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The Great Barrier Reef… a World Heritage area under pressure

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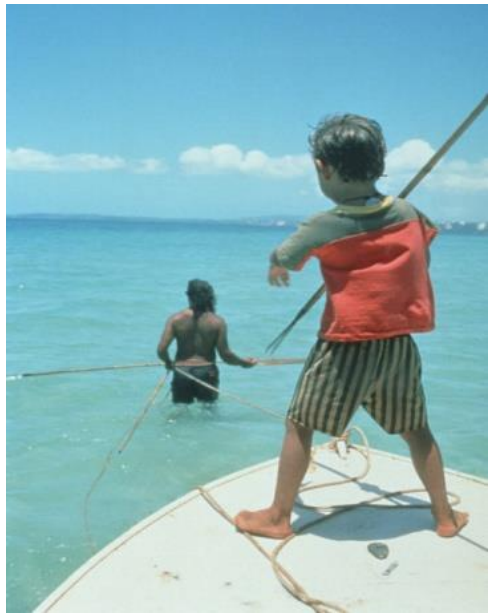
I acknowledge the Traditional owners of the area that today is known as the Great Barrier Reef …. and their Elders, past and present

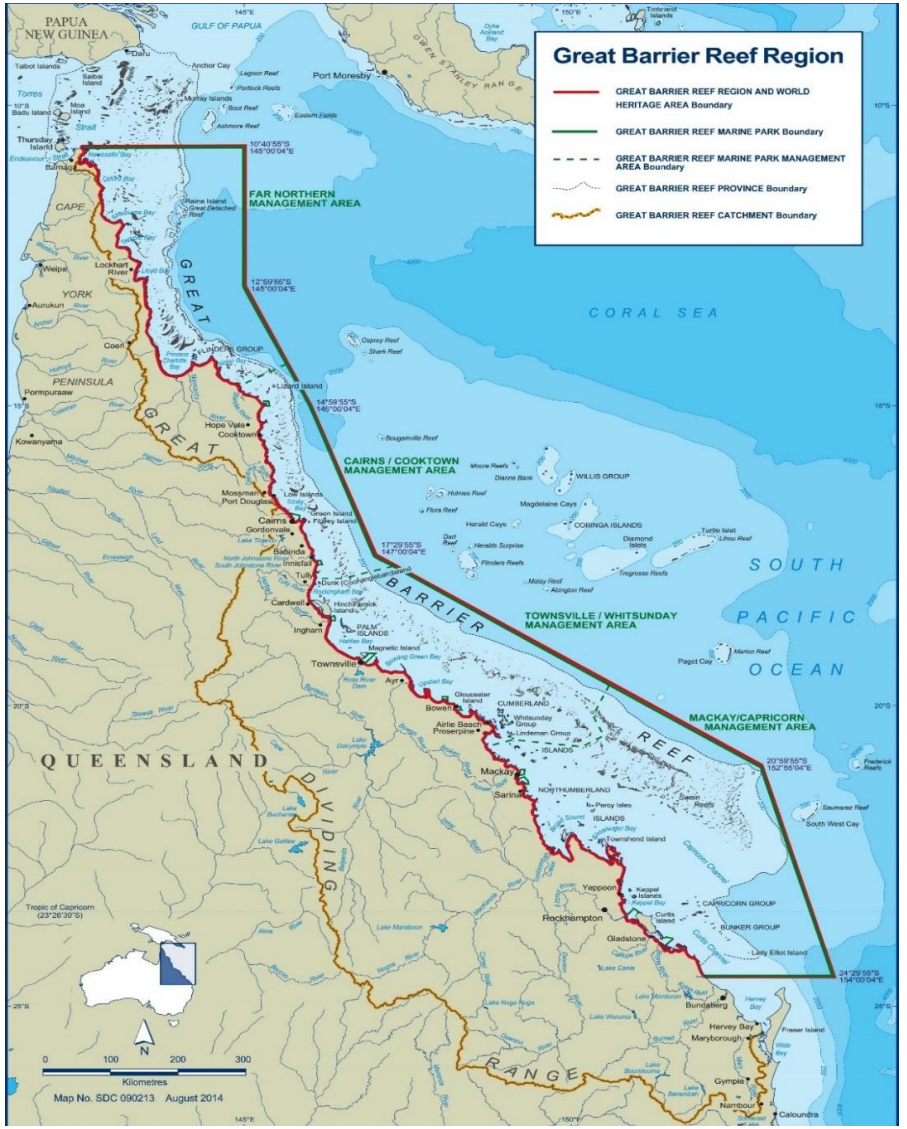


The Great Barrier Reef Marine Park

- GBR Marine Park = 344,000 sq km
  - ~ 2,300 km long
  - Covers ~14º of latitude

