

# 11. TUIA NGĀ REPO ME NGĀ TĀNGATA RECONNECTING COMMUNITIES WITH THEIR WETLANDS

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(POKAPŪ AKORANGA PŪTAIAO)

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## Ka pū te ruha, ka hao te rangatahi

When the old net is cast aside, the new net goes fishing

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The co-editors of the *Te Reo o Te Repo* cultural wetland handbook series – Cheri van Schravendijk-Goodman (Te Atihaunui a Pāpārangi, Ngāti Apa, Ngāti Rangī) and Dr Beverley Clarkson (Manaaki Whenua). The Science Learning Hub team – Andrea Soanes, Greta Dromgool, Angela Schipper, Rachel Douglas, Tom Goulter, Vanya Bootham, and Mary Bennett. Translator and linguist Hēni Jacob (Ngāti Raukawa).

The tumuaki, kaiako, and taura from Te Kura Kaupapa Māori o Te Kōtuku (Tāmaki Makarau),

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The kaitiaki and kairangahau Māori who supported our kaupapa of creating bilingual resources for kura to promote wetland topics such as ngā tohu mō ngā rawa ā-iwi – kōura, matamata, ruru, kuta, and harakeke; rongoā Māori; iwi-led dune wetland restoration; and willow control effects on terrestrial invertebrates (insects) and aquatic invertebrates (zooplankton).

Those who feature in the video clips – Robert Ropata Pa McGowan (Ngā Whenua Rāhui), Shannon Te Huia (Ngāti Maniapoto, Ngāti Raukawa – Puniū River Care Inc.), Dr Shaun Awatere (Ngāti Porou – Manaaki Whenua), and Dr Ian Kusabs (Te Arawa, Ngāti Tūwharetoa).

– Ngā mihi, nā Yvonne mātou ko Pauline, ko Cathy

The screenshot shows the Science Learning Hub website interface. At the top, there is a navigation bar with the Science Learning Hub logo and the Māori name Pokopū Akoranga Putāiao. Below this, the 'Te Repo' section is highlighted. The main content area displays a grid of resource cards. Each card includes a representative image, a title, and a brief description. The resources include:

- TEACHER PLD:** Repo (wetlands) – a context for learning
- TEACHER PLD:** He kōrero hei āwhina i te kaiako
- ARTICLE:** Te Repo – he kupu whakatakahi
- ARTICLE:** Wetland plants
- ARTICLE:** Wetlands
- INTERACTIVE:** Te whakamahi i ngā rauemi o Tuihonoa *Te Reo o Te Repo* hei ...
- TEACHER PLD:** Te Repo – wetlands as a context
- ARTICLE:** Te matamata – ngā karu o Matariki
- ACTIVITY:** Wetland (repo) connections –

*Tuihonoa Te Reo o Te Repo* features exclusively on the Science Learning Hub website. Photo: Science Learning Hub

Previous page: Taura from Taupiri School helping to restore their local Whangamaire Wetland, Waikato. Photo: Manaaki Whenua

When *Te Reo o Te Repo – The Voice of the Wetland* handbook was conceived, the main focus for the editors was to create a resource that centred on our whānau (families) voices in wetland restoration at the marae (Māori social and cultural centres), hapū (sub-tribes), and iwi (tribes) levels. After the handbook was published (2017), the editors became increasingly aware of the different rōpū (groups) interested in science research that facilitated connections between Māori and their repo (wetlands), in understanding cultural resources, and in learning from case studies for wetland monitoring and restoration. Councils and community groups, learning institutions, and kura (schools) expressed interest in increasing engagement with science in partnership with mātauranga Māori (Māori knowledge).

At the same time, the team at the Science Learning Hub (Hub) was actively seeking opportunities to collaborate with Māori and showcase mātauranga Māori as a vital component of ecosystem research throughout Aotearoa New Zealand. The Hub is an extensive digital resource that connects the science and education sectors, making science and pūtaiao within Aotearoa more visible and accessible to kaiako (teachers), taura (students), and whānau (local communities). The small team of resource developers, science educators, education researchers, and web specialists do this by creating bespoke multimedia resources that act as 'windows' into the world and people of science.

## A SHARED KAUPAPA

A shared kaupapa was established from a kapu tī (cup of tea – engagement) between Yvonne (lead researcher, Manaaki Whenua) and Greta Dromgool (teacher professional learning development (PLD) facilitator, Science Learning Hub). Yvonne wanted to include wetland resources for tamariki (children) within the *Te Reo o Te Repo* cultural wetland handbook series and Greta was interested in increasing pūtaiao and mātauranga Māori understanding on the Hub website. What came about from this hui (meeting) was a proposal to collaborate, and bring together a multi-disciplinary team of skilled science educators, kaiako, kaitiaki (guardians), kairangahau Māori (researchers), and whakamāori (translator), to create *Tuihonoa Te Reo o Te Repo*.

