

State of the catchments 2010

# Capacity to manage natural resources

## Lower Murray Darling region

### State Plan target

There is an increase in the capacity of natural resource managers to contribute to regionally relevant natural resource management (NRM).

### Background

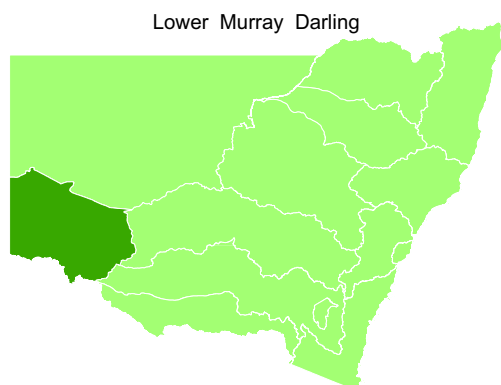
The overall capacity of land managers in the Lower Murray Darling region was assessed using data from the 2005 Australian Bureau of Agriculture and Resource Economics survey of broadacre agriculture. Selected indicators for each of the five capitals – *human, social, physical, natural* and *financial* – were analysed using a livelihoods framework (Nelson et al. 2010a, b). This survey assessed geographical patterns in the overall adaptive capacity of land managers to sustain a livelihood across broadacre agricultural sectors.

The capacity to manage natural resources is less of a concern for land managers than their ability to sustain a livelihood in the face of changing climatic and economic conditions, and requires detailed discussion with land managers at a regional scale.

A detailed technical report describes the methods used to derive the information contained in this report. At the time of publication of the *State of the catchments (SOC) 2010* reports, the technical reports were being prepared for public release. When complete, they will be available on the DECCW website: [www.environment.nsw.gov.au/publications/reporting.htm](http://www.environment.nsw.gov.au/publications/reporting.htm).

**Note:** All data on natural resource condition, pressures and management activity included in this SOC report, as well as the technical report, was collected up to January 2009.

## Map of the catchment



## Assessment

This method of analysis indicates the general balance of the five capitals across the region. It does not allow for detailed understanding of the drivers of regional capacity, trends in indicators or collective actions that can be implemented to build capacity.

The five capitals vary substantially across the Lower Murray Darling region. *Human* capital is highest and *financial* and *natural* capitals are lowest; however, all capitals are at relatively low levels. The NRM capacity in the region is shown in Figure 1. Various pressures that affect condition indicators are shown in Table 1.

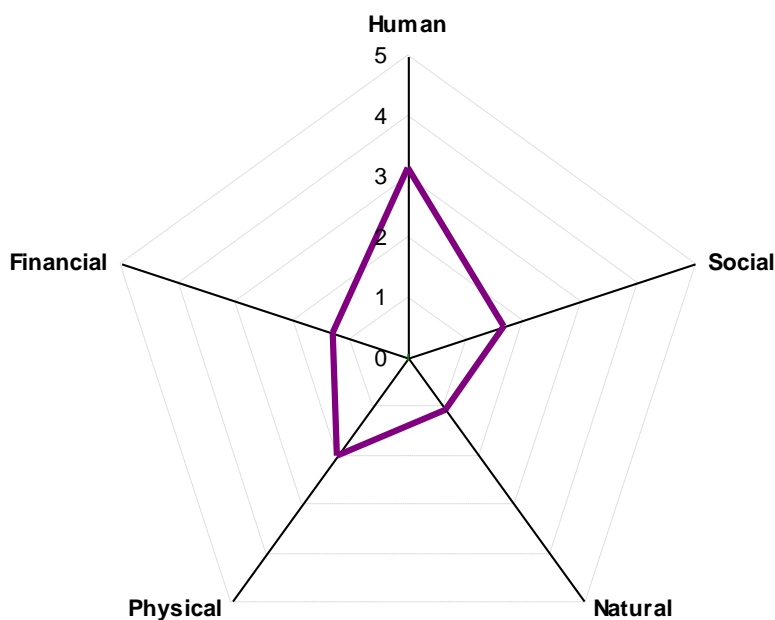
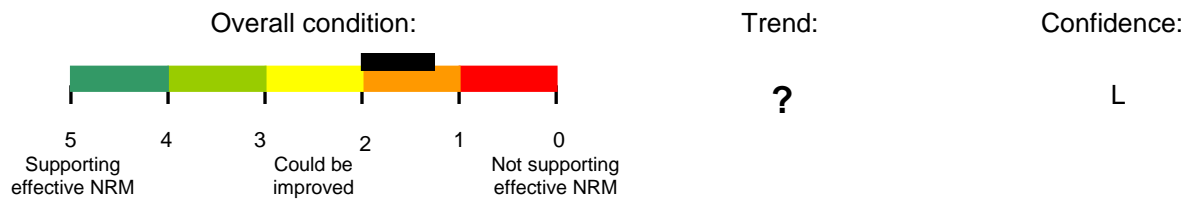







