Enviroschools WaiRestoration

Engaging young people and local communities in the restoration of waterways and biodiversity

Building sustainable communities through wai / water

A celebration and sharing of the collaborative learning, experiences and actions taken by Northland Enviroschools, farmers and landowners

He mihi

Ko Rangi kei runga
he ua mai rangi
he waiora mō Papa,
he waiora mō Tāne
he waiora mō te tangata.
Hui e!
Mauriora e!

We are excited to share with you the WaiRestoration project, piloted in Northland a little over four years ago through the Enviroschools programme, with help from Toimata Foundation (formerly The Enviroschools Foundation) and the Northland Regional Council.

From these small beginnings, the initiative to restore waterway health and biodiversity through collaborative relationships and a regional approach has grown to involve a number of Enviroschools and many members of the community.

This collective approach has shaped Enviroschools WaiRestoration. We acknowledge the commitment and creativity of past and present Enviroschools Northland facilitation team members: Marty Taylor, Julie Holt, Susan Karels, Jacqueline Knight and Eden Hakaraia, and the enthusiastic teachers and Enviroschools communities they worked alongside.

We also mihi to…

- The WaiRestoration teacher leadership group;
- The primary, intermediate and secondary teachers of the in-depth case study schools: Dargaville Intermediate, Kamo Intermediate, Kokopu School, Mangakahia Area School, Maungaturoto School, Opononi Area School, Otaika Valley School and Tauraroa Area School;
- The secondary mini case study schools: Bream Bay College, Dargaville High School, Huanui College, Kaikohe Christian School, Kaitaia College, Kamo High School, Northland College, Okaihau College, Ruawai College, Taipa Area School, Te Kura Taumata o Panguru, Whangarei Boys' High School and Whangarei Girls' High School;
- Tangata whenua, partner organisations and individuals, including: Can Train NZ, CoastCare Northland, Department of Conservation, farmers/landowners, Fonterra, Forest Floor Nursery, Jo and Vivian Body, Landcare, Landcorp, Living Waters, Matua Buck, Northland Regional Council advisors and scientists, Reconnecting Northland, Royal Society of New Zealand, Te Aho Tū Roa, George Tuhiwai, Trefoil Park, Waimarie Nursery, Whitebait Connection, Wildspur Lodge and all the Enviroschools teachers, students, principals, gateway co-ordinators, caretakers, support staff and whānau.

Everyone contributed to the on-going development and deepening of the project and it is the collective energy and wisdom of all these people that is brought together in this celebration booklet, which:

- honours the achievements of all those involved in WaiRestoration to date and shares their stories as an inspiration to others;
- shows how working together across school communities has created an environment that deepens learning and practice for everyone involved;
- offers a process for working collaboratively to restore waterways and biodiversity.

Cover Photo: Oromahoe students planting wetland at Lake Owhareiti

Contents

He mihi	2
The purpose and context of Enviroschools WaiRestoration	4
The streams of Enviroschools WaiRestoration	6
A collaborative regional approach	8
WaiRestoration - Roles and responsibilities	9
WaiRestoration - Benefits and considerations	10
Resources and programmes that support WaiRestoration	12
WaiRestoration Action Learning Cycle for regional teams	13
How do schools get started in WaiRestoration?	14
Top tips	16
Reflections from the Northland WaiRestoration project	17
Feedback from participants about different aspects of WaiRestoration	18
Regional WaiRestoration events	20
Case studies	23
Dargaville Intermediate School	24
Kamo Intermediate School	27
Kokopu School	30
Mangakahia Area School	33
Maungaturoto School	35
Opononi Area School	38
Otaika Valley School	40
Tauraroa Area School	42
Secondary schools summary	44

Produced 2017 by Toimata Foundation, Enviroschools and Northland Regional Council

TOIMATA FOUNDATION

NORTHLAND REGIONAL COUNCIL

Enviroschools

The purpose and context of Enviroschools WaiRestoration

Engaging young people and local communities in the restoration of waterways and biodiversity

Enviroschools WaiRestoration is a facilitated project that focuses on taking action to restore local waterways and biodiversity. It is a collaborative approach involving whole communities, evolving in response to issues of water health and management, and a desire to engage a range of people.

WaiRestoration looks at people's relationship with fresh water and how past and present practices have affected the mauri of waterways. In WaiRestoration, school communities investigate and understand water – where it comes from, the diversity of life it supports, and its innate life-giving properties for well-being and hauora. Participants are encouraged to understand the choices we have to ensure water in all its forms is respected, and decisions about its use are sustainable. Strong partnerships between Enviroschools, farmers and landowners are developed, and collaboration with key organisations supports learning and actions on the land / whenua.

WaiRestoration is built on the effectiveness of a range of practical steps that school communities can engage in to make positive changes in their water catchments.

The WaiRestoration project:

- Motivates learners to be actively involved and builds reliability, resourcefulness and resilience while working in and connecting with local land, waterways and people;
- Aspires to restore our waterways and biodiversity by seeking to empower and mobilise students, teachers, schools and their communities to provide practical and skilled support to farmers and landowners;
- Moves towards a culture of shared responsibility for the restoration and future of our environment; and
- Brings together a series of initiatives for improving freshwater and preserving native species.

WaiRestoration is built on the effectiveness of a range of practical steps school communities can engage in to make positive changes in their water catchments.

Dargaville Intermediate's poly-house was a hit at the WaiRestoration focused Enviroschools caretaker workshop

The context of water health

Water ecosystems are a good environmental indicator and can tell us a lot about our relationships with nature and the health of our communities.

Water flows through our lives and connects us to our local environment. Wai will often feature in a pepeha or mihi used by tangata whenua to acknowledge ancestral water bodies such as a moana / sea, roto / lake, awa / river.

Many people identify strongly with water, and want to see the health of our waterways enhanced.

Freshwater ecosystems can be compromised by excessive inputs of sediment, nutrients and other pollutants. Vegetation loss and stock grazing in riparian areas destabilises banks, removes shade and food sources for aquatic life, and results in faecal contamination of the water.

Poor waterway health also has implications for drinking water supplies, water-based recreation and the economy. So there are many benefits when communities take action to restore the health and mauri of local waterways.

Northland – Te Tai Tokerau – has an extensive network of rivers and streams. Most of the region's larger rivers flow into sheltered harbours where contaminants tend to take longer to disperse than those flowing directly into the ocean.

River flows vary considerably. High intensity storms cause flash floods and dry spells lead to very low flows in smaller catchments. Northland rivers generally are characterised as being slow flowing and often muddy. The region has a number of small shallow lakes and associated wetlands. Of particular national and global significance are the number and diversity of dune lakes, many of which are pristine.

WaiRestoration has seven key streams - WaiFencing, WaiNurseries, WaiPlanting, WaiMaintenance, WaiMonitoring, WaiEnterprise and Save a Species.

Students from Maungaturoto School learn about the significance to tangata whenua of water habitats and whitebait as part of their 'Save a Species' journey

The streams of Enviroschools WaiRestoration

Seven WaiRestoration streams contribute to the restoration of waterways and biodiversity and can be considered separately, in groups, or as a whole. The wide range of actions incorporated in these streams provide opportunities for students to develop a variety of interests, skills and experience.

WaiFencing - keeping stock out of waterways

WaiFencing develops skills and provides qualifications for building fences to exclude stock from waterways and other areas of biodiversity significance. Participants attend a skills workshop where they learn to identify fencing tools and materials, practice fencing knots and ties, strainer assembly construction, how to build and repair a multiple wire fence line and electric fencing.

Northland Regional Council land management advisors teach the students about the benefits of stock exclusion and show them how to match fencing styles and techniques to stock types and terrain.

After a series of practical experiences and the completion of a theory unit, the trainees return to an assessment workshop where they are appraised against NCEA Unit Standards. Part of this assessment workshop includes fencing off a waterway.

WaiNurseries - growing riparian plants

Through WaiNurseries, school communities learn skills important for running a plant nursery. Expert in-school support teaches nursery set-up and maintenance, eco-sourcing, sowing seeds, potting on, making cuttings and local bush knowledge. At secondary level, nursery skills can be assessed against NCEA Horticulture Unit Standards.

WaiPlanting - planting beside waterways

WaiPlanting teaches how to plant riparian zones – the strips of land beside streams, rivers, lakes, wetlands and drains. School community members learn about setback distances, what and where to plant and planting techniques. They become skilled at using native species suited to the terrain to stabilise stream edges and filter or absorb runoff.

WaiMaintenance - keeping out plant and animal pests

Keeping on top of plant and animal pests is crucial to the establishment of a healthy riparian zone. WaiMaintenance teaches how to identify and control weeds and animal pests at various times of the year. Students will learn about and be engaged in the management of planted areas. School communities may like to join in related Enviroschools courses, such as Project Possum, Project Mustelid and Project Rodent. These courses offer training and NCEA Unit standards in trapping, biology and environmental impact.

WaiMonitoring - testing and tracking water quality

Measuring change over time provides data and guides future actions. Fence line length can be measured and added to as a WaiRestoration project grows. Participants learn how to monitor water quality through a series of tests including pH, clarity, temperature, velocity and conductivity. Other indicators such as invertebrates, fish, vegetation and substrate can be observed and recorded and plant and animal pests can be monitored to gauge the effects of WaiMaintenance on native plant growth rates and survival.

WaiEnterprise - creating sustainable employment

School communities develop financial literacy and learn about the economic opportunities arising from caring for the land, including fencing, selling plants, and providing a planting and maintenance service. This can be a whole-of-school focus, or individual students or groups of students can follow an area of particular interest.

Save a Species - restoring endangered plants and animals

Using Department of Conservation survey information and expert support, school communities can learn about threatened plants and animals in their local area. Participants can decide to help save a particular species through a range of actions including protecting habitat or helping to increase numbers through propagation.

A well-designed and maintained nursery at Dargaville Intermediate School provides an excellent model for WaiNurseries and WaiEnterprise

George Tuhiwai leads a WaiMonitoring workshop

WaiPlanting

Team work is part of the day at the WaiFencing workshops

A collaborative regional approach

The success of WaiRestoration is a result of relationship building using a regional approach that harnesses the power of partnerships and collaboration. This approach recognises that everyone is a learner and has a contribution to make.

Knowledge and expertise comes from organisations and individuals. Shared goals are identified, individual skills and perspectives are brought together, and resources and expertise are pooled to create a support network that empowers others.

Genuine partnerships between tangata whenua, schools, community agencies and farmers / landowners play an important role in a long-term programme. Strong communication brings mutual enrichment.

This regional approach for WaiRestoration, guided by the Enviroschools Regional Coordinator and facilitator team, provides opportunities for all participants to learn and take action.

Enviroschools facilitators, teachers, students, principals, caretakers, Boards of Trustees, iwi, whānau, farmer/landowners and community members come together and contribute their knowledge and understanding in practical workshops, professional development days and cluster meetings. This shared learning process provides the fertile ground for community empowerment, action and ownership.

