Freshwater - Fresh Thinking

Enhancing impact assessment in water management

nzaia

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Landcare Research
Manaaki Whenua

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

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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

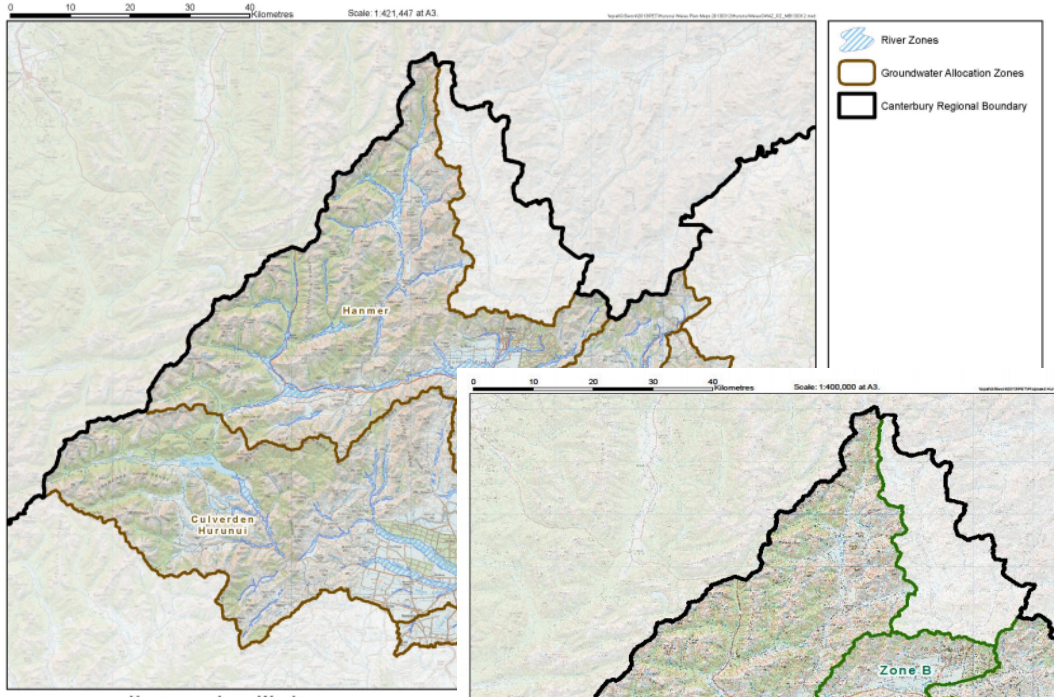
Collaborative workshop participant, this week

Some Assertions for discussion

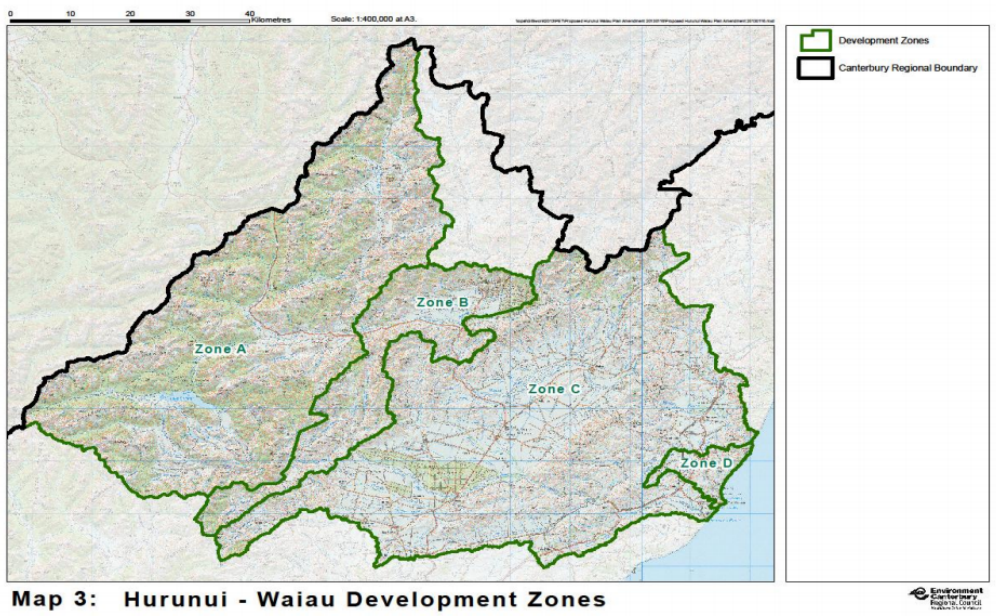
ASSERTION #1

Catchment/freshwater plans would work better if ….
they anticipate and manage for future pressures, not just for effects

