

Freshwater - Fresh Thinking

Enhancing impact assessment in water management



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The following material is provided courtesy of the author following presentation at the New Zealand Association for Impact Assessment 2013 Annual Conference.

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Author: Andrew Fenemor

Research Priority Leader – Land and Water, Landcare Research

fenemora@landcareresearch.co.nz



Landcare Research
Manaaki Whenua

Adaptive Catchment Management requires us to understand the Catchment System and its People

Andrew Fenemor

Landcare Research Nelson

fenemora@landcareresearch.co.nz



Adaptive Management

A structured, iterative process of decision-making in the face of uncertainty, with an aim to reducing uncertainty over time via system monitoring

Land & Water Forum, 2010-2012

An excuse for powerful financial and political interests to force through development proposals without adequate information or precaution, and fix the mess later

Collaborative workshop participant, this week



Some Assertions for discussion

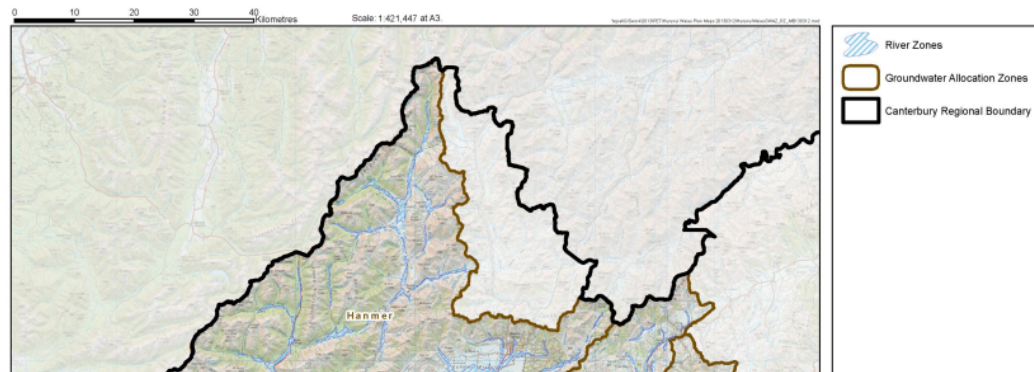


ASSERTION #1

Catchment/freshwater plans would
work better if

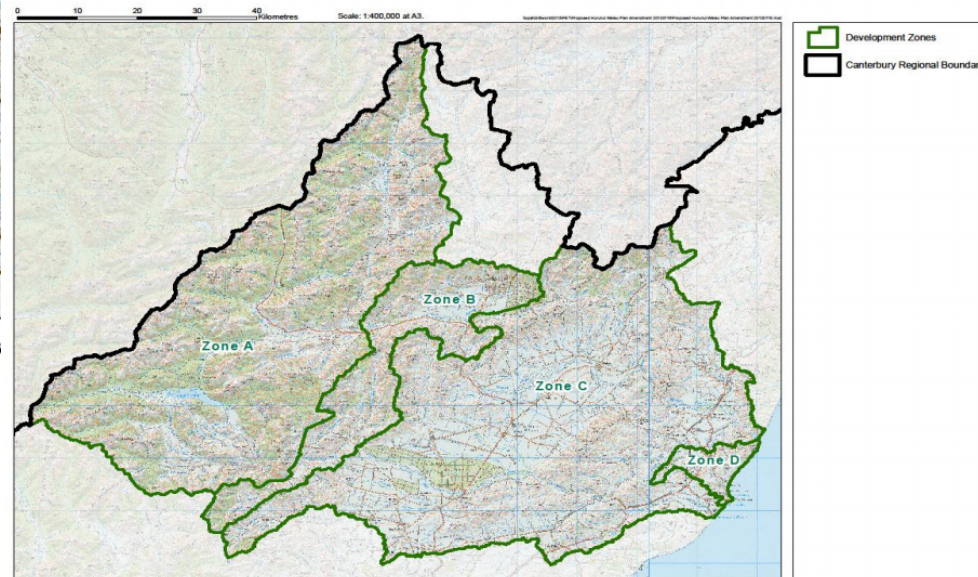
they anticipate and manage for
future pressures, not just for effects



