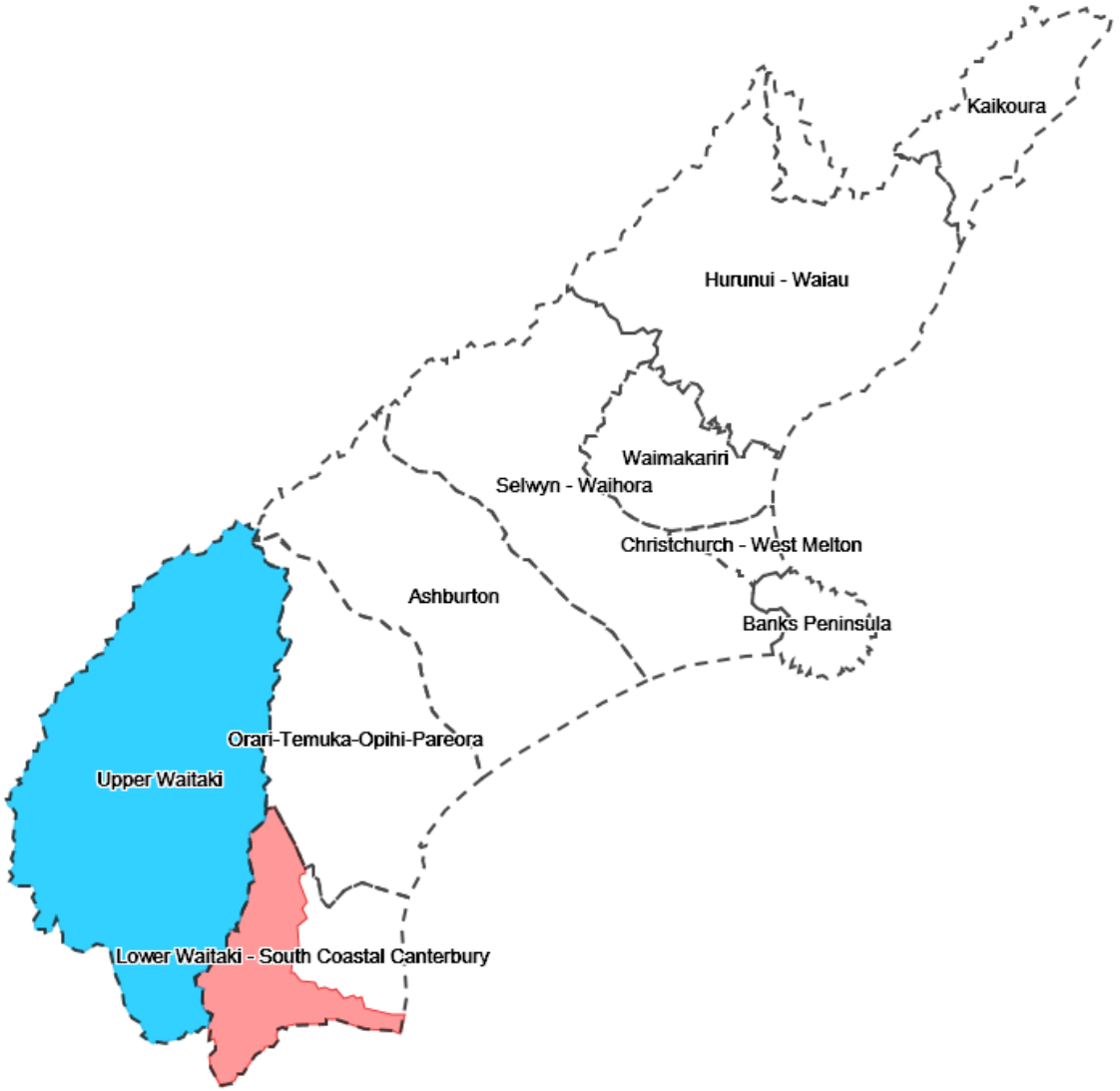
How many cows can the Mackenzie take?