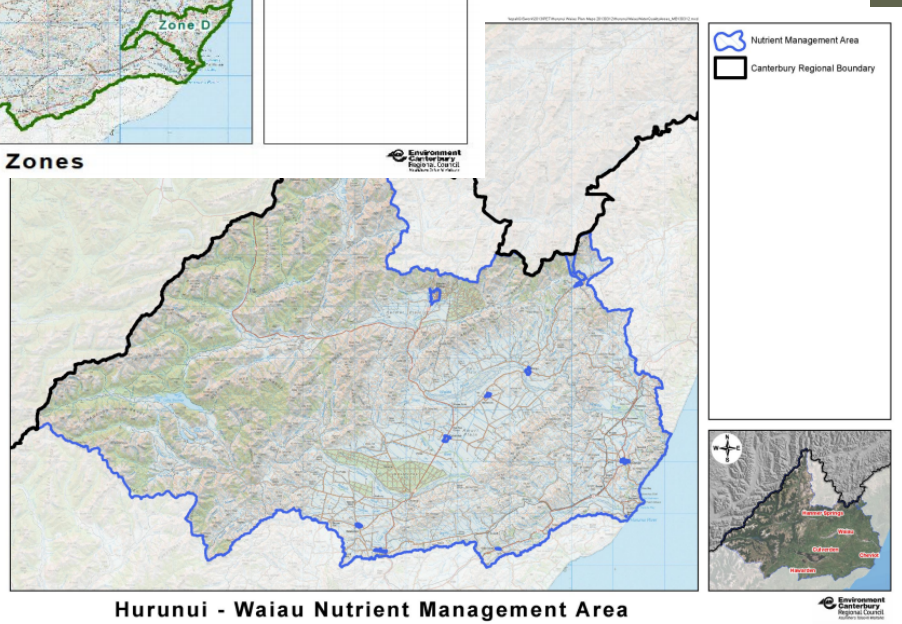
Hurunui Waiau Regional Plan



Hurunui - Waiau
Groundwater Allocation Zones



Map 3: Hurunui - Waiau Development Zones



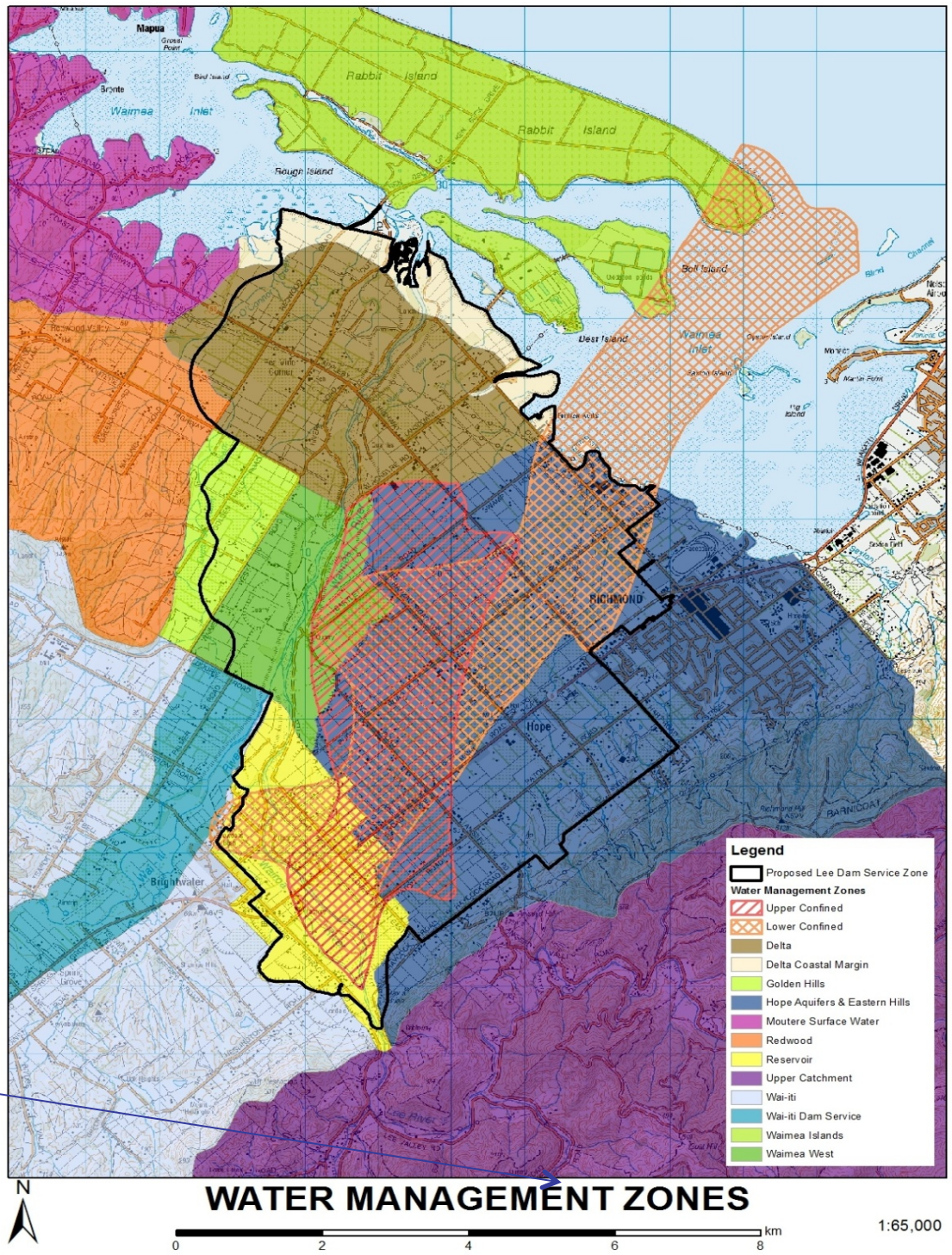
Hurunui - Waiau Nutrient Management Area