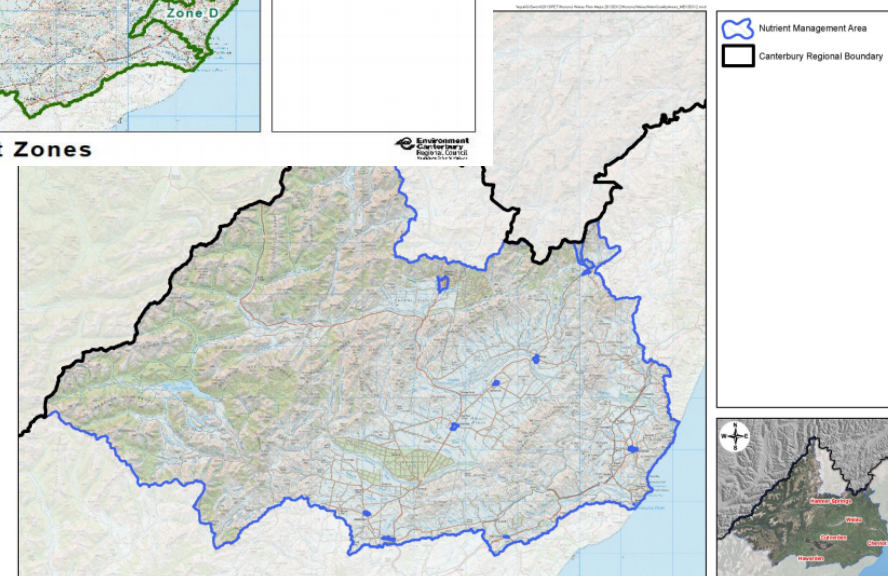


Hurunui - Waiau
Groundwater Allocation Zones

Hurunui Waiau Regional Plan



Map 3: Hurunui - Waiau Development Zones



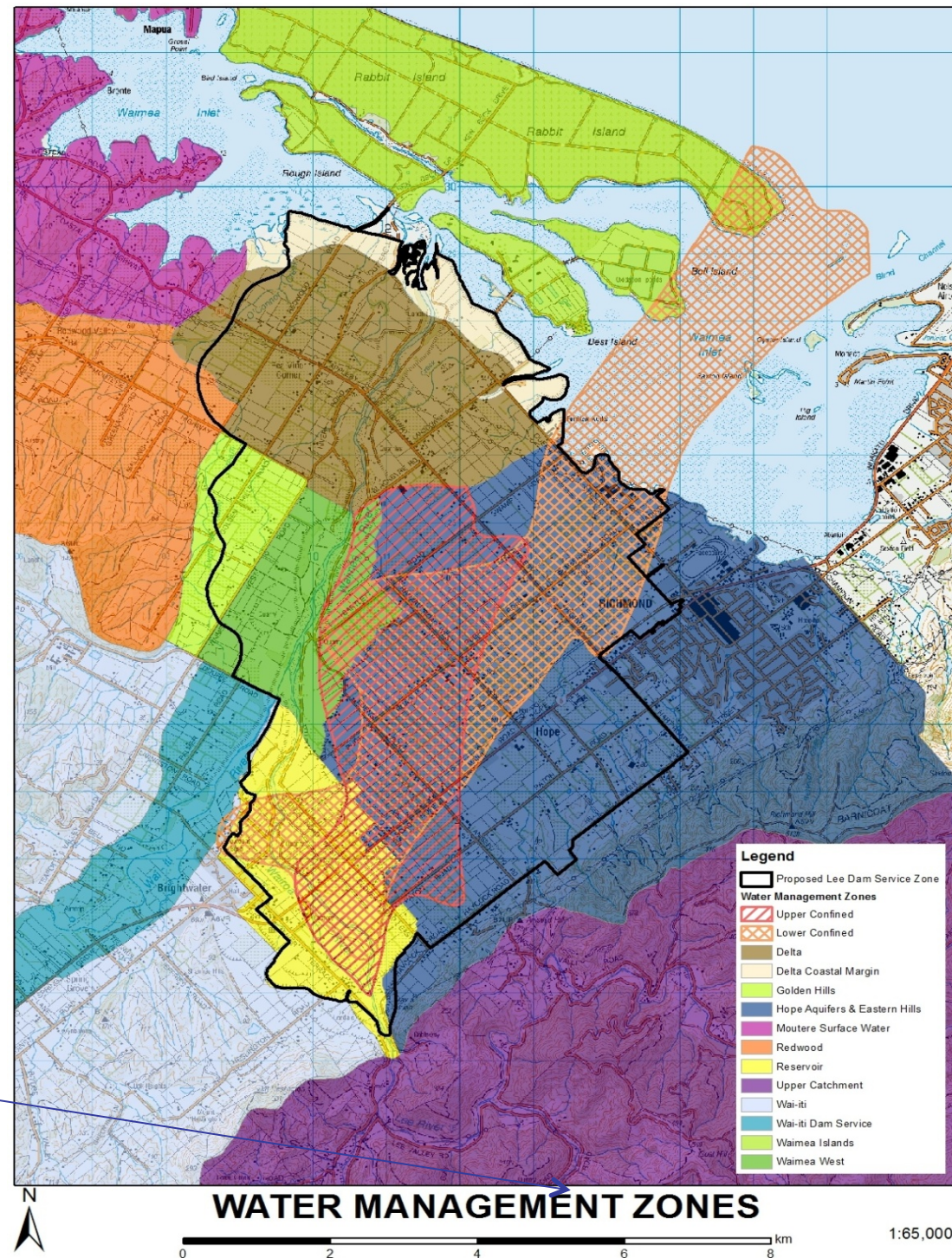
Hurunui - Waiau Nutrient Management Area