Strategic Environmental Assessment in a special place

Helen Shaw, Environment Canterbury

Upper and Lower Waitaki Zones



The Waitaki

- It’s big and it’s beautiful
- Diverse – agriculture, tourism, aquaculture, industry
- Intergenerational farming
- Hydro generation – highly modified surface water network
- The locals are a bit grumpy with ECan

Sub-regional plan planning meets collaboration

CWMS

Recommendations: Alignment with district planning

14. *Environment Canterbury and District Councils explore options so that one FEP could cover regional and district requirements for land/resource management*
15. *Environment Canterbury and District Councils work together so to ensure alignment and synergy (and avoidance of duplication and conflict) between sub regional and district plans*

Both Mackenzie and Waitaki District Councils are undertaking or will shortly be undertaking District Plan reviews. Any use of farm plans as part of district plan requirements need to be able to align with the same farm plan required for regional plans. Councils need to continue to work together to reduce the demand on the community and ensure alignment of community outcomes.

Recommendations: Water Quality Limits

16. *The Sub Regional section sets catchment load limits for urban, agricultural, and aquaculture discharges of nitrogen (Appendix One)*
17. *The Sub Regional section is enabling of small block development[3], that is within the catchment load and allocation limits, and moreover has an area of conservation provided for*
18. *The Sub Regional section applies lower regulatory pressure where resource -users are operating within limits and at good practice, and strong regulatory pressure where resource–users do not operate at good practice*
19. *The Sub Regional section enables land-users to collectively manage and report on their nitrogen losses in sub-catchments e.g. operating as nutrient users groups*

Catchment load limits need to be set for all industries to be effective. The Zone Committee want to be able to enable the development of small blocks on extensive properties and for there to be less regulatory pressure where land-users are farming within limits and taking actions to protect biodiversity. By allowing nutrient user groups (along the same lines as a water user group) farmers would be able to work collectively to manage to limits, without breaching the load limits. Sub-catchments would have to be at an appropriate scale e.g. Omarama Stream.

LWR

15B.5.15 Within the Ahuriri Zone or Upper Waitaki Hill Zone, the use of land for a farming activity on a property greater than 10 hectares in area that does not comply with one or more of the conditions of Rule 15B.5.14 is a controlled activity, provided the following conditions are met:

1. A Farm Environment Plan has been prepared for the property in accordance with Part A of Schedule 7 and is submitted with the application for resource consent; and
2. Until 30 June 2020, the nitrogen loss calculation for the part of the property within the Ahuriri Zone or Upper Waitaki Hill Zone does not exceed the nitrogen baseline, and from 1 July 2020 the Baseline GMP Loss Rate; unless the nitrogen baseline was lawfully exceeded prior to 13 February 2016, and the application for resource consent demonstrates that the exceedance was lawful; and
3. The Farm Environment Plan and nutrient budget submitted with the application for resource consent has been prepared or reviewed by an Accredited Farm Consultant.

The CRC reserves control over the following matters:

1. The commencement date for the first audit of the Farm Environment Plan; and
2. The content, quality and accuracy of the OVERSEER® budgets provided with the application for resource consent; and
3. The timing of any actions or good management practices proposed to achieve the objectives and targets described in Schedule 7; and
4. Methods that limit the nitrogen loss calculation for the farming activity to a rate not exceeding the Baseline GMP Loss Rate; and
5. Methods that require the farming activity to operate at or below the Good Management Practice Loss Rate, in any circumstance where that Good Management Practice Loss Rate is less than the Baseline GMP Loss Rate; and
6. Methods to avoid or mitigate adverse effects of the activity on surface and groundwater quality and sources of drinking water; and
7. Methods to address any non-compliance identified as a result of a Farm Environment Plan audit, including the timing of subsequent audits; and
8. Reporting of estimated nutrient losses and audit results of the Farm Environment Plan to the Canterbury Regional Council; and
9. The consistency of the proposal with Policy 15B.4.13.

