

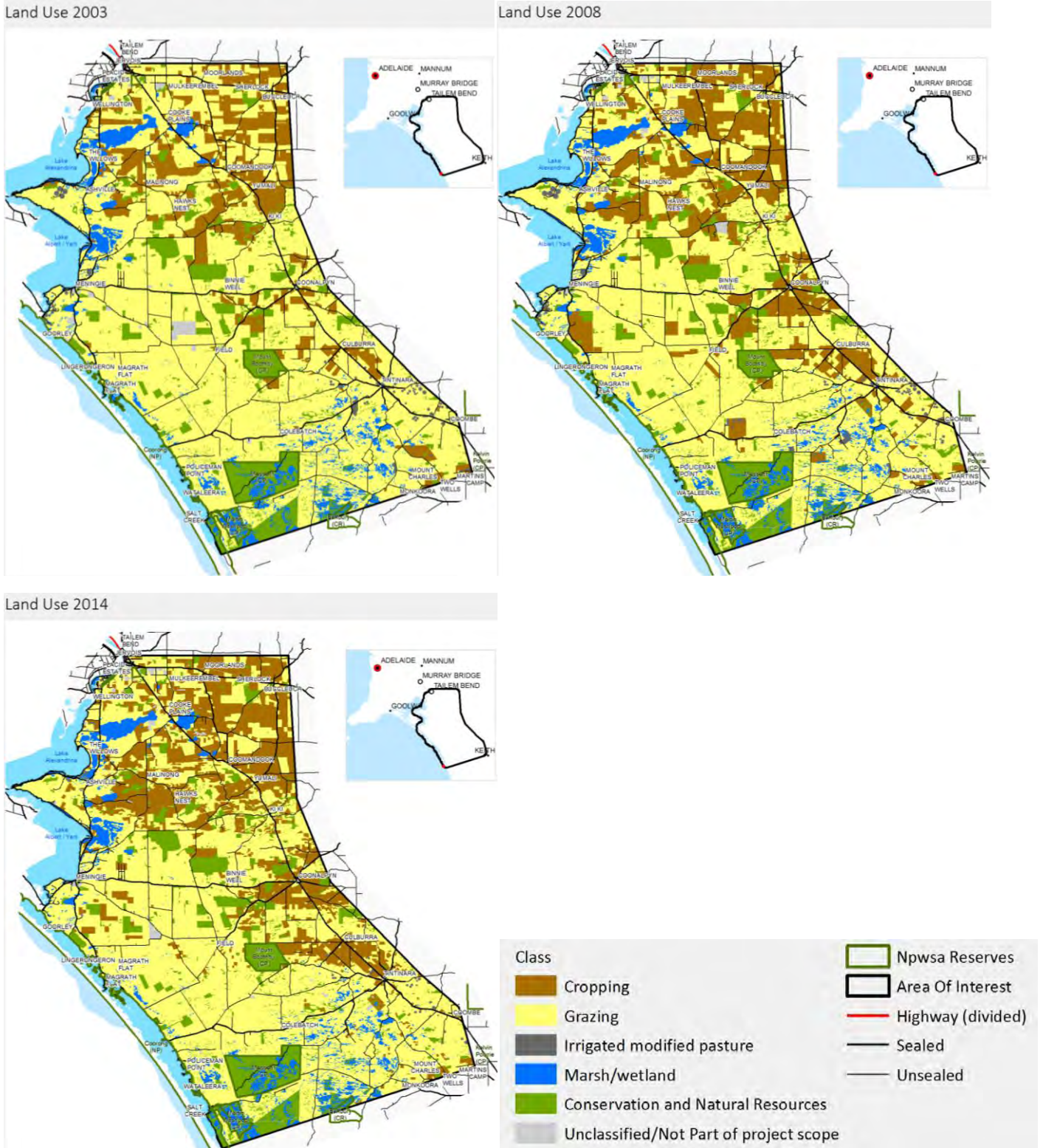
Land Use Change and Vegetation Cover

Data provided by Natural Resources SA Murray-Darling Basin

Tracey Strugnell

Coorong Tatiara Local Action Plan - Coorong & Tatiara District Councils

A gradual change in land use can be observed in the following series of maps, showing an increase in the area of dryland cropping over time, particularly around the greater Coomandook area.



Above: Land Use Change Maps 2003 2008 2014

This gradual change is further extrapolated in the following tables.

