

OUR LAND  
AND WATER

Toitū te Whenua,  
Toiora te Wai

# Latest News *Update*

- MAY -



Ken Taylor - Director  
***Our Land and Water***

## *The tough questions*

Kia ora koutou katoa

As many of you know the Challenge research aims to provide solutions which are to enhance primary sector production and productivity while maintaining and improving our land and water quality for future generations. That's a big ask.

### Key Dates

Presentations at the International Interdisciplinary Conference on Land Use and Water Quality : 29 May 2017

Contestable Funding round projects begin : 1 July 2017

Vision Mātauranga hui to take place : Before 15 July 2017

Transformational change is what's required to fulfil the Challenge mission. What does that mean? Transformational change almost certainly requires major shifts in multiple parts of the system, accompanied by fundamentally different approaches to the way the knowledge needed to drive the shifts is generated and shared. This is an even bigger ask.

So how do you know you're on the right track? Well, you ask. You ask the people who work with land and water. You ask farmers, you ask scientists, you ask policy makers, you ask advocates, you ask community members. This is what our recent Symposium was all about.

We gathered 180 people from all these different groups together to generate discussion about the solutions the Challenge aims to provide and to give people the chance to ask us the tough questions and they did. Our team answered as many questions as they could and we look forward to answering even more of the tough questions by this time next year. For those who attended this year's Symposium we want to take this opportunity to say thank you for your discussions and questions throughout the two days, they are invaluable to us. If you have a few minutes to [fill out this survey](#) about the event and what we could improve we'd really appreciate it. The key speaker and research presentations are all available on our website at this link – [Symposium Presentations 2017](#)

In this issue we give you our Chief Scientist update, we highlight one of our programmes, called Land Use Suitability, and we share some stories where the Challenge has featured in recent media.

Ngā mihi, Ken.

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### Chief Scientist's Update

## Contestable Funding Round success

Our Challenge had an open contestable funding round which closed in March this year. We're thrilled to announce that we have four new projects that will all begin this July.

Our new projects are –

- Impact analysis of delivering credence attributes on-farm and benefit along the value chain (**AgResearch**)
- The importance of trust and social licence in the primary sectors to enhance productivity and sustainable growth in New Zealand (**SCION**)
- Mapping the controls over water compositional variance and water quality risk – national application of the physiographic method (**Land and Water Science limited**)
- Faecal source tracking and the identification of naturalised *E. coli* to assist with establishing water quality and faecal contamination levels (**AgResearch**)

## Vision Mātauranga Think-Piece

We have a new Vision Mātauranga Think Piece and are pleased to announce that a team from **Massey University** have begun their research into Mātauranga Pūtaiao Māori Science in Agribusiness.

You'll remember from our last edition that we designed the think-piece process to allow people to explore an idea and come up with the evidence base for a research question. Research questions that are generated could result in additional funding via a traditional RfP, no funding or could be funded in negotiation with the Our Land and Water Directorate.

Negotiating proposals is an important part of the way we work so that research can be adapted to the needs of the Challenge and to meet the Challenge mission.

A Hui will be held in July to test the research questions generated from their proposal due in June.



Rich McDowell presents at the Our Land and Water, Let's talk Solutions Symposium 2017

*Programme Update*

## **What is Land Use Suitability?**

The need for simultaneous improvements in primary sector productivity and in environmental performance is driving changes in land and water policy and management in New Zealand. These changes have been encapsulated in the phrase “managing within limits”. Challenge Chief Scientist, Rich McDowell says,

***“Managing within limits refers to managing resource use for sustainable production, without exceeding limits such as water takes and contaminant discharges.”***



Implementing these changes will require a shift from the traditional focus on land-use capability for production, to a broader view that accounts for land-use effects on economic, environmental, social and cultural values at whole-catchment scales. McDowell says, “We call this broader view ‘land-use suitability’.”

“Our research of Land Use Suitability (LUS) tools intends to contribute to two important functions in the government and primary sectors, land-use effects management and land evaluation,” he says.

Land-use effects management is a function of central and local government, and is strongly influenced by regional and catchment plans that set out policies and rules needed to regulate contaminant discharges and deliver on land use-dependent objectives. In contrast, land evaluation refers to assessments of land parcels in terms of their potential for specific land uses. Land evaluations are undertaken by a range of stakeholders with interests in the profitability of use of land parcels, including land owners, investors, banks, and rural professionals.

### ***The research combines information from three processes:***

1. Contaminant losses from land-use.
2. Responses of receiving environments to contaminant loading
3. The use of intervention systems to increase receiving environment resilience

A distinguishing characteristic of the LUS concept is feedback from receiving environments to upstream land parcels that are contaminant sources. The feedback includes the economic, environmental, social and cultural values present in receiving environments, the contaminants to which those values are vulnerable, and physical conditions in the receiving environment. Collectively, the intrinsic characteristics of receiving

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environments determine their resilience (i.e., their capacity to resist or recover from perturbations caused by land use pressures). Natural resilience can be enhanced by human “interventions” that reduce the concentration or exposure of land use pressures in receiving environments or reduce the magnitude of adverse responses.

## *Outcomes and assessment tools*

In view of recent land use change and agricultural intensification in New Zealand, stakeholders in water and land management would benefit from incorporation of LUS in land-use effects management and land evaluation. However, a quantitative, customised LUS assessment to underpin every land-use decision would be excessively expensive. Instead, highly transferable tools are needed that can use national-scale spatial information to evaluate and categorise LUS in any catchment. The first tools developed in the LUS programme will take form as a classification systems based on national-scale environmental datasets. In the development of classification systems, quantitative data are put into ordered categories. As a result, estimations based on classifications are also categorical or ordinal (grouped, or ranked in a series). Categorical and ordinal predictions are lower in precision than quantitative predictions. The primary use of the LUS classification will be as a screening tool now being developed which we’re calling the Landuse and Water Compatibility System (LWC). We’ll expand on the LWC system in our next newsletter.

## *In the media*

Recently we’ve been working with a number of media outlets to tell the Challenge story to a wider audience and to elaborate on some of the work we’re doing. In March we worked with the TVNZ Seven Sharp team to do a story about the Challenge and one of our stakeholders showed New Zealanders how he’s already farming sustainably. [WATCH STORY](#)

With the recent freshwater announcements water quality is being discussed more and more in the public forum. Our research team have commented in numerous articles regarding these recent reports and we also had a [swimmability explainer](#) out in NZ Geographic. We have a large feature due out with NZ Geographic in their July-August edition. We’re also currently working with Fairfax media on a feature that will be out this month. Keep in touch with us via e-mail or on Facebook and Twitter.

