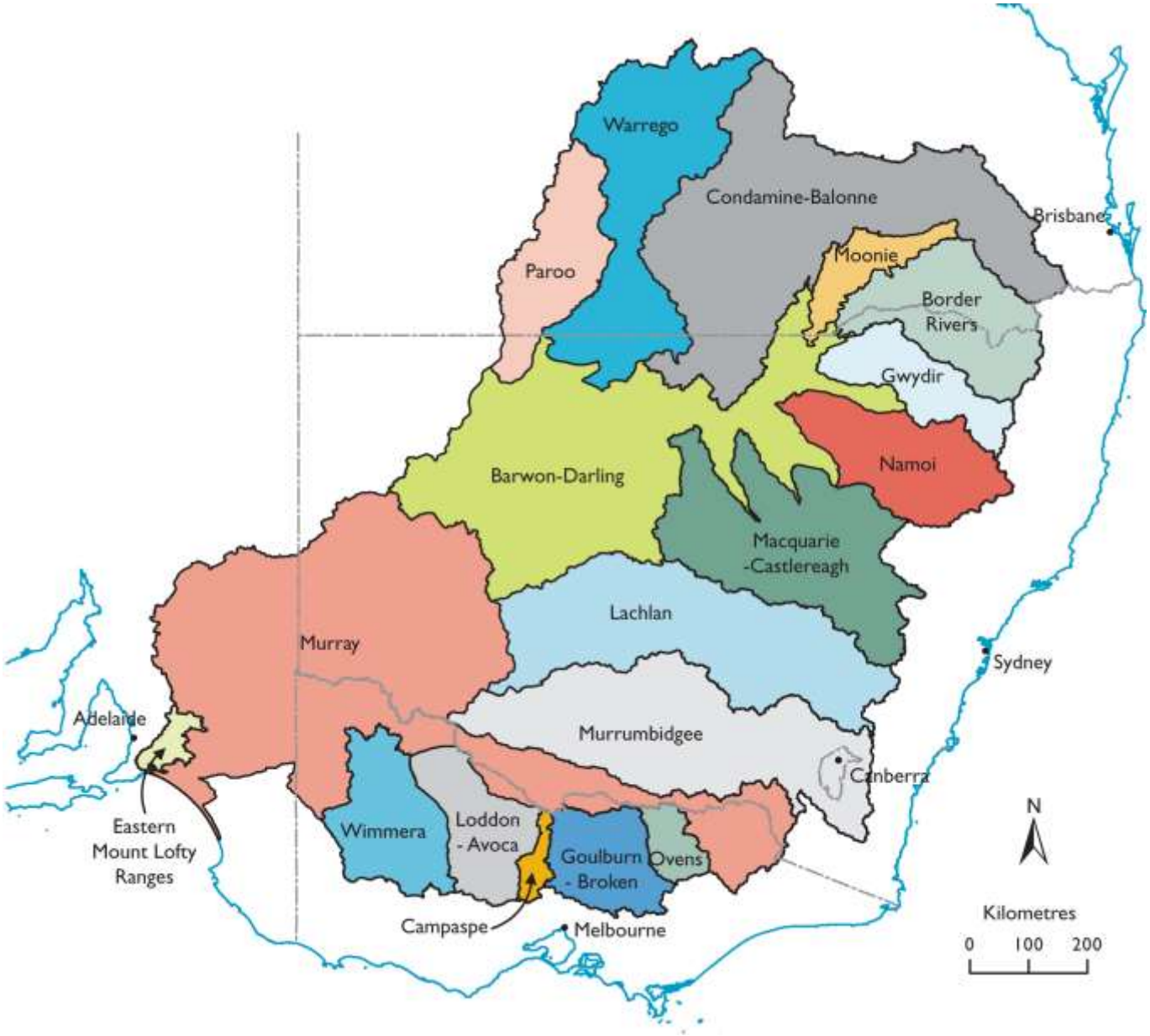
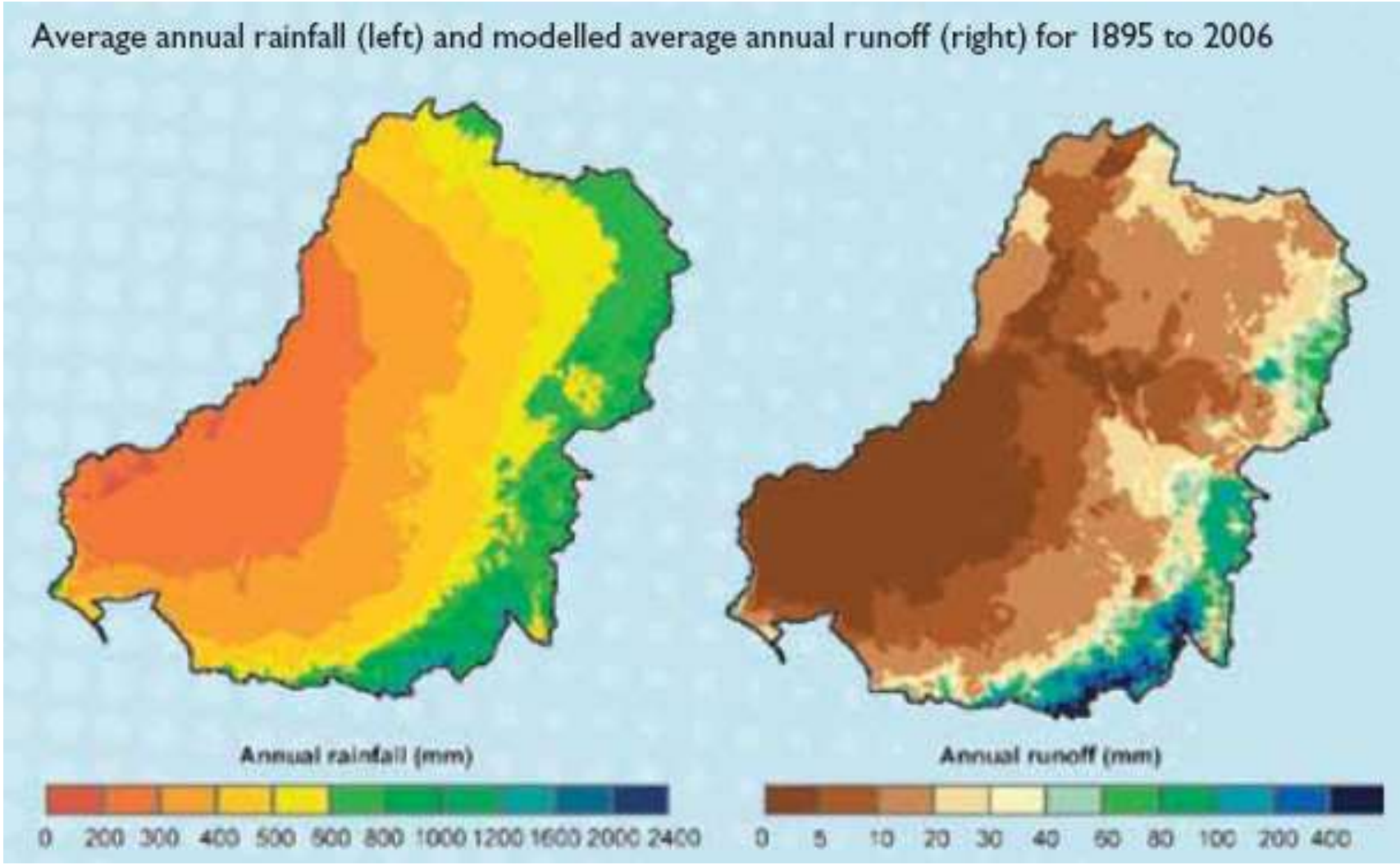
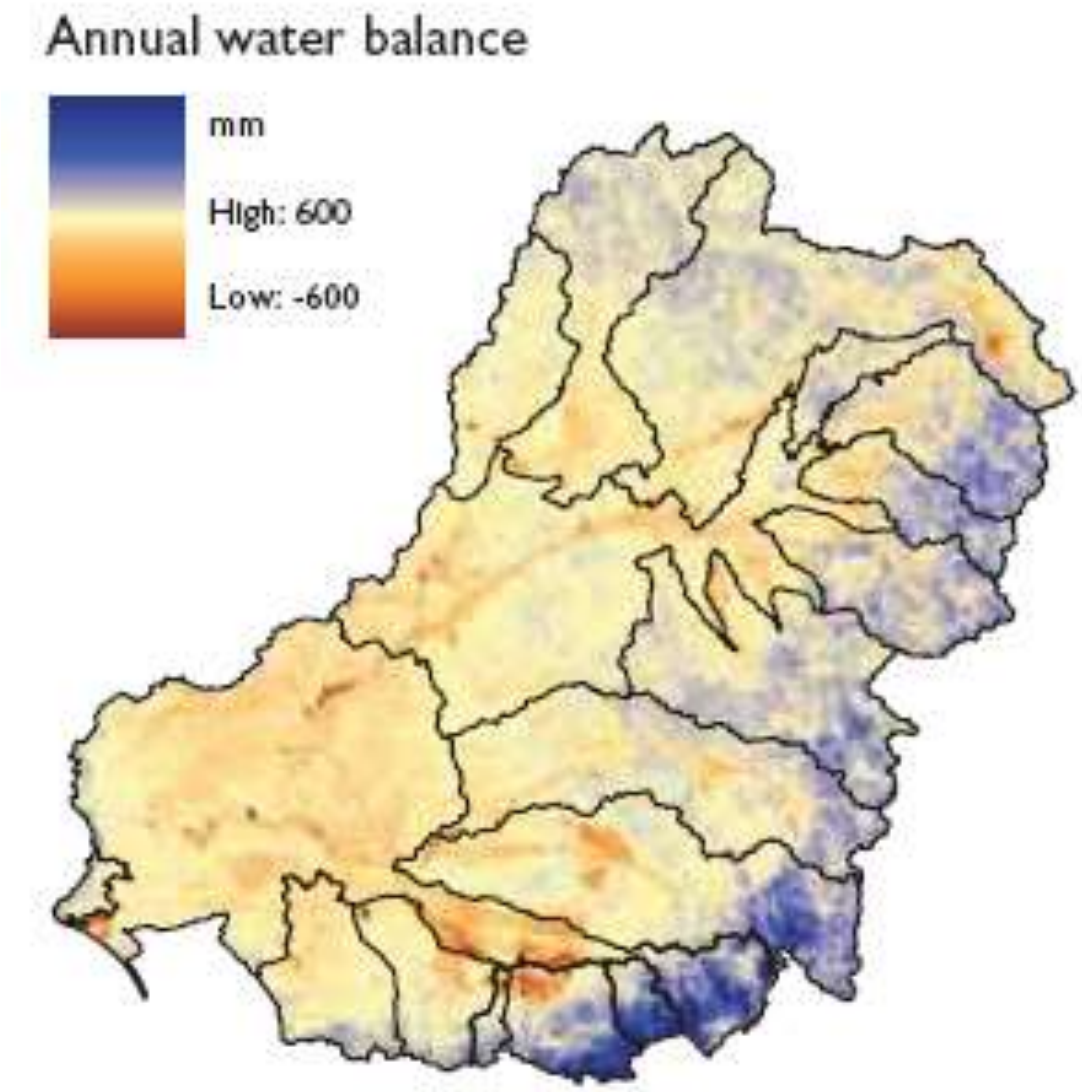
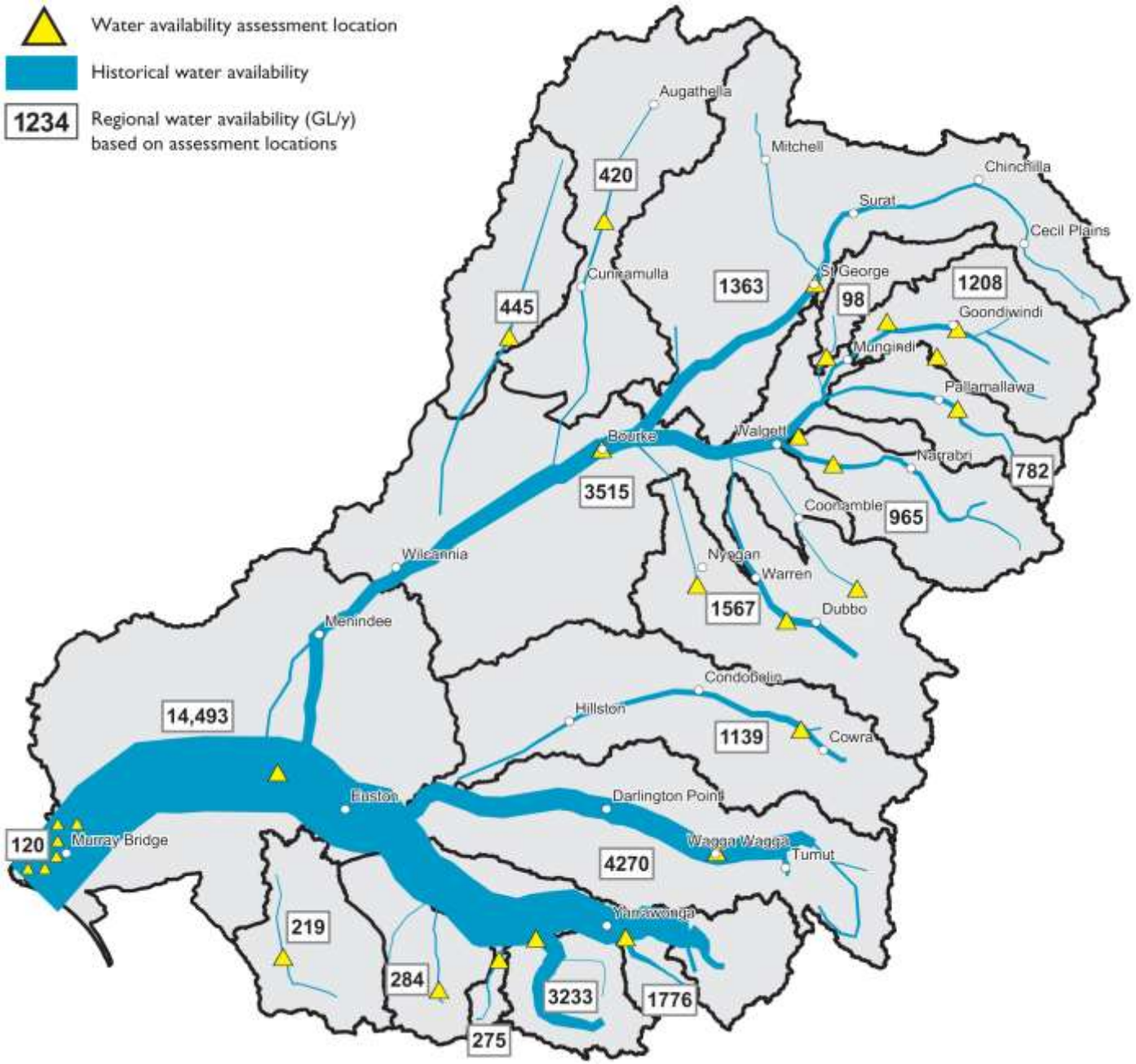
Murray-Darling Basin