Waimea Water Augmentation plan change

Provides for...

- With dam
- Without dam
- Until dam

Lee Valley dam



- Effects-based assessment alone is too limiting
- RMA regional plans should provide end-points for foreseeable development (including limits)
- Signal specific impacts to be addressed and reduce reliance on adaptive management post-consents



ASSERTION #2

Water allocation and water quality limits should be planned together



Selwyn-Waihora Zone water management

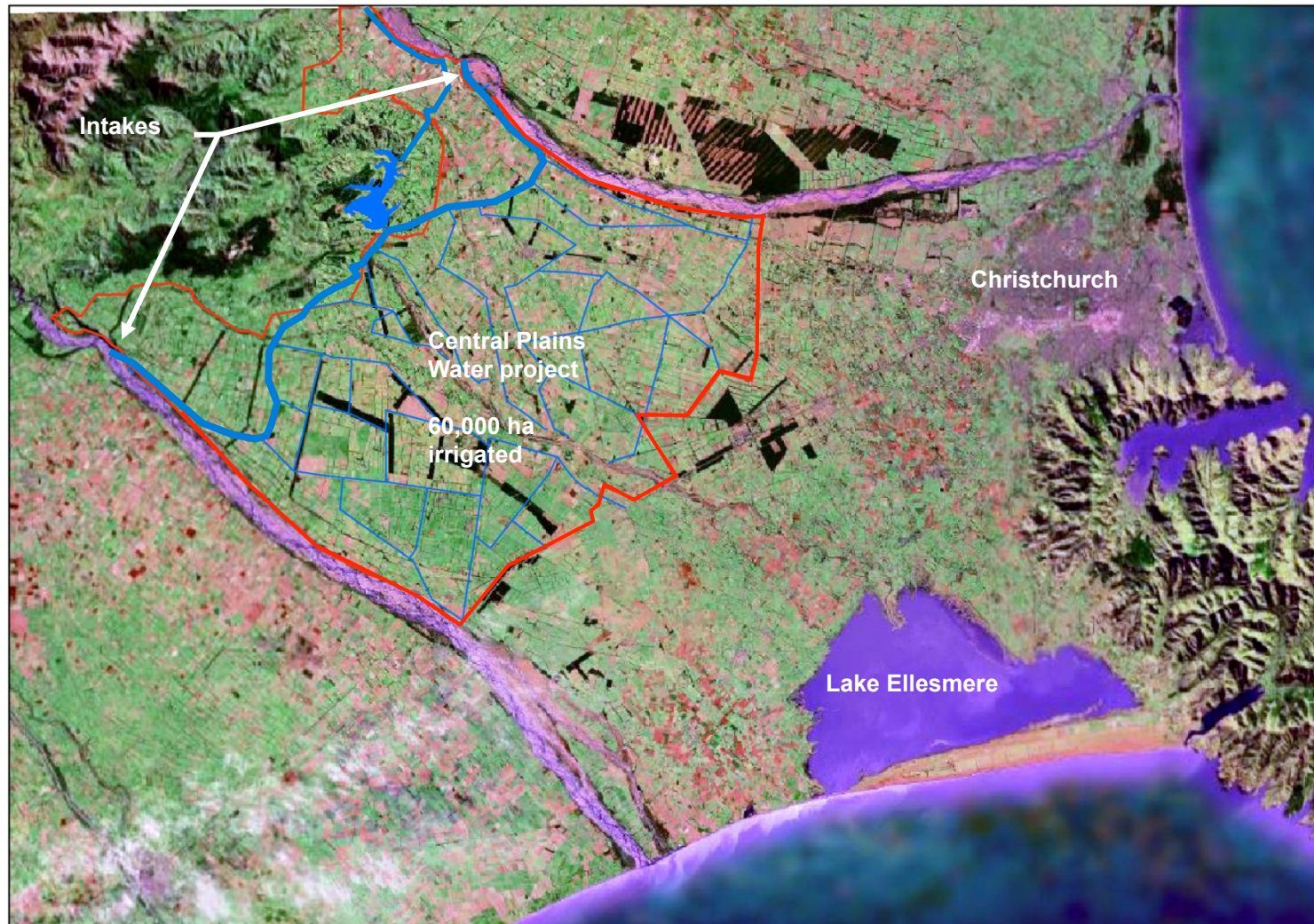
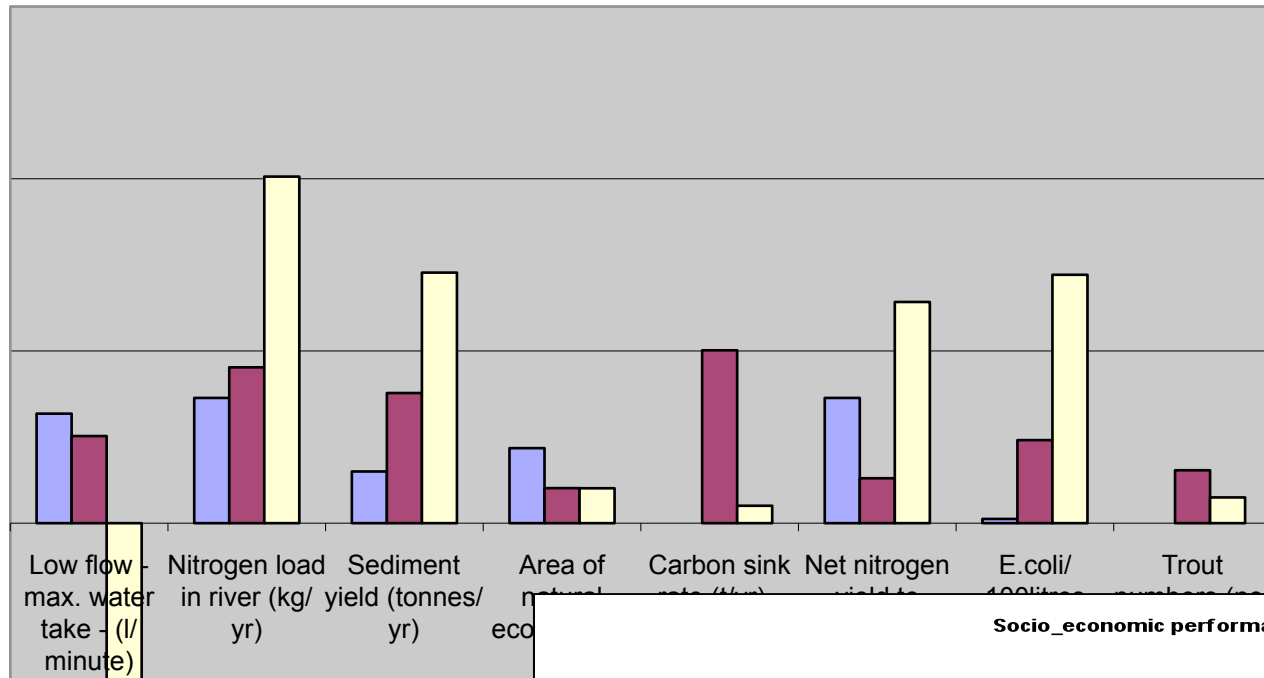
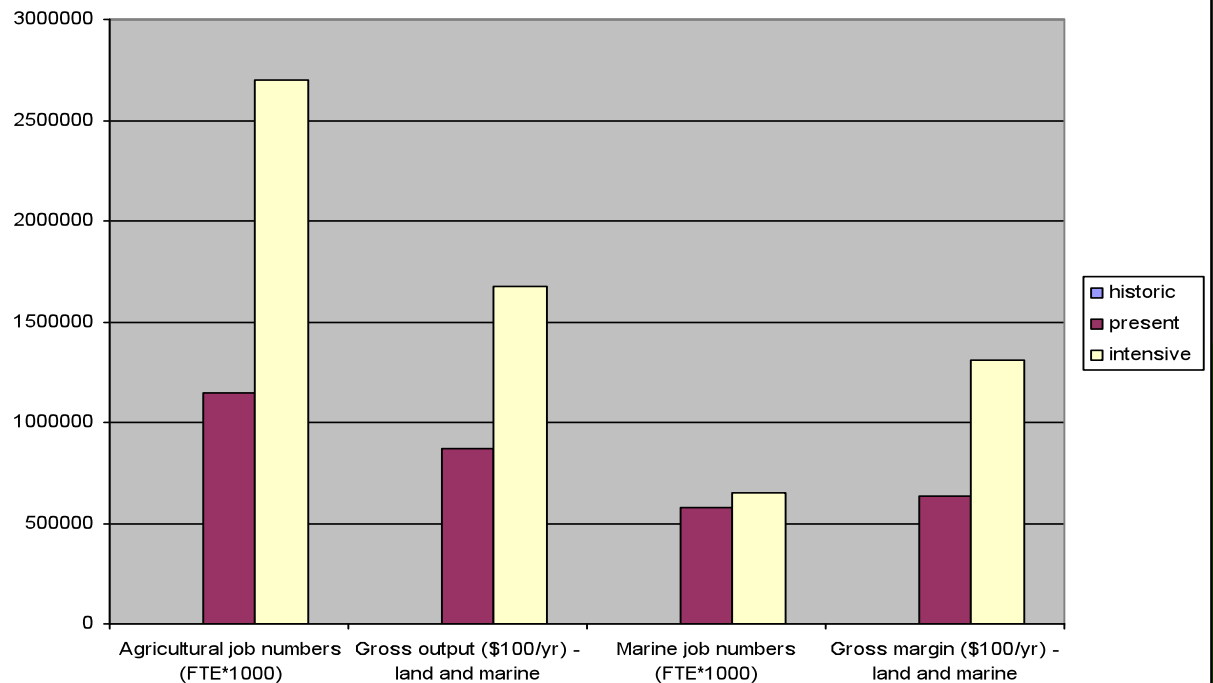


