



**For now &
our future**

Evolving freshwater management in the face of intensification and climate change

Ewen Rodway Environmental scientist – groundwater quality

Acknowledgements

Much of what is presented and discussed is part of joint and co-funded project with GNS and NIWA.

Project leads:

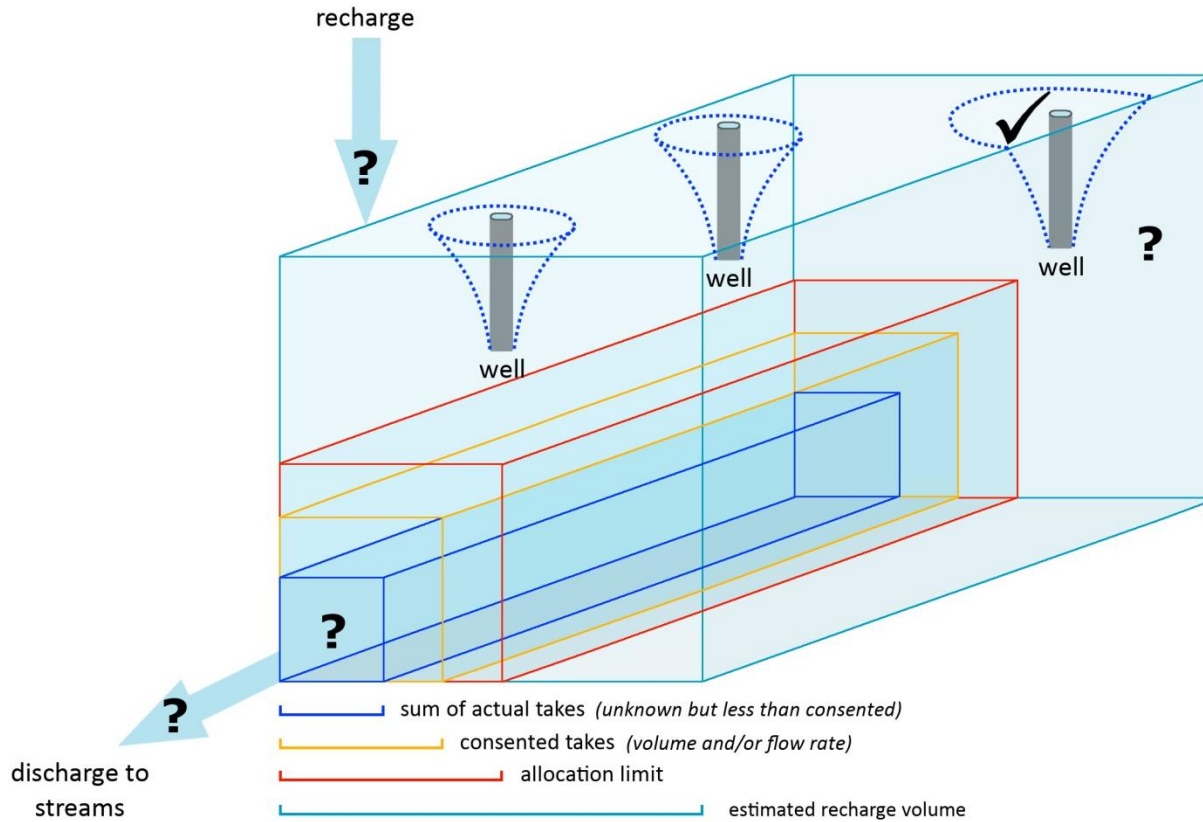
Lawrence Kees (ES)