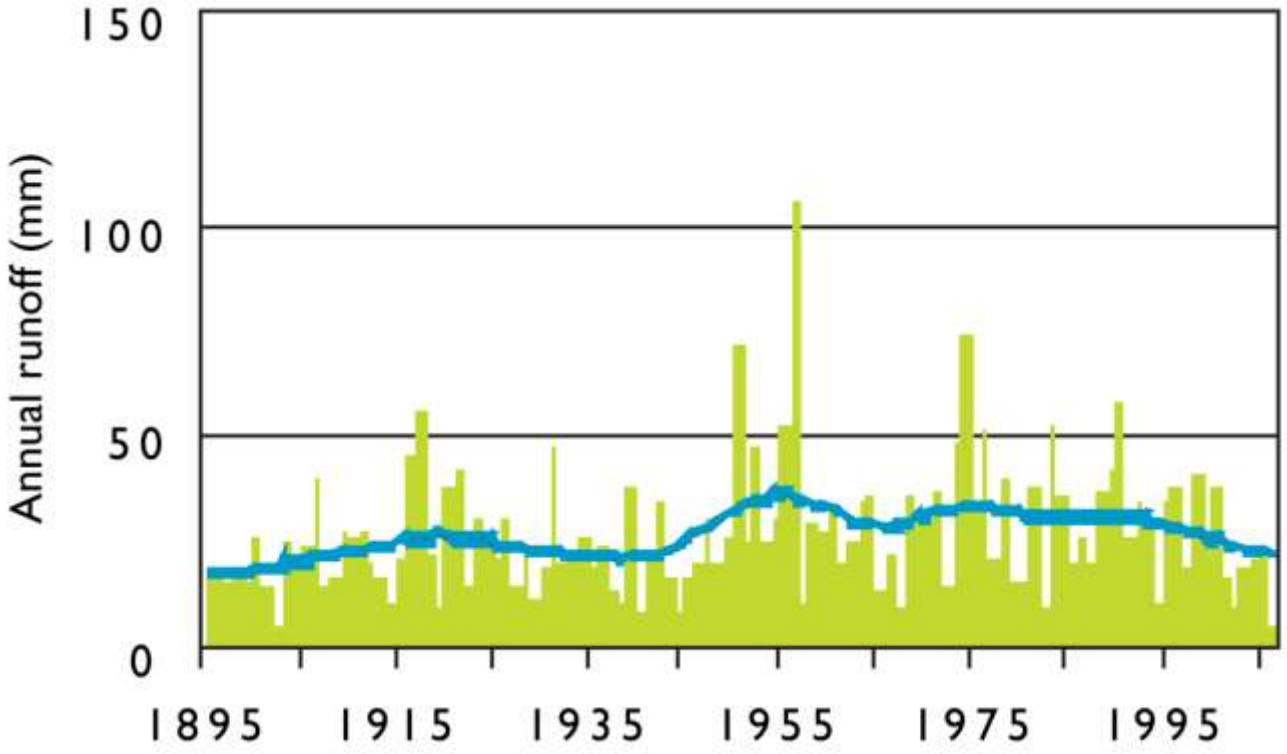


Photo courtesy of Anne Jensen

Photo courtesy of Anne Jensen

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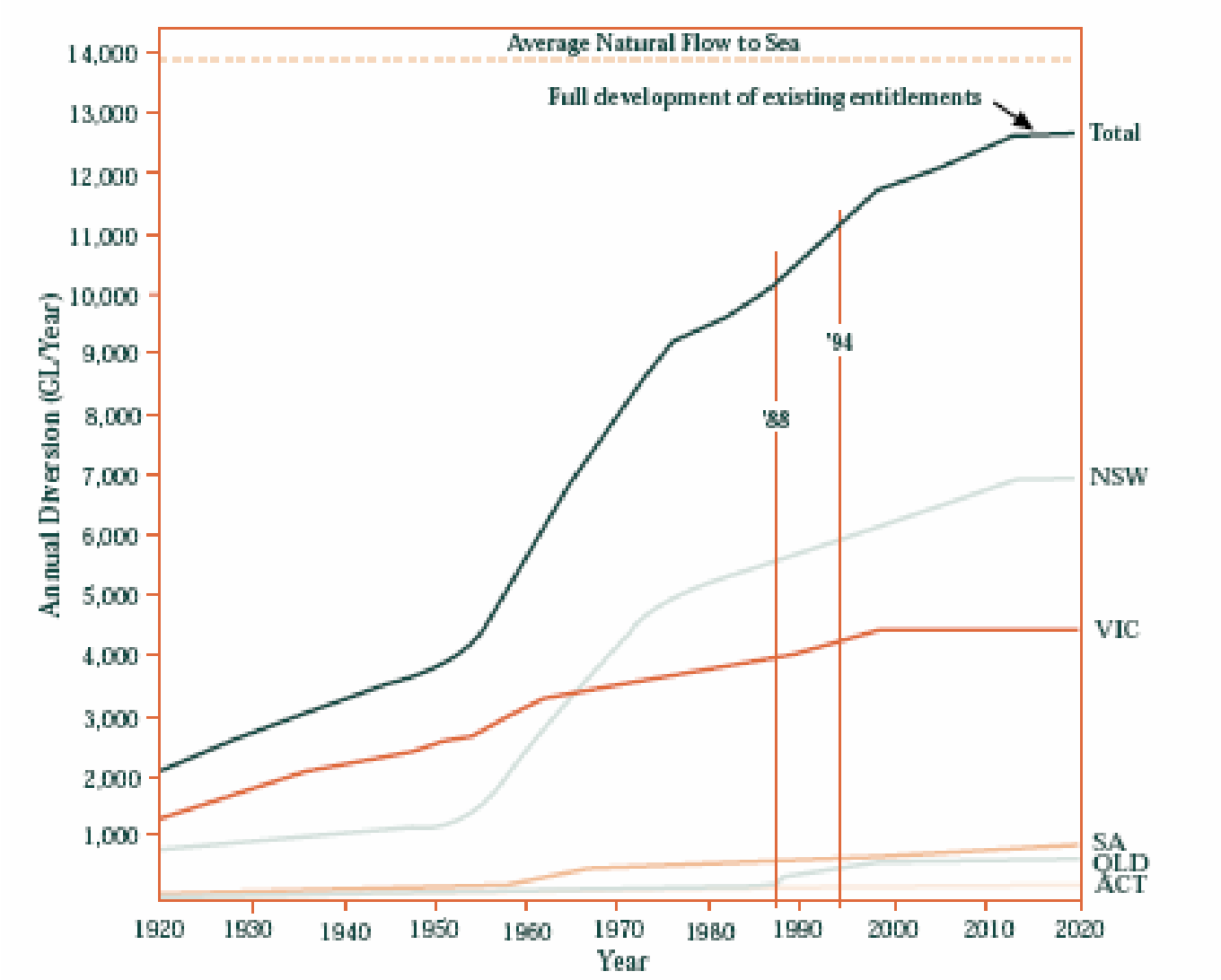
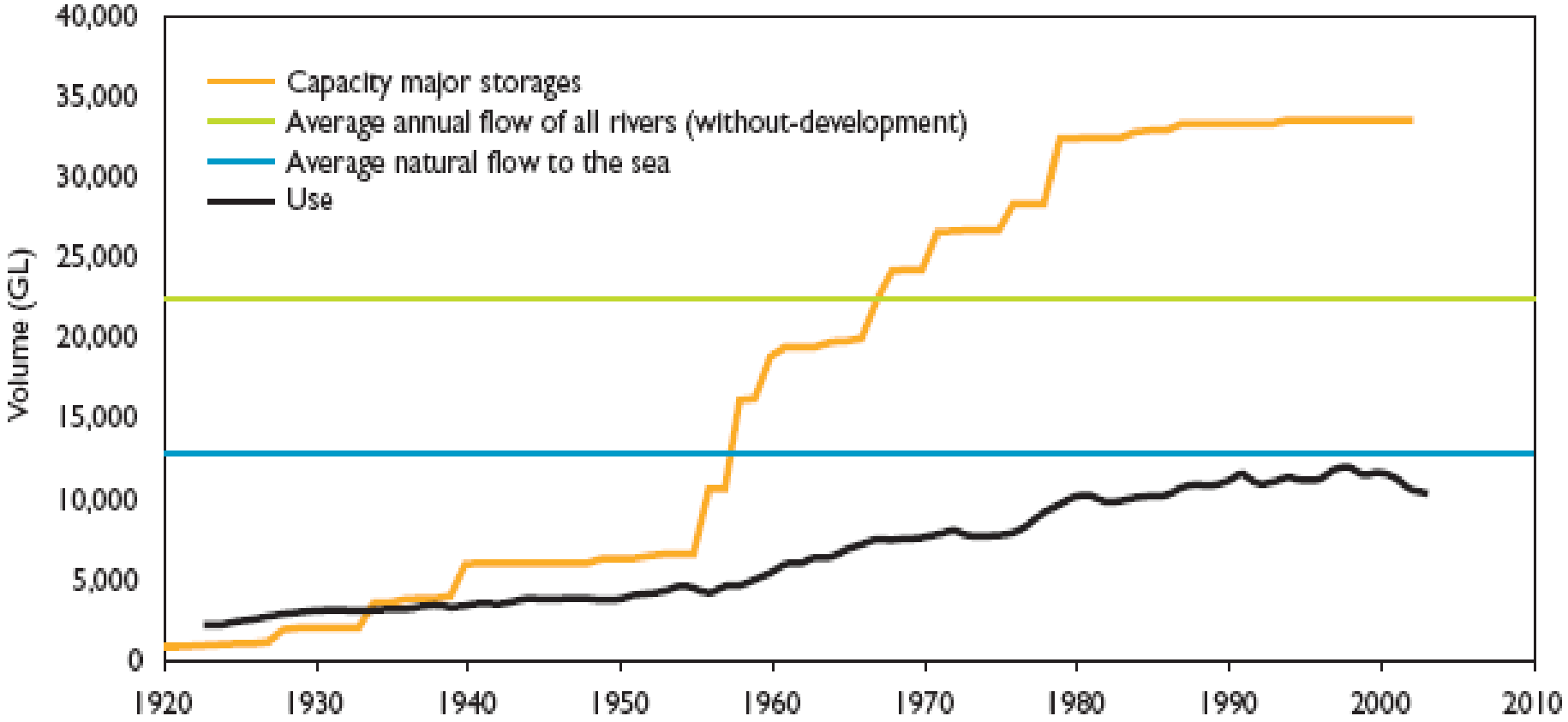
