

Keynote Speaker Abstracts

Billy Matheson, Enspiral Member and Foundation Director

Organisation as Servant Leader

Billy is a Pākehā New Zealander with a passion for bringing people together in ways that enable new insights, choices, and outcomes.

In this keynote presentation he will introduce the metaphor of 'ecosystem' and share his thoughts about the vital role that organisations — such as NZAAE — can play in creating, supporting, and stewarding change in complex, adaptive systems. During his talk he will draw on his experience over the last decade working with the *ReGeneration* youth project, the *Auckland Co-Design Lab* project, and the *Enspiral* network.

Using Robert Greenleaf's philosophy of 'servant leadership' as a point of departure Billy will share several conceptual models or mind maps that people may find useful to better understand the organizations that they belong to, where they are in their organisational journey, and how they can better influence the future direction of their organisations to create positive change.

Rather than being a one-way presentation Billy would like this keynote to be a participatory experience. During the first part of the key note you will be invited to reflect on your experience of your own organisation through a journaling process (writing and drawing) and in the second part of the keynote there will time for sharing insights and questions together.

Ocean Ripeka Mercier, Victoria University of Wellington, Pukenga Matua/Senior Lecturer, Te Kawa a Māui

Mātauranga and Science: Learnings from a Local Tertiary Ecosystem

What does 'environmental education' look like in a university School of Māori Studies?

A taiao curriculum focus that consciously draws from both science and mātauranga – what shape does that take?

What work do students have to do to negotiate and reconcile different knowledge systems and what can we learn from this that can be applied more broadly? Ocean will discuss these questions using the notions of threshold concepts, place and decolonisation as touchstones and guides. She'll speak from the learnings of projects past, present and in the possible future. These include course contributions to Victoria University's Māori Resource Management undergraduate degree major; cultural mapping in the Te Kawa a Māui Atlas project; and contributions to the design and execution of major research projects, for instance the National Science Challenges.

Sam Judd, CEO, Sustainable Coastlines

Different Strokes for Different Folks: Environmental Education for All

Research has proven that connection to nature and environmental education is vital for children growing up, but what about the people who slip through the gaps? With so many challenges stressing our ecosystems today, it is vital to expand the 'customer' base of people who receive these important messages.

This presentation will explain the varying strategies that have been successful for a wide variety of demographics that make up New Zealand society and encourage participants to think outside the square.

Key examples to be highlighted will show that through the effective delivery of environmental education, people can be motivated to actively participate in restoration work, will spread key messages as advocates and that this strategy can be scaled up.

An important focus will be about how the different 'customers' can interact for projects and how interventions can be designed to suit peoples' varying needs while all contributing to common goals using standardised evaluation.

It will also provide some exciting visionary opportunities that will seek to integrate environmental education into social and rehabilitation work alongside strong monitoring and evaluation with a goal of developing sustainable financial models that will enable such work to scale up.

It is intended that this will provide some hope for people who are passionate about an environmental landscape that is currently in decline: The combination of expanding customers, technology and the open sourcing of successful models can, and will, tackle the challenges with the best New Zealand can create.

Concurrent Session Abstracts

Whakapapa - getting closer to Papatūānuku

Joseph Potangaroa, Rangitāne

The less connected we are to Papatuanuku the more we take her for granted. Kaumatua say, “Start at the atua and come down”. This statement is the beginning of whakapapa or a recognition that we humans owe our existence to the land, sky and natural energy sources. Our decisions in life, whether to respect the atua or not, will have a bearing on our own lives and those of our descendants. Encouraging people, especially youth, to actively learn whakapapa or getting closer to Papatuanuku, is hugely important today as we strive to become more sustainable.

Whakapapa also teaches us that all life that is naturally found in New Zealand is connected. Add other lifeforms that have been brought here by humans and we get a spaghetti ball of interwoven relationships. Other viewpoints have contended that things live in isolation. Having had centuries to acclimatise and learn we believe our world view has value for the future of New Zealand.

Rangitane o Wairarapa has invested many hours working at schools, beside streams, in forests, at beaches, collaborating with like minded people, producing booklets and creating internet resources to try and get people to engage with the atua.

Numerous ways, subjects and activities, some that are not usually thought of, can be used to connect people with atua and thereafter make them want to care for them. This presentation will share insights into the contribution one small iwi is making.

Theme: Matauranga Māori - all levels of formal schooling

Wednesday 18 April 2018, 11:30pm - 12:00pm, Classroom T22 (seats 30)

Ko Te Kō A Te Waimarie (The Planting Stick Of Success)

Phil Belcher and Eileen Woodhead, Napier Kindergartens Association

Background: It's exciting times for the revival of mātauranga, indigenous Māori knowledge. We present a current example of mātauranga informing and perpetuating successful growing and learning in an Early Childhood Education (ECE) context and network.

The growing of plants, such as kūmara, taro and hue, stem from a 2000 year accumulation of Polynesian tradition. In contemporary ECE context this knowledge can prove to be inspiring, engaging and relevant for all involved.

From the rising of matāriki, kākano and tīnaku germinated in tāpapa, karakia, propagation in pārekereke, māra tuatāne, into the realm of Rongo-maraeroa and later harvesting the crop, using, consuming, processing and storing, to ensure sustainability. Within the imagery of whakatauākī and karakia, templates have been left to us by our Tūpuna, to grow an ecosystem of success.

Method: A vignette of how and why "Ko te kō a te waimarie was used by kindergarten teachers, and how tamariki responded will be presented. The pedagogical influences of Froebel, Te Whārki and Enviroschools that contributed to this experience of teaching and learning will be discussed. Poetic aspects of this karakia will be 'unpacked'. This collaborative work formed part of an ethnographic study captured in the published thesis, 'Poetry in Motion'

(<http://hdl.handle.net/10523/6691>).

Results and Conclusion: This presentation aims to illuminate how educators and practitioners collaborated to bring indigenous knowledge to life. Pou Mātauranga of Napier Kindergartens Association (NKA) introduced an ancient karakia, Ko te kō a te waimarie, to Kindergarten Teachers and Tamariki for planting and harvesting māra kūmara.

Theme: Celebrating and Strengthening Collaboration - Early childhood education Mātauranga Māori

Wednesday 18 April 2018, 11:30am - 12:00pm, Classroom T24 (seats 30)

Growing Voices – Young People Driving Intergenerational Leadership

Annabelle Studholme, Department of Conservation

24% of NZers are under 25. For the future of our nature NZ needs young people engaged in the politics of conservation. This includes having their voices represented through Local and National Government public consultation on environmental issues that matter to and affect them.

What pathways are there for intergenerational leadership to become our cultural context; where young people have opportunities to develop and stretch their voice and ideas?

This session highlights projects driven by young people engaged in democracy, policy and decision making and looks at how to support intergenerational leadership in environmental action.

Theme: Expanding Environmental Education - Youth

Wednesday 18 April 2018, 11:30am - 12:00pm, Classroom T25 (seats 30)

Facing Climate Change – Developing a Climate Change Education Network

Andrea Milligan and Jenny Ritchie, Victoria University of Wellington

Introduction: Acknowledging the work of Enviroschools, and the recent combined ministries' Environmental Education for Sustainability (EEfS) document, Mahere Rautaki, this discussion session explores opportunities to raise the explicit profile of climate change education (CCE) within education for sustainability and across the education sector. We hope to establish the imperative for a whole of sector, interdisciplinary network of climate change educators and researchers. We are interested in the ways that climate change education could be enhanced and co-ordinated across the early childhood, school, tertiary and informal education sectors. Our aim is to ensure equitable provision of CCE to all young citizens of this country, given they are going to be living with these impacts in ways which are yet to be imagined.

Content and perspectives: An initial presentation within this session will draw on a recent literature review that shows that, whilst provision exists for CCE in all parts of New Zealand's education system, there is lack of support to leverage this potential. Delivery is therefore haphazard and currently under-researched.

Spokespeople from across the education sector (including enviroschools, climate change scientists, and ministry officials) will provide an overview of key points from their particular perspective and explore the ways that CCE is either given expression or marginalised within our education settings.

Summary: NZAEE is a network of people who share concern for the environment, and who therefore recognise the need for climate change education (CCE) that will enable children to make sense of the impacts of climate change, and prepare them to advocate on behalf of the environment. We see this discussion as an opportunity to pool the expertise and knowledge of those present, in order to progress the broad kaupapa of CCE by proposing the need and formulating a vision for a CCE network.

Theme: Celebrating and Strengthening Collaboration

Wednesday 18 April 2018, 11:30am - 12:35pm, Classroom P1 AB (seats 60)

Eco Youth Challenging The System

Bridget Glasgow, Auckland Council

Background: The purpose of this workshop is to showcase enablers for the engagement of NZ secondary school students in Environmental Education for Sustainability (EEFS). Over the past 6 years Auckland Council has run youth leadership programs, which included Green Jam, a sustainability conference for secondary schools. This project included a full day conference that enabled individual schools to then hold similar student led events for local schools. This year the students initiated the original conference and led the process. The second tool is the Secondary School Stormwater NCEA Resource which includes a variety of strategies for teachers and students to initiate action projects for restoring urban freshwater and also gain qualifications. <https://www.pond.co.nz/detail/3582774/freshwater>. This workshop will showcase diverse initiatives that have had success in the challenging area of secondary EEFS.

Activities: The presenter will model educational strategies and use student voice to share successful initiatives occurring in Auckland with the Auckland Council Sustainable Schools team. The presenter will demonstrate a range of approaches that encourage student empowerment as well as the use of formal pedagogy and NCEA to support effective participation of young people.

