AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

New Zealand Agricultural & Resource Economics Society (Inc.)

# To Keep it 'Zip'ped or Not? Challenges for a Scientist Working as a Member of a Canterbury Water Zone Committee

**Ken Hughey**
Lincoln University

**Paper presented at the 2011 NZARES Conference**

Tahuna Conference Centre – Nelson, New Zealand. August 25-26, 2011

*Copyright by author(s). Readers may make copies of this document for non-commercial purposes only, provided that this copyright notice appears on all such copies*

# To keep it ‘zip’ped or not? – challenges for a scientist working as a member of a Canterbury water zone committee

Ken Hughey

Lincoln University

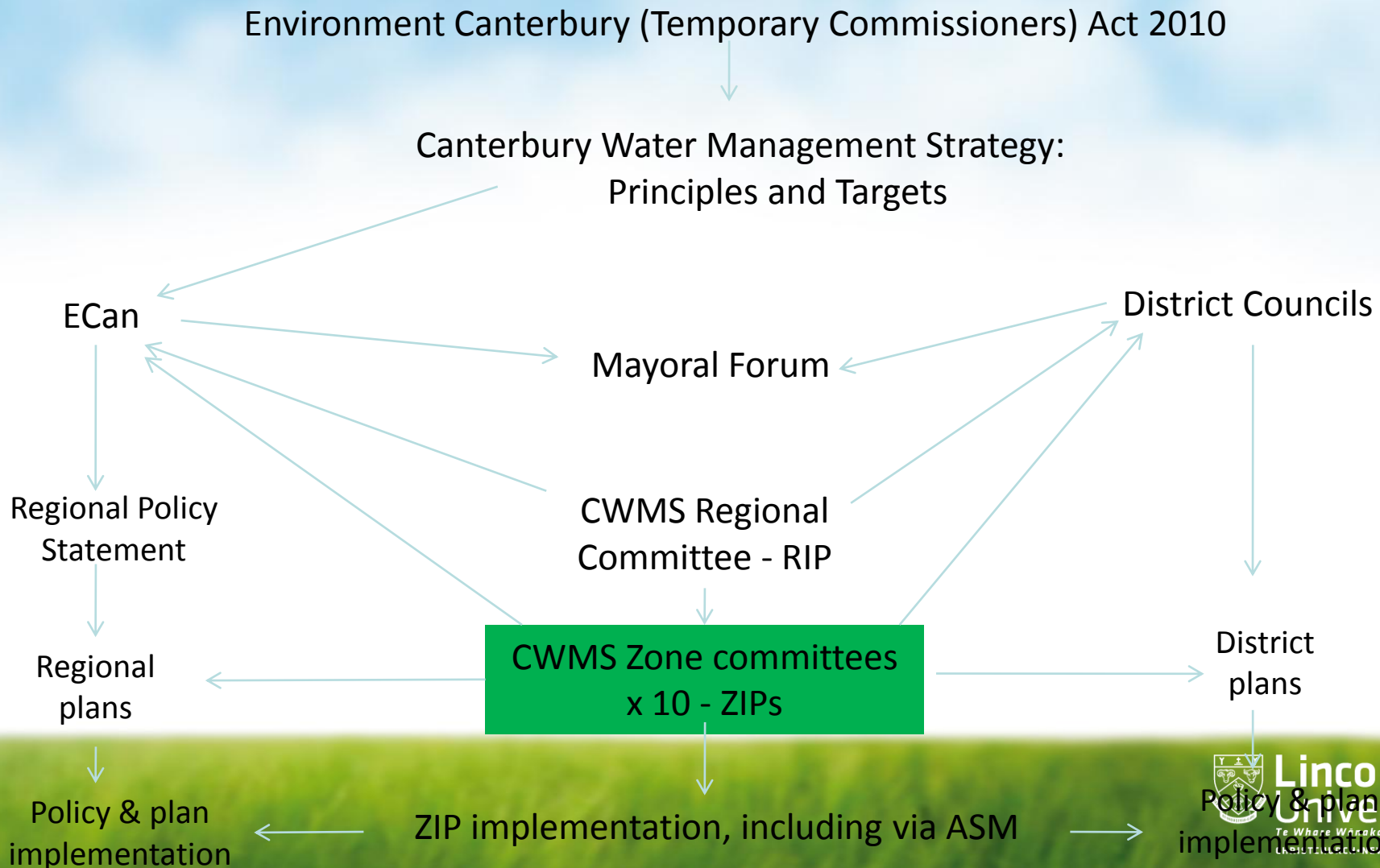
Paper to NZARES, Nelson, 25-26 August 2011