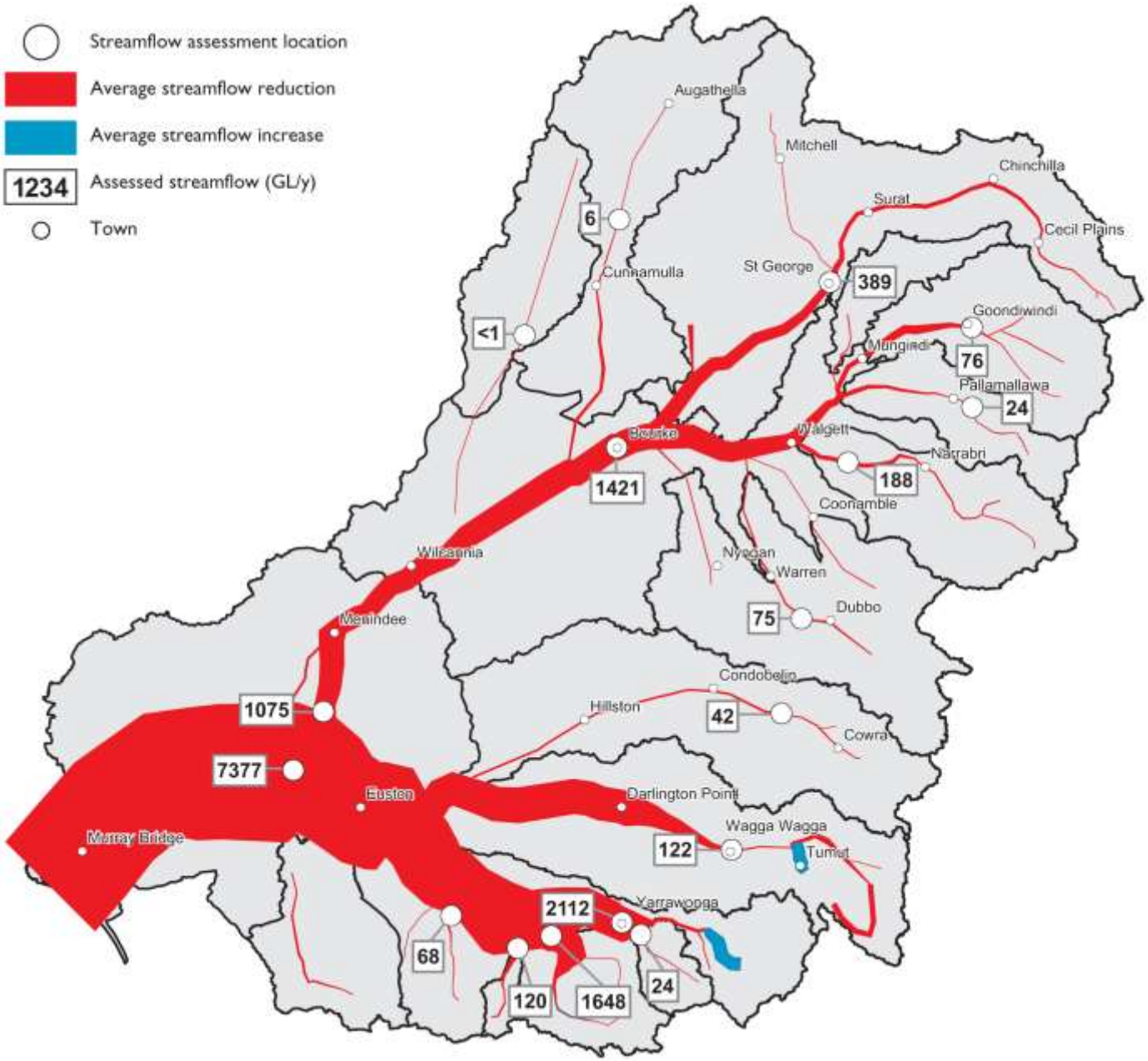


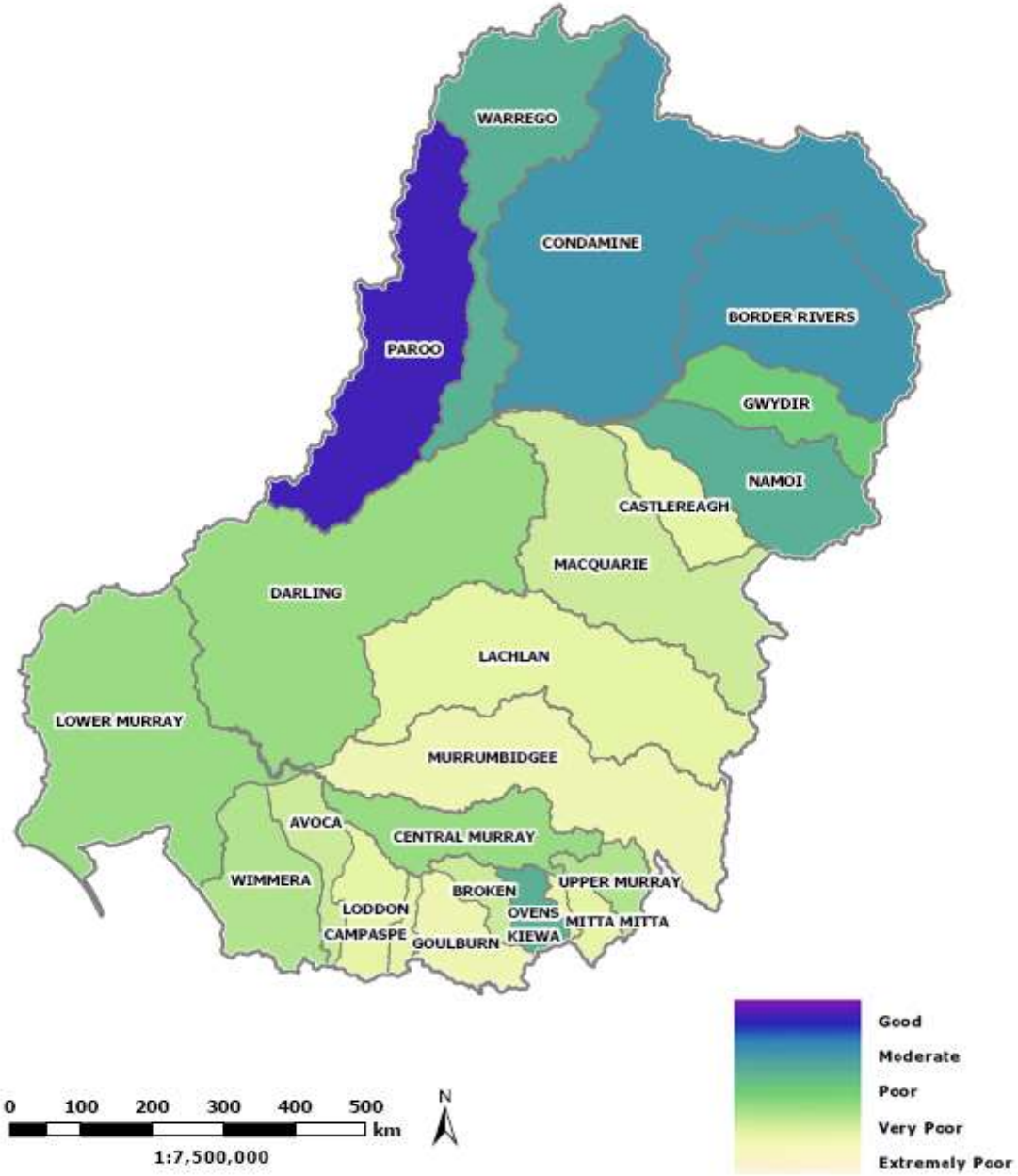
Source: Murray-Darling Basin Commission (2000). Overview Report – Review of the Operation of the cap. MDBC, August 2000

