

National Marine and Freshwater Wānanga Conference Proceedings



**Whananaki 2015
Whakapaumahara Marae**



National Marine and Freshwater Education Wānanga Conference 2015

Saturday 11th – Monday 13th April, 2015 - Northland

Whakapaumahara Marae – Whananaki – Northland

Catering by NUTRITIOUS & DELICIOUS (Maria Lawton)

Hosted by Te whānau whero

Theme

"HOW TO.....for marine and freshwater conservation action and/or education"

Purpose

An inspirational professional development and networking opportunity for all those involved or interested in freshwater and marine conservation.

Objectives

- ⋄ Provide a forum for marine and freshwater educators to network about education for sustainability initiatives and projects around science communication
- ⋄ Provide professional development opportunities
- ⋄ Provide a forum to discuss the effectiveness of existing and potential partnerships that foster action for marine and freshwater conservation
- ⋄ Ensure strong delivery of the Experiencing Marine Reserves (EMR) and Whitebait Connection (WBC) concepts around New Zealand
- ⋄ Raise the profile and value of conservation action "engagement" with a wide range of stakeholders

Previous 2014 wānanga proceedings http://www.emr.org.nz/information.php?info_id=99
[Wānanga promotional video](#)



Snorkelling on field trip- Andrew Penniket

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Friday 10th October – Coordinator Training/meeting & team building

[Link to coordinator meeting notes](#)



EMR/WBC Coordinators team building

Official Start - all participants

Saturday 11th April – DAY ONE

Powhiri and local orientation from Te whānau whero – Jiggs Ngawaka



Introductions

Name	Organisation	What people want from wānanga	Favorite freshwater and/or marine species	Email contact
<i>Kim Jones</i>	Mountains to Sea Conservation Trust (MTSCT)- Whitebait Connection (WBC) National Coordinator	Connecting and sharing, moving forward, implementation	Leatherjacket	kim@emr.org.nz
<i>Samara Nicholas</i>	Mountains to Sea Conservation Trust - Programme Director/National Experiencing Marine Reserves (EMR) coordinator			samara@emr.org.nz
<i>Sarah Neighbours</i>	EMR/WBC Wellington - Island Bay Marine Education Centre	Learn more and meet people	Leatherjacket, eel	intrepid.sarah@gmail.com
<i>Zoe Studd</i>	EMR/WBC Wellington - Island Bay Marine Education Centre	Inspiring, meet people	Eels, rig shark	zoe.studd@octopus.org.nz
<i>Pat Hoffmann</i>	Environment Southland	Looking at learning more about marine education	Chiton	pat.hoffmann@es.govt.nz
<i>Lorna Hefford</i>	EMR Auckland	Learn more about freshwater side	Sea hare, hermit crab	lorna.hefford@gmail.com

<i>Debbie Leeming</i>	Teacher Royal Society Science fellow	Learn about science that is happening and encourage her school	Sting-ray	patanddebs@extra.co.nz
<i>Wendy Sullivan</i>	Department of Conservation (DOC)	Learn new techniques in marine education	Hump back whale	wsullivan@doc.govt.nz
<i>Fiona Gordon</i>	DOC	Learn about other peoples' work	Painted shrimp	figordon@doc.govt.nz
<i>Marty Taylor</i>	Papa Taiao Earthcare	meet people and connect, exchange of what people do,	Mudfish, paua	mardtaylor@gmail.com
<i>Valerie Bianchi</i>	University of Waikato – masters student	Learn from some new people, inspiration	Gannet	valeriebianchi@gmail.com
<i>Krista Lindquist</i>		See what's happening in the marine world	Starfish	kristalindqvist@hotmail.com
<i>Harriet Thomas</i>	EMR/WBC Northland			harriet.thomas64@gmail.com
<i>Sophie Tweddle</i>	Auckland council – Enviro Programmes	Meet people	Wood cased cadisfly	sophie.tweddle@aucklandcouncil.govt.nz
<i>Megan Wilson</i>	EMR Nelson	Re-motivation and learning	Triplefin	meganw@parklands.school.nz
<i>Jim Fyfe</i>	EMR supporter - Dunedin	Sharing and getting re-inspired about love of the marine environment, networking	NZ sea lion	jfyfe@doc.govt.nz
<i>Andrew Penniket</i>	EMR Otago	Learn about marine education	Crayfish, koura	andrew@deepandmeaningful.co.nz
<i>Mike Tapp</i>	DOC & EMR Taranaki	how they can increase what they do with the resources they have	Jack mackerel	mtapp@doc.govt.nz
<i>Pat Swanson</i>	EMR Taranaki	Create a strategy for delivering EMR	John dory	patanddebs@extra.co.nz

		in Taranaki		
<i>Te Kauri McPherson</i>	Pau Herenga Tangata – Kaiawhina/Supervisor	Learn about everything and anything	Sting-ray	tk@heiwi.co.nz
<i>Joseph Brown</i>	Pou Herenga Tangata – student	Learn new things and more experience about marine life	Eels	tk@heiwi.co.nz
<i>Ryanne Haika</i>	EMR apprentice, Te Kura Hourua ki Whangaruru			ryanne.thaika@tkhkwhangaruru.school.nz
<i>Julie Holt</i>	Enviroschools			Julie.holt@extra.co.nz
<i>Nina Pivac</i>	Northtec Student	Get people excited about black mudfish	Green sea turtle	npivac@windowslive.com
<i>Nick Shears</i>	University of Auckland	Build connection with science and conveying to marine educators and public	Kina	n.shears@auckland.ac.nz
<i>Fred Lichtwark</i>	Whaingaroa Harbour Care	Impart information	Maui dolphin, whitebait	fred@harbourcare.co.nz
<i>Sioux Campbell</i>	MTSCT	Support	Pelicans	chameleon.1@hotmail.com.au
<i>Dan Godoy</i>	Massey University	To share his knowledge,	Toroa, kingfish	D.A.Godoy@massey.ac.nz
<i>Ripley Dean</i>	EMR volunteer, DOC contractor			ripleywd@gmail.com
<i>Alex Hughey</i>	Student – Baradene College	Learn about marine science	Angler-fish	alexlovesyouuuu@gmail.com
<i>Waitangi Woods</i>	Tau Iho I Te Po Trust			waicommunications@gmail.com
<i>Marie Jordan</i>	DOC Whangarei			mjordan@doc.govt.nz
<i>Kelly Moselen</i>	EMR trainee coordinator	Getting inspired about what she can do and pass on	Squid	mskelmoz@yahoo.com
<i>Alastair White</i>	EMR trainee support coordinator	Become more involved in marine environment,		whitehouse34@hotmail.com

