

T124 Marine management strategies

DRAFT

Adam Richmond

POWER POINT SET 19
DRAFT SLIDE 74



Syllabus statement

At the end of this topic you should be able to ...

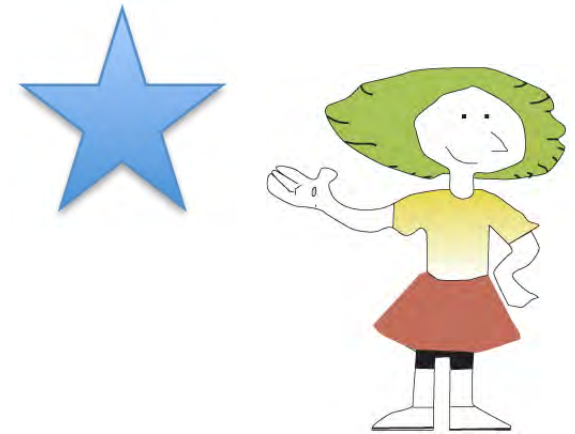
Identify

management strategies used to support marine ecosystem health (e.g. managing threats, zoning, permits, plans, longitudinal monitoring)



Identify

- distinguish;
- locate, recognise and name;
- establish or indicate who or what someone or something is;
- provide an answer from a number of possibilities;
- recognise and state a distinguishing factor or feature



Objective

Recall the main features of marine management strategies, including:

- Threat management
- Zoning
- Permits
- Plans and longitudinal monitoring



A healthy, well managed marine ecosystem provides abundant resources for people.



Image: ©2013 Coral Triangle Support Partnership, from Green, A., White, A., & Kilarski, S. (2013). *Designing marine protected area networks to achieve fisheries, biodiversity, and climate change objectives in tropical ecosystems.*

Management of a healthy marine ecosystem is about managing activities that can pose a threat.

The Great Barrier Reef Marine Park Authority encourages park users to enjoy the reef in a “reef friendly” way.

Image: © Copyright 2018 GBRMPA
<http://www.gbrmpa.gov.au/access-and-use/responsible-reef-practices>



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Threat management

GBRMPA have developed guidelines for reducing the damage caused by everyday activities.

For example, anchoring on top of a coral reef can quickly damage or destroy the coral, which can take years to recover.

Boats should use public moorings where available.



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If you see whales or dolphins, it is important to remain a safe distance away from them. This is important for their safety as well as your own.

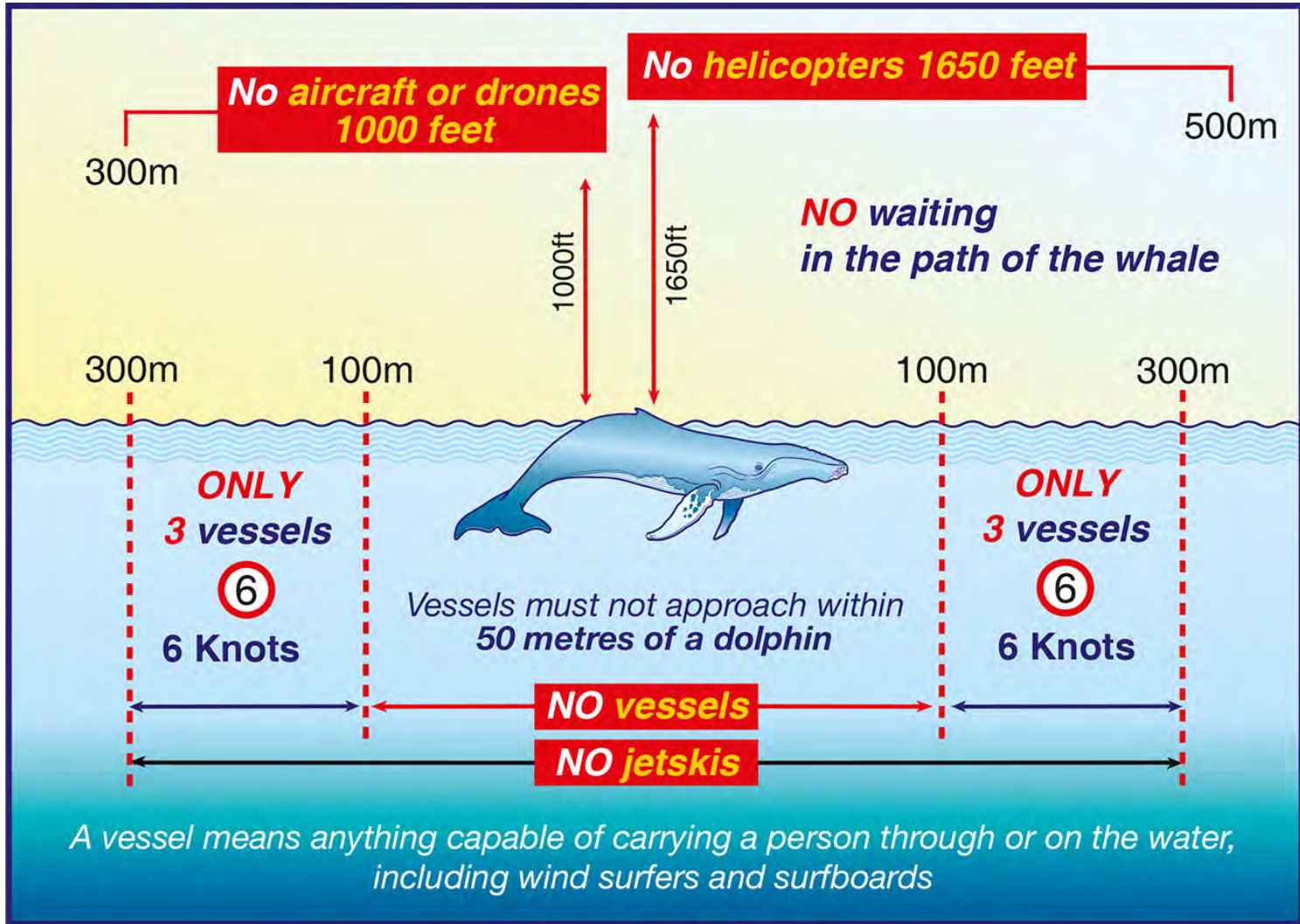


Image: © Copyright 2018 GBRMPA, <http://www.gbrmpa.gov.au/access-and-use/responsible-reef-practices/caring-for-the-reef>

Even snorkelling can stress or break corals. It is important to not lean on, hold onto, or stand on corals.

Snorkellers and divers need to have good buoyancy control so they don't accidentally kick corals or stir up sediment.

You can find the full list of responsible reef practices here: <http://www.gbrmpa.gov.au/access-and-use/responsible-reef-practices>



Standing or sitting on the coral cause physical damage

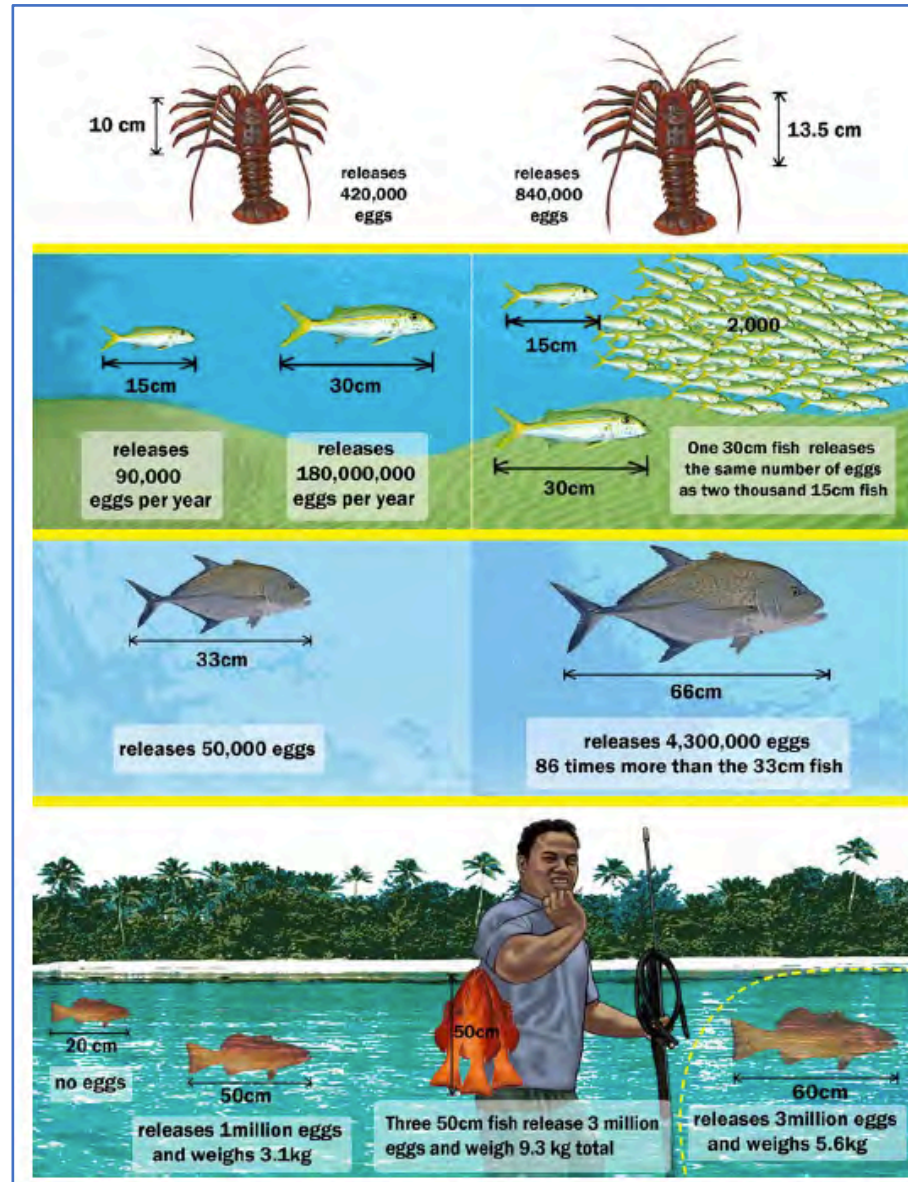
Image: Creative Commons GNU Free Documentation License
https://en.wikipedia.org/wiki/File:Divers_coming_into_contact_with_coral.jpg

No take areas

Long term (20 years +) no take areas enables heavily fished and longer lived species (eg sharks) to grow to maturity and contribute to stock recruitment.

Larger individuals are more important for long-term health of populations than smaller ones, because they produce a lot more offspring.

Image: ©2013 Coral Triangle Support Partnership, from Green, A., White, A., & Kilarski, S. (2013). *Designing marine protected area networks to achieve fisheries, biodiversity, and climate change objectives in tropical ecosystems.*



Minimise and reduce stressors

Prohibit destructive activities (eg mining, blast fishing and cyanide fishing)

Marine ecosystems damaged by destructive activities such as blast fishing, are unable to provide as many resources for people



Image: ©2013 Coral Triangle Support Partnership, from Green, A., White, A., & Kilarski, S. (2013). *Designing marine protected area networks to achieve fisheries, biodiversity, and climate change objectives in tropical ecosystems*.

Net threat reduction

Reduce overfishing, through quotas and improving fishing practices.

Turtle exclusion devices (TEDs) allow turtle to swim out of fishing nets if they are accidentally caught.



A turtle making use of an exclusion device

Image: U.S. National Oceanic and Atmospheric Administration [Public domain]

Reduce land based pollution and recreational impacts.



Kanapou Bay, in Hawaii, is a hotspot for marine debris accumulation

Image: NOAA Marine Debris Program, Flickr, <https://flic.kr/p/cEzQ37> CC BY 2.0

Protect critical areas

Some areas are important as a source of larvae or serve as refuges, naturally more resistant to climate change, nursery grounds, breeding grounds, migration corridors, and habitats for rare and threatened species.

Mon Repos is a Conservation Park hosts the largest concentration of nesting turtles on the eastern Australian mainland.

It is protected so that people don't do things like this:



Zoning

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Here is an introduction to zoning in a Marine Park

<https://youtu.be/TnA7sfc6JvU>



How Zoning Works - Australian Marine Parks, Parks Australia

YouTube video by ParksAustralia, available: <https://youtu.be/TnA7sfc6JvU>

The Great Barrier Reef is a multiple use area protected by zones providing for a range of ecologically sustainable recreational, commercial, research and education opportunities and the continuation of traditional activities.

The map right shows the zones protecting areas around the Keppel Island group.

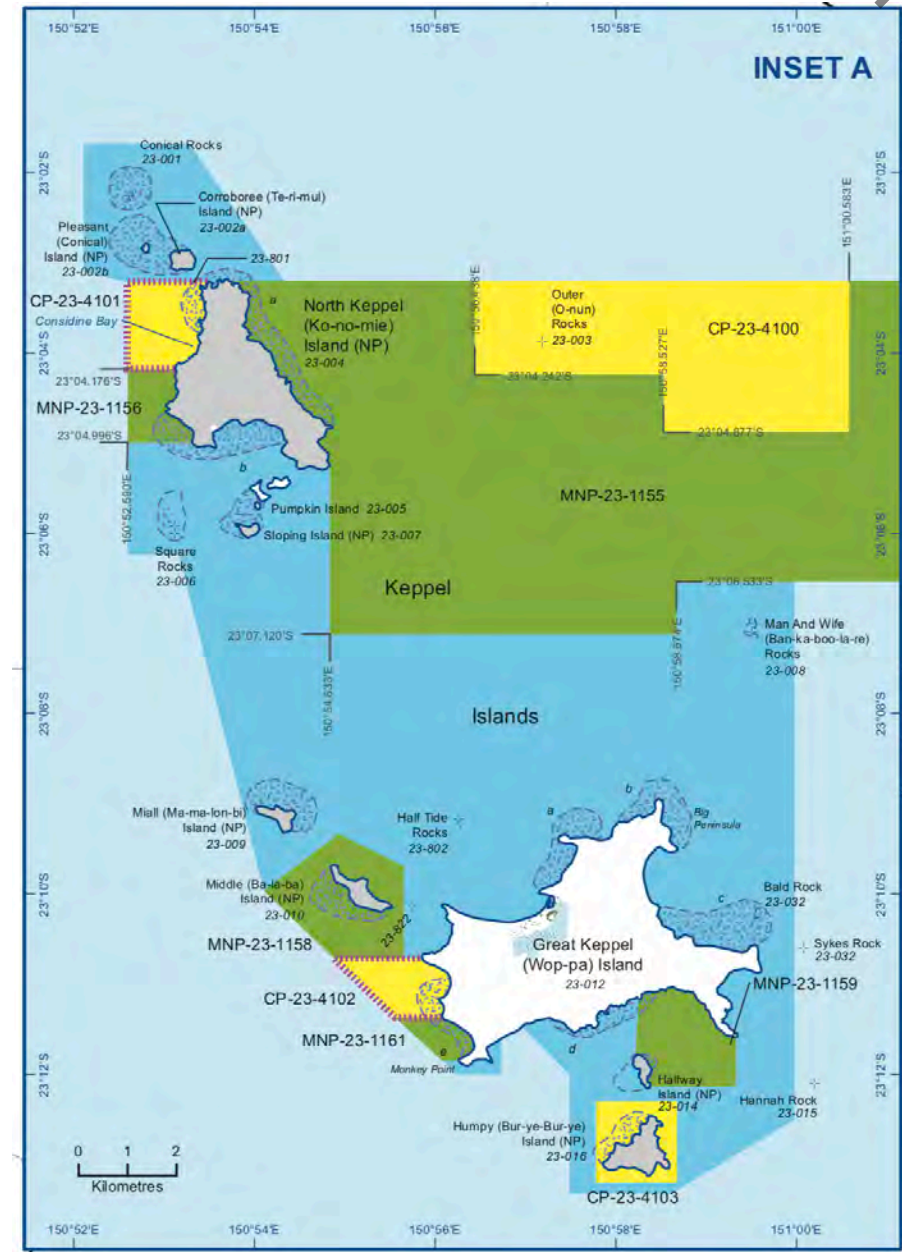


Image taken from Zoning Map 17-Capricorn, © Commonwealth of Australia (GBRMPA) 2016

Each zone has different rules for activities that are allowed, activities that are prohibited and activities that require a permit.

Zones may also place restrictions on how some activities are conducted.

The guide (right) is only an overview. See: <http://www.gbrmpa.gov.au/access-and-use/zoning> for comprehensive information about zones in the Great Barrier Reef Marine Park.

ACTIVITIES GUIDE (see relevant Zoning Plans and Regulations for details)	Zones						
	General Use Zone	Habitat Protection Zone	Conservation Park Zone	Buffer Zone	Scientific Research Zone 3	Marine National Park Zone	Preservation Zone
Aquaculture	Permit	Permit	Permit ¹	×	×	×	×
Bait netting	✓	✓	✓ ²	×	×	×	×
Boating, diving, photography	✓	✓	✓	✓	✓ ³	✓	×
Crabbing (trapping)	✓	✓	✓ ⁴	×	×	×	×
Harvest fishing for aquarium fish, coral and beachworm	Permit	Permit	Permit ¹	×	×	×	×
Harvest fishing for sea cucumber, trochus, tropical rock lobster	Permit	Permit	×	×	×	×	×
Limited collecting	✓ ⁵	✓ ⁵	✓ ⁵	×	×	×	×
Limited spearfishing (snorkel only)	✓	✓	✓ ¹	×	×	×	×
Line fishing	✓ ⁶	✓ ⁶	✓ ⁷	×	×	×	×
Netting (other than bait netting)	✓	✓	×	×	×	×	×
Research (other than limited impact research)	Permit	Permit	Permit	Permit	Permit	Permit	Permit
Shipping (other than in a designated shipping area)	✓	Permit	Permit	Permit	Permit	Permit	×
Tourism programme	Permit	Permit	Permit	Permit	Permit	Permit	×
Traditional use of marine resources	✓ ⁸	✓ ⁸	✓ ⁸	✓ ⁸	✓ ⁸	✓ ⁸	×
Trawling	✓	×	×	×	×	×	×
Trolling	✓ ⁶	✓ ⁶	✓ ⁶	✓ ^{6,9}	×	×	×

PLEASE NOTE: This guide provides an introduction to Zoning in the Great Barrier Reef Marine Parks.

Image taken from Zoning Map 7-Townsville, © Commonwealth of Australia (GBRMPA) 2016

One-third of the Great Barrier Reef Marine Park is zoned as Marine National Park or Green Zone where no fishing is allowed



Research is showing that green zones produce bigger fish and more of them. These fish then spillover into areas open to fishing.

Research conducted by the Australian Institute of Marine Science, through its Long-Term Monitoring Program, has found coral trout are now about 50 per cent more abundant in Marine National Park (Green) Zones.



A nice coral trout- not caught in a green zone!

Image: Matt Boyd, Sea Skills

Permits

Special permission is required for activities such as tourist programs, charter operations, jetties and moorings, dredging, research, educational activities.

