hulled sailing waka) with Hoturoa Kerr of the Te Toki Voyaging trust based in Waikato. The building and launching of our waka culminated with kaumātua (elder) and kai-karakia (master of prayer) Hinerangi Ferrall-Heath creating and establishing a club and later an incorporated society – Hauteruruku ki Puketeraki with the vision of connecting members, whānau (extended family) and the wider community to the awa (river) and moana (ocean) using waka and Te Ao o Takaroa (deity of the ocean).

Collaborating with multiple organisations such as Kāti Huirapa rūnaka ki Puketeraki, the Karitāne community, and the wider hapū and iwi has seen the immense growth of Hauteruruku since our humble beginnings. We provide a myriad of outdoor experiences to

different university, school, whānau and community groups throughout our takiwā (region). These have included: half-day journeys on the Waikouaiti awa; waka days; beach clean ups; tree-planting; learning to paddle and sail different waka and; water safety education. Throughout these experiences and as a club we have a number of core concepts and values that guide our practices in the outdoors and on our local waters, which begins with our collective worldview(s) and tikanga (protocols).

Worldview – Ngāi Tahu creation narrative

Everything we do within Hauteruruku is underpinned by our collective views of the world. However as core members we all have diverse tribal affiliations spanning from the far North to the deep South. Predominantly from the South Island our connection to the awa and moana is heavily connected to the Ngāi Tahu narrative of creation. Matiaha Tiramorehu has retold the Ngāi Tahu narrative of creation, explaining that creation began with a period of darkness “Kei a Te Po, te timatanga mai o te wairuatanga mai o te Atua” - (Carter, 2003, p.33). This creates the foundation for Ngāi Tahu worldview, as Carter (2003) explains, “In the beginning was darkness. Whakapapa begins from here, this is the source” (p. 34). Stemming from this event came the creation of Papa-tū-ā-nuku who we consider our earth mother. From a Ngāi Tahu



Brendan Flack and students with Hauteruruku waka on Ohinepouwera, 2015.



perspective Takaroa, was the first husband of Papa-tū-ā-nuku and it is from here that descendants of Ngāi Tahu draw connection to Takaroa and thus to the ocean. This whakapapa connection is inherent to what we do as a club and the tikanga (practices and protocols) that guide our kaupapa (purpose). As part of this tikanga our kai-karakia Hinerangi performs karakia (blessings) before every session. Through performing karakia Hinerangi establishes our connection with Takaroa our atua of the ocean and Hinemoana, the female element of the moana, which allows us to be safe on the water and engaging in the outdoors. This is one example of the tikanga that guides our practices in everything that we do privileging the importance of our cultural and ancestral narratives and applying our worldview. Furthermore as a club engaging with waka and sharing outdoor experiences with our whānau and community, whakapapa to people and place is important to everything we do.

Whakapapa – waka kōrero & connection to landscape

Waka have always been a significant genealogical marker for Māori. Throughout many of our narratives waka appear and are a common theme. Furthermore the first arrivals here to Aotearoa New Zealand, our Polynesian ancestors, came aboard waka. Thus we have myriad of understandings, pūrakau (stories), waiata (songs) and whakataukī (proverbs) that refer to waka. Similarly for Hauteruruku ki Puketeraki and the land that surrounds Karitāne,



Participants planting on Ohinepouwera, September 2015.

where we are based, is imbued with waka kōrero (waka stories). Thus whenever we are engaging in and around the water, the landscape and moana surrounding us tells a story. Throughout Te Wai Pounamu there are many stories of important and revered ancestral canoes. Particularly pertaining to the North Otago Coastline – Te Tai o Araiteuru are stories about the Araiteuru waka. One famous pūrakau of the Araiteuru waka is the story behind the waka capsizing at Matakaea (Shag Point). The story tells of the rough seas that caused the waka to capsize, spilling its precious cargo, kaihinaki (eel baskets), kumara and calabashes, which, are now immortalised as the Moeraki boulders. Furthermore the narrative also describes the crew of the Araiteuru waka moving inland, and their names becoming embedded in the lofty mountains, which surround Karitāne and Waikouaiti. Thus whakapapa and creation narratives are integral to the mahi (work) that we do as a rōpū and are engrained into our

minds, hearts and practices in, on and around the water. Considering the importance that our landscape and coastline have, the next concept or value that is applied throughout the work we do is kaitiakitanga.

Kaitiakitanga – Guardianship of people and place

Kaitiakitanga is a term used to describe guardianship or stewardship and is commonly associated with taking care of and looking after people and place. Thus kaitiakitanga is a value that guides us in our practice. Examples of kaitiakitanga for Hauteruruku ki Puketeraki in an applied setting are things such as tree-planting, beach clean ups, marine metre squared and water safety education. As part of our practice as a club we seek to foster a culture of care with everyone that we engage with. Therefore our outdoor sessions will always include an



element of kaitiakitanga through the aforementioned activities. For the core members of Hauteruruku, kaitiakitanga is a way of life and governs how we do things. This extends to kaitiakitanga of people, of our place, our gear and resources and the kaupapa of our rōpū. With each session we engage with we ensure that the processes and practices we carry out are mauri (life-force) enhancing for everyone and everything we engage with. Part of the explanation for being committed to being kaitiaki for our people and place goes back to the previous kōrero around worldview and whakapapa. Inherent in our landscapes is kōrero that explains who we are, therefore it is our responsibility to uphold their mana (prestige) and keep their voices alive. Furthermore as outdoor leaders ensuring the safety and well-being of those that we are providing an experience is our top priority. Another way that we do this is through the concept of manaaki.