		enjoyed past snorkel experience		
<i>Carren Walker</i>	Whangarei Intermediate School	Teach kids what she has learnt in the classroom	Likes everything	carren.walker@wis.ac.nz
<i>Oliver Vetter</i>	Sustainable Coastlines	Meet people, learn about marine and freshwater education	Eeltrevally	oliver@sustainablecoastlines.org.nz
<i>Roger Grace</i>	MTSCT	Meeting everyone and discussing MR	Polychete worm (new species), long finned eel mangroves	rogagrace@gmail.com
<i>Fran Powell</i>	Bream Bay College	Learn lots to add to school education, bring back to her school	Crayfish, eel	fpowell@breambaycollege.school.nz
<i>Soozee McIntyre</i>	WBC	Sharing, local connections,	Kuta	awasoo108@gmail.com
<i>Jasmine Pirini</i>	WBC – EMR trainee	Expand on marine learning, meet people	Woody cased cadisfly	owhainga@xtra.co.nz
<i>Hilton Leith</i>	MTSCT chair			handm@xtra.co.nz
<i>Jiggs Ngawhaka</i>	Te Whanau Whero			
<i>Tracey Mita</i>	Te Whanau Whero	Learn about flood protection		
<i>Rodney Ngawaka</i>	Te Whanau Whero	Pathway forward around kaitiakitanga, taniwha	Stingray	kawawairua@gmail.co.nz
<i>Kristi Henare</i>	Kiwi Conservation Club, Forest and Bird – Northland	Meet people and get ideas! Hear about others' success and what is available in community and school, networking	Mangroves, longfin eel, kina	kristihenare.forestandbird@yahoo.co.nz
<i>Hana Cumming</i>		Learn and connect	Leatherjacket	hanarose.c@gmail.com

<i>Zayne Johnston</i>		Poor knights trip	Bull shark	
<i>Milli-Ana</i>		Go snorkeling at poor knights	Star fish	
<i>Nicki Wakefield</i>		Support the visitors and the team, her kids		nicki@emr.org.nz
<i>Ivy and Molly Taylor</i>		Here because she has to be =)	Dolphin	



Whangarei Harbour Marine Reserve- Andrew Penniket

Marine Keynote address - Dan Godoy



“How to learn from marine turtle research and conservation”

[Link to presentation](#)

Dan started his research over 10 years ago and currently works at Kelly Tarlton’s and is finishing up his PhD looking at the ecology and conservation of green turtles in New Zealand.

Until recently, knowledge surrounding turtle rehabilitation was very limited and there was no structured program for dealing with turtle strandings. It was not known where the turtles were coming from, why they were here and whether they would survive after rehabilitation.

It was found that at least one third of turtle strandings were a result of human impact such as ship strike and ingestion of plastics. Ingestion of plastic has been raised as a huge issue because turtle species consume the plastic as food. Dan showed some disturbing images of turtle stomachs completely full of plastic. This is a shame that these critically endangered animals are dying as a direct result of our actions as human beings.

Education surrounding turtle strandings is important as the initial response will have a huge part to play in whether or not the individual survives. The beach is the last place a turtle wants to be, so if there is a stranding there is a good reason why they are not in the ocean and stranded turtles should therefore not be put back in the sea. Dan highlighted the importance in community involvement as he relies on members of the public to report strandings. The fact that sightings have tripled in the last three years highlights this importance of community involvement. Additionally, in the past, there were about 6-7 strandings reported a year with only one or two surviving. Now, thanks to the quick response of the communities (a response in first 24 hours is needed) there is approximately a 70-80% survival rate.

Strandings were found to peak in summer and spring but occur all year round. Dan is currently trying to tease out which factors are affecting their presence in our waters such as temperature, ENSO etc. The majority of sightings are of older juveniles which are not sexually mature that are feeding in New Zealand all year round. They are opportunistic predators with an omnivorous diet.

It was always thought that the population of green turtles in New Zealand waters originated in the south western Pacific but it has been shown that the majority of individuals are actually coming from the Galapagos Islands. To breed, the turtles need a high consistent incubation temperature for two months and they return to their own hatching site, so the likelihood of new populations breeding in new areas such as New Zealand is very low.

With a rehabilitation programme developed, it was important for Dan to determine whether or not the turtles actually survived upon release into the ocean. Satellite tracking devices were

attached to two turtles that had been rehabilitated at Kelly Tarltons. These individuals were released in the Kermadecs as an exercise to see where they would go and if they would survive. The tag lasted 3 months, showing that the rehabilitation programme was worth the time and money. This exercise showed that instead of going North as was originally expected, these particular turtles came straight back down to northern New Zealand.

Dan also shared with us some of the highlights of his career with local communities and children and how important it is for our future to empower the children to take action and be a part of it.

Mountains to Sea Conservation Trust



Samara Nicholas - Experiencing Marine Reserves

[Link to presentation](#)

Samara's journey started here in Whananaki where she worked on a marine reserve proposal at high school and went on to establish EMR which is a brand of the Mountains to Sea Conservation Trust. The goal of this trust is to raise awareness in schools and communities in marine conservation.

EMR is growing every year and is currently active in 8 different regions. EMR has begun an internship programme to get kids more actively involved and is currently looking at expanding to Australia.

The kaupapa of EMR starts in the classroom, educating kids about their local marine environment. Education is then taken out into the field where kids snorkel in their local area and then in a marine reserve. EMR is about inspiring and taking action and has a clear focus on good safety practices.

EMR is also focused on parent and community involvement and communities are encouraged to take action beyond the classroom. More funding over the last year has enabled an increase in community guided snorkel days as well as engaging with more community groups such as disabled groups and rest homes.

EMR is aiming to engage on more than one level, reaching the wider community through articles and events such as the boat show. All in all it is all about the people, getting them engaged and getting kids in the water.



Kim Jones: Whitebait Connection

[Link to presentation](#)

Whitebait Connection is focused on raising awareness around the lifecycle of whitebait. They have a connection to all of us as we live in their catchments and have multiple impacts on their survival

Whitebait is the juvenile form of New Zealand freshwater fish and four out of the five whitebait species are in current decline. They spend part of their lives in the marine environment and the other part

in freshwater. For example, Inanga lay eggs in brackish waters on the banks and spend a month out of water. Once hatched, they move to the harbor then in spring time they migrate back up stream until spawning time.

Many areas where Inanga lay their eggs have been highly modified by humans and these areas now pose risks such as high sun exposure, trampling of and pollution which directly effects the survival of their eggs.

Whitebait connection works with community groups and schools to find spawning areas to ensure protection and successful spawning.

“Learning in about and for” following through with an action

Not just about whitebait but a good place to start. There is a great need to conserve whitebait as there is very little protection. There are no catch limits on how many you can take, just limits on the type of equipment used and time of year you can catch them.

Riparian restoration, pollution mitigation and identifying barriers to fish migration are all key aspects of the work they do. Carry out ongoing monitoring programs to measure the health of local waterways. Much work is carried out in collaboration with other groups.

Show and Tell

Nina Pivac: Black mudfish

[Link to presentation](#)

The black mudfish are a native threatened freshwater species that are restricted to wetlands.

Wairua river wildlife management reserve contains habitat for mudfish and previous studies have monitored their distribution and abundance within this area. It was previously thought that mudfish preferred habitat with manuka cover however results show no evidence to support this as mudfish were found throughout the wetland.

So far there is no evidence of increased mudfish numbers since the removal of cattle from the wetland however, there has been a significant decrease in gambusia. Never the less there appears to be no association with gambusia and mudfish abundance.

Nina is still early on in her study and currently has no results, however she aims to determine if wetland condition determines abundance and if they can be used as an indicator. She is also looking at the effects of a wide range of other human impacts.