Growth in public storage capacity over the last 80 years compared to total water availability and total surface water use (five-year moving average)



Source: Data from MDBC

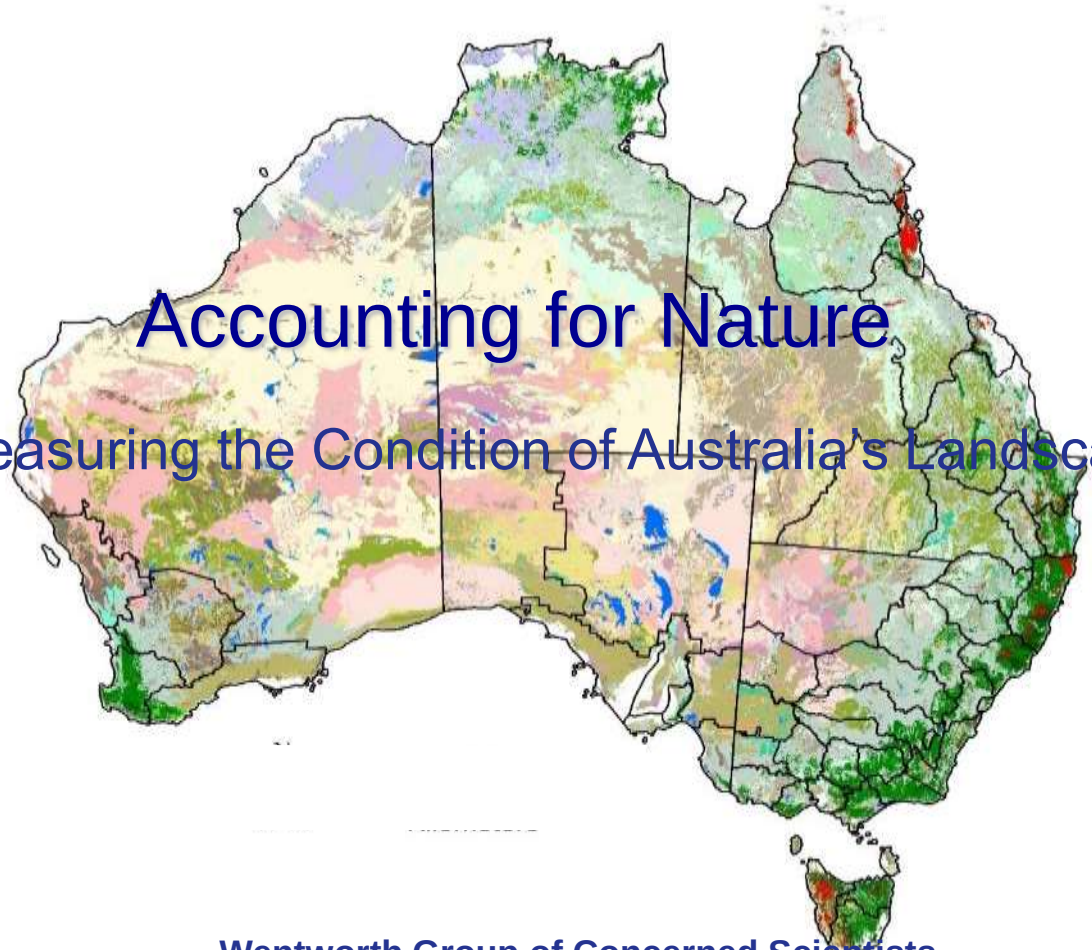




Source: MDBC (2008). Murray-Darling Basin Rivers: Ecosystem health Check, 2004-2007. A summary report based on the Independent Sustainable Rivers Audit groups SRA Report 1: A report on the Ecological Health of Rivers in the Murray-Darling Basin, 2004-2007, submitted to the Murray-Darling Basin Ministerial Council in May 2008.

Accounting for Nature

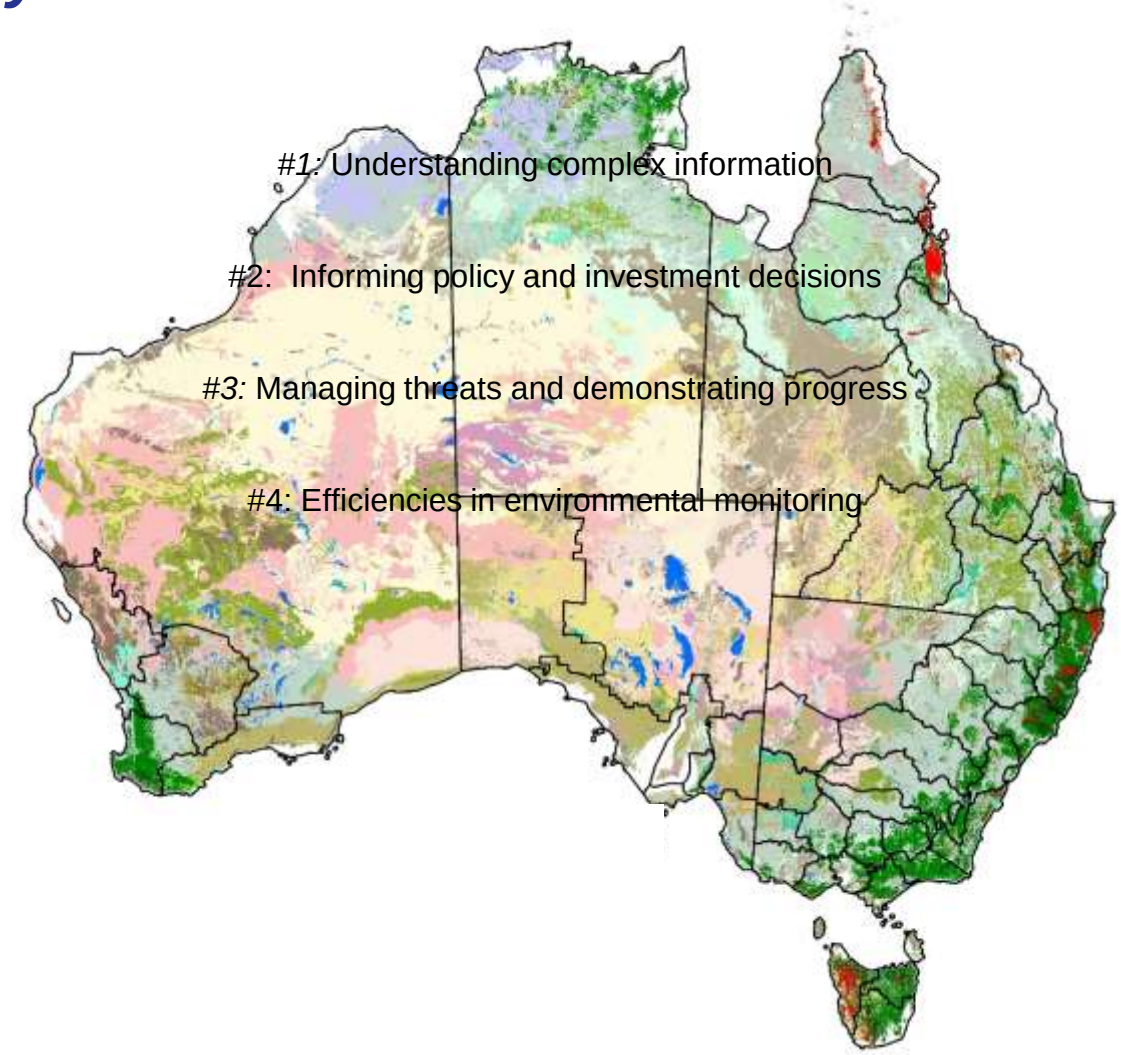
Measuring the Condition of Australia's Landscapes



Wentworth Group of Concerned Scientists

WENTWORTH GROUP
OF CONCERNED SCIENTISTS

Why do we need environmental accounts?



#1: Understanding complex information

#2: Informing policy and investment decisions

#3: Managing threats and demonstrating progress

#4: Efficiencies in environmental monitoring

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IN ASSOCIATION WITH NRM REGIONS AUSTRALIA

2011 Australian State of the Environment Report

State and trends of vegetation

Component	Summary	Assessment grade (Very poor / Poor / Good / Very good)	Confidence (in grade / in trend)
Native vegetation extent—outside intensive land-use zones	More than 90% of the original native vegetation remains in central and northern mainland Australia, and in Tasmania's central highlands and south-west	—	● ●
Native vegetation extent—within intensive land-use zones	Less than 50% of the original native vegetation remains in most of Australia's major primary production regions, and in many settled coastal regions	—	● ●
Native vegetation condition—outside intensive land-use zones	Although there are exceptions associated with invasive species or management regimes, the degree of modification of most vegetation outside the intensive land-use zones is relatively small. The proportion of each major vegetation group classified in VAST categories I or II (residual or modified) averages 80%	↙	◒ ◒
Native vegetation condition—within intensive land-use zones	The proportion of each major vegetation group classified in VAST categories I or II (residual or modified) averages 40%	↙	◒ ◒

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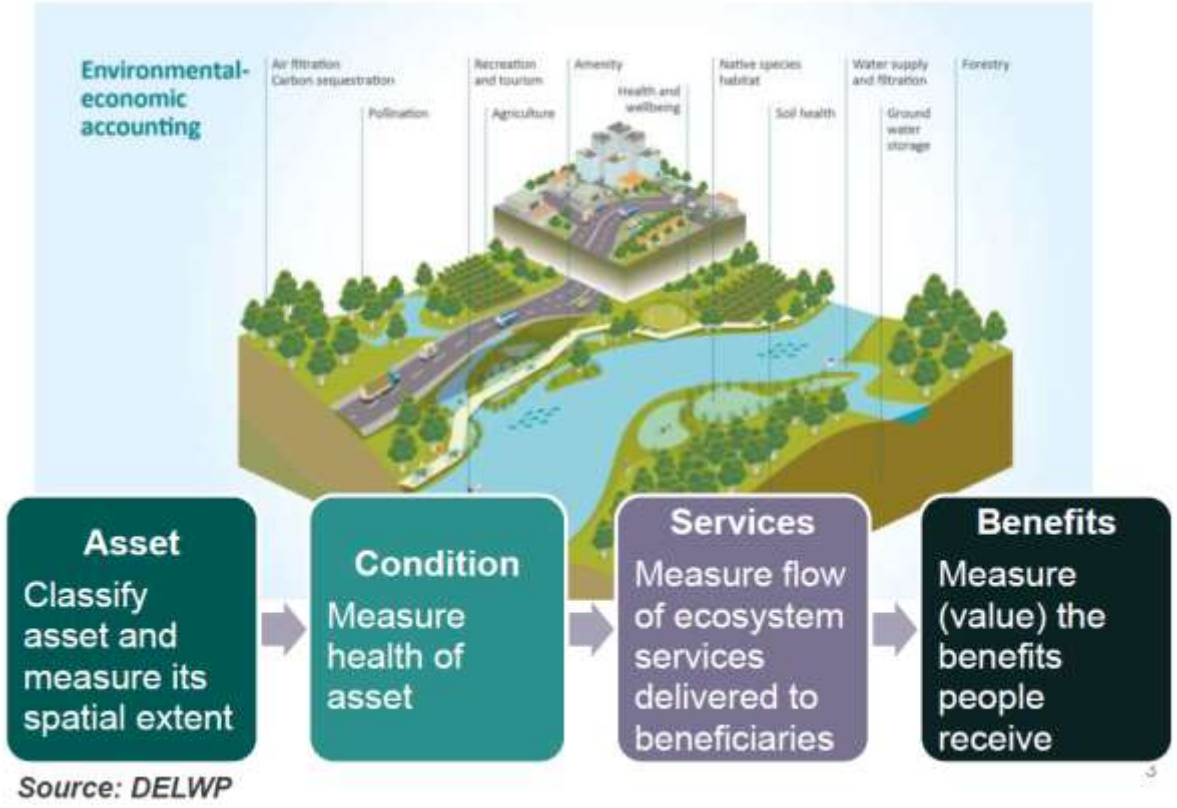
Accounting for Nature