Manaakitanga – Showing respect, generosity and care for others.

Manaaki is a term, which describes hospitality, generosity and looking out for others. As previously mentioned taking care of those that are under our guidance within our water sessions is of utmost importance. For Māori when we have visitors being able to manaaki them is both a sign of our mana and our duty to enhance theirs. Therefore our koha (gift) to those that we are engaging with is providing them with a positive and meaningful experience on

the water. For many of the groups and people we engage with they might have never been on a waka or had many experiences on the water. Therefore when we are working with each of the groups it is important that we are welcoming, respectful and caring in order to give them a positive experience and perhaps establish a meaningful connection with people and with place. Furthermore upholding our collective tikanga and maintaining a strong cultural and spiritual connection to the atua (deities) that we are engaging with ensures that we are able to practice manaaki with those that we work with. For many of these concepts and values they are transferable to everyday life, which is what we hope those we engage with take away with them.

Kupu whakamutunga – The last word

Since our establishment as a ngā waka club we have grown from strength to strength drawing on the support and work from our members, kaumātua Hinerangi, Te Kura Para-Whakawai, The School of Physical Education Sport and Exercise Sciences at the University of Otago, Fire in Ice Outrigger Canoe Club and dedicated whānau from the community. Our work within the ocean is guided foremost from our worldview and where we draw our whakapapa connection to the ocean. The key principles and values that inform our practice such as whakapapa, kaitiakitanga and manaakitanga are underpinned by this worldview. It is our vision to connect and reconnect our members and whānau to the awa

and moana using waka and Te Ao o Takaroa.

References

- Carter, L.J. (2003) *Whakapapa and the State*, Doctorate, University of Auckland, Auckland
- Marsden, M. (2003b). Kaitiakitanga. A definitive introduction to the holistic worldview of the Māori. In T. A. C. Royal (Ed.), *The woven universe: Selected writings of Rev. Māori Marsden* (pp. 54-72). Otaki, New Zealand: Estate of Rev. Māori Marsden.
- Moorfield, J. C. (2003). Te Aka Online Māori Dictionary. Retrieved from <http://www.maoridictionary.co.nz/>.
- Panelli, R., & Tipa, G. (2007). Placing well-Being: A Māori case study of cultural and environmental specificity. *EcoHealth*, 4(4), 445-460.
- Roberts, M., Norman, W., Minninnick, N., Wihongi, D., & Kirkwood, C. (1995). Kaitiakitanga: Māori perspectives on conservation. *Pacific Conservation Biology*, 2, 7-20.

About the authors:

Chanel Phillips (Ngāti Hine, Ngāpuhi) is a PhD candidate at the School of Physical Education Sport and Exercise Sciences, University of Otago. Chanel can be contacted at chanel.phillips@otago.ac.nz

Ngahuia Mita (Te Aitanga-a-Mahaki) is a Masters student at the School of Physical Education Sport and Exercise Sciences, University of Otago. Ngahuia can be contacted at ngahuia.mita@otago.ac.nz

For the rest of the authors: we are whānau all connected through Hauteruruku ki Puketeraki, from Kāti Huirapa rūnaka, River Estuary Care Karitane-Waikouaiti and the University of Otago, School of Physical Education, Sport and Exercise Sciences.



Atua to Matua:

Māori Environmental Representatives in Outdoor Education

By Ihirangi Heke

Introduction

This article is an introduction to some recently developed Māori environmental approaches, known as 'Atua to Matua.' These approaches are being used nationally and internationally in an attempt to decrease youth obesity, increase physical activity, improve functional health, primarily through the outdoor environment. Not surprisingly, for many iwi, survival was dependent on its' military prowess and a number of important battle techniques were honed through their mastery of multiple environments i.e., ocean, river, mountain and bush locations. Also, in contemporary terms, Māori appear to be on a pathway to reconnecting to these environments as whakapapa related ties to mountains, rivers and oceans are being recognised as very real options for improving health via outdoor education. Unfortunately a sometimes difficult relationship exists between Māori and mainstream society and outdoor experiential practices. Furthermore, outdoor education is a unique developmental opportunity for indigenous paradigms as valid and authentic alternatives. At present, a large number of current outdoor education initiatives, aimed at Māori, continue to be underpinned mostly by non-Māori concepts with Māori language as an afterthought or form of 'cultural overlay'.



Many of the outcomes of engaging with land, water or sky concepts have been almost non-existent for over a hundred years following the Tohunga Suppression Act of 1907 which banned the use of traditional Māori practices. The potential for Māori health to be improved through outdoor education with the various environments being used as metaphors to improve; teamwork, leadership, aggression control, self-esteem, and self-confidence is significant.