<https://youtu.be/-p4tlpP6lzo>



An Introduction to Great Barrier Reef Marine Park Permits

YouTube video by [Great Barrier Reef Marine Park Authority](https://www.gbrmpa.gov.au/), available: <https://youtu.be/-p4tlpP6lzo>

For example, your school needs a Marine Parks Permit if you have a school camp at North West Island.



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Plans

This video provides an explanation of management plans in the Great Barrier Reef Marine Park.

<https://youtu.be/ntvBpNJ85X8>



YouTube video by Great Barrier Reef Marine Park Authority, available: <https://youtu.be/ntvBpNJ85X8>

These plans of management provide additional protection for the ecological, cultural, heritage, aesthetic and social values of Great Barrier Reef.

An updated Reef 2050 Plan was released by the Australian and Queensland governments in July 2018.

The plan outlines management measures- including clear actions, targets, objectives and outcomes to drive short-term and long-term management of the Great Barrier Reef.

Download a copy here:

<https://www.environment.gov.au/marine/gbr/long-term-sustainability-plan>

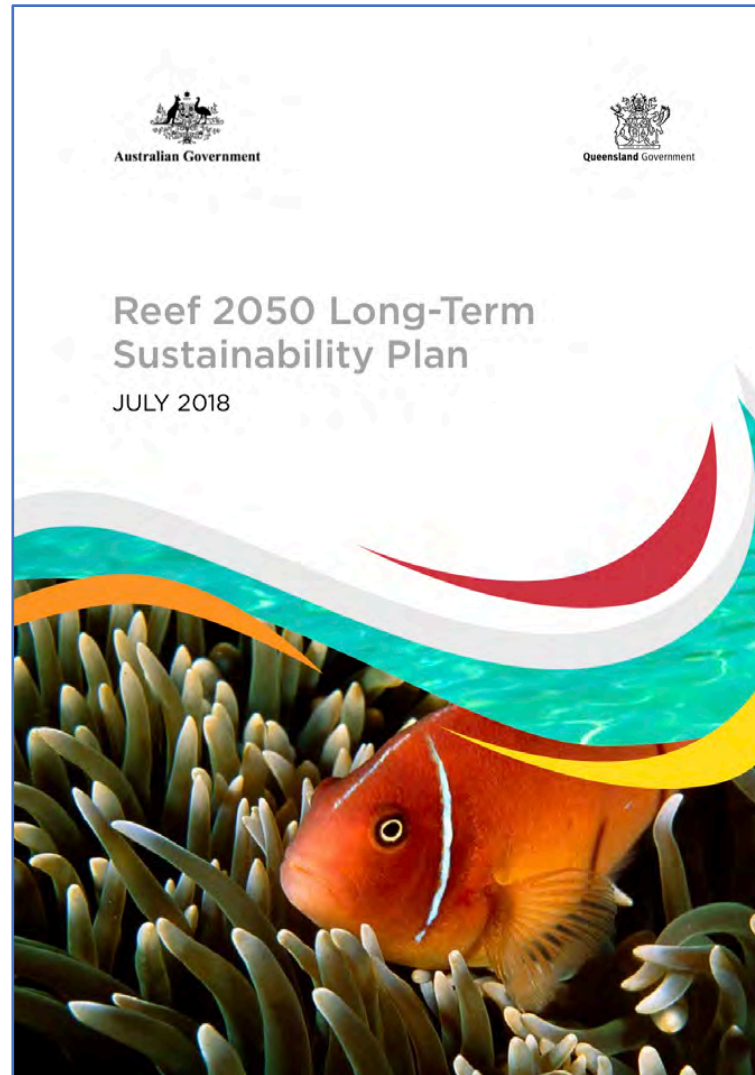


Image: © Copyright Commonwealth of Australia, 2018. CC BY

Longitudinal monitoring

The Reef 2050 Integrated Monitoring and Reporting Program is a coordinated and integrated monitoring, modelling and reporting program that tracks the progress towards targets and objectives of the Reef 2050 Plan.



Monitoring for management

YouTube video by [Great Barrier Reef Marine Park Authority](https://www.youtube.com/channel/UCqWz8t8t8t8t8t8t8t8t8t8), available:
<https://youtu.be/isK4odLBNw4>

<https://youtu.be/isK4odLBNw4>

Question

Recall 4 main features of marine management strategies and give examples of each.



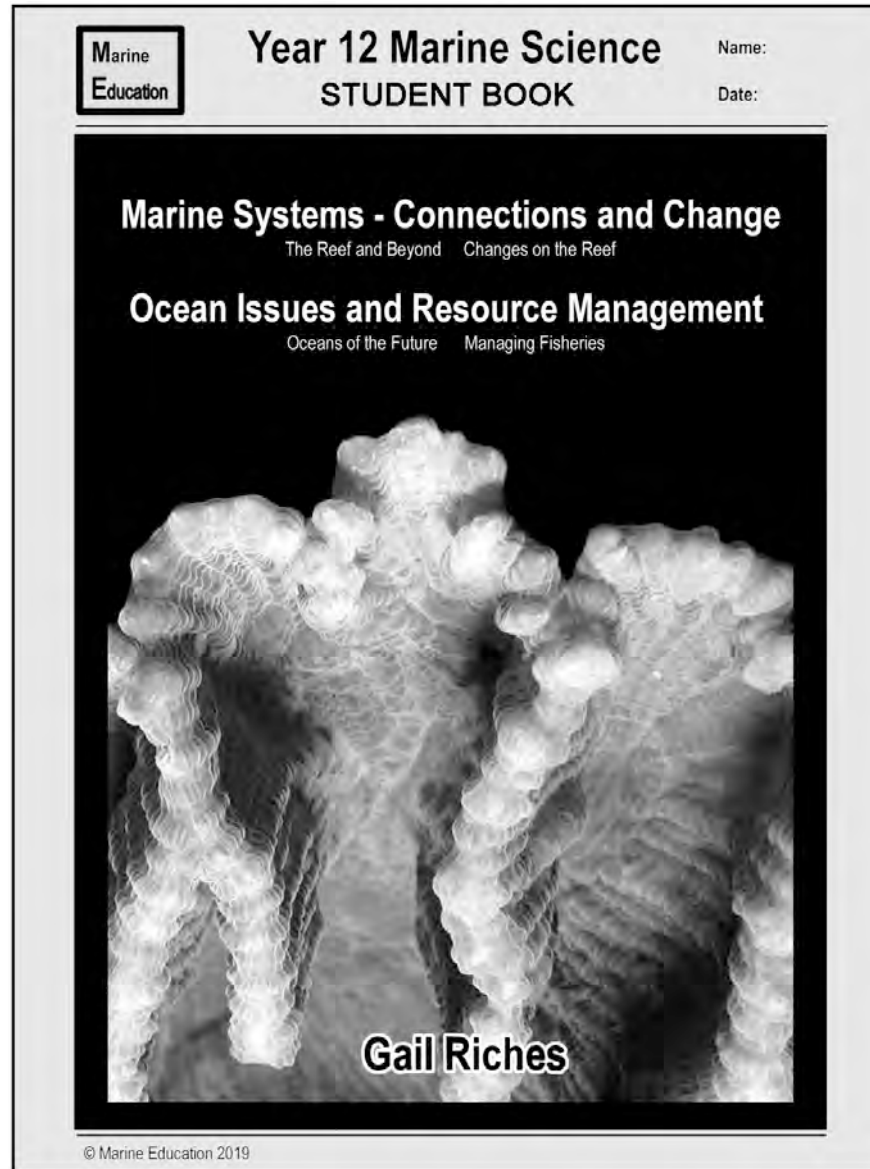
Worksheet

*What's our
plan?*

by

Gail Richie

www.marineeducation.com.au

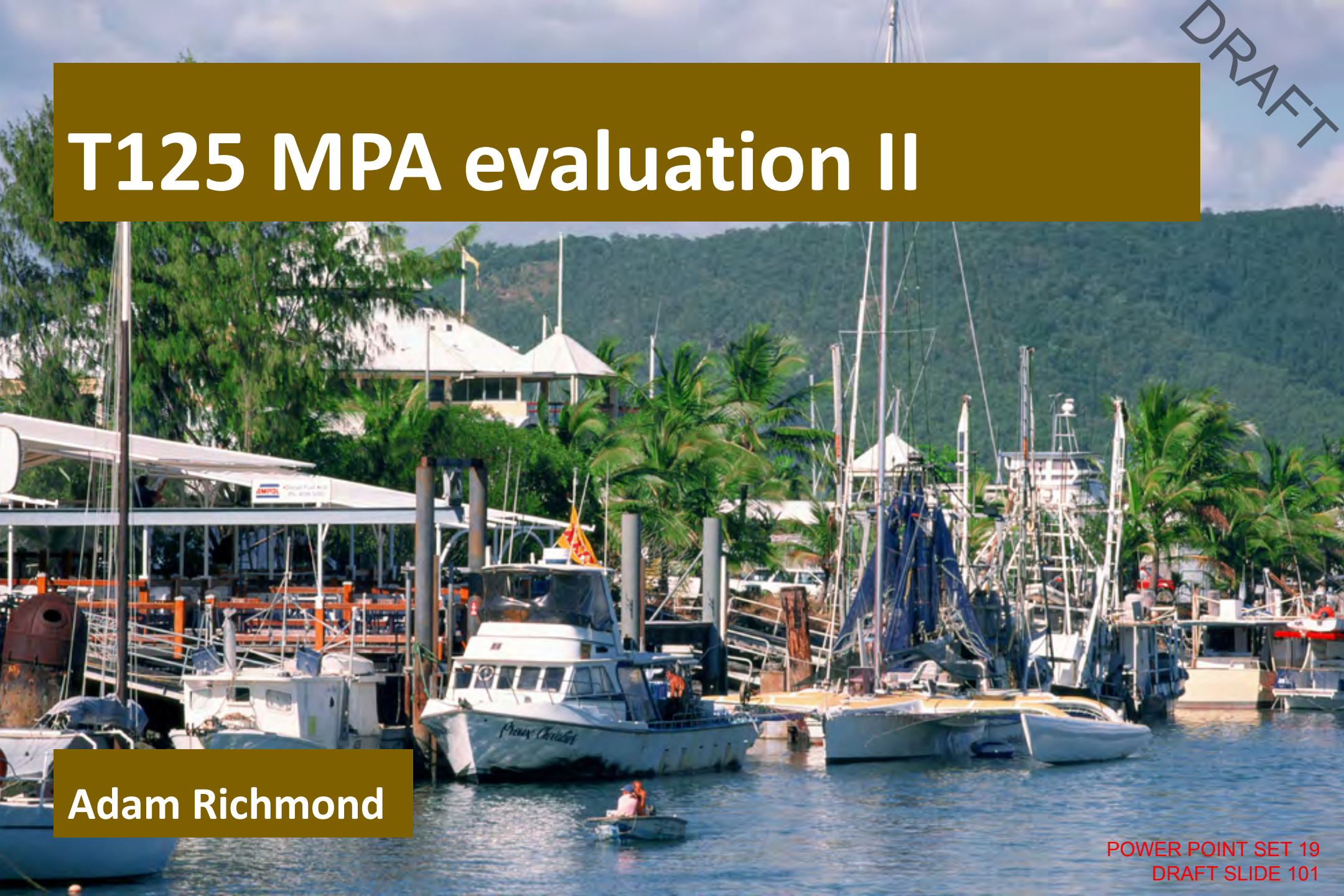


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T125 MPA evaluation II

Adam Richmond



Syllabus statement

Review T069 MPA evaluation

At the end of this topic you should be able to ...

Evaluate

the success of a named protected marine area



Evaluate

- make an appraisal by weighing up or assessing strengths, implications and limitations; make judgments about ideas, works, solutions or methods in relation to selected criteria;
- examine and determine the merit, value or significance of something, based on criteria



Review T069 MPA evaluation

In T069 MPA evaluation (last year), you were able to show, by using data from a research paper, how the use of no-take zones protect coral reefs from crown of thorns outbreaks.



Current Biology Vol 18 No 14 R598

No-take reserves protect coral reefs from predatory starfish

Hugh Sweatman

The crown-of-thorns starfish, *Acanthaster planci*, is a predator of corals that is a major management issue on coral reefs [1]. It occurs throughout the Indo-Pacific and shows boom-bust population dynamics with low background densities and intermittent outbreaks. Three waves of population outbreaks have affected Australia's Great Barrier Reef (GBR) since the 1960s. The waves of outbreaks appear to start ~15°S [2] and progress southward through the central GBR (Figure 1A), causing major losses of living coral on many reefs across a large area and dwarfing losses from other disturbances such as storms or coral bleaching over the same period [3]. Humans can potentially influence starfish population dynamics by exploiting predators, though evidence to date is circumstantial. Extensive surveys in the GBR Marine Park (GBRMP) show that protection from fishing affects the frequency of outbreaks: the relative frequency of outbreaks on reefs that were open to fishing was 3.75 times higher than that on no-take reefs in the mid-shelf region of the GBR, where most outbreaks occur, and seven times greater on open reefs if all reefs were included. Although exploited fishes are unlikely to prey on starfish directly, trophic cascades could favour invertebrates that prey on juvenile starfish.

New starfish infestations arise through larval transport by the prevailing southward currents and outbreak populations die out after some years from starvation and disease [1]. Suggested (non-exclusive) causes of outbreaks [1] include greater survival of starfish larvae caused by phytoplankton blooms from nutrients in terrestrial runoff, and anthropogenic reduction of predator populations causing higher survival of juvenile and adult starfish. Two studies [4,5] have found negative relationships between outbreaks and the abundances of possible fish predators of starfish, leading to the suggestion that marine protected areas (MPAs) might reduce outbreak occurrence [6].

To address the question of whether MPAs provide protection from outbreaks of *A. planci* more directly, I compared the frequency of starfish outbreaks on no-take reefs and on reefs that were open to fishing on the GBR, based on results of an extensive monitoring program. The initial zoning plan for the GBRMP was fully implemented by 1989, with no-take zones covering 4.5% of the region [7]. Zoning largely followed existing uses. Where possible, significant areas for activities that did not remove natural resources were zoned 'no-take' and conflicting uses on individual reefs were resolved by split zoning [8]. The zoning of individual reefs was not affected by their history of starfish outbreaks (see Supplemental data available on-line with this issue). Because starfish outbreaks occur in waves, not all the reefs that were surveyed for *A. planci* in any year were equally likely to have outbreaks. For this reason, only reefs within the regions where outbreaks were present in each year were included in the analysis (see Supplemental data).

There were fewer *A. planci* outbreaks in no-take zones. The majority of outbreaks occur on reefs in the mid-section of the continental shelf (Figure 1B); after allowing at least five years for zoning to take effect, surveys between mid-1994 and mid-2004 showed that proportionately fewer mid-shelf no-take reefs were affected by outbreaks of *A. planci* (20%), compared with mid-shelf reefs that were open to fishing (75%, Figure 1C). When all reefs were considered, the corresponding values were 8% and 57% (Figure 1D).

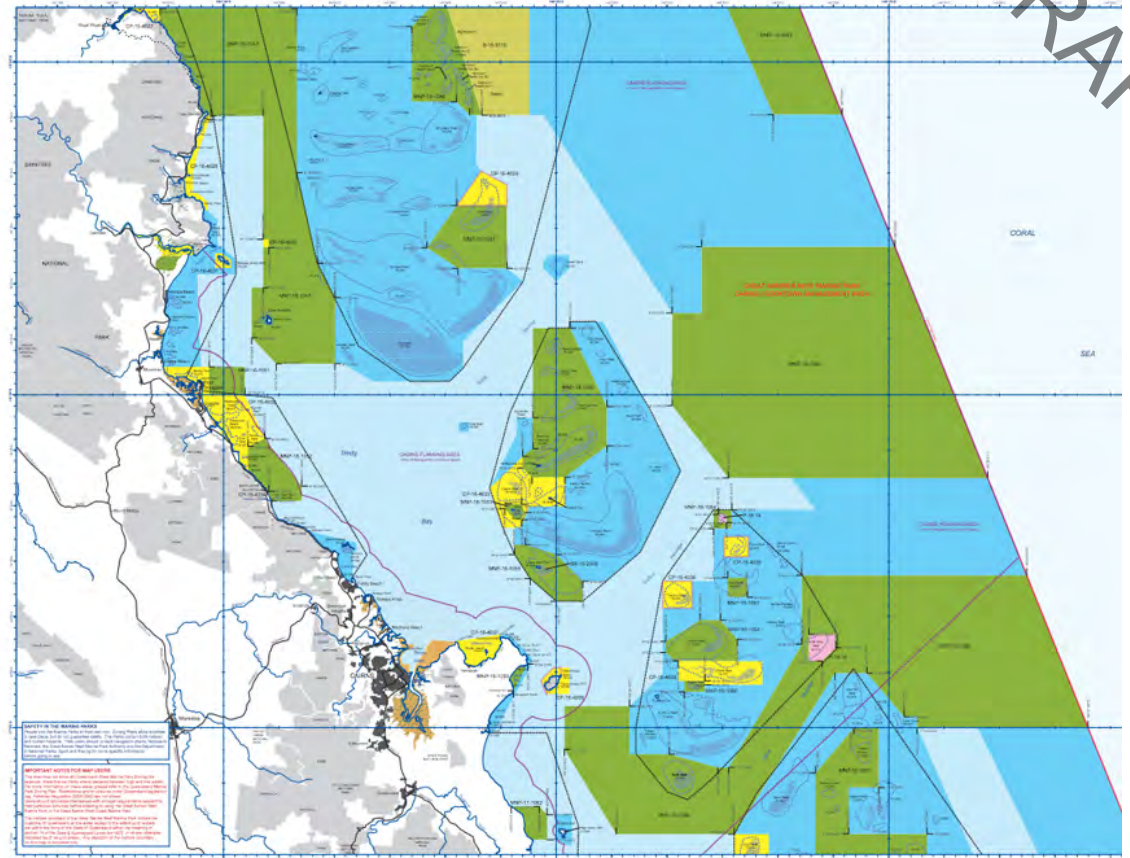
The difference in frequency of outbreaks between no-take reefs and fished reefs is clear, but the ecological link between exploited fishes and *A. planci* remains uncertain. On the GBR, most outbreaks occur on mid-shelf and offshore reefs that are not accessible to most amateur fishers, while the primary target species of commercial fishers, coral trout

Figure 1. Crown-of-thorns starfish outbreaks on Australia's GBR. (A) Location of reefs with outbreaks of *A. planci* 1992–2004 by latitude, showing southward drift in the central GBR (14–21°S) and the consistent presence of outbreaks in the Swain Reefs (~22°S). (B) Number of records of outbreaks 1985–2004 on all GBR reefs grouped by position on the continental shelf. (C) Occurrence of outbreaks 1994–2004 on open and no-take reefs in the mid-shelf region of the GBR where most outbreaks occur; number of reefs with outbreaks (black bars) and without outbreaks (white bars) ($n = 29$, one-tailed Fisher's exact test $p = 0.036$). (D) As (C), but including inshore, mid-shelf and outer shelf reefs ($n = 56$, one-tailed Fisher's exact test $p < 0.003$).