The International System of Environmental-Economic Accounting

History

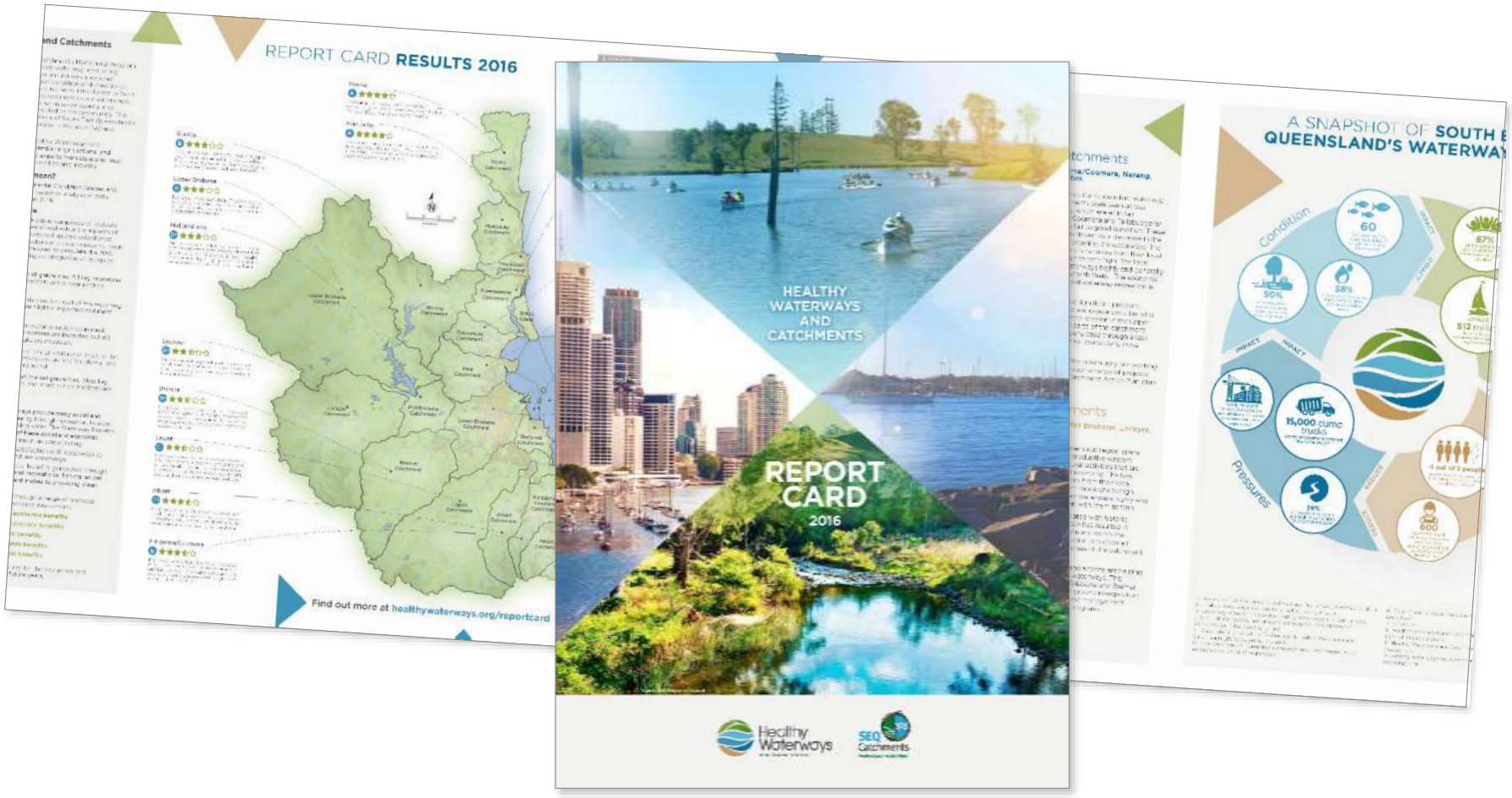
- 1993 – UN Handbook following 1992 Rio conference
- 2003 – Updated handbook (SEEA-2003)
  - showing best practice theory and examples
- 2012 – SEEA Central Framework
  - Adopted as an international standard in February 2012
- 2013 – SEEA Experimental Ecosystem Accounts

For more information go to: http://unstats.un.org/unsd/envaccounting/seea.asp



Source: DELWP

Healthy Land & Water Report Card



Every region - Every major asset - Every year

Accounting for Nature

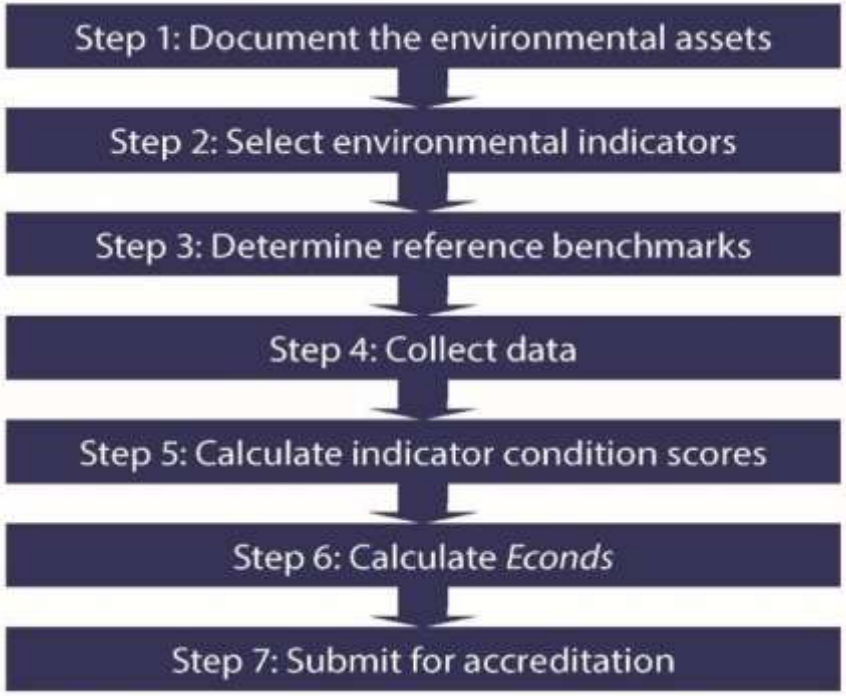
"If you don't measure it, you can't manage it"

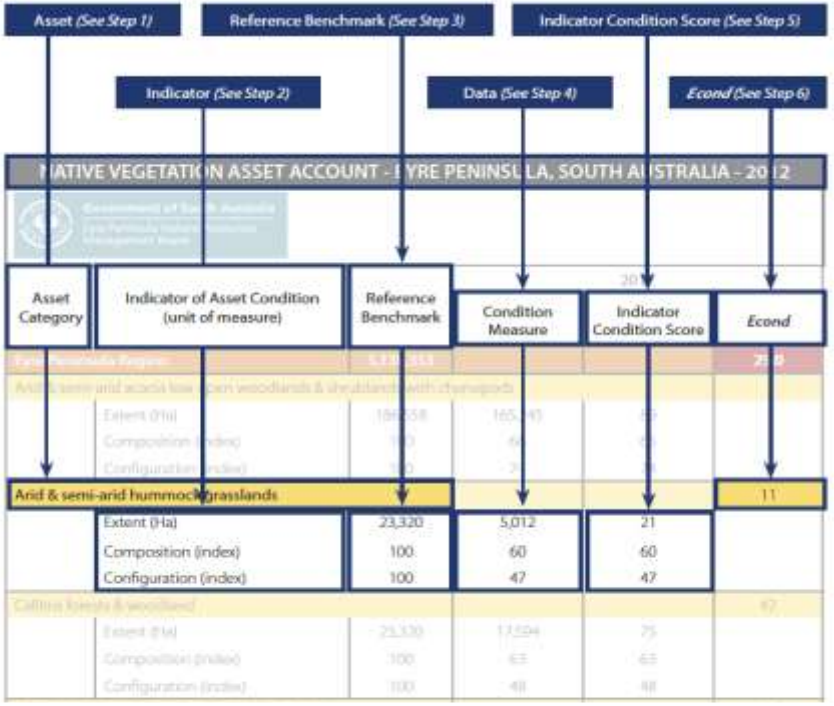
Features:

- Scale independent
- Environmental asset-based
- Constructs an index of condition common to all environmental assets (an *Econd*)
- Scientifically accredited against national standards

Methodology

" Everything should be as simple as possible, but no simpler."