These lifeskills are not only transferable but can be used in other social, health enhancing and vocational situations alike. Ultimately, connections to the environment whether through physical, psychological or spiritual avenues, represent a powerful medium for change within Māori preferred learning patterns i.e., 'Māori environmental science'. For Māori, a traditional perspective of the land, sky and water may yet prove helpful for maintaining customary Māori processes as Māori themselves are able to cite the importance of the intervention and validate the authenticity within a Māori pattern of understanding (Heke, 2015; Warbrick, Dickson, Prince & Heke, 2015).



A Brief Note on Māori Systems Approaches (Atua to Matua Māori Health Framework) and Mainstream Systems Science

Over the past seven years, the Māori tribal district of Te Aitanga a Hauiti on the Eastern sea board of the North Island, has explored and experimented with various interventions aimed at improving Māori health. As part of the Māori health renaissance, Dr Ihi Heke and the late Dr Paratene Ngata initiated an approach that was more innovative, creative and preventative-based than had previously been attempted. In essence, it was deemed that a more environmentally-based solution could be developed to address the disparities in Māori health and potentially other indigenous peoples. Global obesity rates are now the most significant threat to Māori and indeed all indigenous peoples. The vision for the delivery of Māori concepts which explore indigenous solutions are required to impede the growth rate of indigenous obesity. Central to this is the notion that we revisit and reinstate indigenous environmental science practices alongside non-indigenous Systems Science Dynamics with the aim of improving the health outcomes of Māori AND other global indigenous peoples. One attempt to engage pre-European information in contemporary Māori health is known as the 'Atua to Matua Māori Health Framework'. The Atua to Matua approach discusses the use of old tribal practices as a contemporary indigenous response to a global epidemic and shows how indigenous frameworks can motivate a change in

behavior and healthy outcomes for indigenous peoples through improved connections to the environment.

As a brief explanation, Mainstream Systems Science approaches deal with complex problems, while taking into account the overall issues and context of where and why they occur. Systems Science methods enable researchers to look at relationships between a number of factors simultaneously and was initially used in the health sector for studying disease spread e.g., Small Pox. Systems science also allows the researcher to determine where the gaps are in the study of the issue. Simulation modeling has resulted in 'systems labs' being developed that can generate alternative outcomes before policy is decided upon. Systems science methodologies are also useful for understanding why programs and interventions fail to have their intended effects (Sterman, 2000). In the case of Māori health through environmental education, Systems science methodologies can be applied with relative ease as they mirror practices that Māori have engaged in for close to a millennia i.e., whakapapa. Whakapapa defines contemporary expressions of Māori as a consequence of complex interrelationships with their environments that pre-date European arrival. Also, within Systems science, Group-Based modeling encourages communities to find solutions to their particular issue and as such closely resembles Māori processes of wananga where issues are discussed at a tribal level until consensus is

obtained. Also within a Systems science approach, Agent-based modeling shows the effects that 'an agent' can have on successive expressions e.g., the naming of an iwi after an eponymous ancestor - Porourangi for Ngāti Pōrou has resulted in Porourangi interpretations of their environment.

Consequently, the whakapapa/Systems science approach to health and wellbeing conceptualizes environmental





systems from a Māori perspective of 'Atua', and relates the perceptions of these systems to people 'Matua' i.e., Heke (2015) promotes the concept of healthy indigenous communities through a strengthened understanding of systematic connections (whakapapa) to their environments. In turn these connections are used to provide relevant metaphors for contemporary Māori health issues. However, it is in the final phase that Māori have produced innovative interpretations of the environment that culminate in practical physical activity and nutrition interventions. In effect this practice is no different from what 'Confucianism' achieved in early China through the practice of the now worldwide phenomenon of Kung Fu i.e., a study of the environment and animals within it, as a martial art. Likewise Māori 'connections' to the environment may ensure Māori survival by allowing health issues to be explained as consequences or incidental outcomes of engagement with the environment. The benefit of this process is that it removes deficit perceptions from the individual and replaces it with obligations to ancestral health by the individual through the environment and especially through outdoor education.

The development of the Atua to Matua Māori Health framework is a whakapapa-based attempt to use indigenous beliefs and genealogy to engage with their own environments that result in physical activity and promote health and nutrition as an iwi centered process. Following extensive experimentation and the development of different ways of managing the Atua to Matua Māori Health framework, a range of national and international communities, government, ministerial and policy forums, academic institutions, health service providers, primary and secondary schools, and physical activity interest groups have begun using the Atua to Matua Māori Health Framework approach. Interestingly, the Atua to Matua approach has been funded offshore to provide insights into indigenous health and particularly where health outcomes for indigenous peoples are not being achieved under mainstream health service provision. As a consequence, the Atua to Matua approach has been identified by the Johns Hopkins University, to research the utility of a Māori approach to health being generalisable into other indigenous groups globally through environmental connections.

Some of the key points of the Atua to Matua Māori Health Framework approach are:

- The utility of activating indigenous potential and not maintaining deficit practice.
- The Atua to Matua Māori Health Framework is an example of an indigenous approach to health. It is not intended to be definitive. Each community, group, tribe, whānau is encouraged to explore their own indigenous systems and repopulate the framework with their own subjective information in regard to their particular environment.
- People are not the target of this approach. An indigenous/cultural system allows, in effect, health to become a by-product of pursuing environmental science as ancestral knowledge in a contemporary location.
- A four-step process around seeking knowledge is promoted to help reach a practical application of thinking i.e., Knowledge, human connection to that knowledge, metaphors provided from that knowledge, praxis of that knowledge.
- 'Non-indigenous' groups are encouraged to be part of the process through conduit behavior i.e., allies who understand the Atua to Matua process and can act as translators for non-indigenous people.
- The urbanization of indigenous groups should not be seen as a barrier to engagement as the philosophy of indigenous knowledge is generalisable into urban environments e.g., time management.

