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Supplementary information

The 'Great Southern Reef': socio-ecological and economic value of Australia's neglected kelp forests

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Table S1. Summary of the area, length and human population residing within or along the Great Southern Reef and Australia's other large iconic natural wonders

Size values for the GSR are reported for 30-m, 50-m and 100-m depth contours

Ecosystem	Size (km^2) by depth zone	Coastline length (km)	Human population	Source
Great Southern Reef	478 139 (0–100 m) 184 388 (0–50 m) 71 389 (0–30 m)	~8100	15 890 000	R. Hovey, unpubl. data
Great Barrier Reef	344 400	2300	1 040 000	www.gbrmpa.gov.au
Ningaloo Reef (Cape Range National Park)	506	300	~2500	ningaloo-atlas.org.au
Shark Bay	22 000	1500	~1000	www.sharkbay.org
The Kimberley	424 517	–	38 000	www.kimberleyaustralia.com
Murray–Darling Basin	1 059 000	1365	~2 000 000	www.mdba.gov.au
Tasmanian Wilderness World Heritage Area	15 840	–	–	www.parks.tas.gov.au/index.aspx?base=391
Kakadu National Park	19 804	200	~2000	www.environment.gov.au/parks/kakadu

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Table S2. Diversity, endemism and global diversity ranking (GDR) of phyla found on the Great Southern Reef

Data for GDR derived from global data provided in the sources

Kingdom	Phylum	Common name	Species diversity	Endemism (%)	GDR	Sources
Protista	Rhodophyta	Red seaweed	565	77%	1	Bolton 1994; Kerswell 2006; Phillips 2001
	Phaeophyta	Brown seaweed	219	59%	1	
	Chlorophyta	Green seaweed	124	40%	1	
Animalia	Porifera	Sponges	1163	56%	3	Cork *et al*. 2006; Van Soest *et al*. 2012
	Chordata	Fishes	731			Stuart-Smith *et al*. 2013
		Ascidians	353	40%	2	Kott 2006; Primo and Vázquez 2008; Shenkar and Swalla 2011
	Arthropoda	Isopods	541		1	Poore and Bruce 2012
	(Crustacea)	Decapods: lobsters, crabs and prawns	390			O'Hara and Poore 2000
	Echinodermata	Echinoderms: urchins, seastars (brittle	350			O'Hara and Poore 2000
		stars)	(235[A])	(~22%)	–3	Stöhr *et al*. 2012
	Bryozoa	Bryozoans	546	38%	3	Barnes and Griffiths 2008
	Mollusca	(Bivalves) Gastropods, Cephalopods,	–757	59%[A]	–4	Alistair Crame 2000; Benkendorff and Davis 2002
			?	?	?	

[A]Estimated from localised sampling (Benkendorff and Davis 2002).

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Table S3. Commercial catch, gross production value (GPV) and proportion of gross state product (GSP) of rock lobster and wild-caught abalone on the Great Southern Reef (GSR) for the most recent period available

Species	Region	Commercial catch (tonne)	Estimated GPV (AUD$, $\times 10^6$)	Percentage of GSP	Source
Rock lobster	WA	5947	184.1	0.1%	www.fish.wa.gov.au
Panulirus cygnus					www.abs.gov.au
Rock lobster	SA	1554	85.83	0.1%	
Jasus edwardsii	Vic.	274	14.42	0.005%	
	Tas.	1302	65.22	0.28%	
	NSW	122	6.75	0.002%	
Abalone	WA	284	10	0.005%	www.fish.wa.gov.au
Haliotis roei					
Haliotis conicopora					
Haliotis laevigata					
Abalone	SA	815	28	0.033%	www.sardi.sa.gov.au/
Haliotis rubra	Vic.	283	??	n/a	www.vada.com.au
Haliotis laevigata	Tas.	2443	97	0.412%	www.tsic.org.au
Abalone	NSW	73	1.9	<0.001%	www.abs.gov.au
Haliotis rubra					
Total	GSR		493.22	0.049%	

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Table S4. Summary of total tourism expenditure in coastal regions along the Great Southern Reef (GSR) based on 2007–08 data

Values represent all tourism expenditure, not only values directly associated with the GSR. Bold formatting represents the GSR combined totals and italic formatting represents the GBR (i.e. non-GSR regions). Metropolitan regions in New South Wales are Sydney, Wollongong and Newcastle, Adelaide in South Australia, Melbourne in Victoria and Perth in Western Australia. All values have been extracted from Tourism Research Australia (2011)