Figure 1 NRM capacity in the Lower Murray Darling region

**Table 1 Pressures on condition indicators in the Lower Murray Darling region**

■ = indicates overall condition

Indicator	Condition	Trend	Pressures / Importance of indicator
<b>Human Capital (the skills, health and education that contribute to the capacity to manage natural resources)</b>			
Operator education		?	Level of education of operator ranging from 0 (no formal education) to 5 (tertiary level education) from Australian Agricultural and Grazing Industry Survey (AAGIS).
Spouse education		?	Level of education of spouse (as above).
Self-assessed health		?	Self-assessed health status of operator from Australian Bureau of Statistics survey data.
<b>Social Capital (the family and community support available, and networks through which ideas and opportunities are accessed)</b>			
Landcare membership		?	Number of people with Landcare membership (as determined by AAGIS).
Partners		?	Number of partners running the business (as determined by AAGIS).
Internet		?	Proportion of properties with access to the internet (as determined by AAGIS).
<b>Natural Capital (the productivity of land, water and biological resources from which rural livelihoods are derived)</b>			
Mean Pasture Growth Index (PGI)		?	PGI over a decade-long period. Modelled using AussieGrass.
Dams		?	Number of dams on farms (as determined by AAGIS).
Vegetation potential		?	The proportion of farms covered by remnant native vegetation; low values indicate higher percentages. Data is from the National Land and Water Resources Audit.

Physical Capital (the infrastructure, equipment and breeding improvements to crops and livestock that contribute to rural livelihoods)			
Plant and machinery		?	The quantities of plant and machinery relative to other properties in the region (as determined by AAGIS).
Structures		?	The quantities of buildings, fences and dams relative to other properties in the region (as determined by AAGIS).
Livestock		?	The quantity of stock held during the year of assessment, relative to other properties in the region (as determined by AAGIS).
Financial Capital (the level and variability of the different sources of income, savings and credit available to support rural livelihoods)			
Capital		?	Absolute value of property including house and land but excluding land leased out.
Mean total cash income		?	Total cash income, including off-farm income.
Access to credit		?	Access to credit (equity ratio) plus liquid assets.

Condition	Trend	Data confidence
 Very good	↑ Improving	H High
 Good	↔ No change	M Medium
 Fair	↓ Declining	L Low
 Poor	? Unknown	
 Very poor		
 No data		

## Management activity

New South Wales government agencies and catchment management authorities (CMAs) are actively involved in building aspects of adaptive capacity through numerous programs; such programs include CMA community engagement strategies and CMA and NSW agency training in NRM practice change.

### State level

State level activities include:

#### Capacity building

- developing a state-wide Aboriginal land and NRM Action Plan ‘Healthy Country – Healthy Communities’. This will assist in developing clear policies, principles and tools to improve socio-economic outcomes for Aboriginal people through enhanced capacity to participate in land management and NRM

- measuring the increase in the capacity of Aboriginal communities to contribute to regionally relevant NRM. This will be guided by the State Government's *Two Ways Together* strategy that assists in building Aboriginal community resilience
- DECCW is facilitating the delivery of enhanced decision-support tools to CMAs for targeting NRM actions at both catchment and property levels
- DECCW is augmenting CMAs' capacity to monitor and report on the condition of natural resources, socio-economic outcomes and community capacity by developing a monitoring, evaluation and reporting system to track progress against the state-wide NRM targets
- coordinating NSW Waterwatch, a national community water quality monitoring network that encourages all Australians to become active in protecting their waterways.

### **Education**

- includes Industry & Investment NSW land management and property planning courses. See [www.dpi.nsw.gov.au/agriculture/profarm/courses](http://www.dpi.nsw.gov.au/agriculture/profarm/courses).

### **Regional level**

The Lower Murray Darling CMA has undertaken the following activities in relation to the NRM capacity target:

- grazing and biodiversity training for landholders
- events to raise awareness
- publications and information products
- displays at regional events
- website development
- assistance for community groups.

## Further reading

Brown PR, Nelson R, Jacobs B, Kokic P, Tracey J, Ahmed M & DeVoil P (in press), Enabling natural resource managers to self-assess their adaptive capacity, *Agricultural Systems*.

Ellis F (2000), *Rural Livelihoods and Diversity in Developing Countries*, Oxford University Press, Oxford, UK.

Jacobs B & Leith P (in press), Adaptive capacity for climate change: principles for public sector managers, *Public Administration Today*.

Nelson R, Kokic P, Crimp S, Meinke H & Howden M (2010a), The vulnerability of Australian rural communities to climate variability and change: Part I – Conceptualising and measuring vulnerability, *Environmental Science & Policy* 13: 8-17.

Nelson R, Kokic P, Crimp S, Martin P, Meinke H, Howden M, Devoil P & Nidumolu U (2010b), The vulnerability of Australian rural communities to climate variability and change: Part II – Integrating impacts with adaptive capacity, *Environmental Science & Policy* 13:18-27.

Published by: Department of Environment, Climate Change and Water NSW, 59–61 Goulburn Street, PO Box A290, Sydney South 1232.

Ph: (02) 9995 5000 (switchboard). Ph: 131 555 (environment information and publications requests).

Ph: 1300 361 967 (national parks, climate change and energy efficiency information and publications requests).

Fax: (02) 9995 5999. TTY: (02) 9211 4723.

Email: [info@environment.nsw.gov.au](mailto:info@environment.nsw.gov.au) Website: [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)

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