

Te Waihora/ Lake Ellesmere State of the Lake 2015

Land use and land cover

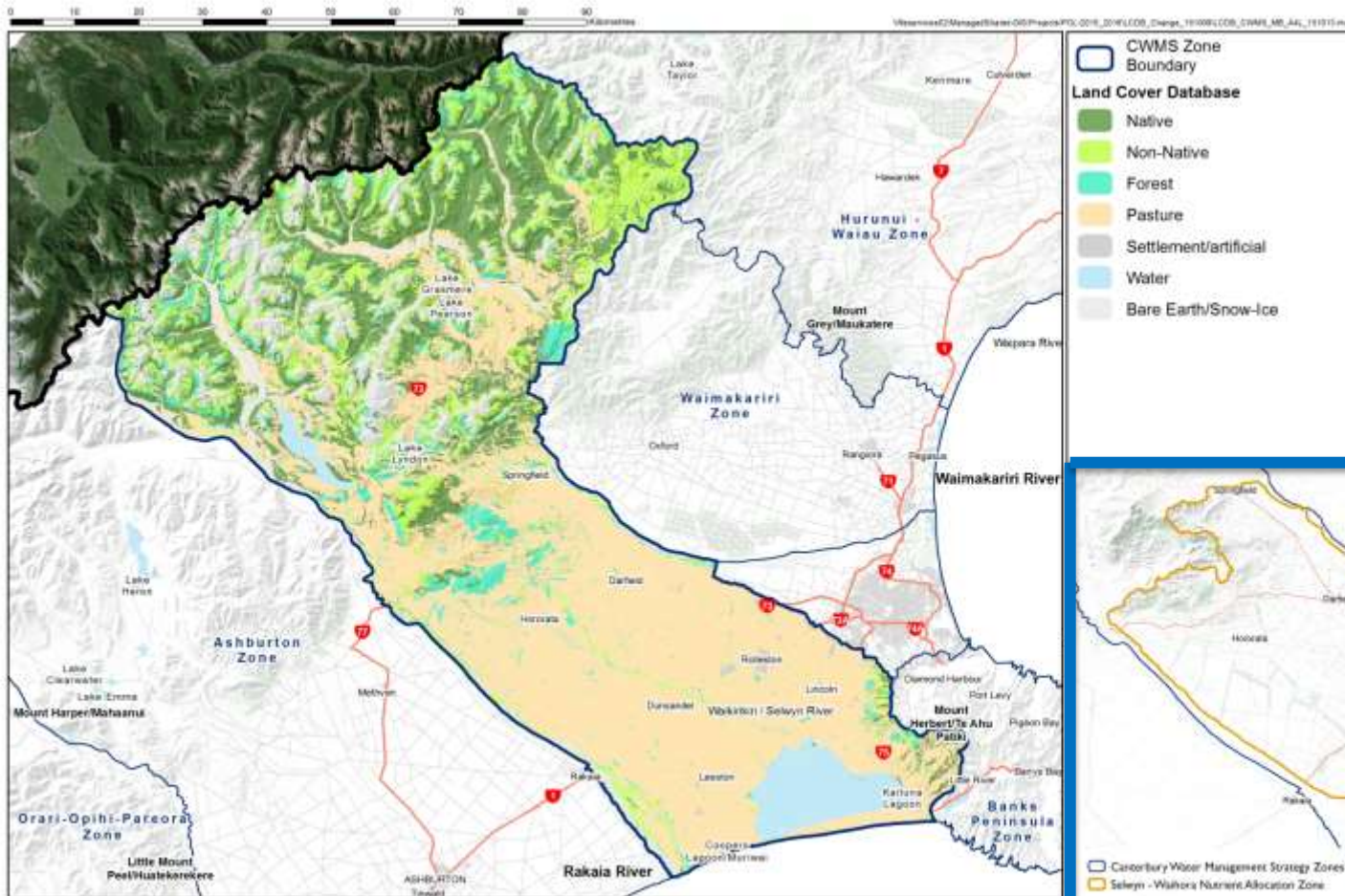
Kirsty Johnston, with data and info from:

Katherine Glasgow, Michael Fletcher, Ognjen Mojsilovic,
Sungsoo Koh, and Ian Brown

What to measure?