Wendy Sullivan: SMART course

[Link to presentation](#)

Wendy noticed that marine mammals were getting disturbed by boats in Kaikoura and she wanted to decrease this impact. She developed a training course called SMART for commercial operators, skippers and guides.

This training course is set to run annually and has been developed to be applicable for other regions in the country to use with minimal adjustment.

Had a good response and feedback from the course and had good results, seeing changes in behavior of boat operators. However it was unfortunately not as successful with recreational operators.

Pat Hoffmann: Enviroscape model

[Link to presentation](#)

Enviroscape model is a plastic model with flowing water to help people understand what a catchment is, pollution sources and storm water pathways. It is used in schools for teaching catchment concepts and demonstrating how land use affects water quality.

Kids are able to design the landscape by placing objects on the model such as trees, cars, houses etc. Food colouring or cocoa powder is then used to represent different pollutants and can be put on the model where they would occur. A rainstorm is then created using water bottles to see the contaminants making their way to waterways. It is a very good visual way to demonstrate how land use can affect waterways. Following the demonstration using the model students are encouraged to think of ways to mitigate and prevent contamination.

Dr Roger Grace: No Take Marine Reserves

[Link to presentation](#)

In the Bay of Plenty, many marine issues are not being addressed. There needs to be a marine spatial plan to encompass biodiversity protection and fishery impacts. It is the responsibility of councils



to protect the environment and this should include mitigation of fishing impacts. Not enough of the seas are being protected and predatory fish are the ones being preferentially taken out of the ecosystem which upsets the ecological balance and leads to trophic cascades

Snapper have been reduced to only 10% of prefished biomass in the Bay of plenty. Tawharanui monitoring has seen a huge increase in crayfish abundance, nearly 1000 per ha

We need to be looking at marine reserve networks, not just single areas, with the key considerations being representation

and replication. They also need to be a good design and must be able to be self-sustaining. We need to be thinking at much larger scales to reach a goal of 10% of our seas as marine reserves. There has been an exclusion zone at Astrolabe Reef around the wreck of the Rena for the past three years due to safety reasons. It would be great to roll over this exclusion zone to more long term protection as recovery of marine life from many years of fishing has started. It would be a pity to squander that recovery by re-opening it to [Also see Roger's document on why we need no-take marine reserves](#)

[Also refer to Dr Bill Ballantine's - Fifty years on - lessons from NZ Marine Reserves](#)

Oliver: Sustainable Coastlines

[Check out the website](#)

Hands on environmental education Have tool for public to use to run own beach clean up

“Love your coast” & “love your water”

[WBC is teaming up with Sustainable Coastlines for a planting event in Whangarei](#)

Keynote Address



Nick Shears: How marine reserves are a way of protection from fishing

[Link to presentation](#)

Humans impact marine ecosystems in diverse ways, so why just protect against fishing in our marine protected areas?

Fishing has the most widespread and historical impact on the marine environment and is important for the livelihoods of many people as well as cultural and recreational reasons but most significantly is viewed by the majority as a “right”.

Fishing occurs on a huge scale in the Hauraki Gulf. The number of species being fished is ever increasing and the methods being used are continually diversifying and increasing in efficiency. The Quota Management System (QMS) used in New Zealand aims to keep stocks at 25% of historic estimates. However for the majority of fin fish stocks in New Zealand the biomass estimate is not known. There is no baseline data to be able to maintain the stock at, above or below the target level.

Fishing has direct impacts on the target population as well as indirect effects that flow on through the food chain, as well as the impact of physical disturbance through activities such as dredging. There are many ways to manage these impacts however the most obvious solution is simply not to fish everywhere, to leave some places untouched. Fishing impacts are much easier to manage than other impacts simply by just not fishing which is why this impact is addressed more often than other impacts such as pollution. Although this seems a simple and obvious solution, marine reserves only cover 0.3% of the Hauraki Gulf.

The first reserve was established in Leigh in 1975 for scientific purposes and has been used to a model to understand the effects of fishing. For example urchin barrens were originally thought to be a natural part of the environment however, is it now obvious that this is not the case. Goat Island Marine reserve has shown that reserves are able to reverse the impacts of fishing and we now have a very good understanding of what happens when you stop fishing.

The clear increase of snapper numbers and size classes is a direct effect of marine reserve establishment and is widely shown across most marine reserves in North Eastern New Zealand. Further, genetic study showed that these relatively small marine reserves are contributing to the wider Hauraki Gulf stock.

These same trends have been seen with crayfish, however there are many fluctuations in abundance due to fishing on the boundary (big crayfish move out onto the sand and get caught which is an indication that reserve is not large enough).

Indirect effects of marine reserves are also clear with the urchin barren story the most obvious example. These urchin barrens which were originally thought to be a natural phenomenon have disappeared within reserves due to an increase in predators. This in turn allowed kelp forests to regenerate providing an excellent example of what is commonly called a trophic cascade and highlighting the ecosystem effects that marine reserves can have.

This trend also occurs at other reserves (Tawharanui and Hahei) and can be clearly seen from space. Nevertheless, this effect doesn't occur everywhere as it is substrate dependent as there are some large areas of coast where urchins don't proliferate. Additionally, depth ranges for kina (sea urchin) vary with wave exposure, and tend to move down with increased exposure, highlighting that this change as a result of a marine reserve should not be expected everywhere.

When establishing a marine reserve, the change that will be expected will depend on what is fished in that area and habitat. Additionally the marine reserve needs to be of adequate size and appropriate design.

Design of a Marine Reserves is important, because the effects and values are dependent on them being adequately designed. Size is also important. They need to be large enough (minimum 5km of coast and 1km offshore) to create networks.

Keynote Address



Fred Litchwark: Whaingaroa Harbor Care

[Link to presentation](#)

Fred is an ex-farmer and ex-fisherman, however long term injuries forced him to look into different ways to spend his time and make some money. Bad fisheries management within the Whaingaroa harbour inspired him. The harbor had no fish, no shellfish and was thick with mud. Initially a reseedling program for shellfish was carried out however this was unsuccessful due to smothering by sediment after rain events.

Fred recognized that the change needed to start on the land in order to make any significant changes within the harbor. He established a nursery growing native plants for as low cost as possible and provided them to the farmers to plant out the riparian margin of their streams.

Livestock were allowed in the waterways and farmers were losing stock through them getting stuck and getting sick from drinking their own dirty water. Initially the farmers were not interested in change so Fred approached the council and utilized a council farm to demonstrate the effects and the benefits to the farmers. He fenced off the waterways and planted out the riparian zone. As a result of this, a third of the property was unusable for grazing. However, regardless of this an increase in cattle numbers was seen. This is due to having healthier animals from drinking clean rather than polluted water, less deaths and better quality pasture due to higher retention of fertilizer.

This was such a success that now all beef farmers in the area have fenced and planted all of their waterways from the mountains all the way down to the sea. Fred now has a pumping business growing seedlings with very high demand. The farmers in the area are now advocating for these changes as it essentially increases their productivity and increases their profit. There has now been a massive shift in the community as to how to look after their waterways.