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Land Use 2003

	Hectares	% of Area
Cropping	70,631	13.2
Grazing	357,829	66.9
Irrigated modified pasture	3,109	0.6
Marsh/wetland	31,186	5.8
Conservation and Natural Resources	59,291	11.1
Unclassified/Not Part of project scope	12,922	2.4

Land Use 2008

	Hectares	% of Area
Cropping	101,966	19.1
Grazing	322,968	60.4
Irrigated modified pasture	3,626	0.7
Marsh/wetland	30,512	5.7
Conservation and Natural Resources	63,619	11.9
Unclassified/Not Part of project scope	12,279	2.3

Land Use 2014

	Hectares	% of Area
Cropping	107,171	20.0
Grazing	318,526	59.5
Irrigated modified pasture	744	0.1
Marsh/wetland	29,441	5.5
Conservation and Natural Resources	63,669	11.9
Unclassified/Not Part of project scope	15,418	2.9

This data does illustrate an increase in area under continuous and mixed cropping farming systems, particularly around the northern area shown on the map. This land use does have a lower plant water use than perennial pastures. When coupled with summer weed control techniques, the level of water use on these areas would be low relative to well management dryland lucerne pastures <http://www.abc.net.au/science/articles/2001/08/14/345557.htm>

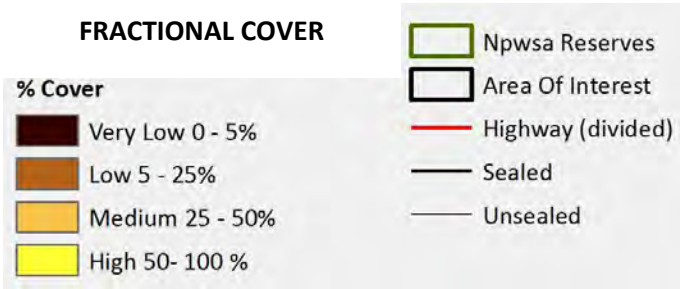
It is difficult to quantify what the actual change in plant water use across the landscape could be as a result of shifts in the coverage, health, and density of perennial pastures, and increases in areas land under annual cropping. Additionally this land use change data does not quantify annual vs perennial pastures, or the quality of these pastures across the areas defined as having grazing land use.

It is widely accepted and proven through past studies that healthy perennial pastures or other perennial vegetation, when paired with ground cover, provides the greatest plant water use option and hence greatest potential in recharge reduction to saline groundwater. This remains the best option we have for reducing recharge to groundwater at both the local and regional level.

Long dry periods such as the millennium drought, 2015-16 drought, and 2018-19 drought would have significantly impaired the health, vigour, density and water use potential of perennial pastures on both saline and non saline land. In particular the summer active perennial pasture base that prevails in this region of dryland lucerne, perennial veldt grass and primrose. When rainfall did return after these dry periods, these pastures would have not been in optimum condition to 'use the rain where it fell', and hence reduce recharge to groundwater.

