

# Te Kūwaha

*promoting Māori development*

[www.niwascience.co.nz/maori](http://www.niwascience.co.nz/maori)

E ngā hau e tāwhio ana huri noa i te motu, tēnei te mihi maioha o Te Kūwaha ki a koutou ngā iwi e ngākaunui ana ki ngā āhuatanga o tō tātou nei taiao. Ko mātou nei te roopu rangahau Māori o roto o NIWA e mahi ngatahi ana i te taha o ō mātou hoa kaupakihi Māori. Ānei rā ētehi o ngā mahi rangahau e whakahaere ana i tō mātou nei roopu i tēnei tau, nō reira tēnā rā koutou katoa.

## Māori knowledge: weather and climate

Notwithstanding the significant scientific advances in understanding weather and climate, opportunities exist to enhance our understanding through the application of traditional Māori knowledge.

Te Kūwaha has been collaborating with Ngāti Pare and Te Whānau a Apanui to examine and document Māori traditional knowledge (Mātauranga Māori) of weather and climate. The project confirmed that Māori have an intimate understanding of such matters, including a detailed language for describing local weather and climate phenomena, oral records of past events and trends, and the ability to link 'signs' in the natural world to the forecasting of conditions. From the movements of birds to the clarity of stars in the evening sky, predictions can be made about storms brewing at sea or whether the season ahead might be wet, dry, hot, or cold.



## Low-cost aquaculture for coastal iwi

Te Kūwaha is working with Hongoeka Development Trust to develop a low-cost land-based 'polyculture' system, where several aquaculture species are grown in a virtually self-sustaining unit.

We are now operating two pilot systems at NIWA's coldwater aquaculture facility at Mahanga Bay, Wellington. The aim is to produce a sustainable harvest of about 1 tonne of pāua a year with other species being used to naturally clean the system. We currently have pāua, blue mussels, Pacific oysters, and karengo (a species of red alga) in the pilot systems and are continuing our experiments. Meanwhile, the plans, detailed design, and consents for the full scale development at Hongoeka (Plimmerton) are being finalised.

## Renewable energy update

Te Kūwaha is continuing to work with the Waihi (Tūwharetoa – Taupō) and the Waipoua (Te Roroa – Northland) communities to help meet their energy needs.

This was the third year of a four-year programme, and the main aims were to identify realistic renewable energy options, collectively decide which to trial, and then install them.

At Waihi Village we are trialling a grid-connected photovoltaic system and two solar hot water systems. We are continuing to investigate options for grid-connected micro-hydro generation using water from Waihi Stream. We also facilitated discussions with the lines company, power company, and subcontractors over grid connection issues and the state of local electrical, plumbing, and drainage networks.

Waipoua is not connected to the national grid. There we installed stand-alone photovoltaic systems for six households and the wharenuī, powering an energy efficient freezer, lights, and other appliances. A micro-hydro generator now gives power to three houses and two energy efficient freezers and operates as a battery recharge station. A solar hot water system was installed for one house. We are investigating the potential for a small wind turbine in the Waipoua River valley.



*Renewable energy at Waipoua.*

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