

Engaging People in Integrated Catchment Management: the Motueka experience

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with thanks to scientists, stakeholders, and colleagues in ICM research




NZ Landcare Trust

Common Ground Associates Ltd

Motueka Iwi Resource Management
Komiti (MIRMAK)



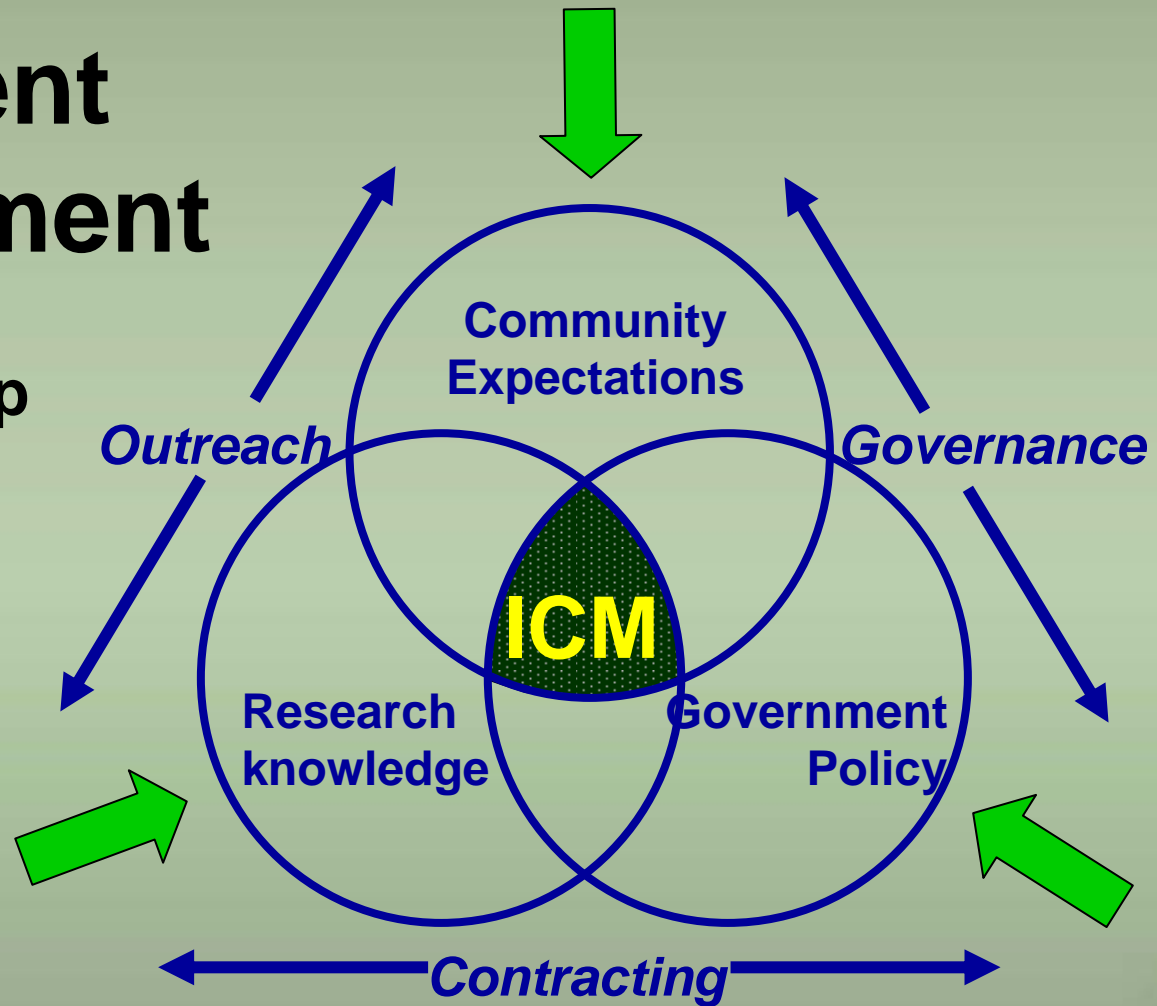
Improving the level & quality of interactions between science providers & end-users

	Problem context for science	Supporting approaches
Production	1970's <ul style="list-style-type: none">• Enterprise or single sector goals• few stakeholders• success measured by economics/production	Single stakeholder consultation <ul style="list-style-type: none">• ask clients about needs• obtain knowledge from experts• deliver improved technologies (system components)
Productivity		Single stakeholder participatory <ul style="list-style-type: none">• involve clients in research• improved technologies & fine tuning existing systems
Sustainability	1990's <ul style="list-style-type: none">• multiple goals• many stakeholders• success measured in terms of ecological health & equity	Multi-stakeholder participatory <ul style="list-style-type: none">• collaborative learning• shared understanding• change oriented• designing NEW systems ACTION RESEARCH

Courtesy of Will Allen and Margaret Kilvington (2000)

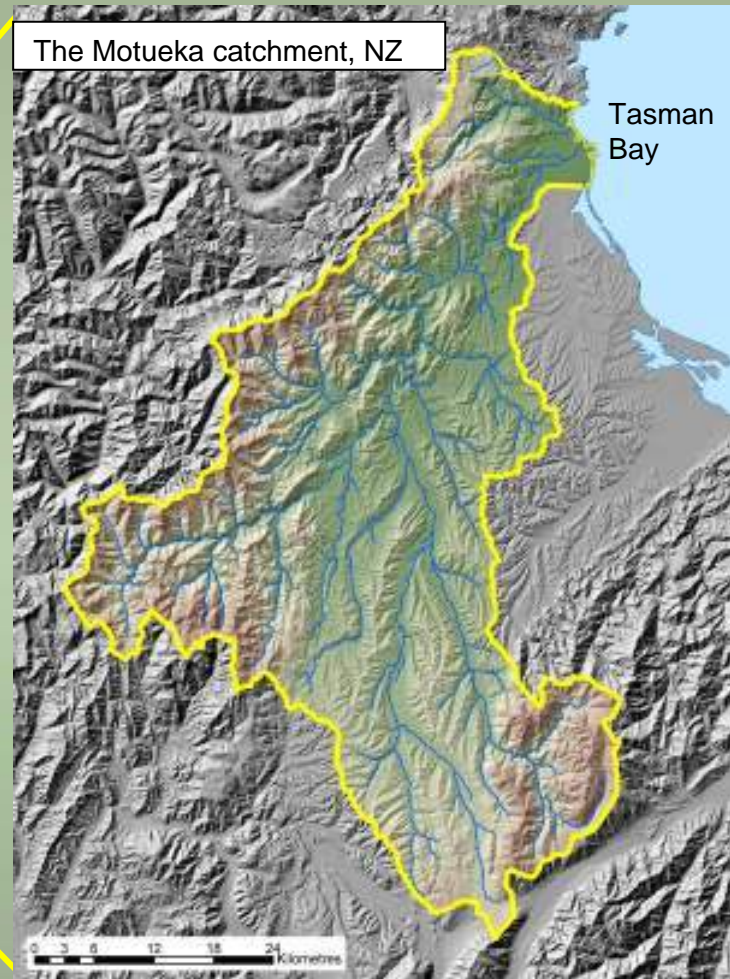
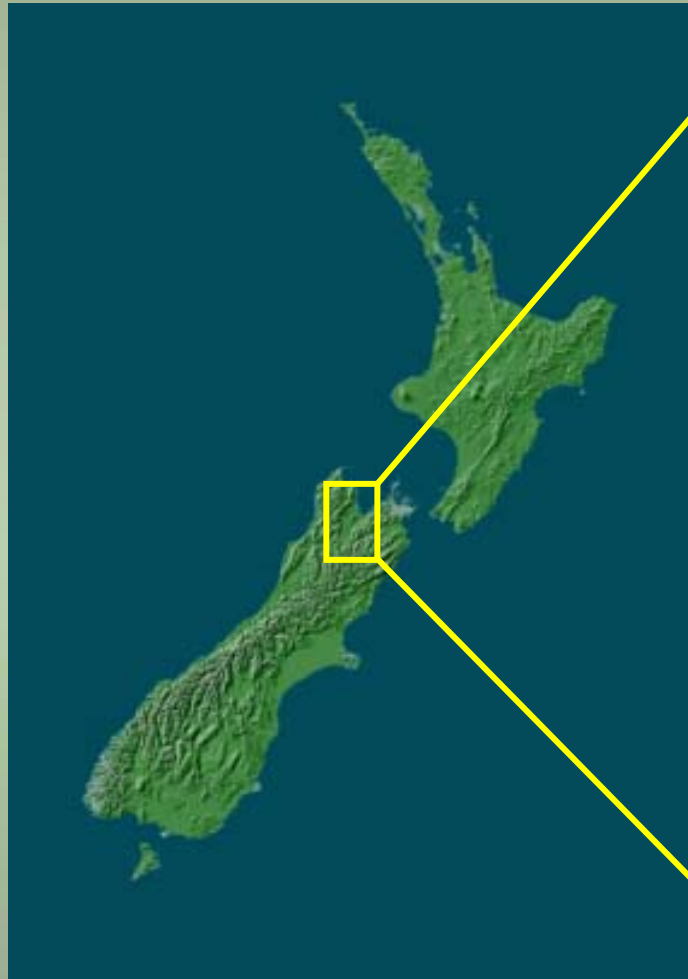
Integrated Catchment Management

