Physiographic Environments of New Zealand

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FUTURE LANDSCAPES

In the future landscapes contain mosaics of land use that are more resilient, healthy and prosperous than today.

Strategic Area 1

Be able to see what diversity is possible and match land use to what it is suitable for.

Strategic Area 2

Understand and model the management of land and water quality.

Strategic Area 3

Provide the novel production systems that use healthy land and water to generate high-value products.

INCENTIVES FOR CHANGE

New Zealand's primary producers are well-rewarded for producing high-value products in sustainable ways.

Strategic Area 4

Capture and share with the producers more of the value consumers associate with our products.

Strategic Area 5

Increase and share value based on mechanisms that rewards sustainable land use and high-value products.

Strategic Area 6

Enable communities to identify and adopt sustainable land use practices.

CAPACITY FOR TRANSITION

We understand what it will take, and have the tools to help us, transition to resilient, healthy and prosperous futures.

Strategic Area 7

Increase our social capital so that we can have well informed debate about alternative futures.

Strategic Area 8

Act as kaitiaki, being responsible for our actions within enterprises, in a catchment and beyond.

Strategic Area 9

Manage pressures and remove the barriers to a transition.

OUR LAND AND WATER SYMPOSIUM
Kia Mauri Ora te Whenua

FUTURE LANDSCAPES

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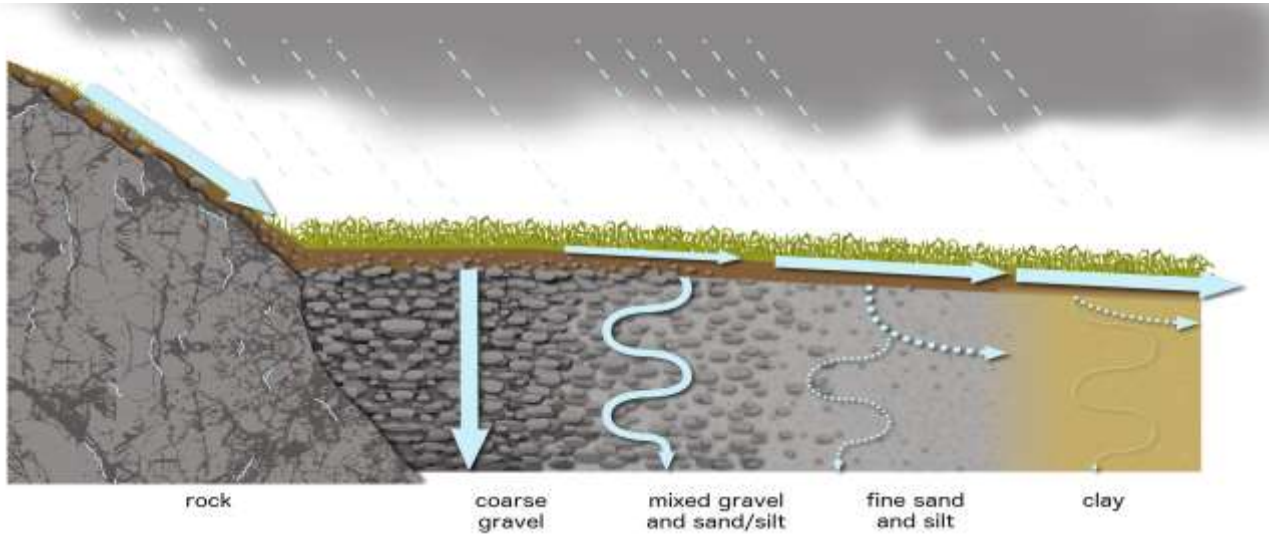
What is the problem?

The role of the landscape in water quality outcomes is not integrated in a way that is relevant to land users

- Thousands of scientific articles demonstrate the key processes controlling water quality
- Utilise existing national and regional geospatial and water quality datasets



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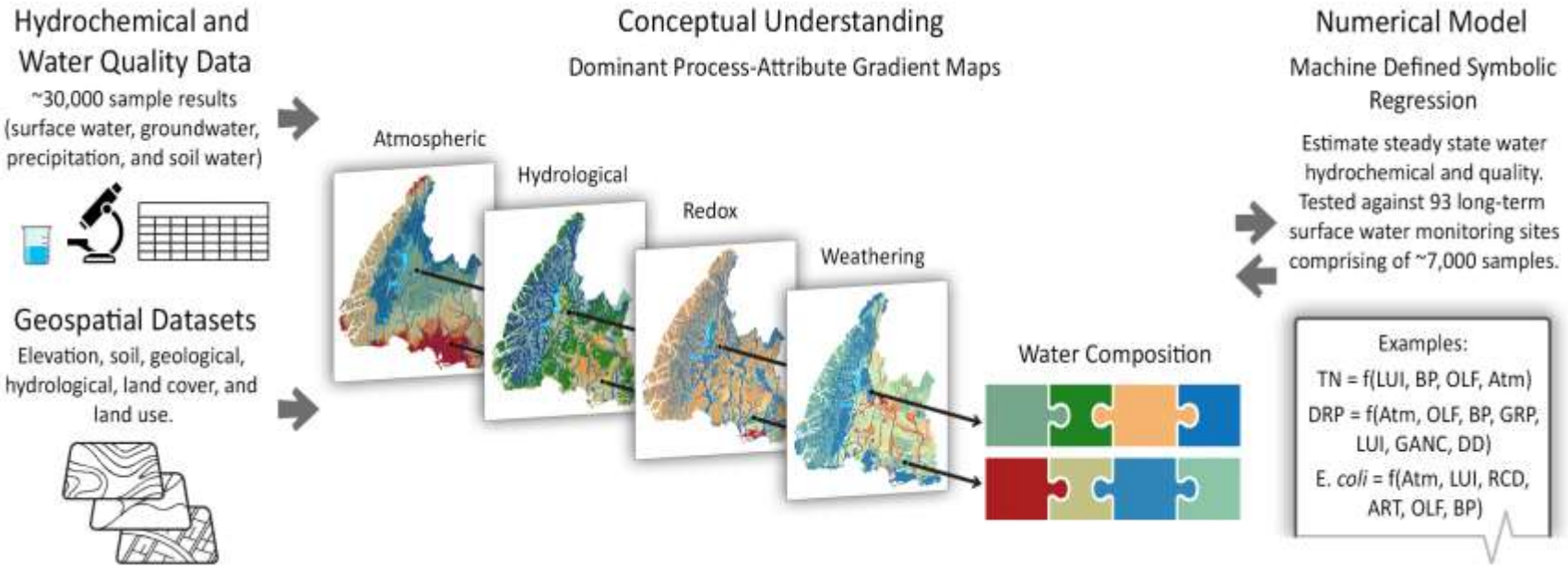
What is the solution?