- Commonwealth (Federal) and Queensland governments both involved in GBR management

- *GBR Marine Park Act 1975 (Commonwealth)*



Deep oceanic waters

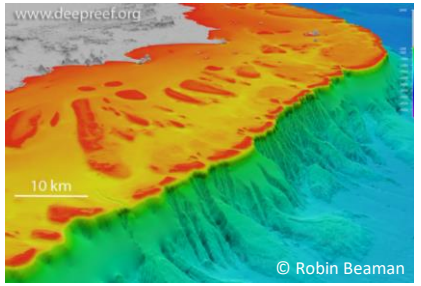
~ 3,000 separate reefs

~ 1,050 islands

GBRMP boundary

0 80

Kilometres



- **continental slope** *(15%)*
- **deep oceanic waters** *(16%)*

Legislative objectives – *GBRMP Act 1975*

Main Object of Act: Provide for "…**long term protection and conservation of ... environment, biodiversity and heritage values** of the GBR Region"

"So far as is consistent with the main object:

- Allow ecologically sustainable use of the GBR Region
- Encourage community engagement in the protection and management
- Assist in meeting Australia's international responsibilities"

GBR - always been a multiple use Marine Park

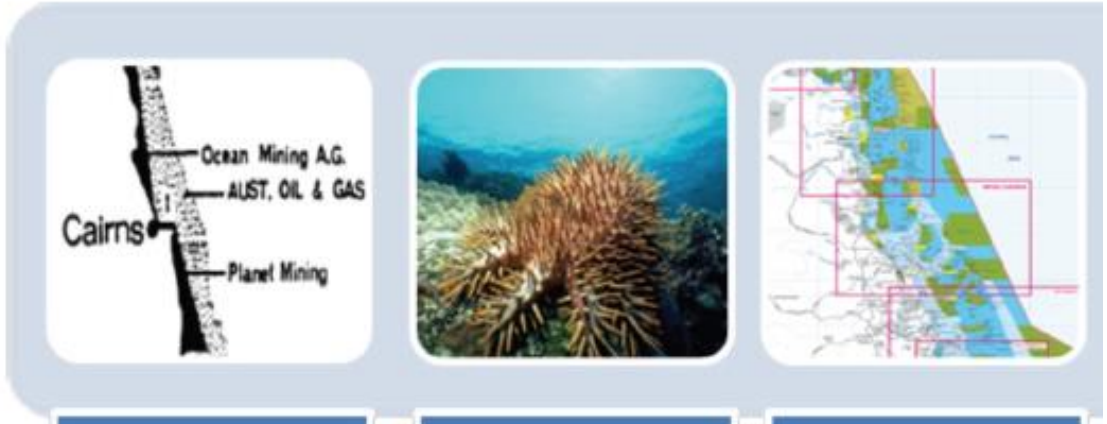
Most reasonable activities are allowed in certain zones, including:

- commercial fishing, including trawling in some areas
- recreational fishing
- shipping/ports
- tourism
- aquaculture
- defence training
- indigenous hunting
- permitted works, including dredging

Management - roles and responsibilities

Federal	Joint responsibility	State
Great Barrier Reef Marine Park and GBRWHA	Joint field management	GBR Coastal Marine Park
Shipping	Fisheries	Island management
Environmental approvals – matters of national environmental significance	Joint permits	Environmental approvals - development approvals
Coordination marine planning	Water quality	Land use planning