Lincoln University
Te Whare Wānaka o Aoraki
CHRISTCHURCH•NEW ZEALAND
New Zealand's specialist land-based university

# Outline

- Where I fit in the ‘jig-saw puzzle’ that is Canterbury Water
- The appointment process – or ‘how to make friends and influence people’ Democracy or …?
- Local vs vocal – an issue of ‘fit for purpose’
- Decision making informed (or not, by science) – some of the big questions
- Guiding principles for a scientist in contributing, collaboratively, to integrated planning
- Strategies for improving science relevance, and use
- Some conclusions and other insights

# Where I fit in the 'jig-saw puzzle' that is Canterbury Water

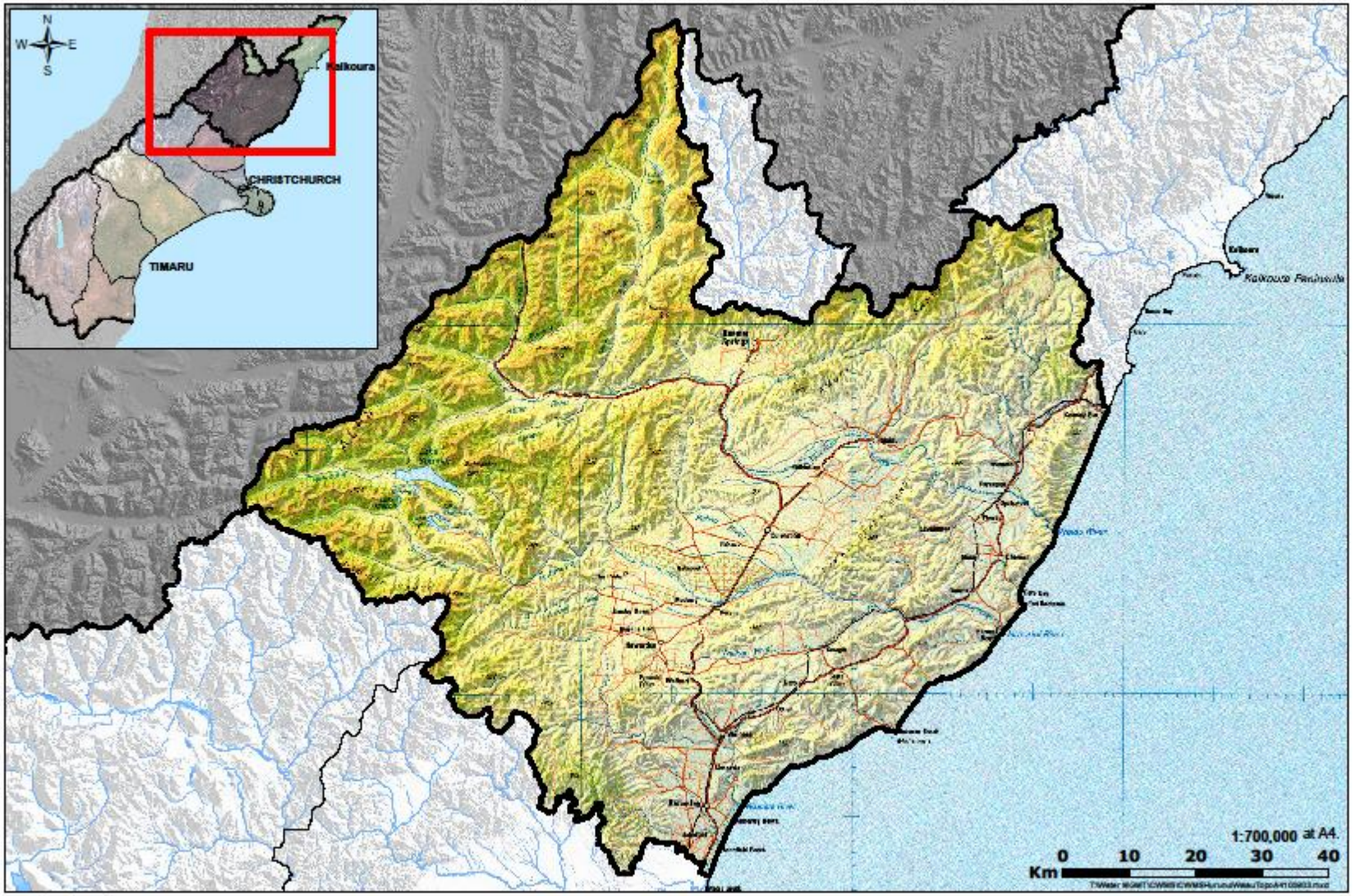



Lincoln University
Te Whare Wānanga o Aoraki
New Zealand's specialist land-based university

# The appointment process – or 'how to make friends and influence people' Democracy or …?

- Environment Canterbury and Hurunui DC called for 'self'-nominations for the community appointee positions on the ZC – early 2010
- After being approached by an ENGO I applied, was not short-listed, then advised I was not selected
- I was overseas for a couple of weeks and upon my return was asked if 'I would like my application reconsidered' – interesting
- I then gave a presentation of my vision for the Hurunui-Waiau zone to a selection panel and was then 'observed' participating in a collaborative process
- Finally, I was contacted with the great news that I had been selected. Indeed the Christchurch Press gave me the sort of headline I had always sought (but never received as a rugby player) - The Press, 30 June 2010:

"**Hughey gets water job after selection backflip**"




Hurunui - Waiau Canterbury Water Management Strategy Zone

Lincoln University
Te Whare Wānaka o Aoraki
CHRISTCHURCH•NEW ZEALAND
New Zealand's specialist land-based university

# Local vs vocal – an issue of ‘fit for purpose’

- One issue two of us (seen, at least initially, as the ‘greenie’ appointees) have faced ‘continually’ is that we live way outside of the zone. When meetings for over a year are every 3 weeks, roughly 3-9pm plus at least an hour of travel each way, then it’s a big commitment for ‘out-of-zoners’.
- We frequently get the ‘local problem, local solution’ argument. Our argument – there are matters of local, regional and national interest in the zone and we need to take account of all levels.