Science of the Total Environment (2019) 672: 815–833

Southland Region Example

Spatial variation in water quality is a function of the landscape and land use

- Built upon landscape data
- High accuracy: cross validated R^2 of 0.81 – 0.95 for TN, NNN, TP, DRP
  R^2 of 0.72 – 0.73 for TSS and E.coli
- Using data to reveal the grain of the landscape most important to water quality outcomes

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Who is using the research to make a difference?

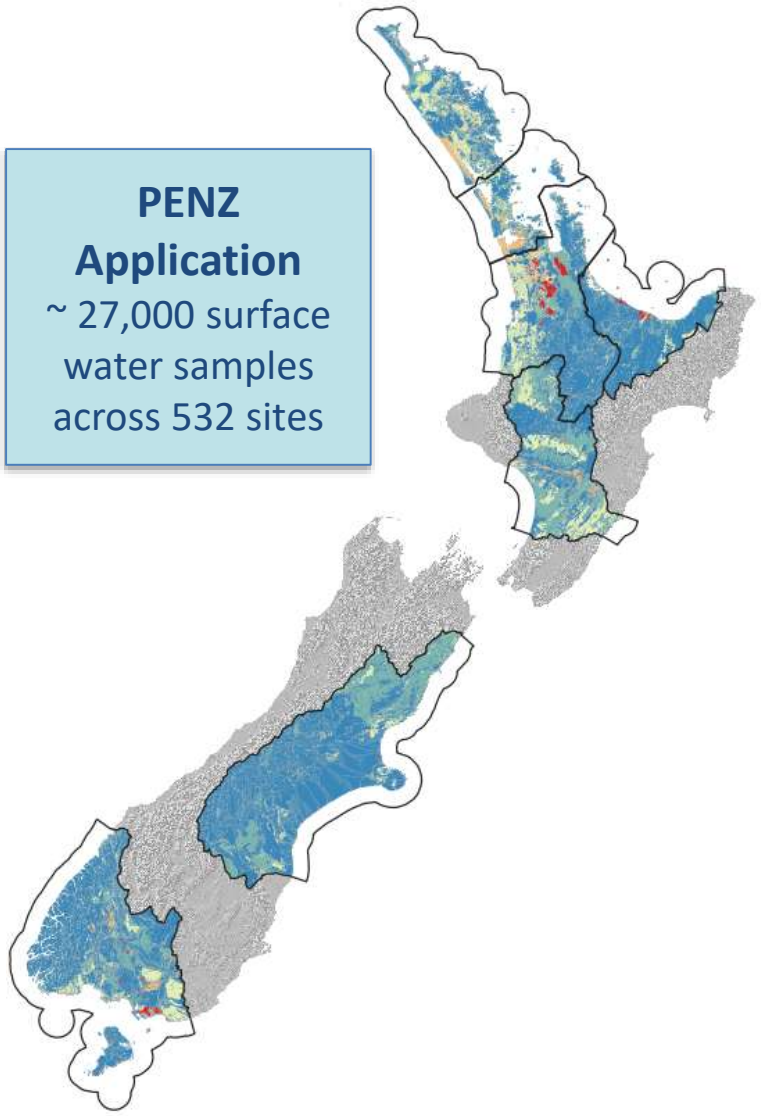
PENZ Regional Councils

- Northland
- Auckland
- Waikato
- Bay of Plenty
- Horizons
- Canterbury
- Southland

Sustainable Farming Fund Project

- Outreach education portal
- Designed by farmers for farmers

PENZ Application
~ 27,000 surface water samples across 532 sites



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How is it building towards the Our Land and Water goal?

- Sustainable Farming Fund key to delivering Physiographic Environment Science to end-users
- Help land users to understand the lands natural capital
- Inform decisions regarding land management and mitigations
- Ultimately minimise environmental impacts

Collaborators

Collaborators

Physiographic Environments of New Zealand

LAND & WATER SCIENCE

In conjunction with Regional Councils

Sustainable Farming Fund

SOUTHERN INSTITUTE OF TECHNOLOGY
TE WHARE WANANGA O MURIHIKU

LIVING WATER

Fonterra Dairy for life

Department of Conservation Te Papa Atawhai

Ballance agri-nutrients

Deer Industry New Zealand

ravensdown

environment SOUTHLAND REGIONAL COUNCIL Te Taiao Tonga

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More Information

www.landwaterscience.co.nz/penz

www.landwaterscience.co.nz/journal-article

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Ministry for Primary Industries
Manatū Ahu Matua

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SOUTHLAND

GREAT SOUTH