Great Barrier Reef and the Coral Sea - marine parks and draft management plans

David Booth



Outline

What is the Great Barrier Reef and why is it worth protecting?

Threats to the Great Barrier Reef

Spatial management on the GBR

• The Coral Sea management plans, 2012-2018









AREA 344,400 km²

LENGTH 2300 km long 70 million football fields

Roughly the same area as...







MALAYSIA

3000 coral reefs

600 continental islands



1625 types of fish



133 varieties of sharks and rays



600 types of soft and hard corals



The Sydney Morning Herald

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ENVIRONMENT

Great Barrier Reef valued at \$56 billion by Deloitte economists

By Adam Gartrell

Updated 26 June 2017 -12:35am, first published at 12:15am













The Great Barrier Reef is worth \$56 billion.

That's the "total asset value" according to a new Deloitte Access Economics report that calculates the World Heritage site's full economic, social and iconic brand value for the first time.







Threats to the GBR



Climate change



Poor water quality



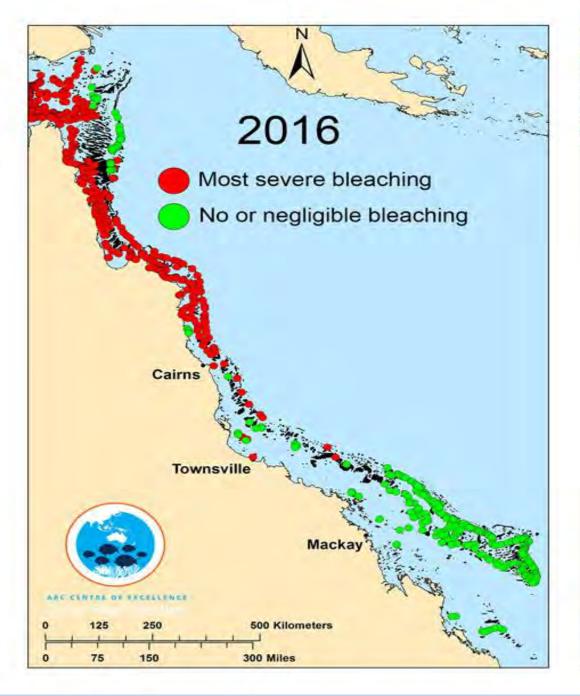
Coastal development

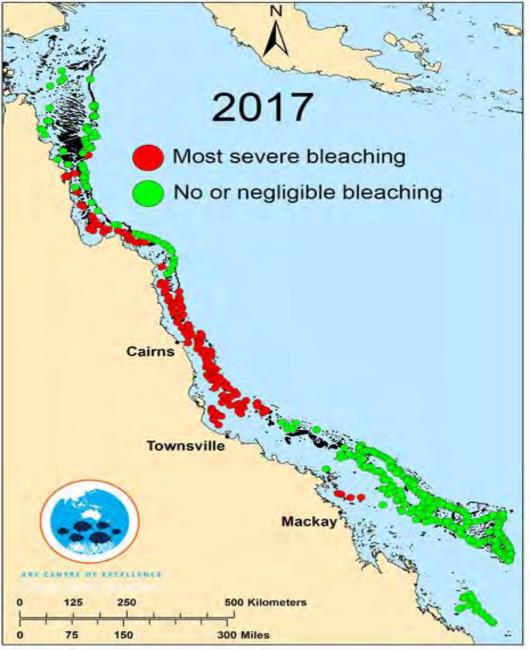


Fishing



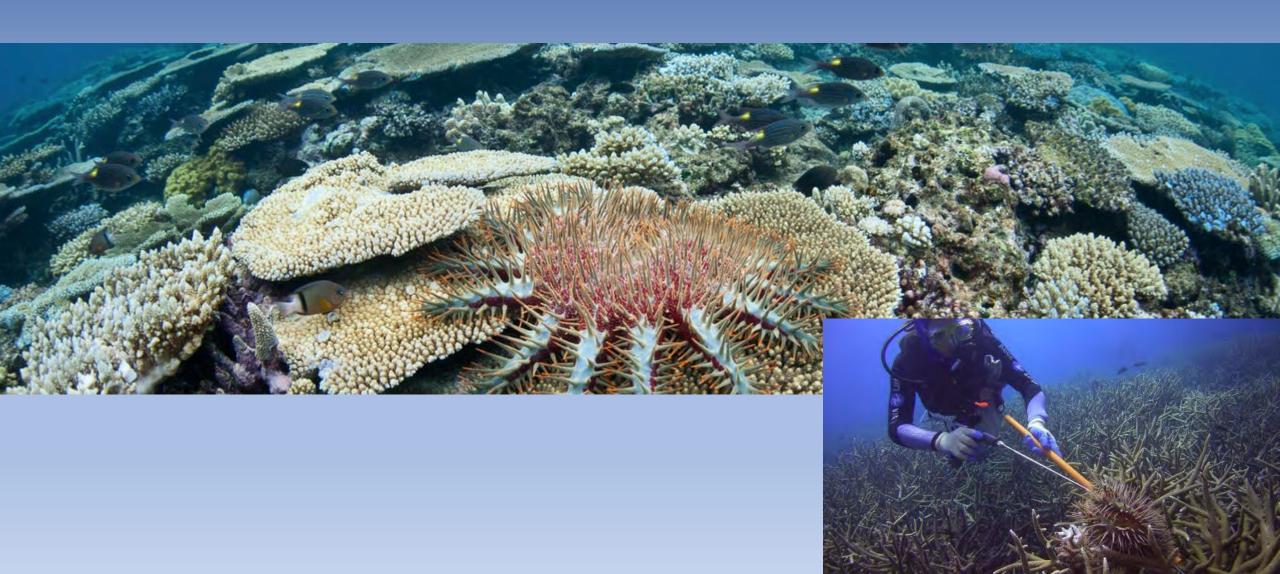


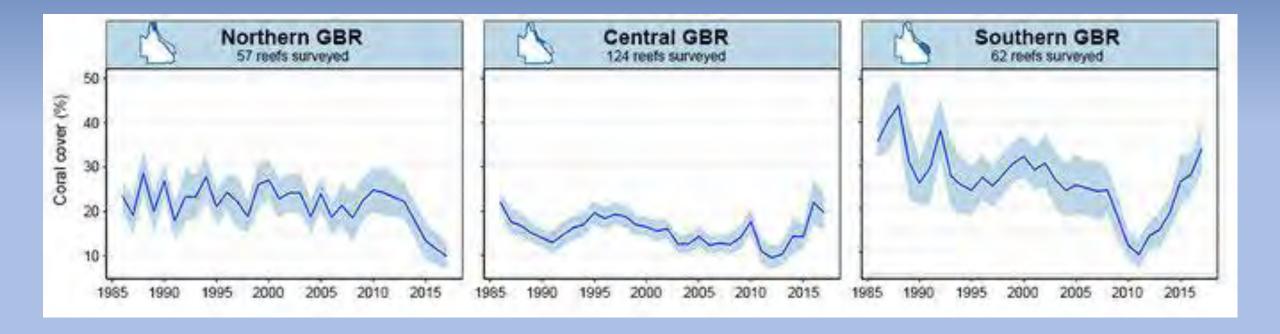


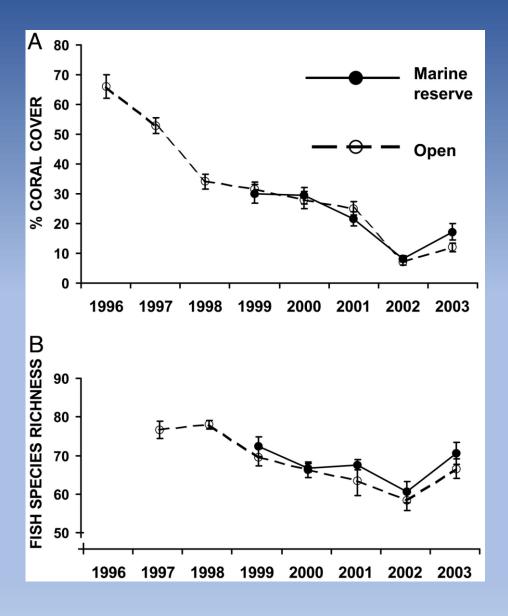


Coral death in Australia's **Great Barrier Reef** PAPUA GUINEA FAR NORTH (offshore): 26% dead on average -NORTH: 67% dead on average (Reefs range between 47 and Port Douglas 83 per cent dead) CENTRAL: 6% dead on average 200 km AUSTRALIA 1000 km AREA SOUTH: AUSTRALIA 1% dead Sydney Brisbane 4 TORONTO STAR GRAPHIC