Regional Australian trial: 2011-2015

WENTWORTH GROUP
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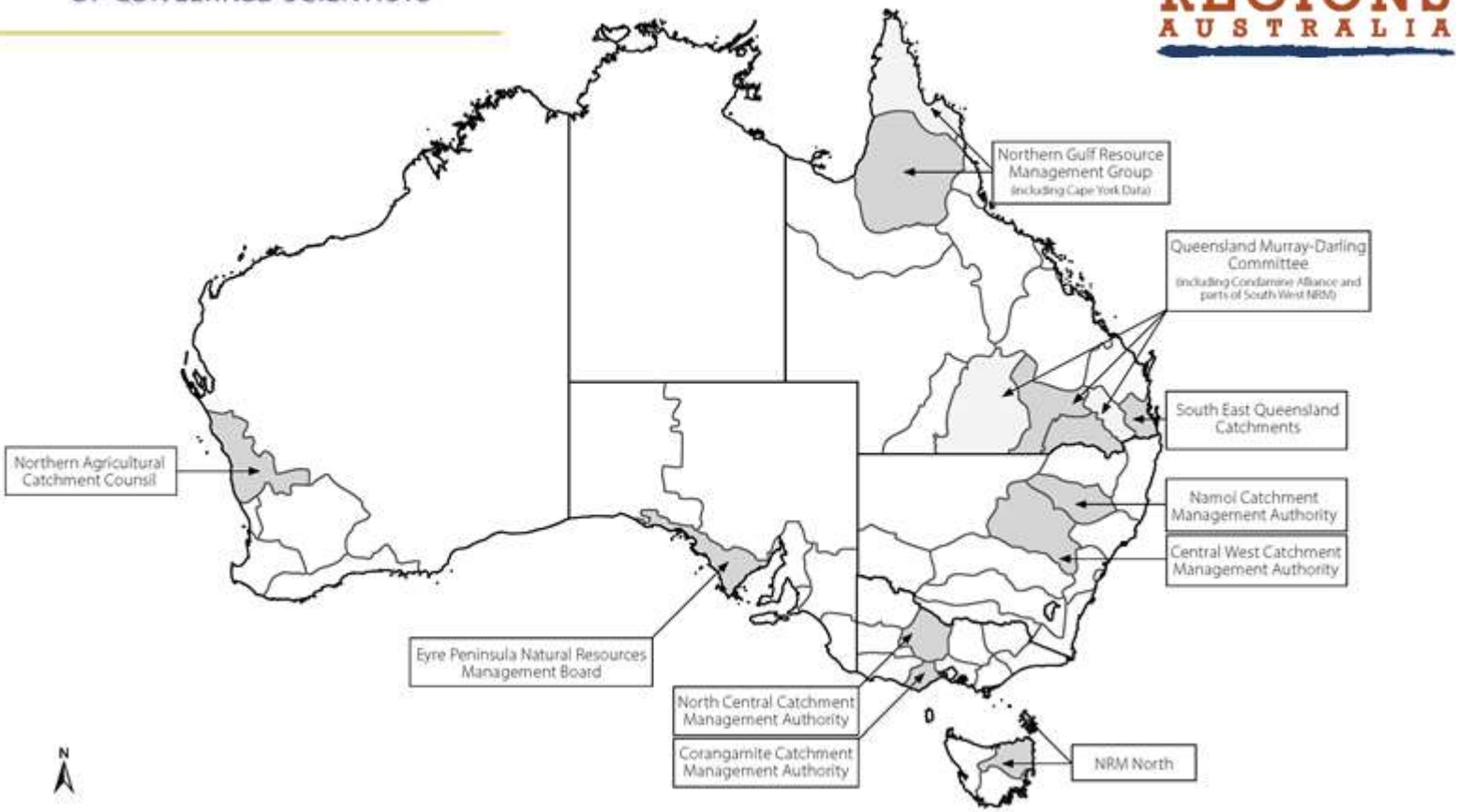
NRM REGIONS AUSTRALIA



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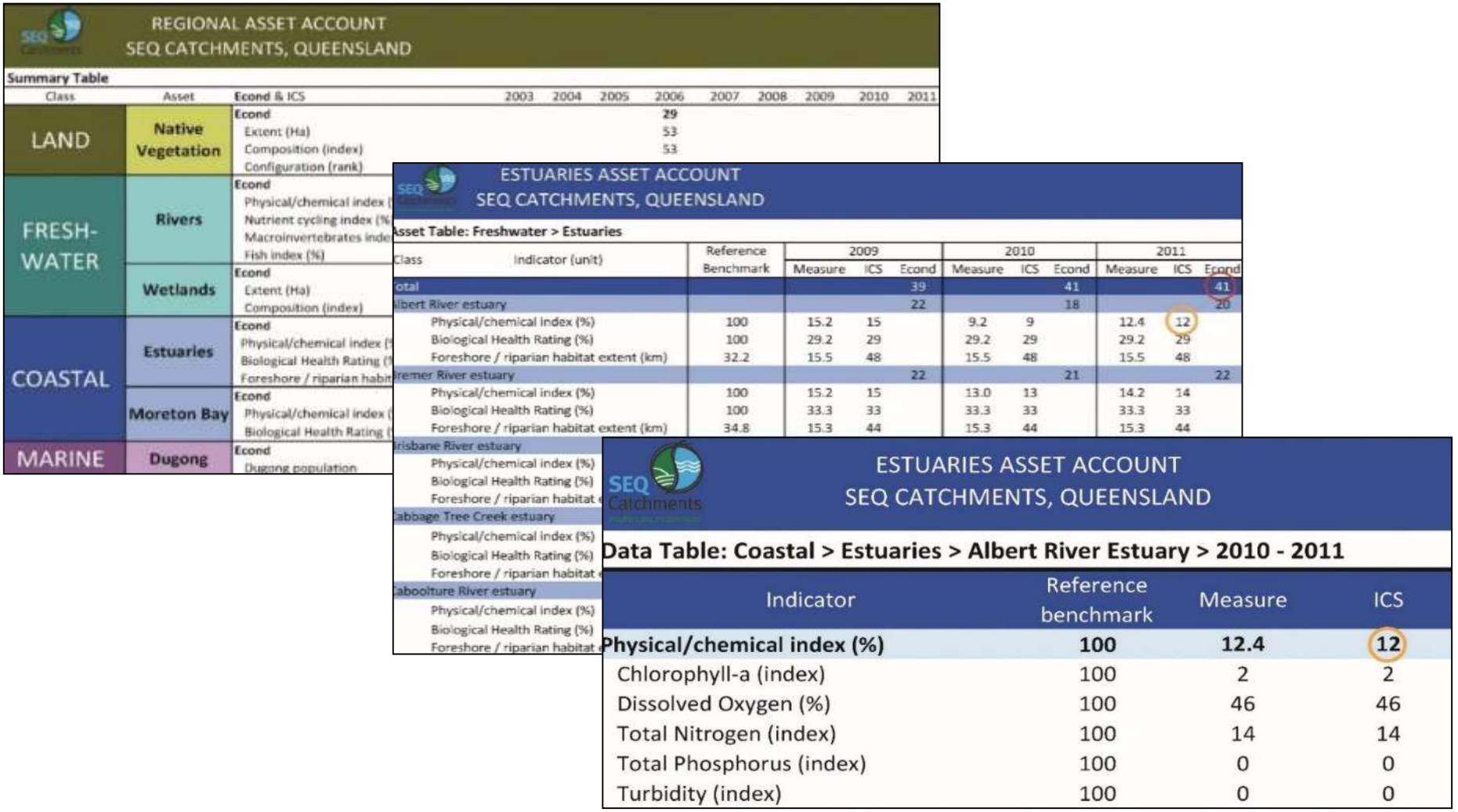
Accounting Tables



REGIONAL ASSET ACCOUNT
SEQ CATCHMENTS, QUEENSLAND

Summary Table

Class	Asset	Econd & ICS	2003	2004	2005	2006	2007	2008	2009	2010	2011
LAND	Native Vegetation	Econd				29					
		Extent (Ha)				53					
		Composition (index)				53					
		Configuration (rank)									
FRESH-WATER	Rivers	Econd									
		Physical/chemical index (									
		Nutrient cycling index (%									
		Macroinvertebrates inde									
		Fish index (%)									
	Wetlands	Econd									
		Extent (Ha)									
		Composition (index)									
COASTAL	Estuaries	Econd									
		Physical/chemical index (									
		Biological Health Rating (									
		Foreshore / riparian habit									
	Moreton Bay	Econd									
		Physical/chemical index (									
		Biological Health Rating (									
MARINE	Dugong	Econd									
		Dugong population									

ESTUARIES ASSET ACCOUNT
SEQ CATCHMENTS, QUEENSLAND

Asset Table: Freshwater > Estuaries

Class / Indicator (unit)	Reference Benchmark	2009 Measure	2009 ICS	2009 Econd	2010 Measure	2010 ICS	2010 Econd	2011 Measure	2011 ICS	2011 Econd
otal				39			41			41
lbert River estuary				22			18			20
Physical/chemical index (%)	100	15.2	15		9.2	9		12.4	12	
Biological Health Rating (%)	100	29.2	29		29.2	29		29.2	29	
Foreshore / riparian habitat extent (km)	32.2	15.5	48		15.5	48		15.5	48	
remer River estuary				22			21			22
Physical/chemical index (%)	100	15.2	15		13.0	13		14.2	14	
Biological Health Rating (%)	100	33.3	33		33.3	33		33.3	33	
Foreshore / riparian habitat extent (km)	34.8	15.3	44		15.3	44		15.3	44	
risbane River estuary										
Physical/chemical index (%)										
Biological Health Rating (%)										
Foreshore / riparian habitat										
abbage Tree Creek estuary										
Physical/chemical index (%)										
Biological Health Rating (%)										
Foreshore / riparian habitat										
aboolture River estuary										
Physical/chemical index (%)										
Biological Health Rating (%)										
Foreshore / riparian habitat										

ESTUARIES ASSET ACCOUNT
SEQ CATCHMENTS, QUEENSLAND

Data Table: Coastal > Estuaries > Albert River Estuary > 2010 - 2011

Indicator	Reference benchmark	Measure	ICS
Physical/chemical index (%)	**100**	**12.4**	**12**
Chlorophyll-a (index)	100	2	2
Dissolved Oxygen (%)	100	46	46
Total Nitrogen (index)	100	14	14
Total Phosphorus (index)	100	0	0
Turbidity (index)	100	0	0