The WaiRestoration project provides opportunities for everyone involved to learn, be empowered and take action

WaiRestoration - Roles and responsibilities

	Enviroschools regional team (Regional Coordinator and facilitators)	Enviroschool (Principal / teachers / students / caretaker / BOT…)	Farmers / Landowners
Identify the Current Situation	• Brainstorm possibilities • Consider regional and district/ city plans and priorities • Be realistic about budget and facilitator commitments • Identify possible partners, schools and priority catchments and waterways • Plan, host and facilitate initial hui with stakeholders to identify current situation, and participation • Set milestones and timeframes • Talk about the benefits and facilitate conversations with the community	• Meet with Enviroschools facilitators to discuss opportunities • Communicate with whole school • Commit to and plan an integrated programme of learning using the **Action Learning Cycle** (p13) and **Water of Life Theme Area** • Identify current knowledge of history, place, people and issues • Identify gaps in knowledge and understanding • Start building a pool of knowledge • Develop possible timeframes	• Consider issues and current land and nutrient management • Map areas that have the potential for restoration • Make connections with what is happening in the wider catchment and farming community regarding waterway restoration • Attend hui to participate in discussions and identify current situation and levels of knowledge and engagement • Develop timeframes – this project has a long-term vision
Explore Alternatives	• Organise skills workshops / cluster events • Help build relationships with local experts, scientists, iwi, landowners and restoration groups to enable learning • Communicate with all stakeholders and hold the main aho/thread of the project • Continue to clarify roles, responsibilities and milestones	• Plan for Learning Outside the Classroom in local places • Visit schools / projects / catchments where restoration is taking place • Attend hui/cluster events • Engage with community experts, local iwi and landowners • Look at possible WaiRestoration streams • Engage students in decision-making and success criteria	• Consider more sustainable approaches on your land and waterways and work with the school to look at possibilities for future action • Consider the types of planting appropriate to your place • Attend hui/regional cluster events
Take Action	• Organise events such as hui to develop shared vision, professional learning clusters, professional development with community experts • Carry out in-school support, e.g. planning, resources, workshops • Help with liaison, health and safety assessment	• Choose a stream to work on • Plan and take action • Fundraise • Daily, seasonal and annual planners • Participate in measuring and recording change • Take photos	• Fence (maybe with support from others including WaiFencing participants) • Prepare for planting/weeding/ pest management • Maintenance schedule • Record and measure change • Take photos
Reflect on Change	• Reflect and provide feedback • Celebrate • Identify and plan next steps • Strengthen partnerships	• Reflect and provide feedback • Celebrate • Identify and plan next steps • Strengthen partnerships	• Reflect and provide feedback • Celebrate • Identify and plan next steps • Strengthen partnerships

WaiRestoration - Benefits and considerations

Enviroschools regional team
(Regional Coordinator and facilitators)

Benefits:

- Aligns to regional and district/city priorities and plans and contributes to land and water management goals
- Develops partnerships through a locally relevant context
- Strengthens community engagement

Considerations:

- Who could be involved?
- What resources are available or need to be developed?
- Requires a long-term commitment
- This is a facilitated approach with event management, partnership building and Enviroschools facilitator support required
- Budget and personnel allocation appropriate to above

Enviroschool
(Principal / teachers / students / caretaker / BOT…)

Benefits:

- Reinforces connections with nature and local environments
- Empowered students and adults through intergenerational sharing and development of skills, knowledge, attitudes and values
- Partnerships developed through a locally relevant context
- Increased involvement in local community actions
- Leadership development for both teachers and students
- Provides meaningful context for multiple curriculum outcomes
- NCEA qualifications
- Supporting the school vision towards a sustainable school community

Considerations:

- What's your vision towards a sustainable community?
- What stage are you at on your Enviroschools journey? How does WaiRestoration align with this or is this a new direction?
- Are you part of a catchment / restoration group?
- Requires a long-term commitment
- Need key teacher for communication
- This is a facilitated collaborative approach with expectations of teacher and student engagement in key events and processes
- Requires integrated curriculum planning

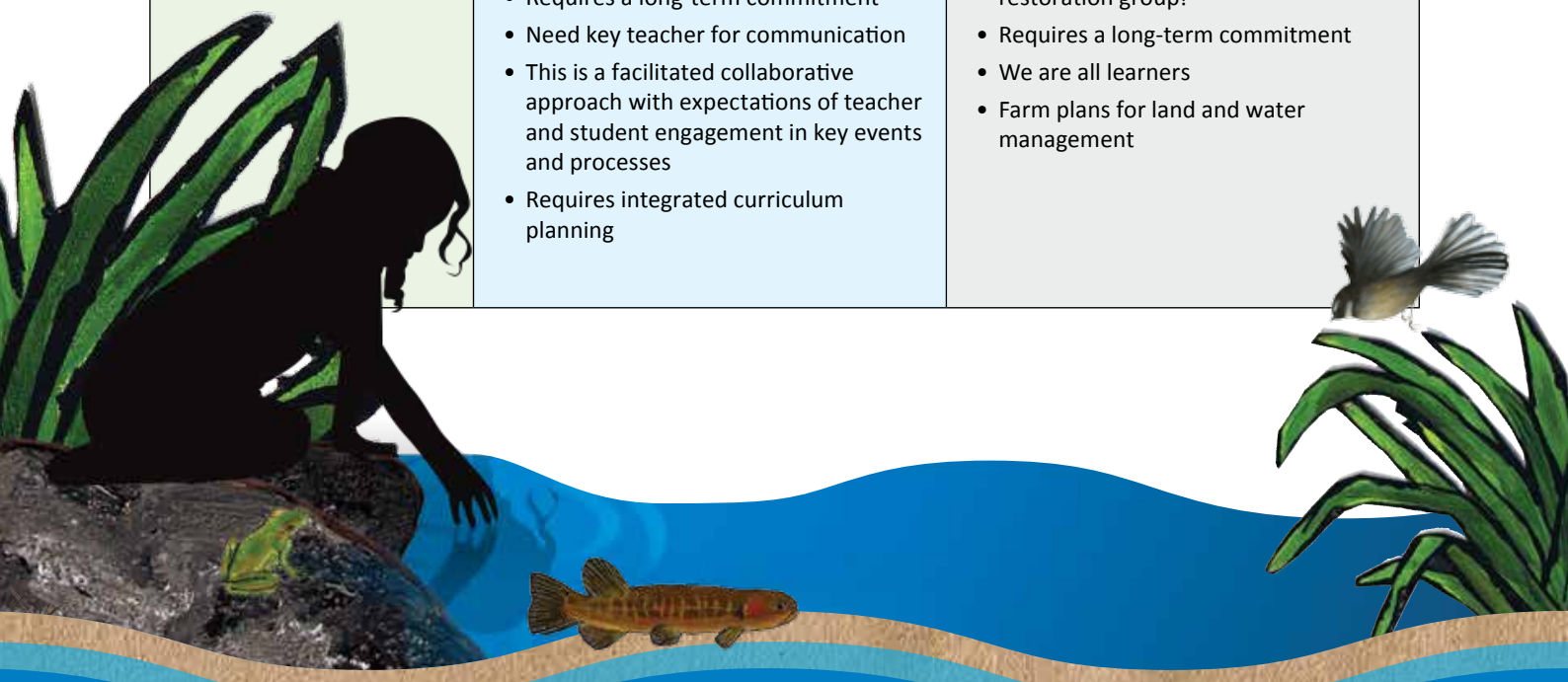
Farmers / Landowners

Benefits

- Partnerships developed with local young people and the wider community
- Coordinated, collaborative approach to waterways restoration and management
- A better environment for swimming and fishing for you and your community
- Improved water quality
- Reduced loss of soil and nutrients from pasture and cropping areas
- Improved stock management and health
- Less sediment means less cost for drain clearing
- Stabilised stream banks limit loss of land to erosion
- Shade and shelter reduce heat and wind stress for stock

Considerations:

- What's your vision?
- What stage are you at in your journey?… at the beginning? Some fencing and planting?
- Are you part of a catchment / or restoration group?
- Requires a long-term commitment
- We are all learners
- Farm plans for land and water management



Farmers and landowners

"I think what Kokopu School is doing is providing the missing link between generations – they are growing attitudes towards riparian planting and looking after the land and water. They've been equipped by a range of agencies to change how we go about land and water management."

Farmer working with Kokopu School

"We enjoy working with the Dargaville Intermediate students each year; they are learning that they are making a difference for future generations. They play a big part in working towards the Integrated Kaipara Harbour Management Group vision of 'a healthy and productive Kaipara harbour'."

Farmers working with Dargaville Intermediate students

School staff

"I felt that my Year 3 and 4 students made some really strong environmental connections between the water cycle, the waterways and also the need to protect the endangered species of whitebait… it was a very valuable hands-on learning environment that they took ownership allowing them to pass on their knowledge and awareness to others."

Teacher, Maungaturoto School

"Our garden and nursery are assets to our school and the wider community… Our children are given the opportunity to learn by doing and get to see the tangible results from their efforts."

Teacher, Dargaville Intermediate

"This is a great project which supports us to further our aims of working more closely with our wider community. Our boys group, Tanekaha, has been approached to help a local builder construct the shadehouse – which will be used by many groups…"

Deputy Principal, Kamo Intermediate School

Students

[what I most enjoyed about the project was] "…knowing that I'm helping with environmental issues and having fun in the process and planting trees as well as learning about them."

Student, Kamo Intermediate School

"I enjoyed it and gained knowledge on top of the skills I already had… I went with my mates, but working with people from other schools zoned me in more and we worked as a team."

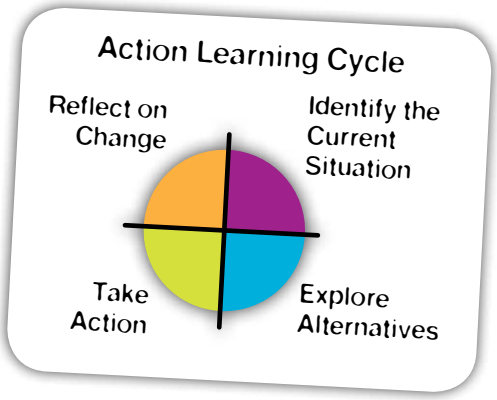
Student, Tauraroa Area School

Hurupaki School's wetland

Resources and programmes that support WaiRestoration

Enviroschools Action Learning Cycle

The Action Learning Cycle (ALC) is the main Enviroschools tool for facilitating a sustainability journey. It is at the centre of the Enviroschools Programme, encouraging a student-directed process of exploration, decision-making, action and reflection.



In WaiRestoration, all of the seven streams have an inherent action. Using the ALC is important for empowering students and other learners to understand why the part of WaiRestoration they have undertaken makes a difference and contributes to the vision of restored waterways and biodiversity. NB: The Enviroschools ALC aligns with individual school inquiry models.

Action Competency

An expected outcome of WaiRestoration is developing student action competence[1]. Learning guides for teachers have been developed and are available to download from the Enviroschools website. They are structured to empower students to understand the causes or influences of waterway degradation and the need for change (and therefore WaiRestoration). They do this by connecting the practical experiential learning activities of the project with the purpose and context of Enviroschools WaiRestoration. It is highly recommended that these are used and adapted for each school and project situation.

The Enviroschools Kit and Water of Life Theme Area

These resources provide tools and activities to help identify and understand the current situation, offer powerful learning experiences and encourage students' and community to build a Pool of Knowledge / Puna Mātauranga that tracks collective learning. This will help to inform decisions in taking action via WaiRestoration.

The key concepts in the Water of Life Theme Area that are explored are: a) Water is essential for life, b) Fresh, clean water is a relatively scarce resource, c) The importance of water is reflected in culture and society, d) Natural processes replenish and cleanse water and e) People can work with nature to create healthy water.

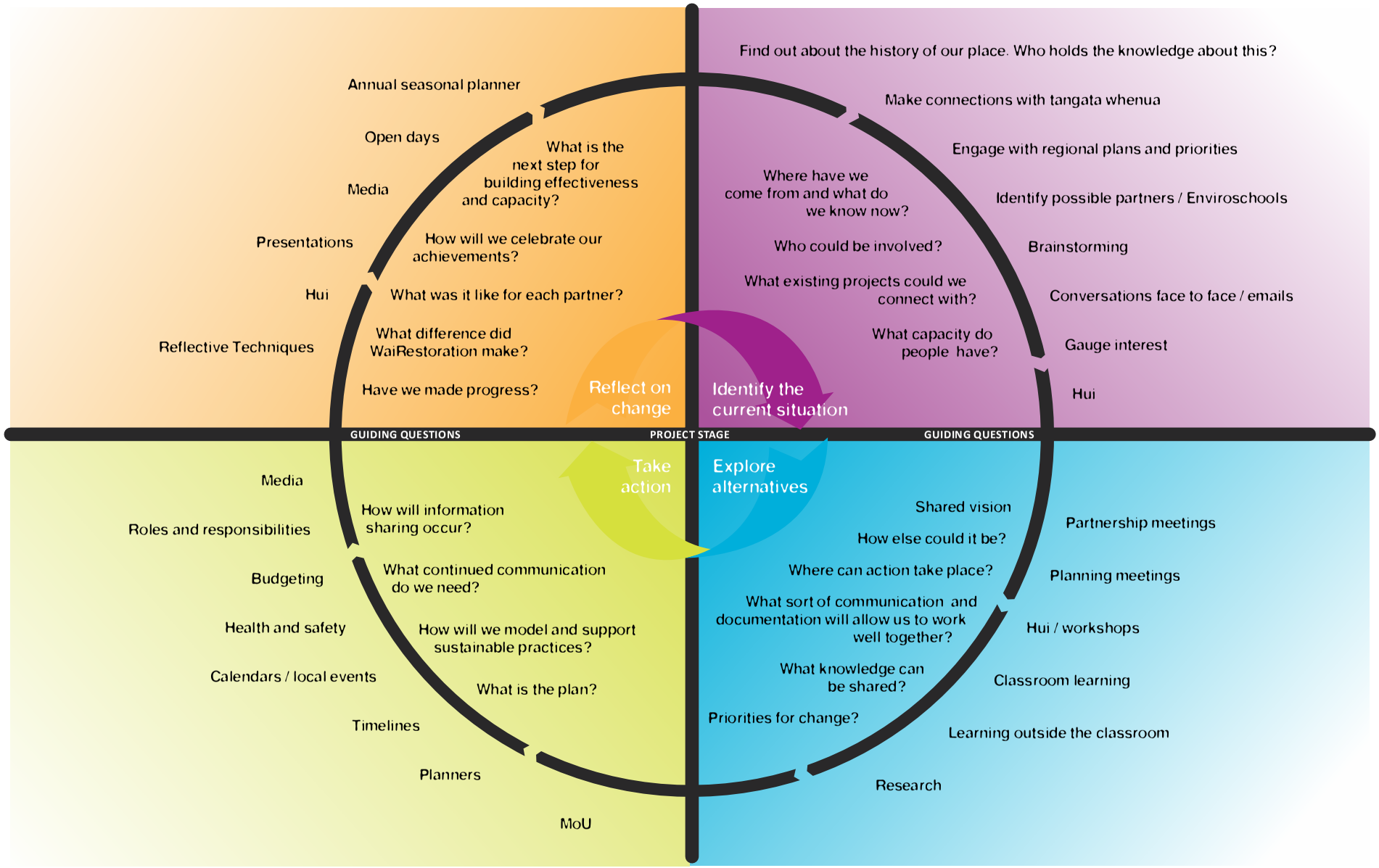
Other programmes, tools and resources

Many Regional Councils and/or District / City Councils have their own local water education resources for schools, as well as advisors and scientists.