15B.5.16 Within the Ahuriri Zone or Upper Waitaki Hill Zone, the use of land for a farming activity on a property greater than 10 hectares in area that does not comply with condition 3 of Rule 15B.5.15 is a restricted discretionary activity, provided the following conditions are met:

Upper Waitaki – process & timeframe

Stage 1 – Information gathering, awareness raising, confirming outcomes, developing scenari[illegible] building model (mid 2013 - mid[illegible]

Stage 2 – Testing scenarios with the [illegible]ommunity (mid - late 2014)

Stage 3 – 'Solutions Package' developed (late 2014 - early 2015)

Stage 4 – Solutions Package [illegible]ranslated into a formal plan [illegible]hange to the LWRP (mid [illegible]15)

Science

Planning

Stage 5 - [illegible] Notification (Late 2015), followed by Hearing and Decisions.

Roles

Group	Role in Assessment framework
Zone Committee	• Clarify & confirm interpretation of outcomes • Assess whether outcome is met • Developing solutions
Technical Lead	• Collate & help interpret information • the assessment framework • ng the development of solutions
Technical team	• the current state • ikely change for scenarios
Community	• Provide feedback on assessments • Contribute to solutions
Planner	• Setting the planning framework • Writing the plan

The challenges in ‘pulling it all together’

- A lot of information in a short space of time
- Co-dependency – an ‘assessment train’ – one discipline follows another
- A risk of ‘glossing over’ and missing something important
- Personalities!
- The community

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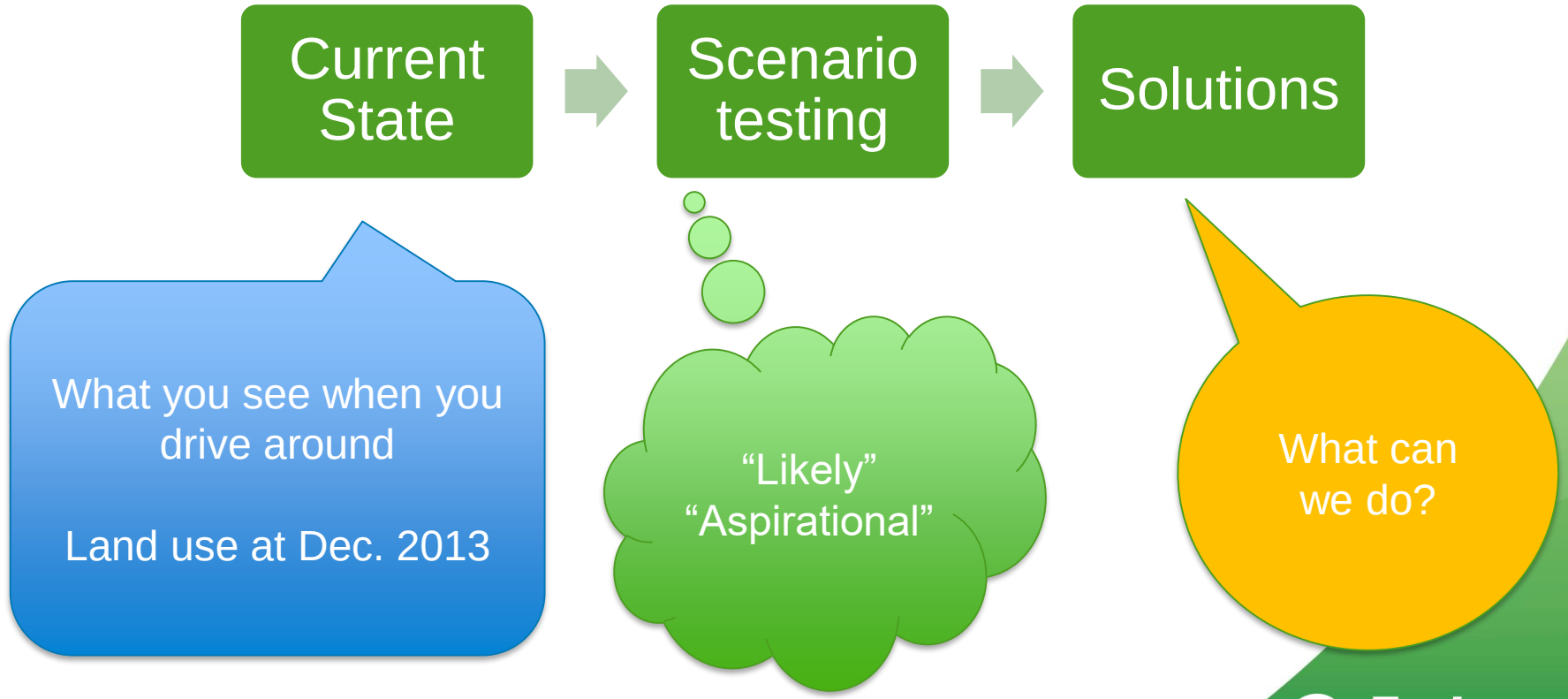
Building knowledge over time