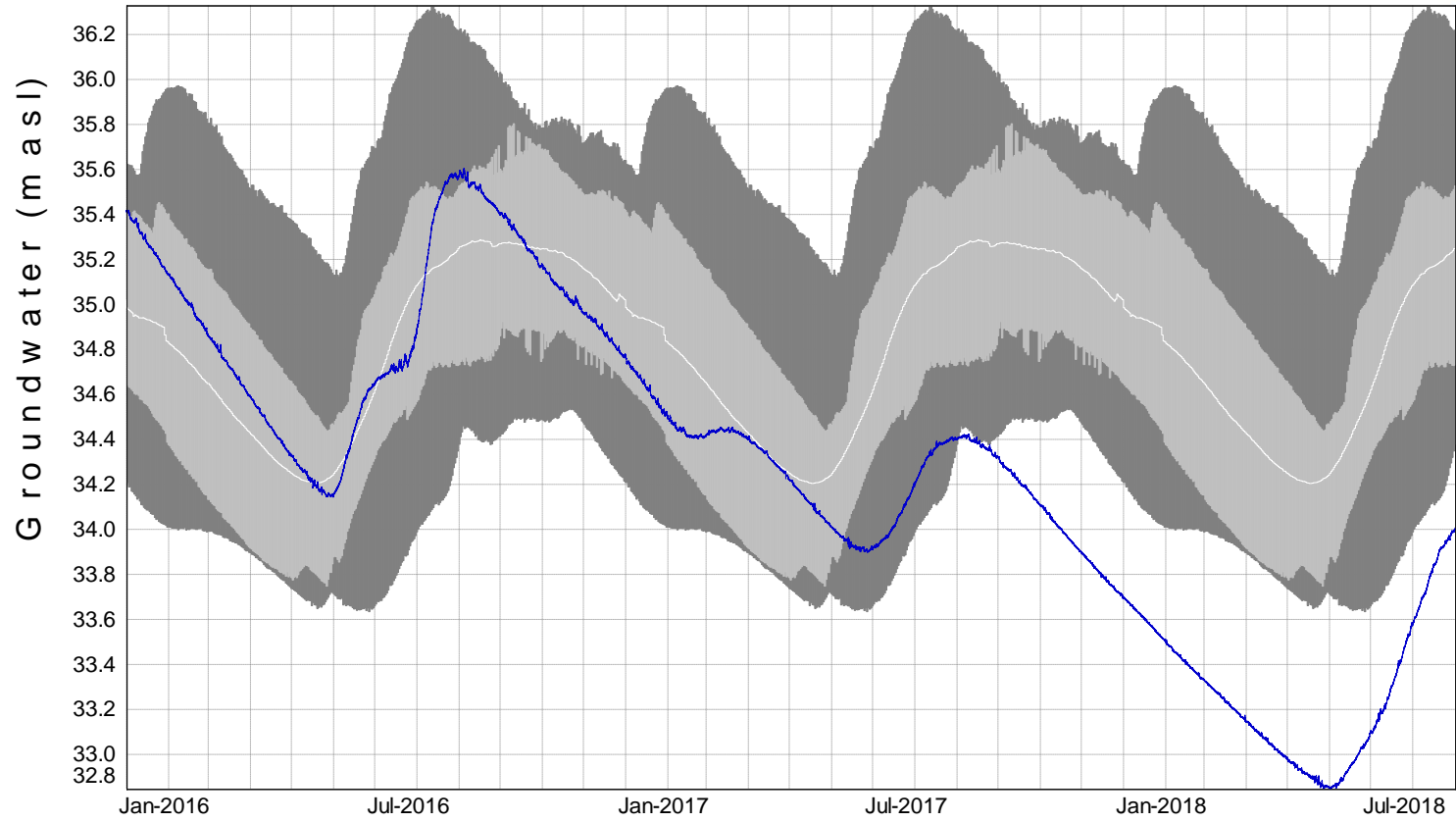
Christian Zammit (NIWA)

Catherine Moore (GNS)

Overview

- Historic management methods and issues
- Characterisation of systems and development of models
- Combining these models with management tools
- Resilience in the face of intensification and climate change





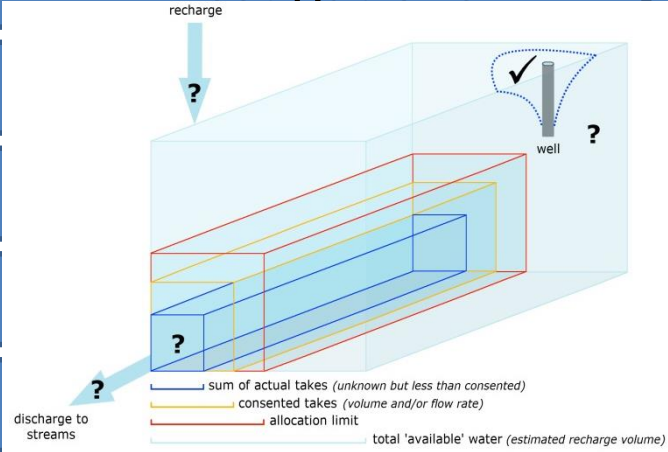
Needs

- The ability to build “what if?” tools
- An agile and scalable method to answer a wide range of questions
- A framework that builds resilience & continuity into our management