There are also a number of other great programmes that schools and communities can work with that provide specific focuses and encourage students and community to build the bigger connected picture: Can Train NZ, regional CoastCare programmes and groups, Department of Conservation, Experiencing Marine Reserves, Fish and Game, Forest and Bird, Kiwi Coast, Landcare, Landcorp, Living Waters, Royal Society of New Zealand, Te Aho Tū Roa, Trees for Survival, Sustainable Coastlines, Whitebait Connection and many more.

1 Action competence is students having the ability and willingness to take action on issues that interest them. In practice, action competence is learning about issues so that students can plan and take informed action on those issues. For further information: http://nzcurriculum.tki.org.nz/Curriculum-resources/Education-for-sustainability

WaiRestoration Action Learning Cycle for regional teams



How do schools get started in WaiRestoration?

The following actions are important in supporting individual Enviroschools to be part of a regional collaborative approach. Many of these are initiated and facilitated by the Enviroschools regional team. Over time other groups may play leadership roles in some of these different aspects helping to create a resilient long-term model that enables the project to be offered more widely.

Enviroschools team hui	The regional Enviroschools team discusses benefits and possibilities for a project focusing on waterways in the region, and develops a shared vision. The team considers resources needed to commit to a regional cluster approach. Key schools, partners, individuals and target catchments and waterways may be initially identified for follow-up. These initial conversations may come as a result of interested school communities, catchment care groups, council plans and priorities, or Enviroschools facilitator and Regional Coordinator intuition;
Facilitation	Facilitators approach key teachers and principals to share benefits of the project, gauge interest, build relationships and a vision;
Develop partnerships	Regional Coordinator and facilitators talk with community partners, organisations and individuals that have some stake or interest and / or may be able to help. This partnership building is a critical aspect for the project;
Form a teacher leadership group	Form a regional group to champion the project, foster positive relationships, collate resources, try things out and record experiences as a pool of knowledge / puna mātauranga for current and future participants;
Host regional hui	Before engaging students in the project, adults are empowered through building their own knowledge and skills of water catchments, restoration methods and experiential teaching approaches. Interested teachers, principals, BOT, caretakers and community members are invited to a regional professional development hui hosted by the Enviroschools regional team – experts and partners in WaiRestoration are also involved. This is the launch of the regional approach and allows opportunities for networking and establishing clear roles and responsibilities and a shared vision. The hui gives an overview and highlights the benefits of the project as well as modelling experiential learning – riparian planting skills, eco-sourcing seeds, pest plant identification and so on.
Teachers and facilitators work together	Teachers work with their Enviroschools facilitator to identify the current situation at their place and plan a teaching and learning programme of work / unit for students to find out what the issues are for waterway and catchment health in their area and how WaiRestoration could make a difference. This initial teaching and learning investigation helps students and staff consider possibilities and decide on the stream(s) of WaiRestoration the school / class / community will undertake;
Connect with key resources	The Enviroschools Kit, Action Learning Cycle, Guiding Principles and Theme Areas, (Me in My Environment, Water of Life and Living Landscapes), are all useful resources (refer pg12-13);
Link up Enviroschools with community	The Enviroschools team supports schools to link up with community partners who can help them on their WaiRestoration journey, e.g. iwi groups, farmers, landowners, council scientists and expert organisations. Individuals and groups work alongside students and teachers to explore alternatives and build knowledge and skills to be able to take action. Key teachers and the Enviroschools facilitator continue clear communication;

Host facilitated cluster meetings	Anyone who is interested is invited to attend cluster meetings to share successes and challenges and set goals. Facilitators continue face to face, email and phone support for schools;
Take action	An effective teaching and learning programme is implemented on the chosen stream(s) of WaiRestoration. Practical skills are learnt and projects are started by schools and the wider community. Daily practices and seasonal actions are developed and understood by all;
Record keeping	Documentation is ongoing and includes lesson plans, student work and voice and community voice. Photos help record change over time;
Reflection and next steps	Reflect on successes and challenges, and the effectiveness of the project. Share WaiRestoration stories through the media, school and community newsletters, websites and social media pages. Invite stakeholders to celebrations in school communities around the region where progress, benefits and partnerships are shared. Plan and set next steps using an annual calendar of events with clear roles and responsibilities. Engage more school communities in WaiRestoration.

Pat Downer, Kaitaia College teacher, looks on as Ezra and Mana construct a fence line

Top tips

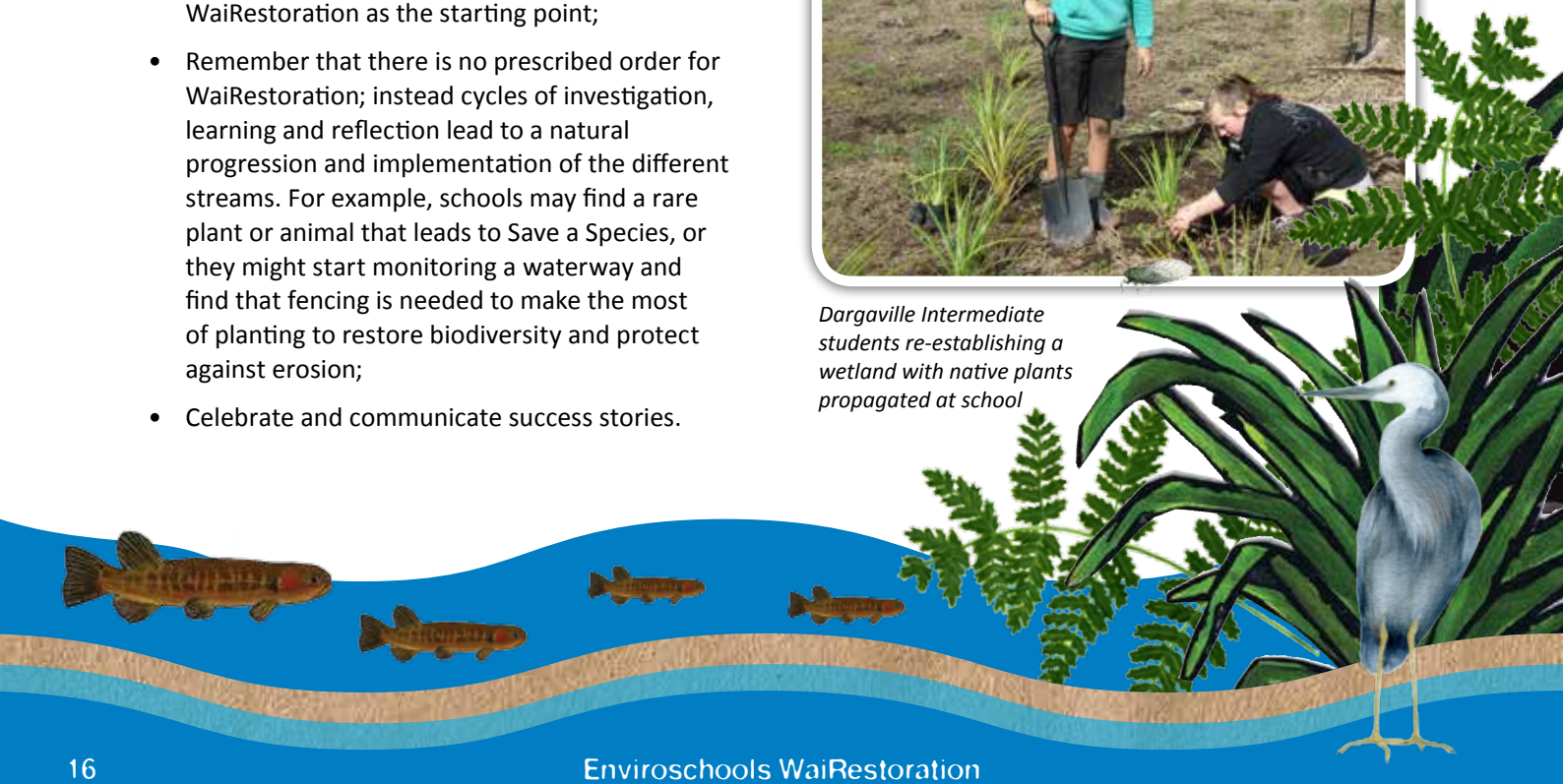
There are a number of elements in the collaborative process that help maintain momentum and direction of the WaiRestoration project.

- Engage early with tangata whenua and possible support partner organisations and individuals;
- Have a clear, shared vision and communicate it regularly to all involved;
- Engage with tangata whenua to ground the project in the history of the place;
- Be realistic about budget and facilitation requirements to build and maintain the project;
- Develop and maintain relationships with WaiRestoration partners, checking in and clarifying roles and responsibilities as necessary;
- Run place-based and / or place-responsive professional development workshops including practical sessions led by experts;
- Include all sectors of the community;
- Carry out quick follow-ups with school communities after professional development workshops;
- Plan integrated teaching and learning with teachers, so that WaiRestoration is relevant and purposeful (not considered an 'extra');
- Make experiential, place-based, responsive and hands-on teaching and learning paramount with every stream of the WaiRestoration project;
- Identify the current situation carefully to connect with the most relevant and purposeful stream of WaiRestoration as the starting point;
- Remember that there is no prescribed order for WaiRestoration; instead cycles of investigation, learning and reflection lead to a natural progression and implementation of the different streams. For example, schools may find a rare plant or animal that leads to Save a Species, or they might start monitoring a waterway and find that fencing is needed to make the most of planting to restore biodiversity and protect against erosion;
- Celebrate and communicate success stories.

Dargaville Intermediate students proudly showing their nursery to visiting caretakers – 2014 Enviroschools Caretaker Workshop

Kamo Intermediate students teach Whangarei Primary School teachers how to skin possums

Dargaville Intermediate students re-establishing a wetland with native plants propagated at school



Reflections from the Northland WaiRestoration project

The following reflections and feedback are from supporters and participants involved in the four-year journey to pilot and develop WaiRestoration.

Reflections from the Enviroschools Regional team

What has gone well in the 4-year project?

- ✓ A different focus for each annual professional development workshop that provided relevant teaching and learning for 'newbies' and 'old hands' alike, e.g. habitat creation, running school-based plant nurseries, Māori perspectives, student empowerment;
- ✓ Facilitators' commitment to the project;
- ✓ Links to Northland Regional Council freshwater management priorities;
- ✓ Expert support from individuals and organisations;
- ✓ In-school WaiNurseries workshops;
- ✓ The teacher leadership group;
- ✓ WaiFencing based on NCEA Unit Standards;
- ✓ Funding from The Enviroschools Foundation (now Toimata Foundation), to pilot the project;
- ✓ Schools' interest, commitment and willingness to be involved and to share their experiences;
- ✓ The number of schools that included WaiRestoration in their strategic goals and curriculum planning;
- ✓ Keeping things practical;
- ✓ Involving whole school communities – inside and outside school gates.