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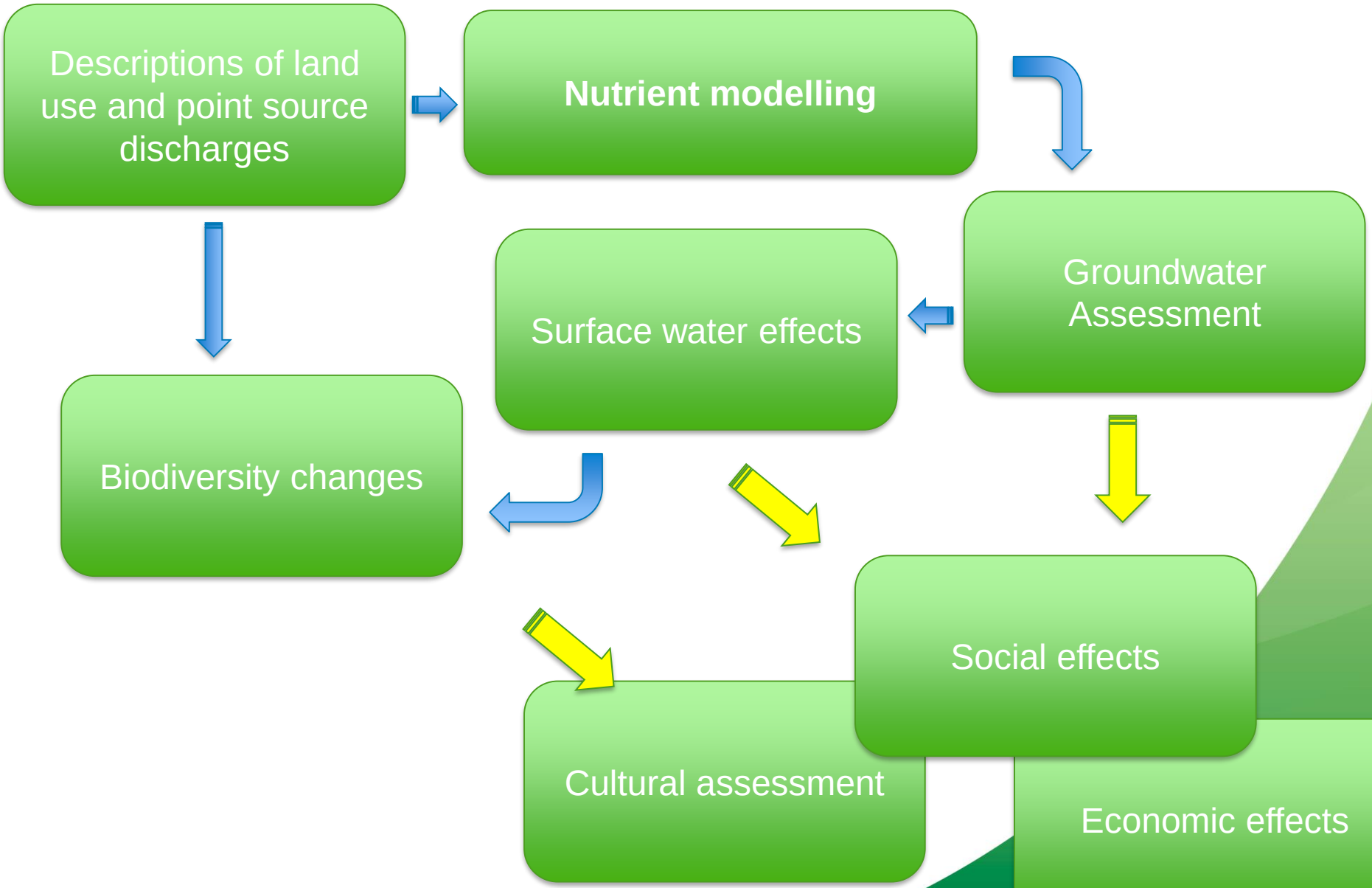