...a partnership approach



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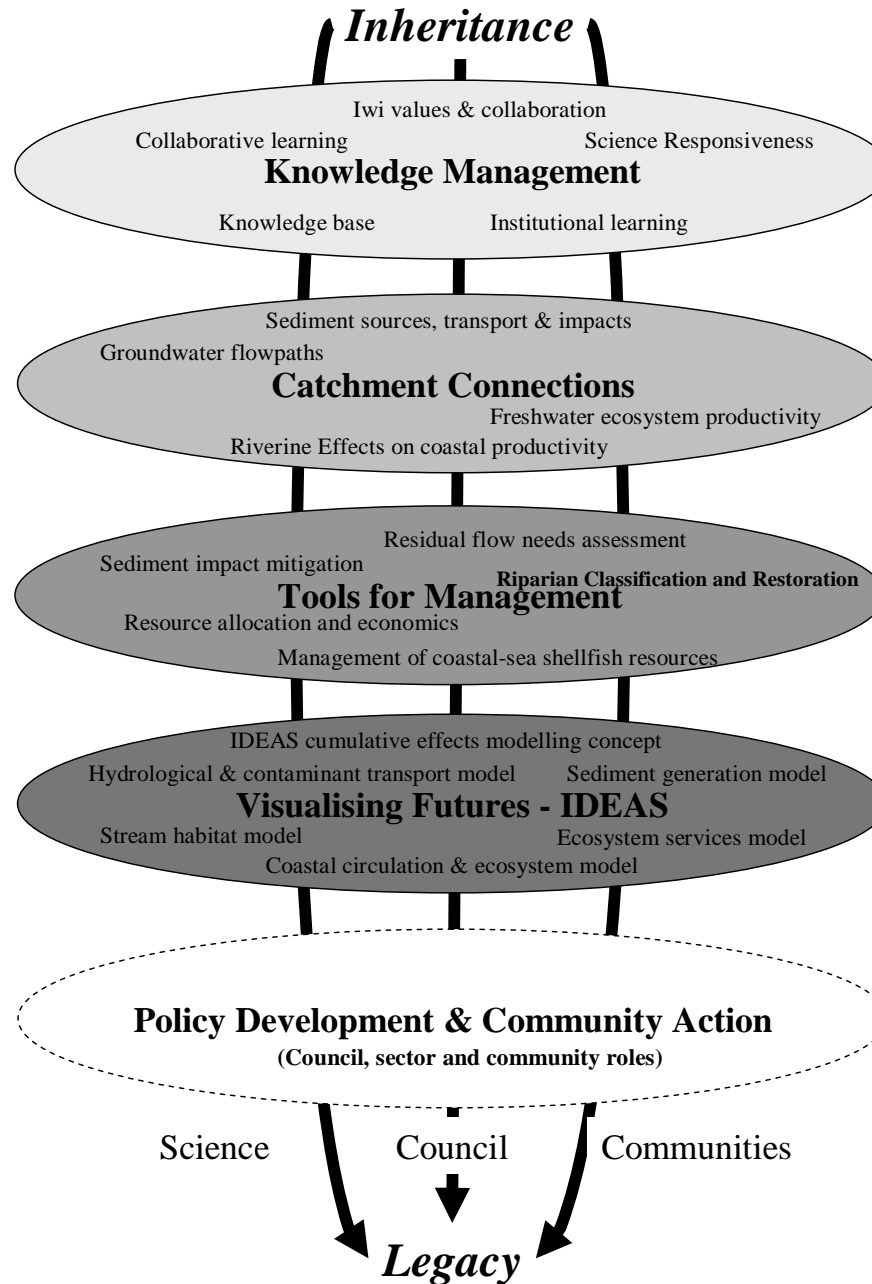
ICM for the Motueka