Changes in management challenges facing the GBR over last 50 years



1970s

- limestone mining
- oil drilling

1980s

- crown of thorns
- increasing tourism

1990s

- fishing (trawling)
- threats to biodiversity

GBR Marine Park Act, 1975

Changes in management challenges facing the GBR over last 50 years

1970s

- limestone mining
- oil drilling

1980s

- crown of thorns
- increasing tourism

1990s

- fishing (trawling)
- threats to biodiversity

2000s

- water quality issues
- coastal development
- fishing (netting)

current

Climate changes and numerous other challenges

GBR Marine Park Act, 1975

GBR Outlook Report

2009 & 2014 Reports *"…a poor outlook for GBR"*

2019 Report *"…a very poor outlook for GBR"*

"Without additional local, national and global action on the greatest threats, the overall outlook for the GBR's ecosystem will remain very poor, with continuing consequences for its heritage values also…

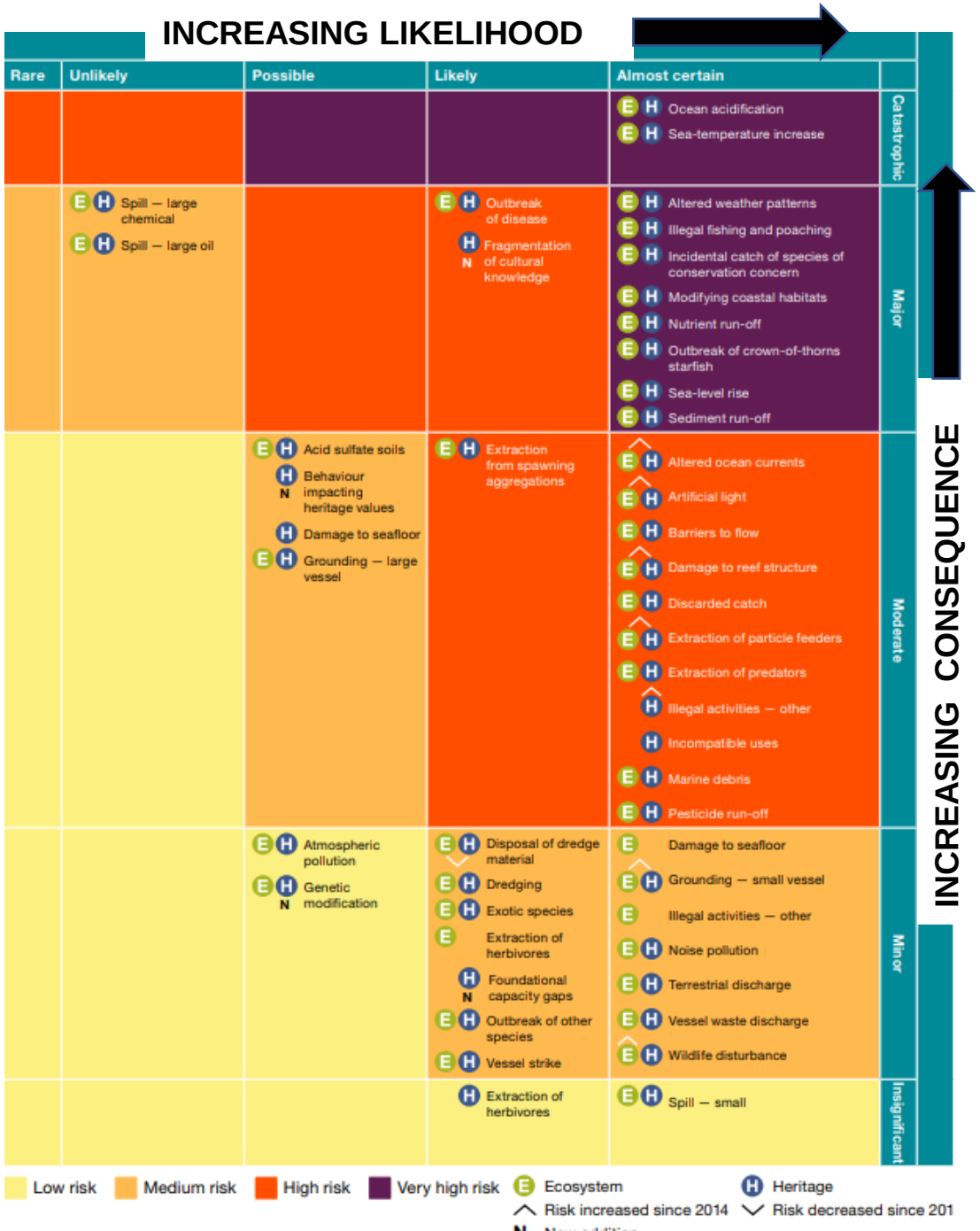
*…**The window of opportunity to improve the Reef's long-term future is now**…for the GBR to remain resilient and maintain its myriad of values, **society must play a pivotal and urgent role** in mitigating impacts and adapting to change.."*