© 2019 Australian Institute of Marine Science. Sweatman HPA (2008) No-take reserves protect coral reefs from predatory starfish. Current Biology. 18: R598-R599 CC BY

“To address the question of whether MPAs provide protection from outbreaks of *A. planci* more directly, I compared the frequency of starfish outbreaks on no-take reefs and on reefs that were open to fishing on the GBR, based on results of an extensive monitoring program”.

Hugh Sweatman
Australian Institute of Marine Science



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And his conclusion was yes.

Current Biology Vol 18 No 14
R598

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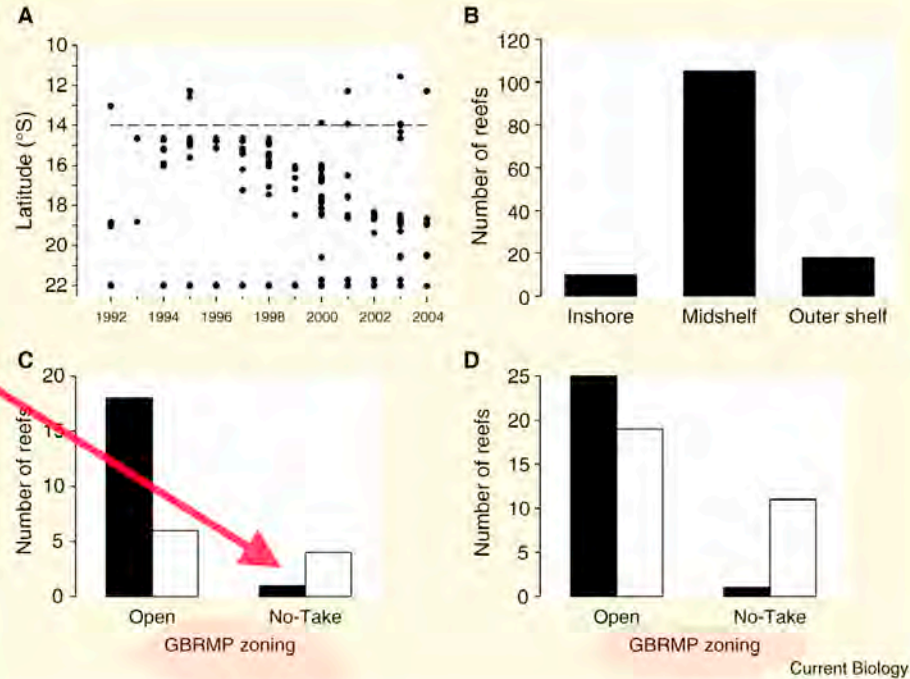


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Objective

In this topic we evaluate whether a MPA as a whole has been successful or not.



Globally, there are more than 15,000 marine protected areas, covering 7.59% of the world's marine environment.

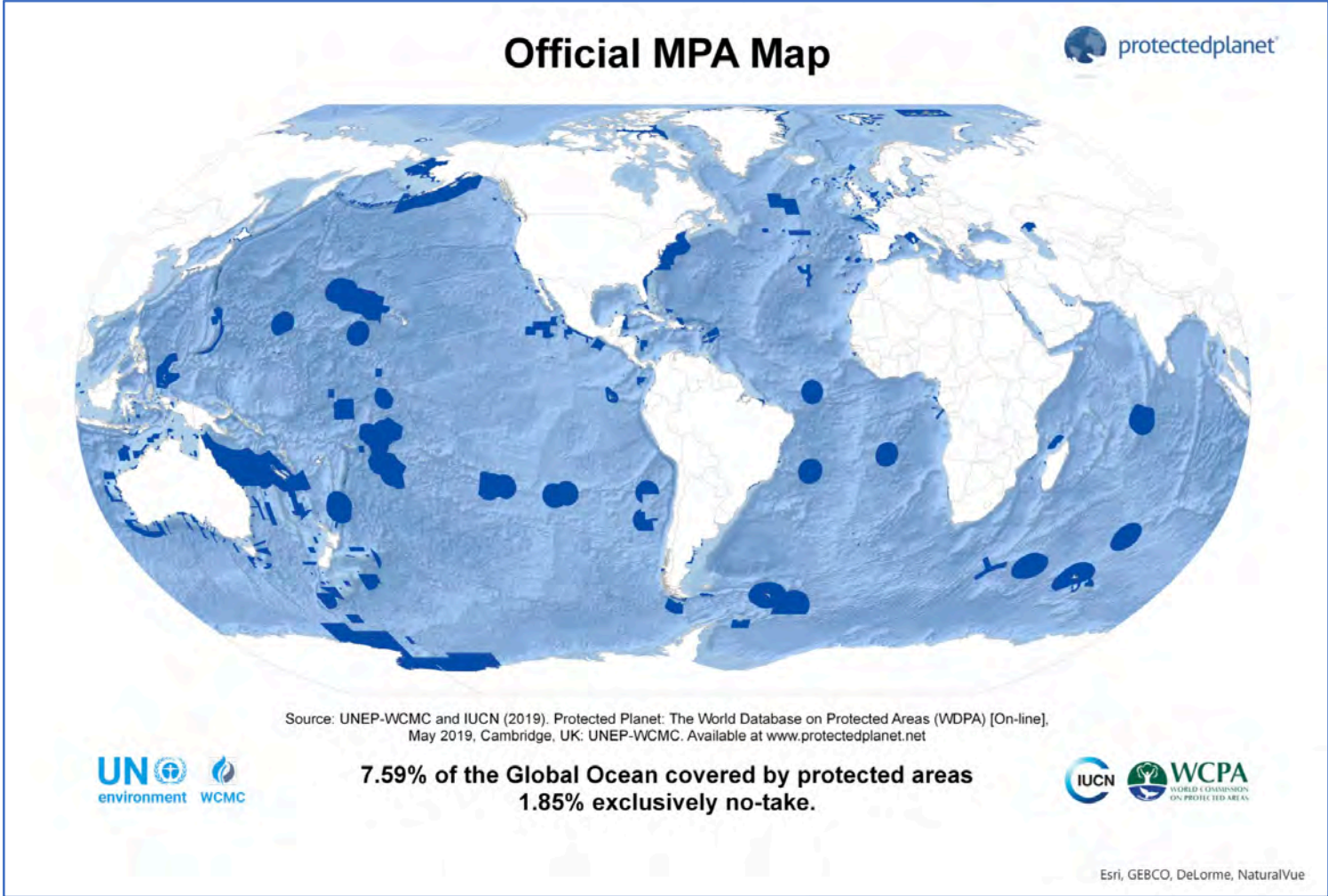


Image: UNEP-WCMC and IUCN (2019) Marine Protected Planet [On-line], [May, 2019], Cambridge, UK: UNEP-WCMC and IUCN Available at: www.protectedplanet.net

MPA's can produce ecological, economic, and social benefits.

MPA's are expensive: absorbing much of the resources allocated to marine conservation.

Thus, identifying practices that ensure MPA effectiveness is a major issue.

Balmford *et al* estimates that the cost of a global MPA network conserving 20-30% of the world seas would cost between US\$ 5- 19 Billion annually.



Reference: Giakoumi, S., McGowan, J., Mills, M., Beger, M., Bustamante, R., & Charles, A. et al. (2018). Revisiting "Success" and "Failure" of Marine Protected Areas: A Conservation Scientist Perspective. *Frontiers In Marine Science*, 5. doi: 10.3389/fmars.2018.00223 [Open access CCBY](#)

Balmford, A., Gravestock, P., Hockley, N., McClean, C., Roberts, C., & Myers, N. (2004). The Worldwide Costs of Marine Protected Areas. *Proceedings of the National Academy of Sciences of the United States of America*, 101(26), 9694-9697. <https://www.pnas.org/content/101/26/9694>

The aims of MPAs include ecological, social, economic, cultural, and institutional objectives. These objectives vary depending on the location and reason for the MPA.

Planning for multiple objectives requires some compromise across social, economic, and ecological domains.



The impact of cruise ships in the GBR requires careful planning

Image copyright viewfinder. Reproduced with permission.

Reference: Giakoumi, S., McGowan, J., Mills, M., Beger, M., Bustamante, R., & Charles, A. et al. (2018). Revisiting “Success” and “Failure” of Marine Protected Areas: A Conservation Scientist Perspective. *Frontiers In Marine Science*, 5. doi: 10.3389/fmars.2018.00223. Open Access CC BY

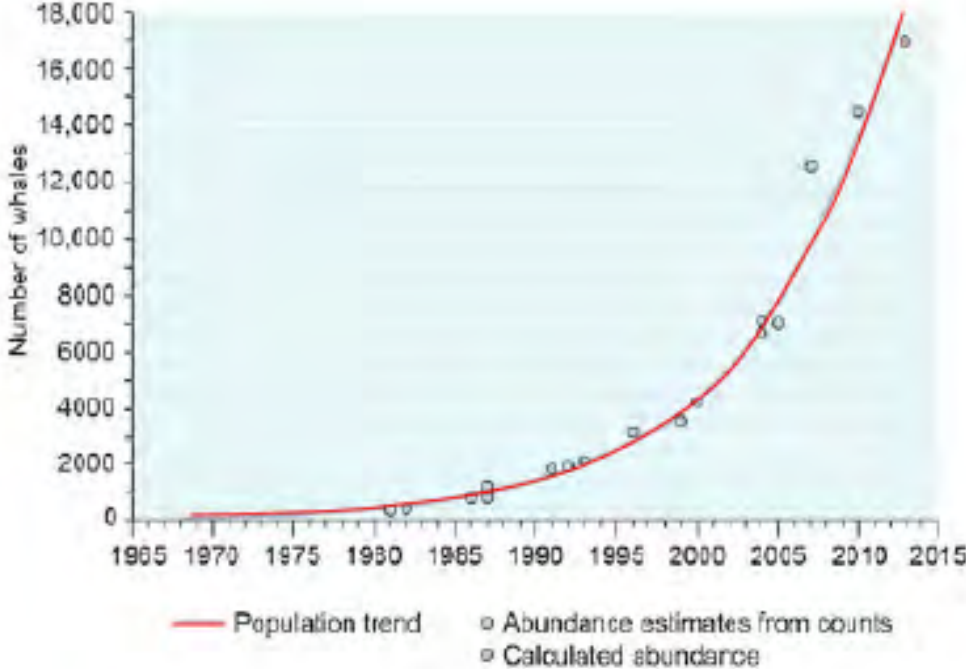
MPA effectiveness, in ecological terms, is commonly measured by comparing values of ecological or biological measures (e.g., sizes of organisms, density and biomass of fish assemblages, species richness, live cover of benthic organisms) in MPAs and adjacent unprotected areas and/or before and after an MPA is established.



Reference: Giakoumi, S., McGowan, J., Mills, M., Beger, M., Bustamante, R., & Charles, A. et al. (2018). Revisiting “Success” and “Failure” of Marine Protected Areas: A Conservation Scientist Perspective. *Frontiers In Marine Science*, 5. doi: 10.3389/fmars.2018.00223. Open access CC BY

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The population of Humpback whales is recovering since commercial whaling ceased.



Recovery of the east Australian humpback whale population, 1981–2013

Image: Great Barrier Reef Marine Park Authority 2014, Great Barrier Reef Outlook Report 2014, GBRMPA, Townsville. CCBY3.0

An MPA can be considered a success if it accomplishes its objectives.

Conversely, an MPA would be a failure if it is “not accomplishing an aim or purpose.”

To assess the effectiveness of an MPA, the goals and objectives must be measurable.

Sustainable prawns three ways

Seafood lovers can rely on healthy supplies of prawns from Australia's Northern Prawn Fishery, thanks to a 50-year partnership between scientists, managers and fishers. Together they ensure the fishery runs as efficiently as possible, with healthy prawn stocks and minimal impact on the ecosystem. The fishery is certified as sustainable by the Marine Stewardship Council, and serves as a global model of fisheries management.

Prawns	Ecosystem	Economics
A deep scientific understanding guides assessments of prawn stocks and the fishery ecosystem	Seagrass and mangrove nurseries and breeding areas are protected from fishing	Optimum fishing levels set before each season match prawn stocks and economic conditions
Surveys to map prawn availability for fishers and help scientists predict catches in advance	Escape hatches in trawl nets release turtles and other bycatch	A relatively small, efficient fleet provides resilience to fluctuating prawn stocks, prawn prices and fuel costs
A harvest strategy sets an agreed path towards catching the most economic yield	Crew members monitor threatened, endangered and protected species	Scientists model the pros and cons of management approaches

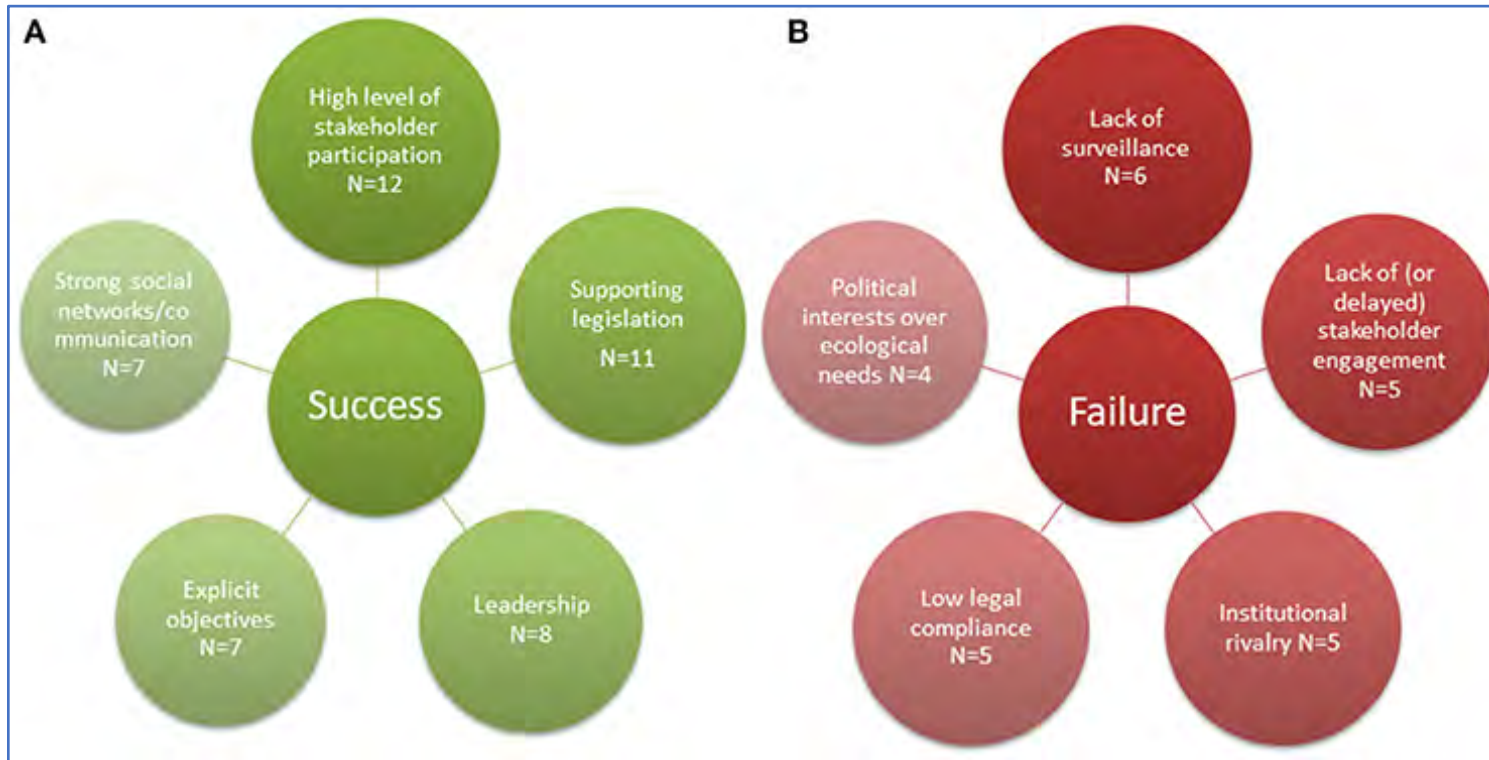
The Northern Prawn fishery is environmentally sustainable and economically efficient.

Success factors	Failure factors
High level of stakeholder participation	Lack of (or delayed) stakeholder engagement
Correct identification of the different stakeholder groups	Not identifying correctly different stakeholder groups
Boundary clarity	Lack of boundary clarity
Effective MPA size	Ineffective MPA size – too small or too large
Effective surveillance	Lack of surveillance
Explicit objectives	Unclear objectives
Supporting legislation	Lack of supporting legislation
Leadership	Lack of leadership
Strong social networks/communication	Lack of strong social networks/communication
Stakeholders perceive crisis in terms of reduced marine living resources	Stakeholders do not perceive crisis in terms of reduced marine living resources
Successful alternative income projects	Lack of projects for alternative income
High legal compliance	Low legal compliance
Ownership	Lack of ownership
Transparency	Lack of transparency
Strong science engagement including (or not) the use of analytical planning tool (e.g. Marxan, Zonation)	No (or low) science engagement Opportunistic selection of MPAs
Effective sanctioning mechanism	Ineffective sanctioning mechanisms
Willingness to move forward at different scales and policy levels	Political interests are prioritized over ecological needs
Institutional collaboration	Institutional rivalry
NGO involvement in stakeholder awareness and engagement	Unsuccessful NGO involvement in stakeholder awareness and engagement
Existence of conflict resolution mechanisms	Lack of conflict resolution mechanisms
Builds on existing cultural practices	Contradicts existing cultural practices
Clear consultative process	Lack of clear consultative process
Abundant available funds	Lack of funding

Researchers reviewed 27 MPA case studies and identified the following 23 factors leading to the success or failure of MPAs

Reference: Giakoumi, S., McGowan, J., Mills, M., Beger, M., Bustamante, R., & Charles, A. et al. (2018). Revisiting “Success” and “Failure” of Marine Protected Areas: A Conservation Scientist Perspective. *Frontiers In Marine Science*, 5. doi: 10.3389/fmars.2018.00223
Supplementary material. Open access CC BY

These were identified as the top 5 reasons that an MPA would succeed or fail:



Stakeholder engagement was found to be the most important factor affecting MPA success.



Reference: Giakoumi, S., McGowan, J., Mills, M., Beger, M., Bustamante, R., & Charles, A. et al. (2018). Revisiting “Success” and “Failure” of Marine Protected Areas: A Conservation Scientist Perspective. *Frontiers In Marine Science*, 5. doi: 10.3389/fmars.2018.00223. Open access CC BY

The IUCN guidebook for evaluating MPA management effectiveness created a “toolbox” of indicators, useful for evaluating MPA effectiveness.