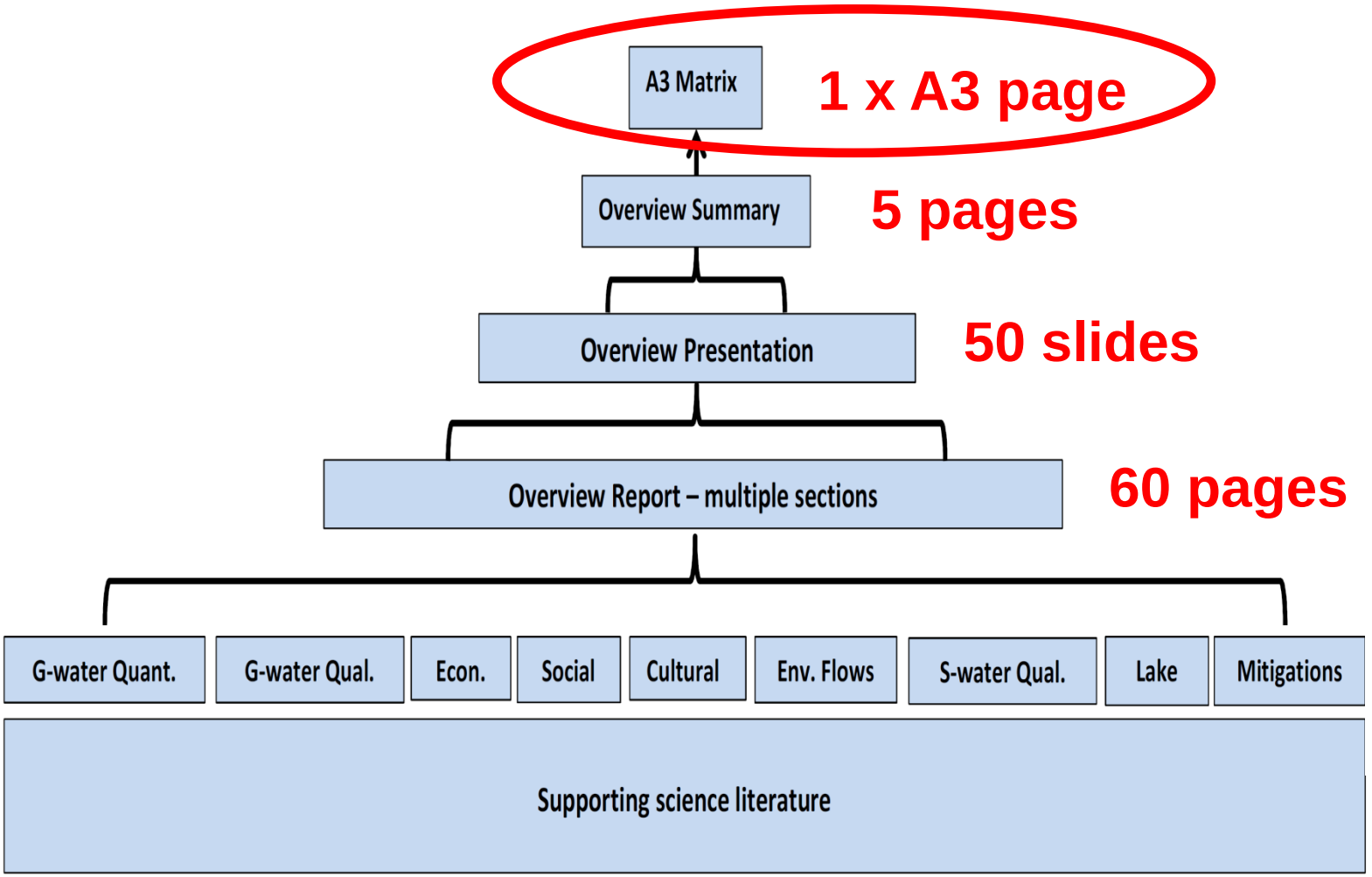
Assessment Approach