Image courtesy Cliff Tipler URS

Environmental performance



Socio_economic performance



ICM Scenario
Modelling -
Motueka
catchment

- Distinguish catchments with 'headroom' vs those in restoration or claw-back mode
- Achieving water quality limits in *some* catchments is likely to exceed our ability to adaptively manage
- Controls on land management practices may not be enough – next stop, limits on intensive land use intensity?

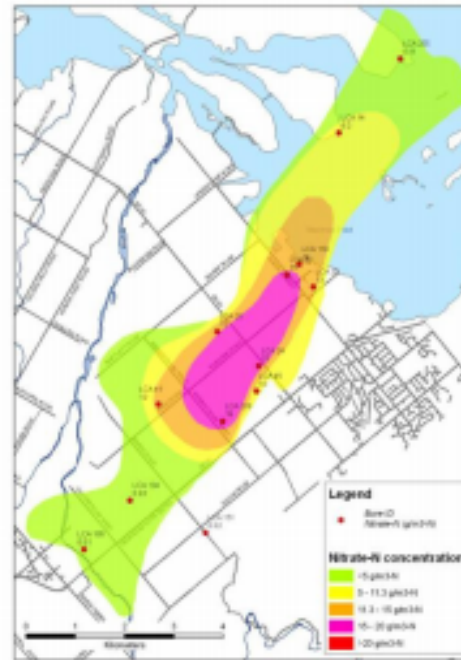


ASSERTION #3

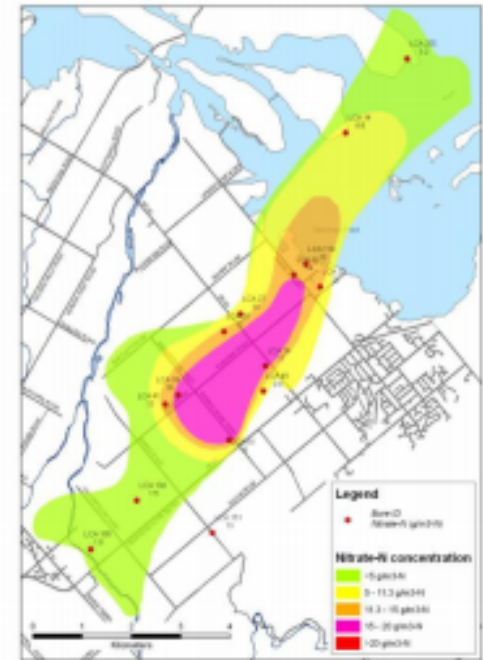
Long water flux lag times justify
more precaution and less adaptive
management