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

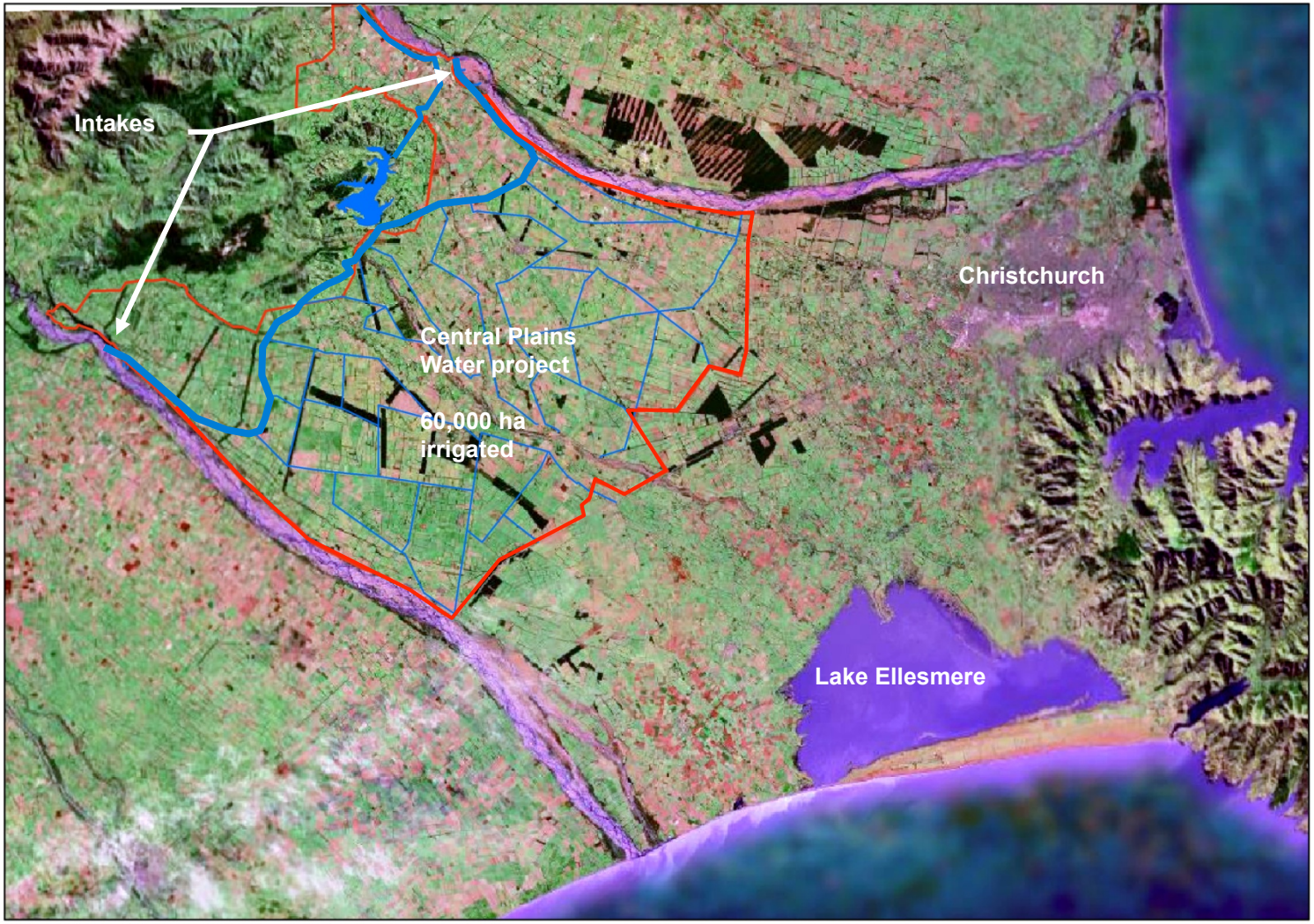
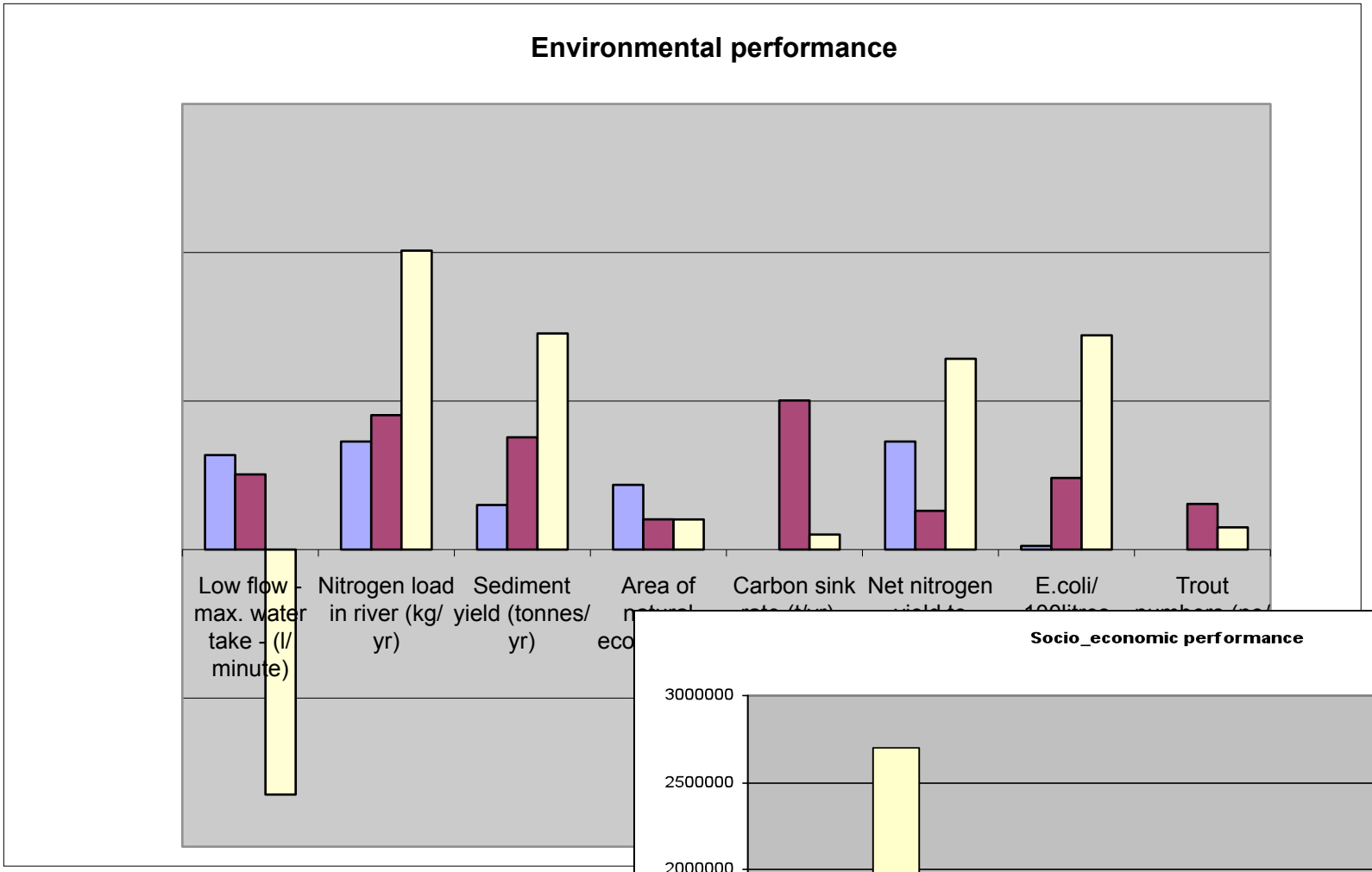