Motueka Catchment

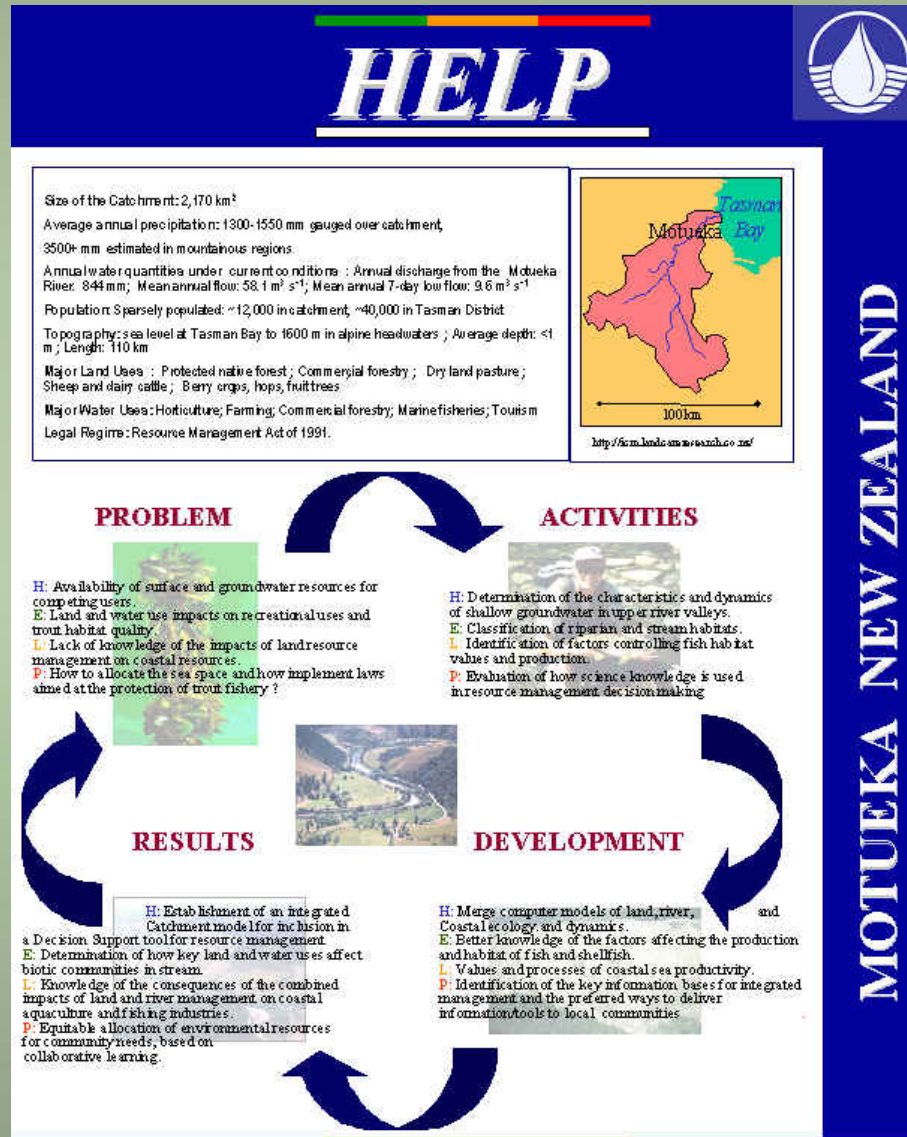
- 2170 km² from sea level to 1600m elevation
- Cool humid climate with rainfall 1200-4000 mm/yr
- Mean catchment flow 82 m³/s (1187mm/yr)
- Alluvial & Tertiary aquifers used for irrigation
- Geology: clay →erodible granite →ultramafic →karst
- Land uses: grazing, dairy, horticulture, pine forestry, National Park
- Brown trout fishery attracts tourism
- Scallops, mussels, aquaculture offshore
- Population ~ 12000 growing at 2% per year

ICM as a process: 2003-2009 research objectives (4)



The Motueka is a UNESCO 'HELP' Catchment

HELP = Hydrology for the Environment, Life and Policy



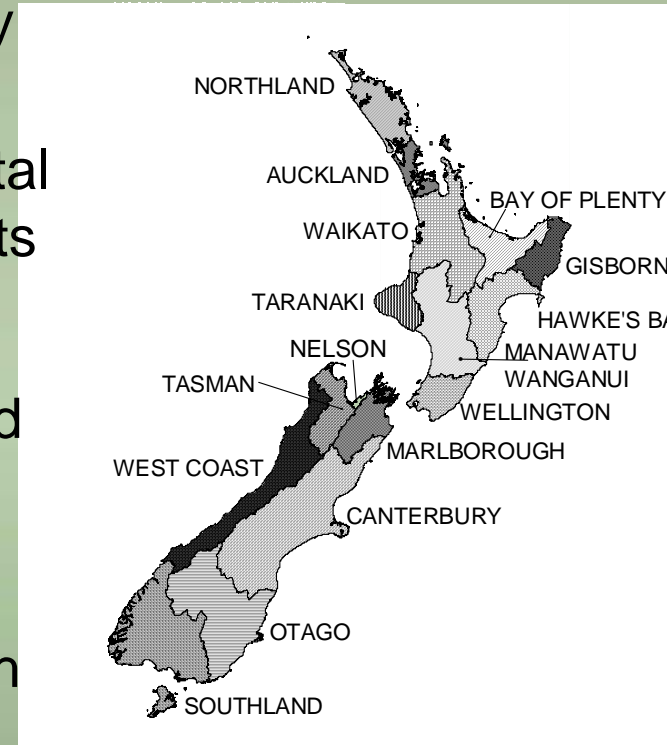
MOTUEKA NEW ZEALAND

Real people, real catchments, real answers

Institutional Setting

New Zealand Water Management

- Government sets broad environmental policy only
- 16 regional & unitary councils = environmental management of land, water, rivers, air, coasts
- 70 district & city councils = water supply, sewerage, roading, land subdivision and land use planning
- Research = Crown research organisations , private research institutes & universities, with much environmental research funded by Government



Legislative Setting

New Zealand Water Management

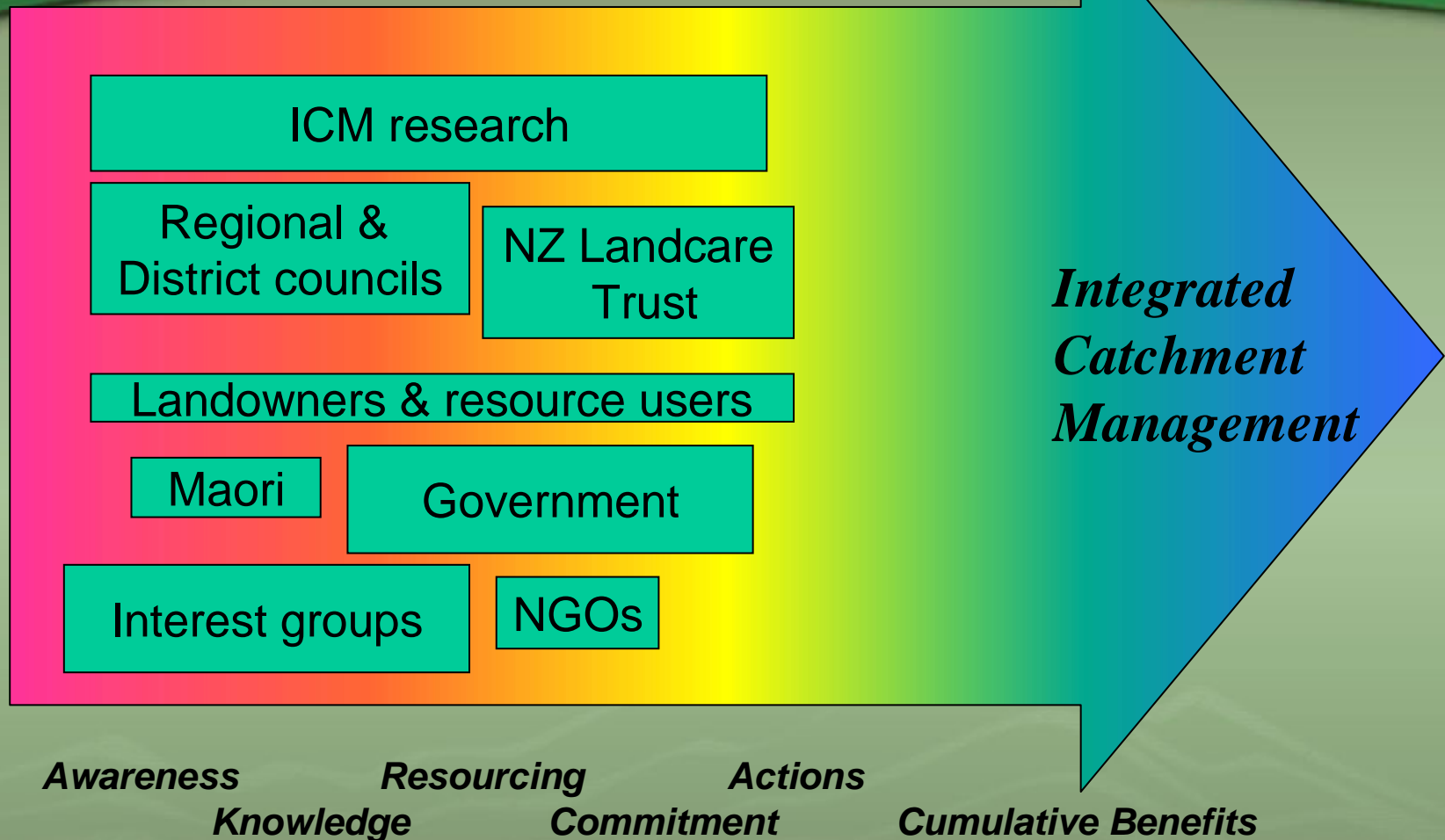
- Resource Management Act 1991 governs all environmental management:

“To promote the sustainable management of natural and physical resources”

- Councils manage the environment through:
 - ✓ statutory regional and district plans
 - ✓ granting resource consents for some uses of land, water, rivers, coast, and for discharges
 - ✓ environmental education



Different Players in ICM



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Iwi Role in ICM

Examples:

- Assessment of iwi environmental monitoring approaches:
 - Cultural impact assessment
 - Contaminated site monitoring protocols
 - Maori indicators – e.g. *kaitiakitanga* (stewardship)
 - ICM monitoring techniques for iwi
- Collaborative learning guidelines for communities including iwi groups
- Develop Iwi Information Systems for environmental management



Engaging People in Motueka ICM

Four stories....



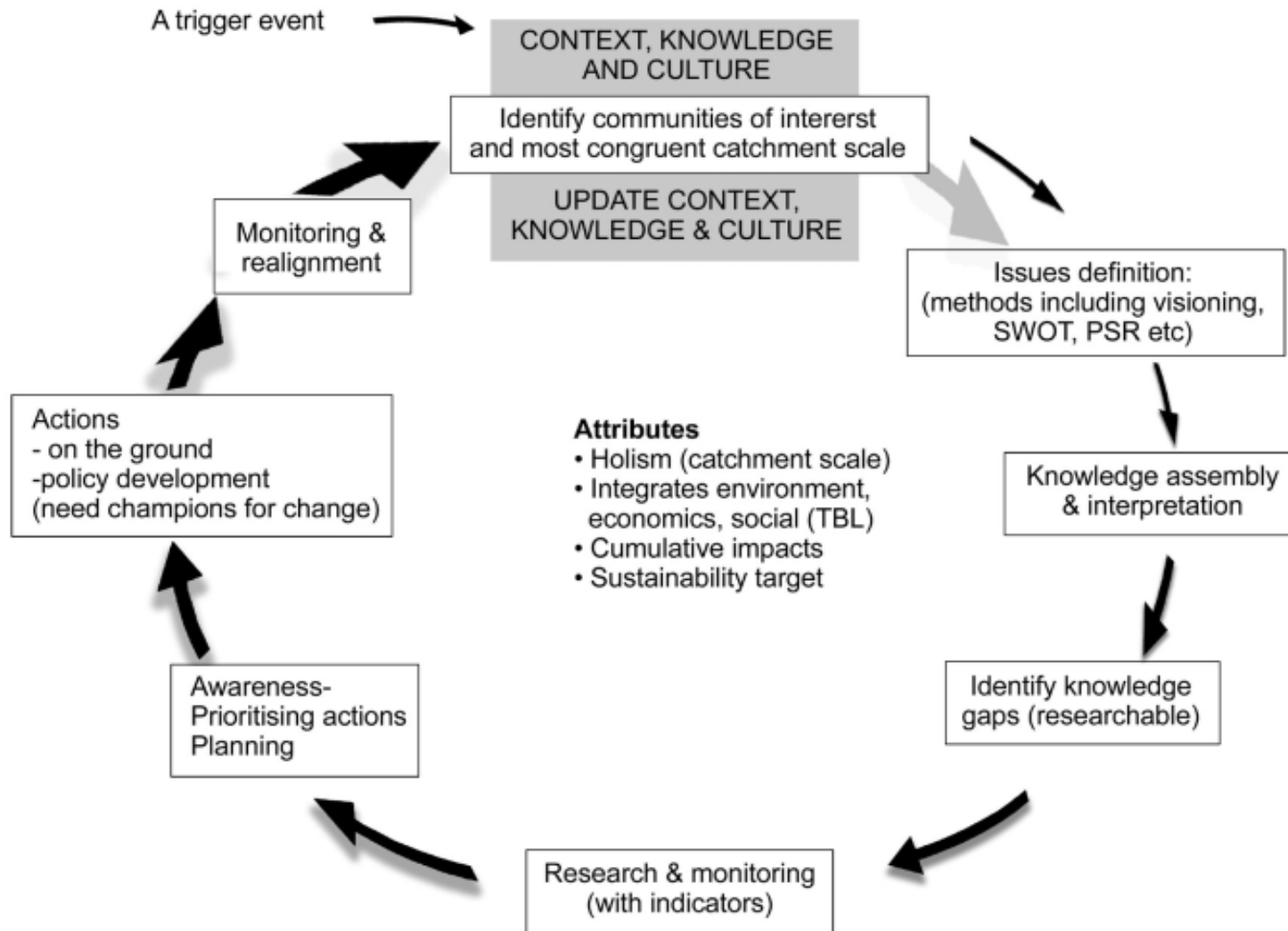
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Story #1

Stakeholder input in setting ICM research priorities



ICM as a process





'Big Picture' Issues for Motueka ICM Research

- Water allocation (incl. in and out-of-stream uses)
- Sedimentation risks (incl. river gravel)
- Aquaculture space allocation (incl. river impacts)
- Growth pressures (what's sustainable?)



Detailed research issues and questions

Motueka Stakeholder Questionnaire: Their Top 5 Issues

- 1. River Water and Groundwater Availability**
- 2. Groundwater Pumping Effects on Stream and River Flows**
- 3. Methods to Resolve Competing Demands on Resources, e.g. Water, Coastal Space**
- 4. River Gravel Supply and Extraction Effects**
- 5. Environmental Effects of Increased Water Takes**