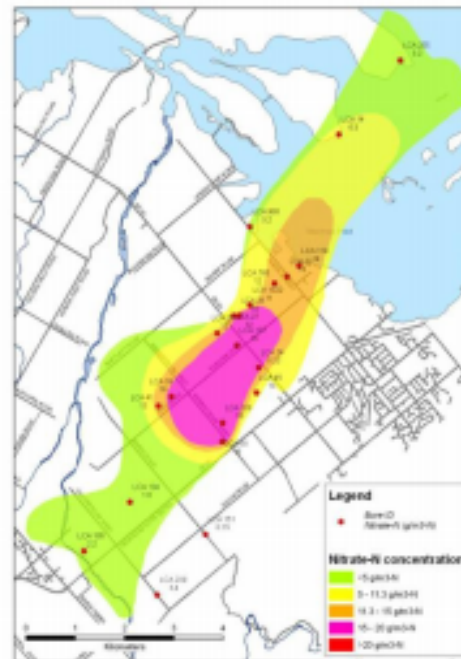
Nitrate in confined aquifer groundwater, Waimea Plains 1986 - 2005



1986



1994



1999



2005

- We need improved science on cause-effect pathway:
 - **Leaching from below the soil profile**
 - **Transport and attenuation through underlying aquifers**
 - **Water quality limits for receiving waters**
 - **Mitigation and management options for maintaining water quality within limits**
- With long lag times, monitor and manage inputs not just downstream effects