Driving forces	State	Pressures	Responses
<ul style="list-style-type: none"> • population change • economic growth • commodity prices • primary production/ sectorial trends • people's values : <ul style="list-style-type: none"> <input type="checkbox"/>land <input type="checkbox"/>the lake 	<ul style="list-style-type: none"> • land cover change: <ul style="list-style-type: none"> <input type="checkbox"/>lake shore <input type="checkbox"/>catchment <input type="checkbox"/>district <input type="checkbox"/>CWMS zone 	<ul style="list-style-type: none"> • land use change: <ul style="list-style-type: none"> <input type="checkbox"/>lake shore <input type="checkbox"/>catchment <input type="checkbox"/>district <input type="checkbox"/>nutrient allocation zone <input type="checkbox"/>CWMS zone • livestock numbers • irrigated land area 	<ul style="list-style-type: none"> • farm environment plans • riparian buffers: <ul style="list-style-type: none"> <input type="checkbox"/>waterways <input type="checkbox"/>lake shore • land protected/ restored: <ul style="list-style-type: none"> <input type="checkbox"/>lake shore <input type="checkbox"/>tributary streams

Land cover and land use data



Selwyn - Waihora CWMS Zone Land Cover



Selwyn - Waihora Nutrient Allocation Zone

What we know about land cover

Between 1996/97 and 2007/08

Increases:

- forest harvested
- built up area
- transport infrastructure

Decreases:

- mixed exotic shrubland
- orchard, vineyard, perennial crops



Looking across Motukarara to Te Waihora. Photo copied with permission from: <https://graemeu.wordpress.com/>

Between 2007/08 and 2012/13

Increases:

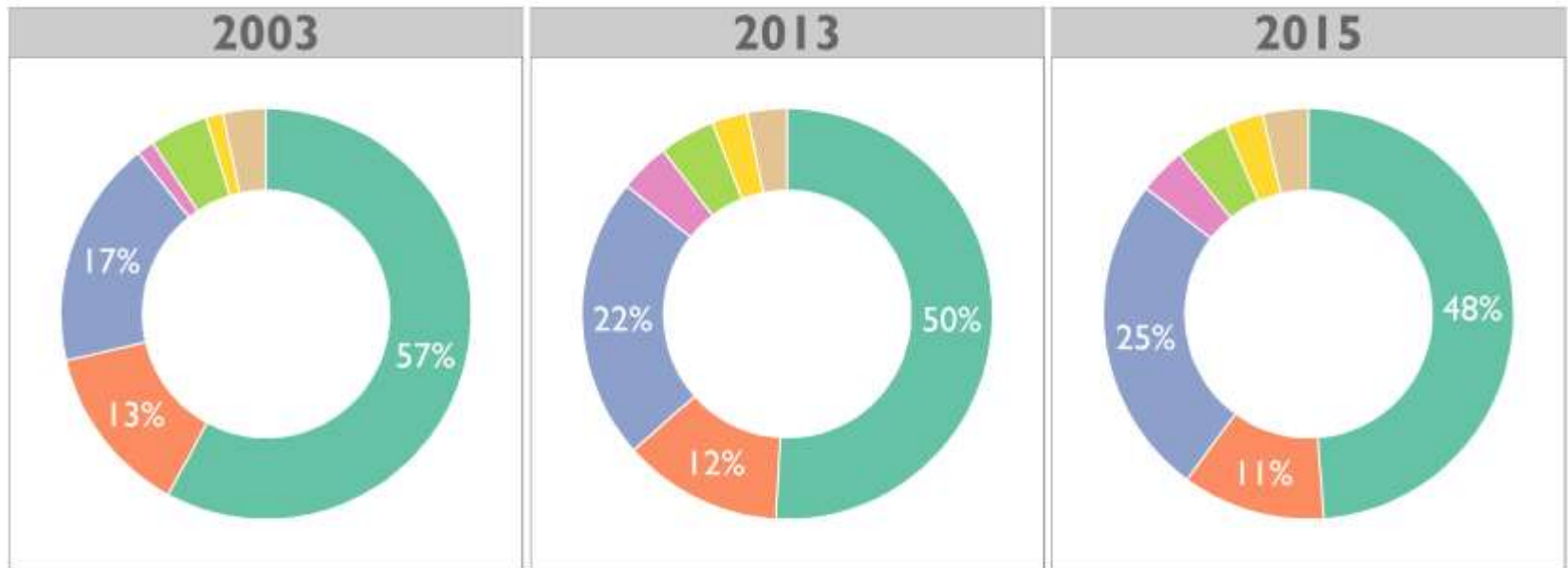
- forest harvested
- built up area
- high producing grasslands
- lake and pond

Decreases:

- orchard, vineyard, perennial crops
- exotic forest planting
- urban park and open space
- matagouri/ grey scrub
- gorse and broom
- deciduous hardwoods