Crown-of-Thorns seastar







a 60 50 Coral cover (%) 30 20 b 500 Cumulative number of reefs 400 Bleaching COTS outbreaks 300 200 100-2000 1960 1970 1980 1990 Year

Jones et al 2004

Bellwood et al



Effects of Fishing







Effects of Fishing



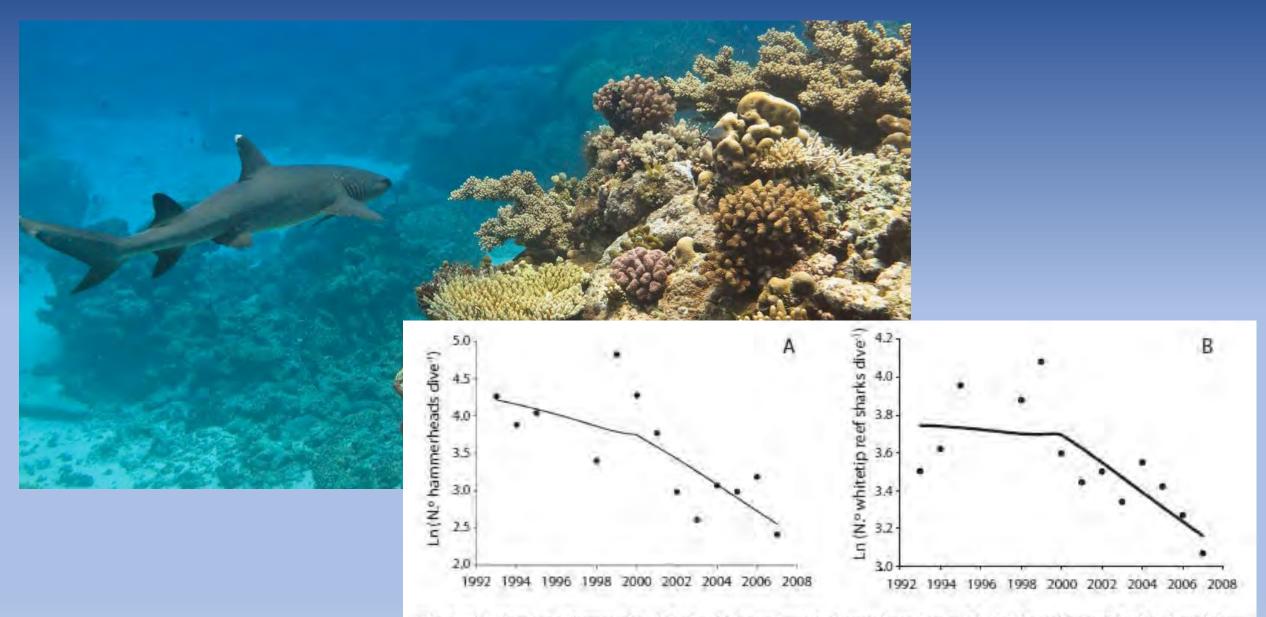
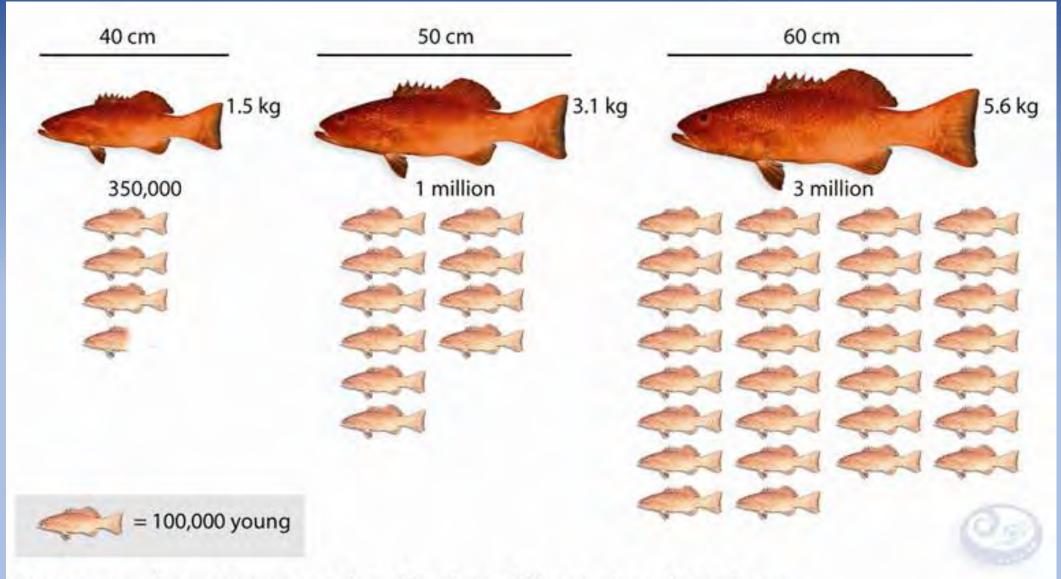