Stage	Assessment
1. Interpret ZIP outcomes	Translate ZIP outcomes into technical indicators and descriptions
2. Current State	Compare the current situation with the outcomes, and identify whether or not the outcome is currently met.
3. Scenario Assessment	Compare the indicators one by one with the current state, and identify whether the scenario results in a ‘better’ or ‘worse’ situation, and then whether the outcome is met.
4. Solutions Packages	Target the areas where outcomes are not met.

Assessment ‘Train’

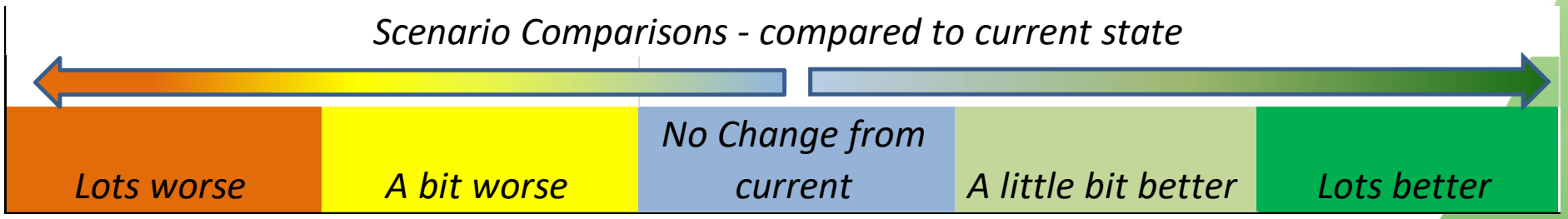


Communicating complex info
"Pyramid" of information



Scenario Comparisons

Direction and magnitude of likely change



Remember: Scenarios are test cases, not options

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Outcome	Sub-outcome	Current State	Scenario 2a		Scenario 2b		Scenario 2c	
		Meets outcome?	*Compared to current state*	*Meets outcome?*	*Compared to current state*	*Meets outcome?*	*Compared to current state*	*Meets outcome?*
Water quality and quantity provide for aquatic biodiversity, recreational opportunities, and customary use	***There is no further reduction in water quality in the zone***	✓	A bit worse A lot worse A bit worse	☒	A bit worse A lot worse	☒	A lot worse A bit worse	☒
	All lakes and rivers safe for contact recreation	☒	No change	☒	No change	☒	No change	☒
	The water quality for Lake Benmore is at all times of the year consistent with its vey high recreational value	✓	A bit worse	☒	A bit worse	☒	A bit worse	☒
	The biodiversity of the zone's water bodies and high quality drylands are protected and enhanced	☒	A bit worse	☒	A bit worse	☒	A bit worse	☒
	There is improved mahinga kai gathering in the Zone	☒	Worse	☒	Worse	☒	Worse	☒
	Maintain current high water quality delivered to the Waitaki River	✓	A bit worse	Depends on location of developments	A bit worse	Depends on location of developments	A bit worse	Depends on location of developments

Outcome	Sub-outcome	Current State	Scenario 2a		Scenario 2b		Scenario 2c	
		Meets outcome?	*Compared to current state*	*Meets outcome?*	*Compared to current state*	*Meets outcome?*	*Compared to current state*	*Meets outcome?*
Maintenance of communities and sustainable growth	***The Zone has safe and secure drinking water for domestic and community supplies***	☒	No change	☒	No change	☒	No change	☒
	The Zone's existing contribution to New Zealand's security of electricity supply is maintained or increased	✓	No change	✓	No change	✓	No change	✓
	The contribution to the Zone's economy from Agriculture and Aquaculture is maintained or increased, in particular sustainable high country farming systems	✓	Lots better	✓	Lots better	✓	Lots better	✓
	The economic contribution from Tourism based on the Zone's lakes and rivers and biodiversity is maintained or increased	✓	A little bit better	✓	A little bit better	✓	A little bit better	✓
	The Zone has a vibrant community, including: improved social infrastructure, sustainable population growth, and a diverse economy	✓	A lot better A lot better A lot better A bit better	✓	A lot better A lot better A lot better A bit worse	✓	A lot better A lot better A lot better A bit worse	✓