These are in three categories:

- **Biophysical**
- **Socioeconomic**
- **Governance**

You can download the guidebook here:

<https://www.iucn.org/content/how-your-mpa-doing>

Biophysical	Focal species abundance
	Focal species population structure
	Habitat distribution and complexity
	Composition and structure of the community
	Recruitment success within the community
	Food web integrity
	Type, level and return on fishing effort
	Water quality
	Area showing signs of recovery
	Area under no or reduced human impact

Reference: Pomeroy, R.S., Parks, J.E. and Watson, L.M. (2004). How is your MPA doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness. IUCN, Gland, Switzerland and Cambridge, UK.

Socioeconomic	Local marine resource use patterns
	Local values and beliefs about marine resources
	Level of understanding of human impacts on resources
	Perception of seafood availability
	Perception of local resource harvest
	Perception of non-market and non-use value
	Material style of life
	Quality of human health
	Household income distribution by source
	Household occupational structure
	Community infrastructure and business
	Number and nature of markets
	Stakeholder knowledge of natural history
	Distribution of formal knowledge to community
	Percentage of stakeholder group in leadership positions
Changes in conditions of ancestral and historical sites, features or monuments	

Reference: Pomeroy, R.S., Parks, J.E. and Watson, L.M. (2004). How is your MPA doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness. IUCN, Gland, Switzerland and Cambridge, UK.

Governance	Level of resource conflict
	Existence of a decision making and management body
	Existence and adoption of a management plan
	Local understanding of MPA rules and regulations
	Existence and adequacy of enabling legislation
	Availability and allocation of administrative resources
	Existence and application of scientific research and input
	Existence and activity level of community organisations
	Degree of interaction between managers and stakeholders
	Proportion of stakeholders trained in sustainable use
	Level of training provided to stakeholders in participation
	Level of stakeholder participation and satisfaction in management process and activities
	level of stakeholder involvement in surveillance, monitoring and enforcement
	Clearly defined enforcement procedures
	Enforcement coverage
Degree of information dissemination to encourage stakeholder compliance	

Reference: Pomeroy, R.S., Parks, J.E. and Watson, L.M. (2004). How is your MPA doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness. IUCN, Gland, Switzerland and Cambridge, UK.

Gallacher et al developed a framework for evaluating MPA success using 15 indicators of these indicators.

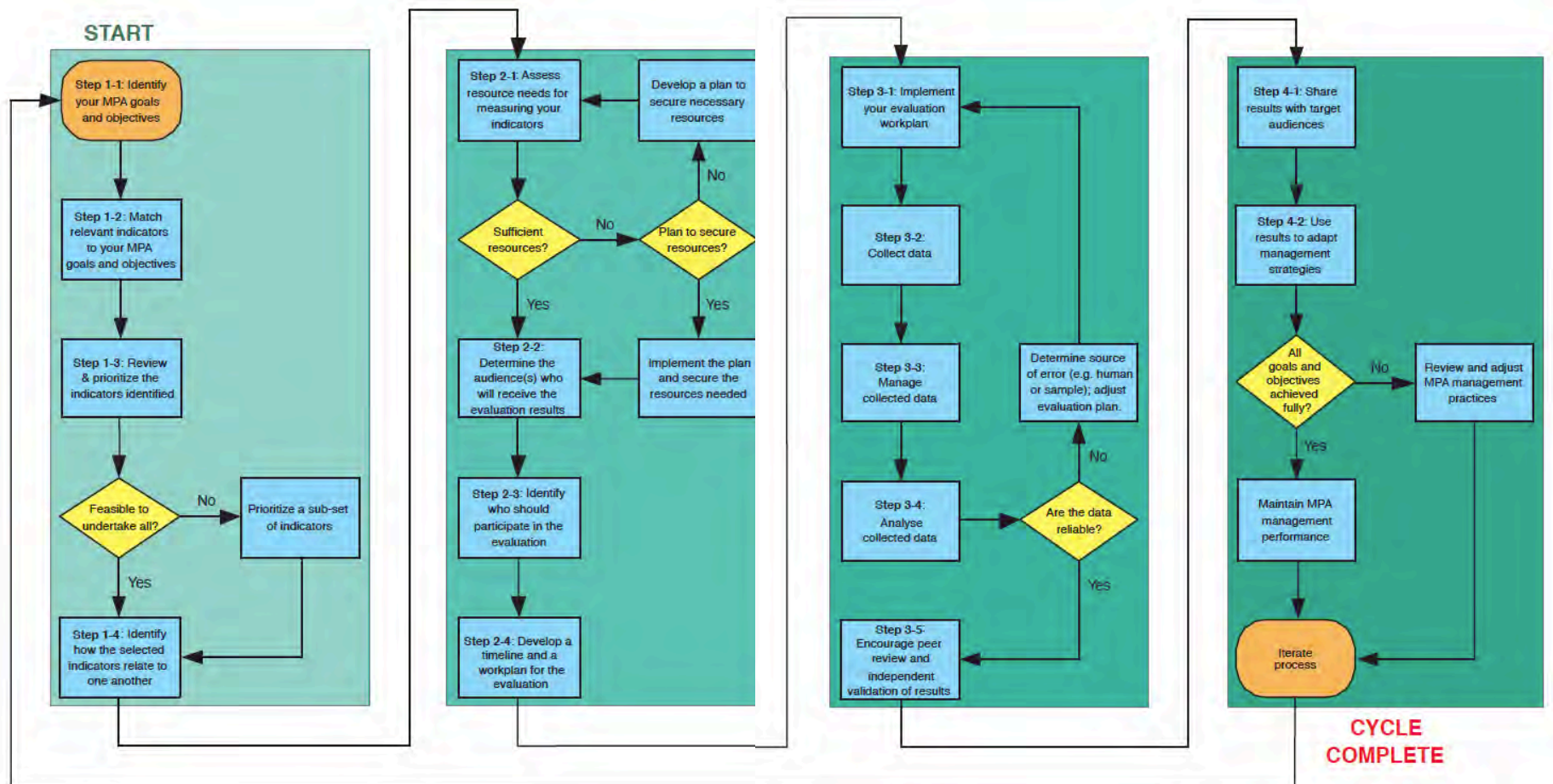
They used a traffic-light system to evaluate an MPA using secondary data. If data was positive, the indicator received a green rating, negative: red, and mixed reports: yellow.

Indicator Type	Indicator of Success	
Biophysical	Area under no or reduced human impact	Yellow
Socio-economic	Type, level and return of fishing effort	Yellow
Socio-economic	Local marine resource use patterns	Green
Biophysical	Species abundance	Green
Biophysical	Composition and structure of the community	Green
Governance	Level of resource conflict	Yellow
Socio-economic	Community infrastructure and businesses	Yellow
Biophysical	Protection of critical habitats such as coral reefs, mangroves, sea grass	Green
Governance	Local understanding of local rules and regulations	Green
Governance	Degree of interaction between managers and stakeholders	Green
Socio-economic	Local values and beliefs regarding the marine resources	Green
Governance	Level of stakeholder participation and satisfaction in management process and activities	Green
Governance	Existence and activity level of community organisation	Green
Governance	Existence of decision making and management body	Green
Socio-economic	Level of understanding of human impacts on resources	Green

Reference: Gallacher, J., et al., Evaluating the success of a marine protected area: A systematic review approach, Journal of Environmental Management (2016), <http://dx.doi.org/10.1016/j.jenvman.2016.08.029>

Evaluate an MPA

The IUCN guidebook describes shows the stages for evaluating a marine park



Reference: Pomeroy, R.S., Parks, J.E. and Watson, L.M. (2004). How is your MPA doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness. IUCN, Gland, Switzerland and Cambridge, UK.

Classroom activity - Evaluate an MPA

Step 1 Select some (not too many) indicators to evaluate your choice of MPA, based on the specific goals and objectives of that marine park.

These should be clearly described in the management plan.

Step 2 Research information to help you decide whether your chosen indicators have been met.

This may be in an annual report or scientific paper.

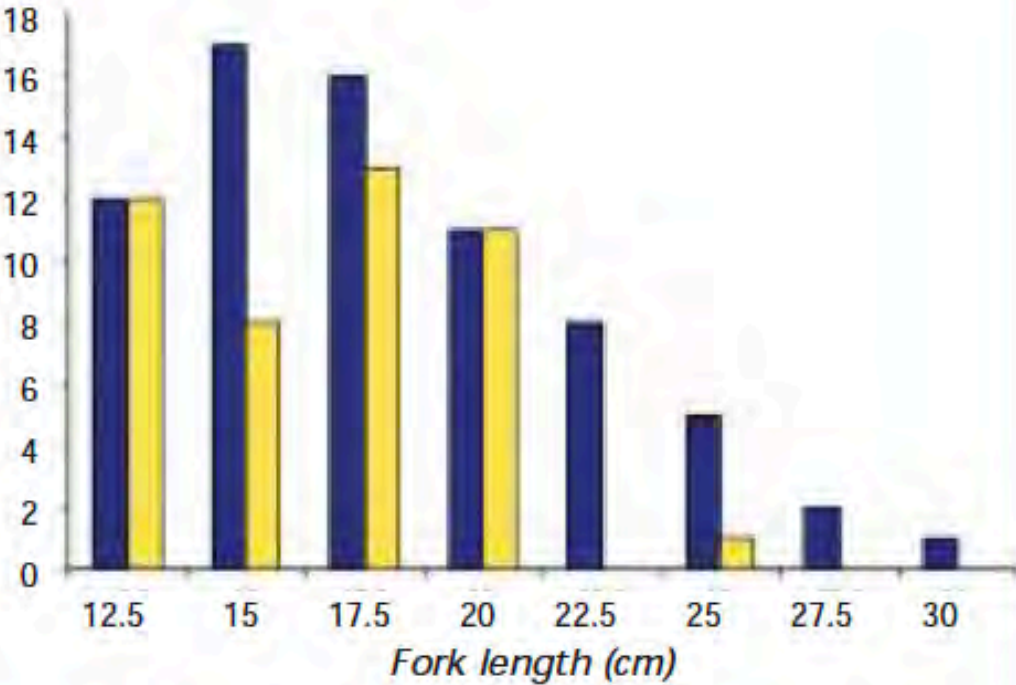
Step 3 Have all (or most) of the goals been met? If so, your MPA is successful!

If not, the MPA may need to be reviewed and adjusted.

This example evaluates the abundance and population structure of the bullethead parrotfish in Guam:

EXAMPLE FROM THE FIELD

A primary objective of Guam's Marine Preserve Network is to restore declining reef fish populations. At the Achang Reef Flat Preserve, an evaluation was conducted of the population structure of the bullethead parrotfish (*Chlorurus sordidus*), one of the most commonly fished species in Guam's inshore reef fishery. The evaluation team's results (right) show how larger and more abundant size classes of bullethead parrotfish were observed within the Achang Reef Flat Preserve than in adjacent control (non-protected) sites. Data collected suggest that this species appears to be experiencing population recovery within the Reef Flat Preserve, which was the Reserve Network's primary objective.



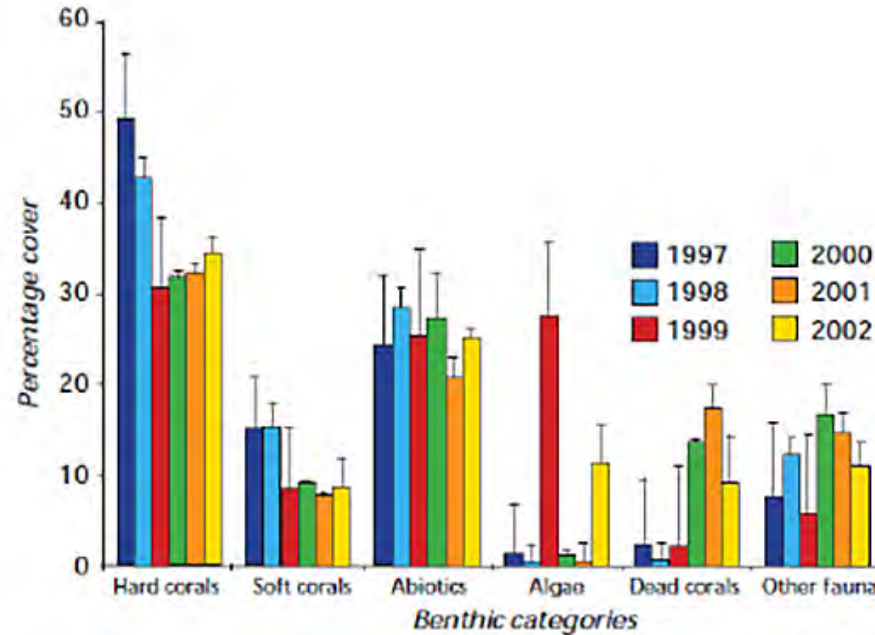
▲ The observed size class distribution of bullethead parrotfish within (purple bars) and outside (yellow bars) the Achang Reef Flat Preserve.

Reference: Pomeroy, R.S., Parks, J.E. and Watson, L.M. (2004). How is your MPA doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness. IUCN, Gland, Switzerland and Cambridge, UK.

This example shows an area showing signs of recovery:

EXAMPLE FROM THE FIELD

Between the mid- and late-1990s, sharp declines were observed in the percentage of live hard coral cover located within the Tubbataha Reef National Marine Park. In part, this is thought to be due to the massive bleaching experienced throughout much of the world during 1998, contributing to an upsurge in algal cover observed in 1999. Since then, habitat surveys completed up to 2002 indicate that live reef cover appears to be gradually recovering. The protection of Tubbataha from fishing pressures is believed to have contributed to this positive trend, and some are suggesting that the habitat is exhibiting resilience to the disturbances experienced during the 1990s. The ability of the Tubbataha management team to clearly convey this story with target audiences is helping to ensure the area's future support.



▲ The observed percentage of live cover from 1997 to 2002 of six major benthic habitat types found within Tubbataha Reef National Marine Park.

Reference: Pomeroy, R.S., Parks, J.E. and Watson, L.M. (2004). How is your MPA doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness. IUCN, Gland, Switzerland and Cambridge, UK.

This example shows responses to changes in legislation:

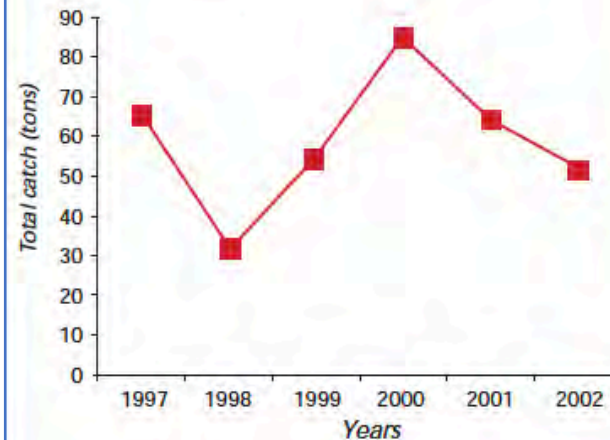
EXAMPLE FROM THE FIELD

In the Galapagos Islands Marine Reserve, there are two dominant commercial lobster fisheries in operation: blue or green lobster (*Panulirus gracilis*) and red lobster (*P. penicillatus*). Fishing for these species is permitted only during a specified 4-month season. Data collected over the past six years illustrate an interesting story for the MPA. During the late 1990s, total catches rose to new highs (see Figure, below). This prompted the entry of many new fishers into the fishery during 2000 and 2001, thereby leading to a decline in the stocks and reduced harvests in 2001 and 2002. In 2002, fewer active fishers were reported (due to lowered catches the year before), leading to reduced effort. Some speculate that this may lead to increased catches in the coming years, likely followed by another influx of fishing effort. Such high-and-low cycles in commercial fisheries are not uncommon, and have prompted managers and stakeholders in similar situations to discuss the need for further limitations on fisheries in order to set a scientifically-sustainable level of catch by a limited level of effort.

Reference: Pomeroy, R.S., Parks, J.E. and Watson, L.M. (2004). How is your MPA doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness. IUCN, Gland, Switzerland and Cambridge, UK.

Total lobster fishery catches (T) per annum from the Galapagos 1997–2001

Year	Commercialized Catch (tons)
1997	65.3
1998	31
1999	54.4
2000	85
2001	64.1
2002	51.4
Average	58.55



How is GBRMPA doing?

The Reef 2050 Plan outlines the management actions, targets, objectives and outcomes of the Great Barrier Reef.

Download a copy here:

<https://www.environment.gov.au/marine/gbr/long-term-sustainability-plan>

This was discussed in the previous topic

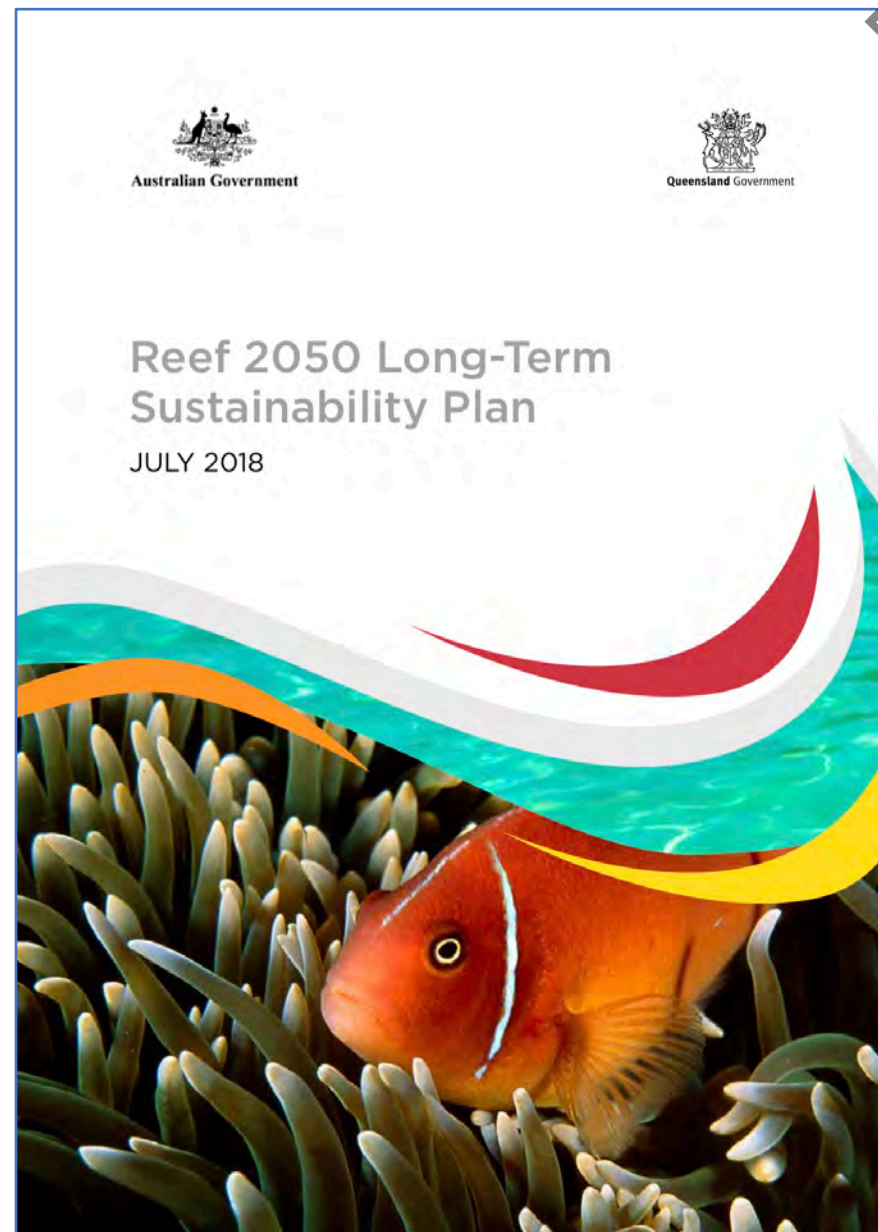


Image: © Copyright Commonwealth of Australia, 2018. CC BY

The RIMReP program measures and reports on the Reef 2050 Plan’s progress towards achieving the outcomes, objectives and targets.