Our aim was to support learning about wetland ecology and showcase connections to wetland restoration as a way of increasing kaiako and taura engagement with science in partnership with mātauranga Māori, that is, mātauranga pūtaiao (Māori-informed knowledge of the natural world). We focused our efforts on working with kura kaupapa Māori (Māori-medium schools) in rural locations throughout Aotearoa, collaborating with them to develop educational resources that would support them to become effective kaitiaki of their repo.

When people come together around a shared kaupapa, the impact can be significant. For us, this is the story of *Tuihonoa Te Reo o Te Repo*: the creation of rich multimedia resources in te reo Māori (Māori language) and English that unpack the learnings shared in the *Te Reo o Te Repo – The Voice of the Wetland* handbook series.

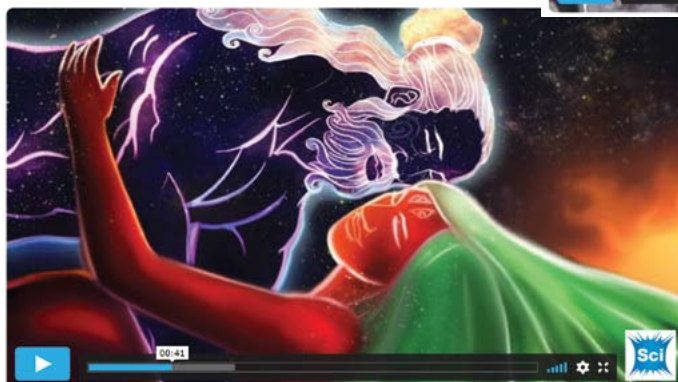
VIDEO

### Wetlands in Aotearoa



VIDEO

### Te ao Māori and repo



Screenshots of video clips from *Tuihonoa Te Reo o Te Repo* site. Photos: Science Learning Hub



## TUIHONOA TE REO O TE REPO

*Tuihonoa Te Reo o Te Repo* – the suite of rauemi tuihono (online resources) – includes over 30 articles (including 24 in te reo Māori) illustrating Māori-led wetland research, teaching and learning guides for the classroom, interactive image maps to navigate the site, and a collection of short video clips featuring key wetland experts – kaitiaki and kairangahau Māori who supported the development of these resources.

The resources draw extensively on chapters within the *Te Reo o Te Repo* cultural wetland handbook series, but are written specifically for kaiako and teachers, and taira and students. They promote wetland topics such as ngā tohu mō ngā rawa ā-iwi (cultural indicators) – kōura (freshwater crayfish; *Paranephrops* spp.), matamata (whitebait; *Galaxias* spp.), ruru (morepork; *Ninox novaeseelandiae*), kuta (giant spike sedge; *Eleocharis sphacelata*), and harakeke (NZ flax; *Phormium tenax*); rongoā Māori; iwi-led dune wetland restoration; and willow control effects on terrestrial invertebrates (insects) and aquatic invertebrates (zooplankton).

One priority of *Tuihonoa Te Reo o Te Repo* was to create wetland resources that privileged mātauranga pūtaiao within a mātauranga Māori framework.

*'Importantly, these resources privilege mātauranga Māori, 'ngā kōrero tuku iho', in mātauranga pūtaiao. Kaiako are able to teach pūtaiao within a mātauranga Māori framework, and therefore continue to privilege 'ngā kōrero tuku iho o ngā tūpuna', and from there engage in the appropriate science. In other words, Tuihonoa Te Reo o Te Repo are embedded with mātauranga Māori, and then other knowledge is added as required. Which is the opposite to how science is usually taught, where western ideas are privileged. These rauemi flip that around, and represent a re-thinking of teaching pūtaiao and science in kura throughout Aotearoa.'*

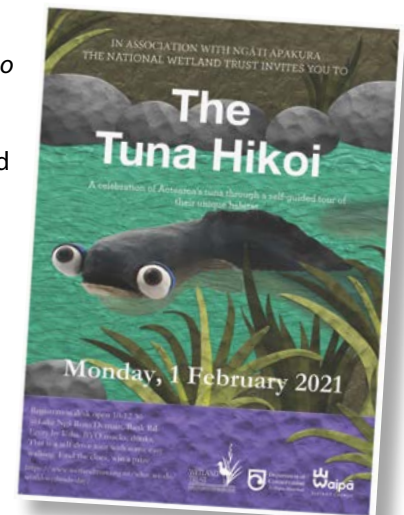
– Pauline Waiti



Lead researcher Yvonne Taura and the Hub team – Greta Dromgool, Angela Schipper, and Cathy Bunting, and scientist Louis Schipper at the launch of *Tuihonoa Te Reo o Te Repo*. Photo: National Wetland Trust

*Tuihonoa Te Reo o Te Repo* was officially launched on 1 February 2021, World Wetlands Day, and celebrated as part of a community event *Te Tuna Haerenga – The great mystery eel tour*, at Lake Ngā Roto, Ōhaupō, organised by the National Wetland Trust. The resources can be freely accessed from the Science Learning Hub website:

<https://www.sciencelearn.org.nz/topics/te-repo>



*Te Tuna Haerenga – The great mystery eel tour*, World Wetlands Day Event 2021. Photo: National Wetland Trust



Tamariki interacting with science experiments at the launch of *Tuihonoa Te Reo o Te Repo*. Photo: Science Learning Hub

## MĀTAURANGA PŪTAIAO AND SCIENCE

**The context for re-thinking the knowledge important for taura Māori and all students in Aotearoa New Zealand**

In 2018, the New Zealand Government began an extensive review of the senior secondary school qualification, the National Certificate of Educational Achievement (NCEA). One of the recommendations accepted as a result of this review was *He mana ōrite mō te mātauranga Māori*. This means that, in the context of school education, Māori knowledge has value alongside other knowledges. This means that mātauranga Māori needs to sit alongside the body of knowledge called science, and for taura Māori, mātauranga Māori can in fact be privileged, explored, and understood before engaging with science. This calls for a re-thinking of the ways that the subjects 'pūtaiao' and 'science' are framed in teaching and learning in kura and schools throughout Aotearoa.

The term **mātauranga Māori** is a relatively new term (from the early 1990s) and is used to encapsulate the essence of Te Ao Māori, required to describe a Māori world view. It is often referred to as '*ngā kōrero tuku iho o ngā tūpuna*', the knowledge handed down by our kaumātua and tūpuna, and is a living knowledge system, recording Māori experiences and engagements

of and in the world through whānau, hapū, and iwi relationships with the environment, past, present and future. These experiences are recorded in whānau, hapū, and iwi pūrākau, waiata, haka, raranga, whakairo, whakataukī, oriori and so on. For taura, developing ideas about and understandings of concepts such as whakapapa, kaitiakitanga, whanaungatanga, and ways of interacting with te taiao, such as maramataka, will inform their ways of thinking, practice and decision-making about te taiao for present and future generations. These are then based on the ideas and understandings of past generations. Mātauranga Māori is the essence of our unique identification as Māori.

**Mātauranga pūtaiao** is described as mātauranga Māori-informed understandings of Te Ao Tūroa, the natural world. It sits alongside the western science knowledge system. Both knowledge systems are valued; however, mātauranga pūtaiao is privileged for taura Māori as it represents the knowledge that gave our tūpuna the ability to successfully maintain their tino rangatiratanga over thousands of years as a people with a distinct set of values, beliefs, and understandings informing their many and varied relationships with te taiao, Te Ao Tūroa. Mātauranga pūtaiao helps taura to access science knowledge to complement their mātauranga Māori and understanding, building their knowledge and understanding of their world.

The screenshot shows the Science Learning Hub website interface. At the top, there are navigation links: 'Explore topics', 'Explore concepts', 'Citizen science', and 'Teacher PLD'. The main header area features a video player with the title 'Te Repo – wetlands as a context for learning'. Below the video player, there is a text block describing the content: 'In this recorded professional learning session, Greta Dromgool shares the mahi from a collaboration between Manaaki Whenua – Landcare Research and Pokapū Akoranga Pūtaiao – The Science Learning Hub. Our repo (wetlands) are rich in fascinating plants and animals. They are essential ecosystems and have many stories to tell us. Join us as we share our latest range of articles, activities, videos and interactives designed to support you to deepen your understanding, and love, of repo.' Below this text is a video thumbnail of Dr. Shaun Awatere (Ngāti Porou), Senior Kairangahau Māori, Manaaki Whenua – Landcare Research, Ngāti Maniapoto. To the right of the video player, there is a 'Purpose' section with a circular image of a cormorant and a list of bullet points: 'To get you excited about teaching in, for and about repo', 'To share ideas and resources to support you in and out of the classroom', and 'Highlight indigenous'. At the bottom of the video player, there is a video control bar showing a play button, a progress bar at 00:53 / 4:09, and a Sci logo.