Fig. 7. (A). Number of hammerhead sharks (Sphyma lewini) observed per dive at Isla del Coco National Park (adapted from Sibaja-Cordero 2006). (B) Number of whitetip reef sharks (Triaenodon obesus) observed per dive at Isla del Coco National Park (adapted from Sibaja-Cordero 2006). Trend lines generated using LOESS smoothing function (see text for details).

GBR-wide 20 15 10 PA(IN) Coral trout biomass (kg/1000m²) WH(IN) TO PA(IN) 20 WH(IN) 15 10 CB 5 -1996 2000 2004 2008 2012

More coral trout in no-take areas





Average numbers of young produced by three different sizes of coral trout. Data: Goeden (1978) Queensland Fisheries Service Research Bulletin

Solutions to overfishing

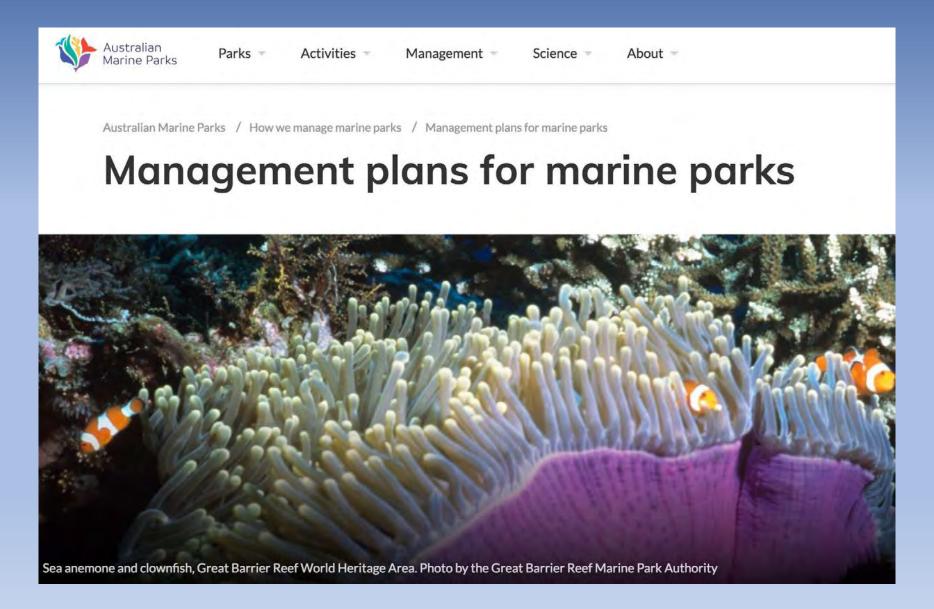
Commercial fishing quotas, prohibited species

Recreational fishing bag limits (numbers, sizes)