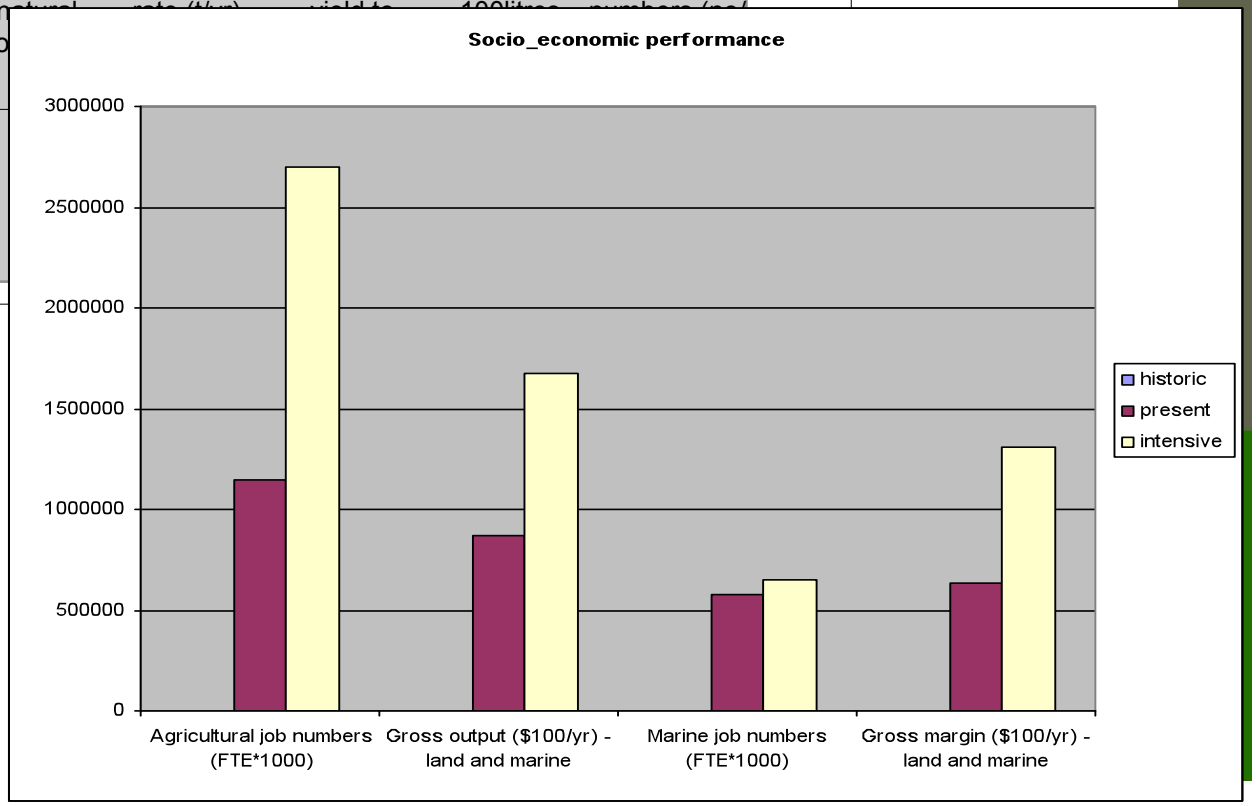