Dr Shaun Awatere shares mātauranga about repo.  
Photos: Science Learning Hub



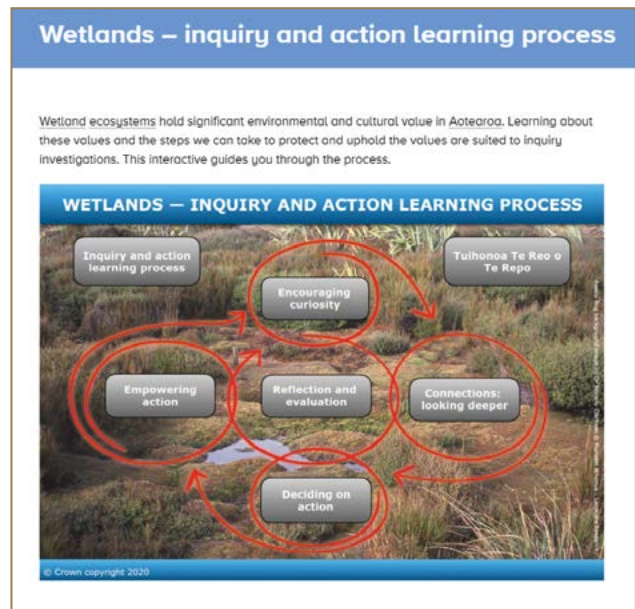
# TRANSFORMING MĀTAURANGA PŪTAIAO AND SCIENCE

Our first action after securing funding support was to invite five kura kaupapa Māori from across Aotearoa to introduce and trial drafts of the online resources. These kura were located close to local repo and were considering or already undertaking repo restoration projects: Te Kura Kaupapa Māori o Te Kōtuku (Tāmaki Makarau – Auckland), Te Kura Kaupapa Māori o Whakarewa i te reo ki Tūwharetoa (Taupō), Te Kura o Tuahiwi (Ōtautahi – Christchurch), Te Wharekura o Arowhenua (Waihōpai – Invercargill), and Te Kura Kaupapa Māori o Ōtepoti (Ōtepoti – Dunedin).

The next action was to host a 1-day wānanga (workshop) with key kaiako, kaitiaki, and kairangahau Māori. The wānanga laid a strong foundation, provided much needed guidance, and identified key themes that would support the project's ongoing development.

**First**, whānau identified the need for resources to be written completely in te reo Māori that supported kura kaupapa Māori<sup>1</sup> – kaiako, tamariki, and whānau to learn more about and connect with their local repo, and become confident kaitiaki.

As these resources elevate Māori-centred wetland research and restoration, it was agreed that some of these resources be written only in te reo Māori, privileging mātauranga pūtaiao specifically for kura kaupapa Māori audiences. Other resources are written in English for English-medium audiences.



The screenshot shows an interactive web page from the Science Learning Hub. The main heading is "Te whakamahi i ngā rauemi o Tuihonoa Te Reo o Te Repo hei whakarite ara whakaako". Below the heading, there is a text box: "Kei tēnei pāhekoheko ngā hononga ki ētahi rangahautanga mō ngā rauropi o te repo e kīia ana he momo noho taonga ki te iwi." The page features a central image of a wetland with several blue callout boxes containing Māori text: "He kōrero hei awihina i te kaiako", "Ngā tohu mō ngā rawa ā-iwi", "Ngā roto tāpokapoka", "Ngā taonga raranga", "Te whiro – he hoa rānei, he hoariri rānei?", "Te matamata – ngā karu o Matariki", "Ngā rongopu o ngā repo", and "Te kōura – te mōrehu onamata". To the right, there are three small images labeled "Te noko", "Te kōura", and "Te ruru". Below these images, there is a text box with rights information: "Rights: Manatūrua: Te noko, Scott Bartlam; te kōura, Dr Ian Kusabs; te ruru, Janice McKenna. Nō roto mai i Te Reo o Te Repo – the Voice of the Wetland." There is also a list of "Ngā tohu mō ngā rawa ā-iwi" and "Ngā tohu ā-iwi me te repo".

Interactive pages for te reo Māori and English content in *Tuihonoa Te Reo o Te Repo*. Photos: Science Learning Hub

<sup>1</sup> Taura and students in Aotearoa New Zealand can attend English-medium, bilingual, or Māori-medium kura and schools.



Robert Pa Ropata McGowan shares mātauranga about repo. Photos: Science Learning Hub and Scottie Productions © Waka Huia



**Second**, we were reminded that we all need to learn to listen to the whenua (land). Robert Pa Ropata McGowan captured this sentiment powerfully at the end of the wānanga<sup>2</sup>:

*'How do we heal a wetland? Well, you ask it. We've got to remember that we can communicate in more ways than just by words. Back in Whanganui [Manawatū region, North Island] running workshops for the river people, I say to them, "You've got to ask the river what she wants you to do." And they say, "Well, how do you talk to a river?" I respond, "The river doesn't speak Māori and doesn't speak English. It speaks river." What we have to do is restore our ability to hear what the land is saying.'*

– Robert Pa Ropata McGowan

**Third**, whānau emphasised a kaupapa of interconnections: 'restoration' is not just about ecological restoration, it reaches far beyond to cultural, historical, social, and spiritual restoration.

**Fourth**, ongoing guidance would be required during the project to retain cultural integrity and authenticity – and as a project team we were whole-heartedly committed to this. Most importantly, this included the continued support and generosity of authors from the *Te Reo o Te Repo* cultural wetland handbook series that would feature in *Tuihonoa Te Reo o Te Repo*; the openness of kaiako who continued engaging with us; the expertise of whaea Pauline's leadership as a pūtaiao Māori educator; and the proficiency of whaea Hēni's ability to translate content for a young audience.