		Total tourism expenditure (AU$ year^{-1}, $\times 10^6$)	Mean economic importance (%)
NSW	Metropolitan	11 751	2.4
	Regional	4809	5.7
SA	Metropolitan	2325	1.7
	Regional	1130	6.3
Tas.	Regional	679	9.4
Vic.	Metropolitan	9646	2.4
	Regional	1905	9.1
WA	Metropolitan	4474	1.6
	Regional	1306	4.8
GSR	**Metropolitan Total**	**28 196**	**2.4**
	Regional Total	**9829**	**7.4**
	Overall Total	**38 025**	**6.2**
GBR	*Total*	*5608 (6410)*[A]	*6.6*

[A]Tourism value of GBR in parentheses indicates estimate by Deloitte Access Economics (2012).

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Table S5. Effort and economic value of recreational fishing in coastal waters along the Great Southern Reef

Coastal waters are defined as those up to 5 km offshore. Bold formatting represents the GSR combined totals and italic formatting represents the GBR (i.e. non-GSR regions). All values taken from Henry and Lyle (2003)

Region	Number of participants (percentage of state population)	Percentage of total effort applied in coastal waters	Total number of fishing days	Number of coastal water fishing days	Total direct recreational fishing revenue (AU$ year^{-1}, ×10^{6})	Coastal waters recreational fishing revenue (AU$ year^{-1}, ×10^{6})
NSW	998 500 ± 33 686 (17.1%)	27%	6 879 000	1 680 000	550	148.5
Vic.	549 803 ± 23 892 (12.7%)	13%	2 640 000	343 200	396.27	51.51
Tas.	124 590 ± 4154 (29.3%)	52%	816 000	424 320	51.86	26.97
SA	32 227 ± 13 716 (24.1%)	72%	1 944 000	1 399 680	148.48	106.90
WA[A]	454 885 ± 17 330 (28.5%)	65%	3 367 000	2 188 550	338.38	219.95
GSR				**6 035 750**		**553.83**
GBR	*296 632 ± 24 295 (24.7%)*	*43%*	*4 651 000 (3 500 000)*	*1 999 930*	*332*	*142.76*

[A]WA figures include only the recreational fishing population living south of Kalbarri.

[B]Fishing day estimates for GBR represent entire state estimated from Henry and Lyle (2003) and GBR specific in brackets estimated by Delloitte Access Economics (2012).

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Table S6. Reporting of news items concerning coral reefs, temperate reefs, coral and kelp in various Australian news outlets

News outlet	Coral reef	Temperate reef	Coral	Kelp	Coral focus (%)	Kelp focus (%)
Tasmania						
The Mercury (www.themercury.com.au)[A]	9	2	180	9	95.2	4.8
The Examiner (www.theexaminer.com.au)[A]	31	3	260	8	97.0	3.0
Victoria						
The Age (www.theage.com.au)[A]	1075	35	2649	143	94.9	5.1
The Herald Sun (www.heraldsun.com.au)[A]	1870	21	28 600	73	99.7	0.3
Australian Financial Review (www.afr.com.au)[A]	30	0	27	2	93.1	6.9
South Australia						
The Advertiser (www.adelaidenow.com.au)[A]	1770	23	20 400	59	99.7	0.3
Western Australia						
The West Australian (www.thewest.com.au)[A]	126	32	387	12	97.0	3.0
Perth Now (www.perthnow.com.au)	3430	25	43 700	68	99.8	0.2
New South Wales & Australian Capital Territory						
Sydney Morning Herald (www.smh.com.au)[A]	1099	34	2680	145	94.9	5.1
The Daily Telegraph (www.dailytelegraph.com.au)[A]	2760	31	29 400	91	99.7	0.3
The Australian (www.theaustralian.com.au)[A]	838	45	27 300	1880	93.6	6.4
The Herald (www.theherald.com.au)[A]	111	22	510	9	98.3	1.7
The Canberra Times (www.canberratimes.com.au)	749	28	1722	101	94.5	5.5
Queensland						
Courier-Mail (www.couriermail.com.au)	2940	9	99 900	90	99.9	0.1
The Gold Coast Bulletin (www.goldcoastbulletin.com.au)	478	6	1070	7	99.4	0.6
National						
ABC News online (http://www.abc.net.au)	2754	2146	1656	68	96.1	3.9

[A]Denotes news outlets from areas immediately adjacent to the GSR, 'Great Southern Reef'.

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