WaiMaintenance – learning about animal pests

Vivian Body explains the medicinal properties of plants used in Rongoā Māori

What would we do differently if we were starting the project again?

1. Have a clear outline of the project from the start, including a PowerPoint presentation and pamphlet;
2. Secure more funding, particularly for teacher release and payment of community experts.

Feedback from participants about different aspects of WaiRestoration

Professional development

"Great day, plenty of learning and action I will certainly utilise"

- "It was a great hands-on day"
- "Thank you very much for the opportunity; refuelled and ready to get up and go further on enviro programme"

WaiRestoration supporting the curriculum

- "Integrate with ongoing science programmes regarding sustainability, the environment"
- "Would like to incorporate all aspects in social studies programme – Years 7–10"
- "Talk about it (WaiRestoration) at a literacy workshop next weekend"

WaiRestoration and local communities

- "Together creating a sustainable school bush area"
- "Restoring the river in our area, making community connections with farmers. The kids live amongst their river – big connections / generations"
- "Utilising the skills of our whānau, giving back to the community – labour, plants, restoration of creeks, wetlands, etc."

"Long-term it will develop people who are more in tune with their environment and the natural world"

Facilitator support requested

- "To assist / provide knowledge / expertise during lessons / advice regarding funding"
- "Ongoing support, advice, direction"
- "Provide advice to prioritise and set goals"

"Offer support and links to resources"

Students take part in the WaiFencing workshops

Horeke and Whangarei Primary School teachers measure elvers (baby tuna / eels)

Key messages to share

- "There are good resources from Enviroschools and NRC"
- "It's all about our local area; our kids live in this community and there is so much happening that we can add to"
- "Let's get started!"

"Start small, make a plan that involves everyone, make sure the action is well linked to the plan"

WaiMaintenance – learning about pest plants

WaiMonitoring – identifiying macro invertebrates as an indicator of stream health

Planned action

- "Begin with identifying trees on school property and link to eco-sourcing seeds and planting / nursery"
- "Upskill – my own professional development on medicinal plants, herbs etc. Then develop a course, with support, at school"
- "Develop a monitoring programme and study of local tuna"
- "Find out more about WaiMaintenance – possums, trapping, hunting"
- "Look at what the plants tell us about health, medicine and how plants can help us"

"Contact other schools to share expertise, knowledge and skills"

Next steps for WaiRestoration in Northland

- A professional development workshop with a farmer / landowner focus
- More schools involved in WaiRestoration – budget and time dependent
- Existing schools moving into more WaiRestoration streams and / or deeper into current ones
- Involve Enviroschools kindergartens
- Create a WaiRestoration page for the Enviroschools part of the Northland Regional Council website
- Identify funding sources for schools
- Continue to develop each WaiRestoration stream

Regional WaiRestoration events

WaiRestoration events in Northland have played a critical role in connecting Enviroschools students, landowners and community experts together, to learn, share and take action for the restoration of waterways and biodiversity.

Ohaeawai and Tauraroa Area School caretakers work alongside students

Opononi Area School, One Tree Point and Onerahi School teachers pot up harakeke (flax)

WaiRestoration display boards

Teacher leadership group members learn from Dargaville Intermediate School's caretaker

Taipa Area School and Peria School teachers observing biocontrol agents at work

Sharing... through the Northland Enviroschools newsletter

57 take on fencing workshops

Another 57 senior students from seven secondary schools added fencing to their skill set during the latest round of WaiFencing skills workshops.

A total of 187 students from around Northland have now been through the WaiFencing training since it kicked off in 2013. The training aims to boost participants' qualifications and future employment opportunities, as well as better protect the region's waterways from stock.

Hagan Skelton, from Tauraroa Area School, uses a homemade electric fence tester to locate a fault.

Glenis Rogers, from Northland College, helps her team construct a horizontal stay assembly.

The students participated in practical sessions covering fencing knots and ties, fence repair and construction, electric fencing, fencing equipment and strainer assemblies.

Attendee feedback from the workshop was positive – in the words of one attendee, "it was good to learn new skills for fencing and it was cool."

Northland Regional Council's land management team provided a presentation on fencing to protect waterways and also assisted the fencing tutors.

WaiRestoration update

The Enviroschools WaiRestoration Northland pilot project is all about supporting farmers and involving young people and communities in the restoration of waterways and biodiversity.

Primary and secondary teachers from Dargaville, Kaikohe, Kaitāia, Mangakāhia, Ōhaeawai, Otaika and Ruawai are involved in the teacher leadership group, which will be developing WaiRestoration case studies as a resource for all schools involved in the project.

Here are stories and photos from some of the schools currently involved.

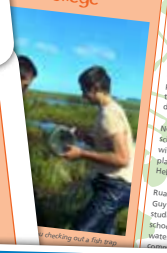
Otaika Valley School

Otaika Valley School has been learning about the amazing lifecycle of the whitebait, as part of its 'Save a Species' work.

With whitebait season running from mid August until late November, the school was keen to help educate people fishing for this under-threat species. After a lot of investigative work, students and teachers have been spreading the word about rules and regulations of whitebaiting. They've also been reminding people to 'check, clean and dry' their equipment between waterways to prevent the spread of aquatic pests.

Students from Otaika Valley School help inform whitebaiters and spread the 'Check, Clean, Dry' message.

Kaitāia College



Checking out a fish trap.

Ruawai College

Ruawai College is charging ahead with both the WaiNurseries and Save a Species components of the WaiRestoration project.

Last year students planned riparian planting in the school grounds, researched the Kaka Beak and Hebe species and designed their ideal shade house.

Now the shade house is to be set up and science students from Years nine to 12 will be involved in growing, selling and planting out the endangered Kaka Beak, Hebes and other riparian plants.

Ruawai College's caretakers, Toni and Guy Gibson, are totally on board with the students' WaiRestoration work and the school looks forward to helping improve water quality by working with their

Ōhaeawai School

Planting at Lake Owhareiti

Year 6 Oromahoe student Oona Rodenburg-Broido describes a riparian planting day at Lake Owhareiti in early September.

"A gloomy day. Though high-spirited, we (60 Oromahoe School pupils) went planting at Lake Owhareiti.

Planting trees on the edges of waterways stops erosion and creates a filter which prevents animal excretions and chemicals from fertilisers from getting into the water.

With our gumboots and coats on, and our spades nice and sharp, we planted lots of native trees.

It was a muddy messy day but we got it all

Why fence off the wai?

Keeping stock out of waterways to improve water quality, plus boosting qualifications and future employment opportunities – WaiFencing really is a project with a lot of positives!

Senior students and teachers/gateway co-ordinators from seven Northland secondary schools took part in this year's WaiFencing workshops.

The workshops provide hands-on experience in a range of fencing skills, plus the opportunity to get NCEA credits.

Students also gain knowledge about the benefits of fencing stock out of waterways, like reducing stream bank erosion and keeping effluent out of the water. Fenced waterways also provide a filter of plants to soak up water-polluting nutrients before they can get into our streams and rivers.

Skills workshops were followed up by assessment days in July and August where, after proving their skills, students constructed fencelines to keep stock out of waterways.

Feedback on the training was positive, with

land College's

Working together for a healthy river

In August, Kokopu and Poroti schools joined the council's Mangere Catchment Group in planting 600 plants alongside the Mangere River.

Rain was forecast, but all four species of riparian plants were in the ground in just over an hour – right before the heavens opened! A big thanks to Reconnecting Northland who funded and laid out the plants.

at school, gumboots and spades 'speak' of the anting action.

The Mangere Catchment Group then presented Kokopu School with a trophy for safekeeping – at the 2014 River Awards, the council received 'the most improved river award' for the Mangere River.

Next, the school's Envirogroup gave a tour of their WaiNursery where their riparian plants are grown from eco-sourced seed. One day these plants will also the Mangere River.

The students' comm rewarded with saut tasting extra delicic the outdoors.

yce Kokich,

WaiRestoration skills learned

The future of Northland's waterways took a big step forward in May with a WaiRestoration professional development day for schools. Now in its second year in Northland, this event was attended by 55 teachers, principals, caretakers, community members and also representatives of organisations such as Fonterra and the Department of Conservation.

The WaiRestoration Northland pilot project aims to support farmers and engage young people and local communities in the restoration of waterways and biodiversity. The project is a joint ventur

included practical workshops, presentations of school case studies and a 'planning the project forward' session. The expert-led workshops covered five of the seven components of WaiRestoration:

- WaiNurseries: eco-sourcing seeds and growing riparian plants
- WaiPlanting: planting beside waterways and matching plants to terrain
- WaiMaintenance: identifying and controlling animal and plant pests
- WaiMonitoring: testing and tracking water
- ality
- a Species: restoring endangered plants
- animals.

ext step, The Enviroschools Foundation nded shade houses, along with advice on how to make the most of them, for seven Northland Enviroschools.

For other upcoming events (such as the caretaker workshops in September) see 'Dates to Diary' on the back page of this issue.

Kim Jones of Whitebait Connection leads the WaiMonitoring workshop

Dargaville Intermediate digs in

Students from Dargaville Intermediate joined other community members to plant 900 native plants recently at Aoroa Farms near Dargaville.

The business-savvy school propagates native plants and supplies them to its main customer IKHMG (Integrated Kaipara Harbour Management Group). The IKHMG is a multi-agency group focussed on creating a healthy and productive Kaipara Harbour – Aoroa Farms is one of the group's flagship sites.

This is the third year Dargaville Intermediate's students have planted their plants on Aoroa Farm. This year's focus was largely on a wetland area, planting cabbage trees, flax and manuka.

Dargaville Intermediate students Harmony McGregor-Cassidy (left) and Aaliyah Robertson planting natives in a

WaiRestoration professional development day

More than 40 teachers, community members and students joined the WaiRestoration Professional Development Day at Trefoil Park, in Kaikohe. The day included five practical workshops covering several of the WaiRestoration themes.

The objective of the day was to further integrate the WaiRestoration project into schools, as well as drawing attention to Māori perspectives, and empowering students to take action.

All workshops were well received, in particular the WaiMonitoring workshop which included weighing and identifying eluru (baby tuna/eels), and the WaiRestoration Connection – Rongoā Māori workshop, where participants learned the different medicinal uses of plants and the Māori stories connecting them.

Students from Kaeo Intermediate took on the role of teacher for the day in the WaiMaintenance workshop setting traps, making lures and skinning possums.

In another workshop, Dargaville Intermediate School built a bridge between WaiPlanting and WaiEnterprise, explaining in detail how schools can grow, sell, plant and maintain riparian plants – all for a profit.

Enviroschools facilitator, Jackie Knight led the ever-popular WaiNurseries workshop, where participants learned how to eco-source and propagate riparian species.

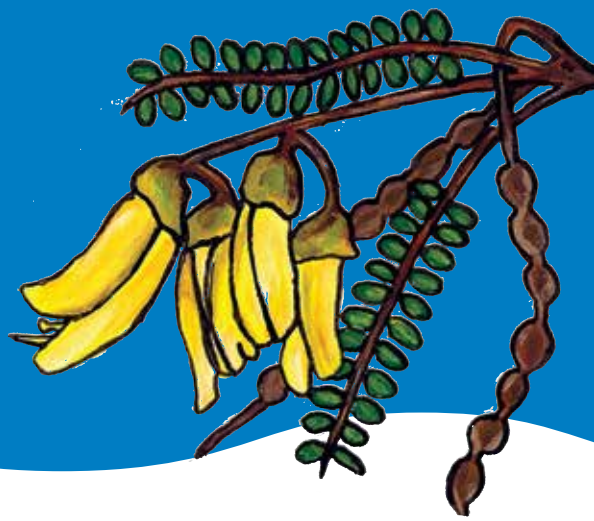
WaiRestoration Case studies

The following case studies share the learning, experiences and actions of some of the Northland Enviroschools involved in building sustainable communities through the context of WaiRestoration.

The case studies demonstrate the regional approach and offer examples of the learning and actions across all streams of the WaiRestoration Project.

Dargaville Intermediate School

Location:	Dargaville	**Enviroschools stage:** Silver	
Roll:	182	**Years:**	7 - 8
Decile:	5	**WaiRestoration streams:**	
Urban			



Identifying the current situation

Where have we come from?