The streams have seen a huge return in freshwater fish numbers from something that was once a useless storm drain. In terms of the harbor, there have been significant changes with a massive reduction in the sediment load, seagrass beds starting to come back and the return of shellfish to the harbor. Cockles have hugely increased in numbers as a result of silt reduction and can filter 200L of water per hour creating good clarity within the harbour. Fish numbers are also thought to have been improved. These changes have taken place only over the short time period of ten years, highlighting the need to do upstream management of catchments in order to see changes in the marine environment.

Fred has a hands off method of planting. With manuka planted in PVC pots, which are planted directly in the soil and without spray or mulch, once established the bird life will come and spread the other seeds.

Can't leave it to the suits!

Show n Tell Continued ...

Lorna Hefford: EMR

[Link to presentation](#)

Manukau harbor has an interesting history. Waste meat production used to be pumped straight into the harbor along with untreated sewage and there has been huge modification of the coastline through the establishment of roads etc. The harbor is a turbid and tidal environment and therefore not suitable for carrying out the normal guided community snorkel day for that area. Instead they tried out something different, and carried out a beach clean and soft sediment sampling as well as water testing of the streams entering the harbor at the chosen site.

Estuaries act as nurseries for juvenile fish and the shell fish within them act as filter feeders. But high sediment load blocks their gills.

We had a Community Guided Snorkel Day planned for the viaduct, however this was cancelled due to water conditions being unfit for swimming - every time it rains sewage from storm water overflows directly enters the harbor. However on a previous snorkel to check out the site some surprisingly good marine life was found including sponges, mussels, parore, sting rays and triplefins, as well as a huge abundance of the invasive mediterranean fanworm (100per sq mt).

Andrew Penniket: EMR/Photographer

Andrew talked about the filming he carried out at Goat Island Marine Reserve in the early days, following the work of Alison MacDiarmid. The establishment of the Goat Island Marine Reserve provided opportunity to study crayfish behavior that hadn't been seen before. Andrew showed some very cool footage of their behavior including a video of the crayfish spawning. This was found to occur only once a year for about 10 days in spring and was found to occur just before dawn when the species are the least vulnerable from predation. This is important as their method of spawning involves releasing the eggs from underneath their tail and are therefore very exposed during this process.

Larvae were found to be the size of your fingernail and spend over a year in the water column, moving around on jellyfish!

This study shows the importance of marine reserves as there is an exponential increase in egg production with age where crayfish start reproducing at around 5 years of age. However this is around the time that crayfish are of legal size to catch which implies that marine reserves may be the only place crayfish are able to breed and reproduce. This exponential curve in reproduction is the same for many other species also.

Marty Taylor: Papa Taiao

[Link to presentation](#)

Marty has worked to shape standards that can be used in secondary schools. This has overcome the difficulty in teaching students about the environment and conservation as there is now an accreditation available.

One of his projects is Project Possum, where students participate in a skills workshop in the trapping and skinning of possums. The students must develop an enterprise to make money from the fur/skins. So as well as getting the unit standards essential life skills are fostered.

Another project is Wai-restoration where students learn how to erect fencing around waterways, how to raise the seedlings and then plant them. They are also taught how to maintain the riparian planting. There has been great feedback for these courses.

Marty is wanting to develop a Moana Restoration course also

Harriet Thomas: Whitebait Connection/ EMR: Check Clean Dry

[Link to presentation](#)

Harriet reminded us of the importance of check, clean, dry to prevent pest species from getting from one waterway to another.

The hard part is how to get the check clean dry message across. Harriet proposed the need to encourage positive habits, by making the process second nature people will begin to be think for themselves. However the difficulty is getting to this point.

Often one can feel alone and feel like their actions to ensure this principle won't make a difference as there is always going to be someone not doing it so what's the point of me doing it? However if everybody thought that way nothing would change. Harriet raised an interesting analogy of this feeling like the only one doing something where if there are lots of "nobodies" out there then maybe we are somebody.

Nobody's rivers, everybody's legacy.

Evening Spotlighting activity

Armed with head torches the brave ones ventured across the road through a paddock to Te Wairahi stream. We saw shortfin eel, bullies and inanga.



Sunday 12th April – DAY TWO

Facilitated workshop – HOW TO facilitate with Sioux Campbell

Sioux Campbell: Facilitation and Leadership

Sioux is currently living in Queensland and is involved in disaster management of which a large part of her job is to work with and communicate with the local community. Sioux ran a facilitation workshop provide tools for facilitating learning and engagement with the people we work with and how to grow learning.

There were a number of skills of good facilitator that we all came up with, these included:

- Need to know their audience
- Be a good listener
- Able to bring people back to the task
- Timekeeping! Being fair and giving enough time
- Clear intentions
- Atmosphere of trust and participation
- Being able to link common and uncommon things
- Non judgmental
- Making sure everyone has a voice
- Supporting and guiding
- Clear overall goals and objectives

- Keeping on track whilst allowing flexibility
- All ideas contribute, what everybody brings is useful

As a facilitator: Learn about yourself and the way you do things

- Setup
- Brief
- Might not know a lot about subject
- Reacting on personal level?
- Strong opinions?

“Be careful of your thoughts. They may become words at any minute”

Confidence equates control, the trick is to guide without putting people down. Nobody is right or wrong. An objective of the session needs to be clearly stated on the wall for all to see. These clear objectives alongside goals pre facilitation aids reflection and evaluation of the activity.

Outline what you are doing:

- Templates (e.g. trusts)
- E.g. DOC templates (event planning DOC DM #154703)
- Plan. Plan. Plan. = happiness
- Reference documents
- Appropriate for event. e.g. meeting agenda and sub plans for difficult discussions

A facilitator needs to keep purpose of wider programme in mind and engage people to develop certain actions and engage in the activity. People still need to have a background knowledge to be effectively engaged and make an informed decision. Don't hide information.

Develop an FAQ to ask “dumb” (but smart) questions when providing background information. Remember a facilitator needs to keep informed about wider world and what is going on but you don't need to need to be a subject matter expert.

Workshops create networking opportunities and allow you to keep a wide context. The workshops need to be able to be adapted for each situation that presents.

Group work:

- Mix and mingle groups to exchange ideas/ perspectives
- Moving dominant individuals around groups
- Allocate time for each subject / activity

Evaluation

- Quality
- Quantity
- Guarantee a robust process but not an outcome
- Process = an invitation / suggestion
- Ensure participants have a fair say and can be heard



Working in group activities

Sioux highlighted that it is important to learn about yourself and the way that you do things. Remembering that you are in control and being aware of where you are at and how you bring that to the table. During

some kind of a facilitation task, be it at a workshop or a meeting or whatever it can be easy to be diverted. It is OK to some extent but it is important to always come back to the topic and objectives. To do this it is important to have a plan and to ensure that the plan is appropriate for the event (DOC has good resources: Event Planning Checklist 154703, Book: *Fostering Sustainable Behaviour* By, Doug McKenzie - Mohr

Ultimately it is about the people. People need enough information to be effectively engaged and to allow them to be able to have an informed opinion. It is important to supply enough information and not leave information out so that people can feel involved. Even if someone doesn't agree with what's going on it is important that they are being heard and it is important to be open to receive that information. Overall it is about ensuring the quality of the facilitation event and making sure that everyone is heard and everyone has learnt something. It is more important to have a few people getting 100% out of the event than 100 people not getting much at all.