Final Comments:

Note that I have chosen deliberately to place the health statistics for this paper as an afterthought or final paragraph so that they do not become the centre piece for engagement but a secondary aspect. This allows the removal of a deficit approach that first identifies a problem before any attempt to engage is undertaken. In essence, Māori have a long history of deficit based interventions. The Atua to Matua approach is a very conspicuous attempt to focus on potential and disadvantage.



Footnote:

Physical inactivity is an important but modifiable cause for a wide range of health issues being experienced by Māori (Bull, Armstrong, Dixon, Ham, Neiman & Pratt, 2004). Globally physical inactivity has been shown to contribute to an estimated 22% of ischaemic heart disease, 11% of ischaemic stroke, 14% of type II diabetes, and 16% of colon cancer (Hay, 2001). In New Zealand, CVD is the leading cause of death and disability. In 2007, it was estimated there were over 280,000 people with CVD, with Māori 67% higher than non-Māori and Polynesian New Zealanders combined (Blair & Jackson, 2001). Note too that no mention or discussion of nutrition is included as the scope of this document was Māori health programmes whereas nutrition information is a significant discussion piece in its own right.

According to the Sport and Recreation 2007/2008 Active New Zealand Survey approximately 50% of Māori were physically active on at least five days out of seven; however 13% were inactive and 34% participated infrequently. Given the effect of a physically active lifestyle on Māori health and other chronic conditions (Kavookjian, Elswick & Whetsel, 2007), increasing physical activity participation among Māori is a public health priority.

Despite this, contemporary Māori physical activity interventions appear to lack cultural validity. Even more concerning, physical activity programmes that do exist perpetuate health inequality through the use of non-Māori approaches to promote physical activity within Māori communities. An opportunity exists to provide an alternative paradigm for increasing Māori involvement in physical activity, including consequent health gains, that is both innovative and incorporates a Māori preferred, if not tribally preferred approach to health through the environment.

Likewise, obesity is especially high among Māori. Prevention initiatives to date have not been very successful in Māori communities or indeed with many indigenous populations. Here too, innovative approaches are needed which are culturally-centered, systems-oriented and take a strengths approach rather than a deficits approach to prevention. A philosophy of many pre-European Māori was that knowledge was a powerful possession (Alpers, 1964; King, 1992; Salmond, 1997; Shirres, 1992). Along with being the property of the members of the tribe, 'knowledge' also carried a tapu of its' own. Consequently, it was the

responsibility of everyone in that group to ensure that knowledge was treated carefully and with respect to protect its' sacred nature. Much like pre-European Māori, many contemporary Māori continue to seek knowledge as a valuable asset. Likewise, the pursuit of knowledge is assured a high level of reverence when the process involves authentic Māori environmental practices. Some preliminary work is being completed on the significance of developing Māori systems based approaches that mirror Systems Science Dynamics. For many Māori the role of tribal identity from the land, sea and stars that surround us comes above recognition as Māori in the human form. Essentially, Māori life is organised around a knowledge of who you are, from who you descend, and to whom you are related. However, when groups of Māori come together, especially with non-Māori, their overriding tendency is toward being recognised as the most recent form of their mountain, their river or their ocean to provide a unified front and 'one voice' despite the threat of one label suggesting Māori should all think in the same manner or for that matter expect a different outcome from using the same contemporary approaches to health intervention.

References

- Alpers, A. (1964). *Māori Myths and Legends*. Auckland: Longman Paul.
- Blair, S.N., & Jackson, A. (2001). Physical fitness and activity as separate heart disease risk factors: a meta-analysis. *Medicine and Science in Sports and Exercise*. 2001;33:762-764.
- Bull, F.C., Armstrong, T.P., Dixon, T., Ham, S., Neiman, A., Pratt, M. (2004). Physical inactivity. In: Essati, M., Lopez, A.D., Rodgers, A., Murray, C.J.L., eds. *Comparative Quantification of Health Risks. Global and Regional Burden of Disease Attributable to Selected Major Risk Factors*. Vol 1. Geneva: World Health Organization; 2004:729-881.
- Hay, D. (2001). Cardiovascular Disease in New Zealand: a summary of recent statistical information. Auckland: National Heart Foundation of New Zealand; 2001.
- Heke, J.I.C. (2015). Deities and Guardians. Training Services Ministry of Education Ratonga Whakangungu.
- Kavookjian, J., Elswick, B., Whetsel, T. (2007). Interventions for Being Active Among Individuals With Diabetes: A Systematic Review of the Literature. *The Diabetes Educator*. 2007;33(6):962-988.
- King, M. (1992). *Te Ao HuriHuri: Aspects of Māoritanga*. Auckland: Reed.
- Salmond, A. (1997). *Between worlds: Early exchanges between Māori and Europeans*. Auckland: Penguin Books.
- Sterman, J.D. (2003). *Systems Dynamics: Systems Thinking and Modeling for a complex world: Working Paper Series*, MIT Sloan School of Management.
- Warbrick, I., Dickson, A., Prince, R., & Heke, J.I.C. (2015) *The Biopolitics of Māori Biomass: Towards a new epistemology for Māori health in Aotearoa/New Zealand: Critical Public Health*.