Closed seasons

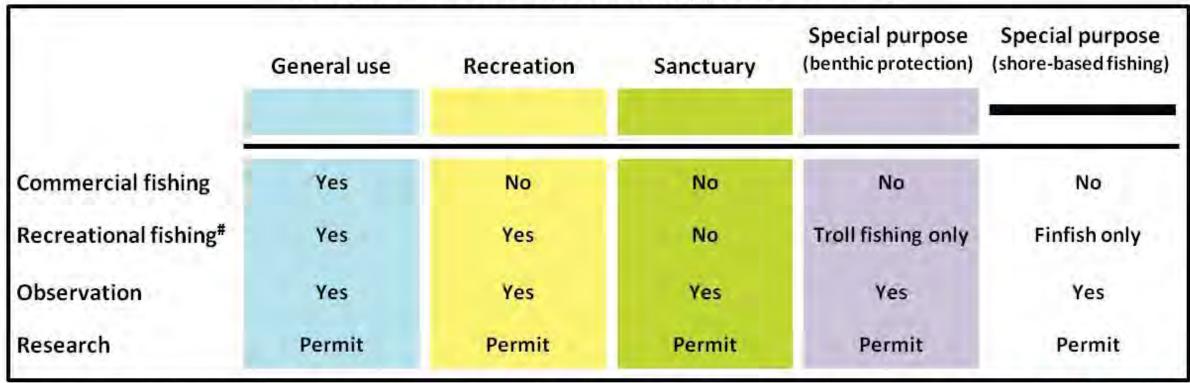
- Spatial management
 - → Multi use Marine parks