Benefits: Participants will discuss with the presenter, young people and each other on how an educational resource and a student led conference system will empower young people to collaborate in order to drive sustainable outcomes. The presentation will encourage others to use the model in their own regions and areas to grow opportunities of collaboration for young people and establish a network of success and action.

Theme: Celebrating and Strengthening Collaboration – Secondary, Youth

Wednesday 18 April 2018, 11:30am - 12:35pm, Classroom P1 CD (seats 60)

Green-Gold Enviroschools Think Tank Taking Action For The Future

Sandy Bell-Jameson, Toimata Foundation; Nicky Elmore and Cate Jessep, Auckland Council

Background: The Enviroschools Green-Gold Think Tank is a group of principals and key teachers from 11 Green-Gold Schools in Auckland. The group currently meets three times a year with the intention of growing their leadership and capability as model Enviroschools, and to explore ways of continuing to grow Enviroschools and sustainable communities into the future.

One of the questions put to the group was “If we are to encourage our ‘beacon’ schools to support a hub of schools/Early Childhood Education centres, how could we enable and support this to happen?” From this came an action-focused and practical mentorship model that initially included principals and lead teachers.

To date, actions being taken by the 11 schools are inspirational:

- Four of these Enviroschools have begun to mentor and support schools new to the kaupapa. One school is working alongside TWO new Enviroschools
- A number of the Think Tank schools are putting time and energy into connecting and meeting with local Enviroschools with the aim of supporting and growing each other’s practice
- Three schools have collaborated with WINZ to establish three school-based Teacher Aides, whose role it is to support the implementation of the kaupapa, while developing skills which may lead to future employment

There is tremendous energy, enthusiasm and commitment from this group of ‘beacon’ Enviroschools!

Activities: Participants will have the opportunity to engage in small group discussions with feedback and response to workshop content. They will collectively be asked to contribute ideas and actions relevant to their regions. This will take more than 20 minutes of the session.

Benefits: By attending this workshop you will find out about this innovative process and you will have the opportunity to share your own ideas and discuss implications for your own region.

Theme: Celebrating and Strengthening Collaboration – Primary

Wednesday 18 April 2018, 11:30am - 12:35pm, Classroom P2 AB (seats 60)

Conservation Education - A Resource Framework

Ben Moorhouse and Kerry Penny, Department of Conservation

Conservation Education provides authentic opportunities for students to learn, think, question and apply their knowledge and skills to problem solve real issues, and contribute something meaningful and real.

The Department of Conservation (DOC) is re-working, updating and creating new teaching and learning resources for primary through to secondary aged students and their teachers. These resources meet a number of criteria and standards that reflect current teaching and learning pedagogy. All resources are curriculum linked, provide real-life context for teaching and learning, ready for use across New Zealand and provide support for all environmental educators in and out of the classroom to confidently teach within a conservation context.

Resources vary from those dedicated to unique species to ones aimed at encouraging students to go outdoors, explore local spaces, and collect robust scientific data that leads to action for local conservation. Resources are underpinned by DOC's action-orientated inquiry learning process that encourages students to participate in citizen science projects and includes learning objectives across numerous subjects.

This session will provide detail on how DOC has transformed its resource framework by using examples of resources that have been completed, how they were developed, how to use them and where to find them as well as a preview of resources that are currently in the development stage.

Theme: Expanding Environmental Education - all levels of formal schooling

Wednesday 18 April 2018, 11:30am - 12:35pm, Classroom P2 CD (seats 60)

Sustainable Practices In Schools - Introducing Tracking And Trapping Into The Wairarapa

Gill Stewart, EnviroSchools and K.Cork, Pukaha Mt Bruce National Wildlife Centre

Introduction: To ensure the sustainability of sustainable practices within schools we need to be collaborating to bring the best practice, the best support, the best opportunities to our busy school communities. We can't expect the staff within to lead and organise everything that is needed to embed sustainable practices. Schools are part of communities and we, the community, need to be collaborating with schools. In the Wairarapa we are collaborating to set up sustainable tracking and trapping in schools with the long term aim that skills learned will be transferred to private and community places in order to replenish our native biodiversity.

Content: We will present our model to the group. The model includes teacher workshops, student workshops, facilitated follow up and updates and using Nature Watch as a tool for inspiration and data collecting. Matauranga Māori has been included but will continue to be developed in deeper ways. We will share our successes and challenges in getting this process to happen and also how we are funding it.

Perspectives: Schools are lapping up the opportunity for their students to be involved in hands on projects that are meaningful in their communities. DOC and other community groups are crying out for young people to be involved in their local communities looking after our rich biodiversity. Students love learning, doing practical things and making a difference.

Summary: Setting up sustainable models for schools to be involved in is a key way for ensuring Environmental Education for Sustainability is a reality in our schools. To be able to do this we need to work together across many organisations.

Theme: Celebrating and Strengthening Collaboration - Primary

Wednesday 18 April 2018, 12:05pm - 12:35pm, Classroom T22 (seats 30)

Strength Of Partners –‘Inspired Kindergartens – Tauranga’ Key Partnerships - Creating Change Within Communities.

Carolyn O’Connor, Inspired Kindergartens

Introduction: This presentation will highlight two examples of partnerships between ‘Inspired Kindergartens – Tauranga’ and the community that has afforded a focus on sustainability for individuals and the local community. In 2010 ‘Inspired Kindergartens – Tauranga’ intentionally embedded Education for sustainability (EfS) into the organisational strategic direction, which brings sustainable thinking and practices to all aspects of teaching, learning and operations, Shilling (2001), Davis (2010) describes this as a systemic approach.

Content: The two different examples of successful partnerships are; (a) working with a local council to create an orchard walkway within Katikati community; (b) partnering with a local business to implement a quest for energy self-sufficiency for the ‘Inspired Kindergartens –Tauranga’ network. The results highlight that by fostering a culture of sustainability within our organisation, early childhood education has an influence on communities to consider alternative sustainable practices. Both examples explore behaviour and participatory design that empowers sustainable change across ‘Inspired Kindergartens’ and the wider community.

Perspectives: Working alongside regional council, local community and a kindergarten offered challenges as each party has a unique perspective. This presentation will highlight the various perspectives and how the project coordinators navigated these to acknowledge the multiple views which allowed the project to process.

Summary: ‘Inspired Kindergartens Tauranga’ has prioritized ‘organisational sustainability’ by embedding a systemic approach that enables and celebrates multiple perspectives that are located in communities. This collaborative approach has afforded innovative outcomes for kindergartens and their communities, resulting in growing awareness for a changing course toward a sustainable world today and for tomorrow.

“A sustainability revolution requires each person to act as a learning leader at some level, from family to community to nation to the world” - Meadows

Theme: Celebrating and Strengthening Collaboration - Early childhood education, Business, Community

Wednesday 18 April 2018, 12:05pm - 12:35pm, Classroom T24 (seats 30)

Opportunities for youth leadership: Forest and Bird Youth and Roots and Shoots (YOUTH)

Sian Moffitt, Kaya Shlomi, Janusha Gunasekara and Gracie Scott, Forest and Bird

Jacqui Hooper, Jane Goodall Institute NZ

This session will give insight into youth lead environmental programmes, and the opportunities these provide, with an overview of two current environmental leadership programmes and hopes for our future.

Forest & Bird Youth

Forest & Bird Youth is a new youth-generated, and youth-run division of the Forest & Bird Society, aimed at spreading environmental-ideals, and our society's mission of conserving New Zealand's wildlife and wild places with young people and young adults (ages 13-25 years).

We are providing the next step for Kiwi Conservation Club members, and running our own volunteer conservation projects. We wish to inform the wider population of conservation issues and solutions, and act as a youth-friendly connection between the wider public and conservation projects/groups/initiatives. We currently have two small formal youth committees in operation - one in Auckland, and one in Manawatū. This is growing with Wellington and Nelson starting in 2018.

Jane Goodall Institute National Youth Leadership Council- Roots & Shoots

In 1991 Jane Goodall and a group of Tanzanian students founded Roots & Shoots because of their shared belief that the world is in peril and that young people can play a huge role in creating a more hopeful future

The National Youth Leadership Council are the youth voice of Roots & Shoots New Zealand dedicated to making positive change happen for people, animals, and the environment. Leaders set to learn, grow, and collaborate on campaigns that make the world a better place. We have 10 members aged 17-21 across the country with a wide variety of passions. Our current campaign is Bye Bye Plastic Bags NZ. A worldwide campaign started by two Balinese girls getting people to say no to plastic bags in hope of a single-use plastic free world.

Theme: Expanding Environmental Education - Youth

Wednesday 18 April 2018, 12:05pm - 12:35pm, Classroom T25 (seats 30)

Addressing Climate Change In Tongan Secondary Schools

Elisapesi Hepi Havea, University of Waikato

Education is a key factor in the global response to increasing environmental challenges such as climate change. Climate change education is critical in supporting Pacific Island countries in adapting to the consequences of their vulnerability to climate change (UNESCO, 2014). Tonga is a country feeling the impacts of climate change, and therefore students in Tonga should learn how to minimise the impacts of climate change and learn to adapt and live sustainably in such an environment already affected by climate change. Previous studies of students and teachers indicated that they have significant misconceptions about climate change issue. This study adopted mixed method approach using questionnaire, focus group discussion and semi-structured interviews for data collection. Focus group discussion and semi-structured interviews were conducted through talanoa approach.