The Hub team recognised the privileged space created by this wānanga. One of the team wrote in a reflection at the time:

*'Wow, the wānanga has given the mahi [work] such an important, solid grounding. We knew it was going to be an important part of our process, and this was underlined by the care that was taken in identifying who to invite, drafting the invitations, and planning the day. The fact that so many different people turned up to give a day of their time is indicative of the importance of this kaupapa, and also the value that they each attribute to the work we are trying to do through this project. I found huge value in the 'open forum' where everyone was invited to share their connections with their repo – the narratives were all so compelling, and beautifully told! I was especially reminded of the importance of connections – humanity with nature, it all starting with the whenua, the need to listen to whenua. Also that 'restoration' reaches far beyond ecological restoration, to cultural, historical, social and spiritual restoration. That was a powerful insight for me.'*

– Science Learning Hub team member

<sup>2</sup> Healing Repo video available on the Science Learning Hub website <https://www.sciencelearn.org.nz/videos/2017-healing-repo>



## HOW DO WE ENGAGE TAUIRA WITH MĀTAURANGA PŪTAIAO IN THEIR AKOMANGA?

The *Te Reo o Te Repo* cultural wetland handbook series provided numerous opportunities for kaiako and tauira to engage in mātauranga pūtaiao in their akomanga (classroom). Engagement with mātauranga Māori facilitates the learning of mātauranga pūtaiao. The case studies chosen from the wetland handbook series provided the opportunity to reclaim mātauranga Māori through restoring our various taiao of Te Ao Tūroa.

One such case study based on the mahi of Dr Ian Kusabs (Te Arawa, Ngāti Tūwharetoa), is kōura, providing tauira with a perfect example of the value of mātauranga Māori for the survival of kōura today. Through engagement with this case study – available on the Science Learning Hub in te reo Māori and English – tauira learn:

- kōura are also known as kēwai
- there are two species of kōura, each with a scientific name: northern kōura – *P. planifrons* and southern kōura – *P. zealandicus*
- kōura are one of the original inhabitants of Aotearoa; as their entire life cycle requires freshwater, kōura are evidence that there has been continuous freshwater in Zealandia ever since our part of Gondwanaland broke up 60–80 million years ago
- kōura are omnivores, consuming plant and animal species, as well as rotting plant and animal matter
- kōura were and are important kai for our tūpuna, and are considered taonga species
- kōura are an indicator and keystone species; they play an important role in freshwater ecosystems – directly through predation or indirectly by breaking down plant material – and affect other aquatic invertebrates such as insects, crustaceans, molluscs and worms, by cleansing the stream bed of fine silt
- kōura live in different environments, such as streams, rivers, lakes, ponds, and wetlands

Tauira also learn that while information about stream-dwelling kōura is well reported in Aotearoa, information about kōura living in lakes, ponds and wetlands is not reported effectively because of a lack of a successful way of sampling the populations in the lakes, ponds, and wetlands. However, they learn that the use of a traditional Māori method of harvesting kōura, called *tau kōura*, allows for effective sampling in these habitats. The tauira learn that *tau kōura* was, and still is, the method used in the Te Arawa rohe (tribal area) for

the Rotorua and Taupō lakes, and is the culmination of 500 years of mātauranga and rangahau (research) that had proved it was superior to other methods, such as pouraka (baited traps), hīnaki (fyke nets), pae pae (dredge nets), and rama (hand nets). Tauira learn how to make and use *tau kōura*, from mātauranga Māori of their tūpuna, and they learn why the method is effective and able to be used in the future, the mātauranga pūtaiao.

Finally, mātauranga Māori and mātauranga pūtaiao with which tauira learn and engage provides the evidence and guidance needed to restore the kōura populations.

In other words, engaging with this case study (as one example), tauira will:

- kōrero with whānau, hapū, and iwi members about the mātauranga Māori learnt
- learn and understand the ecology and environmental whakapapa of the repo system
- draw on their growing understanding to build a monitoring and restoration framework.

The image shows a screenshot of a video player from the Science Learning Hub. The video title is "Kōura (freshwater crayfish, *Paranephrops planifrons*, *P. zealandicus*) are one of Aotearoa's original inhabitants. They have an ancient lineage that diverged from their Australian relatives about 60–109 million years ago. Because their entire life cycle requires freshwater, kōura are evidence that there has been continuous freshwater in Zealandia ever since our part of Gondwana broke up 60–80 million years ago. As far as our evolutionary history goes, kōura are as significant as tuatara, wētū and kiwi!" The video is presented in a split-screen format. The top portion shows a man, Dr Ian Kusabs, speaking. The bottom portion shows a person in a green shirt kneeling by a stream, using a traditional Māori method to sample kōura. The video player interface includes a play button, a progress bar, and a Sci logo.