RIMReP is based on the Driver, Pressure, State, Impact and Response (DPSIR) Framework.

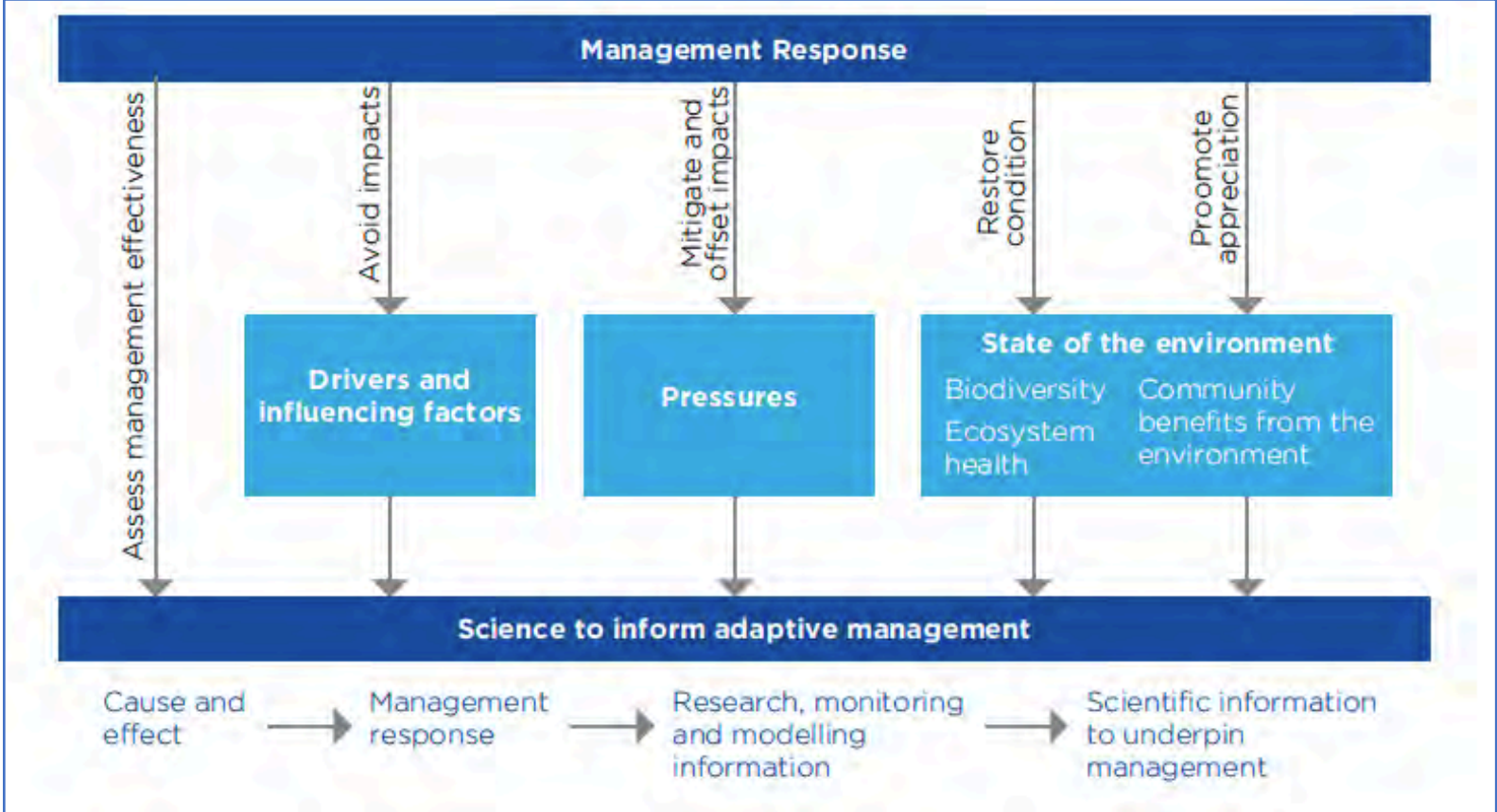


Image: Reef 2050 Long-Term Sustainability Plan—July 2018, Commonwealth of Australia 2018. CC 4.0 BY

Progress in implementing the Reef 2050 plan is reported in an Annual report.

This report provides an overview of progress towards 151 actions in 7 themes:

1. Ecosystem health
2. Biodiversity
3. Heritage
4. Water quality
5. Community benefits
6. Economic benefits
7. Governance

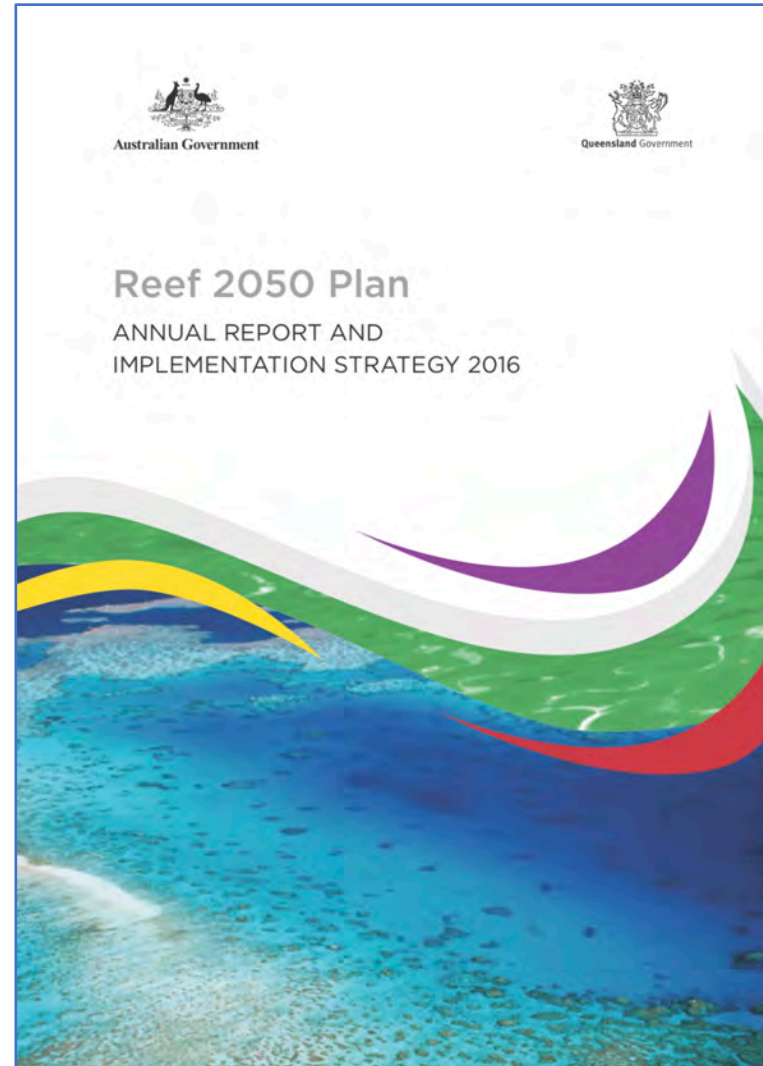


Image: © Copyright Commonwealth of Australia, 2016.
From *Reef 2050 Plan—Annual report and implementation strategy*,
Commonwealth of Australia 2016 CC BY 4.0

As in the 2016 report.

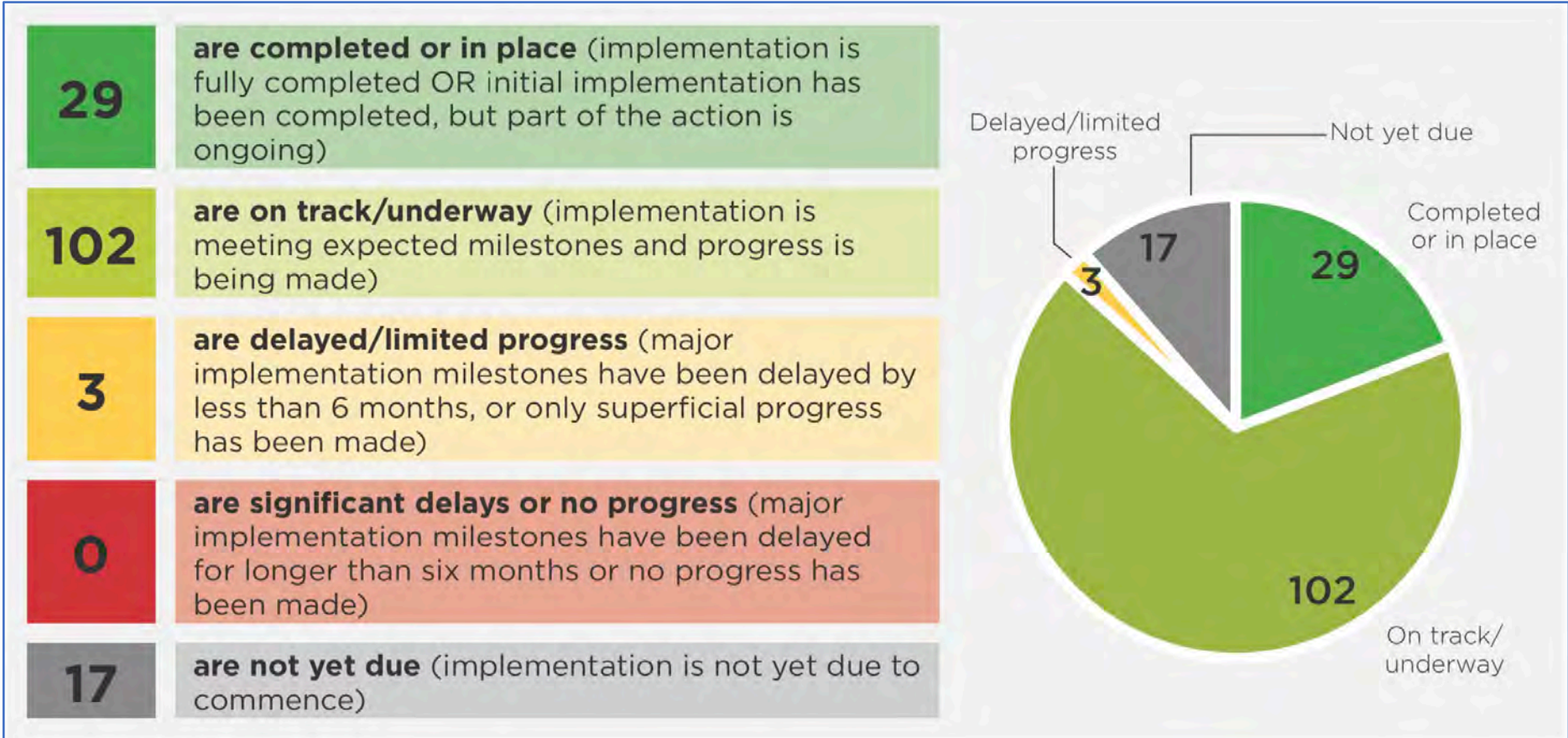


Image: © Copyright Commonwealth of Australia, 2016. From Reef 2050 Plan—Annual report and implementation strategy, Commonwealth of Australia 2016. CC BY 4.0

Progress in each theme is reported separately:

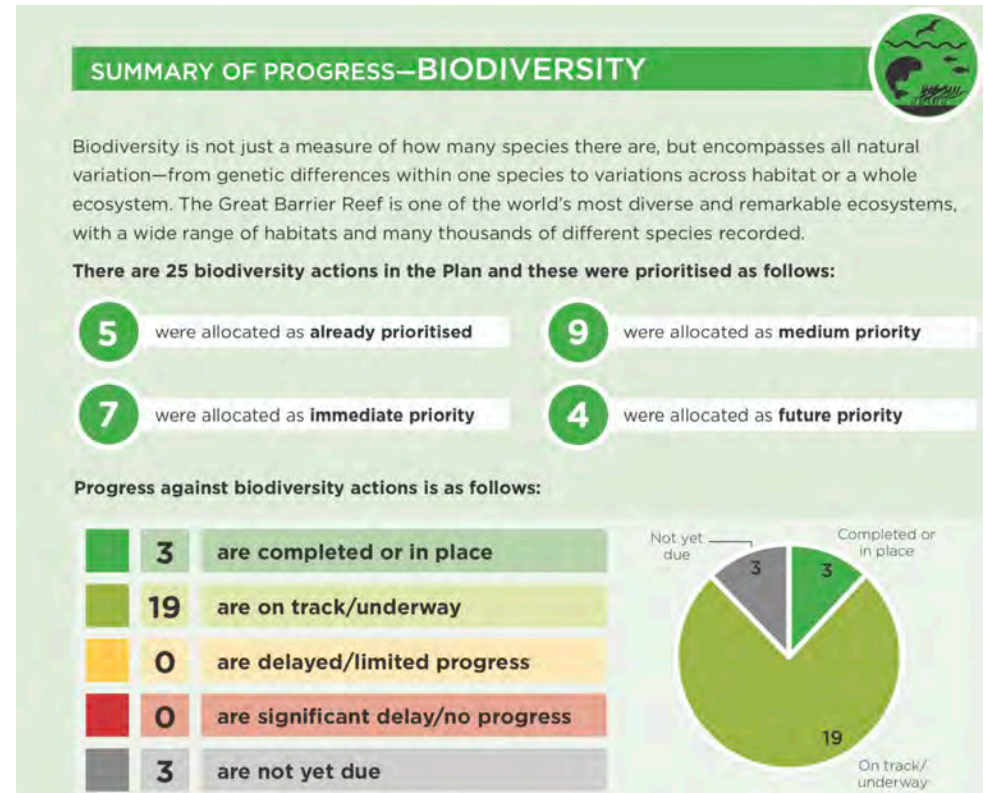
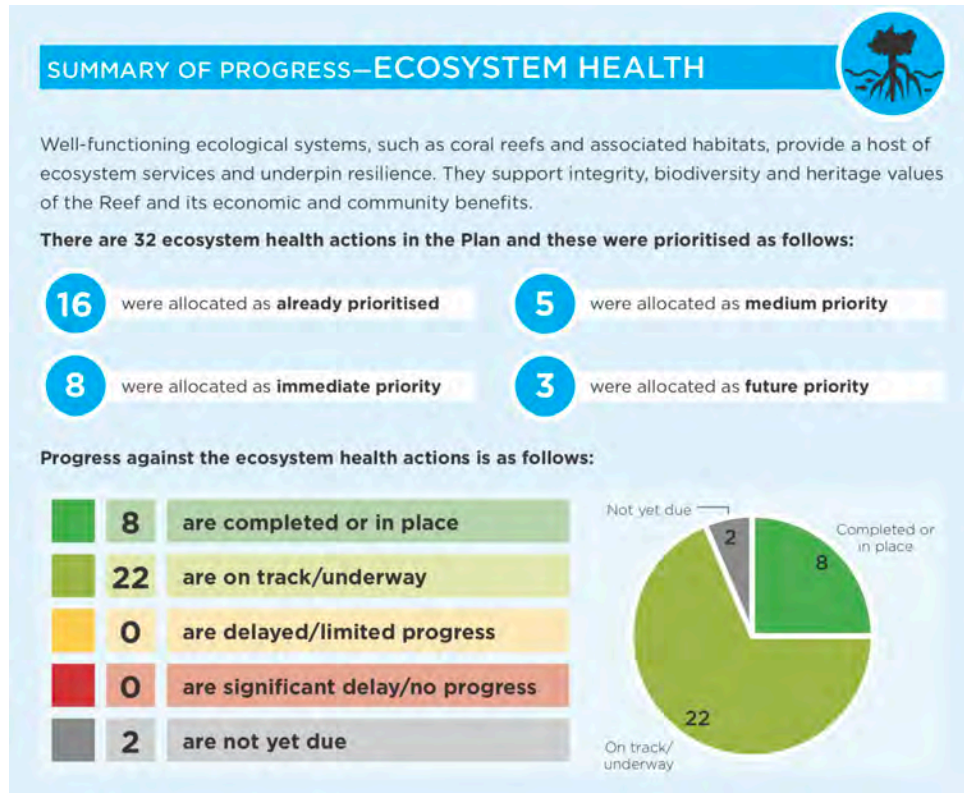


Image: © Copyright Commonwealth of Australia, 2016. From Reef 2050 Plan—Annual report and implementation strategy, Commonwealth of Australia 2016 CC BY 4.0

You can download the annual report, or the more detailed addendum here:

<https://www.environment.gov.au/marine/gbr/publications/reef-2050-plan-annual-report-implementation-strategy>

Management topic	Summary	Effectiveness of existing measures					
		Context	Planning	Inputs	Processes	Outputs	Outcomes
Climate change	There is sound Region-scale management for climate change; management focus has declined on a broader scale.	↓	↓	↘	↓	↔	↓
Coastal development	It is too early to judge the effectiveness of changes to coastal development policy. Understanding of connectivity between the Region and its adjacent coast has improved.	↗	↗	↔	↔	↔	↔
Land-based run-off	Programs addressing land-based run-off have better focus, clearer targets, coordinated monitoring and improved outputs.	↔	↑	↗	↑	↑	↔
Ports	Individual ports are generally well managed; there has been a lack of coordinated planning and guidance.						
Fishing	Understanding of fishing and its impacts has improved; however, outcomes remain poor.	↔	↔	↔	↔	↔	↔
Heritage values	The Region's heritage values are better defined and there is an increasing management focus.	↓	↓	↔	↘	↘	↘
Commercial marine tourism	Sound governance and industry partnerships are in place to address tourism issues. Effectiveness of tourism management has declined as emphasis has shifted to emerging issues.	↔	↓	↘	↓	↔	↔
Recreation (not including fishing)	An overarching recreation management strategy has improved understanding and coordination.	↔	↔	↘	↘	↔	↔
Traditional use of marine resources	There is strong cooperative management of traditional use of marine resource; outcomes have improved with improved planning and inputs.	↗	↑	↑	↗	↔	↑
Biodiversity values	There is an improved focus on biodiversity outcomes, including an overarching strategy.	↔	↔	↔	↔	↔	↘
Community benefits of the environment	Understanding of community benefits is improving; their consideration lacks a policy framework.						
Shipping	Shipping is generally well regulated and well managed; future risks are being addressed.						
Research activities	There is strong collaboration in management research; improvements are slow.	↗	↓	↓	↓	↔	↔
Defence activities	Defence activities continue to be managed very effectively with close cooperation between agencies.	↔	↘	↓	↔	↔	↔

Grading statements				Trend since 2009	
	Very good The grading statements for each of the Assessment Criteria are provided in Sections 7.5.1 to 7.5.6.		Good The grading statements for each of the Assessment Criteria are provided in Sections 7.5.1 to 7.5.6.		Poor The grading statements for each of the Assessment Criteria are provided in Sections 7.5.1 to 7.5.6.
	Very poor The grading statements for each of the Assessment Criteria are provided in Sections 7.5.1 to 7.5.6.	↑	Improved, grade changed	↗	Improved within same grade
		↔	Stable	↘	Deteriorated within same grade
		↓	Deteriorated, grade changed		
		No symbol	The topics of ports, shipping and community benefits were not separately assessed in 2009; no trend provided.		