This paper will report on a study that is exploring how secondary teachers and students in Tonga conceptualise climate change issues and the existing status of climate change-related issues in the secondary school curriculum in Tonga. Findings reveal that students and teachers are aware of and worried about climate change, but they lack a rich conceptualization of the issue and hold misconceptions. They also indicate that Tonga is lacking curriculum integration of climate change education. A climate change educational intervention was designed based on theoretical principles of climate change education and the teachers' and students' conceptions, and was trialled at a secondary school in Tonga. This paper will discuss this intervention and some of its outcomes.

Theme: Celebrating and Strengthening Collaboration – Research, Secondary

Wednesday 18 April 2018, 2:20pm - 2:50pm, Classroom T22 (seats 30)

The National Expansion Of Mountains To Sea Education Programmes And Events

Samara Nicholas and J Macdonald, Mountains to Sea Conservation Trust, Whangarei

Introduction: The Northland-based Mountains to Sea Conservation Trust was established in 2002, as a charitable umbrella and support organisation for the Experiencing Marine Reserves (EMR) marine education and Whitebait Connection (WBC) freshwater education programmes. These are both leading models in education for sustainability in Aotearoa/New Zealand; we have expanded to 9 regions, expanding environmental education to new places and spaces.

Content: We provide schools and communities with the expertise and knowledge to experience their local marine and freshwater environments first-hand, leading to understanding of local conservation issues and fostering kaitiakitanga (guardianship). Our programmes involve young people, their parents and the wider community and reinforce simple concepts such as the uniqueness of our freshwater and marine biodiversity and provide an active focus on conservation of these environments through education and action. Our goal is to empower and support communities to achieve marine and freshwater conservation through science based experiential programmes, resources, projects and community engagement.

Perspectives: Our Mountains to Sea expansion sees a focus on schools as a focal point for communities to come together and see the future of marine and freshwater through the eyes of their children, thereby motivating meaningful learning and long-term behaviour change in both today's and tomorrow's generations.

Summary: We would like to inspire and share stories from our innovative events and programmes and discuss the challenges like how we measure long term behaviour change.

Theme: Celebrating and Strengthening Collaboration - all levels of formal schooling

Wednesday 18 April 2018, 2:20pm - 2:50pm, Classroom T24 (seats 30)

Systemic Failure Sustaining Unsustainability In Schools.

Allen Hill, Ara Institute of Canterbury

In the 1980s Bob Stevenson argued there was a gap between rhetoric (policy) and reality (practice) in environmental education. More than 20 years later I maintain that “Stevenson’s Gap” persists and is increasingly evident through structural organisation of schools and trends in curriculum and policy development. Such gaps represent a systemic failure at both policy and practice levels which continues to marginalize sustainability learning in schools. Despite international policies from UN and UNESCO, for example, continuing to emphasise the role that education plays in societal change towards sustainability, change within education systems appears increasingly difficult with curriculums which are overcrowded, complex, and focused on narrow goals of standardised testing.

In this presentation I draw on data from both Australia and Aotearoa New Zealand to rethink how gaps, such as policy - practice gaps, influence a perceived lack of progress in advancing sustainability learning in our school systems. In doing so I move beyond the ‘low hanging fruit’ of EfS implementation barriers, such as educators’ lack of time or resources, to examine systemic issues related to policy, curriculum, and practice. This involves asking difficult questions and bringing a necessary critical lens to our recent efforts. I argue that more of the same is just not good enough. Through strategies such as radical compliance we need to shift environmental and sustainability learning from the margins to the heart of schooling by coupling it to dominant discourses such as school improvement, raising achievement, student centred learning, and modern learning environments.

Theme: Expanding Environmental Education – Research, all levels of formal schooling

Wednesday 18 April 2018, 2:20pm - 2:50pm, Classroom T25 (seats 30)

Tamariki Need Nature Play

Celia Hogan, Little Kiwis Nature Play, Canterbury

Annabelle Studholme, Department of Conservation

In a digital, risk adverse age our children spend increasing amounts of time inside, in sedately activities and on screens. Alongside this we are seeing a rise in obesity, mental health presentations, mood, anxiety and behavioural disorders.

Yet there is growing research that indicates tamariki benefit physically, psychologically and developmentally through time outside, in nature and with each other. Current neuroscience supports unstructured, child led play as essential for children up to the age of seven. So how do we integrate this new knowledge into a building-based, risk adverse early childhood culture?

This workshop gives the science behind the forest/bush kindergarten network through showcasing nature play practice across New Zealand. We will look at tools, practice, health and safety as a 'how to' for getting kiwi kids into their nature.

Theme: Expanding Environmental Education - Early childhood education

Wednesday 18 April 2018, 2:20pm - 3:25pm, Classroom P1 AB (seats 60)

Working With Community To Improve Our Local Environment

Dianne Christenson, Koraunui School

Introduction: Koraunui School has been working with our community to improve our local environment. We have undertaken two kaitiakitanga projects. These collaborations have involved working with scientists, environmental groups, community organisations and tangata whenua.

Content: Developing student's understanding of healthy streams resulted in a student led project to improve native fish habitat. Students monitor water quality and complete invertebrate counts. Remediation projects have been undertaken at several sites. Students have worked with local community members developing a method of paper mache mulching which suppresses weeds and sustainably uses school waste.

Our second project monitored local biodiversity creating a baseline for comparison over time. We ran a bioblitz where students worked alongside scientists, local community and environmental organisations. Students will be able to measure the effectiveness of projects such as predator control and planting native bush in our school grounds. Students and community are gaining knowledge and appreciation for the work of environmentalists and scientists through these collaborations as well as practical methods for taking action. This positively impacts the local community.

Perspectives: With 49% Maori students and 20% Pasifika attending our school, valuing indigenous perspectives and tikanga is an important aspect of environmental education at Koraunui School. Through learning about the biodiversity within our valley, students learn the importance of being kaitiaki and caring responsibly for their environment.

Summary: These projects rely on collaboration with local community, marae, environmental groups and scientists. They support an integrated curriculum using science and environmental education to access other curriculum areas while inspiring curiosity and a love of nature in our students.

Theme: Celebrating and Strengthening Collaboration – Community, Primary

Wednesday 18 April 2018, 2:20pm - 3:25pm, Classroom P1 CD (seats 60)

The Art Of Invertebrates

Julie Overton, Botany Bay Environmental Education Centre, NSW Department of Education, Environmental and Zoo Education Centres (EZEC), Sydney, Australia.

Johanne Lobb, Beresford Road Public School in Greystanes, NSW Department of Education, Sydney, Australia

Background: Students need to experience the wonders of nature so they value and want to protect it. Investigating and discovering invertebrates in the school grounds provides an amazing opportunity to scientifically study these unique creatures, and provide amazing subjects to create artworks about. Every school or backyard, or parkland contains its own unique habitats for invertebrates. Students will soon see these play areas in another light, as rich habitats for invertebrates.

Activities: This session combines art and science using a variety of techniques to unleash the artist within while exploring biodiversity on a small scale. Participants will carefully observe an invertebrate, classify it, and create observational drawings. Participants will then produce a water colour drawing and ink print before mounting and displaying their artworks for an exhibition allowing participants to admire and evaluate their work.

Benefits: Participants will learn how to incorporate art in the study of invertebrates and produce 3 amazing artworks from very inexpensive supplies in a short workshop timeframe. Participants will also be introduced to some amazing free resources about invertebrates and units of work for teachers or environmental educators available for iPads, co-authored by Julie Overton. Theme: Expanding Environmental Education - Practical

Wednesday 18 April 2018, 2:20pm - 3:25pm, Classroom P2 AB (seats 60)

GroNATIVE: The Successful Use Of Apps For Positive Environmental Change

Mark Nadir Runkovski, Natura Pacific, Queensland, Australia

Introduction: GroNATIVE is a highly-successful geo-locating app allowing users to learn about and grow plants native to their local ecosystems. With our increasingly technocratic generation relying more and more on apps for information, and our urban ecosystems losing more and more biodiversity, the benefits of this rapid and applied technology for environmental education are numerous.

Content: The presentation will provide a case for the increasing use of apps in environmental education exhibiting the GroNATIVE campaign and its successes. The app has enabled over 4,000 users to quickly find native plants that will grow well on their property, learn about why each species is important for their local ecosystem, where to buy the plants using local nurseries and how to cultivate them. With a growing audience, the capacity for this free technology to improve our urban ecosystems through re-planting native vegetation also grows, and with it, the area available for wildlife.

Perspectives: The benefits of this technology include rapid and mass-scale transfer of information, easy and cheap updating, dynamic user interaction, citizen science opportunities and tailor-making of information to suit user needs (Newman et al., 2012). Despite this, the true applicability and versatility of app technology to the environmental education sector is still not fully utilised and this presentation will demonstrate by example, how great advancements could be achieved.

Summary: Apps such as GroNATIVE are free, readily-available, appealing and informative sources of information for environmental educators and their audiences. The capacity to spread environmental messages over a wide audience, quickly, makes them a useful tool for both catalysing and quantifying positive change for a sustainable world.

Theme: Expanding Environmental Education - Community

Wednesday 18 April 2018, 2:55pm - 3:25pm, Classroom T22 (seats 30)

Exploring The Potential For Environmental Education For Sustainability In A Modern Learning Environment

T Shaw, Albany High School and Morag Vasilaki, Auckland Council

Introduction: This discussion is important to the conference theme because Modern Learning Environments are the new ecosystem within schools and go hand in hand with Environmental Education for Sustainability. **Content:** Modern Learning Environments are more than just a new way of setting up and furnishing a teaching space. In the past 5 years the Ministry of Education has spent \$15 million on the introduction of Modern Learning Environments. We will explore the parameters of the concept and its implications, as well as its potential for creating a 'sustainability mindset'.