Teacher, Diane Papworth, completed a one-year Royal Society Teacher Fellowship with the Kaipara District Council (KDC) in 2010. She began by looking at successful riparian management practices and plant propagation methods with Fred Lichtwark of Whaingaroa Harbour Care in Raglan. Diane also attended Integrated Kaipara Harbour Management Group (IKHMG) meetings with a view to setting up a native plant nursery at Dargaville Intermediate School. Diane's knowledge and passion was transferred to the students through providing practical resources and ways to learn.

The school had a large vegetable garden up and running and participated bi-annually in Experiencing Marine Reserves, so the students understood the big picture of why it is important to plant near water; especially for the snapper breeding nursery in the Kaipara Harbour.

Exploring alternatives

How else could it be? What have others done? What are the actions we could take?

In 2011 – before the Enviroschools WaiRestoration project began – the goal was to add an extensive nursery for the students to learn how to grow native plants. The school would then plant along waterways, including those on local farms throughout the Kaipara area. The students' next step was to grow enough riparian plants to sell in order to make money to sustain the nursery and provide other benefits for the school.

Take Action

Who will do what and when? What do we need to take action? What actions will bring about the changes that we want?

Teachers and students developed a plan that identified the key stages and the resources required to reach their outcome.

A successful application for a Northland Regional Council Environmental Curriculum Award (ECA), now the Environmental Leaders Fund, (ELF), provided some of the funds to purchase a substantial poly-house, and the school's BOT budgeted $4,000 to start the school's nursery. The first seeds were sown by the students, (kānuka, mānuka, harakeke / flax and tī kōuka / cabbage tree). Additional ECA funds enabled the school to fence off the nursery and garden area.

The students identified income opportunities through selling native plants.

They found out which local community groups would be interested in purchasing native plants e.g. IKHMG, which purchases native plants to plant on 'flagship' farms.

Students and parents supported the planting out.

Motivating and engaging activities were set for students. Being outside and not stuck in a classroom made a huge difference to their learning. Many rural kids love working on the land – their natural backyard. Students like to make a difference and give back to local communities.

Students took ownership of their financial responsibilities through this enterprise and made sound decisions by collecting, organising, and analysing information:

- **2012:** 4800 native riparian plants were propagated, sold and planted around the Kaipara Harbour. The students took part in their first planting day – more than 400 plants were planted at Aoroa Farms, Dargaville
- **2013:** 5000 native plants were grown. More planting at Aoroa farms, plus maintenance of the previous year's plants
- **2014:** 10,000 plants were grown. Continued planting and maintenance at Aoroa farms. 1100 plants planted around a dune lake and wetland area on the McCahon's farm at Te Maire Rd, Dargaville. This was coordinated by Bruce Griffin through the Northland Regional Council Environment Fund grant for landowners. The nursery also diversified its range of plants through eco-sourcing from the school's native trees, e.g. tītoki, taraire, tōtara, kōwhai, kahikatea, karaka, pōhutukawa, and grasses
- **2015:** 7000 plants grown. 1000 plants went to the McCahon's farm for more wetland restoration. 3000 plants were purchased by Kaipara District Council for planting around Kai Iwi lakes. 2600 plants went to IKHMG. Parents and small landowners purchased 400 plants, as a result of advertising in the school newsletter
- **2016:** 7500 plants grown. More planting took place on Hal and Penny Hardings' dairy farm and WaiMaintenance was carried out on what the school had planted in previous years. 1200 plants went to Allister and Maree McCahons' dairy farm where planting took place around a dune lake, 2200 plants to Kaipara District Council for planting around the Kai Iwi Lakes, 750 to Fonterra Maungaturoto to plant around their ponds and facilities, 650 to Avoca, 420 to a local family farm, 3000 still in stock for 2017 (too small). Other smaller sales of a variety of natives.
- **2017:** The nursery continues to be maintained and healthy plants grown for the project.

Dargaville Intermediate planting around Lake Wainui – dune lake on the McCahon's dairy farm – as part of Northland Regional Council Envirofund grant

Reflect on Change

What did we achieve? What changes and benefits have come about because of our actions?

The students learnt the importance of kaitiakitanga of the Kaipara Harbour. They promoted a message of creating a healthy harbour to provide the optimum breeding ground and re-establish stocks of many threatened marine species and ecosystems. They know that by growing these native plants and planting them out in the Kaipara, they are making a difference.

Although the Envirogroup led the action, the whole school was involved through a range of learning areas, e.g. technology – using recycled materials to make nursery equipment, and science – studying seed cycles and carrying out experiments to do with plant growing conditions.

Talking to the experts, such as Northland Regional Council and Kaipara District Council staff and IKHMG members, and always asking questions, enabled positive action and outcomes.

Local farmers and landowners supported the students in an enterprise to grow and participate in planting in a local catchment, giving them the opportunity to develop a range of skills and knowledge including business management.

Farmer/landowner voice

"We enjoy working with the Dargaville Intermediate students each year; they are learning that they are making a difference for future generations. They play a big part in working towards the IKHMG's vision of 'a healthy and productive Kaipara Harbour'." *Hal and Penny Harding, Aoroa Farms Ltd*

Harakeke (flax) and Tī Kōuka (Cabbage Tree) filter runoff – Dargaville Intermediate WaiPlanting

Northland Regional Council Chairman Bill Shepherd checks out riparian plants grown by Dargaville Intermediate students

Twenty-two students and eight adult helpers planted 1100 plants around a dune lake and wetland area in one day. "We're blown away by what we have achieved today; the kids have worked incredibly hard to achieve our goal. They are a credit to their parents and their school". *Allister and Maree McCahon, Te Maire Rd, Dargaville*

Student voice

"We get to get our hands dirty and we give back to the farmers by planting trees (karo), for shelter for the animals." *Lucas*

"I will use my skills in the future to grow my own vegetables and natives in my garden. Also by telling others about the importance of the environment." *Sophie*

"I like doing enviro learning because you aren't cooped up in the classroom and (instead) do hands-on activities like planting out in the community. You are able to see what you have done in the past years. There are all different environments, such as wetlands, lakes and dams to plant around." *Max*

Teacher voice

"Our garden and nursery are assets to our school and the wider community. This week some students made pumpkin soup from our own garden produce – a complete lesson from earth to plate. Our children are given the opportunity to learn by doing and get to see tangible results from their efforts. The riparian planting by the enviro group has a direct impact on our local environment. Having a caretaker who is an experienced nurseryman is a huge asset to our garden and nursery. Recycling has been established and maintained as a culture in our school through the efforts of Diane and her enviro group." *Mark Brimblecombe*

Principal voice

"Our nursery is an enactment of our mission statement: 'Learn from the past, plan for the future, make the most of today'. It empowers our children by providing relevant local contexts for study utilising our history, our present, and our aspirations for the future for our whenua, awa, and people." *Brendon Lucich*

Students learn about and take responsibility for the school plant nursery – growing, maintenance and enterprise

Kamo Intermediate School

Location:	Whangārei	**Enviroschools stage:**	Silver
Roll:	667	**Years:**	7 - 8
Decile:	5	**WaiRestoration streams:**	
Urban			

Identifying the current situation

Where have we come from and what do we know now? What can we learn?

Before the Enviroschools Programme was available in Northland, Kamo Intermediate School developed 'Islands of Life' in the school grounds, creating habitats for a variety of flora and fauna. More recently the Planting it Forward group grew native plants in a small shade house and donated them to a number of schools throughout the Northland region. Over the years, various learning and action has happened in, about and for the environment.

Curriculum programmes over time have regularly included waterways investigations. The concept of 'Mountains to the Sea' under the umbrella of Experiencing Marine Reserves, was very familiar to all students at the school and they were well used to considering a sustainable outcome at the culmination of their investigations and actions.

In 2015 and 2016, teachers and the Deputy Principal attended the WaiRestoration professional development workshops. These offered possibilities to integrate WaiRestoration into Kamo Intermediate.

Charlie successfully propagates mānuka at an in-school WaiNurseries workshop

The Kamo Intermediate wetland group considers what to grow at school for planting out at the wetland

Take Action

Who else do we need to involve? What actions will bring about the changes we want?

A first step was the Project Possum camp, modelled on the Enviroschools NCEA-based courses for secondary students. Next it was the development of Environmental Project Groups – waste, wetlands, gardens and shade house groups. These groups investigated what they could contribute in the future – 'How can we make a difference to Northland waterways'?

The wetland group began by looking at the options for 'adopting a wetland' in their local area. Several students knew of the wetland in nearby Tait St, which is administered by the Whangarei District Council (WDC). Knowing that 'before' and 'after' visits are important in tracking change, field trips to the wetland were soon underway:

1. Overall observation of the wetland – landforms, ponds, springs and streams;
2. Identification of trees, other native and introduced plants, pest plants and birds;
3. Set up personal folders about the plants identified;
4. Collected eco-sourced seed, then propagated back at school;
5. Collected plant specimens for pressing and adding to folders;
6. Met on site with Spencer Jellyman, WDC Parks and Reserves Manager, to hear about the council's plans for the wetland before making decisions about 'where to next'. As a result, the school partnered with the council in the management of the wetland;
7. Freshwater invertebrate identification;
8. Whangarei District Council carried out a clean-up of the wetland area, including earthworks to clean out the pond and make a causeway with pipes underneath;
9. Met with Spencer at the wetland to view the cleaned-up site, identify possible planting areas and discuss future plans;
10. Combined school and council planting day.

The long term goal for the wetland group is to grow riparian plants and a selection of other native species, including local endangered plants, in a new shade house. The WDC plants used at the planting day gave an indication of what would work well in similar areas in the future.

The wetland and gardening groups collected local seeds and potted them on and they are continuing to grow. They also included endangered species that were found in the area. These riparian and other suitable natives will 'return' to the Tait St Wetland, and will possibly make their way to other wetlands and local stream areas.

The goal to build a new shade house was necessary to create a manageable nursery area big enough to grow a larger number of plants.

Steps to the new shade house:

1. **Funding** – funding sources were explored and Kamo Intermediate School was successful in getting funding from the Northland Regional Council's Environmental Leaders Fund to build the shade house;
2. **Shade house designs** – plans were explored, drafted and then checked by a builder;
3. **Site preparation** – the school's sustainability area was measured and cleaned up;
4. **Nursery layout** – plans were drafted to show location of work benches, storage and a hardening off area;
5. **Plants** – native species (some endangered) were selected, sorted into riparian zones and sourced.

Whangarei District Council and Kamo Intermediate joint planting day at the Tait Steet wetland

Reflect on Change

Where to from here?

Plans for 2017:

- Visit other wetlands and shade houses, including Dargaville Intermediate's WaiNursery;
- Collect seeds in local wetlands at appropriate times of the year;
- Use seedlings purchased from nearby Hurupaki School – sourced from their wetland;
- Establish short and long-term goals for the Tait Street wetland;
- Identify contributing streams and discuss riparian planting with adjacent landowners.

At each stage of the journey, students have had the opportunity to reflect on the current plan of action. They originally identified their lack of knowledge about plants growing in the area and now have personal folders with pressed plant samples and matching information. They will identify more riparian plants that grow well in Northland and add them to their folders.

The shade house plans continue to create questions, discussions and changes – but the outcomes will cover the needs and provide the opportunity to move on with the project.

An offshoot of the WaiRestoration plan is for the gardening group to use a section of the shade house to grow-on plants for their own gardening area.

Deputy Principal's voice

"This is a great project which supports us to further our aims of working more closely with our wider school community.

Our boys group TāneKaha has been approached to help a local builder construct the shade house – which will be used with many groups as well as the wetland group. We need to secure a bit more funding to complete the purchase of materials for this project. The shade house will also be used to house plants for our native gardens within the school grounds.

We have bought a range of tools (2016) to support the project. This group (TāneKaha) will also be taking on the pest control aspect of WaiRestoration in terms of addressing possum control in local areas (the areas are still to be confirmed). The workshop the students ran for teachers around Project Possum Junior in 2016 was a superb experience. This project will be further developed in 2017.

There is a key group of students participating in the local wetland project and more will join this project in 2017. We also have another group working within school on our native garden areas.

I am really excited to see how the momentum, begun last year, will continue to the end of 2017 involving many more students from across the school. We are well supported by Julie Holt, our awesome Enviroschools facilitator." *Jo McIntyre-Brown*

Student voice

Q: Why did you choose to be part of this project?

Charlie: Because I thought Whangārei needed a change of awareness and that we needed more people to be aware of the environment around us.

Rowan: I am the same – I thought that Whangārei and our local area needed to know more about the environment and its issues.