Story #2

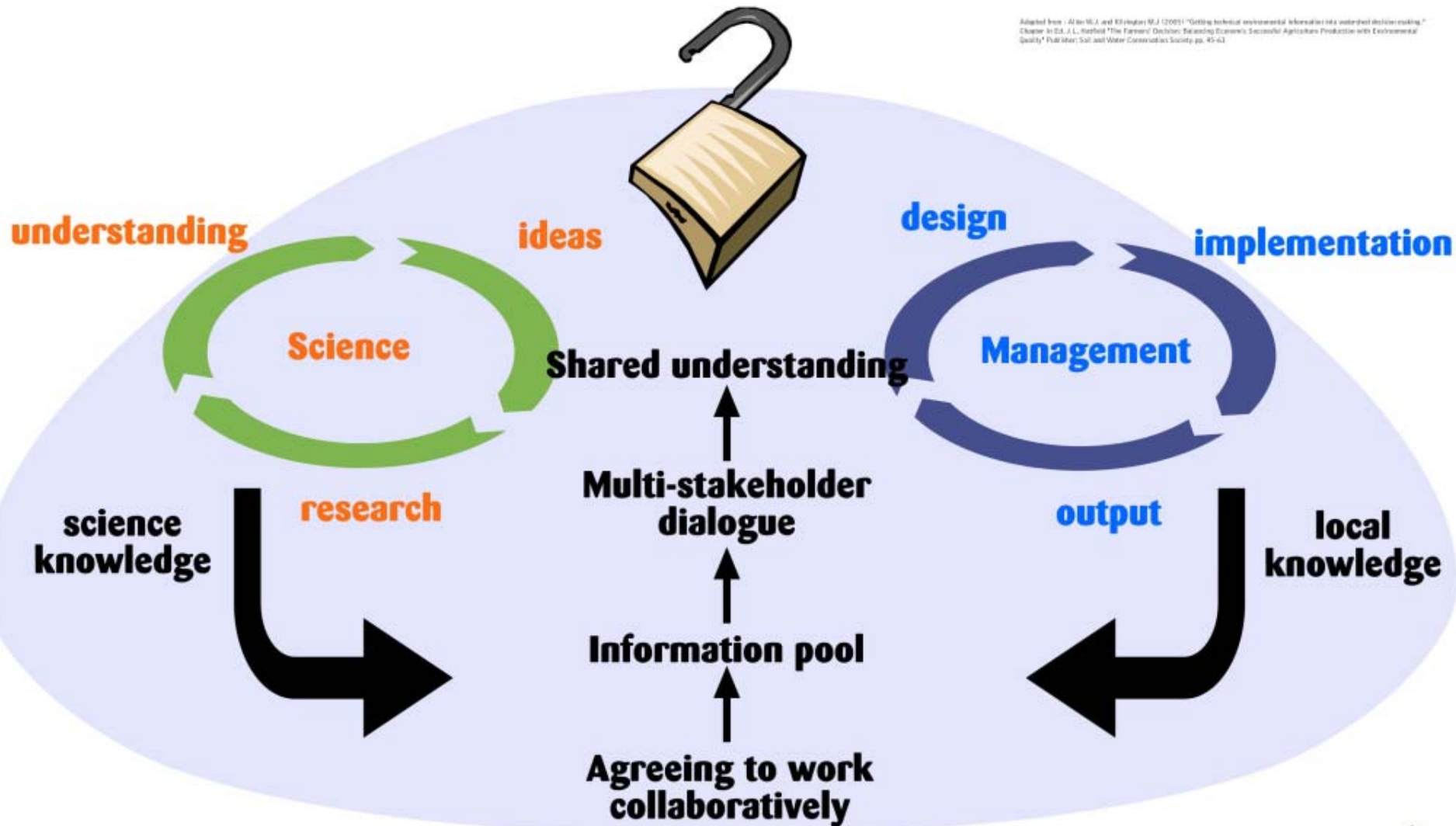
Negotiation of the Motueka Water Conservation Order



to linking science and management

A pathway for collaboration and adaptive management

Adapted from: Allen M.J. and Kilvington M.J. (2005) "Getting technical environmental information into watershed decision-making." Chapter in Ed. J.L. Mathias "The Farmer's Decision: Searching Economic Success for Agriculture Production with Environmental Quality" Publisher: Soil and Water Conservation Society, pp. 45-63.



For more information:

Integrated Catchment Management - Human Dimensions http://icm.landcareresearch.co.nz/science_themes/human-dimensions/people_social.htm

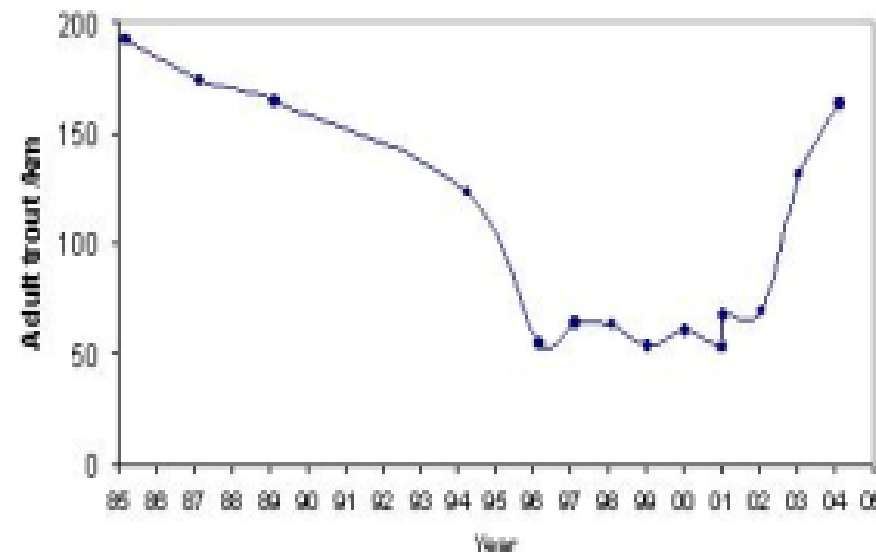
Collaborative Learning for Environmental Management <http://social.landcareresearch.co.nz>

Will Allen
Margaret Kilvington



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Brown trout abundance: Motueka River at Woodstock 1985-2004
data courtesy of Phil & Gem + NZ



NEWS

Water order praised

Fourteen years of negotiation over

By Bernadette Cooney

A decision to place a water conservation order on parts of the Motueka River has been applauded by Nelson Marlborough Fish and Game.

The order, gazetted by Environment Minister Marian Hobbs, places restrictions on damming and altering river flows and sets water extraction limits for irrigators.

The original application for the order was made in 1990 by the Nelson Acclimatisation Society, now known as Nelson Marlborough Fish and Game.

The former manager of the society, Mace

Ward, said from Auckland today he was pleased to hear the order had finally been gazetted after 14 years of negotiation.

"There's quite a level of personal satisfaction in seeing this come to pass," he said.

"I congratulate Fish and Game and Nelson anglers for their dedication and ability to work through the issues, which certainly created a lot of misunderstanding early on. People thought we wanted to lock the river up and throw away the key."

Current Nelson Marlborough Fish and Game manager Neil Deans also welcomed the order, which he said would provide sustainable long-term water management.

However, he expressed disappointment that the order could be subject to review, as had happened with the water conservation order on the Gowan River.

Nelson Federated Farmers policy manag-

er Lewis Metcalfe said primary producers now had some assurance over access to a reasonable level of water flow for irrigation.

"Water is vital for the primary sector and the socio-economic well-being of the community. However, a balance had to be found between primary sector demands and the environment, and this is what has occurred," Mr Metcalfe said.

Ms Hobbs said the order would allow parts of the river to be kept in its natural state.