Perspectives: Modern Learning Environments range from new furniture in the same old teaching space to new furniture in a newly created space, but more importantly, then on to a completely new way of teaching and learning. We will discuss how Albany Senior High School has made the most of its Modern Learning Environment to redefine the teaching and learning for both staff and students.

Summary: This discussion will help participants consider how to challenge and modify their practice to better fit both these new physical environments and the learning ecosystem to enhance the wider learning of students in Environmental Education for Sustainability.

Theme: Celebrating and Strengthening Collaboration - Secondary

Wednesday 18 April 2018, 2:55pm - 3:25pm, Classroom T24 (seats 30)

The State Of Education Outside The Classroom (Eotc) Across Aotearoa New Zealand Schools: Implications For Environmental Education.

Dr Allen Hill, Ara Institute of Canterbury

Experiential based learning in natural settings outside the classroom has long been a key pedagogical feature of environmental and sustainability education both in Aotearoa New Zealand and internationally. In addition, the competencies needed for creating a more sustainable future such as creativity, agency and critical thinking are more strongly developed through outdoor learning. Yet we hear anecdotal stories of schools reducing opportunities for meaningful EOTC because of health and safety concerns, curriculum and assessment pressures and costs. This presentation critically explores these anecdotes through drawing on preliminary findings from a recent comprehensive national study into the state of EOTC in Aotearoa New Zealand schools. This multiphase mixed-methods research project explored the following questions:

1. What EOTC experiences are occurring in Aotearoa New Zealand schools?
2. How do principals, curriculum leaders and/or EOTC coordinators perceive the value of EOTC in their schools?
3. How are various factors (e.g. curriculum & assessment, health and safety legislation) influencing the provision (quantity and quality) of EOTC?
4. How does EOTC provision in Aotearoa New Zealand schools compare with outdoor learning provision in other countries (e.g. Scotland, Australia)?

In this presentation we expect to be able to share preliminary findings from the phase one National EOTC Questionnaire (NEOTCQ) and phase 2 focus group interviews. In doing so we will pay specific attention to the implications of these findings for environmental and sustainability education in Aotearoa New Zealand schools

Theme: Expanding Environmental Education – Research, all levels of formal schooling

Wednesday 18 April 2018, 2:55pm - 3:25pm, Classroom T25 (seats 30)

Changing our story – Connecting young people with the ocean

Steve Hathaway, Young Ocean Explorers

Project: Young Ocean Explorers (Auckland, New Zealand)

We live by the ocean, yet most people know hardly anything of the amazing life in our seas. We need to change our story - we're as much about the ocean as the land. This is the generation who can do it. But first, they need to be engaged.

Data & content: Children as storytellers and ambassadors; engaging through science, arts, story, digital technologies and IN the environment experiences; equipping teachers with quality content and tools to use in their teaching and learning programmes.

The oceans offer amazing opportunities for learning, discovery and innovation. Young Ocean Explorers aim to inspire a generation of young people to love and care for our oceans, using stories of the sea, filmed and shared through the eyes of a young person, to engage children emotionally and spark them into action. To do this, teachers need to feel confident to tackle marine themes. Young Ocean Explorers uses digital technologies to equip teachers with inspiring content and ready-to-use teaching tools to download and use with students.

Conclusions: The national EEfS Strategy aims to expand aims to expand EEfS. Looking across the engagement spectrum - from inspiring & engaging to educating, motivating and empowering, how can we harness our collective efforts to connect young people with the wonders of the marine world and achieve the generational breakthrough we are looking for.

Wednesday 18 April 2018, 4:00pm - 4:30pm, Classroom T22 (seats 30)

Community Environmental Education Pilot Study (CEEPS) In Sabah, Malaysia

Susan Pudin, Environment Protection Department Sabah, Malaysia

The objectives of the Community Environmental Education Pilot Study (CEEPS) were to co-construct an environmental education programme with a local community near Kota Kinabalu city in Sabah, Malaysia focussing on waste management issues, and to prepare a community environmental education module. The study was guided by a community environmental education model based on theoretical principles and the experiences, limitations and lessons in the programme development process from a University of Waikato PhD research. The study had elements of interpretivism because of the interaction with the local community to obtain their views and perceptions on waste management. Champions were identified as representatives of the community.

The methods of data collection were workshops, observation, interviews and surveys. The engagement with the community involved interaction and reflections about strengths, assets, opportunities, needs, barriers and shared aspirations. Both qualitative and quantitative data were collected and analysed using thematic analysis and descriptive statistics respectively. The findings on perceptions and existing practices informed the development of the community environmental education programme, which was conducted in the village in early April 2017. The four key themes derived from the survey findings are education and awareness, co-operation and support, perceptions and behaviours on waste. After the programme implementation, the community expressed that they had better awareness about the environment and impacts of waste. They have also obtained seed money from the Environment Protection Department Sabah to start their sustainable gardening project in the village.

Theme: Expanding Environmental Education – Research, Community

Wednesday 18 April 2018, 4:00pm - 4:30pm, Classroom T24 (seats 30)

When Shoes Matter

Mike Tapp, Department of Conservation and Kealy Warren, Deputy Principal, Marfell School

Introduction: We trialled a programme that took students' conservation knowledge and skills to a higher level through an ongoing action project based on a real need. The greater the collaboration and the more diverse the partners, the more success.

Content: The programme partners were Marfell Primary, Marfell Community Trust, Department of Conservation, Taranaki Regional Council, New Plymouth District Council, Sport Taranaki and KidsCan. The project aimed to increase the opportunities for students of Marfell Primary to experience the natural environment, an initial initiative of a Board of Trustee member. Marfell Primary is the hub of a lower-socio economic and youthful community. The learning theme for the school was the Awa. The whole school learnt about whio, an indicator species for healthy waterways. In creating a link between the local stream, habitat for whio there was an obvious link to the maunga. Year 5 & 6 progressed to more experiential learning on the Maunga and then into the action project. This has strengthened cultural identity and connection with Taranaki Maunga and the local environment. This collaboration linked mountain to sea via the local stream. This was science of place and created local ownership.

Perspective: Schools reflect communities they reside in. If a school is in a low socio-economic area its ability to participate in the natural environment is compromised by cost, access to good outdoor wear and confidence in the environment. This collaboration created opportunity right down to the provision of footwear.

Summary: It's an example of how diverse collaboration partners can create opportunity leading to local ownership.

Theme: Celebrating and Strengthening Collaboration – Community, Primary School

Wednesday 18 April 2018, 4:00pm - 4:30pm, Classroom T25 (seats 30)

Classroom Sequences Promoting Socioscientific Sustainability Inquiry

Peta White and Russell Tytler, Deakin University

PARRISE (Promoting Attainment of Responsible Research and Innovation in Science Education) was a four year project involving 18 partners across 10 European countries, that collaboratively developed an approach to science education that combined Socioscientific Issues (SSI), Inquiry Based Science Education (IBSE) and Citizenship Education. The 'SSIBL' (Socioscientific Inquiry Based Learning) framework was collaboratively developed, building on the experience of partners with both pre- and in-service teachers in a variety of settings.

The presenters will provide an overview of the principles underpinning the SSIBL framework and provide some guidance about the nature of the SSIBL topics and activities, at different school levels. We will then introduce some sample activities designed to tune students in to sustainability issues, and discuss principles for engagement. Some exemplar SSIBL activities will then be presented. Following this, participants will, in groups, develop outlines of SSIBL topics using criteria generated by PARRISE partners. The final part of the workshop will involve sharing of ideas about these topics and the framework, and approaches that could be taken in schools to establish SSIBL as a powerful approach to promoting responsible research and innovation in teacher education and at the school level. Curriculum alignment will be discussed.

The workshop will bring the experience of a range of European partners to bear to provide exemplars of approaches to teacher education and the school curriculum focused on sustainability education, inquiry, and reasoning about socio scientific issues.

Theme: Celebrating and Strengthening Collaboration – Research, all levels of formal schooling

Wednesday 18 April 2018, 4:00pm - 5:05pm, Classroom P1 AB (seats 60)

WREEF- EEfs Provider Collaboration In Action

Gill Stewart, EnviroSchools and Elspeth McMillan, Wellington City Council

Background: The Wellington Regional Environmental Educators Forum (WREEF) was formed in 2015 following some initial meetings and brainstorm sessions which sprung from a desire by a number of EE providers to network, share, complement, promote and learn collaboratively. It was agreed that a regular forum with a clearly articulated and agreed vision, purpose and kaupapa was the best model to achieve this. WREEF has been operating now for 3 years and continues to develop and move where the members want it to go. In this workshop you will hear about how it was formed and what structures and tools we are using to make it sustainable.

Activities: You will have an opportunity to look at our tools and how we are using them. You can hear how another group (CNI) has started and are using our model. We will explore the google platform of tools including drive, google groups, docs and sheets, and forms. You can share your expertise or be a learner. We will discuss what other tools we are all using to collaborate effectively eg. doodlepoll and loomio.

Benefits: You will be empowered to set up your own sustainable collaborations using tools that facilitate this.

Theme: Celebrating and Strengthening Collaboration - Environmental Education Providers

Wednesday 18 April 2018, 4:00pm - 5:05pm, Classroom P1 CD (seats 60)

Geographic Journaling

Julie Overton, Botany Bay Environmental Education Centre, NSW Department of Education, Environmental and Zoo Education Centres (EZEC), Sydney, Australia.

Johanne Lobb, Beresford Road Public School in Greystanes, NSW Department of Education, Sydney, Australia

Background: We can learn a great deal from students themselves and in this workshop participants will hear how High School students from Sydney have inspired a new generation to engage with nature. Taking students outdoors to discover the wonders of nature in their school grounds is the first step. Using school grounds for fieldwork will enable students to be immersed in natural surroundings enabling them to connect emotionally. This workshop will introduce how to use Geography Journals to facilitate sensory fieldwork and provide students with opportunities to get outdoors and explore the features of their school grounds.