Image courtesy Cliff Tipler URS





ICM Scenario Modelling - Motueka catchment

- Distinguish catchments with ‘headroom’ vs those in restoration or claw-back mode

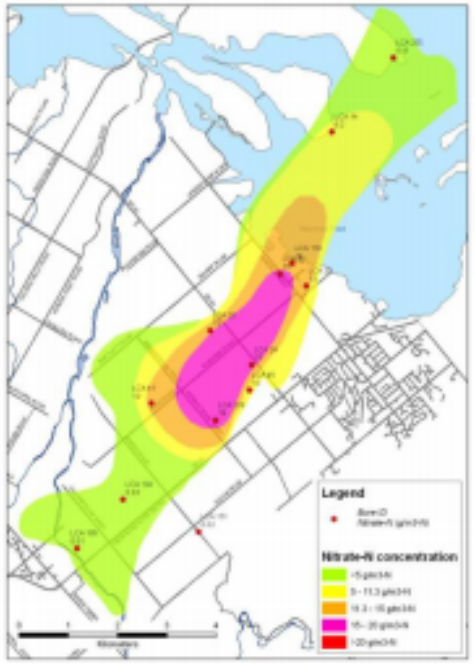
- Achieving water quality limits in *some* catchments is likely to exceed our ability to adaptively manage

- Controls on land management practices may not be enough – next stop, limits on intensive land use intensity?

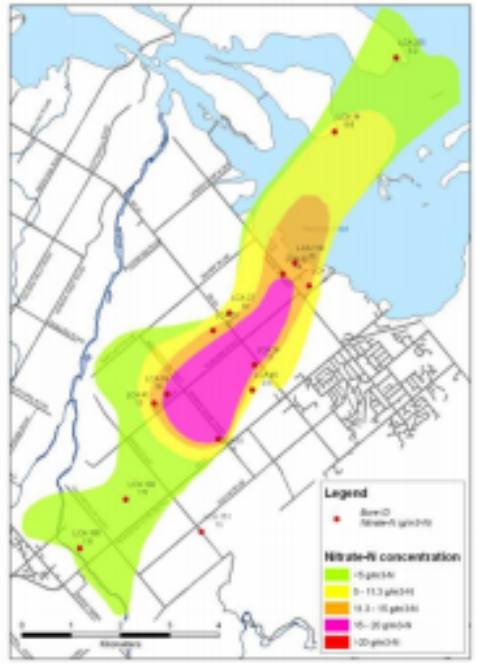
ASSERTION #3

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

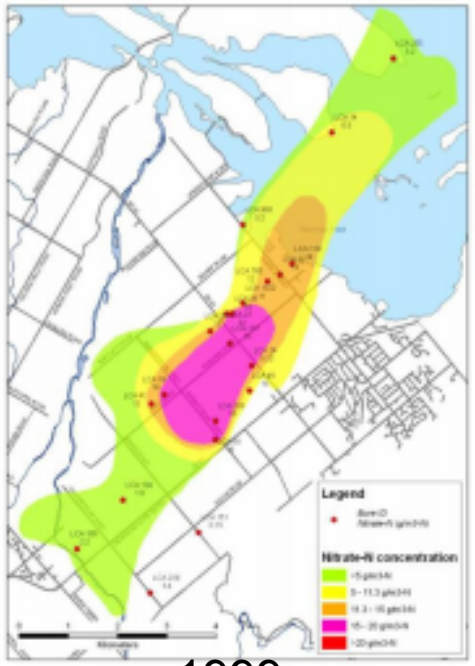
Nitrate in confined aquifer groundwater, Waimea Plains 1986 - 2005