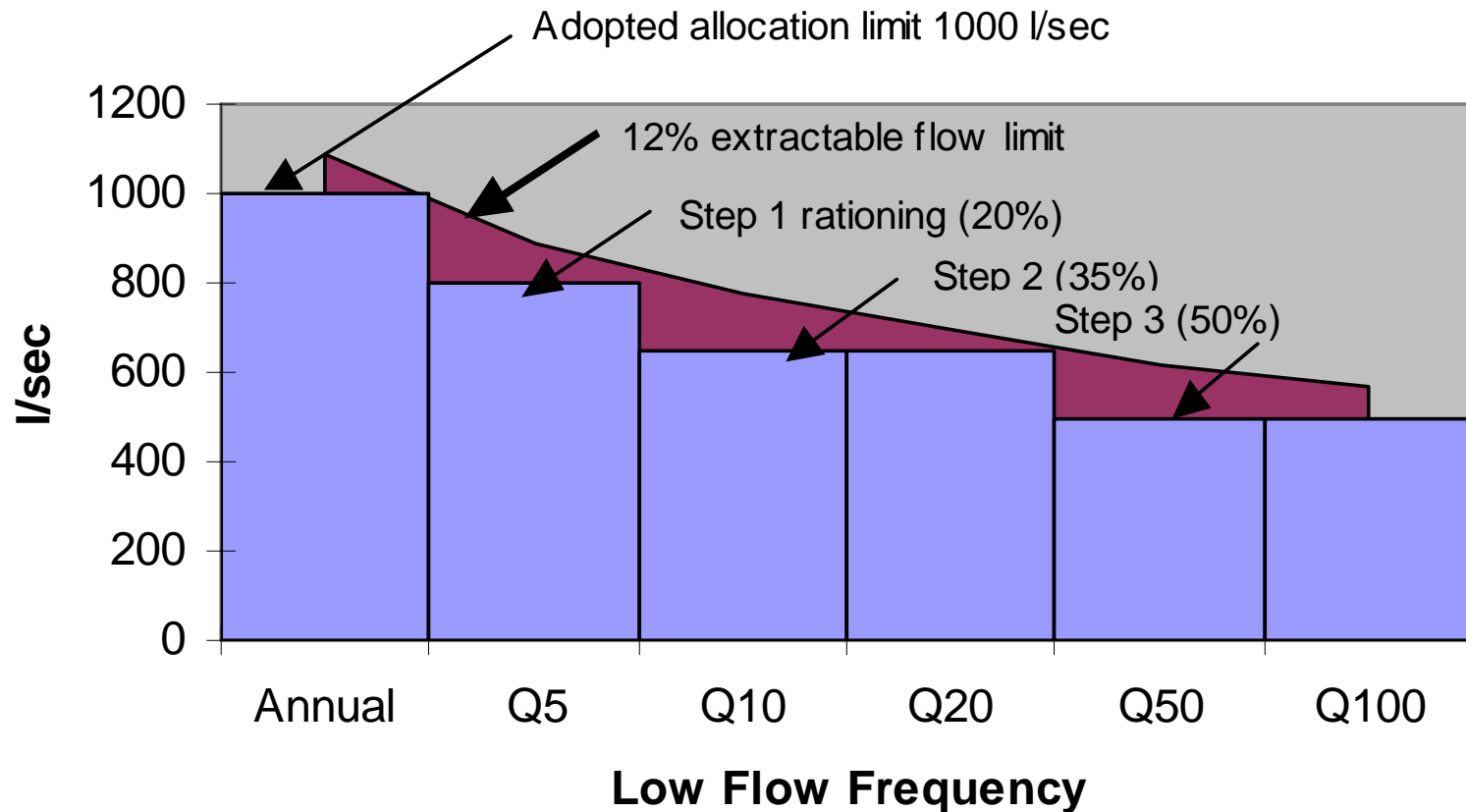
"The Motueka River has many outstanding characteristics, including the scientifically important karst geological formations, blue duck habitats and brown trout fisheries," she said.

"It is important that these characteristics and the river's other natural features are protected by the conservation order."



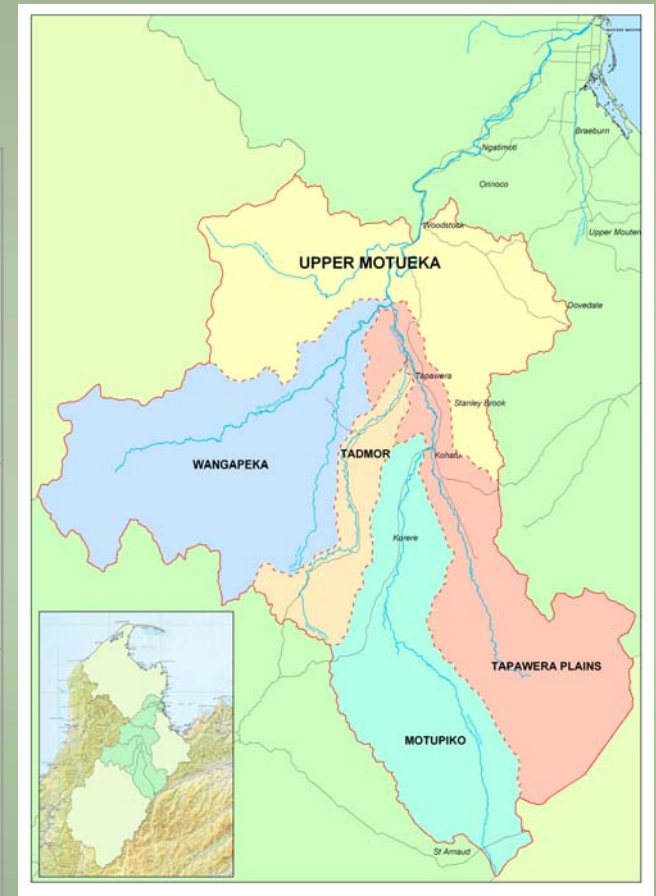
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Extraction Limit vs Standard Rationing Steps for Flows down to Woodstock



Water Allocation Limits Adopted by TDC

WATER MANAGEMENT ZONES	ALLOCATION LIMITS (litres per second)
Upper Motueka Zone <i>comprising</i>	1000
Wangapeka	265
Motupiko	110
Tadmor (total augmented flow)	56
Tapawera Plains	515



Story #3

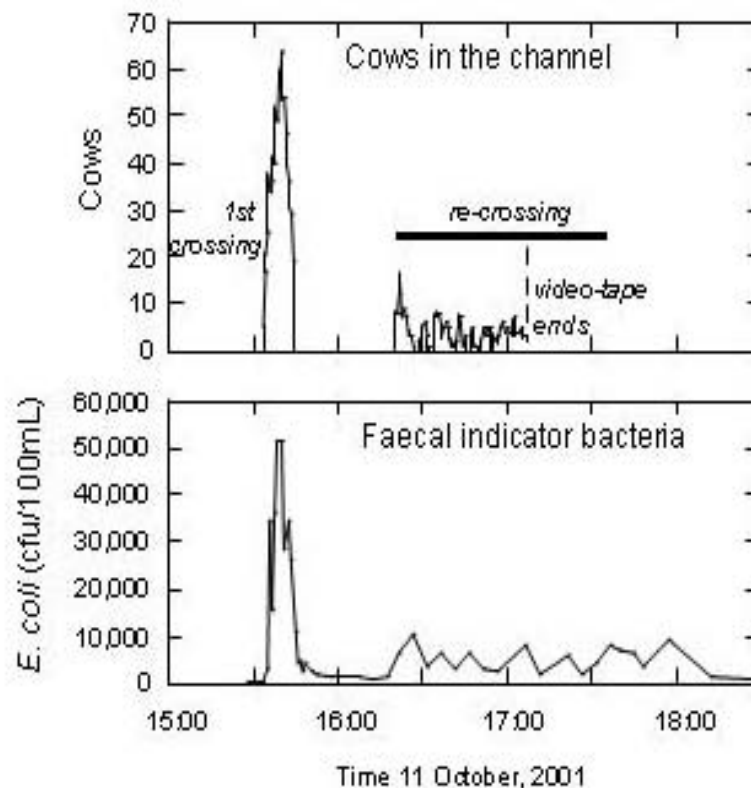
Science persuading farmers to improve water quality



Cows crossing streams



- 400% increase in *E. Coli* during cow crossings
- Cows 50x more likely to defecate in water



Bridges replace cow crossings



SPAINED: Pam and Lisa White on their new \$10,000 stock bridge across the Sherry River.