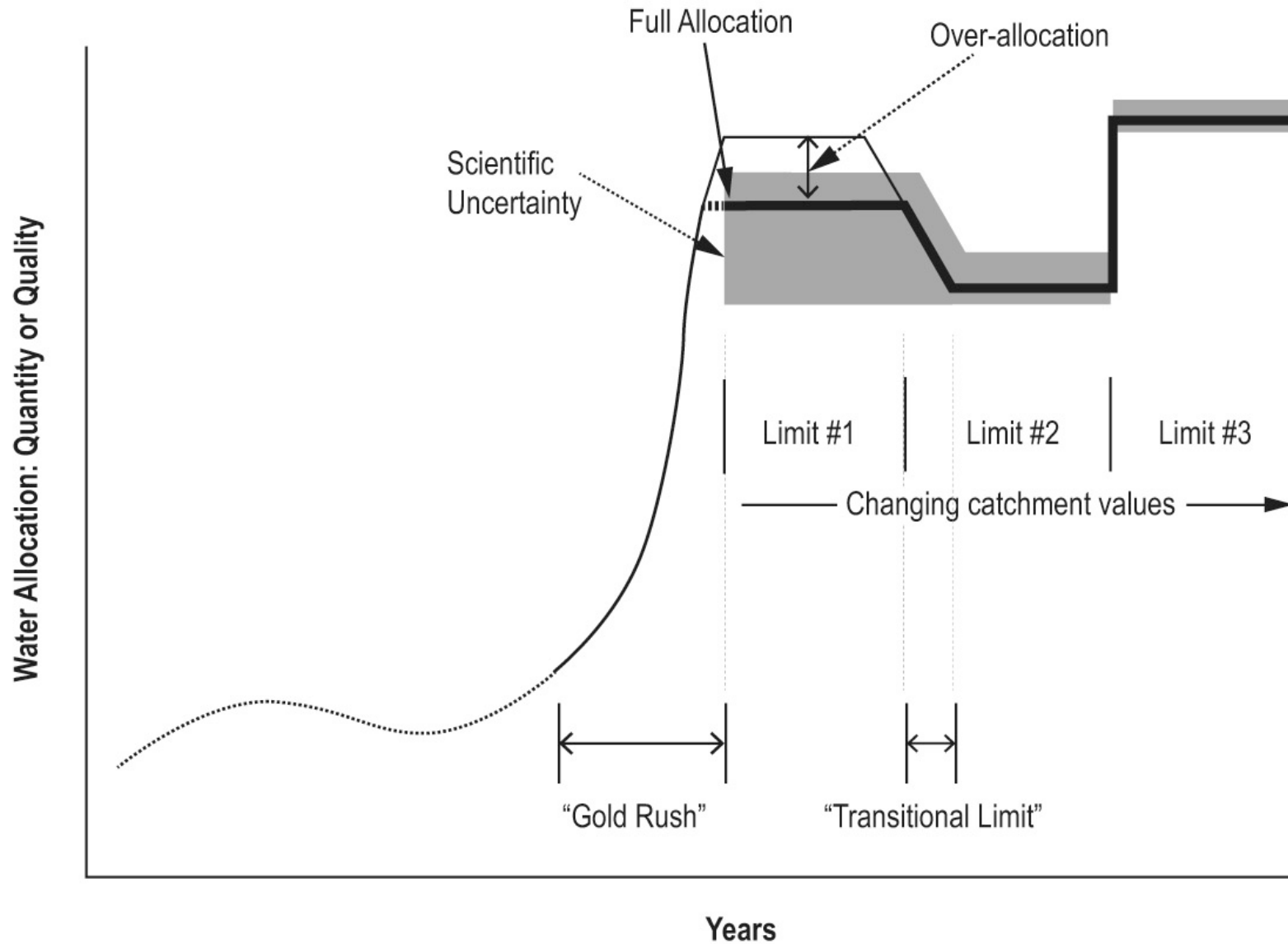


ASSERTION #4

Resolving the 'Re-Allocation Problem'
in fully allocated catchments should
harness market drivers



The Process of Limit-Setting



The Re-allocation problem

*how to facilitate ongoing re-allocations of water
(and potentially nutrient allocations) when
catchment limits are reached*

Some options

- Waiting lists and Council decides consent applications when allocations become available
- Transfers or trading (a market-based instrument) within regulated environmental limits



ASSERTION #5

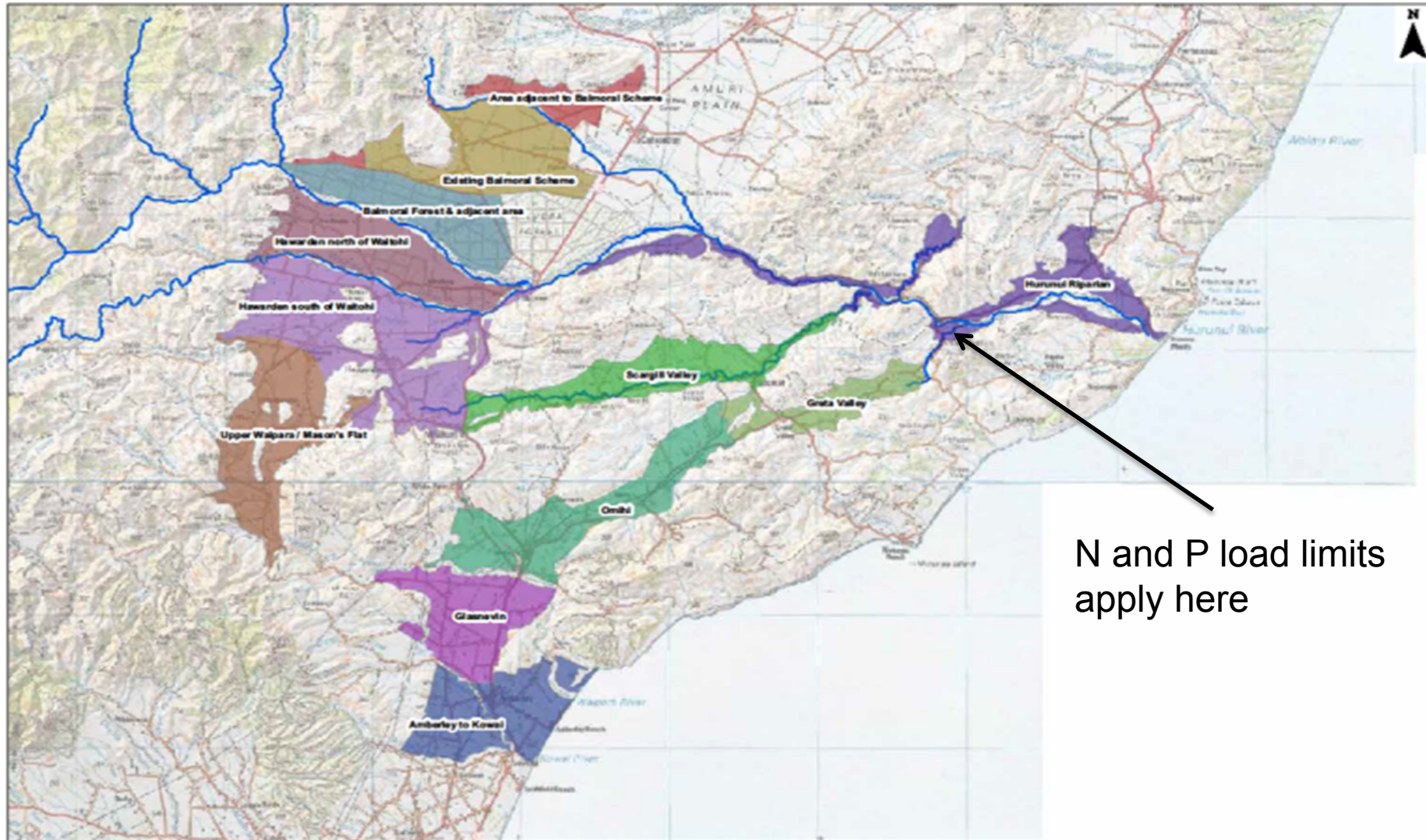
‘Way points’ (through s128 reviews)
are good practice to adaptively
manage irrigation scheme consent
compliance with water allocation and
water quality limits