Overall assessment of the effectiveness of existing measures to protect and manage the Great Barrier Reef Region's values

Image: Great Barrier Reef Marine Park Authority 2014, Great Barrier Reef Outlook Report 2014, GBRMPA, Townsville. CCBY3.0

The Outlook report reports recovery in the ecosystem:

2009 Grade	Current summary and assessment components	Assessment grade and trend				Confidence	
		Very good	Good	Poor	Very poor	Grade	Trend
	Recovery in the ecosystem: Some disturbed populations and habitats have demonstrated recovery after disturbance (for example lagoon floor, loggerhead turtles, humpback whales). For some species recovery is not evident (black teatfish, dugongs) and is dependent on the removal of all threats. Increasing frequency and extent of some threats are likely to continue to reduce the resilience of species and habitats in the Region.						
	Coral reef habitats: Increases in frequency and severity of disturbances, such as cyclones, flooding, crown-of-thorns starfish outbreaks have reduced the capacity for coral reefs to recover since 2009. There is evidence of recovery at a local scale.						
	Lagoon floor habitats: Ongoing management arrangements mean that some lagoon floor habitats previously at risk are continuing to recover from disturbances. There is little monitoring of lagoon floor condition or recovery.						
	Black teatfish: Based on recent modelling, populations of black teatfish in the Region are likely to be slowly recovering. Populations have recovered in Torres Strait.						
	Coral trout: Coral trout populations demonstrate a strong ability to recover and increased reproduction in zones closed to fishing disperses beyond those zones. There are emerging concerns about the overall condition of coral trout populations.						
	Loggerhead turtles: Loggerhead turtle populations are recovering. There are comprehensive management arrangements in the Region, but some threats remain. Pressures from outside Australian waters are likely to influence their full recovery.						
	Urban coast dugongs: The urban coast dugong population has declined further since 2009, affected by the loss of seagrass from cyclones and flooding. Continued effective implementation of all management arrangements is required to reduce direct threats.						

Image: Great Barrier Reef Marine Park Authority 2014, Great Barrier Reef Outlook Report 2014, GBRMPA, Townsville. CCBY3.0

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The Outlook report summarises management effectiveness, impacts and risk associated with factors influencing the Region's values

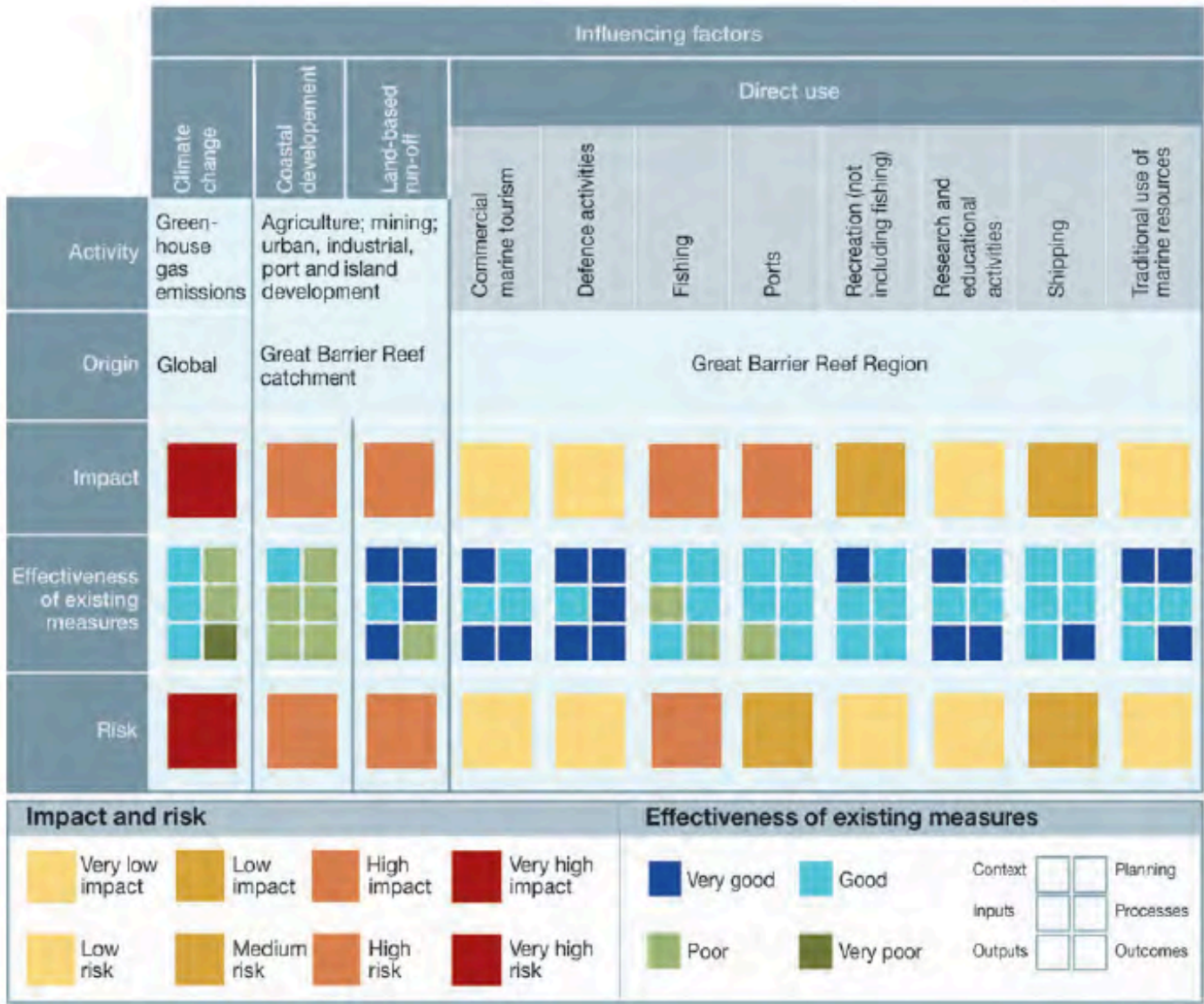


Image: Great Barrier Reef Marine Park Authority 2014, Great Barrier Reef Outlook Report 2014, GBRMPA, Townsville. CC BY 3.0

Question

So in your opinion, has the zoning of the Great Barrier Reef Marine Park been successful?

Send your answer in with a job application and resume.



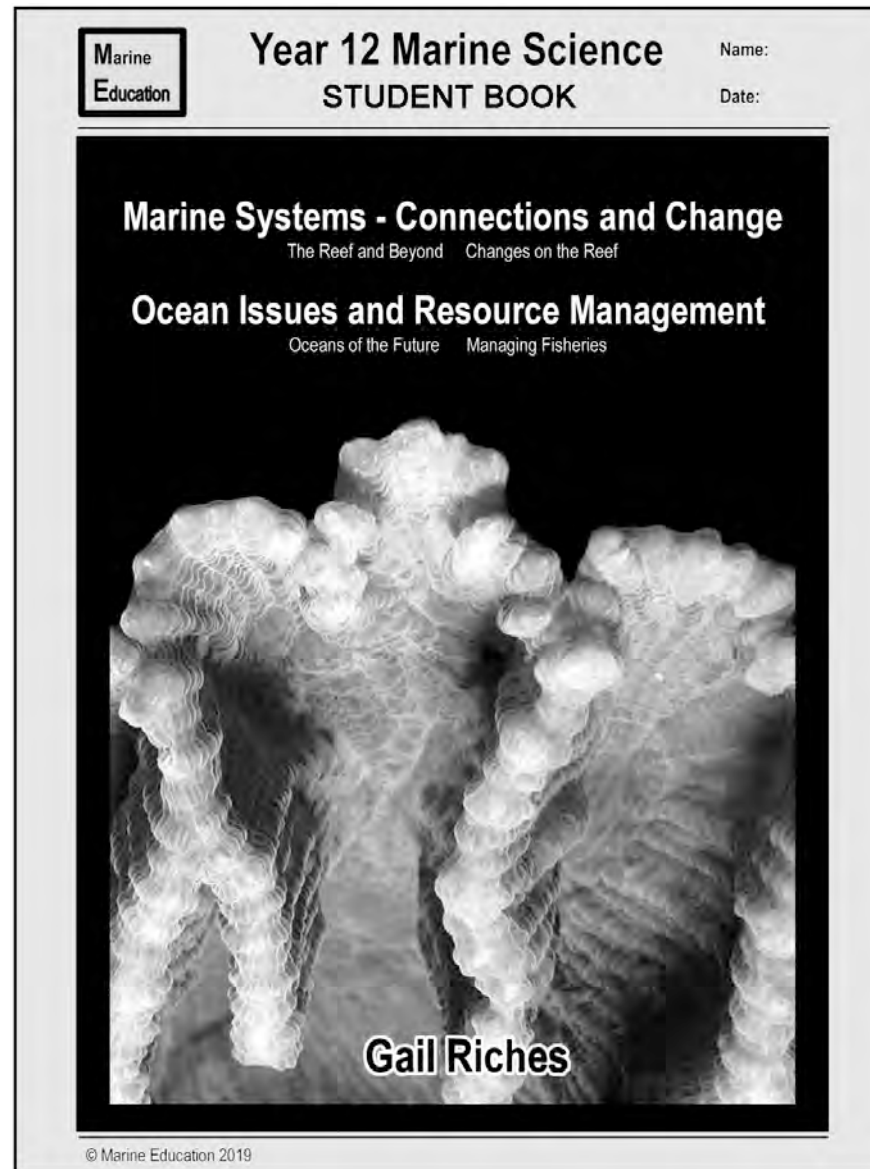
Worksheet

Did it work?

by

Gail Richie

www.marineeducation.com.au



DRAFT

T126 Government and NGO management roles

DRAFT

Adam Richmond and Bob Moffatt

Syllabus statement

At the end of this topic you should be able to ...

Compare

the roles of government and non-government organisations in the management and restoration of ecosystems and their relative abilities to respond (e.g. speed, diplomatic constraints, political influence, enforceability).



Compare

- display recognition of similarities and differences and recognise the significance of these similarities and differences



Definitions

A government is the system or group of people governing an organized community, often a state.

In the case of its broad associative definition, government normally consists of legislature, executive, and judiciary.

Government is a means by which organizational policies are enforced, as well as a mechanism for determining policy.

Read more at

<https://en.wikipedia.org/wiki/Government>



What are NGOs?

The term *NGO* stands for nongovernmental organisation, and it includes a variety of organizations such as “private voluntary organizations,” “civil society organizations,” and “non-profit organizations” ¹

“Groups of individuals organised for the myriad of reasons that engage human imagination and aspiration. They can be set up to advocate a particular cause, such as human rights, or to carry out programs on the ground, such as disaster relief. They can have memberships ranging from local to global.” ²

Reference: 1 Dhanda, K., & Young, S. (2013). *Sustainability*. Thousand Oaks, Calif.: SAGE Publications.

2. Charnovitz, 1997, cited in Esty, Daniel C & Ivanová, Mária H & Yale Center for Environmental Law and Policy & Yale University. School of Forestry and Environmental Studies (2002). *Global environmental governance : options & opportunities*. Yale School of Forestry & Environmental Studies, [New Haven, CT]

The Australian Environmental Grantmakers Network (AEGN) brings together philanthropists who care about the environment and enables them to become better at what they love doing.

Some Australian Environmental NGOs (eNGOs):

Source
<https://www.aegn.org.au>

Australian Coastal Society Ltd
Australian Conservation Foundation
Australian Coral Reef Society Inc
Australian Marine Conservation Society
Australian Marine Environment Protection Association Incorporated
Australian Marine Wildlife Research Rescue Organisation Inc
Australian Network of Environmental Defenders Offices Inc (ANEDO)
Australian Oceans Institute
Australian Seabird Rescue Inc
Australian Whale and Dolphin Conservation
Australian Zoo Wildlife Warriors Worldwide Ltd
Birdlife Australia Ltd
Bush Heritage Australia
Cairns and Far North Environment Centre
Centre for Environment Education
Climate Council
Earthwatch Institute Australia
Ecosystem Science Council
Fauna & Flora International Australia
Good Environmental Choice Australia
Great Barrier Reef Foundation
Great Barrier Reef Research Expedition Inc
Greenpeace Australia Pacific
International Fund for Animal Welfare (IFAW)
Keep Australia Beautiful Council (QLD) Inc
Magnetic Island Nature Care Association Inc
MangroveWatch
Marine Education Society of Australasia
Marine Life Society of South Australia
Marine Stewardship Council Asia-Pacific Pty Ltd
National Parks Association of Queensland
National Parks Australia Council Inc
National Toxics Network
Ocean N Environment Limited
Ocean Planet
OceanWatch Australia
ORRCA Inc
Paddy Pallin Foundation Trust
Pelican and Seabird Rescue Inc.
Purves Environmental Fund
Queensland Conservation Council
Reef Check Foundation Limited
Reef Life Survey Foundation Incorporated
Sea Shepherd Australia
Sea Turtle Foundation
Society for Responsible Design
Southern Oceans Seabird Study Association Inc (SOSSA)
Surfrider Foundation Limited
Tangaroa Blue Foundation
The Change Agency
The Lizard Island Reef Research Foundation
The Pew Charitable Trusts
The Wilderness Society Inc
Total Environment Centre Inc
Twinnies Pelican and Seabird Rescue Inc.
Wentworth Group of Concerned Scientists Foundation
Wettenhall Environment Trust
Wild Mob Trust
Wildlife Preservation Society of Queensland
World Wide Fund for Nature Australia (WWF)

Objectives

To use a table to compare the speed, diplomatic constraints, political influences and enforcement capabilities of local government non-government agencies as they attempt the restoration of a damaged ecosystem in the following case studies;

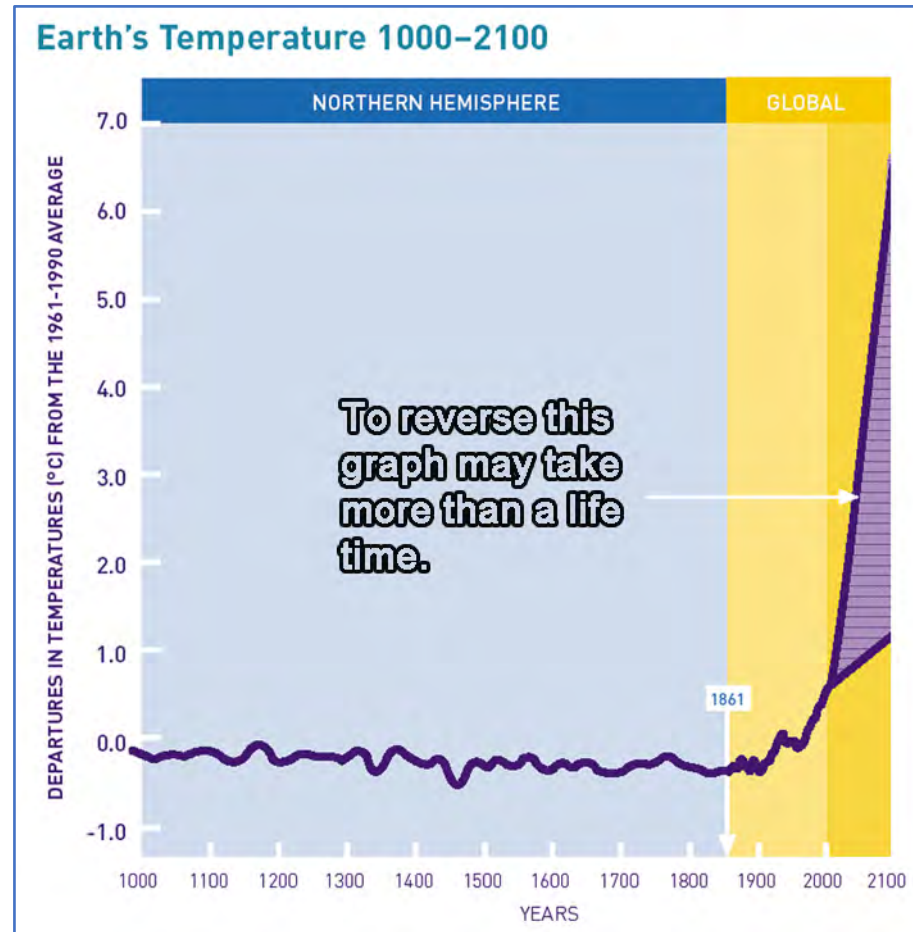
- A. Fuel spill from a boat
- B. Oil spill from a ship hitting a reef
- C. Restoration of a local creek impacting water quality on an adjacent marine park
- D. Australian Marine Conservation Society

Case study	Response criteria	Non-government	Government
	Speed		
	Diplomatic constraints		
	Political influences		
	Enforcement		

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Note:

Time-frames for the roles government and non-government organisations play in the management and restoration of ecosystems can vary from hours, to days, to months to years and even to life times.