For the individual, networking and understanding is important to keep informed about the wider world and other things going on around you to ensure you are not reliant on what people chose to tell you.

Sioux facilitated a group activity where there were four groups that mixed up each round so that people weren't in the same groups all day. This is a good technique to get around social groupings and avoid getting stuck with certain people. We were to write down what everybody says and not debate or question it as we were there to contribute ideas. [Check out Sioux's facilitation and Leadership tips](#)

Topics:

- Experiences with working with tangata whenua
 - developing positive partnerships and identifying who those partnerships are going to be with
 - The challenge, being perceived as ignorant, fear of doing or saying the wrong thing
 - Recognizing cultural divides, saw lots of opportunities rather than barriers
- Ideas for sea week world wetlands day
 - Mountains to sea bus trip, illustrating connectivity
 - Marine reserves bus tour, snorkel flash mob
 - Connecting with sporting events (SUP events, waka ama)
 - Wetland amazing race
- Best and worst of facilitation and running events
 - Evaluation: How much you spend, how well it went and did it benefit to anyone or anything (important question)
 - Clear indications and starting from the ground, do your home work
 - Relationships
- Resources and identify the gaps
 - People
 - Face to face working very valuable
 - Quality of resources versus quantity, further support and follow up, no point putting all the time into education etc into people without following up on that
 - Teaching people to survive with the basics

Seaweek and World wetland, World Oceans Day

- Rock Pool explore
- Wetland amazing race
 - Over a year along Te Araroa Trail. See impacts i.e. drinking water
 - Rogaine style. Wetland treats/ values related. Activities, point with each
- Habitat improvement
 - work day (fence, plant etc)
- Species displays
 - ID the animal games
- Guerilla “gardening”
 - seed bombs
- “Berm Busters”, Plant up berms
- Sand Castle Comp
- Beach clean-ups
- Marine Reserve bus tour
- Snorkel Flash mob!!!
- Snorkel / kayak
- Mountains to sea kayak / bus trip
 - Activities along stream illustrate connectivity
 - involve councils
- Aerial tours of catchment
 - flights / helicopters
- Egg hunts
- Food
- Night events
 - Spotlight/ survey
- S.U.P Event in mangroves
 - Race (tidal?)
 - Guided tour
 - Waka ama
- Explore biodiversity in local spots (i.e. Drains)
- Trail to highlight journey of fish + catchment connectivity
- Use sporting events to leverage / engage
- Engage people in these systems to see values
- Getting amongst it!
- Environmental field days
- Finding ways to bridge recreational and conservation interests
 - spearfishing catfish
 - Spear and photo comp (with certain criteria on number and diversity of fish speared)
- Events featuring science and culture
- Engaging people outside the ‘normal’ audience
 - Facebook advertising
 - social media
- Wetlands tours
- Music event / festival

- Indigenous tours
- Visiting special places
- Restoration events / engagement
 - workshops (fencing...)
- Local, national and global themes
- BioBlitz (Identifying flora / fauna in area)
- Recycled raft race
- Engaging commercial fishers and farmers
- Urban Marine Meters Squared and beach clean up
- Marine theme and lecture at museums and local institutions
- Local community projects (e.g. penguin box building)
- Plastic
 - Youth survey a community to ascertain if resident would still shop there is no plastic bags
 - No plastic bags day
 - Ban loom bands
 - High school project to chase loom bands through waterways
 - life cycle of e.g. loom band
 - lobby around plastic bag use.
 - campaign: bring back the flax kete
 - remove rubbish bins
 - key messages on calico bags
 - drink water free of plastic bottles campaign
 - competition on reusing / upcycling plastic bags + displayed
 - Photos of people shopping with their reusable shopping bags / workshop
 - DIY shopping bag / series of photos using this other than plastic bags
 - Events- BYO cups / plates
 - Poster competition to reduce supermarket plastic bags to be displayed in supermarkets. Blog progress
 - Pictures on plastic bottles etc of animals affected by plastic
 - Virtual bottle, messages to country of origin
- Pledge to create a wetland
- Give seed out to lots of people
- Drone observing giant whitebait game (world record for participation)
- Catchment clean-up at the top with message that it hits the bottom
- Beach clean-ups
- Community Project Jonah type event
- Guided snorkelling / kayak events (EMR model)
- Guest Speakers
- Movie nights
- Fancy dress dinner in theme to fundraise
- Related wearable arts event (eg. On aqua event)
- Setting up a challenge with / between schools
- Guinness Book of Record to grab attention of national thing
- Corporates as volunteers
- Environmental Amazing Race
 - run from a website and limited to community groups over a set time

- Enviro TedX / Leamz
- Social media
 - e.g. text bomb, Facebook (i.e. advertising), Twitter, supermarket
- Related Pecha kucha events
- Public movie night
- A theme for Maturanga Maori developing your own cultural health indicators
- Post cards
- Sports involving special places (e.g. waka ama)
- Food festivals
- Community Art
 - Velvet the Eel fabric mural
 - Coast Cards- what people value in marine environ, competition
- Events that involve thangata whenua
- Building partnerships collaboration
- Work in the past
 - go with kaumatua to hear stories

Topic: Best and Worst facilitation

Best	Worst
-Established relationships	-Workshops / activities with no / low attendance
-Groundwork	-Too much reliability on technology
-Compromise	-“Consultation” - Consult. Insult. Assault.
-Identify honest barriers	-Anti - environment people not open to change
-Clear intentions	-Lack of consultation due to lack of funding
-Reciprocal relationships	-Reaching into new communities and not reaching everyone
-Evaluation -How much? How well? Is anything / anyone better off?	- Not having enough planning time or funding security
-Define objectives and what success will look like so you can evaluate it	-Piggybacking on existing events sometimes not worth it as people are there for other reasons...Is it worth it \$\$ etc.
-Have a guaranteed audience	-Check dates for other events- audience may be too busy.
-Never cancel an event (within H&S guidelines)	-No connection with audience
-Empowering communities to drive events themselves with your support	-Events where people / organiser talk at you, lecturing you.
-Organising group has control over the whole thing - strong leadership	-Participants don't listen, dangerous
-Try new things, know target audience, and survey people you usually wouldn't.	-Language barrier
-Good collaboration and consultation	-Participants starting on a bad note
-Preparation of audience, e.g. background info	-Parents on EMR trip... kids still had fun time
-Organising team	-No bare feet and gloves, turning
-Flexibility - Plan A, B, C	
-Evolving programmes- finding a formula that works	
-Events that involve 'doing', not just	