(2019 Executive Summary)

Risk matrix - assessing 45 threats in GBR

(from Outlook Report, 2019)

- 19 of these threats are GBR **Region-wide** (note ten of these are Very High Risk =)
  - High Risk =
  - Medium Risk =
- 26 are **local or regional scale** threats
- All but two of these 45 threats are happening <u>NOW</u>



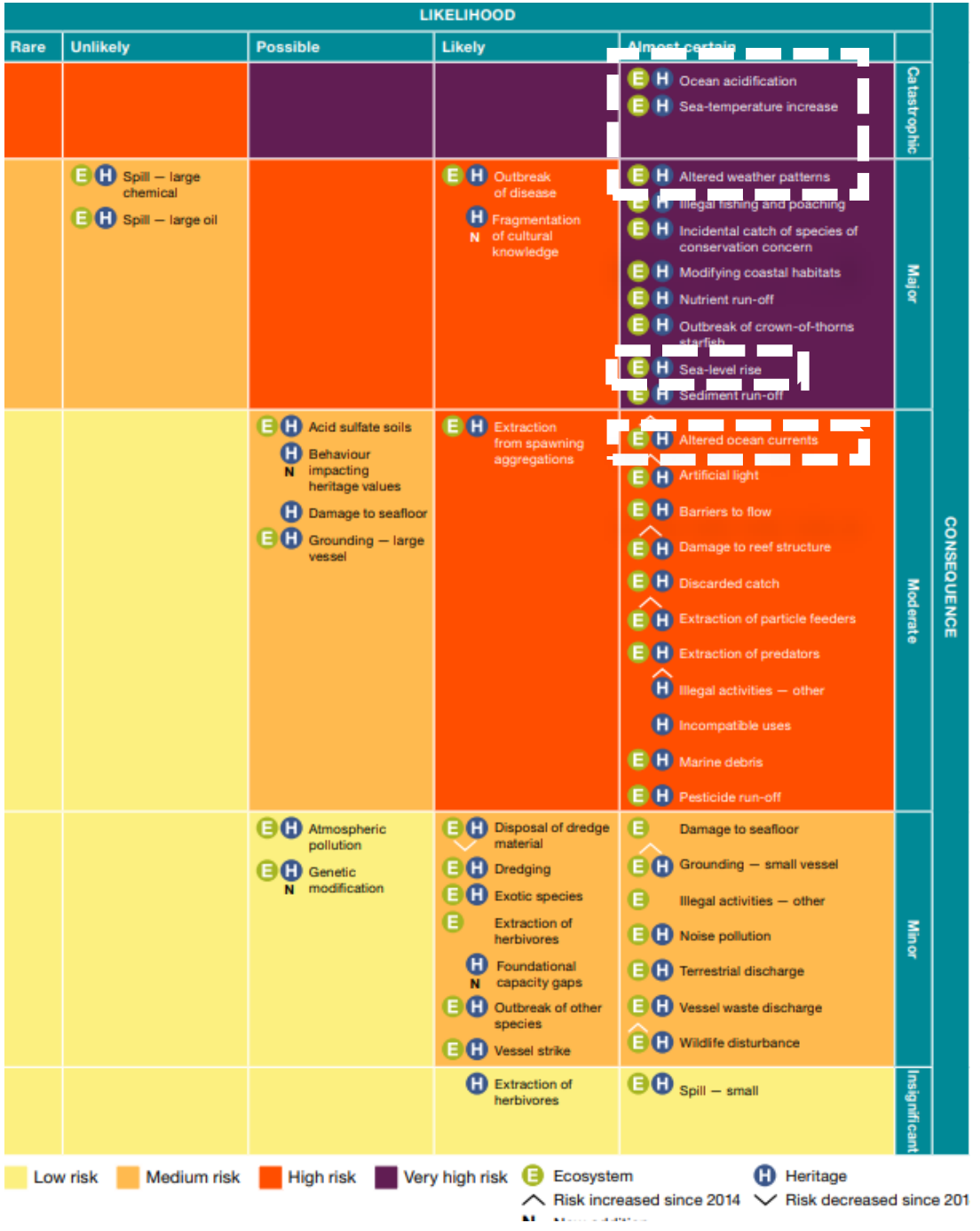
Climate change

~ 5 risks

- Ocean acidification
- Sea temperature increase
- Altered weather patterns
- Sea level rise
- Altered ocean currents

Overall level of risk:

- Very High risk
- High risk
- Medium risk



Extreme weather in GBR

1998
- Marine heatwave
- Drought

2002
- Marine heatwave
- Drought

2005
- TC Ingrid (5)
- Drought

2006
- TC Larry (5)
- TC Monica (3)
- Drought

2007
- Marine heatwave
- Drought

2009
- Marine heatwave
- TC Hamish (5)
- Flood

2010
- TC Ului (3)
- Flood

2011
- TC Yasi (5)
- Flood

2012
- Flood

2013
- Drought

2014
- TC Ita (5)