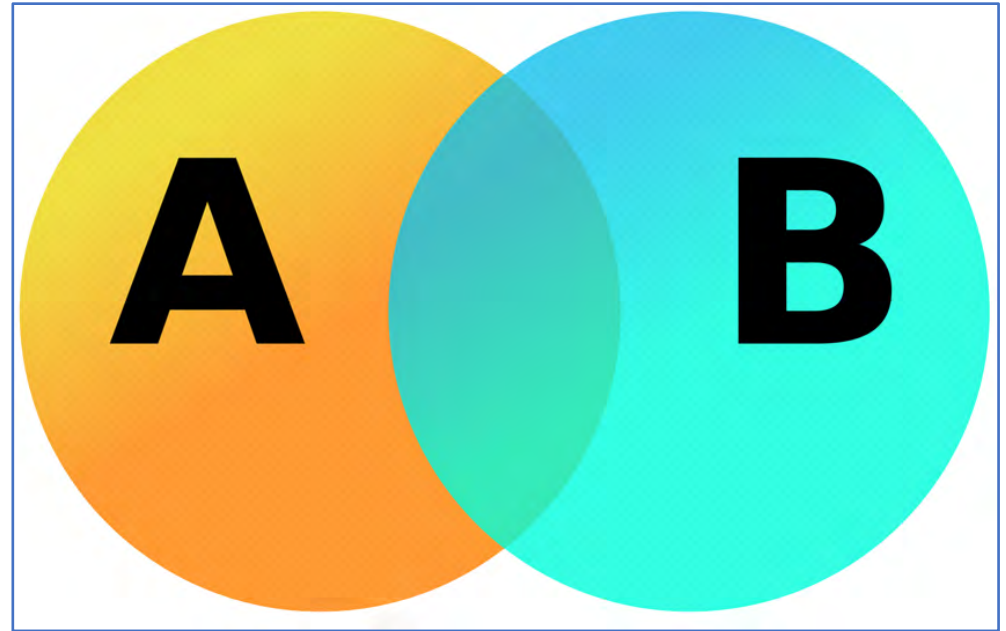
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Note also:

Your teacher may use other methods of comparison, for example a Venn diagram .

This is a diagram that shows all possible logical relations between a finite collection of different sets.

Sets A (creatures with two legs)
and B (creatures that can fly)



By SilverStar at English Wikipedia, CC BY 2.5,
<https://commons.wikimedia.org/w/index.php?curid=45837255>

Case study A

Fuel spill from a boat

Old mate here is filling his boat and it overflows into the air sea rescue marina. A local fisheries patrol is passing and observes the incident. About 10 litres of fuel is spilled and no attempt is made to clean up the fuel. The marina is next to the local fishing fleet and fish habitat reserve

Construct and complete the table to compare the roles government and non-government organisations play in the management and restoration of local ecosystems.



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Case study Fuel spill from a boat	Response criteria	Non-government	Government
<p>Old mate is filling his boat and it overflows into the air sea rescue marina. A local fisheries patrol is passing and observes the incident. About 10 litres of fuel is spilled and no attempt is made to clean up the fuel. The marina is next to the local fishing fleet and fish habitat reserve.</p>	Speed	Quick – the local air sea rescue is out with fuel absorbent rags.	Fisheries patrol alerts local council officers to deploy pollution beams. Local council pollution action plan enacted.
	Diplomatic constraints	Old mate is not interested in cleaning it up, becomes abusive and drives off. Action limited.	Fisheries gives chase apprehends suspect, needs to call police as old mate appears to be under the influence of drugs or alcohol.
	Political influences	Limited apart from ability to take photographs and possibly shame on social media – this could be morally incorrect.	Government will have set regulations and have issued a BoatSafe licence which mandate knowledge of pollution laws. BoatSafe training providers may be audited.
	Enforcement	Limited, could undertake citizens arrest till water police arrive.	Old mate delt with according to law. Could range from fine to arrest for illegal drug or alcohol use. See what happens when you spill some fuel!

Case study B

Oil spill from stricken ship

During a severe storm an oil carriers hull breaks off a large barrier reef. During the storm thousands of litres of oil pour out and the ship.

AMSA receives a mayday and the crew are rescued during the storm, but the stricken ship is drifting towards the reef.



Kirki, off Western Australia, 21 July 1991

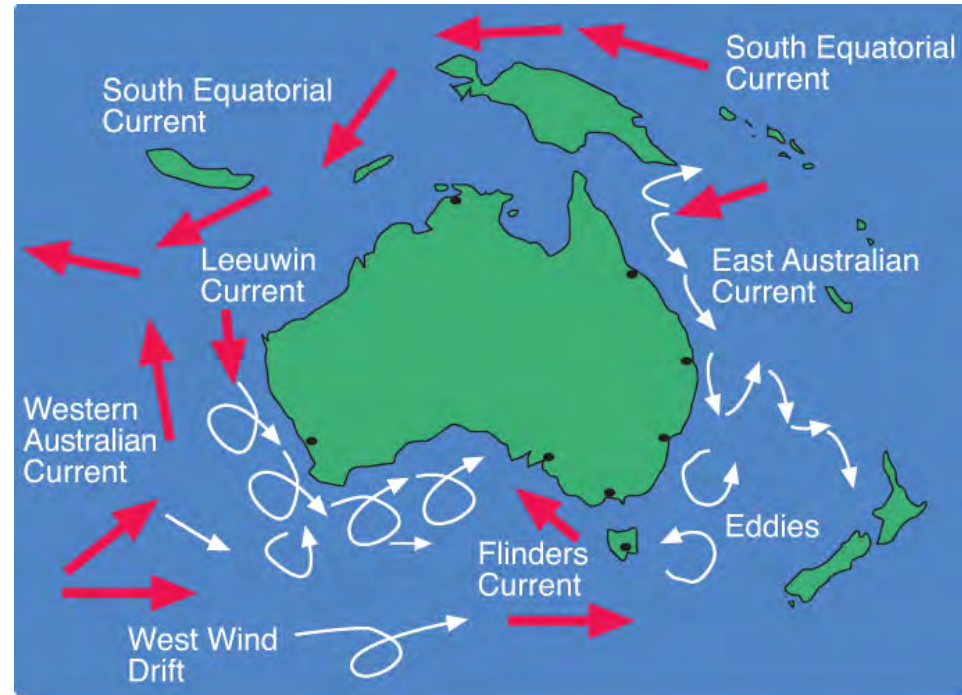
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Issues

However an oil spill can take many days or weeks to respond to depending on factors such as

- Proximity to land
- Weather conditions
- The availability of trained responders
- Winds and currents
- The type of oil or pollutants involved



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Response times are even greater and cost more if an oil spill reaches a beach or bird colony.



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Case study B Oil spill from ship that's hits a reef	Response criteria	Non-government	Government
<p>During a severe storm an oil carriers hull breaks off a large barrier reef. During the storm thousands of litres of oil pour out and the ship. AMSA receives a mayday and the crew are rescued during the storm, but the stricken ship is drifting towards the reef.</p>	Speed	<p>If offshore – difficult to be involved as equipment and human resources untrained and unfunded. If oil makes shore – well equipped and able to be mobilized – seabird protection society could be lead agency.</p>	<p>Offshore – quick, resources are well equipped to deal with laying of containment booms, dispersants and if a vessel had hit a reef, tugs or ships could be dispatched to pull the ship off. If oil spreads to shore mobilise action plans.</p>
	Diplomatic constraints	<p>NGOs need to be coordinated by Government agencies</p>	<p>Australian Maritime Safety Authority - AMSA (Federal agency) would lead clean up operation. State environmental agencies (EPA'S) may coordinate local government. The constraint is how well the whole of government approach works.</p>
	Political influences	<p>Level of environmental activism can influence law making decisions. Proximity to elections would have an effect. Opposition parties would take political advantage of situation.</p>	<p>Legislation need to keep up with offences. AMSA seaworthiness of ship, compliance with marine orders from Canberra, shipping regulations, double hull compliance. The influence is to resource the research to restoring of the reef ecosystem. To continue to fund programs that enable reefs to be photographed and long term data sets obtained.</p>
	Enforcement	<p>Assist with monitoring of damaged reef, collection of research evidence on magnitude of disturbance.</p>	<p>Easy / difficult depending on legislation. Ship's master to face court. Legislation tested. Fines imposed on shipping companies. Clean up and restoration of reef monitored. The question becomes was the ecosystem restoration process completed to a satisfactory standard if in fact standards existed for that reef.</p>

Case study C: Restoration of a local creek impacting water quality on an adjacent marine park.

Compare the **application** and **approval** processes and the roles of government and non-government organisations in the management and restoration of a **local creek** and their relative abilities to respond (e.g. speed, diplomatic constraints, political influence, enforceability).

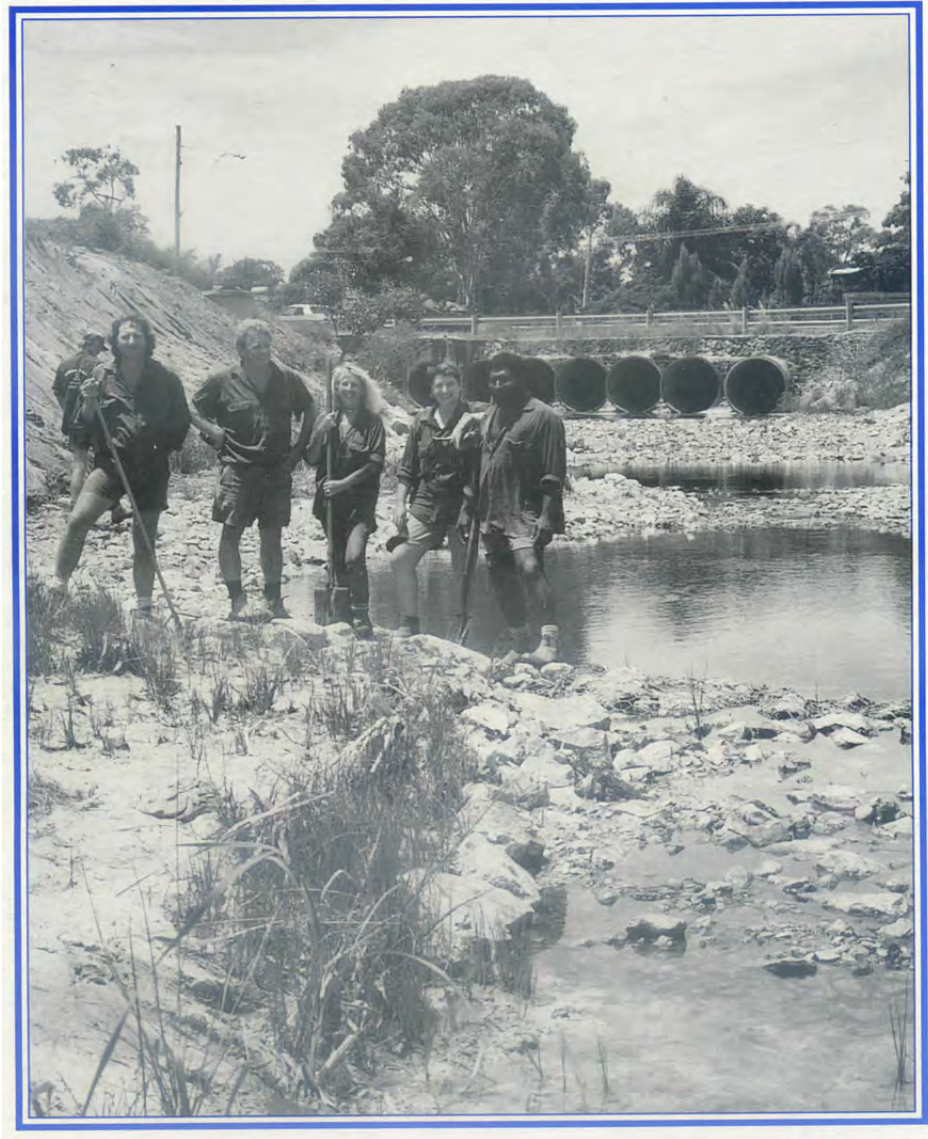


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Restoration of a local creek to improve the water quality of an adjacent marine ecosystem.

Government agency –
Local city council.

Non-government agency
– Local enviro-group.



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Planting mangroves removed by previous generations is part of the restoration process.



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Oysters in the creek can no longer be consumed and water quality in the national park is being degraded.



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The project application involved riparian bank restoration and establishment of creek bed filter rubble.



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As well as creek bank stabilization and water quality testing by an NGO.



Speed can be **slow** by non- governments organisations if grant applications are few and far between or get rejected time and time again.

Sometimes it takes a few years to get a grant and project up and going.



Planning – role comparisons

Application	Response criteria	Non-government	Government
A local environmental group has decided to apply for funding to restore riparian vegetation of a creek to improve the water quality of a local marine park	Speed	Can be slow as sourcing grant applications take time. Can be quick if polluted stormwater closes recreational swimming beach.	Can be slow if communities do not want change, or stakeholders low perspective of the need for any action at all. Can be quick if locals get sick because of polluted oysters in creek.
	Diplomatic constraints	Local businesses and enviro-groups can cause lack of action.	Downturn in economy can sometimes over rule environmental concerns. Makeup of environmental platform of councillors can influence decisions.
	Political influences	Level of environmental activism can influence decisions close to elections.	Environmental rallies can determine political outcomes. Candidates political platform can determine project decision.
	Enforcement	Very difficult.	Easy / difficult depending on legislation. No point source pollution difficult to plan to get prosecutions. Owners who don't pick up dog droppings can be fined.

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Approval – role comparisons

Approval	Response criteria	Non-government	Government
Local and State governments consider the funding application application for the commencement of works approval	Speed	Can be slow as grant applications take time. Can be quick if private sponsorship can be found.	Can be slow as many approvals from many stakeholder groups are usually involved. Time to obtain quotations can slow things down and then it may all fall over if too expensive.
	Diplomatic constraints	Ability to form a lobby group or engage a professional lobbyist. Inexperience in lobbying or implementing the wrong diplomatic policy can rub decision makers up the wrong way. Failure to weave through the approval processes – workplace H&S, certification processes.	Competing priorities for other taxpayer funds. For example sporting groups, capital works and the thousands of other projects local government undertakes. The ability to work within other government agencies and comply with their approvals. Eg Some vegetation may have to be cleared to make way for improved rubble drains – is this the habitat for a rare creek frog, so the need to work with State and Federal agencies to resolve an approval process. Then there is the need to resolve cultural issues. Approvals usually will not be granted if cultural sites are to be disturbed.
	Political influences	Stakeholders will have a big say. Indigenous communities, commercial fishers, developers.	Proximity to local elections becomes relevant when approval declarations by councillors is made public. Elected representatives are then held accountable for their pre-election promises. Eg Candidate says - "If elected I will clean up the creek". Political advertising then comes into play.
	Enforcement	Very little influence.	Governments have constitutions, rules and minutes which are enforced by higher authorities. Eg: State governments can sack councils.

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The there are the implementation and evaluation stages.

Government and NGO reps at creek restoration opening



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Others could include

For example the restoration of a reef from crown of thorns outbreak, improvement of water quality on a reef by improved catchment practices (urban and rural)

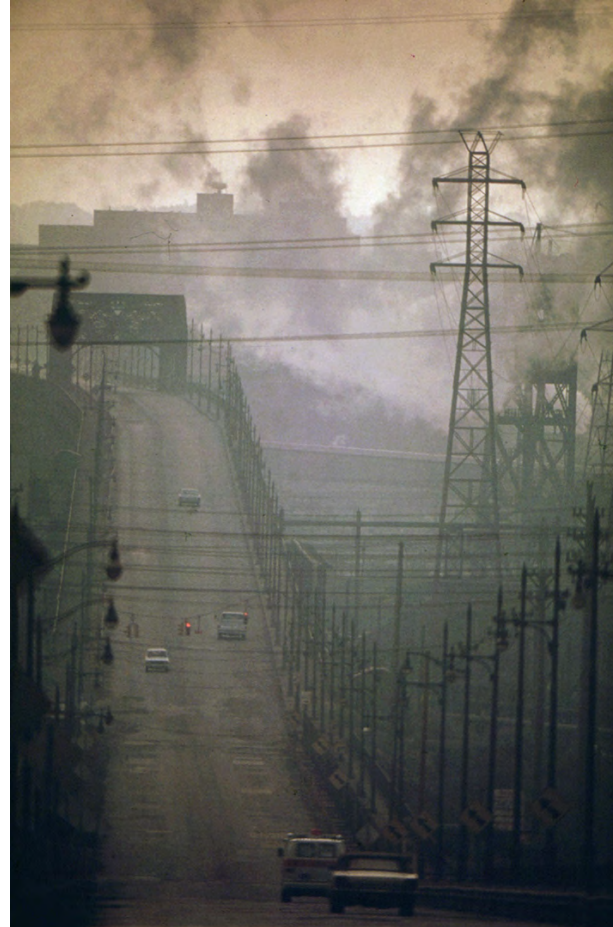


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Perhaps the most challenging longer term - global reduction in greenhouse emissions to combat sea temperature rise and ocean acidification.



By Frank J. (Frank John) Aleksandrowicz, 1921-, Photographer (NARA record: 8452210) - U.S. National Archives and Records Administration, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=17100801>

Additional reading

The following set of slides takes the topic further, but beware of time constraints as subject matter is very large.

The National Reserve System is Australia's network of protected areas, conserving examples of our natural landscapes and native plants and animals for future generations. Based on the CAR framework, it is the nation's natural safety net against our biggest environmental challenges.

Reference: <https://www.environment.gov.au/land/nrs/getting-involved/government-agencies>

Government roles

State and territory governments have primary responsibility for land management in Australia's federal system; building protected areas by declaring national parks in some of the country's most stunning landscapes.