About the author:

Dr J Ihirangi Heke (Waikato/Tainui) BA Māori Studies, PG Dip Ed, PG Cert ACE, M.Ed (Psych), Ph.D (Sport and Exercise Psych). Dr. Ihi Heke is currently a Māori health & physical activity consultant involved in a number of projects including national health and physical activity initiatives funded by the Ministries of Health and Education. Recently Dr Heke was also funded by Johns Hopkins Medical University to develop global indigenous health models based on Māori concepts of indigeneity. Dr. Heke believes it is time we reassessed Māori nutrition, physical activity and outdoor education processes to include a much higher level of Māori related information. Many of the current, messages and strategies used to inform national initiatives in health, physical activity & outdoor education are seeking to include Systems Science Dynamics as a framework to underpin the initiatives that are chosen. Ironically Whakapapa and Systems Science have multiple similarities and it may be that Māori definitions of various environments are the prototype from which Systems Science also operates.



PENZ / EONZ / NZHEA National Curriculum-Focus Conference

Palmerston North Boys' High School

11-13 July 2016

Join this valuable professional learning development conference available to the primary and secondary school sector.



Early Bird Registrations open until 29 April 2016.

PENZ/EONZ/NZHEA Members \$475 incl. GST; Non Members \$620 incl. GST.

Standard Registrations open 30 April – 10 June 2016.

PENZ.EONZ/NZHEA Members \$550 incl. GST; Non Members \$695 incl. GST.

Late Registrations open 11 June – 6 July 2016.

PENZ.EONZ/NZHEA Members \$620 incl. GST; Non Members \$750 incl. GST

This exciting opportunity aims to provide educators interested in strengthening their curriculum practices with opportunities that:

- Highlight trends and ideas in programme delivery;
- Explore innovative ways schools are integrating PE, OE and Health outcomes;
- Celebrate and acknowledge success;
- Provide practical, hands-on opportunities to ensure practical tools are taken back into practice;
- Provide updates of new technological ideas and resources for the sector.

There will be keynotes, discussions, breakouts, plenary, workshops, networking and more.





“An Iwi-focused Science Outdoor Education Approach”

By *Hiria S. McRae*

Indigenous community-based science education programmes that involve students, teachers and schools working alongside indigenous communities have made a positive difference for indigenous students (Aikenhead, 2001; Barnhardt, 2005; Barnhardt & Kawagley, 2005; Kawagley, Norris-Tull & Norris-Tull, 2010). My doctoral thesis (McRae, 2014) found positive relationships were a key enabler to ensure a successful iwi-based science education programmes. Science programmes that included practical engagement with indigenous topics that involved learning outside of the classroom were also a fundamental part of indigenous community-based science programmes (Barnhardt & Kawagley, 2005). This article introduces an iwi-based approach to science education, which considers the importance of relationships; practical engagement with Māori culture; and marae as a central science learning site, as a means to positively engage Māori students in science education (McRae, 2014).

Specifically, an iwi-focused topic is provided, with links to the three enabling themes noted above and a set of principles, argued as contributors to successful indigenous community-based science programmes (McRae, 2014). The prominent Ngāti Whakaue ancestor Pukaki (Tapsell, 2000), has been chosen as the focus of this science topic. Pukaki has a unique legacy that spans from being an inspiring leader during his mortal life; honoured and immortalised as a carved figure by his people (see Image 1);



Image 1 Carving of Pukaki

exhibited as a museum artefact; an international ambassador and his carving's image imprinted as a national New Zealand icon (Tapsell, 2000).

The approach is displayed as a table, where the first overarching section identifies how each enabling theme could be implemented as part of the iwi-based science topic. Next, each principle is defined with a statement and a key question and given a section which identifies and links to broad objectives from *Te Marautanga o Aotearoa* (2008), the *New Zealand Curriculum* (Ministry of Education, 2007). Iwi-specific and science big ideas, suggested Māori and science concepts and place-based education (PBE) pedagogy, and suggested activities to explore these ideas and concepts are also provided.

The set of principles in practice aims to address common issues in science education for indigenous students, including Māori. The three enabling themes could possibly facilitate improved engagement with, and outcomes for, science for iwi Māori and other indigenous communities. An assertion this article offers indigenous science education is that science programmes need to acknowledge and include important relationships with people **and** places, in Māori students' lives beyond the classroom, to improve their engagement (McRae, 2014).