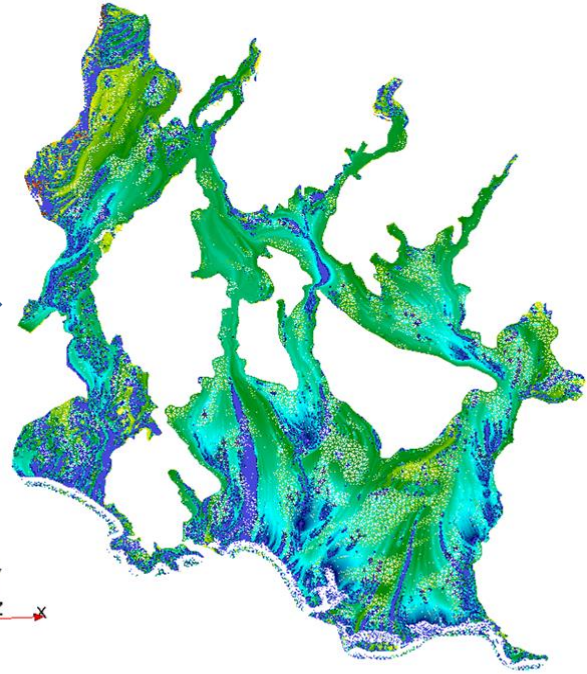


Characterisation

Investigations

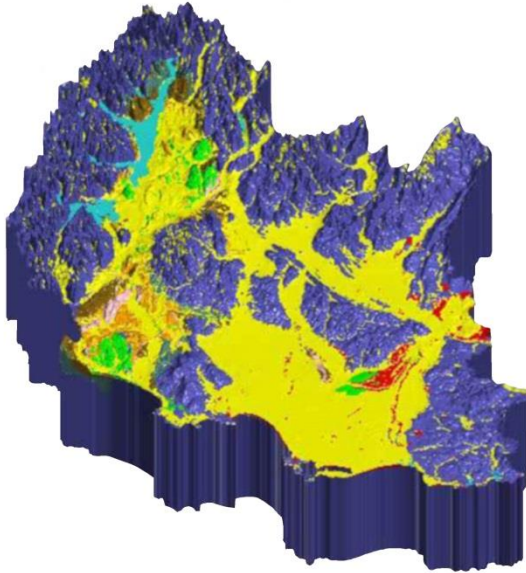


Broad scale high-res

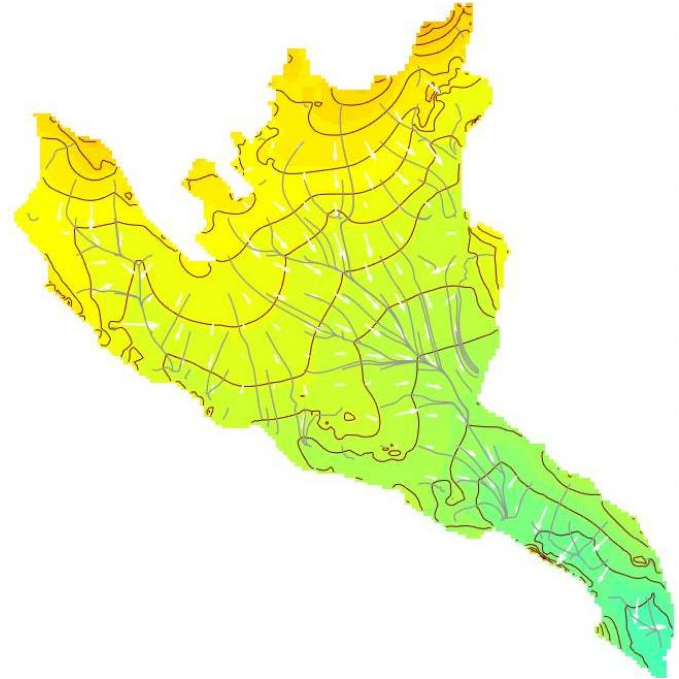


For example