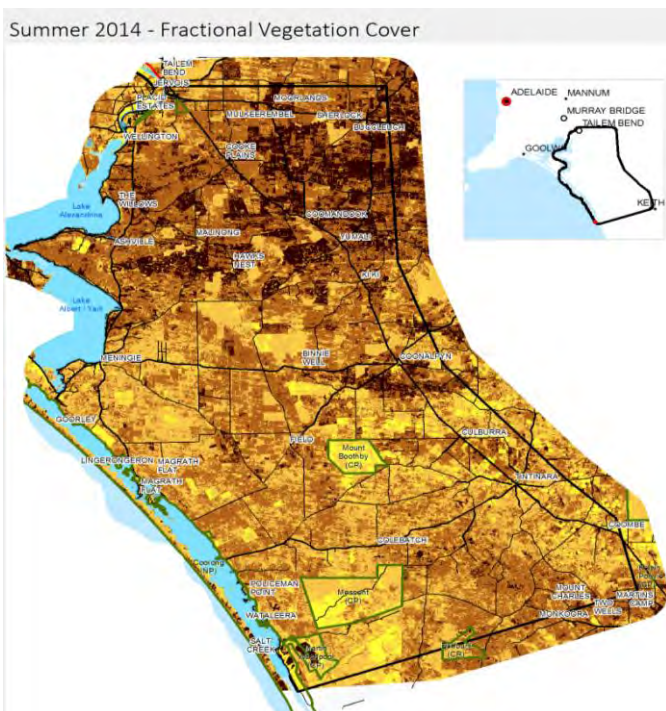
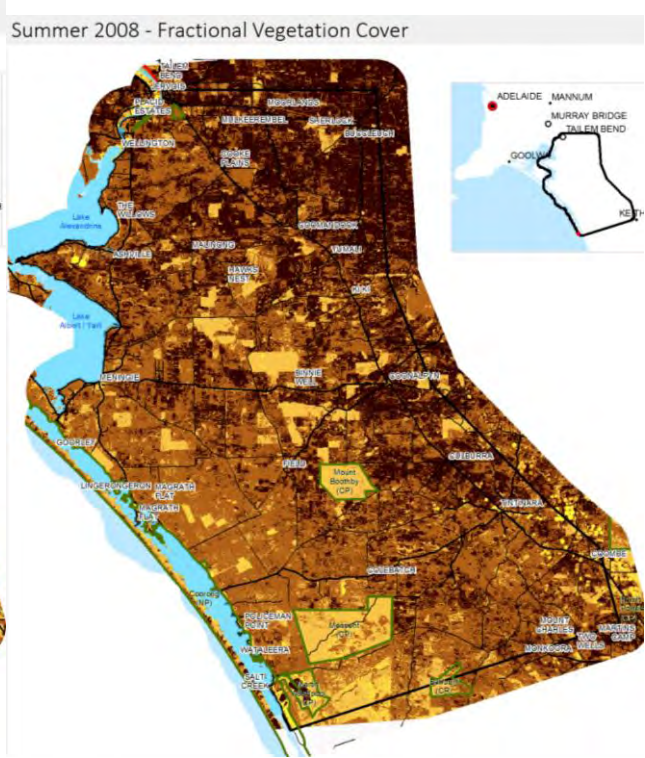
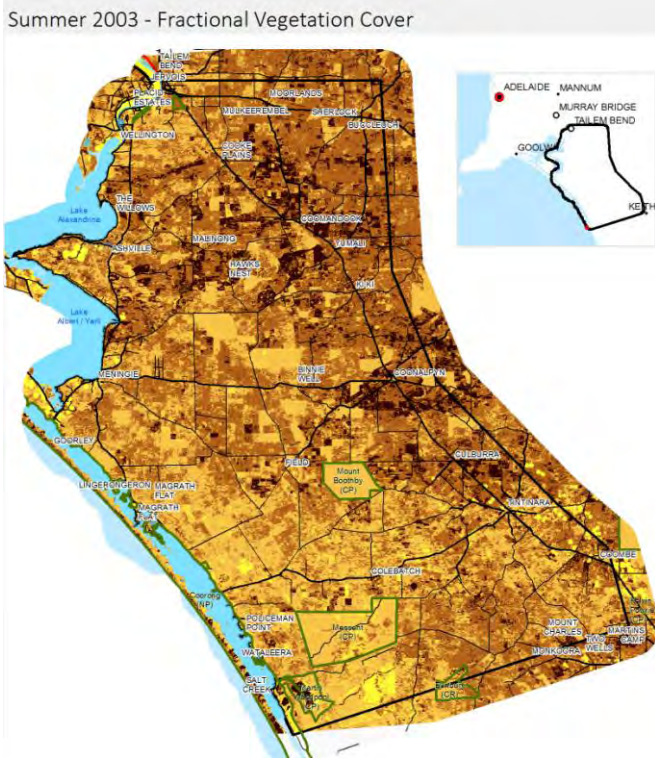
Larger versions of Land Use Maps can be found in **Appendix 5** of the Coorong Dryland Salinity Review.

Change in vegetation cover over time can be observed in the following series of maps, showing change in Fractional Vegetation Cover.



Fractional cover refers to estimating the proportion of an area that is covered by a pre-defined set vegetation or land cover types.

The data used to compile these maps has been sourced from satellite remote sensing data.



These maps also show real shifts in vegetation cover, with a large increase in 'very low' cover in the summer 2008. The 2014 map still indicates lower cover than 2003.

There is some correlation between areas of 'very low' cover and areas with a high prevalence of cropping.

However the 'very low' cover indicated in the 2008 map would also be picking up non cropping areas, likely to be bare ground and areas of poor quality annual or perennial pastures on sandy soils.

Areas of 'very low' cover would be providing very little to no plant water use, or recharge reduction potential at the time this data was captured.

Above: Fractional Vegetation Cover Maps 2003
2008 2014