Activities: Participants will create their own Geography Journal to keep and make records of plant and animal surveys conducted, soil samples taken and how to include illustrations and other visual representations in fieldwork. They will become the 'students' and be encouraged to look, listen, smell and touch the natural and human features outdoors. During this session participants will be taken outdoors and using student lead activities have the opportunity to use a variety of media eg 2B pencils, scratch art, watercolour pencils, and collages with natural materials, to sharpen observations and immerse themselves in the geographical inquiry process.

Benefits: Participants will create a geography resource and participate in activities designed to highlight the wonders of the natural environment and immerse them in nature. This Geography Journaling process can then be used back in schools and other environmental centres to connect kids and adults alike so they can fall in love with nature.

Theme: Expanding Environmental Education - Practical

Wednesday 18 April 2018, 4:00pm - 5:05pm, Classroom P2 AB (seats 60)

YOUTH SESSION

Supported and hosted by WWF-NZ and NZAEE

Climate Change Minister Hon James Shaw - Climate Change Policy for Aotearoa/New Zealand

Generation Zero - Engaging Youth

UNESCO New Zealand Youth Reference - Youth mobilizing transformative action for sustainability

Youth mobilizing transformative action for sustainability

Danielle Newton, Injy Johnstone and Raven Maeder, UNESCO New Zealand Youth Reference Group

Danielle, Raven and Injy will facilitate a workshop focussed around creating a network of active youth leaders who are mobilizing others to take action for sustainability.

Danielle is completing her final semester towards a Conjoint BSc / BA degree at the University of Auckland. She served as the UNESCO / Youth representative on the Environmental Education for Sustainability Steering Group. Danielle attended the Asia-Pacific Regional Workshop for Youth Leadership Training on Education for Sustainable Development in Thailand and facilitated the Environment Focus Group at the Aotearoa Youth Declaration Conference. She also volunteers with Live Lightly activities in Auckland. Injy has a BSc, works for Generation Zero and at the Ministry for the Environment while finishing her LLB (hons) at Victoria University. She is a Sir Peter Blake alumni, has undertaken climate research at NIWA, and has experience both in domestic and international environmental law. Raven is a third year Law and Environmental Studies student at Victoria University. She co-founded the Nelson Youth Climate Action in 2013 and was a student voyager on the Young Blake Expedition to the Sub-Antarctic Islands. She is actively involved in environmental and climate action groups such as Oil Free Wellington and is particularly passionate about promoting the power of youth as change-makers.

Their workshop brings young leaders together to co-create pathways for developing sustainability focussed projects. The workshop embraces a collaborative approach to ensure inclusive participation in activities reinforcing systems thinking, conflict transformation, active listening and leading through following. The aim is to equip young leaders with a toolkit for empowering other youth to contribute to creating more sustainable, just and peaceful societies.

Theme: The role of youth in mobilizing the transition towards more sustainable ways of living.

Wednesday 18 April 2018, 4:00pm - 5:05pm, Classroom P2 CD (seats 60)

Collaboration For Teaching Environmental Education: Professional Learning Through Social Media For Environmental Education Teachers

Fariba Mostafa, University of Waikato

Environmental education (EE) with its complex content knowledge faces challenges of inclusion in school curricula. To overcome these challenges, building connections between teachers could help. Social media (SM) has the potential to use for teacher professional learning (TPL) as communication and resources can be combined to create collaborative learning opportunities. However, regardless of the popularity of SM among teachers, and its potential use in TPL, there is little evidence to date of its use in TPL in EE. Considering SM's advantages in learning, the purpose of this study was to explore teachers' perceptions of professional learning through SM in EE.

The study was conducted using a phenomenographic approach. An online questionnaire including both open and closed questions was administered to enviroschools' lead teachers around New Zealand and data statistically analysed. As a follow up, teachers were interviewed to investigate SM's place in their professional learning in EE and data were thematically analysed. Initial findings suggest that teachers see TPL through SM as potentially collaborative, and can provide support for teachers through ideas and resources to integrate EE in school curriculum. Alongside these benefits, some teachers perceive this kind of professional learning as challenging. Barriers such as time for engagement and the reliability of online information were preventing teachers from using SM. Findings from this research are being used to inform a framework to establish a network for TPL in EE through SM. In this paper, the ways in which SM can provide teachers with support to teach EE will be discussed.

Theme: Celebrating and Strengthening Collaboration – Research, Environmental Education Providers

Wednesday 18 April 2018, 4:35pm - 5:05pm, Classroom T22 (seats 30)

Promoting Behavioural Change In Secondary Schools: Student-Led Schoolwide Change

Amber Pierce, Auckland University

Background: In October 2016, the Hauraki District Council began an long, expensive and unanticipated project, digging up the old Kaiaua landfill. Erosion of the Thames coastline had caused the landfill, closed twenty years ago, to allow its buried rubbish to wash into the harbour. Reporters showed images of rusty machinery, old jandals, and while not obvious to the cameras an unknown amount of asbestos being taken out with the tide each day. This event highlighted how a New Zealand culture of easy rubbish disposal was based on a false premise, any amount of rubbish can be buried and forgotten. With mounting evidence that New Zealanders past rubbish habits cannot be sustain, schools have been identified as vital to instilling values and behaviours that will create a healthier and more sustainable future. In many schools this has taken form of student-led behavioural change initiatives in their schools. However, there appears to be little research that has investigated how successful these initiatives have been.

Methods: This presentation applies social practice theory and theories of student participation to a qualitative multisite case study of three secondary school student-led waste reduction initiatives in Auckland. Interviews, observations and waste audits data was generated to understand how students worked with their school's staff to promote long-term behavioural change within their school.

Results: A variety of initiatives were taken by the students, including: classroom paper recycling, waste free events, and installing waste stations on school grounds. In this presentation, I will discuss how the students influenced waste behavioural change in the schools.

Theme: Expanding Environmental Education – Research, Secondary

Wednesday 18 April 2018, 4:35pm - 5:05pm, Classroom T24 (seats 30)

A City Bee Collaboration

Sarah Smuts-Kennedy, For the Love of Bees

Introduction: The project showcases a successful example of non-traditional educators who are working with a range of audiences including school children to promote and improve city biodiversity. It proves that a multi-party collaboration without experience in school based education can inspire and deliver on environmental education.

Content: The presentation will explore the development and growth of the Love our Bees –A City Bee Collaboration Project. It will describe the unusual source of the project, its funders and its various collaborators that includes artists, permaculture experts, bee keepers, tertiary institutes, communities and schools. It will talk of the trials, learnings and successes of getting people involved with improving biodiversity in our urban spaces for bees.

Perspectives: The schools who are keen to have hives and the health and safety risk concerns associated. The clash with traditional native biodiversity improvements by ecologists. The public park spaces and changes to management practices required. The connecting and developing with nature around a sustainable food source. The student artists balance of their artistic needs vs the ecological requirements.

Summary: The audience will be able to see that non-traditional collaborators can pull together a multi-party collaboration all working towards a sustainable future, utilising their different skill sets and drivers.

Theme: Expanding Environmental Education - Community

Wednesday 18 April 2018, 4:35pm - 5:05pm, Classroom T25 (seats 30)

Preservice Teachers' Preparedness To Teach Environmental Education: A Study In A New Zealand University

Debby Bandele-Dada, University of Waikato

One of the goals of environmental education (EE) is the development of environmental literacy (EL). The development of EL for pre-service teachers (PSTs) is critical if they are then to be confident and competent to deliver EE in schools. This paper reports on a research study that seeks to evaluate the preparedness of PSTs to teach EE in New Zealand primary schools, after completing a compulsory EE paper in a New Zealand public university. This research is relevant as EE in New Zealand primary schools is expected to be taught using an integration approach, infused into the core learning areas.

This study was conducted using a mixed method approach within an interpretive paradigm to seek the meanings of the experiences of PSTs and their learning in the EE paper. Data was gathered from different cohorts of PSTs through administration of questionnaires, focus group discussions, interviews, observations and document analysis. The cohorts included Year 1 PSTs taking the paper at the time the research was conducted, Year 3 PSTs looking back on the paper they had previously taken, and beginning teachers who had recently completed the degree. Statistical and thematic analysis of the quantitative and qualitative data respectively pinpointed some considerations for PSTs' EL and preparedness to teach EE. Challenges associated with teacher education programs, as well as barriers to implementation of EE in primary schools are presented. PSTs' EL, level of preparedness through their teacher education programme and existing EE policies among others influence the implementation of EE in New Zealand primary schools.

Theme: Research, Environmental Education Providers

Thursday 19 April 2018, 10:30am - 11:00am, Classroom T22 (seats 30)

Nature is our classroom: An effective model for teacher professional learning

Amanda Dobson, EnviroSchools and Rebecca McCormack, Porirua Harbour Trust, Te Upoko o Te Ika a Māui

Introduction: Effective collaboration has allowed the development of innovative and successful teacher professional learning in Porirua. Teachers are immersed in nature, where they experience the importance of taking time to slow down and connect with their local environment.

Content: How can we expect teachers to foster a love of nature in their students, unless we provide teachers with opportunities to connect with nature themselves? We can improve teacher confidence and enthusiasm for local environmental projects by holding professional learning outside. EnviroSchools and Porirua Harbour Trust have collaborated to facilitate teacher workshops in the local bush, estuaries, and on the shores of Te Awarua o Porirua Harbour. Teachers are given time to observe, question, explore, create and share ideas. Invited guests, including mana whenua, community volunteers, scientists, and artists, join the group throughout the day, adding layers of knowledge and inspiration.