Q: What do you most enjoy about the wetland project:

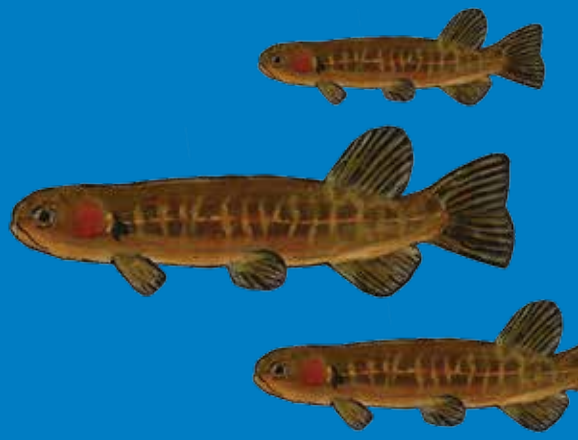
Rowan: helping the environment, being able to do extra stuff round school, helping the community by growing new plants in a public area and keeping the waterways clean and healthy.

Charlie: knowing that I am helping with environmental issues and having fun in the process and planting native trees (as well as learning about them)

Q: Will you still be involved this year?

Both: Yes!!

Kokopu School



Location:	Whangārei	**Enviroschools stage:** Silver	
Roll:	74	**Years:**	1 - 8
Decile:	8	**WaiRestoration streams:**	
Rural			

Identifying the current situation

What can we observe? What can we learn?

Students at Kokopu School worked with Whitebait Connection to learn about and begin to monitor the water catchment in their local area. They identified the importance of planting in the riparian zone to benefit water quality.

The students then went on to work with the local Waimarie Nurseries. During their time there, they developed skills in potting, soil types, plant identification and planting.

The school's shade house venture was part of being involved and committed to future riparian planting, so several staff attended the WaiRestoration professional development workshops. In 2014, the school obtained funding support for the shade house development from the Enviroschools Regional Capacity Building Fund via the Northland Regional Council.

Students at Kokopu School grow a range of native plant species in their shade house, suitable for WaiRestoration

Exploring alternatives

What are all the actions we could take? What have others done?

How could we set up a nursery? What experts could we tap into? What are riparian plants? How long do the plants take to grow to the planting out stage? What containers and growing material do we need?

Things Kokopu School did to help build awareness, knowledge and skills:

- Integrated education for sustainability learning into all classroom programmes;
- Potted on a greater range of seedlings gifted from local nurseries;
- Developed an action plan to consider all queries such as types of plants, local expert involvement and growing times, getting more nursery equipment and setting up a roster that included all classes' involvement;
- Included parents and other community members in potting-up days;
- Used a range of science-based experiments to determine best growing conditions, compost, watering and general care;
- Visited other schools to gain knowledge and make comparisons with growing systems;
- Encouraged students to investigate ways to protect our waterways;
- Checked out the water supply and investigated a new watering system and storage – used local business knowledge for support;
- Ensured all Enviroschools Guiding Principles were included.

Kokopu School's student-built WaiNursery

Students eco-sourcing native plants with Enviroschools facilitator Jacqueline Knight

Take Action

What actions will bring about the change we want?

Using their action planner, Kokopu School carried out the following:

- Students talked to the BOT, principal and teachers to rally support for WaiRestoration. Principal presented to the BOT under National Administration Guideline (NAG) 1;
- Involved the caretaker;
- Visited a few nurseries – at other schools and also private nurseries;
- Found a suitable nursery site near to a water supply;
- Worked out a suitable shade house size and contacted an expert to help with costings;
- Stuck with one supplier of nursery items once quotes were obtained – kept it simple;
- Had to be prepared for extras and unknown costs that cropped up;
- Applied to several different funders – the earlier the better;
- Shared ideas with whānau, e.g. information sharing days;
- Used a network of professionals to guide us with their knowledge;
- Designed, drilled, bolted, haggled, collected, measured, dug and concreted;
- Realised that great things take lots of time;
- Decided who would be doing the nursery construction, and made sure they knew what they were doing before they started the job. A very tight building plan was needed and it had to be looked over by people who know what they are doing. Changes to ways of doing things could otherwise lead to extra expenses;
- Asked parents for equipment such as seed trays, potting and seed-raising mixes and pots;
- Took part in two riparian planting days at a local beef and sheep farm with the Mangere Catchment Group and invited a neighbouring Enviroschool – Poroti School – to join us;
- Received plants to go in the shade house, from Papakarahi Landcare Nursery.

Reflect on Change

What did we achieve? How did the project go? What would we have done differently? Where to from here?

Building a shade house is an achievable action for schools. Kokopu School learnt that problems with construction create great teaching/learning opportunities, e.g. a saggy roof, twisted wood, alignment of uprights.

The current shade house was investigated and worked on by the senior students who gained valuable skills through the creation process as it went from paper to production. Students were

empowered through the decision-making, and skills were learnt – measuring, digging post holes, setting up the framing, attaching the shade cloth, overcoming problems, setting up the benches and potting up the first round of plants. There was total commitment from the students with enthusiasm well shared with local groups as well as taking presentations to the Mangere Catchment Group and the Northland Regional Council.

Transport was an issue – who is going to fund the trips out to water monitoring sites, or to eco-source seed locally, or to planting days, etc? Getting students out of school to do this has a cost.

There were problems with finding ripe seed at the right times in our local area – all part of developing knowledge and skills towards eco-sourcing seed for our shade house nursery.

Next steps

- Extend the shade house (with funding support), to give more space for a potting-on area;
- Ensure it's a shade house not a weed house;
- Find people who want to buy the plants or who have fenced off areas for planting;
- Develop a roster for nursery maintenance.

Student voice

"It was hard trying to mix the cement"

"Although it took ages, it (the nursery), turned out really good"

"Drilling was fun."

Mangere Catchment Group voice

"There are benefits for all – students learning about growing plants and working with a local group, the farmer working with the community to get riparian margins planted AND the environment wins."
Helen Moodie, Dairy NZ

Principal voice

"Children love to be 'doers' and learn so much by being 'hands on'. WaiRestoration has combined fun and practical learning with understanding more about kaitiakitanga; they want to protect, preserve and improve their environments. Personally, I have benefitted from the guidance of Northland Regional Council Enviro experts who have helped us as a school and community 'own' our efforts to become more environmentally-minded. Children are key decision makers - they are empowered to think through issues and develop sustainable practices; ultimately this is not only about riverbanks and water life – WaiRestoration is an opportunity to awaken the enviro passion of our young people. The WaiRestoration project has also been a gateway to other stakeholders; we can better network with sponsors and local businesses who want to help us. The Enviroschools Programme and WaiRestoration project cannot run on fresh air – I hope funding for these crucial programmes continues." *Mark Ashcroft*

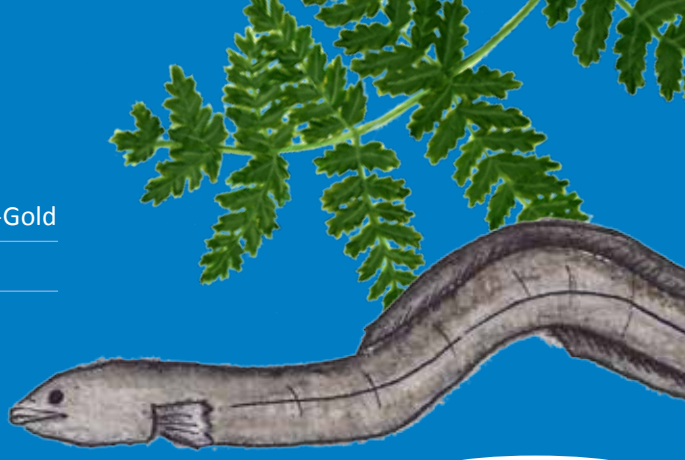
Farmer voice

"I think what Kokopu School's doing is providing the missing link between generations – they are growing attitudes towards riparian planting and looking after the land and water. They've been equipped by a variety of agencies to change how we go about land and water management. Over the past two years, Kokopu and Poroti students and parents have helped us plant 1100 riparian plants on our beef farm. We have recently received a Northland Regional Council Environment Fund grant for fencing and are looking to do more planting ourselves, and are also keen to have the students back for more planting days. It takes time to get organised for the planting days and we need to be there on the day to make sure everything's done properly, but it's great to see the parents' reactions – they can see that farmers are doing something to care for the waterways. I hope that even if the kids don't end up with rural jobs, they will retain the knowledge and still have a hand in land and water management."
Rob Pye, Drystock farmer

Ratama identifies a short fin elver (baby tuna)

Mangakahia Area School

Location:	Whangārei	**Enviroschools stage:** Green-Gold	
Roll:	103	**Years:**	1 - 13
Decile:	3	**WaiRestoration streams:**	
Rural			



Identifying the current situation

What can we observe? What can we learn? How can we influence things?

The students of Mangakahia Area School investigated the problem migrating eels (tuna whakaheke) have passing through the Wairua Hydro Scheme. The scheme is a hydroelectric power station at Wairua Falls, five minutes from the school. Northpower owns and operates the Wairua power station and a large proportion of the Wairua catchment is unfenced. Local land is predominantly used for farming and horticulture purposes.

The senior students were concerned about how the migration of eels (tuna) was impacted by the Wairua Hydro Scheme. This concern led them to think more broadly about the catchment's water quality and the tuna habitat, especially after their kōrero with local Kaumātua, (the now late) George Tuhiwai. George Tuhiwai, of Te Parawhau hapū, ran the elver (baby eels) transfer operation at the Wairua Hydro Scheme. Students learnt that the elvers are collected at the base of the power station and transferred to rivers and streams in surrounding catchment areas.

Mangakahia Area School students move 2,270 school-grown native plants for planting out on wetlands at Titoki Station (Landcorp farm)

Exploring alternatives

How else could it be? What have others done? What are the actions we could take?

Students investigated several global freshwater issues, which set the scene for them to look at what is going on with freshwater in their own backyard - their catchment.

They considered the cultural importance of protecting an endangered and endemic species and the concept of degraded tuna habitat. They developed an understanding that "we can be part of the solution to restore degraded tuna habitat and freshwater quality" and that "we can learn and develop skills to be active kaitiaki of our whenua".

Mangakahia Area School students prepare kawakawa leaves to anesthetise tuna whakaheke, as traditionally used by local hapu Te Parawhau

Take Action

Who will do what and when? What actions will bring about the changes we want??

The Level 3 Education for Sustainability (EfS) class decided to build a WaiNursery to grow native riparian plants to restore tuna habitat, as local hapū were very concerned about the issue. Important transferable skills developed were eco-sourcing, sowing native seed, running and maintaining a nursery, planting, identifying plants, the amalgamation of Māori and scientific worldviews, and working together.

In Year 11, the EfS class use Level 1 Geography achievement standards to bridge the gap to Level 2 and Level 3 EfS.

The Year 11's do a unit around renewable energy options (tidal / wind), in the Kaipara Harbour. They learn why the Kaipara is important in terms of a vital fish nursery for commercial species, and that the harbour is the bottom of our own catchment – so what we do up here affects the harbour itself. It is also where our tuna whakaheke migrate so it is ideal for EfS investigation and learning.

In 2013 Senior EfS students investigated the issues that tuna whakaheke had when they migrated both ways past the Wairua Hydro Scheme in Titoki, (AS90811). They then broadened out this sustainability issue and started investigating the catchment in terms of unsustainable farming practices and what part of the solution they could be involved with.

In the same year, the students designed and built a WaiNursery and started to eco-source local seed for germination (AS90828).

In 2014, senior horticulture students ran the WaiNursery using a mix of a horticulture unit and achievement standards. More than 2000 riparian plants were grown.

They worked with their chosen organisation – Ngā Kaitiaki o Ngā WaiMāori (91734 and 90832) and decided to plant out a local wetland / tuna habitat. In this way, they could be part of the solution.

Reflect on Change

What did we achieve? How can we monitor and record the changes?

Senior students attended the Living Water Launch, an initiative by DOC and Fonterra to work together, as the Kaipara is one of five of New Zealand's most vulnerable and important catchments. They became immersed in the issues - the different parties and perspectives and what groups still held power and control over decision making, excellent for the external achievement standard (AS91736) on worldviews.

In 2015, an elvers data collection day was held where students gathered important information for NIWA, sampling 100 tuna by weighing, measuring and distinguishing whether they were short fin or long fin (long fins are endangered and endemic). Students found there were only four longfins out of the 100 tuna sampled.