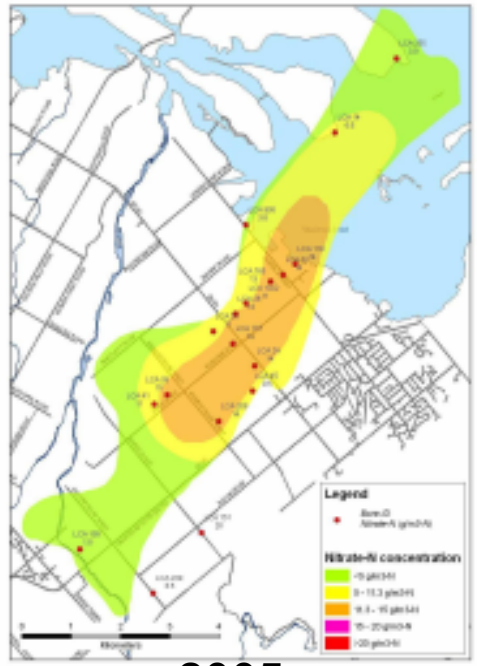
1986



1994



1999



2005

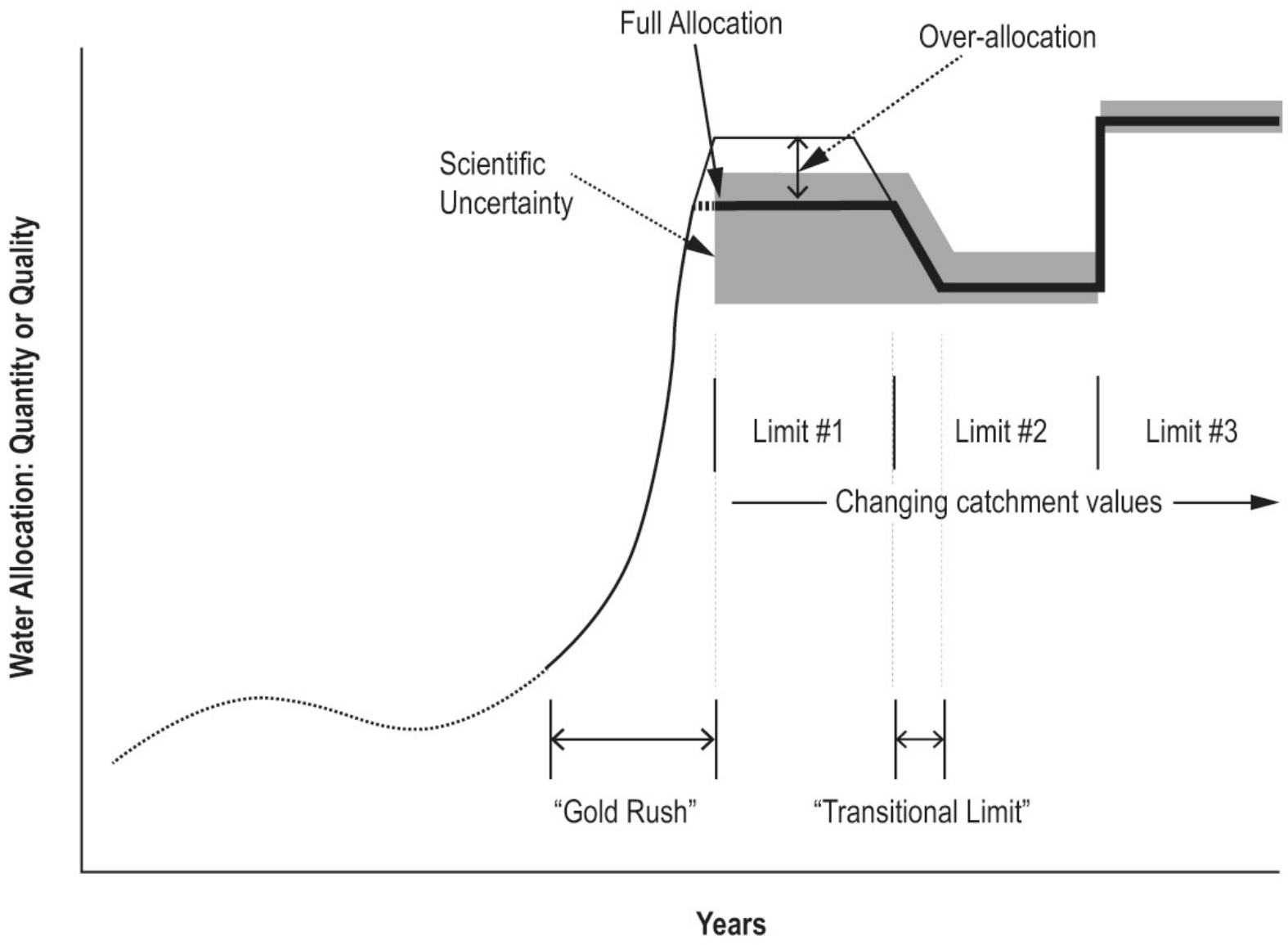
- We need improved science on cause-effect pathway:
  - **Leaching from below the soil profile**
  - **Transport and attenuation through underlying aquifers**
  - **Water quality limits for receiving waters**
  - **Mitigation and management options for maintaining water quality within limits**