Perspectives: Environmental educators play a vital role in connecting community stakeholders with schools. Effective professional learning enables teachers to access authentic, place-based environmental education contexts, allowing students to explore ideas and perspectives, and be empowered to take action. To truly connect with an area's social and ecological history, we must spend time in that place, experiencing and learning.

Summary: This model of teacher professional learning can easily be adapted to other locations. The presentation will inspire participants, and encourage them to question the effectiveness of the experiences they provide teachers. Are we demonstrating our key messages? Spend more time outside, use all of your senses, have fun and be creative.

Theme: Expanding Environmental Education - Environmental Education Providers, all levels of formal schooling, Community

Thursday 19 April 2018, 10:30am - 11:00am, Classroom T24 (seats 30)

Pest Animals: Issues Of Social Representation

Sally Birdsall, University of Auckland

Non-presenting author: B. France, University of Auckland

Background: New Zealand (NZ) has a unique biogeography because of its 85 million year isolation. Subsequently, NZ has high rates of endemism. Also, NZ was the last landmass, excepting Antarctica, to be settled by people. When arriving, people brought with them a range of animals that have had a detrimental effect on NZ's unique biodiversity. Recently, NZ's government has formulated policy to become 'pest free' by 2050. Achieving this goal will require NZ society to mobilise and take responsibility for pest eradication.

Content: A group who will play a key role in realising this aspiration are today's teenagers, who are not only capable of exercising their agency now, but as future citizens. To explore teenagers' views of possums, individuals and groups of students from four secondary schools (2 in NZ, one each in England and France) took part in online asynchronous collaborative exchanges about NZ's premier pest: the brush-tailed possum.

Perspectives: Students' feelings about possums were analysed using Kellert and Berry's typology. It was found that NZ students' feelings were dominionistic and negativistic, revealing hatred of possums and belief in necessity for control. In contrast, French students expressed moralistic feelings, wanting possums to be killed "nicely", and naturalistic feelings as possums were "part of nature". English students seemed more measured with small numbers expressing utilitarian views, suggesting that possums be hunted for their pelts.

Summary: These results will be interpreted in terms of social representation; how NZ students view their endemic species as symbolic of NZ and needing protection; as opposed to the possum which is viewed as a pest and needing extermination.

Theme: Expanding Environmental Education – Research, Youth

Thursday 19 April 2018, 10:30am - 11:00am, Classroom T25 (seats 30)

The Role Of Place Based Education For Young Children In Linking Past, Present And Looking To The Future.

Helen Smith, Kidsfirst Kindergartens Lincoln, Christchurch

Introduction: Place based education is more than nature education, it can create links with local history, explores what is here now and invites action for the future. It is a way to connect community members from bugs through to leaders in the area. Kidsfirst Kindergartens Lincoln has a long history in involvement with environmental education, education for sustainability and the Enviroschools programme. Use of place based education within the programme for young children builds on this history and invites action.

Content: In this presentation participants will consider what place based education is. They will see some experiences that children at Kidsfirst Kindergartens Lincoln have been involved in, including links to tangatawhenua, the building of relationships with the community, the role of storytelling and action for the future that the kindergarten has been involved in. There will be opportunity for participants to consider how they can engage in their own community and support tamariki to become active citizens.

Summary: Through looking at examples of Place Based Education in practice, participants can be inspired about extending their practices to move from learning about nature and their place, to thinking about what we can do to take action and make a change in their own community.

Theme: Expanding Environmental Education - Early childhood education

Thursday 19 April 2018, 10:30am - 11:00am, Classroom P1 AB (seats 60)

Principles of Science Communication – Bringing Meaning to Knowledge

Thom Adams, Victoria University of Wellington

Information is never enough on its own to make a meaningful impact. It needs to be shaped and delivered in a way that is meaningful to its audience. The need to engage the public with new research and encourage them to change the way they think and act has seen the value of effective science communication be acknowledged more and more.

Talk is not enough. We need to connect.

This session will examine the principles of science communication, and how we can use what we know about engagement to build awareness across a wide range of different ages, cultures, and experiences. We'll look at a few tools to help presenters better sculpt their message.

Theme: Expanding Environmental Education – Community, all levels of formal schooling

Thursday 19 April 2018, 10:30am - 11:35am, Classroom P1 CD (seats 60)

Technology – The Tool Or The Context?

Annabelle Studholme and Benjamin Moorhouse, Department of Conservation

In a world of BYOD, conservation education is an analogue, tactile and real-world context for learning. The ability for students to experience, monitor, ideate and take action for their place allows them to be leaders and drivers of conservation and influence positive change.

So what place does cutting edge technology have in this space? How do we integrate technology as a tool that adds value to students and learning while maintaining a balanced and rich education?

This session will look at some different examples across New Zealand where technology is integrated into conservation education as a tool to drive learning outcomes. We will give examples of schools developing new technologies to solve conservation problems and look at how platforms like squawk squad and I naturalist can support teaching and learning.

Theme: Celebrating and Strengthening Collaboration - all levels of formal schooling, youth

Thursday 19 April 2018, 10:30am - 11:35am, Classroom P2 AB (seats 60)

Kaitiakitanga, Collaboration, and Activism

Raihania Tipoki, Nga hapu

Background: There has never been a more important and opportune time to collaborate and activate people to become kaitiaki of our people and place. The enormous challenges in front of us, such as climate change, will only be overcome through unprecedented collaboration and grand wisdom. The health of our whanau is inextricably connected to the health of our taiao as we descend from and rely upon the environment for our physical, mental, and spiritual sustenance.

Activities: In this workshop we will explore the potential that our Maori world-view holds in meeting today's environmental issues head on. We'll discuss both barriers to and strategies for successful collaboration. And we will look at some current and potential local kaupapa that encourage kaitiakitanga and education outside the classroom.

Benefits: Participants will come out of this workshop with a deeper understanding of what kaitiakitanga is, how successful collaboration might be achieved, and how we can inform and educate through being active, genuine kaitiaki.

Theme: Matauranga Māori, all levels of formal schooling, youth

Thursday 19 April 2018, 10:30am - 11:35am, Classroom P2 CD (seats 60)

Researching Mobile Learning In Education Outside The Classroom To Enhance Marine Ecological Literacy

*Presenting: Chris Eames, University of Waikato, Claudio Aguayo, Auckland University of Technology
Non presenting: J. Hanlon, Primary School and T. Haggitt, University of Auckland*

This paper focuses on a two year study funded by the Teaching and Learning Research Initiative. Mobile learning tools and affordances are increasingly being used in our classrooms to provide students with novel learning experiences. Could these tools be used to enhance and complement learning experiences outside the classroom, bringing together the best of both strategies, and importantly, to reinforce learning after those experiences? Could this combination prove effective in developing students' ecoliteracy (knowledge, attitudes and motivation to act) for a more sustainable future?

This paper reports on this interpretive study, in which data was gathered around delivery of a marine reserves unit, incorporating a trip to Goat Island marine reserve and Discovery Centre, to one primary school class. The study has examined participants' experiences in the unit through questionnaires, observations, and interviews and digital interactions to analyse the experiences of all participants during the visit and the unit as a whole. Data analysis is being structured around a socio-cultural activity theory analytical framework. Findings from the experiences of the first year of delivering the marine reserves unit indicate high student engagement and learning from the visit but poor reinforcement of those learning experiences after the visit. An online forum of study partners using Google+ has worked with these findings to design a framework for innovative use of mobile learning technologies to enhance and reinforce the learning experiences and outcomes in the same unit in 2018. Initial findings from this mobile learning-enhanced unit will be presented.

Theme: Celebrating and Strengthening Collaboration – Research, all levels of formal schooling

Thursday 19 April 2018, 11:05am - 11:35am, Classroom T22 (seats 30)

Creative Arts Collaboration In Porirua

Esme Dawson, Pataka Art + Museum

Introduction: This is an inspiring story of collaboration between art and environmental education, involving primary schools, Pātaka Art+Museum, local council, mana whenua, and local artists. The role of the arts in environmental education is significant in deepening the emotional connection to place, and affecting children's core values so that they have the care and concern to take action.

Content: Six Porirua primary schools collaborated to create an innovative, student led art journal. Students documented their actions for the protection of Te Awarua o Porirua Harbour, through a range of creative responses. All content was created and designed by students, who worked alongside mentors and artists, including field trips and sessions outside. Students have taken action for the environment by creatively communicating messages about protecting their local waterways, through both the art journal and by designing information signs for the harbour edge.

Perspectives: This project explores how the arts can offer students a different way of communicating and expressing ideas. A range of perspectives have been considered, with students taking part in discussions with mana whenua, artists, writers, council, scientists, teachers and other students.

Summary: This project enabled tamariki to take ownership and have their voices, worldview, findings and messages, heard and valued by their peers, their council and their community. This story of collaboration will inspire participants to consider the importance of working with local artists, alongside councils and local iwi, to empower and connect students with local environmental projects.

Theme: Celebrating and Strengthening Collaboration – Primary, Community, Youth

Thursday 19 April 2018, 11:05am - 11:35am, Classroom T24 (seats 30)

Youth Demographics - Opportunities For Future-Proofing Community-Led Conservation?