Local council governments manage a network of reserves and open spaces, which make up the National Reserve System (NRS)

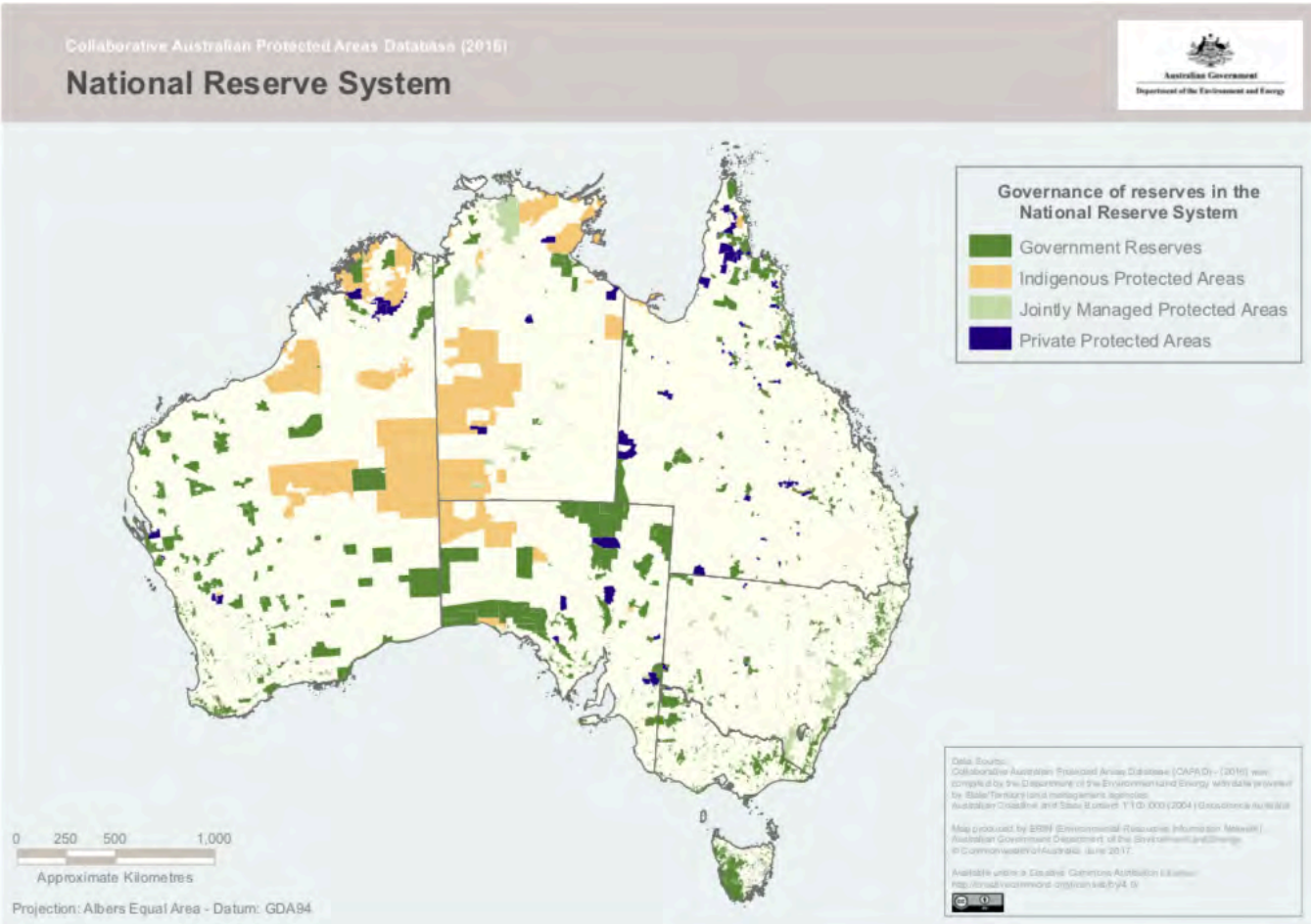


Riley's reserve
Great Sandy National Park, Queensland
Photo: Peter Taylor

655 hectares of rainforest bordering the Great Sandy national Park is part of the NRS

Image: Peter Taylor, © Commonwealth of Australia, CCBY

The reserve system includes more than 10,500 protected areas covering 19.63 per cent of the country - over 150 million hectares. It is made up of Commonwealth, state and territory reserves, Indigenous lands and protected areas run by non-profit conservation organisations.



Nearly 45 % of the protected area estate on mainland Australia is publicly owned and managed by the Australian government or state and territory governments.

Image: Map produced by ERIN (Environmental Resources Information Network), Australian Government Department of the Environment and Energy.
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The National reserve system includes marine protected areas.

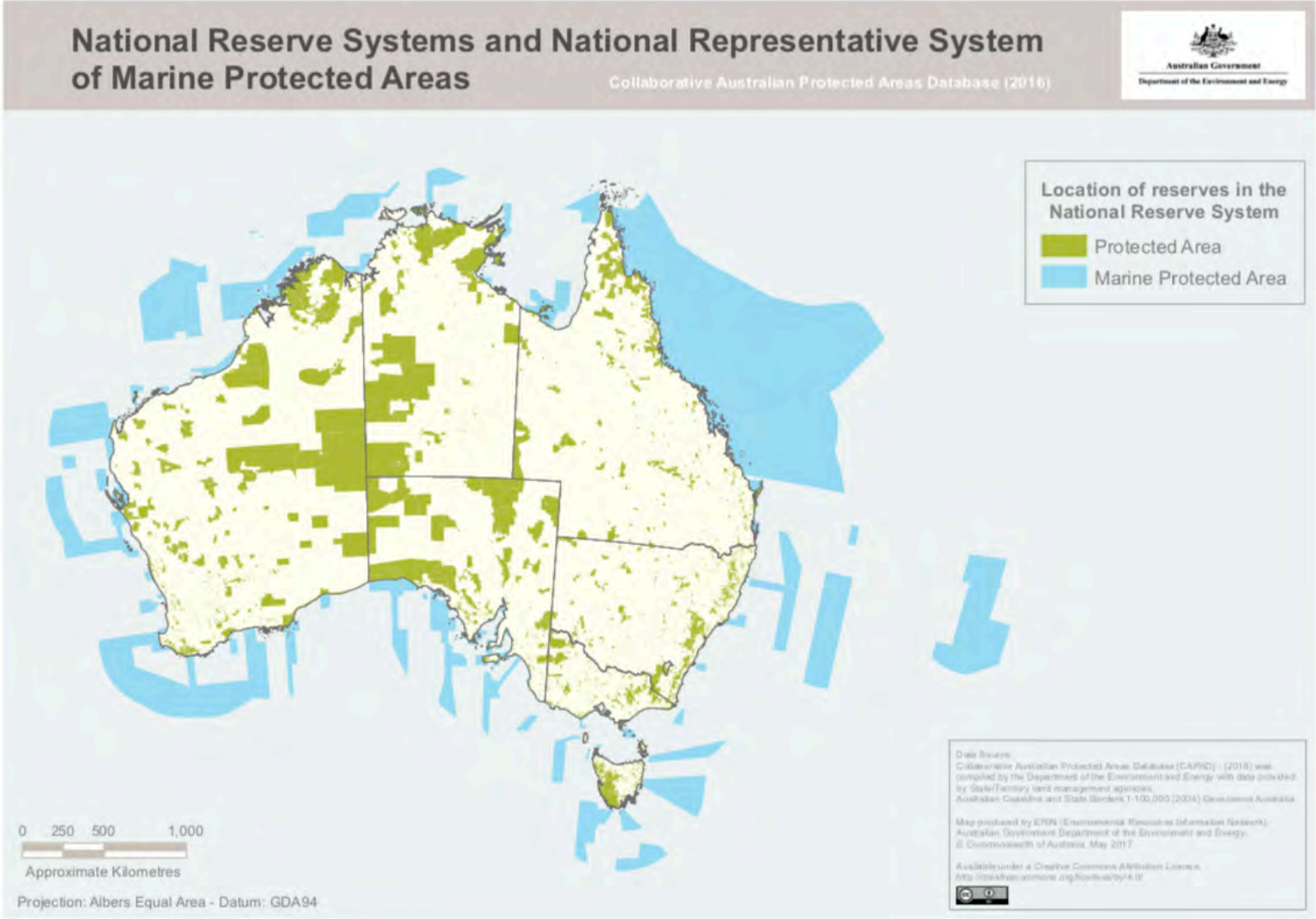


Image: Map produced by ERIN (Environmental Resources Information Network), Australian Government Department of the Environment and Energy. © Commonwealth of Australia, June 2017. CCBY4.0

Non-government

Non-government organisations are part of the National Reserve System, purchasing land, managing land, conducting research and running on-ground conservation programs. These organisations include Australian Wildlife Conservancy, Bush Heritage Australia, and Nature Conservancy.



Bush Heritage Australia manage Reedy Creek Reserve, near Agnes Water.

YouTube video by Bush Heritage Australia, available: <https://youtu.be/R4T005NzY48>

Here are some eNGOs involved with the Great Barrier Reef:

- Australian Coral Reef Society Inc
- Australian Marine Conservation Society
- Australian Youth Climate Coalition
- Australians for Animals
- Citizens of the Great Barrier Reef Foundation
- Friends of Beware Reef
- Great Barrier Reef Foundation
- Ocean Ark Alliance
- Ocean N Environment Ltd
- Reef Catchments (Mackay Whitsunday Isaac) Ltd
- Reef Check Foundation Ltd
- Reef Life Survey Foundation Inc
- The Lizard Island Reef Research Foundation
- Great Barrier Reef Research Expedition Inc
- The Virginia Chadwick Memorial Foundation

Visit:

<https://www.aegn.org.au/environmental-organisations/engos/>

To learn more about these eNGOs



The Great Barrier Reef Foundation

The Great Barrier Reef Foundation is the lead charity dedicated to protecting the Great Barrier Reef through funding solutions grounded in science, technology, engineering and on-ground action to ensure its long-term conservation.

The GBRF lead the collaboration of business, science, government and philanthropy – groups who would not otherwise come together – for the benefit of the Reef.



YouTube video by Great Barrier Reef Foundation
Available: <https://youtu.be/VP4YUotrVI>

Learn more about The Great Barrier Reef Foundation here:
<https://www.barrierreef.org>

Australian Marine Conservation Society

AMCS is Australia's only national charity dedicated solely to protecting our precious ocean wildlife.

AMCS advocate for real, evidence based solutions based on the best available science. AMCS work closely with research centres worldwide and employ conservation experts to safeguard the future of Australia's oceans.



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Learn more about the Australian Marine Conservation Society here:

<https://www.marineconservation.org.au>

Speed¹

“We can respond very quickly to arising issues, breaking news or changes in policy as we aren't bound by the same bureaucratic systems and processes as government agencies (for example on approvals processes for public positions).

We do work within our overall Strategic Plan and conservation priorities, but can respond quickly and flexibly within those bounds.”¹



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¹ Anna Franke
Operations Coordinator
Australian Marine Conservation Society

Political influence/ diplomatic constraints ¹

“There are clear limits to how we work in relation to political influence (as stipulated by the Charities Act and policy of the Australian Charities and Not-for-profits and Commission) – so we cannot be political in the sense of supporting or promoting a political party or candidate. Whilst we are proudly independent and non-partisan, we can and do comment on the government policies and positions as those relate to conservation of the marine environment.

We work through scientific research, policy reform, community engagement and education to advance our mission of protecting Australia's oceans for the sake of current and future generations.”

¹ Anna Franke
Operations Coordinator
Australian Marine Conservation Society



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Political influence

Love our Reef and oceans?

WHERE THE PARTIES STAND ON CLIMATE ACTION AND PROTECTING OCEAN WILDLIFE.

Issue	LIBERAL NATIONALS	Labor	THE GREENS
100% renewable energy to protect the Reef	X	PARTLY MET	check
Stop Adani and rule out new thermal coal mines	X	X	check
Clean up Reef water pollution	PARTLY MET	check	check
Restore Australia's marine sanctuaries	X	check	check
Protect endangered wildlife from fishing	X	check	check
Tackle plastic pollution of our oceans at the source	X	PARTLY MET	check

This scorecard is an independent assessment of the parties' policies as of 10 May, 2019 by the AMCS – a science based, non-partisan conservation organisation whose purpose is to advance the natural environment. We do not promote or oppose political parties, or direct people how to vote.

FIND OUT MORE: marineconservation.org.au/election

FIGHT FOR OUR REEF

Australian Marine Conservation Society

Political influence, **enforceability** ¹

“Government sets legislation, makes policy and binding/enforceable environmental decisions, which is something that charities/**NGOs don't do, but do seek to influence.**

We seek to shape and influence government policy, investment and decisions.”



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¹ Anna Franke
Operations Coordinator
Australian Marine Conservation Society

Ask the Parties to Act

Send Email

Fisheries

Targeted Email

Fight For Our Reef

Petition

Plastic Pollution



9,655 emails of 10,000

Stop Killing Endangered Species in the Great Barrier Reef

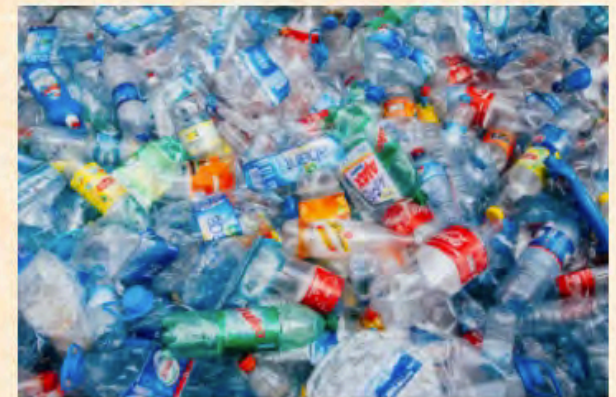
Demand Action



9,143 emails of 10,000

Tell your candidates: Stop Adani & Support Renewables!

Send My Email!



Ban single-use plastics in Australia!

Act Now

The Australian Sustainable Seafood Guide is produced by AMCS is an example of influence.

Youtube video by AustMarineConsSoc, available:

<https://youtu.be/d30FE6aqZwk>

Australia's Sustainable Seafood Guide.

Donate

Follow

Australian Marine Conservation Society

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Get the seafood guide App on Android or iPhone

Your independent tool for choosing your seafood wisely

Welcome to Australia's Sustainable Seafood Guide Online - the first online sustainability guide for seafood consumers in Australia. It was developed in response to growing public concern about overfishing and its impact on our oceans and their wildlife. It is designed to help you make informed seafood choices and play a part in swelling the tide for sustainable seafood in Australia.

Sign up to our newsletter.

Sign Up

Seafood search.

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Activity - The roles of an NGO

As part of her Masters thesis, Crosman categorised specific activities of eNGOs involved with marine conservation into **five** roles:

Role	Description	Sample activities
Advocate	Drawing attention to or cultivating concern about marine issues; rallying support for a marine conservation agenda	Lobbying government and industry Participating in cross-sector collaborations as the voice of the environment Lawsuits Direct action Some education and outreach
Expert	Providing scientific input into marine conservation and management; increasing organisational knowledge	Original scientific research Development of scientific conservation tools Providing solicited process or science expertise
Manager	Directly implementing marine or coastal conservation; engaging in hands-on conservation activities	Land or easement purchases Management or co-management of protected areas Service provision Habitat restoration
Watchdog	Enforcing marine conservation agreements; preventing or stopping illegal activities, or activities seen as incompatible with a conservation agenda	Monitoring compliance and publicising infractions Direct action, including direct interference with targeted activities Lawsuits
Enabler	Empowering others to manage or provide input into management of their own marine and coastal resources	Capacity building Funding provision Providing opportunities for stakeholder involvement in conservation activities Process facilitation Network creation

Crosman, K. (2013). *The Role of Non-Governmental Organizations in Marine Conservation* (Master of Science). University of Michigan.
 Accessed: <http://hdl.handle.net/2027.42/99557>

Class activity– research an NGO from previous slide- and categorise their main role:

Role	Description	Sample activities
Advocate	Drawing attention to or cultivating concern about marine issues; rallying support for a marine conservation agenda	Lobbying government and industry Participating in cross-sector collaborations as the voice of the environment Lawsuits Direct action Some education and outreach
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Questions

Q1. What is the role of each of the following in the management and restoration of ecosystems?

- a. Government organisations
- b. Non-government organisations

Q2. Give two similarities and two differences in these roles.

Make sure you mention speed, diplomatic constraints, political influence, enforceability



Example answer – local creek restoration

Q1. Roles

- a. the role of government is to budget for, fund, process and approve applications. If the work is done by external contractors, to make sure the works are certified and evaluated.
- b. the role of a non-government is to lobby for the works, bring public attention to the need for water quality improvement, help supply research evidence, network labour forces, participate in the project and help with evaluation.

Syllabus requirements

Speed and diplomatic constraints

An NGO can work faster than government as they have no diplomatic constraints.

- The Government has to implement and pass legislation which takes more time.
- The shared need can take time until it becomes a real community issue eg the creek turns blue from paint pollution, oysters can no longer be eaten.
- Approval processes by government take time due to officers workloads.

Political influence

An NGO can seek to lobby for change through media and professional lobbyists.

Government creates policies and procedures which once enacted, remain in force until further governments change them.

The proximity to local elections can also influence local community politics.

Enforceability

NGO's have limited ability whereas government can fine polluters of the local creek.

NGO's can bring pollution to attention but have no enforcement capability.

Q2. Similarities and differences

a. Two similarities would be

The shared need for the restoration of the local ecosystem and the whole of community approach to the subsequent management process.

b. Two differences would be the NGO would be to (a) fund the works and (b) to get government environmental approvals.

Two differences the GO would be (a) make political statement in the press to raise community awareness and (b) to pay sub-contractors to provide earth moving equipment.

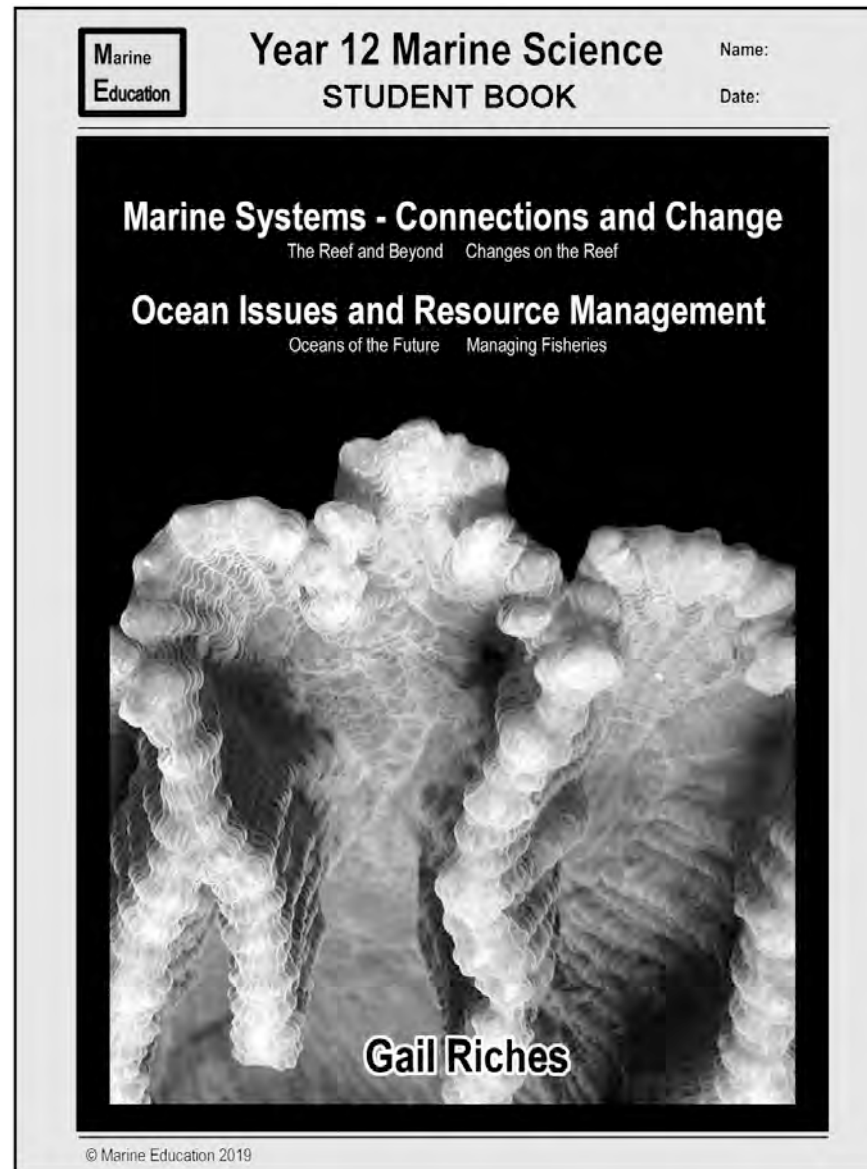
Worksheet

Success v's Failure

by

Gail Richie

www.marineeducation.com.au



DRAFT