Spatial management on the GBR, a history

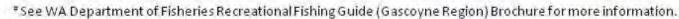


Multiple use zoning

Ningaloo Marine Park Zoning (State Waters)*

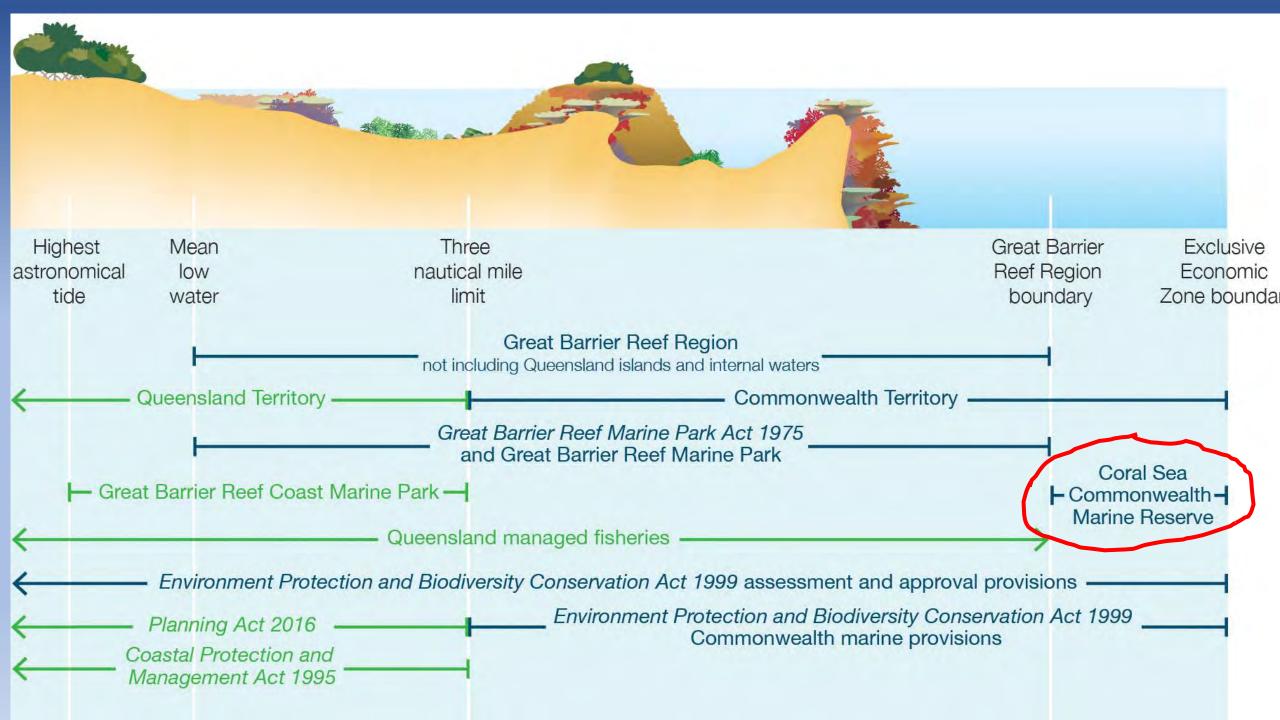


^{*} See WA Department of Environment and Conservation Ningaloo Marine Park Brochure for more information. See Environment Australia Ningaloo Marine Park (Commonwealth Waters) Management Plan for activities permitted in Commonwealth Waters.





ACTIVITIES GUIDE (see relevant Zonling Plans and Regulations for details)	Conse Libra Conse							
Aquaculture	Permit	Permit	Permit 1	×	×	×	×	
Bait netting	1	1	4	×	×	×	×	
Boating, diving, photography	1	1	4	1	12	4	×	
Crabbing (trapping)	1	1	√3	×	×	×	×	
Harvestfishing for aquarlum fish, coral and beachworm	Permit	Permit	Permit 1	×	×	×	×	
Harvest fishing for sea cucumber, trochus, tropical rock lobster	Permit	Permit	×	×	×	×	×	
Limited collecting	V4	14	V4	×	×	×	×	
Limited spearfishing (snorkel only)	4	4	41	×	×	×	Х	
Line fishing	✓ 5	√ 5	√ 6	×	×	×	×	
Netting other than bait netting)	1	1	×	×	×	×	×	
Research (other than limited impact research)	Parmit	Permit	Pernit	Permit	Permit	Permit	Permit	
Shipping (other than in a designated shipping area)	1	Permit	Permit	Permit	Permit	Permit	×	
Tourism programme	Permit	Permit	Permit	Permit	Permit	Permit	×	
Traditional use of marine rescurces	V7	17	V7	47	17	¥7	×	
Trawling	4	×	×	×	×	×	×	
Trolling	√5	√5	√5	₹ 5,8	×	×	×	





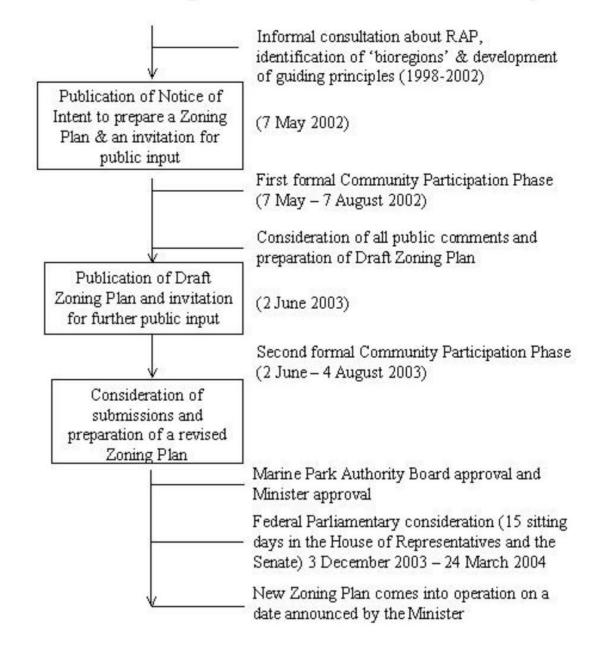
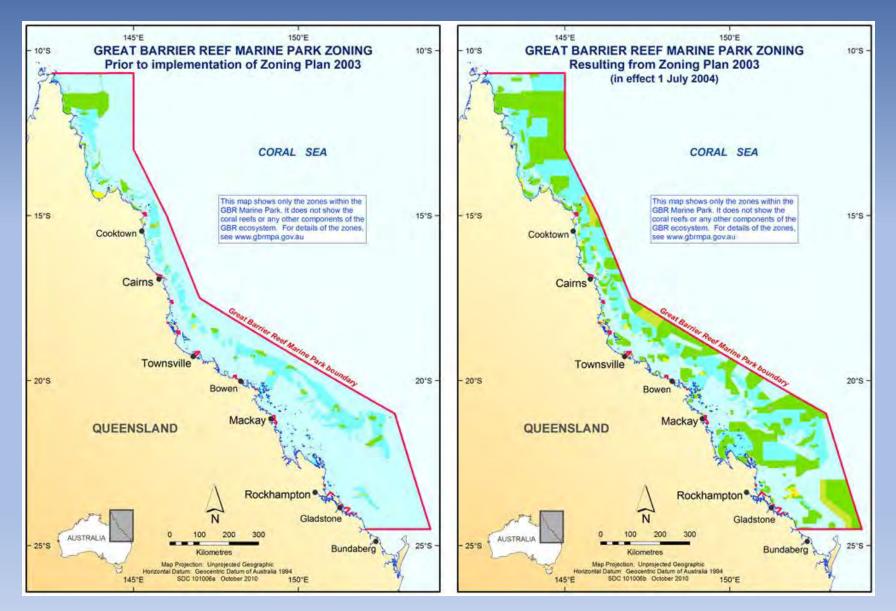