Presenting: Helen.Ough Dealy, M. Petterson and D. Towns, Auckland University of Technology; E. MacDonald, Department of Conservation, Bay of Islands

Introduction: Ough Dealy is in the early stages of a PhD research programme at AUT examining a range of aspects of community-led conservation groups including group demographic structure. Early findings suggest that groups are dominated by people aged 50+. Post-1990s volunteers (Millennials) are generally poorly represented within conservation groups. Successful implementation of Predator Free 2050, is dependent on a cross-generational commitment to conservation action. What opportunities does environmental education provide in creating the resilient community conservation needed?

Content: The post-1990s generation volunteer differently from other demographic groups. They are more likely than older generations to volunteer their time in large groups for one-off events; they are less likely to be involved in weekly activities or monthly organisational meetings. Post-1990s volunteers also engage in virtual volunteering (Facebook fundraising, clicktivism). Does this disconnect offer opportunities for new ways of working across or between the generations? What role does environmental education play in closing the gap? There is an apparent conundrum: younger generations are exposed to numerous environmental educational opportunities compared to elders, and yet there appears to be no additional uptake in active environmental participation.

Perspectives: Law (2005) highlights the need for environmental education programmes and learners to apply “their own action-based skills in real environments”. In the context of Predator Free 2050, Norton et al (2016) emphasise the importance of building ecosystem resilience in the wider socio-economic and cultural context within which restoration occurs in part through experiential environmental learning.

Summary: The post-1990s generation are potentially tomorrow’s conservationists. How they make the transition from enviroschool ‘graduates’ to community-led conservation participants is vital to the success of a predator-free New Zealand.

Theme: Expanding Environmental Education – Research, Youth, Community

Thursday 19 April 2018, 11:05am - 11:35am, Classroom T25 (seats 30)

What Does The Enviroschools Kaupapa Look Like In The Bush Kindergarten Context?

Wendy Mclachlan, Kindergartens South and K. Higgins, Toimata Foundation

Introduction: Myross Road Discovering Nature Programme/'Bush Kindy' is an innovation of Kindergartens South (Southland Kindergarten Association - SKA). Aligned to the SKA strategic goals, there is emphasis on connecting with nature and programmes within the kindergarten to support this. A permanent teacher and teacher aide are employed specifically to run this programme. Eleven kindergartens are currently involved with this programme. Each Kindergarten visits once a week with a small group (up to ten) of children, one teacher and parent helper.

Content: Myross Road completed the Bronze Enviroschools holistic reflection in 2017. This process involved collaboration with nine of the eleven visiting kindergartens, the local council and Toimata Foundation. Due to the uniqueness of this programme the documentation process was recorded in a unique way.

Perspectives: There are many ECE centres throughout Aotearoa who are providing opportunity to connect with nature on an ongoing basis. This is generally through Nature Discovery and Bush Kindergarten programmes. Many of these ECE centres are also fully engaged in the Enviroschools programme. The Enviroschools kaupapa places value on children and whānau making real connections with the whenua and particularly with the local environment.

Summary: This presentation will share how relevant and connected the kaupapa of Enviroschools is with the Bush Kindergarten/Nature Discovery Programme. It will be applicable to all educators who are familiar with Enviroschools and interested in looking at the Bush Kindy/Nature Discovery programme through the lens of the Enviroschools kaupapa.

Theme: Celebrating and Strengthening Collaboration - Early childhood education

Thursday 19 April 2018, 11:05am - 11:35am, Classroom P1 AB (seats 60)

Deconstructing Silos: Expanding Environmental Education In Secondary Schools By Implementing Collaborative Environmental Projects Across The Curriculum

Jacqueline Knight, EnviroSchools

Issue: Secondary schools typically struggle to include environmental and practical projects in their mainstream curriculum. Factors include: disconnection (theory is often disconnected from practice, teacher passion vies with curriculum requirements, student interest is also often at odds with curriculum and community requirements, environment, community and industry can be disconnected from the school), restrictions on time, siloing of subjects, high workload and staff turnover.

Mode of delivery: This session will describe how environmental and vocational learning is being implemented in mainstream school time using a programme called Cross Curricular Project Based Learning (CCPBL) in some Northland schools.

The programme involves reengaging teachers and students with their communities and environments, co-creating cross curricular projects undertaken collaboratively by teachers across departments and by teachers and schools partnering with local community, industry and environmental leaders so the teacher becomes a facilitator rather than the expert.

Data and Content: Data will be presented showing how and why the programme was developed, some examples of cross curricular models from overseas education systems and examples of collaborative cross curricular projects currently being done in a selection of Northland EnviroSchools. I will also describe the results coming through in the trial schools as well as ways the programme can be introduced in a school and an interactive activity whereby workshop participants co-construct an environmental cross curricular project.

Conclusions: I will be advocating that secondary schools introduce CCPBL to allow environmental education in secondary schools to be undertaken to a greater degree than is currently possible.

Theme: Expanding Environmental Education – Secondary, Community

Friday 20 April 2018, 10:20am - 11:20am, Classroom T22 (seats 30)

Embracing Sustainable Citizenship - Supporting The Journey Of Youth Voice

Pete Johnson and Georgina St John-Ives, Learning Through Action

Fostering kaitiakitanga, personal responsibility and sustainable citizenship. How can we encourage young New Zealanders to participate in civic processes, democracy, and have a voice? In this presentation participants will learn about an interactive education programme provided by Christchurch City Council that encourages youth to become effective citizens, and to have a strong voice for sustainability. A recent study showed that while there are many resources available to support civics learning, there is limited access to place-based and immersive programmes (Tallon, 2106).

Activities: The workshop will give an outline of the programme Ōtautahi – Our City, including the reason for its development, what we hope to achieve, and how we see it as an important component of sustainability education. Participants will be encouraged to share knowledge of civics education from their local area, then guided through an interactive exercise on creating community facilities. They will then get to feedback on the activity, and discuss why this would be a valuable exercise for students. Future developments for the programme will be shared, including a second part currently in development.

Benefits: This will be a valuable opportunity to consider how youth are supported to have a voice in New Zealand. Connecting and engaging young citizens with democratic processes helps them to understand how their views are important, and how they can have a real, significant and positive effect on their local and regional communities. The Ōtautahi – Our City programme shows one way of creating those connections in a fun and stimulating way.

Theme: Expanding Environmental Education – Youth, Community

Friday 20 April 2018, 10:20am - 11:20am, Classroom T24 (seats 30)

Perspectives On Collaboration: The Experience Of Four Enviroschools Regional Coordinators

Dana Carter, Robyn Zink, Lauree Jones, Annie McDonald, Enviroschools

Introduction: Enviroschools is a nationwide programme involving over 1000 schools and early childhood centres that aims to create a healthy, peaceful and sustainable world through facilitating action-learning. The authors coordinate the delivery of the programme in four regions of Aotearoa. This workshop will draw on their perspectives to celebrate and analyse collaborations between Enviroschools and other organisations.

Content: The workshop will explore collaborative techniques in the delivery of the Enviroschools Programme across four themes: curriculum development, regional strategy, community engagement, and school energy use. Workshop participants will be actively involved in drawing out the similarities, differences, challenges and opportunities to collaboration. Participants will then use the Action Learning Cycle to identify actions they will commit to, to enhance collaboration in their own practice or organisation.

Perspectives: Workshop participants will all have a wealth of experiences and perspectives on the value and success of collaboration. The input from the workshop will inform a puna mātauranga (pool of knowledge).

Summary: Successful collaboration between education for sustainability providers is crucial to ensuring schools receive high quality, coordinated, timely support. Providers need to know the best ways to design and deliver collaborations to ensure success. This will enable a greater number of schools to become sustainable across all areas of school life. Strategies to enhance collaboration include ensuring whakawhanaungatanga (establishing relationships, relating well to others), working with multiple organisations for cross-sector solutions, engaging with mana whenua authentically and respectfully, joint trials of resources, using online collaborative tools, and setting up education provider networks.

Theme: Celebrating and Strengthening Collaboration – Community, Environmental Education Providers, all levels of formal schooling

Friday 20 April 2018, 10:20am - 11:20am, Classroom T25 (seats 30)

Developing A Collaborative Community Approach To Conservation Education

Student representatives – Kids Greening Taupo; Thea DePetris, Kids Greening Taupo and Kerryn Penny, Department of Conservation

Background: The collaborative community approach to conservation education is an enabling framework developed to assist early childhood providers and schools with implementing programmes based on participatory and action-oriented methods. For organisations affiliated with the approach, the framework provides an authentic local opportunity to connect teachers, students, their families/whanau and community partners with the natural environment and create positive change together. Schools are found at the heart of the framework with partnering organisations supporting both learning and conservation outcomes.

The purpose of the workshop is to share and celebrate the collaborative community approach to conservation education with participants and provide real-life examples of how the model works through sharing stories and examples of work from the Kids Greening Taupō programme. As part, students themselves will be presenters.

Activities:

- Background presentation on the collaborative community approach to education and the model that supports it.
- Key components of the framework explored with interactive activities to provide participants with time to examine their own local opportunity.

Benefits: Presenters will benefit from the workshop through sharing (and receiving feedback) about their programme. It is the intended purpose of the workshop to share the model with others and encourage participants to realise the collaborative community opportunity in their community and the work they do. Participants will go away from the workshop with a good understanding of the approach and supporting framework and the practical nature of programme implementation. They will also have mapped out their possible local opportunity to utilise the framework in their community.

Theme: Celebrating and Strengthening Collaboration – Community, Environmental Education Providers, all levels of formal schooling

Friday 20 April 2018, 10:20am - 11:20am, Classroom P1 AB (seats 60)

Contributing to a shared position - Environmental Institute of Australia and New Zealand, Australian Association for Environmental Education, New Zealand Association for Environmental Education

Peta White, Deakin University and Sally Birdsall, University of Auckland

Three organisations have combined efforts to work towards developing a position paper on environmental education: Environment Institute of Australia and New Zealand Inc (EIANZ), Australian Association for Environmental Education (AAEE) and New Zealand Association for Environmental Education (NZAEE). This workshop will be the first event where contributions towards the development of the position paper are invited.