- And, how vocal (as a non-local) should we be with our input? I would have to say I have varied my input, and had to in order to survive, and in order to have greatest effect. Sometimes, I have been openly angry especially when it comes to matters of policy and science …

# Decision making informed (or not, by science) – some of the big questions

- Land use and water quality – is there a connection and can it be defined?
- Environmental flows – can they be defined?
- Ecological effects of dams and changed flows – do we know these with confidence?
- Are there cost-effective options for non-point source pollution management?

# Guiding ‘principles’ for a scientist in contributing, collaboratively, to integrated planning

- I decided to use some guiding ‘principles’ for informing my inputs into the ZIP preparation process – based on Hughey and Hickling (2006) – and to ‘fight’ until I felt each was properly considered.
- These guiding ‘principles’ are built around:
  - *Ecological principles*
  - *Objectives and outcomes*
  - *Adaptive management*
  - *Quality of science information used*

# Operationalising the ‘principles’

| Ecological principles | | Objectives and outcomes | | Adaptive management | | Quality of science information used | | |
|---|---|---|---|---|---|---|---|---|
| Explicit references to ecological processes and principles | Environmental impacts attributable to water resource development and/or land use intensification are clearly established within an ecological context | Objectives are prioritised based on the likely ecological benefits that will accrue from the planned management | Outcomes are assessed in terms of measured ecological responses | There is a commitment to ongoing monitoring, using proven methods | The policy is flexible enough to allow for periodic reviews of science and management, with the results incorporated into revised management | The best available information is used in designing policy and implementing management – where possible this is scientifically based and peer reviewed | Where there is inadequate information to address key information requirements for planning and implementing management, the relevant agencies should commit themselves to appropriate research investment | Best available range of ecological scientists assisted throughout policy/ planning process |

Each of these can be scored on a 1-5 performance criteria scale with 1=very poor and 5=very good