Dr Ian Kusabs shares mātauranga and science research about kōura. Photos: Science Learning Hub



# HE KÖRERO HEI ĀWHINA I TE KAIAKO A TEACHING AND LEARNING GUIDE

A teaching and learning guide – *He kōrero hei āwhina i te kaiako* – has been designed to support the integration of any or all the case studies into a teaching and learning programme. A series of pātai (questions) has been developed about the following areas of inquiry with any of the case studies:

- te mātauranga o ngā tūpuna – knowledge of ancestors that relates to the natural world
- te mātauranga o ināianeī – current knowledge of the natural world
- te mātauranga hei mua atu – future knowledge of the natural world.

By engaging with these pātai, within the context of identified taiao, taura should be able to develop a plan of what they know and what they need to find out in order to engage with their repo.



### He kōrero kōpūtahi

Ahakoā kei ngā whānau, ngā hāpu me ngā iwi te nuinga atu o ngā mātauranga Māori e pupuri ana, he maha tonu ngā kōrero e wātea ana hei toro i ngā puna tōtika, pēnei i ēnei:

- Te Repo – he kupu whakataki
- Kaupapa Mātauranga Māori
- Kauhaurangi PLD – ko Ahorangi Hēmi Whoanga te kaikaohau
- Kauhaurangi PLD – he rauemi mō te mātauranga me te Ao Kōkoro
- Kauhaurangi PLD – ko Ahorangi Rangī Matamua e matapakī ana i te noho puiaiki mai o te reo Māori

### He whakamahi

He mea tuhi ngā kōrero āwhina nei e Pauline Waiti.

**Science Learning Hub**  
Pokapu Akoranga Pūtaiao

Explore topics

Explore concepts

TEACHER PLD

## He kōrero hei āwhina i te kaiako

EXPLORE

ADD TO COLLECTION +

He anga mātauranga pūtaiao taketake mā ngā kaiako

He whakaaro mō te whakamahi i Tuihonoa Te Reo o Te Repo i roto i ngā mahi whakaako me ngā mahi ako.

He aha tēnei mea te mātauranga pūtaiao taketake?

E tika ana pea kia āta tautuhia i konei te 'mātauranga pūtaiao taketake'. Mai i te orokohanga ake o te kupu 'pūtaiao', kua whakamahia i ngā horopaki maha, hei tohu i ngā momo mātauranga maha. Ko ētahi whakapākehātanga o te kupu nei e rere ana, ko te 'science', ko te 'Western science', ko te 'Māori science', ko te 'science with Māori contexts', ko te 'science for Māori-medium students'. Kāti, kia whakamahukitia ake i konei te tikanga, kia mārama ake ai mō tēnei kaupapa me ērā kei muri e whai mai ana.

Ko te mātauranga Māori, he pūnaha mātauranga mataora e tātai ana i ngā wheako me te whai wāhitanga a te Māori ki te ao, mā roto mai i ngā hononga o ngā iwi, ngā hāpu me ngā whānau ki te taiao, i ngā rā o mua, i nāianeī, ā, hei ngā rā anō e tū mai nei. Ko ngā pūrākau, ngā waiata, ngā haka, ngā tukutuku, ngā whakairo, ngā whakataukī, ngā oriori me ērā tū momo taonga pupuri kōrero ngā mauranga o ngā wheako nei mā te whakapakari i ngā whakaaro me te mārama ki ngā ariā pērā i te whakapapa, i te kaitiakitanga, i te whanaungatanga, me ngā ritenga mō te mahi tahi ki te taiao pērā i te maramataka, ka ārahina ngā tātai whakaaro, ngā mahi me ngā whakatau e pā ana ki te taiao, ināianeī, ā, mau ake nei. Ko te mātauranga Māori te tino o te tuakiri rongomaiwhiti o tāua, te Māori.

He kōrero hei āwhina i te kaiako – a teaching and learning guide. Photos: Science Learning Hub

## FROM WĀNANGA TO ZUI THE IMPACT OF COVID-19

To ensure *Tuihonoa Te Reo o Te Repo* would resonate with kaiako and taura, our original intention was to introduce and trial drafts of the online resources at wānanga with five kura across Aotearoa – from Tāmaki Makarau to Ōtepoti. The purpose of these wānanga was to visit each kura and their repo, as well as to connect with a local repo expert (kaitiaki or kairangahau) in order to maximise intergenerational ako (reciprocal learning). Ongoing engagement between these kura and the team would be supported through online forums, drawing on the experience of the Hub team in building communities of practice to support ongoing learning.

The entire world felt the impacts of the COVID-19 global pandemic, and Aotearoa was not immune to the health and economic risks. As we set into rāhui (lockdown) between March and April 2020, with the ongoing possibilities of further rāhui, and the continual effects of domestic travel restrictions, the project team had to make some hard decisions. It was with heavy but hopeful hearts that we shifted from engaging kanohi ki te kanohi (face to face) to 'zui' – hui hosted via Zoom video conferencing. While this meant we were no longer able to engage directly with kura at their tūrangawaewae (place of belonging through kinship), a safe space was created where participating kaiako of each kura could meet, connect, and support each

other in their kaupapa of wetland restoration. This connection between kaiako from different kura was a valuable outcome. Cost savings from reduced travel were re-directed towards the development of additional online resources.