<p>listening</p> <ul style="list-style-type: none"> -Have a vision that is open to participation - Long term funding security -Annual events, e.g. organisers / stakeholders breakfast... brainstorming ideas for the event. -Interesting and relevant- e.g. (a) Pukekohe Community: food, movies, speakers... local media, schools, rest homes. (b) Freshwater events: talk of fish / eel. -Food: e.g. Hellers donate sausages -Whangateau Harbour Care: In harbour photo exhibition, mayor opening, kayak / waka ama / snorkelling, tanks with live animals. -Nga Motu: Linking events -Snorkel Day Taranaki: sausages / carrot cake, Low vis?... fish bin with touch tank, skinks / geckos. -Group motivated / empowered -Awesome summarising of all korero, bringing all info back to a simple statement of points -Facilitator highly motivated -Sharing personal story = real and how it relates to bigger picture 	<p>people away.</p> <ul style="list-style-type: none"> -No shows... media coverage (disappointment) -Quality of volunteers. E.g. when participants misleading / not listening to briefing put liability on leader... hold the right to remove participant (s) from activity. -Beaurocracy -Not listening to kaupapa, e.g. taking fish -Schedule to appropriate day / tide -Disengaged / no inspired group -No resolution / progress -People leaving feeling like everything is doom and gloom -Direct conflict -Sabotage / side lining -Too much jargon
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Topic: Marine and Freshwater Resources. What is needed? Identify Gaps

- People (He Tangata. He Tangata. He Tangata)
- \$\$\$
- Resources in Te Reo
- Citizen science- e.g. Freshwater squared programme. Survey + comparison.
- Network for resource sharing (Contact list, forum etc.)
- Delivery + communication
- Website of resources, links to resources
- Making science accessible
- Essentialised GIS layer person
- A person to coordinate the resources (paid role)
- Channel for resources (preferred links page)
- People resources (list / contacts for people who can talk to groups)
- Workshop kits / equipment
- Resources that reflect different learning styles

- Developing Google Documents of resources
 - Easily adapted / updated.
 - Paper free
 - Shared easily
 - BUT still requires personal and time (funding) to make it happen and keep it updated
 - school uptake
- Lots of information and resources BUT need to it up to date
- Quality of resources and delivery vs. quantity
- Evaluation: Follow up use of resources (e.g. achieving outcome? Being used? Creating sustained behaviour change?)
- What other support needed to achieve evaluation? (e.g. follow up contact, facilitating connections)
- Mobile phone coverage- SAFETY!
- Target the use of resources
- Start local with resources
- Resources that are motivating
- Leaders with in the community
- Value of people. Face-to-face. Informing. Awareness raising
- Resources for teachers
- Local knowledge and oral histories
- Working with tangata whenua
- Updated information on iwi consents, Maori world views, boundaries.
- Children
- Existing groups
- Technology e.g. Smartphone Aps.
- Google Earth: add layers etc. More user-friendly than GIS
- Take 'action' photo... Facebook profile picture
- Database e.g. water quality
- Facebook / social media = powerful tool
- Expert availability e.g. scientists, iwi, Nature Space, T.K.I., NIWA...
- Trailer design, How to (Wellington/ Otago)
- How to get funding for...
- Eel poster
- EMR presentation needs to be regionally relevant
- Engaging with the council. Planning/ expertise to do it + budget.
- Cultural arena- kaupapa for resources may be different (respect, versions may be different)
- Readily available, all in one place (Google Drive, Index Hub)
- List of supplies of physical resources
- Wet libraries (where are good stream / ocean sites NZ wide? Local knowledge for snorkels database? Resource?)

Topic: Working with tangata whenua

- Open minded
- Respecting protocols (tikanga)

- Honesty is key
- Takes time to plan together and agree on a purpose
- Have good food and hospitality
- Understand Hapu boundaries. Who to ask?
- Difficult to ID right person to talk to
- Acknowledge volunteers in marae
- Understand that consultation needs time and resources
- Is it appropriate to be telling these stories?
- Important to understand cultural history, protocol and stories
- Different world view
- Different priorities
- Respect mana whenua
- Encourage appropriate iwi to be involved / representative groups
- Important to consult with iwi before setting objectives
- Ongoing consultation / building relationships, building relationships
- Allow enough time for thorough consultation (found action)
- Empowering public to be engaged in this process.
- Bring it to the marae
- Prior knowledge of treaty of Waitangi situation
- Value being invited to process, including being involved early
- For people not used to marae setting it can be daunting. Get involved in marae setting and build confidence.
- Engaging Kura Kaupapa
- Making sure there is a representative at snorkel days for karakia
- Beach activity that was positive. "Spot the difference" day at Goat Island and flax weaving.
- Support- Tautoko built over years. Long term.
- Building relationships early on / 1st
- How to contact the right person
- Hapu / Iwi concepts / cultural terms (having an understanding)
- Mana whenua - Mana moana
- Ensure local iwi / hapu are always at the 'ideas table' at the development stage and being fully informed
- Keep connection
- Promoting the Tangaroa suite of protection: Marine Reserve, Taiapuri, Mataitai.
- Induction (Decolonisation Hui, T.P.K.)
- Pronunciation
- Different Kaupapa
- Exciting!
- Tangata Whenua vs. Mana Whenua
- Incorporating cultural perspectives with conservation and science
- Identifying Mana Whenua spokes person
- Scary! Challenging. Doing or saying the wrong thing
- Recognising cultural divides

- Positive partnerships
- DOC environment creator more familiarity
- Resourcing for engagement- Kaumatua initially, not follow up
- Multiple iwi differences. Who is the Mana whenua. Where the mandate fits
- Two way relationship. Reciprocal. Give + take.

FRESHWATER FIELD TRIP

MTSCT Wananga 2015 Freshwater Field Trip to the Hikurangi sub-catchment

A field trip to the Hikurangi Floodplains – one of the DOC/Fonterra Living Water catchments. This field trip offered something for people who like to learn by doing and get hands-on. We learnt about one of the Tuna/Eel monitoring projects that is being lead by Ngati Hau and the ongoing research on Mudfish in the reserve and wider Hikurangi catchment being lead by NorthTec and DOC. We learnt HOW TO monitor the threatened Black Mudfish (*Neochanna diversus*) by assisting in the NorthTec research in the Wairua River Wildlife Management Reserve (WRWMR).



*Wairua River Wildlife Management Reserve
- prime Mudfish habitat!*

This involved checking traps, counting fish and recording data. This field trip was hosted by Whitebait Connection and supported by NorthTec, Ngati Hau and Living Water. Extra special thanks to Nina Pivac for sharing her Mudfish research with us and attending the whole wananga and to Olly Ball and Nick Bamford for assisting in the delivery of the field trip and to Alan Halliday for sharing his tuna research.

We began our field trip in the whare nui where we heard from Whitebait Connection about how they engage community with Mudfish, Nina Pivac on her Mudfish research project in the Hikurangi floodplain and Fiona Gordon from DOC about the Living Water (DOC/Fonterra) partnership in the area and what stage they are at. Then we got into our vehicles and travelled to Hikurangi...



One of the Whangarei District Council pump stations. Here we checked the Eel trap/Fyke Net with Alan Halliday from Ngati Hau



The highly modified Mudfish habitat that is part of Nina Pivac's studies.

Our first stop was at one of the pump stations (used by the Whangarei District Council to pump water out of the floodplain when it's flooding) to see what Alan Halliday had caught in his Eel net. He had quite a haul including one 'naughty' Eel that had been repeatedly swimming back and forth under the scanner machine sending off dozens of email reports to

NIWA!! This is part of the research project being led by Ngati Hau and NIWA to monitor Tuna movements around the pump stations. They insert chips into Tuna and can then monitor their movements. They are trying to ensure the long-term viability of the population in this area as to date many have been getting chewed up in the pump station or not making it up there in the first place due to barriers further downstream. George Tuhiwai is also involved in this project in that he traps and transfers the Tuna within the catchment area.