In the workshop, you will be asked to consider some of the important questions regarding our field of environmental education and to make some comments about how to proceed into the challenging time we face ahead and how environmental professionals and educators can work together for a more sustainable future. In small groups, you will contribute through conversation and some arts-based activities. Bring your philosophical and creative self and come ready to contribute to moving our field forward.

The presenters represent each of the three organisations and have been working on developing this position paper for 6 months. They will introduce with ideas already gleaned and call for participants' considerations and contributions throughout the workshop. Participation in this important workshop is positive action towards a brighter, more varied and engaged field.

Theme: Celebrating and Strengthening Collaboration - all levels of formal schooling, Environmental Education Providers, Future

Friday 20 April 2018, 10:20am - 11:55am, Classroom P1 CD (seats 60)

Marine Metre Squared: Community engaged science

Sally Carson, Otago University

Background: The Marine Metre Squared project (www.mm2.net.nz) is supporting communities to engage with their local coastline by collecting valuable data that will lead to great understanding and improved management of their local marine environment. As citizen scientists we can collect baseline information about the biodiversity, abundance and distribution of seashore species against which future change may be measured. Key to the success of this project is the uptake by schools and community groups to go beyond simply submitting data and use it as a tool to facilitate engagement in wider environmental issues.

Activities: This workshop provide an opportunity for participants to learn more about:

- The value of long term data sets
- Ways to interpret data
- Questions to ask about issues relevant to the region
- Design of further studies to answer these questions

The workshop will introduce a new app for data collection and review on-line data analysis tools. Participants will have the opportunity to explore the web site to both upload data and graph their results. Discussion will focus on data interpretation and extension of the project to address local issues and encourage stewardship and restoration projects.

Benefits: Participants will gain knowledge and confidence to participate in this nation-wide citizen science project. The benefits of extended involvement for both learning and improved coastal management will be explored. Sharing of ways that the Mm2 project has been used by communities and schools to address local issues will provide valuable examples of community engaged science.

Theme: Community, all levels of formal schooling, Environmental Education Providers

Friday 20 April 2018, 10:20am - 11:55am, Classroom P2 AB (seats 60)

He heke tuna. He heke rangatira. Te Marautanga o Ngāti Kahungunu ki Wairarapa: Curriculum in action.

Lynette Bradnam, Ngāti Kahungunu Te Paerahi, Porirua and Micaela Rutene, Gladstone Primary School, Wairarapa

Background: To share successful partnerships between Kahungunu ki Wairarapa and Gladstone school and how it has affected the Hauora of the child.

Ko te tamaiti te putake o te kaupapa

Activities: This will be an interactive session and an opportunity for participants to discuss and share ideas, tools and knowledge. The session will demonstrate the practical application of a Kahungunu purakau and its links to the KKW curriculum (Tātaiako Cultural Competencies and Ka Hikitia) and the Enviro schools curriculum.

Theme: Matauranga Māori, Primary School

Friday 20 April 2018, 10:20am - 11:55am, Classroom P2 CD (seats 60)

The Warehouse Zoofari

Sarah Morris, Wellington Zoo

Introduction: The Warehouse Zoofari takes students from low socio-economic areas on a trip of a lifetime - to one of four Zoos in Aotearoa New Zealand. Auckland Zoo, Hamilton Zoo, Wellington Zoo and Orana Wildlife Park partner with The Warehouse, an iconic retailer and local businesses to alleviate barriers to participation in unique place-based environmental education organisations. The in-store promotion raises funds for transport, educator-led programmes and snacks, and promotes a shared community vision of connectedness, appreciating the impact of immersing rangatahi in the sights, smells and noises of animals and nature that they may otherwise only see in books and videos.

Content and Perspectives: At the core of the New Zealand Curriculum is the vision “young people as lifelong learners who are confident and creative, connected, and actively involved”. Zoofari shares this vision and reflects current NZ government priorities and strategies in environmental education for sustainability. These priorities include improving outcomes for Māori and Pasifika learners, and learners from low socio-economic backgrounds. Māori and Pasifika children are over-represented in low socio-economic areas and subsequently Zoofari provides increased access to real-world conservation. A noticeably higher level of involvement is evident in the numbers and engagement of accompanying parents/caregivers on Zoofari trips, encouraging intergenerational learning and shared memory making.

Summary: Our collaborative partners in Zoofari believe that strong businesses and strong communities are mutually dependent. The programme encourages all involved to gain experience, empathy and motivation to become world citizens and critical thinkers in considering and acting upon environmental and societal issues we collectively face.

Theme: Celebrating and Strengthening Collaboration – Primary, Business

Friday 20 April 2018, 11:25am - 11:55am, Classroom T22 (seats 30)

Engaging And Mentoring Rangatahi In Conservation In A Meaningful Student Focused Way

Darren van Hoof, Zealandia

Introduction: Conservation organisations and community groups are currently expanding and growing in New Zealand and achieving outstanding results. However a key issue for long term success in all of these organisations is an aging volunteer and workforce. Allowing young people to learn, be involved and take responsibility isn't always easy but is essential for any organisation long term. This presentation will talk about the experience of ZEALANDIA in tackling this issue over the last four years and their plan to work with other organisations to build a network of young leaders.

Content: The content of this information will be split into two key areas. The first will be delivered by an Education ranger and highlight the experience and logistics from an organisational view of the ZEALANDIA programme and plan over their last four years. The second part will be a reflection from two young leaders on what needs to be done and the experience of being in a youth programme and role they feel they undertake. The entire presentation will be based on real learnings and will touch on the positives and negatives that ZEALANDIA and their rangatahi have experienced.

Perspectives: This presentation will be delivered by a ZEALANDIA educator but the majority of this presentation will be from the perspective of two young leaders and their experience of conservation and engaging youth.

Summary: This presentation will talk through the practicality of engaging, training and using youth in a meaningful way in your organisation or group. It will highlight the indisputable need for all organisations and groups to have in place a systematic process and plan for incorporating youth.

Theme: Celebrating and Strengthening Collaboration - Youth

Friday 20 April 2018, 11:25am - 11:55am, Classroom T24 (seats 30)

Empowering Students, Teachers And Communities In Conservation: A Review Of The Cape To City Environmental Education Programme

Melissa Brignall-Thayer, Megan McBride and Robyn McCool, Department of Conservation; Stephen Flood, Landcare Research

Background: Cape to City is a Hawke's Bay based landscape-scale restoration project, established in 2015, bringing together public and private conservation efforts to create a positive difference for New Zealand's native biodiversity. This presentation demonstrates the impact and effectiveness of the environmental education component of the project to date.

Methods: The research measures changes in learner and teacher knowledge acquisition, attitudes and behaviours. Questionnaire results and follow-up interviews with teachers involved in the environmental education programme, and visual representations created by students under teacher guidance, provide the basis for the analysis. A control sample is also included in the analysis to validate results.

Aims: The research aims to frame attitudinal, knowledge and behavioural changes in learners and teachers achieved by the environmental education programme within the broader school curriculum, through integration with the New Zealand curriculum key competencies.

Results: Results suggest the programme has met or exceeded expectations in overall effectiveness. The research demonstrates marked increases in knowledge held about conservation and biodiversity across teacher and student programme participant populations, an increase in the level of care or concern for native biodiversity, and a clear willingness to act for biodiversity across the twenty schools involved in the programme across the Hawke's Bay region. The research also establishes that the Cape to City environmental education programme has increased teacher capability and capacity by expanding networks with other experts and individuals in their communities. A set of practices and actions to help foster a self-sustaining model of environmental education is also presented.

Theme: Celebrating and Strengthening Collaboration – Community, all levels of formal schooling

Friday 20 April 2018, 11:25am - 11:55am, Classroom T25 (seats 30)

Schools And Community Engagement In Science: Expanding A Sustainable Focus

Presenting: Virginia Baker, ESR (Institute of Environmental Science Research Ltd)

Non presenting: J. Ataria, Cawthron Institute; J. Horswell, E.R. Langer and A. Leckie, Scion

Introduction: This topic addresses the conference theme of expanding environmental education, focusing on the challenges of working with schools to tackle 'wicked problems' of human impacts upon the environment, specifically waste and water quality issues.

Content: Reflecting on the patterns of engagement in the Institute of Environmental Science and Research, (ESR) science outreach work with schools and NGOs, we ask what different arrangements are needed to support and sustain long-term and multi-pronged actions required to address the scale of the environmental issues we confront.

Perspectives: Science organizations, government agencies and NGOs increasingly see schools as 'gateways' to communities for building science impact, literacy and uptake. The new curriculum discovery learning approaches offer opportunities to work with future generations to orient a deeper focus on environmental science and to support local sustainability activities. In reality though, the connections with schools can be short and sharp, driven by teacher requests, a laboratory tour, or presenting a booth at career expo days. We look at the different perspectives that inform the way that science organizations aspire to engage with schools, including positioning students as 'agents of change' and 'collaborative learning' approaches to build synergistic benefits for society and the environment.

Summary: We ask what institutional capacities, policy arrangements and new 'communities of practice' are needed to make progress towards better equipping current and future generations to deal with 'wicked problems' and the design of multi-scaled collaborative approaches for sustainable environments and healthy communities.

Theme: Expanding Environmental Education - all levels of formal schooling, Environmental Education Providers

Friday 20 April 2018, 11:25am - 11:55am, Classroom P1 AB (seats 60)