Figure 2. Zoning Plan process

Pre 2004 Post 2004



IUCN category

GBR Zoning

- •1.1 Category Ia Strict Nature Reserve
- •1.2 Category Ib Wilderness Area
- •1.3 Category II National Park



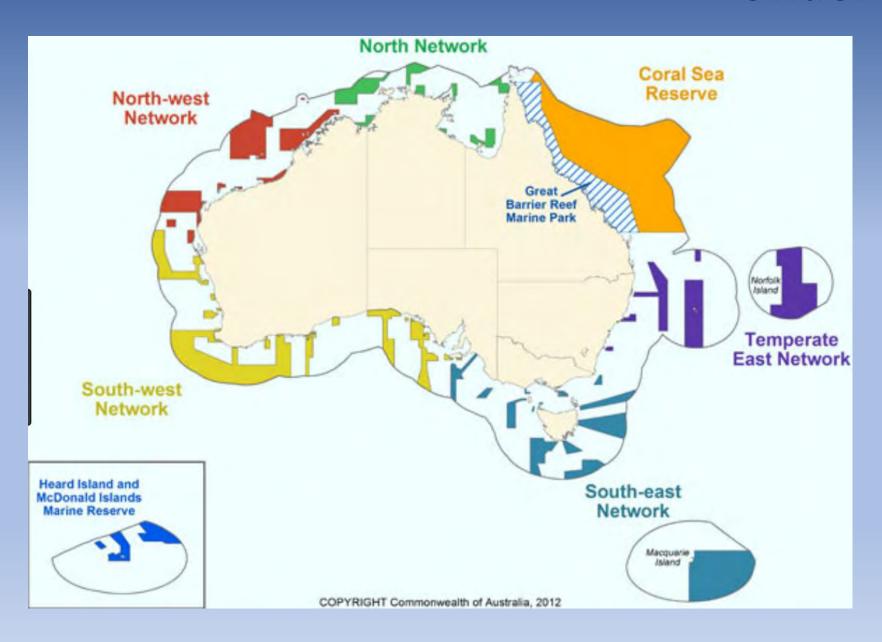
- <u>IUCN Category la</u> with an area of 859 square kilometres (332 sq mi) being about 0.2% of the marine park's area,
- IUCN Category II with an area of 114,309 square kilometres (44,135 sq mi) being about 33%,

- 1.4 Category III Natural Monument or Feature
- •<u>1.5 Category IV Habitat/Species Management</u> Area
- 1.6 Category V Protected Landscape/Seascape
- •<u>1.7 Category VI Protected Area with sustainable</u> use of natural resources