The students were also involved in tagging and releasing adult migrant eels with NIWA and hapū. They inserted a tagging device into the tuna and released them into waterways at the Hikurangi swamp pump station. The students found out that there was only one longfin adult migrant out of a sample of 70 adult tuna. They were really concerned and again this data supported their decision to plant out and restore vital tuna habitat as their 2015 social action.

George Tuhiwai shows Mangakahia Area School students how to check for existing data collection tags in anesthetised tuna

Maungaturoto School

Location: Maungaturoto, Kaipara

Decile: 5

Roll: 200

Rural

Enviroschools stage: Bronze

Years: 1 - 6

WaiRestoration streams:

Identifying the current situation

Where have we come from and what do we know now?

In 2015, teacher Karla Tana attended an Enviroschools WaiRestoration professional development day at Trefoil Park, near Kaikohe. A WaiMonitoring workshop was one of the action stations available. This station made a connection with Karla, which led her to consider Maungaturoto's local waterways. Karla contacted the workshop facilitator – Kim Jones from Whitebait Connection – to support her in building a relationship with Fonterra and Otamatea Harbour Care Society. These relationships were important in terms of future actions to be considered and supported, and in order for the class to work with the organisations at a later date.

The Wairau River is a short drive away from the school. The section the students were to investigate was on Fonterra land. This land had been identified as a whitebait (inanga) spawning site, due to the salt water wedge – the area where fresh and salt water meets.

As the proposed area was on Fonterra land the students needed to have specific permission to access the area. Students and adults were to wear covered shoes, high visibility vests and safety goggles at all times.

Exploring alternatives

How else could it be?

The objective was to investigate the local river and to explore the following questions:

- What lives in our local waterways?
- How has the river changed over the years?
- What native / non-native species are in our catchment?
- Which harbour does our catchment flow into?
- Which threatend species are in our waterways?
- What can we do to help?
- Who is going to help us in our inquiry?
- Which local resources are available to help support our learning?
- What is the most threatened species in this area?

Questioning led the students to decide that whitebait needed them to take action to make a difference to the health of the waterway.

Whitebait Connection ran its monitoring programme with Maungaturoto students. This led to the students identifying changes to the river over time, in particular that there wasn't enough vegetation to keep the waterway cool and there was insufficient hanging vegetation for the whitebait to spawn.

Take Action

What actions will bring about the changes we want?

Students decided that they could contribute to the number of whitebait and their survival rate by developing their own growing and planting programme. Knowledge was needed about planting with purpose – native plants in their appropriate habitats. They built a shade house for the purpose of growing native plants. The students raised seedlings from seeds that they collected in their school environment.

- What conditions will the plants need to grow in?
- How can we get seeds?
- How do we plant seeds?
- Could we set up a nursery?
- What are the riparian plants we will need?

In August, 2015 the students planted out at the whitebait spawning area of the Wairau River. These plants were supplied by Otamatea Harbour Care Society. The students went back for maintenance in December 2015 and then again in 2016.

Students designed a sign to tell visitors about whitebait and that the area is a whitebait spawning site. This sign was unveiled in 2016 with the support of local iwi, Fonterra, Whitebait Connection and Maungaturoto students.

Reflect on Change

What did we achieve?

Regular maintenance is important, as the grass smothers the new plants quickly. When planting, the students clearly marked out each tree using bamboo sticks so that when they went back to clear around the trees, they were able to identify them easily.

The school received funding from the Enviroschools Regional Capacity Building Fund, via the Northland Regional Council, to develop its own native plant nursery. Students collected eco-sourced seeds for future plantings and sold native trees to the school community. The money raised was used to support education outside the classroom.

Students enjoy experiences outside the classroom to learn more about the whitebait spawning sites

A message from Year 5 Maungaturoto students

"This is the home of the whitebait, please help us to look after it. Tread carefully near the river – especially in autumn. Don't cut down the trees. Control rodents and other pests (especially mice). Don't spray near the water. Keep stock away from the river. Take your rubbish home with you."

Media article snippets - industry voice

Northern Advocate (24 May 2016)

- Many of the children were on hand to watch the spawning and the erection of a sign declaring the area 'Whitebait Island'. Fonterra said the recent spawning highlights the work that's been done by the local community to improve conditions for the rare fish during the last couple of years.
- "Whitebait is as threatened as the little spotted kiwi in New Zealand, and we believe it's essential that we do everything we can to ensure they don't become extinct," Fonterra Maungaturoto Project's Environmental Lead Steven Gale said.

Teacher voice:

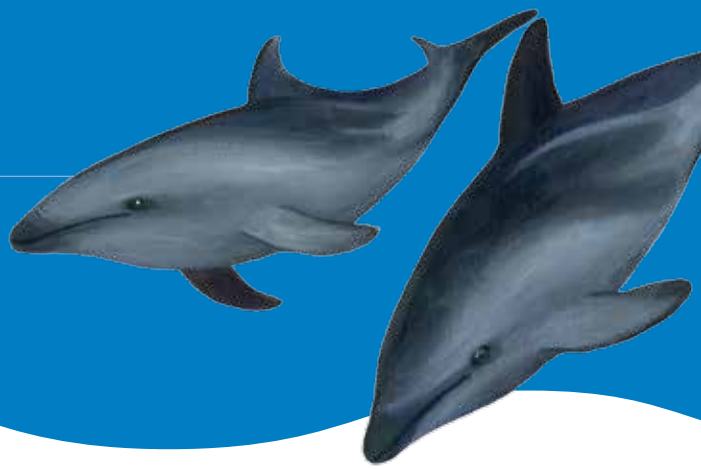
"I felt that my Year 3 and 4 students made some really strong environmental connections between the water cycle, the waterways and also the need to protect the endangered species of whitebait. This was done through the planting and maintaining of the area that they named 'Whitebait Island'. It was a very valuable 'hands on' learning environment that they took ownership of, allowing them to pass on their knowledge and awareness to others."
Karla Tana

Well planted waterways with overhanging vegetation provide the conditions whitebait need to spawn.

The newly erected sign declares the area 'Whitebait Island'

Opononi Area School

Location:	Opononi	**Years:**	1 - 13
Roll:	130	**WaiRestoration streams:**	
Decile:	1		
Rural			



Identifying the current situation

Where have we come from and what do we know now? What can we observe? What can we learn?

Lead geography teacher, Hera Howell, and local iwi identified the Waiarohia River as under threat. The river runs through the Opononi township from the ranges behind and flows into the Hokianga Harbour. The threats come from the wastewater system, a rubbish tip and erosion along bare banks.

An approach to protecting the river was developed after the history of the river was explored with local iwi, (Matua Fred Toi), speaking to the students about the river, and Wakaiti Dalton, who has worked with NIWA, doing water testing with students to discover its current status. There were also classroom discussions about water quality.

Matua Fred Toi tells the history of the area to Opononi Area School students

Exploring alternatives

How else could it be? What are the actions we could take?

The Year 9 and 10 classes studied global deforestation and erosion around rivers. While working through the unit – 'Let's do something about the place' – they decided to look around at their local issues. They did some work on local history and spoke to local people before settling on the Waiarohia River as a place in need of help.

Opononi Area School students setting up for water quality testing

Opononi Area School Year 9 students listening to the history of their river from Matua Fred Toi

Take Action

What actions will bring about the changes that we want?

- The school is working with a local home nursery to grow plants;
- Students are trained to do fencing in preparation for fencing off the waterway before planting;
- Planting is planned for next winter;
- The school received funding from the Northland Regional Council's Environmental Leaders Fund to purchase gabion baskets to protect a badly eroding bank.

Reflect on Change

How did the project go? What went well? What didn't go so well?

The school has been struggling to work out proportions with regard to the gabion baskets and they have now asked for the council's help with dimensions and placement. The teacher at times felt she had 'bitten off more than she could chew' with such a big project, but has been pleased with the engagement of most students and with the community links that have been forged.

The next steps are to get the gabion baskets built and in place, and to start planting the river banks.

Otaika Valley School

Location:	Whangārei	**Enviroschools stage:** Silver	
Roll:	146	**Years:**	1 - 6
Decile:	4	**WaiRestoration streams:**	
Rural			

Identifying the current situation

Where have we come from and what do we know now?

Otaika Valley School pupils worked intensively around the Nature of Science, with a particular focus on their own backyard.

The Otaika River is across the road from the school and runs through a large area of forested land reserve and many small lifestyle blocks in the Otaika Valley. The river regularly floods in this area, with some erosion evident.

The following questions / statements helped guide a process for students to find out about the river's past and what the current situation was.

- What is our river catchment? Where does it flow from?
- What was the river used for historically?
- Who uses the river now?
- How healthy is our river? How do we measure this?
- What are the threats / issues in the river area? Which ones are natural and which are man-made?
- What could possibly be wrong with the river?

Students noticed a number of fishermen in the area during the whitebait season. They also noticed unfenced land area and new subdivisions further up the catchment.

Whitebait Connection was invited in to help students investigate water quality and the river ecosystem – they have the knowledge and also the appropriate gear. A day out alongside the river monitoring the water clarity, conductivity, pH, water temperature and freshwater life led the students to conclude that their river was healthy. This meant that Otaika River was home to a thriving population of inanga, some longfin eels, freshwater crayfish, mayflies and stoneflies. However, the students were concerned about erosion along the riverbanks.

The WaiNurseries shade house is completed at Otaika Valley School

Otaika Valley School students install their information board to help people understand the values of the Otaika River and its native fish

Exploring alternatives

How else could it be? What actions could we take?

Erosion along the riverbanks led students to learn about the benefits of riparian planting. They investigated growing their own native plants to plant in the riparian zone.

The number of whitebaiters was also a concern for students as they learnt that records showed a drop in whitebait (inanga) numbers.

- What makes a healthy whitebait / inanga habitat?
- What have others done?
- What can children do to make a difference?
- How can we communicate with the whitebaiters about whitebaiting regulations?

Take Action

What actions will bring about the changes we want?

Students' objective: To create healthy habitats for our freshwater life and also the native fauna.

The erosion along the river banks led to the students deciding to grow their own native plants to plant in the riparian zone. The students researched the best design for the nursery. They looked at what would best suit the area and what would be most cost effective. Funding for the shade house was sourced from the Enviroschools Regional Capacity Building Fund via the Northland Regional Council and the shade house was then constructed by students and parents.

The students created and erected signs in the area reminding whitebaiters about whitebait regulations and to 'Clean, Check and Dry' their gear to stop the spread of didymo.

Reflect on Change

What went well? What changes and benefits have come about because of our actions? Where to from here?

- Communication with whitebaiters was supportive and encouraging;
- Working alongside experts and local land owners helped with building knowledge and partnerships;
- The shade house has been very effective. The water supply (irrigation), has been a concern, especially over the summer holidays.

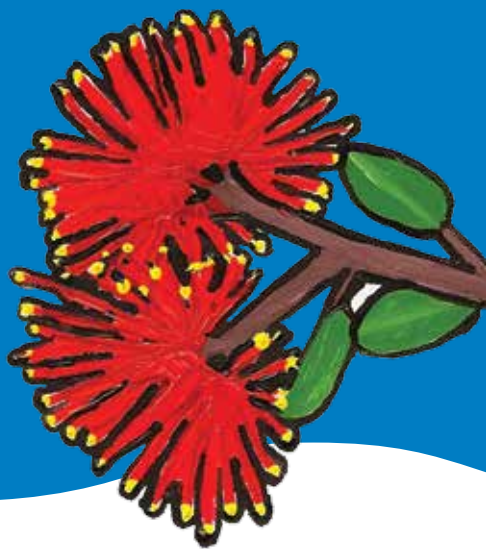
The next steps are to plant a riparian zone along the riverbank to help stop erosion during flooding and create healthy spawning habitats. There are also plans to erect more permanent weatherproof signs at more access points to the river.

The school will apply for funding for its own Stream Health Monitoring and Assessment Kit (SHMAK). The kit includes a manual of instructions, identification guides, simple instruments and a carrying case. This will mean that the school can continue to monitor and measure change over time.

Kim Jones, Whitebait Connection watches over students checking water clarity at Otaika River

Tauraroa Area School

Location:	Whangārei	**Enviroschools stage:** N/A	
Roll:	527	**Years:**	1 - 13
Decile:	6	**WaiRestoration streams:**	
Rural			



Identifying the current situation

Where have we come from?