After this we went to view one of Nina Pivac's Black Mudfish monitoring sites on a highly modified piece of farmland. There was a small remnant of wetland left in the area and it was amazing to see that Mudfish could survive there. This reinforced the need for identification and ongoing protection of these areas!! Hopefully all participants now know what to look for and thus HOW TO locate and protect Mudfish.



Nina Pivac and NorthTec tutor Dr. Olly Ball explain the Mudfish monitoring protocol and the plan for our monitoring

Then we moved on to the Wairua Wildlife Management Reserve (WWMR) which is jointly managed by Fish and Game, DOC and Ngati Hau. This is a beautiful area which, although has had some modification, still holds areas that seem like pristine wetlands – what the whole area would have once looked like. The area still holds significant numbers of Black Mudfish. We donned waders and tramped into the swamp to check the traps set the day prior. Sadly the traps were empty (apart from a few Gambusia) as water levels were still quite low so the Mudfish were still aestivating



Checking the traps in the wetland



(state of animal dormancy, similar to hibernation, characterized by inactivity and a lowered metabolic rate, that is entered in response to high temperatures and arid conditions).

However, we were able to view their natural habitat and learn HOW TO monitor them using the data sheets and field equipment kindly provided by NorthTec on the day!



Northtec student Nina Pivac shows Rodney her catch

Northtec graduate and NRC staff Nick Bamford checks one of the traps



Some of the Gambusia (a pest fish) we caught in the traps - sadly no Mudfish as they were aestivating!



MARINE FIELD TRIP

Local snorkelling experience with Experiencing Marine Reserves (EMR); including the latest procedures for the safest possible excursion. We learnt how to investigate shallow rocky reef areas, practise and discuss sub-tidal marine monitoring methodologies. On the marine field trip we discussed how important community engagement is, as an essential step for citizen science type subtidal marine monitoring. Additional safety considerations for marine monitoring: entanglement in transect line, the use of heavy weights to hold transect down, increased chance of hypothermia, an in water safety observer would be required when conducting transect line monitoring methods with school/novice groups



Hilton Leith with the observational snorkel group

Level 1 Observational studies – snorkel or dive your local reef

There is no better way to get to know a reef and all that lives there. The more time you spend looking the more you see, the more you will grow to understand. The reef life can change constantly so many observations becomes very valuable.

Method 1

Observation Swims - Basic

Simply swim over your reef taking time to look and observe the reef at its different depths. Try to make observations on the following:

- Species of fish seen general abundance and size.
- The seaweed cover that you see, can you recognise zones or groups of seaweeds growing at different depths, try to describe in basic terms these variations.
- Are there bare areas?
- Are there large number of kina present?
- What is your general feel about the health of the reef?

As soon as possible once you out of the water make notes in a notebook including any drawings you want to do of fish for identification later or of the seaweeds or general description of the reef.



Lorna Hefford running the snorkel instructors course

Use of underwater writing slate

As you become more familiar with your reef and this method organise an underwater writing slate. You can use any smooth PVC type plastic and a lead pencil which works well underwater. They are available from your local dive shop or you can make yourself.

Use of underwater camera

Underwater cameras are now readily available in range of prices. They are a very valuable tool and can be used in many ways. They can help you to locate places on the reef, help you with later identification of marine life and record visually. Pictures taken on your swims can be a very valuable resource to share on your Reef Saver page.

To begin with you can try to take a series of photos that represent the changes that you see as you swim over the reef. Pictures can be taken of the various species you encounter. Possibly you can photograph interesting places that you can find your way back to in future – this could be valuable.



Te Kauri with a freshly speared dumped leatherjacket we found on the snorkel

For each swim you do here are some things you can attempt to record:

Date, time of day, tide, water visibility estimate in meters, names of divers, Site location: latitude and longitude from a cell phone or GPS unit, taken at water's edge or description that allows you to place a mark on a map.

[Sample data sheet – side 1 and 2](#)

Method 2

Timed swim fish counts and observations

An underwater timing device required. Note: to begin with you can estimate time by checking the time you leave and return to shore.

After scouting your reef with a series of 'observation snorkels', choose a snorkelling route on the reef that you can basically swim for 15min at a constant steady even pace. The route should attempt to cover the main types of habitats you encounter on your reef and be a fair

representation of the overall reef if possible. Good underwater landmarks or above water 'sighting marks' can be helpful. The aim is for you and possibly other people to repeat this route in future. Once your route is established swim for 15 minutes out recording fish species you see, their number and approximate size estimated to 10cm. This last part is harder than it sounds as fish appear approximately 1/3 bigger underwater than they are. You can practice sizing fish using practice outlines of fish cut from a board or plastic that you prepare at various sizes. Once you have reached your 15 min mark turn around and repeat the observations and recording information on the swim back to the start point.



Kina barren seen during the snorkel, data sheets recorded up to 15 kina in the m2 quadrat.

Additions habitat and reef health observations

It is a great idea to make additional observations of the snorkel route used for the timed swim, everything described in Method 1 is useful here or any further investigations and descriptions of special things you encounter. Observations and or pictures of the state of the seaweed communities, extent of kina barrens, abundance of kina are all useful.

Number of routes and timed swims to do? It is desirable to have at least three timed swims and routes for your reef. You can do more, more is better. Try to cover the different areas of reef where the shape of the reef, the depth or other factors change.

For each timed swim you do here are some things you can attempt to record:

Date, time of day, tide, water visibility estimate in meters, names of divers, Site location: latitude and longitude from a cell phone or GPS unit, taken at water's edge or description that allows you to place a mark on a map. Numbers of each fish species seen, sizes if possible in 10cm intervals.



Milli getting ready for the snorkel

Method 3

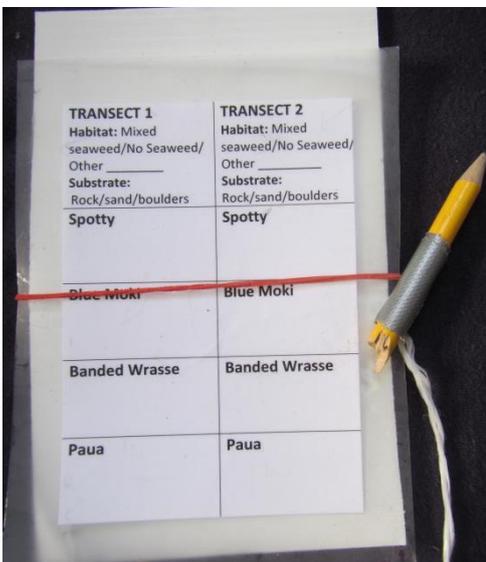
Transect studies

Use of Reef watch as a resource to monitor transects. People are encouraged to customise their own efforts. Shallow 50 x5m transects or modified to fit terrain. Quadrant counts for inverts and seaweeds

- a) fish communities
- b) kina and seaweed cover
- c) crayfish
- d) invertebrates

MarineWatch has a fantastic existing marine monitoring resource – [see resource link](#)

The EMR Wellington crew have also developed a great monitoring programme within their marine reserve. The picture below is their underwater slate set up, a piece of cork board with the matt finish laminated transect information, with a rubber band to hold together and the pencil is attached using cloth tape to string, very light and effective. For more information on their monitoring programme contact Zoe Studd.