Bridge over troubled waters

By Helen Murdoch

Tasman's opening of a \$10,000 stock bridge across the Sherry River marks the start of a combined project between farmers and the Tasman District Council to improve the river's health.

The bridge, between Pam and Lisa White, was built on the site of the old bridge from the 1930s.

While river levels had also led to much being washed away in the paddocks away from the bridge itself.

The bridge was the subject of the 1980s Tasman District Council study on the effect of cows crossing a riverbed to and from 1980.

The bridge was the subject of the 1980s Tasman District Council study on the effect of cows crossing a riverbed to and from 1980.



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 home 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 in a case that could prove a model example for the rest of the country.

Even long time dirty-dairying campaigner Bryce Johnson, director of Fish and Game, enthusiastically describes the project as "a



new information in December 2001, "the Sherry farmers undertook to take action. In a short period of time, the crossing on Pam and Lisa White's property where the experiment was carried out has now been built. In addition, another farmer, Rod O' is using a bridge instead of taking through the river."

He says two other bridges are being stages and substantial effort to keep stock out of the river.



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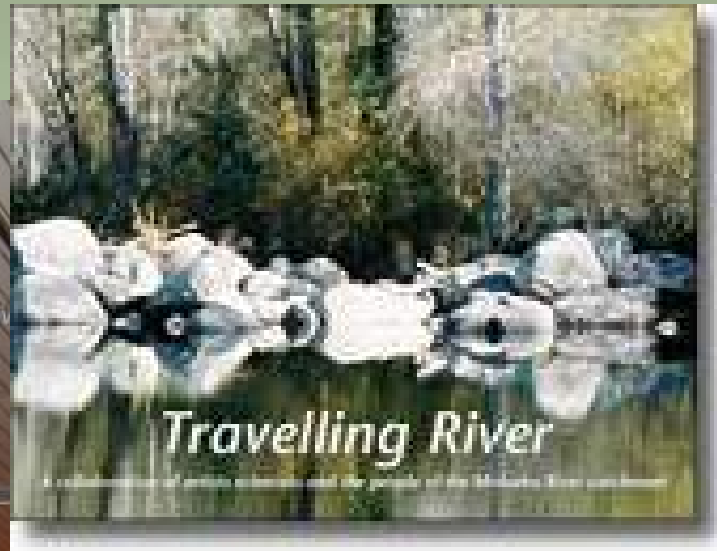
Story #4

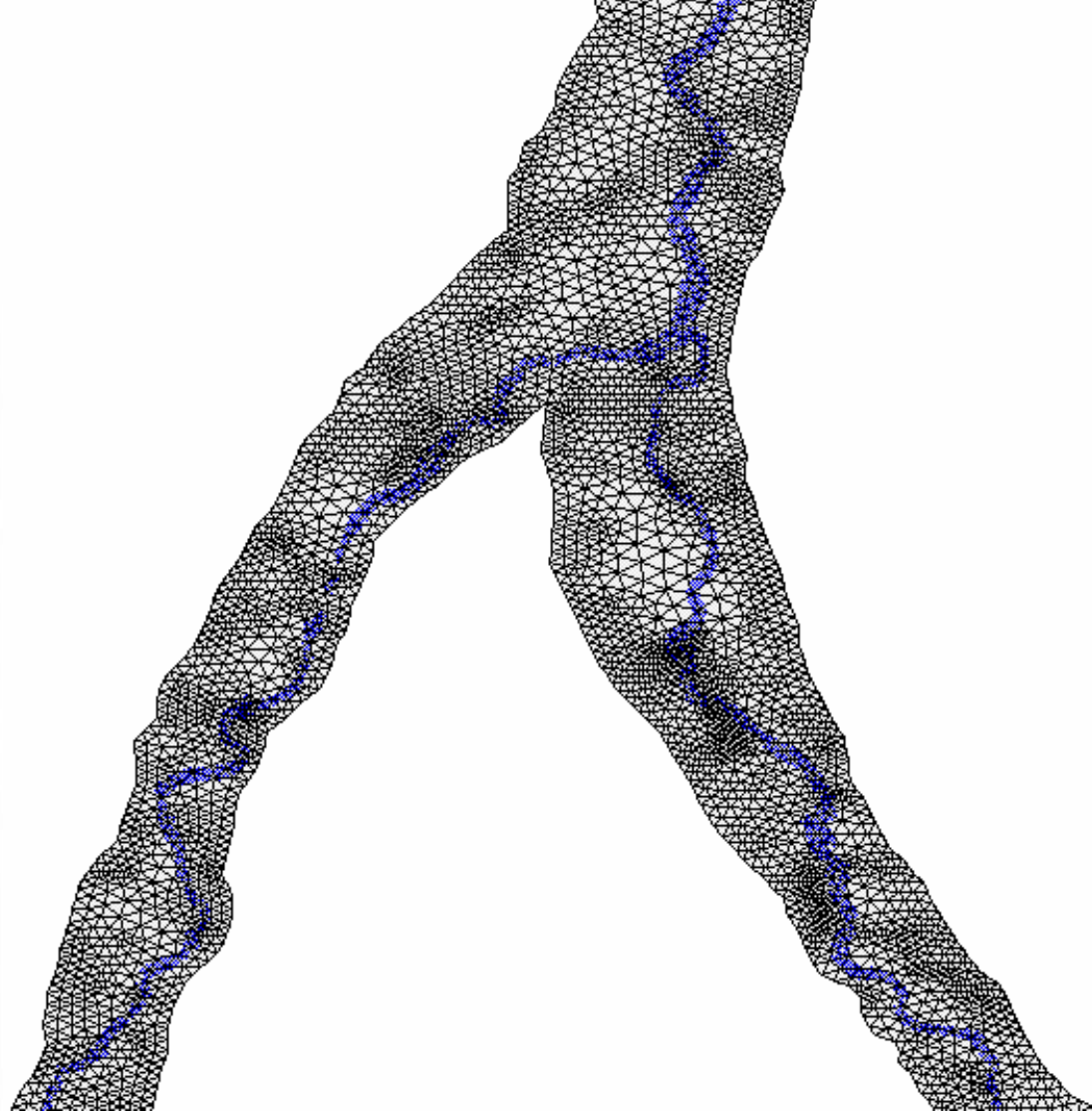
Travelling River

... a collaboration of artists, scientists and the people of the Motueka River catchment



Travelling River Art-Science Collaboration





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8 Critical Success Factors for effective ICM dialogue (1)