In 2013, Tauraroa Area School (TAS) ran an Education for Sustainability (EfS) course in Year 12. In 2014, this developed into the Vocational Primary Industries (VPI) course, essentially the school's agricultural academy.

From 2011 to 2013, the school experienced Enviroschools Project Possum run by the Northland Regional Council and found it worthwhile for its EfS students. In 2013, when Enviroschools WaiFencing was advertised, the training and NCEA Level 2 Unit Standards fitted perfectly with VPI course objectives.

What can we learn?

VPI students are mostly from farming families. The students had some experience in fencing, but still had more to learn and needed the matching qualifications. One aim of including WaiFencing in the VPI programme was to increase the students' confidence and proficiency in fencing.

Another important aim was to learn about the reasons why fencing stock out of waterways is so important. "There are many students in this school who live on or around farms and we want them to leave school aware of the importance of improving and protecting the water environment." (JK (Jeremy) Hill, teacher)

What do others think and feel?

All parties were positive about the school joining WaiFencing – particularly the students' parents.

Josephine taps in an insulator as she helps fence off the Nihotetea Stream, Whangārei

What can we measure?

The number of students keenly interested in being part of VPI has increased. At first students were encouraged to take the course; now there is a selection process, including interviews and whānau meetings.

The number of kilometres of fencing can be measured. In between the WaiFencing skills and assessment workshops, students need to practise their fencing skills. Tauraroa Area School has fenced off native bush and waterways on a number of neighbouring farms.

Exploring alternatives

What are all the actions we could take?

We could have gone to another fencing course provider, but the fact that Project Possum – provided by the Northland Regional Council, under the umbrella of the Enviroschools Programme, had proved so successful for the school, made WaiFencing the obvious choice.

Take Action

What do we need to take action?

The school needed the appropriate student / adult ratio in order to fence off-site. This meant that the school caretaker, an avid VPI supporter, became involved as needed and when he was available. Also needed was fencing equipment, properties to fence and community support.

Developing fencing skills as part of WaiFencing

Reflect on Change

What did we achieve?

- Students' confidence grew, especially for those who didn't have day-to-day contact with farmers;
- WaiFencing showed students that fencing was achievable for them;
- Life-long skills were learnt;
- WaiFencing students from other schools gained knowledge from the TAS students; they were more skilled than most and were willing to share their skills.

What went well?

- Good trainers / instructors;
- Well organised, professionally run courses;
- Caring for our waterways teaching and learning;
- The contact with Northland Regional Council – the VPI teacher liked working with the council and finding out more about what it does.

What could be improved?

- More teaching and learning around why waterways need to be fenced off;
- More evidence of practice between skills and assessment workshops required, i.e. photos.

What changes and benefits have come about because of our actions?

- Tauraroa Area School is turning out sought-after young people with qualifications in practical skills;
- Successful VPI graduates are all employed or in tertiary education;
- VPI students have qualifications they wouldn't otherwise have.

Where to from here?

- Continue with WaiFencing for future VPI students;
- More fencing of waterways on local properties.

Teacher voice

"WaiFencing's one of my favourite parts of VPI. It's helping me on my own property and I get to learn things I wouldn't have got to know otherwise. I like interacting with the Can Train and Northland Regional Council tutors – real Kiwi blokes."

Student voice

"I enjoyed it and gained knowledge on top of the skills I already had. I got along with the tutors quite well. I went with my mates, but working with people from other schools zoned me in more and we worked as a team."

Secondary schools summary

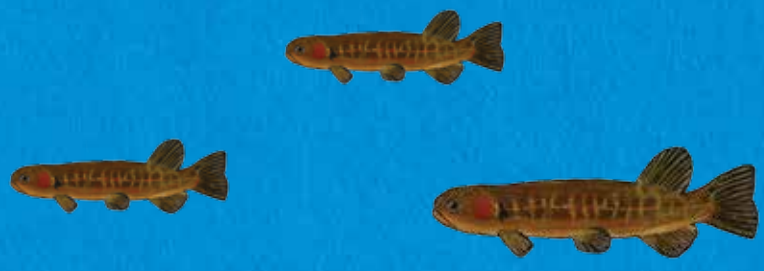
Bream Bay College	Historically, Bream Bay College has had many environmental projects with individual teachers. The school currently has a Year 12 sustainability course and a great plant nursery (**WaiNurseries** and **WaiPlanting**). Activities include planting along the estuarine waterway near the school and participating in dune planting with local community groups. A junior extension class helped to collate all the historical environmental activities and analyse the school grounds for improvements to the environment. This developed a coordinated whole school approach. It also fed into the school achieving Enviroschools Bronze and doing further environmental projects. In addition, the school linked up with EcoSolutions for assistance with waste management improvements.
Dargaville High School	Dargaville High has redeveloped its plant nursery and eliminated Argentinian ants, participated in propagation workshops, collected seeds and supplied seedlings to landowners. The school's WaiNursery is currently thriving. Students are taking part in bittern monitoring (**WaiMonitoring**), which is part of a project to develop a bittern sanctuary on a nearby farm in partnership with the Northland Regional Council and Department of Conservation. The council has funded wetland and riparian plants for restoration connected with the bittern project and students have been involved in an associated community planting day (**WaiPlanting**). Students will attend **Project Mustelid** in 2017 (**WaiMaintenance**).
Huanui College	Huanui College is establishing an agriculture / horticulture programme and a restoration project has begun to manage pests (**WaiMaintenance**) and restore a stream (**WaiPlanting** and **WaiMonitoring**), all on the school grounds. It has received $6000 funding from the World Wide Fund for Nature. Currently a shade house is planned and is being built this year to grow riparian and vegetable plants (**WaiNurseries**). Students have attended an Enviroschools **Project Possum** camp and are working with a Northland Regional Council biosecurity officer on predator control. This project has begun and is being worked into Cambridge assessments. Ecosourcing and propagation courses have been undertaken to kick off the native plant nursery.
Kaikohe Christian School	Kaikohe Christian School is involved in **WaiFencing** and **Project Possum** and officially became an Enviroschool this year. The school has set up a horticulture programme, including a propagation workshop with teachers and students (**WaiNurseries**). One class is undertaking a small school grounds restoration project to attract native birds. This will involve learning plant names and which selection of plants will feed birds year-round. Students will learn about growing conditions, collecting seed, propagating plants, planting them out and keeping plant and animal pests at bay (**WaiNurseries**, **WaiPlanting** and **WaiMonitoring**).
Kaitaia College	A shade house has been developed next to a classroom (**WaiNurseries**) and students are learning about fencing and pest control, (**WaiFencing**, **Project Possum** and **Project Mustelid**). There are plans to set up a restoration project which may involve working in the Pukepoto wetland near the school.

Kamo High School	Kamo High is redeveloping its agriculture / horticulture area and the nursery is back up and running, growing native plants. Juniors are now involved in the agriculture / horticulture programme and the school is venturing into a restoration project to restore a weedy gully on school grounds. Some junior students have taken part in an agriculture sustainability course and attended a propagation workshop and seed sourcing trip. The gully project has the potential to be a whole school cross-curricular project involving plant and animal pest control (**WaiMaintenance**), water testing, bird, lizard, fish and insect counts (**WaiMonitoring**), collecting seed and growing appropriate streamside plants (**WaiNurseries**) and planting out (**WaiPlanting**). Students attend **Project Possum**, **Project Mustelid** and **Project Rodent** (**WaiMaintenance**).
Mangakahia Area School	Mangakahia Area School's WaiNursery is now being used to grow trees to attract birds, which will be planted in the school grounds next winter. In preparation, plant identification field trips, an in-class native tree study, and propagation and eco-sourcing workshops have been held.
Northland College	As part of Enviroschools **WaiFencing** assessment workshops, wetland areas have been fenced off from stock. Rare mudfish live in one of the areas (**Save a Species**) and seed has been cast to regenerate the area. The college received money for wetland plants from the Northland Regional Council. The school is now fencing off a wetland's tributary streams (**WaiFencing**), growing plants for the waterways and redeveloping an old plant nursery (**WaiNurseries**). Students attend **Project Possum** and **Project Mustelid** (**WaiMaintenance**).
Okaihau College	Okaihau College has developed a cross-curricular project (art / social studies / special education / business studies / technology) to continue restoring the school grounds as well as reinvigorating the village. The school received funding from the Enviroschools Regional Capacity Building Fund, via the Northland Regional Council, to build a shade house (**WaiNurseries**). Woodwork students will build it as part of their curriculum work and receive Achievement Standard credits. Students attend **Project Possum** and **Project Mustelid** (**WaiMaintenance**).
Opononi Area School	A restoration plan has been developed for a local eroding waterway as part of the school's geography curriculum. The students studied deforestation and erosion in waterways as part of the lead-in to this work. Iwi and community are also involved in the project. The students are working with a local nursery and nursery person to grow plants (**WaiNurseries**), have undertaken water quality monitoring (**WaiMonitoring**) and intend to plant next winter (**WaiPlanting**). In addition, the school has linked with EcoSolutions to help with a waste audit and associated education.
Ruawai College	Planning is in process for a cross-curricular environmental project to start at Year 7 and 8 this year, with the idea that it will roll over to higher year levels as time goes on. Year 10 students have attended a propagation course to get the plant nursery up and running again (**WaiNurseries**) with the intention that the plants will go out into the local estuarine waterways that are tributaries to the Wairoa River and Kaipara Harbour (**WaiPlanting**). Any extras will be offered for sale to the Integrated Kaipara Harbour Management Group (**WaiEnterprise**).

Taipa Area School	The school has been helped to develop a plant nursery and vegetable gardens and complete Unit Standards in horticulture (**WaiNurseries**). Senior management has taken up the idea of cross-curricular environmental project based learning (CEPBL) for the Year 11's and the junior school in 2017, and staff have been helped to develop their projects, ready to go in Term 1. These projects include protecting and supporting penguin populations in the local environment and are linked to assessment across the curriculum and to future vocations. Actions include pest control – (**Project Mustelid** and **Project Possum** training, **WaiMaintenance** and **WaiMonitoring**), teaming up with both the council and Department of Conservation, and restoring a wetland on a local farm by fencing and planting (**WaiFencing**, **WaiPlanting**). Students attend **Project Possum**, **Project Mustelid** and **Project Rodent** (**WaiMaintenance**).
Tauraroa Area School	The shade house development is complete with indoor and outdoor spaces and irrigation as well as propagation courses carried out with various Year levels (**WaiNurseries**). The school received funding towards the shade house from the Enviroschools Regional Capacity Fund via the Northland Regional Council. A cross-curricular project has been proposed for the development of a piece of waste ground into a sustainability and recreational area, including restoration of the perimeter. The case study includes fencing (**WaiFencing**).
Te Kura Taumata o Panguru	Panguru is working towards becoming an environmentally based kura with the surrounding bush range, Te Warawara, as the basis for all its learning. The kura have been offered guidance on what to grow and how to grow it. The school has received funding towards a shade house from the Enviroschools Regional Capacity Building Fund via the Northland Regional Council (**WaiNurseries**) and a propagation area is planned. Students attend bi-annual **WaiFencing** and **Project Possum** courses.
Whangarei Boys' High School (WBHS)	A sustainability course for all year levels will be developed during the year, ready to start in 2018. The school has recently met with Whangarei Girls' High School, the Bream Head Conservation Trust and Kiwi North to brainstorm ideas for marine and terrestrial environmental projects based around Whangārei Heads and the Whangārei Harbour. Projects are likely to be about protecting and supporting rare species in the terrestrial and marine environments (**Save a Species**) which will involve pest control (**WaiMaintenance**), monitoring (**WaiMonitoring**) and growing and planting native plants (**WaiNurseries** and **WaiPlanting**). Students attend **Project Possum** (**WaiMaintenance**).
Whangarei Girls' High School (WGHS)	This school is just coming on board as an Enviroschool and has a teacher who is keen to work on projects with the Bream Head Conservation Trust and the Marine Reserve Group being facilitated at Kiwi North. Projects may be based around protecting and supporting rare species in the terrestrial and marine environments (**Save a Species**), which will involve pest control (**WaiMaintenance**), monitoring (**WaiMonitoring**) and growing and planting native plants (**WaiNurseries** and **WaiPlanting**). Students will attend **Project Rodent** in 2017 (**WaiMaintenance**).

TOIMATA FOUNDATION

Enviroschools

NORTHLAND REGIONAL COUNCIL

www.toimata.org.nz
www.enviroschools.org.nz
www.nrc.govt.nz