Native Vegetation

Eyre Peninsula, South Australia

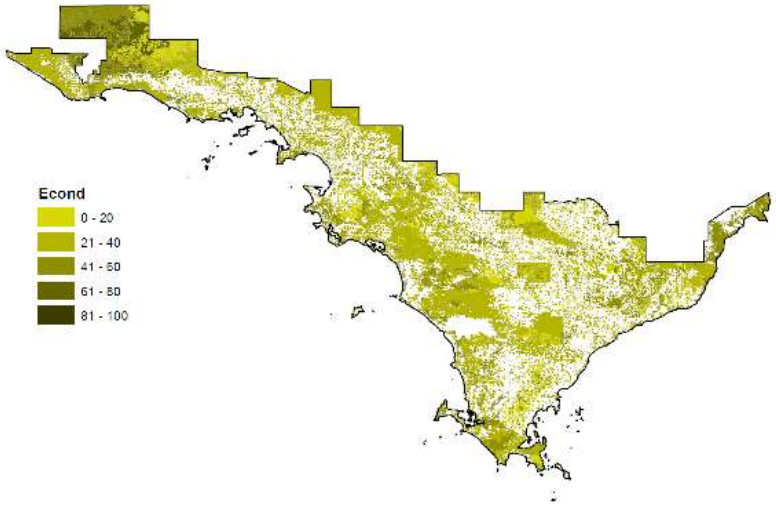
Native Vegetation Account

NATIVE VEGETATION ASSET ACCOUNT, 2012
EYRE PENINSULA, SOUTH AUSTRALIA

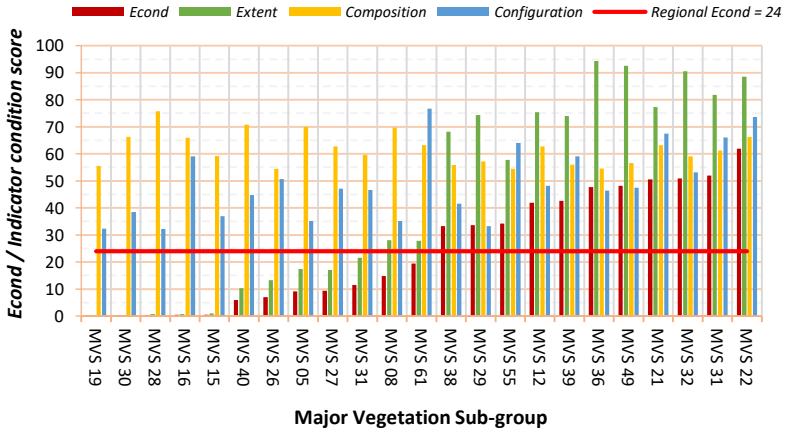
Asset Table: Land > Native Vegetation

Class (Major vegetation subgroup MVS) / Indicator (unit)	Reference Benchmark	2012 Measure	2012 Indicator Condition Score	2012 Econd
Total				24
Arid & semi-arid acacia low open woodlands & shrublands with chenopods MVS 22				62
Extent (Ha)	186,558	165,245.94	89	
Composition (index)	100	66.30	66	
Configuration (index)	100	73.62	74	
Arid & semi-arid hummock grasslands MVS 31				11
Extent (Ha)	23,320	5,012.70	21	
Composition (index)	100	59.67	60	
Configuration (index)	100	46.67	47	
Callitris forests & woodlands MVS 12				42
Extent (Ha)	23,320	17,594.58	75	
Composition (index)	100	62.80	63	
Configuration (index)	100	48.17	48	

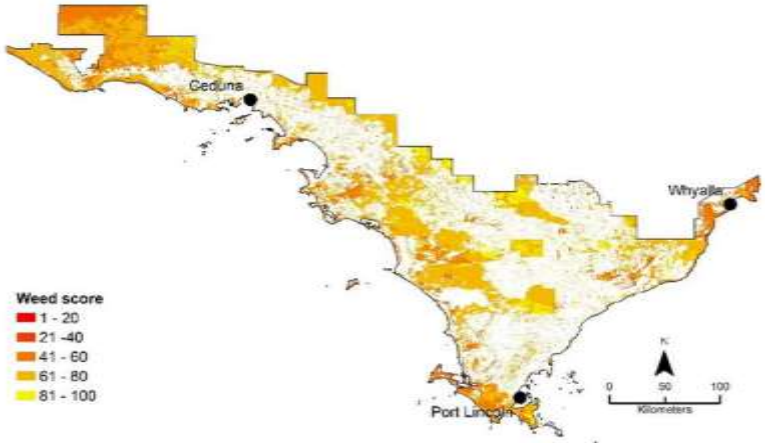
Map showing asset condition



Detailed components



Map showing impact of weeds



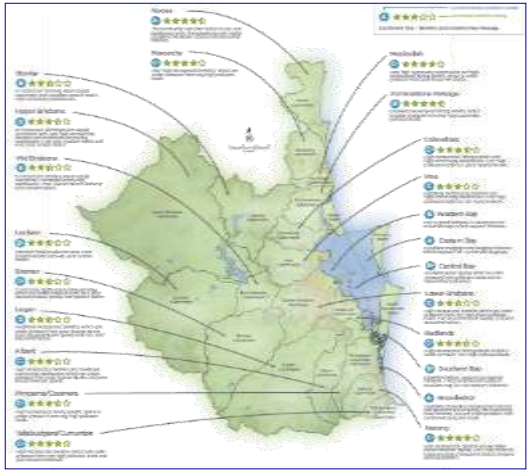
Method developed by: Wentworth Group of Concerned Scientists, SA Dept. of Environment and Natural Resources, Eyre Peninsula NRM Board, and the Nature Conservation Society of S.A.

Rivers

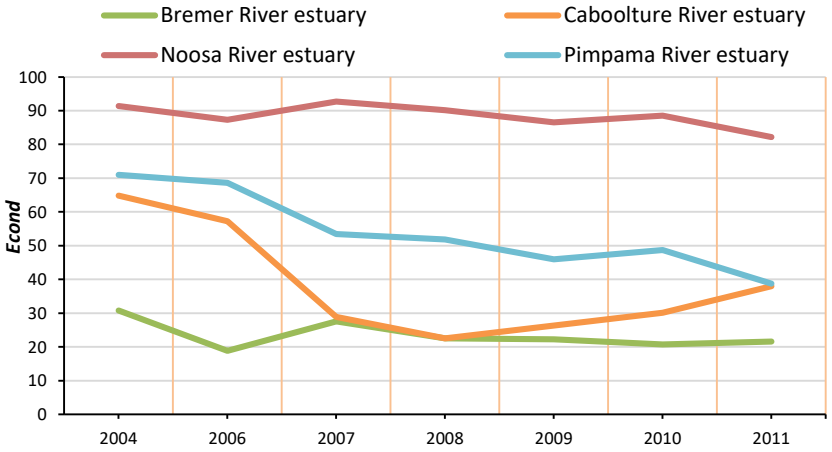
South East Queensland Region

River Condition Account

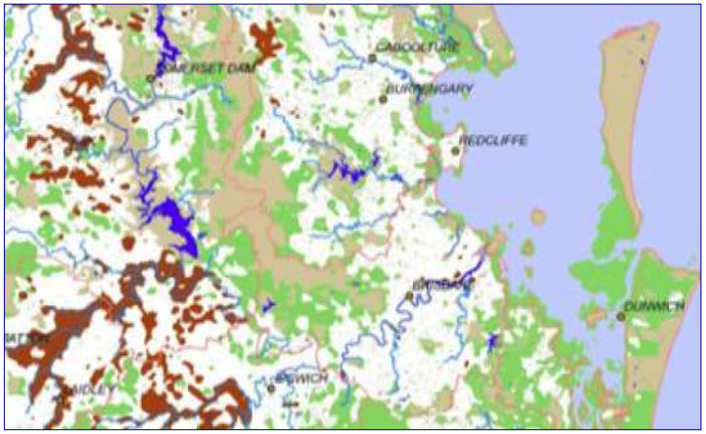
Reporting progress



Change in condition over time



Investment priorities



Method developed by:
SEQ Healthy Land and Water

Productive Soils

Queensland Murray Darling Region

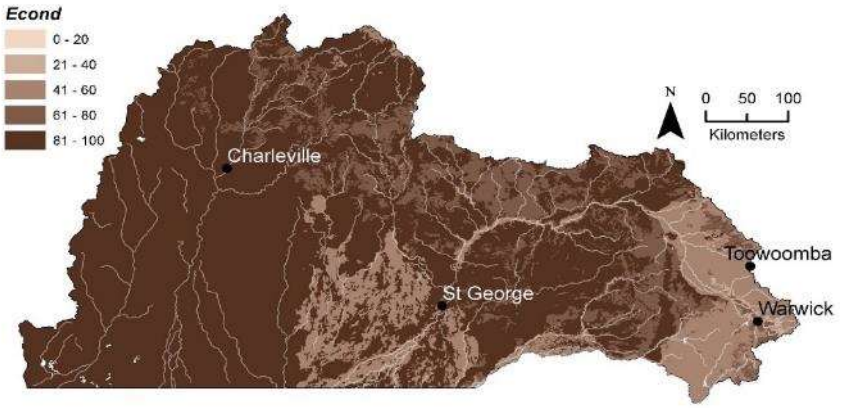
Soil Condition Account

SOIL ASSET ACCOUNT
QUEENSLAND MURRAY-DARLING, QUEENSLAND

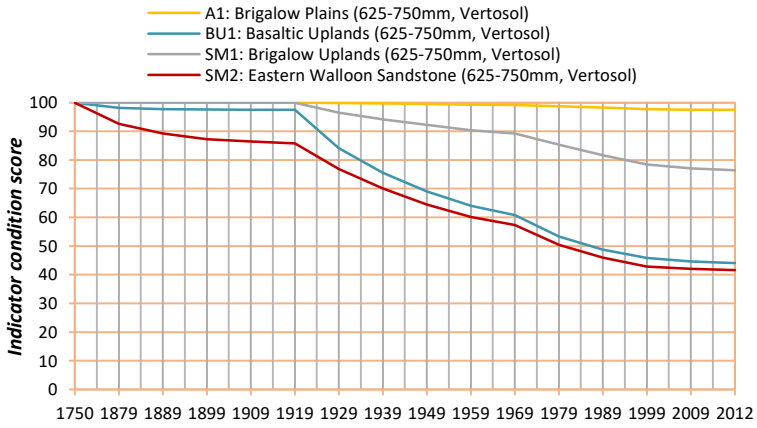
Asset Table: Land > Soil

Class (Landscape, Rainfall zone, ASC soil order)	Indicator (unit)	Reference Benchmark	2015 Measure	2015 Indicator Condition Score	2015 Econd
Total					83
A1: Brigalow Plains					84
625mm					81
Dermosol					97
	pH	7.50	6.20	100	
	Water erosion	3421.33	3307.46	97	
	Salinity	0	1	100	
	Carbon	1.6	1.6	100	
Sodosol					96
	pH	7.30	7.00	100	
	Water erosion	3365.17	3244.18	96	
	Salinity	0	0	100	
	Carbon	1.7	1.7	100	
Vertosol					77
	pH	4.85	7.20	100	
	Water erosion	4361.67	4303.22	99	
	Salinity	0	0	100	
	Carbon	1.5	1.2	77	

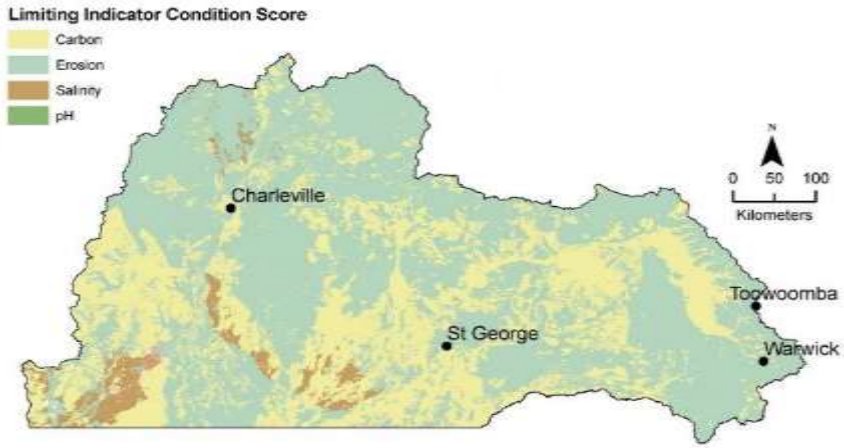
Soil condition across the region



Trend in soil erosion



Major causes of loss in condition



Method developed by: CSIRO, with assistance from Queensland Murray Darling Committee, and Queensland Department of Agriculture