- 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

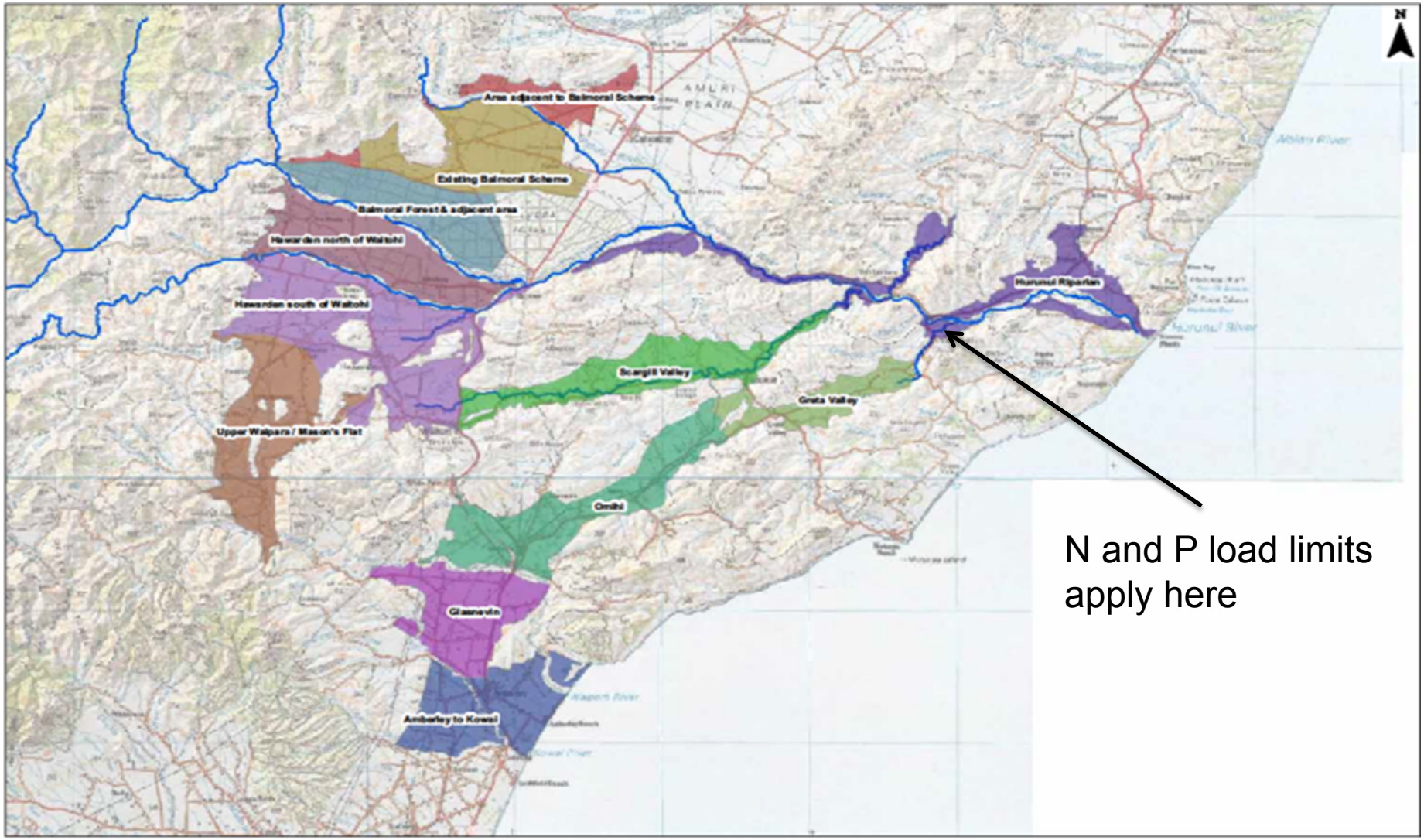
ASSERTION #5

‘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

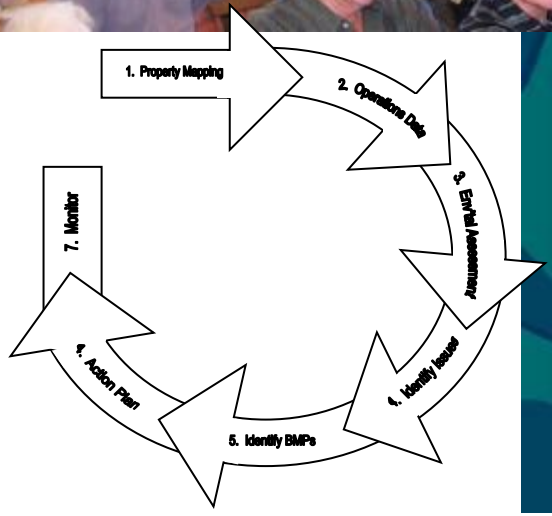
Bridge over troubled waters

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.

.. 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