Sunset gourmet beach dinner and conference social

Featuring Mana O Te Hula



Delicious Cook Island themed dinner on the beach



Dramatic scenes within the field trip skits

Monday 13th April – DAY THREE

As an alternative to the Poor Knights trip (due to bad weather) we snorkeled the Whangarei Harbour Marine Reserve. Learn about the [‘wet library’](#) and [download the brochure](#). We then completed the wananga with a Harbour Cruise to Limestone Island – [learn about the history here](#)



Snorkelling at the Whangarei Harbour (Reotahi site) Marine Reserve. Crested weedfish

The final practical component of the Snorkel Instructors course was held at Reotahi Marine Reserve. The candidates had to exhibit safety scenarios. With some hilarious results!



Rescue scenarios at Reotahi Marine Reserve



Limestone Island Tour

Evaluation Summary

[Link to full evaluation](#)

'Ah-Ha' Moments and/or highlights:

- Harbour restoration in Raglan – what is possible! Alistair and Mike's "rescue scene"!
- Highlights were having the time to get to have conversations and experiences with people – not rushing from one thing to the next. Also beach bonfire ☺
- Workshop discussions, Weed fish (and others) in snorkel, Fred's talk, Facilitation talk, Meeting all of these inspirational people ☺

Effectiveness of wananga for networking (rate out of 6 and comment)

- 6 – best opportunity for networking!! So inspiring to hear so many success stories.
- 6 – Plenty of time to chat to others. Good mix of people and skills.
- 6 – Plenty of time to get to know each other – both during sessions and in between. The marae setting encouraged this too.

How effective was this wananga in showing 'how to' create community engagement and foster partnerships?

- 5 – Great ideas through hearing other people's experience in engaging community.
- 5 – The importance of this was demonstrated well. Learnt how to action it.
- 5 – Great workshop on facilitation ☺ Great examples of working examples.

Utopia...Please write down what your sustainable world looks like...statements that inspire us [this was up on wall in whare kai]

- Plastic bag-free towns!
- Community that owns and feels/expresses its own needs/desires – taking control out of the hands of govt and back to the community.
- Clear and clean fish passage from the mountains to the sea – NZ wide!

Please write down you ideas for specific actions OR behaviours that we could promote via WBC or EMR...

- Planting around waterways.
- Not putting anything other than rain down the drain.
- Tidy kiwis – not littering.
- Positive attitudes towards planting by waterways.
- Identifying and removing/not creating barriers to fish migration.
- T.V. advertising or radio – facebook (kids love it)
- Look after your rubbish.
- Marine monitoring.

- Linking scientists with schools.
- Marine reserve proposals.
- Involvement in local government processes.
- School holiday programmes.
- Making clear 'how to' communicate effectively with govt/councils etc. so that community can create change.

Actions – please write your one commitment to action...we need your name on it too!

- Write articles for paper on potential marine reserve sites – Andrew .P.
- Be more diligent about cleaning, rinsing and drying gear between water studies. To develop our education teams' capacity to deliver engaging marine education – Pat .H.
- Come back to Whangarei to discover more. Personal: Do a course to learn more about Tangata Whenua and spiritual values. Integrate marine debris education into education programme at IBMEC – Sarah.
- Investigate Ben Smith's whitebait initiative. Promote Reef Savers program. Support MTSCT trustees and coordinators. Get Selwyn onboard. Extra effort to network. Great meeting new faces at wananga – Hilton.
- To inspire others to appreciate the outdoor environment and get involved with conservation initiatives – Nina ☺.
- To work on my fish ID to continue my learning of the ocean and to maintain the relationships and connection that have been made at this wananga – Hana.
- Explore Earthcare Academies and unit standards in freshwater quality testing – Marty (Papa Taiao Earthcare).
- Learn more Maori! Especially freshwater vocabulary and knowledge – Oliver.
- Be delivering both WBC and EMR in the Far North. Investigate/develop Papa taiao opportunities at Broadwood Area School. Start up community snorkelling days and kayak days in Pawarenga. Role-model positive actions/encouragement to Ta Tamariki in Pawarenga – Jasmine.
- Spend more time in Whangarei Harbour Marine Reserves. Maintain connections with this great network of people and check out/support their mahi and look for more ways to support/work together – Fiona.
- Create a resource hub for MTSCT then for public – Lorna.
- To keep in touch and follow up with people I've met this weekend. To start volunteering when I move to Dunedin – Krista.
- Create a survey for monitoring the Motukaroro marine reserve for EMR coordinators/volunteers to contribute to – Harriet.
- Make time for community/citizen science marine monitoring ideas for WHMR.
- Take time to talk with youth about things that are making the river patu and little things that could make a big change – Anonymous.

- My commitment to action is to stay involved with the network of people at this wananga – to follow up on the discussions I have had – Valerie.
- Sustained agreement with new umbrella agency: sustained relationship, collaborative funding applications, expansion of EMR delivery – Megan.
- To develop a more effective EMR programme in Taranaki for facilitators, teachers and learners: simple for teachers, ongoing actions, locally based as well as trips away, consistent delivery – Pat.S.
- Follow up with parking machine company re more appropriate (non-plastic) printing paper – Jim Fyfe.
- To create a much stronger relationship with Ngati Toa (and other iwi) in Wellington through engagement with marae, supporting their mahi AND taking on the Te Reo course I've been put through! – Zoe
- I am going to look into Education for Sustainability Achievement Standards (NZQA) and make contact with Marty to find out more about cross-curricular options. Moving to having a Wild Foods Unit at Bream Bay – Fran.
- Involved on a personal level conservation/environment. Professional: Not only teach students about human impact but inspire other teachers at school to take action – Carren.
- Continue to support the EMR growing team. Take Jiggs and Te Whanau Whero to see Fred at Whaingaroa – Samara.
- Personal development – learn more about marine life: to be able to identify and know more about life history – Wendy.
- OK, I'm really going to stop getting plastic supermarket bags! ☺ - Soozee.
- I will spend more time in the water, work on my fish ID and support the EMR coordinator – Deb.

Tēnā koutou

Thank you to Lorna Hefford, Ripley Dean, Hana Cumming, Eryn Hooper and Kim Jones for helping with the proceedings. Underwater images by Andrew Penniket, except for the crested weed fish by Harriet Thomas and the kina barren by Samara Nicholas. Topside images by Kim Jones, Samara Nicholas and Andrew Penniket.

Thank you to Samara's parents and brother for helping to set up our beach BBQ and to all the participants that helped with transportation. Thank you to Sioux Campbell for her excellent facilitation and overall support.

Final proceeding compiled by Samara Nicholas and edited by Lorna Hefford.

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Once again we thank our hosts at Whakapaumahara Marae – **Te whānau where**

For more information about this wananga/conference contact info@emr.org.nz