Australian Wildlife

Central West, New South Wales

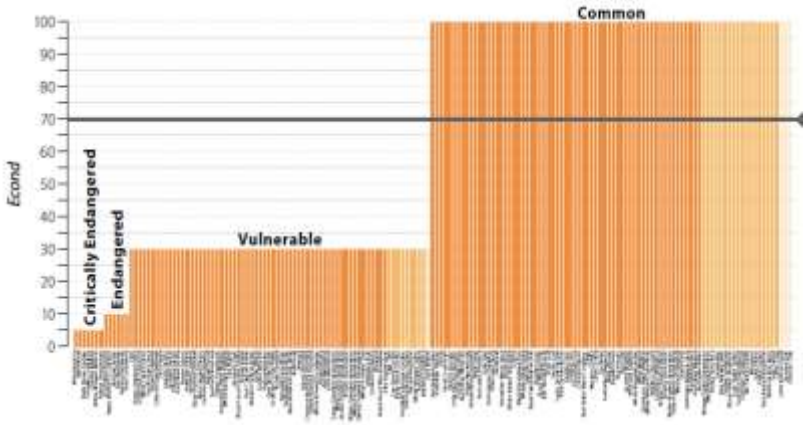
Native Animals Account

ASSET ACCOUNT
LAND > NATIVE FAUNA

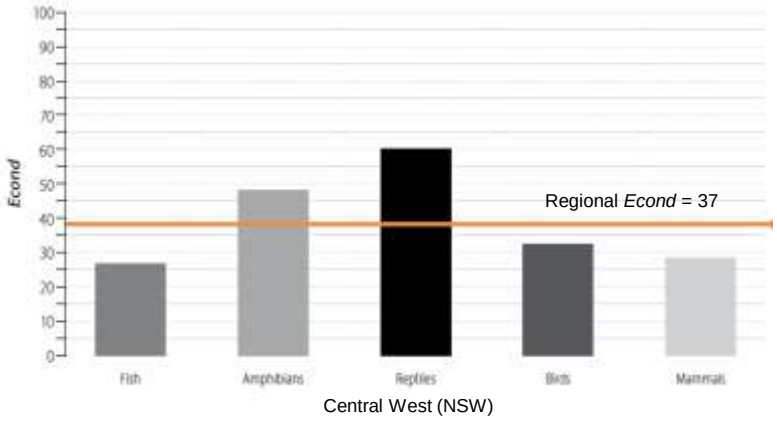
Summary Table

Class	Asset	Region	2007	2012
LAND	Native Fauna	Northern Agricultural Catchments Council (WA)		75
		Birds		75
		Residents		60
		Regular Visitors		81
		Irregular Visitors		84
		Central West CMA (NSW)	39	
		Birds	28	
		Residents	36	
		Regular Visitors	27	
		Irregular Visitors	22	
		Mammals	32	
		Amphibians	48	
		Reptiles	60	
		Fish	27	

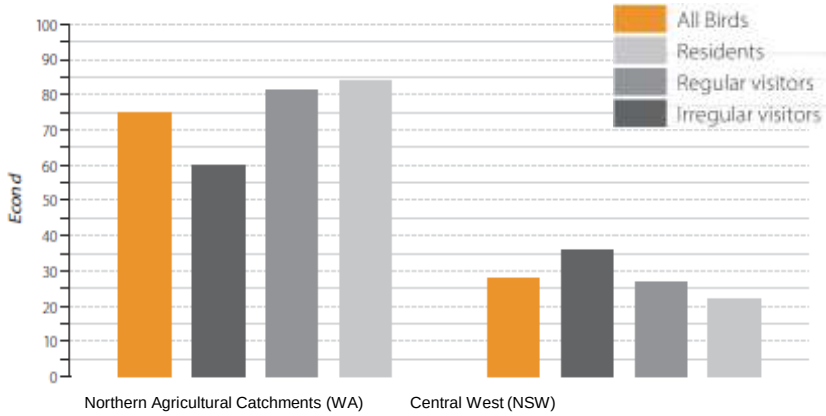
Status of Individual Species



Condition of different groups

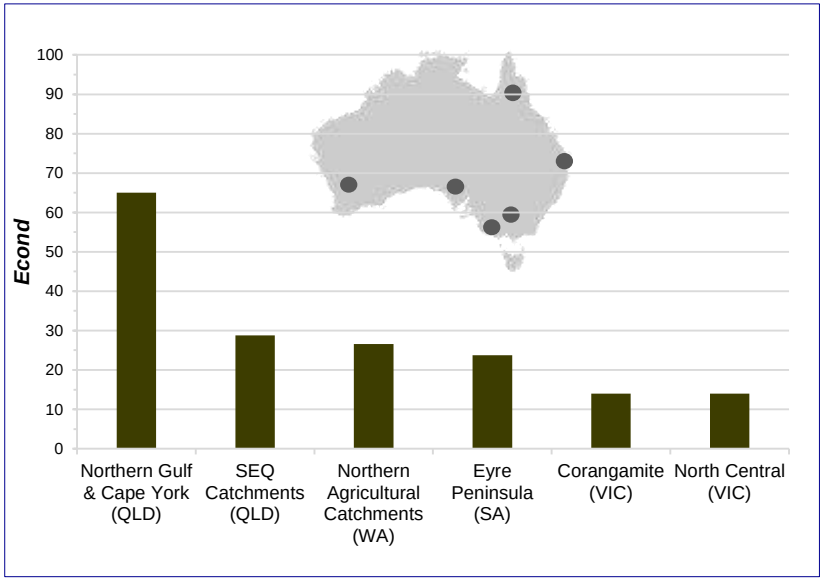


Comparison between regions

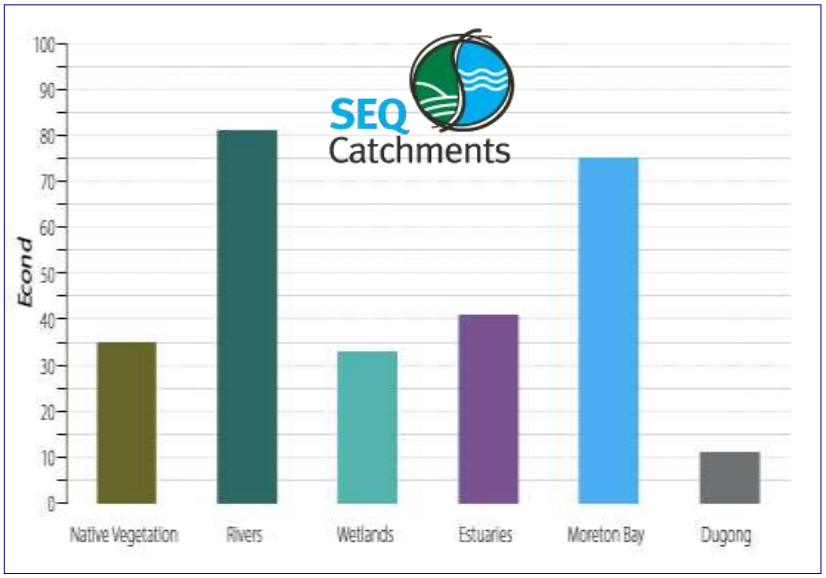


Simplifying Complex Information

Similar assets in different landscapes



Different assets within a landscape



The National Environmental Accounts of Australia

Summary Table

REGIONAL ENVIRONMENTAL ASSET ACCOUNT – SEQ CATCHMENTS, QUEENSLAND

Class	Asset	Econd & ICS	2003	2004	2005	2006	2007	2008	2009	2010	2011
LAND	Native Vegetation	Econd				29					
		Extent				53					
		Composition				53					
		Configuration									
FRESHWATER	Rivers	Econd	74				70	76	78	79	81
		Physical/chemical index	82				77	84	85	86	91
		Nutrient cycling index	64				60	75	70	73	61
		Macroinvertebrates index	76				69	74	79	82	88
		Fish index	62				68	65	69	71	76
COASTAL	Estuaries	Econd		57		55	42	44	39	41	41
		Physical/chemical index	51	57		57	39	40	34	36	37
		Biological Health Rating		58		51	50	53	51	53	49
		Foreshore/riparian habitat extent					48	51	51	51	51
	Moreton Bay	Econd		87	83	82	81	81	68	75	75
		Physical/chemical index		90	85	84	83	82	69	78	77
		Biological Health Rating		73	74	74	74	75	64	64	66

Asset Table

ESTUARIES ASSET TABLE – SEQ CATCHMENTS, QUEENSLAND

Class/Indicator (unit)	Reference Benchmark	2009			2010			2011		
		Measure	ICS	Econd	Measure	ICS	Econd	Measure	ICS	Econd
TOTAL				39			41			41
Albert River estuary				22			18			20
Physical/chemical index	100	15.2	15		9.2	9		12.4	12	
Biological Health Rating	100	29.2	29		29.2	29		29.2	29	
Foreshore/riparian habitat	32.2	15.5	48		15.5	48		15.5	48	
Bremer River estuary				22			21			22
Physical/chemical index	100	15.2	15		13.0	13		14.2	14	
Biological Health Rating	100	33.3	33		33.3	33		33.3	33	
Foreshore/riparian habitat	34.8	15.3	44		15.3	44		15.3	44	
Brisbane River estuary				30			31			32
Physical/chemical index	100	26.2	26		24.8	25		29.4	29	
Biological Health Rating	100	47.2	47		55.6	56		47.2	47	
Foreshore/riparian habitat	160.6	51.4	32		51.4	32		51.4	32	

Every region

Every major asset

Every year

Data Table

ESTUARIES DATA TABLE – SEQ CATCHMENTS, QUEENSLAND

Albert River estuary	Reference Benchmark	2010–2011	
		Measure	ICS
Physical/chemical index	**100**	**12.4**	**12**
Chlorophyll-a	100	2	2
Disolved Oxygen	100	46	46
Total Nitrogen	100	14	14
Total Phosphorus	100	0	0
Turbidity	100	0	0
Biological Health Rating	**100.0**	**29.2**	**29**
Mixing Plots	3	1	33
15N	4	1	25
Foreshore/riparian habitat extent	**32.3**	**15.5**	**48**
Total Foreshore/riparian habitat extent	32.29	15.50	48

Balance Sheet

RIVERS BALANCE SHEET – SEQ CATCHMENTS, QUEENSLAND

Class/Indicator (unit)	ICS1 Physical	ICS2 Nutrients	ICS3 Eco Process	ICS4 Insects	ICS5 Fish	Econd
All Rivers in SEQ						
Opening stock (2010)	86	73	81	82	71	**79**
Closing stock (2011)	91	61	89	88	76	**81**
Net Change	+5	-12	+8	-6	+5	+2
Noosa River						
Opening stock (2010)	94	96	88	86	81	**89**
Closing stock (2011)	97	100	95	92	86	**94**
Net Change	+3	+4	+7	+6	+5	+5
Brisbane River						
Opening stock (2010)	95	29	91	93	100	**81**
Closing stock (2011)	96	20	72	77	95	**72**
Net Change	+1	-9	-19	-16	-5	-9