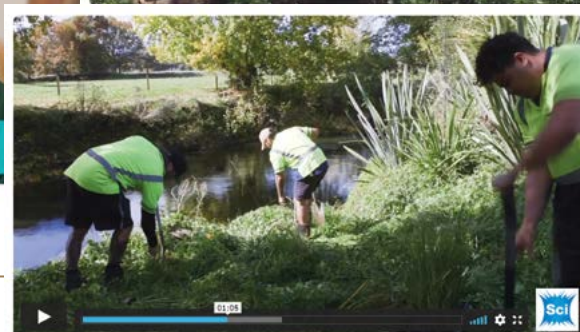
Throughout the year we held zui with our participating kaiako. These zui created space for whakawhanaungatanga (establishing relationships), sharing experiences about their engagements with their local repo, and introducing the draft resources to receive feedback.

*'One thing I am grateful for is to have some language to explain why it [pūtaiao] is important. Many of the things that I'm teaching the children, I was taught as a young child, but to have language to explain what I know in my heart because I'm not very good at communicating. We've become so urban and disconnected from the land ..... it's not dangerous to go in the garden or get a bit damp. It's nice to have rain on your face. Thank you for expressing in words what I know in my heart.'*

– Helen Ruston (Kaiako, Te Kura Kaupapa Māori o Te Kotuku)

The screenshot shows a video player interface for the Science Learning Hub. The video title is "Cross-cultural conversations". The video content shows a man, Shannon Te Huia, wearing a black cap and a green t-shirt, speaking. Behind him is a banner for the "Cultural Wetland Handbook" and "Te Reo o Te Repo". Below the video, there are social media sharing options (Like, Tweet, Save) and a copyright notice: "Rights: Crown copyright".

Shannon Te Huia from Pūniu River Care Inc. shares mātauranga about repo. Photos: Science Learning Hub





When we were ready to publish *Tuihonoa Te Reo o Te Repo* we held an online 'soft launch', attended by kaiako, kaitiaki, and karangahau who supported the project. The zui launch provided an opportunity for supporters to reflect on and celebrate the publication of the resources, and to look ahead to future possibilities.

*'We've got resources! Oh, so I'm just about ready to cry because seeing it all come together.... having those rauemi on the Pokapū – oh my gosh, this is definitely my PLD presentation for the rest of the school at the end of the year. We've got 3 days planning and this is definitely going to be a foundation.'*

– Tiahuia Kawe-Small (Tumuaki Tuarua, Te Wharekura o Arowhenua)

*'I think it's important to spark an interest in looking after our wetlands within our school children, because this is so important for the long-term survival of our wetlands. The hope is that kura will essentially be inspired to become kaitiaki for their wetlands, and also that the children might consider science, or even wetlands, as a potential career choice.'*

– Bev Clarkson (Manaaki Whenua)

*'One of the most exciting things is being able to give a megaphone to our peoples' relationships with their wetlands.'*

– Cheri van Schravendijk-Goodman (Te Atihaunui a Pāpārangī, Ngāti Apa, Ngāti Rangī)



Co-editors of the *Te Reo o Te Repo – The Voice of the Wetland* handbook series, Beverley Clarkson, Cheri van Schravendijk-Goodman, and Yvonne Taura, being filmed for the *Tuihonoa Te Reo o Te Repo* video clips. Photo: Science Learning Hub

## GROWING IMPACT

*Tuihonoa Te Reo o Te Repo* is freely accessible on the Science Learning Hub website. With over 10,000 views between February and June 2021, and national and international interest, the impact of this suite of rauemi tuihono will continue to grow. Our ultimate goal is that *Tuihonoa Te Reo o Te Repo* will support kaiako, taura, and whānau to access best practice wetland restoration and conservation science protocols that value mātauranga Māori and mātauranga pūtaiao. This, in turn, will empower community action to grow communities, and support wetland restoration.

## HELPFUL GLOSSARY

### Understanding the terminology

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**Haka** – cultural performance

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**Kaitiakitanga** – exercise of guardianship

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**Kaumātua** – elders

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**Kura kaupapa Māori** – Māori medium schools that follow Māori philosophy in all aspects of the curriculum for tamariki

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**Maramataka** – traditional lunar calendars

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**Mātauranga pūtaiao** – Māori-informed knowledge of the natural world

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**Ngā kōrero tuku iho** – specific knowledge handed down intergenerationally through various cultural practices, and often referred to as ngā kōrero o ngā tūpuna

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**Ngā kōrero tuku iho o ngā tūpuna** – specific knowledge handed down intergenerationally through cultural practices

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**Ngā tohu mō ngā rawa ā-iwi** – native plant and animal indicators that are noticed and valued by whānau, hapū, and iwi who have a relationship with their environment