2015
- TC Marcia (5)
- TC Nathan (4)
- Drought

2016
- Marine heatwave
- Drought

2017
- Marine heatwave
- TC Debbie (4)
- Drought/Flood

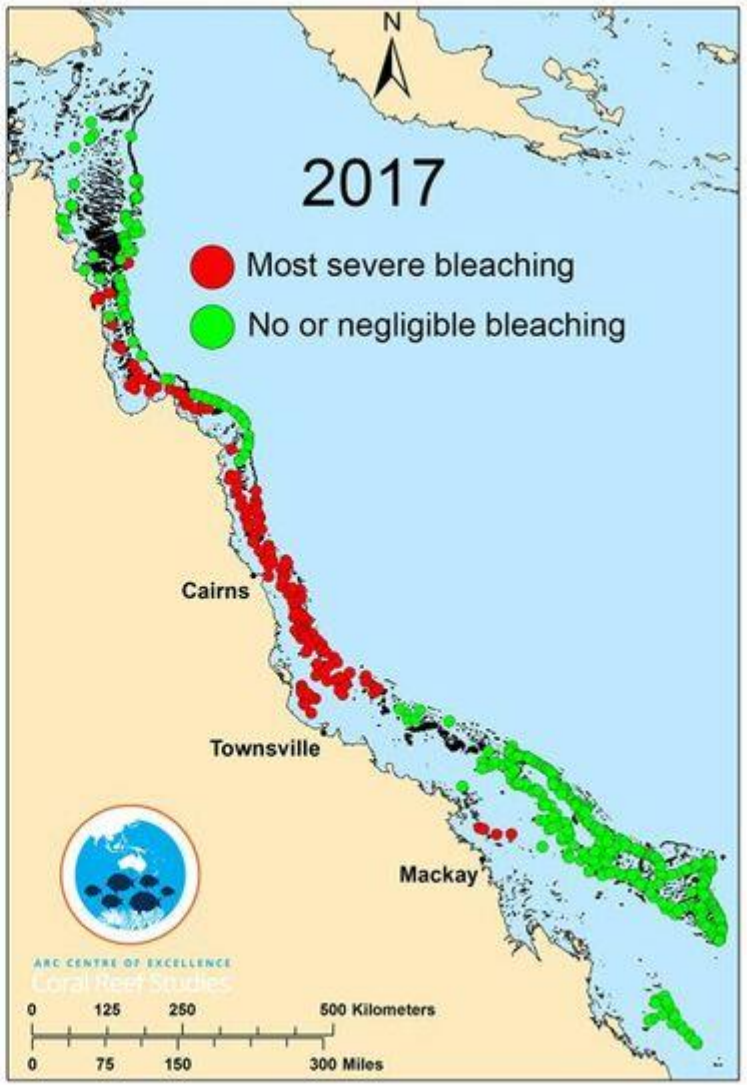
2018
- Flood

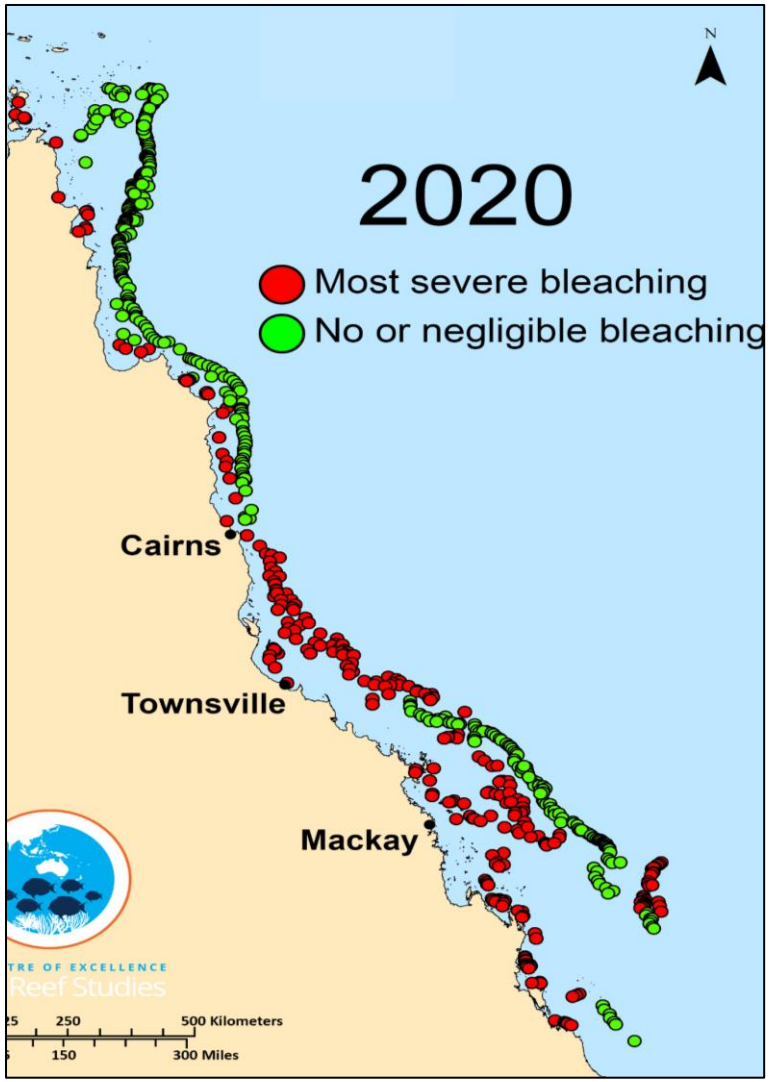
2019
- Flood

2020
- Marine heatwave

Coral bleaching across GBR in 2016, 2017 and 2020

Source: ARC Centre for Coral Reef Studies





Declining water quality

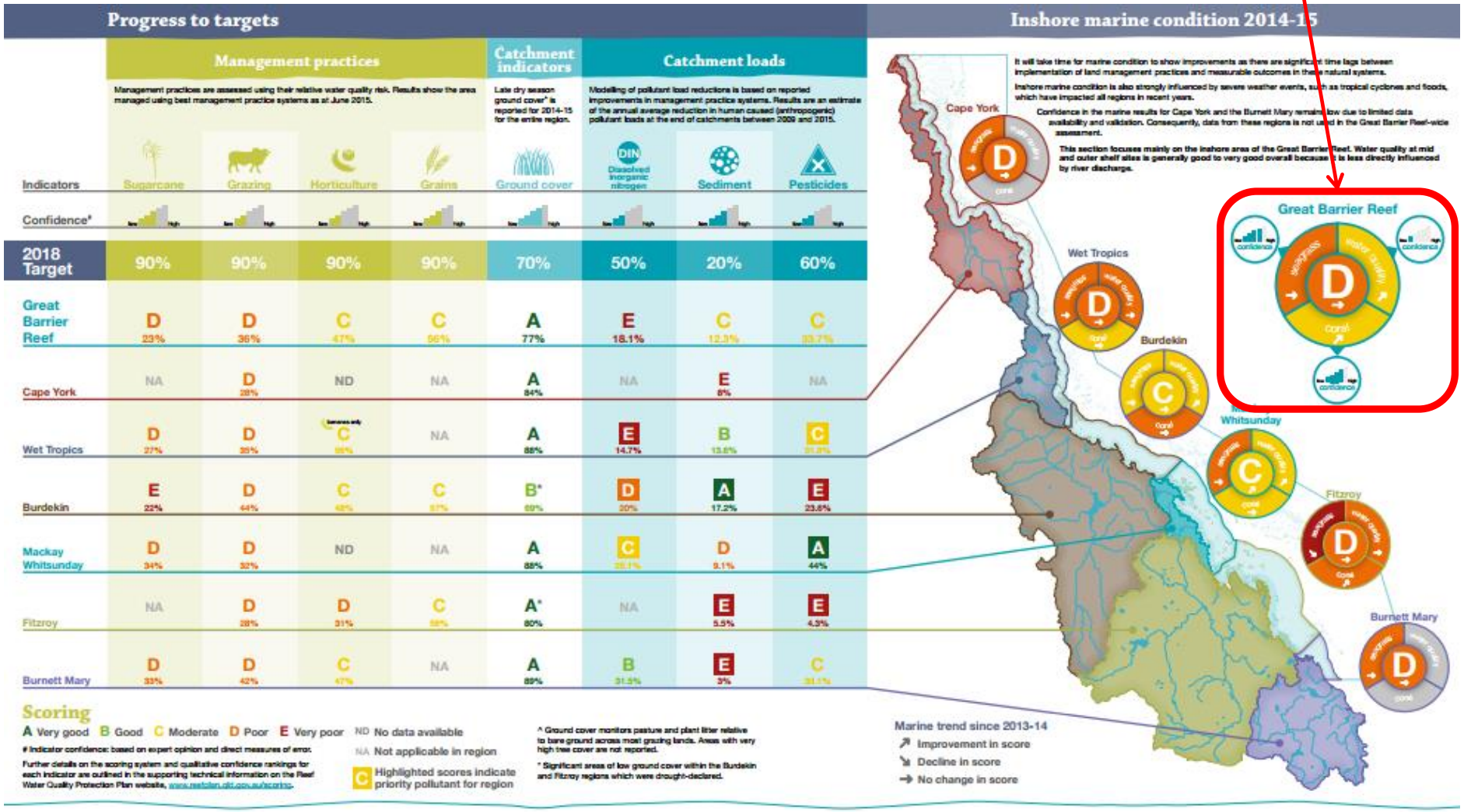
~ 8 risks