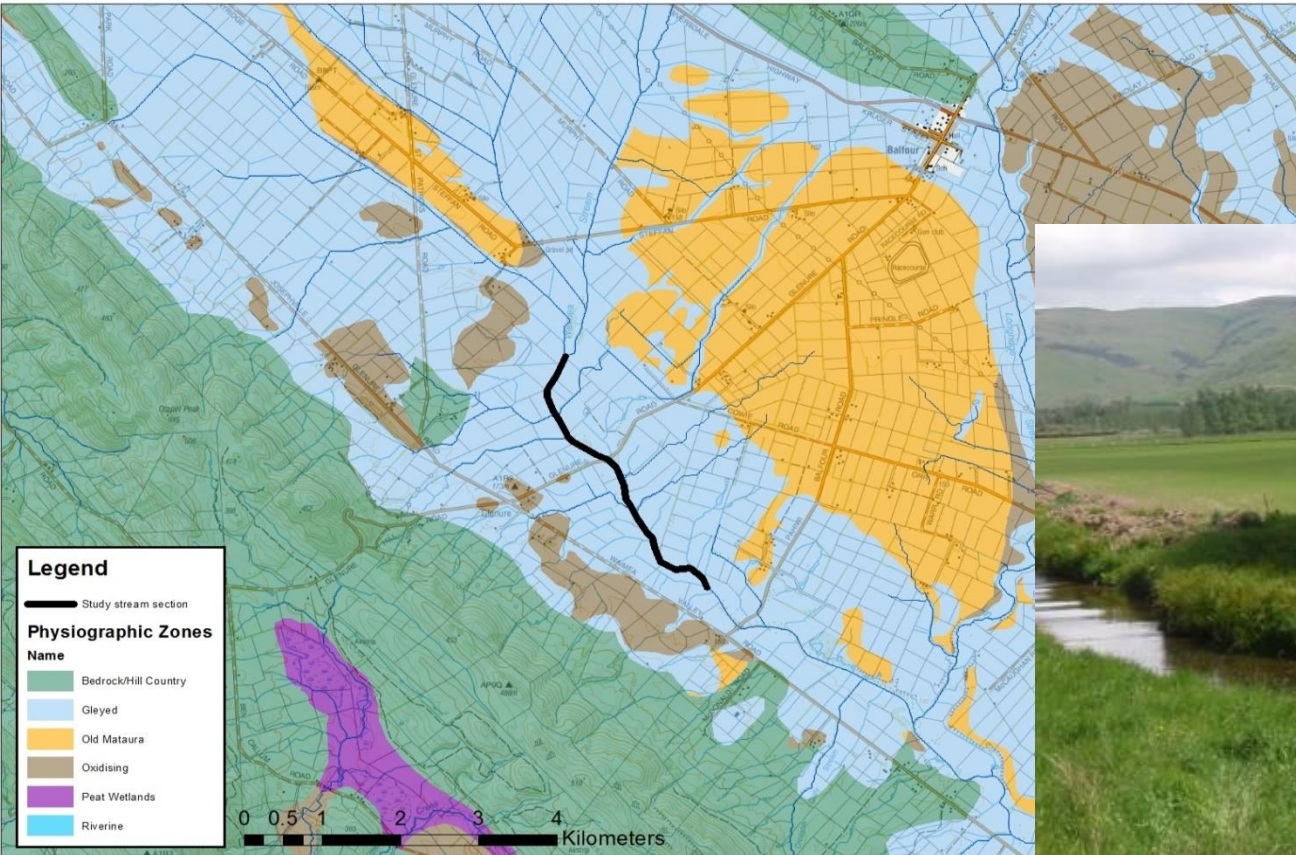
Regional 3D Geological Model



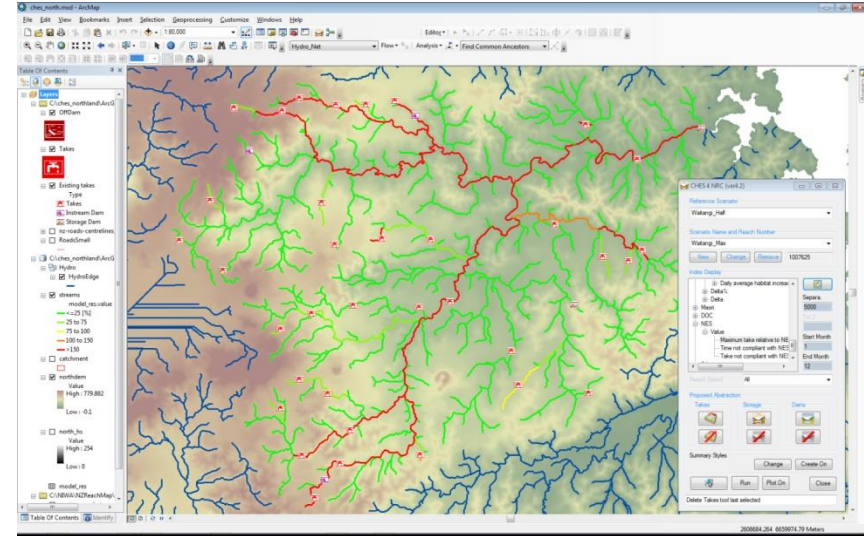
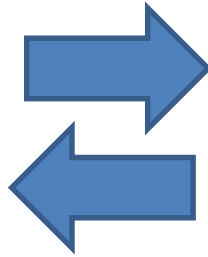
Mid-Matara loosely coupled flow and transport model

