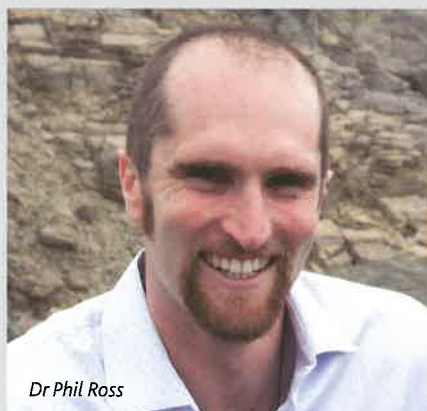

Scientist investigates a toheroa mystery

Marine scientist Dr Phil Ross has received a Marsden Fund Fast-Start grant of \$300,000 to investigate the historical translocation of toheroa, a traditional shellfish food resource.

The Tauranga-based researcher says early Māori were prolific users of aquatic resources and were also adept at food cultivation and translocation. After settling New Zealand, Māori domesticated and translocated numerous endemic species, says Dr Ross.

"Many cultures have managed their ecological resources for hundreds, if not thousands of years. But management of natural resources might explain an anomaly in the genetics of New Zealand toheroa, which seems to indicate that toheroa were translocated at some point in their past."



Dr Phil Ross

Initial data suggests that the toheroa of southern New Zealand may be historically derived from northern populations

Working with associate investigators Dr Bruce McFadgen from Victoria University and Dr Huhana Smith from Manaaki Taha

Moana, Dr Ross will combine archaeology and molecular ecology with mātauranga Māori. "By examining Māori oral histories alongside archaeological records and toheroa population genetics, we will be able to gain a better understanding of the extent to which early Māori manipulated their marine environment," Dr Ross says.

Toheroa were an important food resource for Māori until their commercialisation and increased popularity as a recreational harvest saw the fisheries collapse in the 1960s and 70s. Despite the fishery being closed more than 40 years ago, toheroa have failed to recover, the reasons for which remain unknown.

A number of relevant Māori groups in toheroa regions (Northland, Kapiti-Horowhenua and Southland) will be participating in the study.

Working to improve time-of-flight photography

Dr Lee Streeter, an electronic engineer and teaching fellow at Waikato University, is searching for ways to improve and even measure motion in time-of-flight photography. He's been awarded a \$300,000 Marsden Fast Start grant to assist his research.

"These cameras are used in gaming (such as Xbox One) and more sophisticated cameras are used at industrial level, important to show extra depth of information, telling us what things look like and where they are. They provide important information about the shape of objects. We can see how big, how far away they are, and how flat or how round the sides are," Dr Streeter says.

Time-of-flight cameras have been designed to measure the distance within static scenes but can't interpret scenes with complicated motion.



Dr Lee Streeter

"So I'm going to try to re-engineer a new camera concept that will transform complex motion from a source of error to an essential feature – trying to measure distance despite motion, and measure the speed and direction of motion." Dr Streeter will be drawing on existing technologies and combining them with some ideas of his own.

"I'm well aware what I'm setting out to do is a lofty goal but this Marsden grant gives me time to think really deeply about this problem, to pull in ideas from other fields and to come up with new ones."

His associate investigator on the project is Dr Gordon Wetzstein at Stanford University in the USA.