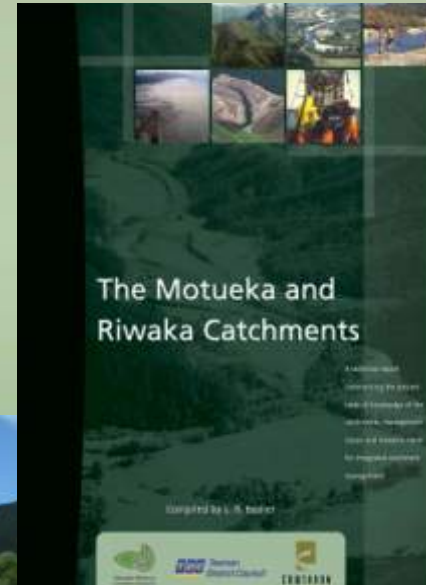
1. A **legal and institutional setting** which facilitates resolution of the issues
2. **Strategic planning to anticipate the issues**, collect relevant information and initiate dialogue before the issue becomes a crisis
3. **Vision, leadership and structure** for the process
4. Involving all relevant **stakeholder groups** and engaging with stakeholder representatives who actually have decision-making power

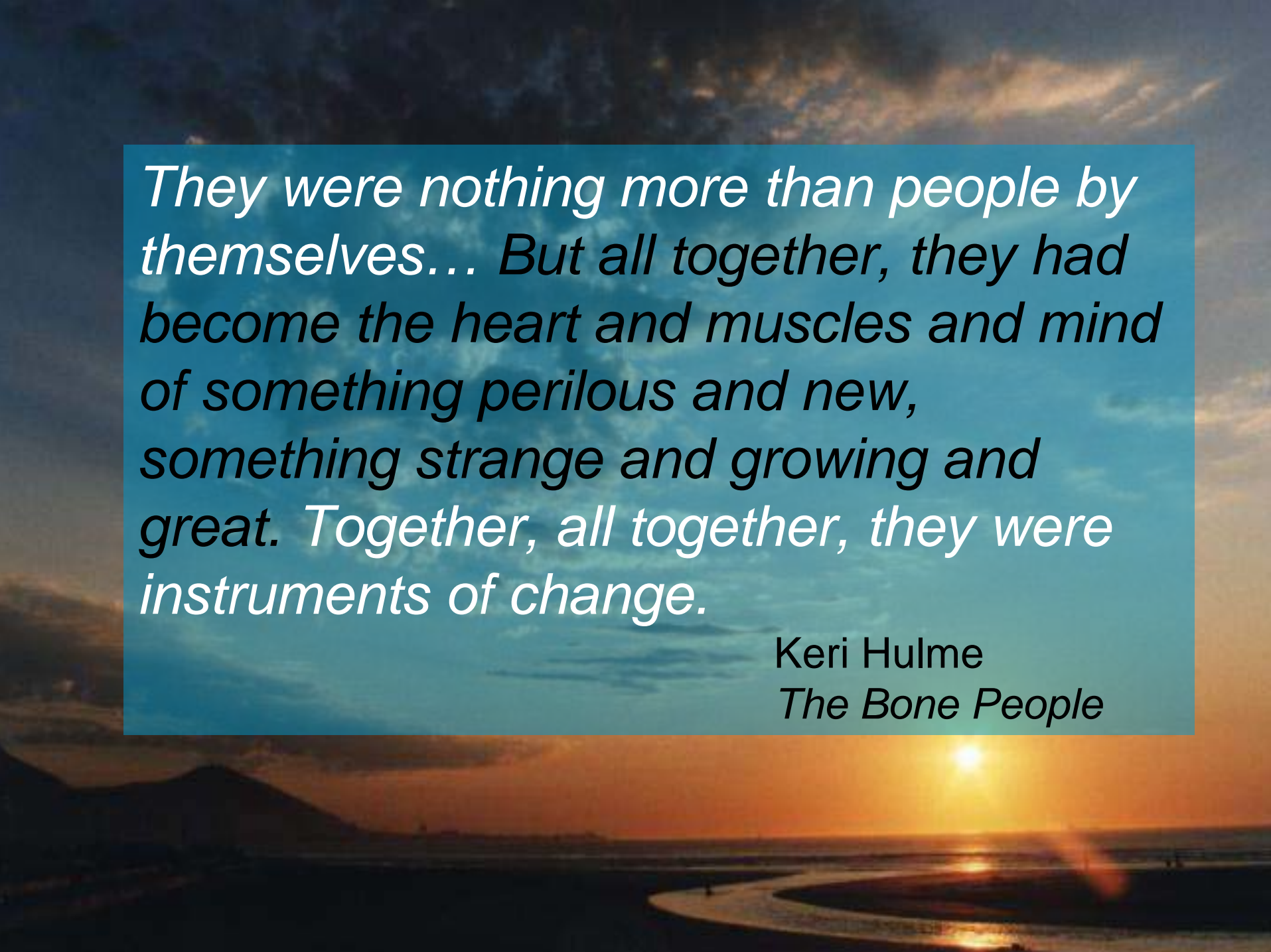


8 Critical Success Factors for effective ICM dialogue (2)

5. **Adequate definition of the issue**, including issue boundaries and spatial and time scales
6. **Adequate information** upon which to base the dialogue, and strong, accepted science
7. **Accept local knowledge**, including validated anecdotal knowledge, not just science
8. **Workable solutions** expressed clearly and succinctly

Bowden, Fenemor, Deans 2004: Water Resources Development 20(3): 311–323



A sunset scene with a bright sun low on the horizon, casting a golden glow over a dark body of water. In the background, dark silhouettes of mountains are visible against the orange and yellow sky. The sky is filled with soft, wispy clouds. A semi-circular path or beach is visible in the foreground, reflecting the light from the sun.

They were nothing more than people by themselves... But all together, they had become the heart and muscles and mind of something perilous and new, something strange and growing and great. Together, all together, they were instruments of change.

Keri Hulme
The Bone People

icm.landcareresearch.co.nz

INTEGRATED CATCHMENT MANAGEMENT
for the *Motueka River*
• ridge tops to the sea •

Home Page

HOMEABOUTWHAT'S NEWWHAT'S ONSEARCHCONTACT USPROJECT STAFFROOM

This web site is about the ICM Motueka Programme. Its purpose is to provide information resources relevant to project participants and to the stakeholders of the Motueka River catchment. The site is a collaborative venture between a number of organisations. Please read about our site.

The Motueka River catchment is a Global [HELP](#) Catchment.

[Our Site](#)

General information about the site, the ICM Motueka project, and its purpose - includes site map.

[Our Catchment](#)

Overview of the Motueka River catchment - includes virtual field trips.

[Our Science](#)

Outlines the research being conducted in the catchment.

Science Quick Links

Site kindly hosted by Landcare Research





Announcements

NEW 10/12/02 [Recent conference abstracts added](#)

NEW 10/12/02 [HELP conference in Kalmar Sweden 2002](#)

06/11/02 [2002-03 overview & progress](#)

[Hot Topics](#)

Current events and notable happenings from the Programme Leader.

[Project Staff Room](#)

(Available only for programme participants).

[Library of Resources](#)

Includes reports, fact sheets, images, maps, and other resources.

Library Quick Links

To receive email notice of events and research findings please join our ICM Motueka [discussion group](#)



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