A Ngāti Whakaue example of a science topic – Pukaki (McRae, 2014)

Evidence of Enabling Themes		
Relationships Student led investigations Teachers access local elders and experts Local elders and experts involved in school initiated investigations	Practical engagement with Māori culture Local iwi artefacts and Māori carving practices are examined Local iwi history and stories about artefacts are shared	Marae as a central science learning site Field trip visits to local marae Discussions with local elders at marae
Partnerships and power-sharing – “How content is chosen?” Students, teachers, schools and indigenous communities are all part of the decision-making processes of what is included in science education programmes <i>Te Marautanga o Aotearoa</i> (Ministry of Education, 2008) aims for students to be able to apply knowledge of science to community decisions and actions, in order to think about iwi and wider issues impacting on the individual, society and the environment. (p. 55) <i>The New Zealand Curriculum</i> (Ministry of Education, 2007) states that by studying science, students use scientific knowledge and skills to make informed decisions about the communication, application, and implications of science as these relate to their own lives and cultures to the sustainability of the environment. (p. 28)		
Ngāti Whakaue Big Idea <i>Māori concept Kaitiakitanga</i>	Science Big Idea <i>Science concept Sustainability</i>	Suggested Activities <i>PBE – Reflective learning</i>
Pukaki the carving sits in Rotorua Museum to be shared with the world alongside other treasured artefacts of the Te Arawa and Ngāti Whakaue people.	Ancient artefacts need to be examined and their properties tested to provide the best preservative care and conditions.	Field trip to the Rotorua Museum. Research preservation testing methods with the museum and other science groups. Discussions with local elders about their knowledge and experiences with Pukaki the carving.
Shared values and aspirations – “What content is to be included?” An indigenous worldview is included in science education programmes, including cultural perspectives about identity, knowledge and language. <i>Te Marautanga o Aotearoa</i> states that students will have sensitivity to the difficult issues of their world which will encourage students to find ways in which these can be overcome (Ministry of Education, 2008, p. 53). <i>The New Zealand Curriculum</i> (Ministry of Education, 2007) states that students learn how science ideas are communicated and to make links between scientific knowledge and everyday decisions and actions (Ministry of Education, 2007, p. 28).		
Ngāti Whakaue Big Idea <i>Māori concept – Te reo Māori</i>	Science Big Idea <i>Science concept – Dissemination</i>	Suggested Activities <i>PBE – Citizenship education</i>
Pukaki the ancestor’s legacy is captured in many traditional Māori practices such as waiata and whaikōrero.	Scientists share results of examinations and testing with their colleagues and other interested parties to invite critique and evaluate conclusions.	Learn local waiata associated with Pukaki from local experts. Discussions and observations with science experts evaluating the findings and their application, and appropriate dissemination processes.



Culturally responsive pedagogy – “How content will be delivered?”

The interchange of teacher student roles in science education programmes as a means to understand each other’s cultural backgrounds and associated bodies of knowledge.

Te Marautanga o Aotearoa states that science knowledge is a product of human culture, and belongs to all cultures. Science is knowledge about the natural world and the place of humanity in that world. It involves testing ideas about sensory experience of the world; it is flexible, fallible knowledge, which is continually reviewed and updated (Ministry of Education, 2008, p. 53).

The *New Zealand Curriculum* (Ministry of Education, 2007) states that students come to appreciate that while scientific knowledge is durable, it is also constantly re-evaluated in the light of new evidence. They learn how scientists carry out investigations, and they come to see science as a socially valuable knowledge system (Ministry of Education, 2007, p. 28).

Ngāti Whakaue Big Idea <i>Māori concept – Pēpeha</i>	Science Big Idea <i>Science concept – Investigations</i>	Suggested Activities <i>PBE – Experiential learning</i>
Pukaki the ancestor accomplished many achievements for the betterment of his people	Many scientists hypothesise, examine, research and draw conclusions for the betterment of their communities.	Learn local stories about the achievements of Pukaki with local experts. Discussions between students, teachers, local and science experts about what they want to achieve through science education.

Resourcing – “What support is needed?”

Accessing of appropriate resources to ensure sufficient capacity, capability, implementation and monitoring support to include an indigenous perspective in science education programmes.

Te Marautanga o Aotearoa (Ministry of Education, 2008) advocates access to the highest professional levels in the world of science is an imperative, as is retaining respect for the natural environment and all its inhabitants (p. 53).

The *New Zealand Curriculum* (Ministry of Education, 2007) advocates that students also learn that Earth provides all the resources required to sustain life except energy from the Sun, and that, as humans, we act as guardians of these finite resources. Students can then confront the issues facing our planet and make informed decisions about the protection and wise use of Earth’s resources (p. 28).

Ngāti Whakaue Big Idea <i>Māori concept – Marae</i>	Science Big Idea <i>Science concept – Process models</i>	Suggested Activities <i>PBE – Pathways and resourcing</i>
Pukaki the carving is one example of the traditional Māori art of whakairo or carving. Different tribes use different materials and techniques.	Carving materials and tools have different properties that need to be tested to achieve the best result.	Field trip to local marae to view different carved artefacts. Field trip to local carvers. Conduct investigations about different properties of carving materials alongside local science experts.

Collaboration – “Who delivers content?”

Collaborative processes and systems to ensure the implementation of both indigenous and science bodies of knowledge in science education programmes.

Te Marautanga o Aotearoa (Ministry of Education, 2008) states that science assists the Māori world to embrace the future. Linking together traditional and modern knowledge enables new knowledge bases to develop and be extended. The student is able to develop their own ‘baskets’ or viewpoints on knowledge, as a foundation for studying those of other cultural origins (p. 53).