What we know about land use

Changes in rural land use in the Selwyn Waihora Nutrient Allocation Zone



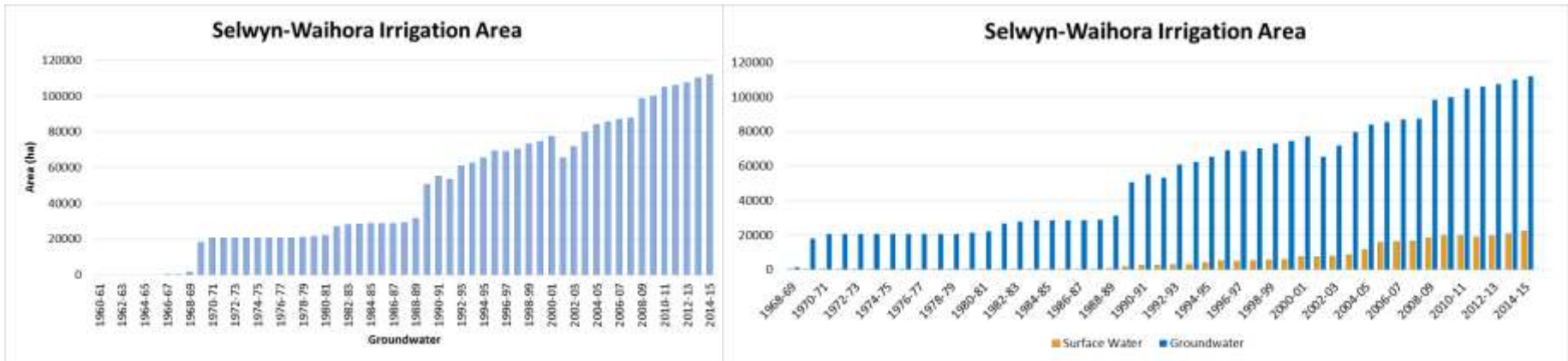
■ Sheep, beef & deer ■ Arable & horticulture ■ Dairy ■ Contract grazing ■ Forestry ■ Lifestyle blocks ■ Other enterprises

Source: AgriBase, using AsureQuality data available in 2003, 2013, and 2015.
AgriBase® is a product of AsureQuality

'Other enterprises' includes livestock such as horses, pigs, poultry, alpacas, and plant nurseries, flower growing, etc.

What we know about land use

Changes in irrigation area 1960 to 2015 – indicative only



Source: Environment Canterbury 2015

Irrigated area calculated by summing estimated groundwater and surface water allocation on the face of issued resource consents. Actual water use will differ and is likely to be in the range of 40-50% of consented allocation. Data should be treated as annual estimates to summarise the change in irrigation area and allocated ground and surface water for the combined Selwyn Waimakariri and Rakaia Selwyn groundwater and surface water zones for the years reported. This context must be reported with these graphs for accurate interpretation.

What we know about land use

Changes in urban land use and lifestyle blocks in the Selwyn District



What's the story?

- population +5.4%
- residential consents +2.2%
- number/ area of lifestyle blocks doubled since 2009

Visitors to Selwyn District will see:

- more urban development/ build up area
- lifestyle blocks across the district

Responses – good progress ✓



- ✓ water allocation limits
- ✓ catchment nutrient load limits
- ✓ excluding stock from waterways
- ✓ farm environment plans
- ✓ providing for ecological flows in waterways
- ✓ riparian buffer margins
- ✓ lake level management
- ✓ restoring/ protecting native vegetation and biodiversity





In summary

What the data tell us:

- pressures on the lake from land use have increased
- changes in land cover reflect shifts in business enterprise
- no empirical data to report the influence of lake level management on land use and land cover

Recommendations:

- continue to share timely, relevant data critical to land *and* water management
- make better use of geographic information systems (GIS) and the web for state of the lake reporting



Measures of Success

How will we know when we have achieved success?

Land use and development is integrated with water management; natural and cultural values are respected; all land use activities operate at good practice or better

Summarising the current state

In future as farm environment plan audit results become available, together with other data, we can better report on progress.

What's the signal?

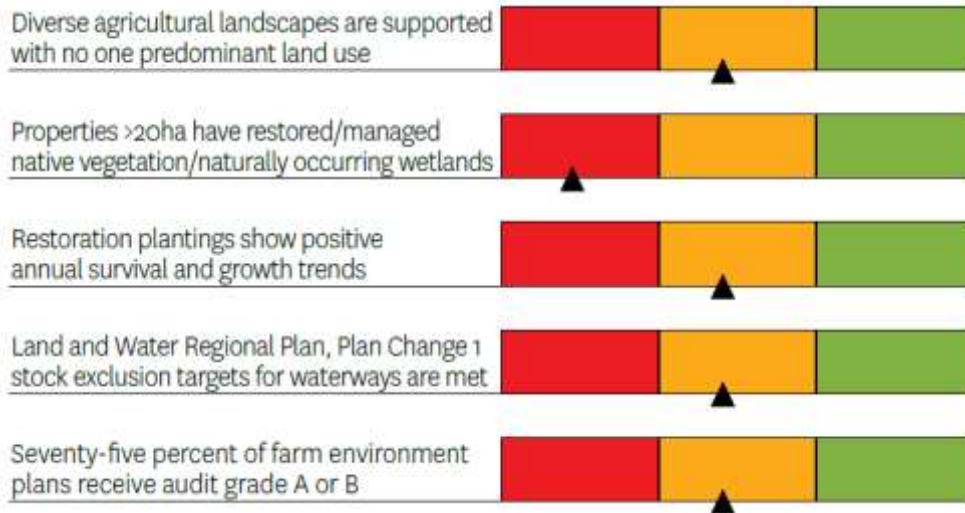


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