# Example application to '3' key sections of the ZIP

| Component of the ZIP | Ecological principles | | Objectives and outcomes | | Adaptive management | | Quality of science information used | | | Score (/45) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Explicit references to ecological processes and principles | Environmental impacts attributable to water resource development and/or land use intensification are clearly established within an ecological context | Objectives are prioritised based on the likely ecological benefits that will accrue from the planned management | Outcomes are assessed in terms of measured ecological responses | There is a commitment to ongoing monitoring, using proven methods | The policy is flexible enough to allow for periodic reviews of science and management, with the results incorporated into revised management | The best available information is used in designing policy and implementing management – where possible this is scientifically based and peer reviewed | Where there is inadequate information to address key information requirements for planning and implementing management, the relevant agencies should commit themselves to appropriate research investment | Best available range of ecological scientists assisted throughout policy/ planning process | |
| 3. Ecosystem health/ biodiversity and braided river character | Key principles around river flow needs identified, e.g., variability; other ecosystem management principles also given<br>Score: 4/5 | Generally yes, especially in relation to the impacts of dams and raising of lakes<br>Score: 4/5 | Yes, and generally (although not always, e.g., restoration priorities) against clear criteria<br>Score: 3/5 | Very clear set of desired outcomes defined – provide sound basis for future management<br>Score: 5/5 | Yes – seeks to establish baseline conditions, but silent on methods<br>Score: 4/5 | Yes – links to Regional Plan with built in review processes<br>Score: 5/5 | Yes, although some information clearly inadequate<br>Score: 5/5 | Calls for collection of more, relevant, and useable information<br>Score: 5/5 | Generally yes – made use of NIWA and ECan scientists, and others as necessary.<br>Score: 5/5 | 41/45 |
| 6 and 7. Waiau and Hurunui river flows | Yes – life supporting needs, flow variability, minimum flows<br>Score: 5/5 | Yes – explicit re impacts of dams on rivers and on Lake Sumner; and effects of lowered flows on river habitat, food supplies<br>Score: 5/5 | Realistic objectives adjusted according to benefits and relationships to other management options<br>Score: 5/5 | Where possible this has been done, but probably a lack of information on likely responses in some areas<br>Score: 3/5 | Yes – seeks to establish baseline conditions, but silent on methods<br>Score: 4/5 | Yes – links to Regional Plan with built in review processes<br>Score: 5/5 | Uses NIWA 2-D and related modelling; complemented by expert opinion<br>Score: 5/5 | Yes – commitment to gathering baseline information to measure changes against<br>Score: 4/5 | Yes – NIWA, DoC, ECan, university, augmented by other experts as appropriate<br>Score: 5/5 | 41/45 |
| 11. Water quality | Yes, cause and effects identified with emphasis on N & P relationships, where known<br>Score: 3.5/5 | Mostly, effects clearly articulated, e.g., N & P and algae, but some still poorly understood<br>Score: 3/5 | Yes, although some uncertainties – these are made explicit<br>Score: 4/5 | Yes, clear links to outcomes by controlling pollutants, where known<br>Score: 4/5 | Yes, at all scales from whole of river to farm<br>Score: 5/5 | Yes, an explicit reference to adaptive management<br>Score: 5/5 | Refers to all relevant published information and put into appropriate context<br>Score: 5/5 | Identifies need to gather further information, especially at river mouths<br>Score: 5/5 | Uses NIWA and ECan scientists<br>Score: 5/5 | 39.5/ 45 |

# Strategies for improving science relevance, and it use

- Ensure issues with a science connection are identified early
- Gather and provide the best available information, including interpretation where possible
- Where the science is contested set up a presentation and discussion forum
- Develop a credible process to peer review ‘grey’, especially consultant, literature
- Use guiding principles to encourage inclusion of science in policy
- Involve the committee in the generation of science needs

# Some conclusions and other insights

- More scientists should contribute their expertise to collaborative and 'wicked' environmental problem resolution processes.
- In these circumstances scientists will face major challenges – to their credibility, to their patience, and to the other work they are trying to complete.
- But, knowing that their input will be carefully scrutinised scientists should be guided by a set of principles, aside from that of behaving responsibly – these guiding principles should be constructed around those that scientists would typically use in their day-to-day research and management interactions.
- Even after all of this there other more subtle strategies that scientists can use, ultimately knowing that 'every word counts', to get outcomes and outputs that are science informed.
- So is it worth it?

# YES!