The *New Zealand Curriculum* (Ministry of Education, 2007) states that students learn how scientists carry out investigations, and then they come to see science as a socially valuable knowledge system. Students learn that Earth’s subsystems are interdependent and that all are important. They come to appreciate that humans can affect this interdependence in both positive and negative ways (p. 28).



Ngāti Whakaue Big Idea <i>Māori concept – Pōwhiri</i>	Science Big Idea <i>Science concept – Collaborative practices</i>	Suggested Activities <i>PBE – School community partners</i>
Pukaki the carving was part of the ‘Te Māori’ exhibition which was the first touring international exhibition of Māori artefacts. The purpose of the tour was to share the Māori culture with the world.	A common practice for many scientists is to share their work locally, nationally and internationally.	Research accounts of the ‘Te Māori’ exhibition to identify what scientific methods were involved to exhibit artefacts safely. Accounts could be from local experts and science experts involved in similar exhibitions.
Local context – “Where is the programme delivered?” The inclusion of local phenomena, including local indigenous communities and associated local issues, in science education programmes. <i>Te Marautanga o Aotearoa</i> (Ministry of Education, 2008) states that the Ō Mataora (Natural World) strand is metaphorically associated with the majority of the traditional familial deities, which collectively represent a Māori system of organising and understanding the natural world and the relationships between all living things. It reminds us to respect the mauri (life force) of all things discovered, consumed, or used by humans (p. 54). <i>The New Zealand Curriculum</i> (Ministry of Education, 2007) states that the Living World strand is about living things and how they interact with each other and the environment. Students develop an understanding of the diversity of life and life processes, of where and how life has evolved, of evolution as the link between life processes and ecology, and the impact of humans on all forms of life (p. 28).		
Ngāti Whakaue Big Idea <i>Māori concept – Tūrangawaewae</i>	Science Big Idea <i>Science concept – Interdependence</i>	Suggested Activities <i>PBE – Use of the environment</i>
Pukaki the ancestor and carving originated and were based in the marae setting.	Many science activities can be observed and conducted in a marae setting.	Field trips to local marae. Collaborative projects with local elders and science experts based on local issues.

References

- Aikenhead, G. S. (2001). Integrating Western and aboriginal sciences: Cross-cultural science teaching. *Research in Science Education*, 31(3), 337-355.
- Barnhardt, R. (2005). Creating a place for indigenous knowledge in education: The Alaska Native Knowledge Network. In G.A. Smith & D. Gruenewald (Eds.), *Local diversity: Place-based education in the global age*, 113-134. Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- Barnhardt, R., & Kawagley, A. (2005). Indigenous knowledge systems and Alaska native ways of knowing. *Anthropology and Education Quarterly*, 36(1), 8-23
- Kawagley, A.O., Norris-Tull, D. & Norris-Tull, R. (2010). The Indigenous Worldview of Yupiaq Culture – Its scientific nature and relevance to the practice and teaching of science. In R. Barnhardt & A.O. Kawagley (Eds.). *Alaska Native Education – Views from Within*, 219-236. Fairbanks: Alaska Native Knowledge Network.
- McRae, H.S., (2014). Ngāti Whakaue Iho Ake – An Iwi Exploration of Science Education. Unpublished PhD thesis. Wellington, New Zealand: Victoria University of Wellington.
- Ministry of Education. (2007). *The New Zealand Curriculum*. Wellington: Ministry of Education.
- Ministry of Education. (2008). *Te Marautanga o Aotearoa*. Wellington: Ministry of Education.
- Tapsell, P. (2000). *Pukaki: A comet returns*. Auckland: Reed Publishers.

About the author:

Dr. Hiria S. McRae is a senior lecturer at Te Kura Māori, Faculty of Education, Victoria University of Wellington. Hiria can be contacted at hiria.mcrae@vuw.ac.nz.





Book Review

by David Irwin

Towards a warmer world: What climate change will mean for New Zealand's future by Veronika Meduna



I was referred to this little pocket sized book by a student last year at the time of its publication. At under a 100 pages, and written in very easily accessed language, this book is one of best student resource texts I have come across recently. The author Veronika Meduna is an award winning Radio New Zealand science writer and in this book she draws upon the significant research and interview history she has amassed on the subject of climate change and just how it will impact on this country and the people that live here.

At the time of writing, Meduna observed that 2014 was the warmest year on record; and she rightly forecast it would be relegated to second place when 2015 later set a new record after publication. More recently, February of this year was the warmest February ever recorded both nationally and globally. Acknowledging this reality, Meduna observes we no longer have the luxury of avoiding climate change but still have to take action to “avoid the unmanageable and manage the unavoidable”(p.8).

In this book, Meduna focusses

discussion on the impacts of climate change on Aotearoa New Zealand and our neighbours in the South Pacific. She investigates concepts such as how climate instability will impact on how we live with more turbulent storms carrying more moisture and causing more flooding, the increased occurrence of drought and impacts this will have on agriculture, and how raising sea levels will cause inundation and exacerbate the erosion of land. Importantly, she leaves the reader with no doubt that these things are already happening, for she weaves in many current examples of the impacts of climate change.