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**Oriori** – lullaby – song composed on the birth of a chiefly child about their ancestry and tribal history  
**Pūrākau** – traditional stories

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**Raranga** – weaving

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**Te Ao Tūroa** – the natural world

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**Te mātauranga o ngā tūpuna** – specific knowledge of our tūpuna that relates to te ao tūroa

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**Te mātauranga o ināianeī** – the current knowledge of te ao tūroa

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**Te mātauranga hei mua atu** – future knowledge of te ao tūroa

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**Te taiao** – the natural world

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**Tino rangatiratanga** – self-determination, self-government, sovereignty

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**Tumuaki Tuarua** – deputy principle

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**Tūpuna** – ancestors

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**Waiata** – songs

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**Whakairo** – carvings

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**Whakataukī** – proverb, significant saying

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**Whakapapa** – genealogy, lineage, descent

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**Whakawhanaungatanga** – establishing relationships through shared experiences and working together, which provides people with a sense of belonging

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Culturally significant plants in wetland. Photo: Monica Peters





## WANT TO LEARN MORE?

Note: If you are having problems with the hyperlinks below try copying and pasting the web address into your browser search bar.

### References

Kusabs I 2017. *Chapter 5.2: Kōura – the ancient survivor*. In: Taura Y, van Schravendijk-Goodman C, Clarkson B eds. 2017. *Te Reo o Te Repo – The Voice of the Wetland: Connections, understanding and learnings of our wetlands*. Hamilton, New Zealand: Manaaki Whenua – Landcare Research and Waikato Raupatu River Trust. Pp. 89–93. [https://www.landcareresearch.co.nz/uploads/public/Publications/Te-reo-o-te-repo/5\\_2\\_Fauna\\_Koura.pdf](https://www.landcareresearch.co.nz/uploads/public/Publications/Te-reo-o-te-repo/5_2_Fauna_Koura.pdf)

Moewaka-Barnes H, Henwood W, Murray J, Waiti P, Pomare-Peita M, Bercic S, Chee R, Mitchell M, McCreanor T 2019. *Noho Taiao: reclaiming Māori science with young people*. *Global Health Promotion*, 26(3), 35–43. <https://doi.org/10.1177/1757975919829700>

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Taura Y, van Schravendijk-Goodman C, Clarkson B eds 2021. *Te Reo o Te Repo – Kei konei tonu au. The Voice of the Wetland – I am still here*. Hamilton, New Zealand: Manaaki Whenua – Landcare Research. <https://www.landcareresearch.co.nz/publications/te-reo-o-te-repo-kei-konei-tonu-au>

### Useful websites

#### Pokapū Akoranga Pūtaiao – Science Learning Hub

The Hub Team

<https://www.sciencelearn.org.nz/pages/about>

Tuihonoa Te Reo o Repo

<https://www.sciencelearn.org.nz/topics/te-repo>

Teaching and Learning Guides for kaiako

He kōrero hei awhina i te kaiako

<https://www.sciencelearn.org.nz/resources/2983-he-korero-hei-awhina-i-te-kaiako>

Repo – a context for learning

<https://www.sciencelearn.org.nz/resources/3001-repo-wetlands-a-context-for-learning>

### Te Kōura

Te Kōura – te mōrehu onamata

<https://www.sciencelearn.org.nz/resources/2936-te-koura-te-morehu-onamata>

Te tau kōura – he tikanga tūturu mō te hopu me te tiroiro kōura

<https://www.sciencelearn.org.nz/resources/2937-te-tau-koura-he-tikanga-tuturu-mo-te-hopu-me-te-tiroiro-koura>

Te whakaora ake i te kōura

<https://www.sciencelearn.org.nz/resources/2938-te-whakaora-ake-i-te-koura>

### Screenshot credits in video clips

Te ao Māori and repo

<https://www.sciencelearn.org.nz/videos/2015-te-ao-maori-and-repo>

Photo: Papatūānuku and Ranginui, from the graphic novella *Te Orokotimatanga o te Ao*, by Rewi Spraggon, and illustrated by Munro Te Whata. Kiwa Digital

Wetlands in Aotearoa

<https://www.sciencelearn.org.nz/videos/2013-wetlands-in-aotearoa>

Cross-cultural conversations

<https://www.sciencelearn.org.nz/videos/2018-cultural-indicators>

Photo: Kaimahi of Pūniu River Care Inc. riparian planting. Waikato River Authority

The Ake Ake Model

<https://www.sciencelearn.org.nz/videos/244-the-ake-ake-model>

Photo: Taura using the Ake Ake Model framework developed by Lorraine Dixon

### Te Tāhuhu o te Mātauranga – Ministry of Education

He mana ōrite mō te mātauranga Māori

<https://vimeo.com/336199941>

He Hihiri i te Mahara – Curious Minds Funding

<https://www.curiousminds.nz>

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