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Canterbury: perceived trustworthiness

1. Veterinarians
2. Other farmers, farmer discussion groups
3. Accountants & financial advisors
4. Farm consultants, extension officers, contractors
5. Rep organisations (e.g. Fed farmers), Farmers' forums, ag shows, field days
6. Farmers' forums, agricultural shows, field days
7. Industry groups (e.g. Beef & Lamb NZ, DairyNZ etc)
8. Scientists
9. Rural retailers and their tech. representatives
10. Cooperatives (e.g. Zespri, Fonterra)
11. Internet
12. Newspapers, general interest magazines
13. Central government
14. Television, radio
15. Regional councils

The good news…

The bad news…

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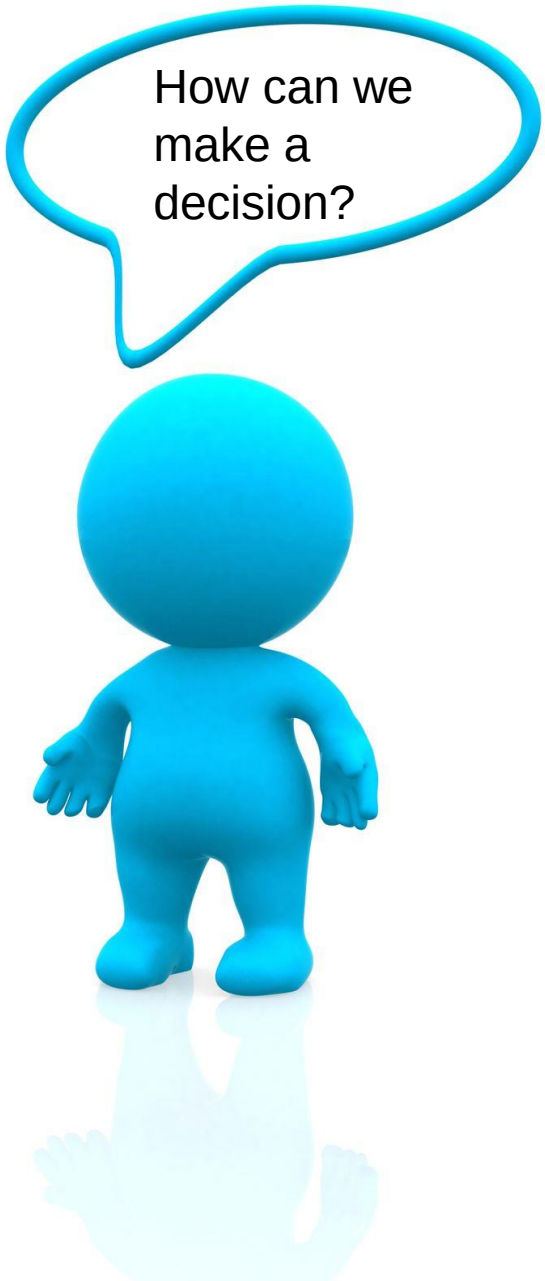
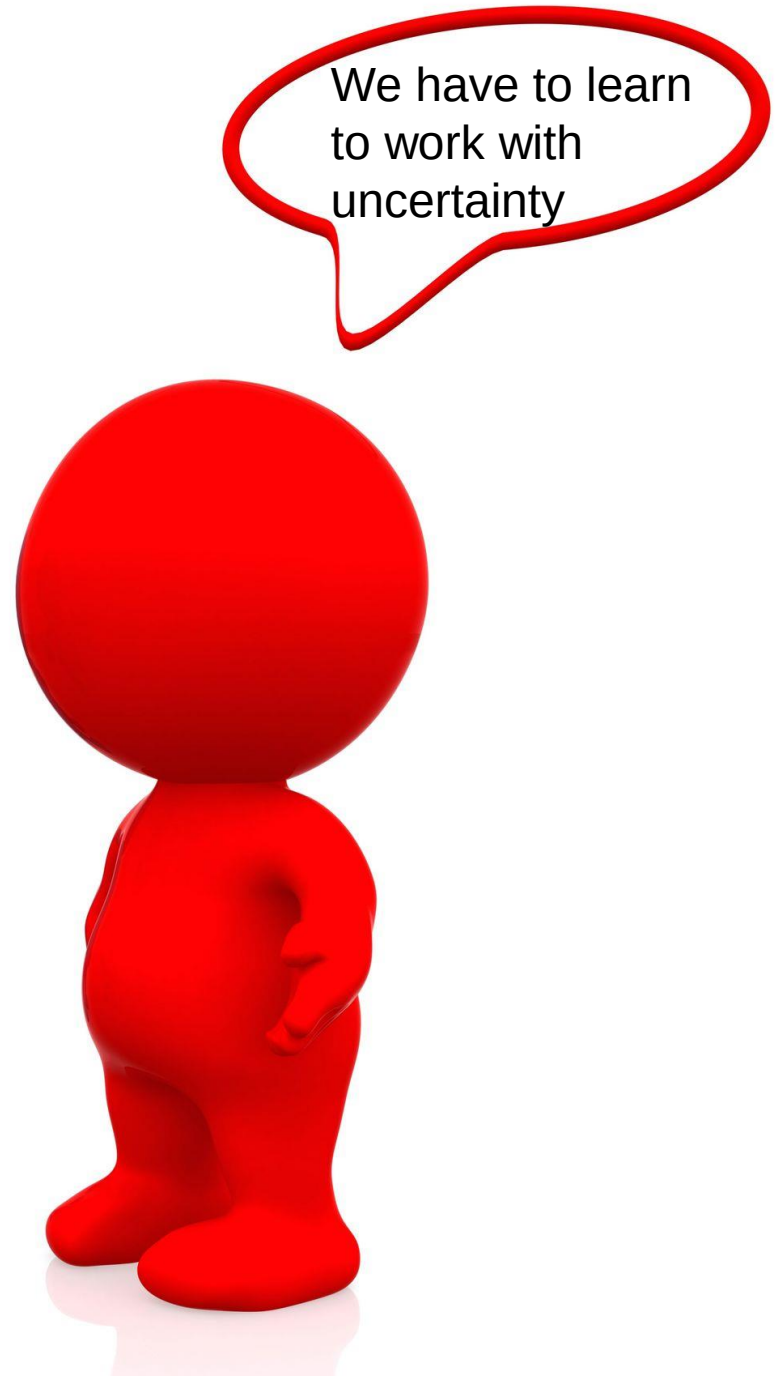
The data is rubbish!
Your science is flawed


How can we make a decision?


We have to learn
to work with
uncertainty

How do we measure success?

- During the project:
  - People start asking the right questions
  - The community work it out for themselves & come up with sensible solutions
  - Its not us who decide ‘how many cows’

Waitaki Monitoring Framework

- *Plan effectiveness*
- *Data sharing*
- *Review of limits*

Waitaki Integrated Monitoring Framework

A story map esri

Overview | Monitoring Sites | Pilot Project | Example Maps

What is the Waitaki Monitoring Framework?

Objectives of monitoring framework

1. To measure effectiveness of the Waitaki Sub-regional plan via:
    - TLI (Trophic Level Index)* in the lake (Haldon Arm, Dam and Ahuriri Arm sites)
    - In-stream nutrient and contaminant concentrations (to check against limits)
2. To provide data for future reviews of nutrient limits
3. To share data between Environment Canterbury and the community – facilitate/collate a 'single source of truth' for data

Read the Canterbury land and water regional plan:
http://ecan.govt.nz/our-responsibilities/regional-plans/lwrp/Pages/Default.aspx

**TLI is a measure of the productiveness of a lake, calculated using measured concentrations of total nitrogen, total phosphorus and chlorophyll-a*

Purpose of the monitoring framework


IKAWAI MEMORIAL