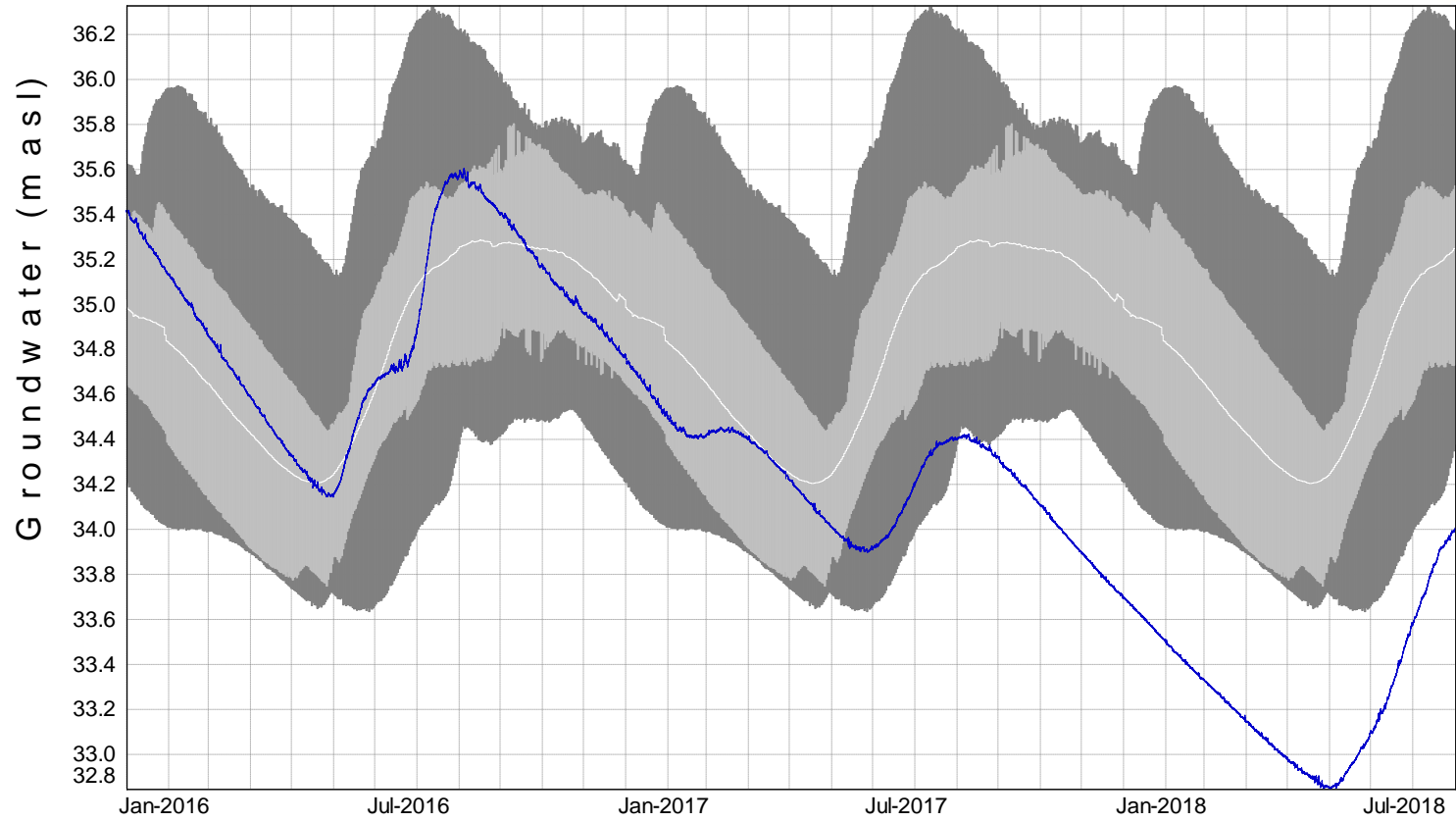


Waimea investigation



Allocation & management tools





Lessons learned

- Models don't give us absolute answers but can be good for indicating relative change or direction

Resilience

- What are the major risks that Southlanders face?
- What if scenarios allow use to plan for change
- Allows good decisions about land use
- Provides ES with a resilient management framework