Hurunui Water Project

Stage 1 = 15500ha irrigated

Stage 2 = 58500ha irrigated



Map courtesy Peter Callendar PDP: evidence for Hurunui Water Project hearing

CLOSING ASSERTION (#6)

Adaptation is a human process so
the level of voluntary vs regulated
action should take into account the
nature of the catchment
communities



Voluntary farmer action is possible in cohesive communities



Bridge over troubled waters

By Simon Towle

Environment Minister of the Sherry River Trust, Simon Towle, says the trust is working to improve the river's health. The trust is a partnership between the Tasman District Council and local farmers. The trust is working to improve the river's health by planting trees and installing bridges. The trust is also working to improve the river's water quality by installing filters and other equipment. The trust is also working to improve the river's water quantity by installing dams and other equipment. The trust is also working to improve the river's water quality by installing filters and other equipment. The trust is also working to improve the river's water quantity by installing dams and other equipment.



NEWS EXTRA

Farmers and scientists join up to sweeten the Sherry River

While farmers are frequently criticised for the effects of dairying on the environment, positive developments are often ignored. **Simon Towle** reports on work along the Sherry River in Tasman District, where farmers have joined forces with scientists and the district council.

Dairy farmers have traditionally looked down both with local councils and Fish and Game New Zealand for contaminating the country's natural waterways. However, compelling science has now persuaded farmers in Tasman District to invest considerable effort and money to clean up the Sherry River to a state that could prove a model example for the rest of the country.

Bringing these dirty-dairying campaigners back on track, director of Fish and Game, enthusiastically describes the project as "a good example".

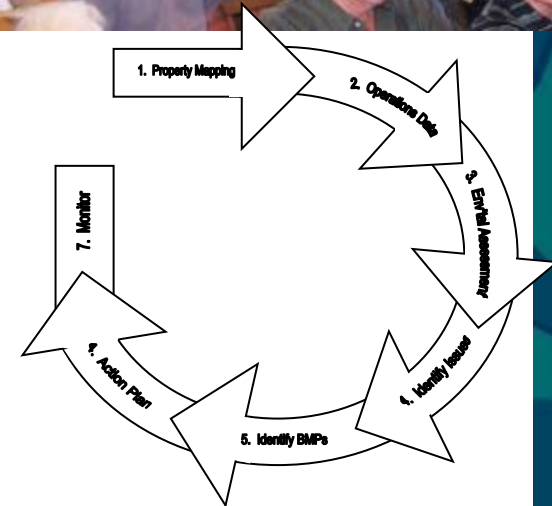


new information in December 2004, "the Sherry Farmers' association to take action. In a short period of time, the council on Trust and Lisa White's property where the experiment was carried out has now been built. In addition, another farmer, Rod [?], is using a bridge instead of taking through the river."

He says two other bridges are being dug and installed to keep stock out of the river.

Tasman District Council

.. and Landowner Environmental Plans can work as voluntary agreements to improve water quality when adequately facilitated



- But one size does not fit all catchments
- Social factors for level of regulation include degree of
 - conflict and pressure on water
 - family, iwi and corporate land management
 - trust and collaboration
 - peer pressure
- Land users want to know the targets but are less keen on regulated limits



Assertions for discussion

1. Catchment/freshwater plans would work better if
they anticipate and manage for future pressures, not just for effects
2. Water allocation and water quality limits should be planned together
3. Long water flux lag times justify more precaution and less adaptive management
4. Resolving the 'Re-Allocation Problem' in fully allocated catchments should harness market drivers
5. 'Way points' (through s128 reviews) are good practice to adaptively manage irrigation scheme consent compliance with water allocation and water quality limits
6. Adaptation is a human process so the level of voluntary vs regulated action should take into account the nature of the catchment communities



ASSERTION #??

Conjunctive management of stored
water releases with natural
catchment flows could raise
interesting legal arguments