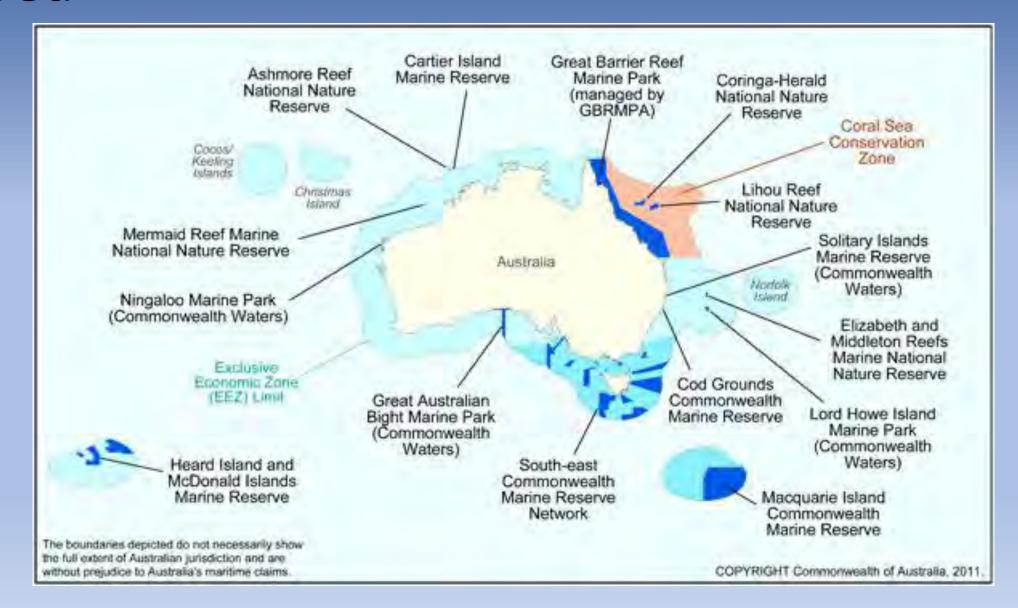
• IUCN Category IV with an area of 15,027 square kilometres (5,802 sq mi) being about 4% and

• IUCN Category VI with an area of 213,769 square kilometres (82,537 sq mi) being about 62%.

Under 7% no-take!!



Coral Sea



Spatial management Coral Sea

2012. Tony Burke Plan of management

2015-2016. Common wealth Marine Reserves Review: Expert Scientific Panel

2017. New draft management plans released endorsed Hon Josh Frydenberg

NOT FOR NAVIGATIONAL PURPOSES Coordinates are expressed in degrees and ninutes. Straight lines of this reserve, other than mentions. and parallels, are dendesty lines (shortest line between portici, they are not true of consum **Princip Floority** Bearing prounds line or bosomeres. Coordinates of products lines latter than gasteful foundary occurrates) have lever produced for indicative purposes only and are appropriate continues of the fruit service may vary eights from those presented here size to the application of more precise methods of data processing Deliff (1974) Collaborative Australian Protected Areas Datalgues Deliff (1974) Australia replaced of Continuousable Manna Reserves. Osmociane Australia (1989) 08/00/65 10/90 2 59 Osmociane Australia (1974) Australian Mathymetry and Thoopraphy Osmociane Australia (1974) Australian Mathymetry and Thoopraphy Osmociane Australia (1974) Australian Mathymetry (1974) 41/9 Osmociane Australia (1974) Australian Mathymetry Proquest by the Environments Resources Information Sensors (ERIN) Augmentary Covenies Desprised of the Environment ID Commonwealth of Augments, 2018 144%

2012

No Take. 50%

Habitat Protection 30%

General Use 20%

PROPER BOOK Jose and Verra Reals, Bouganville Real, Homes Reals. Litou Rest, frecercy Agets, streck Reets, Case Rest, France Deamouri, Diabete Barri, Moore Reefs, Willia Islets. Placen Reels, Tregrosse Reels, Marin Reel, Courses Beets and Special Purpose Zone (Travilli, These imporespectate East Maryle Fingues include additional boundary countrieses.

2018

No Take. 25% (38% CMRP)

Habitat Protection 65%

General Use 10%

Action







Safeguarding Australia's Marine Parks Network: the science case

We, the undersigned scientists, are deeply concerned about the future of the Australian Marine Parks Network and the apparent abandoning of science-based policy by the Australian Government.

On 21 July 2017, the Australian Government released <u>draft management plans</u> that recommend how the Marine Parks Network should be managed. These plans are deeply flawed from a science perspective.