The combination of the way that the science is presented and the local future focus of the book makes it an ideal reading for students. It is valuable for promoting critical discussion on what the future will hold for students, and provides a basis for considering adaptive strategies. The book is also very well referenced which allows the reader to trace back to the substantive sources of arguments presented in discussion. I highly recommend this book.

Meduna, V. (2015). Towards a warmer world: What climate change will mean for New Zealand's future. Wellington, N.Z.: BWB Texts



Game

By Hilary Iles

What follows is a teaching plan for a rocky shore study that I designed in my role as an EnviroSchools facilitator.

Location – Rocky shore

Equipment:

The seashore ID guide:

Southern NZ Rocky Shore Guide produced by the Marine Studies Centre, University of Otago. Free copies are available. For more information on the marine animals visit www.marine.ac.nz.

The **measuring ropes** (you need a 4.5m piece of rope for each group, with each rope marked off with some coloured insulation tape at 1m intervals. The rope needs to have enough “body” to stay where it is put.)

Notebooks were recycled laminated paper – cut into strips about 5x 12cm pieces, folded in half. This then had a small bulldog clip at top with a pencil on a string attached to it and a small notepad of recycled paper (stapled to stop it falling to pieces and blowing away).

Poetry instructions –large writing on the inside of an old chook pellet sack in permanent marker – weighed down with stones at corners.

Rocky shore study



9.30	Arrive
9.40	Walk down to beach Welcome – Introduction to schools and people Aim of day: <i>You are going to be explorers, scientists and independent learners. This morning you will be exploring part of this coast, learning about the ecosystem and some of the adaptations of things living here. And doing some fun maths to find out in more detail about the importance of these rocks to creatures living here.</i> Who has been here before? What can you tell us about the area? Safety and housekeeping briefing Divide into groups of 4-6 <i>What rules do you think you need in your group?</i> – Discuss first in group. Then each group can feed a different one back. (every one's thoughts are heard, sharing, taking care of each other, stay together etc)
10.05	Assign adult to each group Adults role: to help but not direct. TASK 1 <i>In your group:</i> <i>Find five different species of animals and two of plants. Identify them using the chart and record them on your pad.</i> <i>How do you keep the animals and plants safe? (Not collect them, leave where you find them etc.)</i> <i>Return here as soon as you have completed your task (or by a specified time). or hear the bell.</i>
10.25	Reassemble on beach as a whole group <i>What have you found?</i> – One different thing from each group <i>What have you noticed about where things live here? Are there different micro habitats?</i> <i>WHY do they live in different places?</i>
10.35 11.00	Morning tea When eaten students can look along the strandline and each collect five small stones and one larger one which will fit in your pocket.



11.00	<p>TASK 2 In your group choose one ANIMAL species to find out how many are living here. Preferably each group has a different species– Challenge is to find out their numbers and distribution. HOW?</p> <ol style="list-style-type: none"> 1. Distribution. Where are they found? First take a walk to see how much of the reef their habitat covers 2. Choose a place where there is a typical number of the species. This is your sample area. Use the rope marked off in metres to construct a square meter around your sample area (=A). 3. Tools to help you count – STONES large and small (from pocket – 5 small and 1 large) 1 small=10. 2=20. 100 = one large stone 4. Count the number of animals in the square meter and then estimate the number of square meters in the section of reef we are looking at (=B). Multiply (A x B) and calculate the result (= C) 5. C = is an estimate of the total number of your species on the reef 6. –What could you do next?
11.30	<p>Reassemble to share findings together.</p> <ul style="list-style-type: none"> • There was a real wow factor when they fed back the numbers of each species they had calculated- it immediately showed what a valuable habitat and ecosystem it was. <p>TASK 3 Group poem – format</p> <p>Name of species, 3 adjectives to describe it Where they live/ are found, Why you like it. A question about it-</p> <p><i>If you would like to do your own poem come and get more paper and pencils. Photograph poems or video them reading them out.</i></p> <ul style="list-style-type: none"> • Some really enjoyed doing the poems and lots wanted to write their own ones rather than a group one.

My thoughts on the day:

- There was a real wow factor when they fed back the numbers of each species they had calculated- it immediately showed what a valuable habitat and ecosystem it was.
- Some really enjoyed doing the poems and lots wanted to write their own ones rather than a group one.

About the author:

Hilary Iles is an environmental educator living in South Canterbury. She can be contacted on inthehills@ezykonect.co.nz

*Sea tulips
Floating, scarlet, bulbous plant
Rock pools are home
Beautiful, stunning, mysterious flower*

*See what I have found:
I am a cat's eye snail
My shell looks like it has a cat's eye on it
I move during the night and stay still in the day
I live in rock pools
I like the cat's eye snail because of the cat's eye on its shell.*

*See what I have found
A Green chiton
Like a knights armour
Like a turtle shell
Hidden in the rock cracks
They've been around since the dinosaurs
Will they ever die?*

*Brown periwinkle
Spirally, slow, bunched
Holes and cracks in the rock
Unique and plenty of them
How many are there?*

*Blue mussel –
The blue mussel shimmers in distant sunlight
Though moving is uncommon
It is beautiful
It sits in the rock pool by sea lettuce
It's a startling deep sea blue.*