- Nutrient run-off
- Sediment run-off
- Outbreak of COTS
- Modifying coastal habitats
- Pesticide run-off
- Disposal of dredge material
- Vessel waste discharge
- Terrestrial discharge

Overall level of risk:

- Very High risk
- High risk
- Medium risk

Great Barrier Reef Report Card 2015 – overall a 'D'!



Progress to targets

	Management practices				Catchment indicators	Catchment loads		
Indicators	Sugarcane	Grazing	Horticulture	Grains	Ground cover	Dissolved inorganic nitrogen	Sediment	Pesticides
Confidence#								
2018 Target	90%	90%	90%	90%	70%	50%	20%	60%
Great Barrier Reef	D 23%	D 36%	C 47%	C 56%	A 77%	E 18.1%	C 12.3%	C 33.7%
Cape York	NA	D 28%	ND	NA	A 84%	NA	E 8%	NA
Wet Tropics	D 27%	D 35%	C 55%	NA	A 88%	E 14.7%	B 13.6%	C 31.8%
Burdekin	E 22%	D 44%	C 48%	C 57%	B* 69%	D 20%	A 17.2%	E 23.6%
Mackay Whitsunday	D 34%	D 32%	ND	NA	A 88%	C 28.1%	D 9.1%	A 44%
Fitzroy	NA	D 28%	D 31%	C 58%	A* 80%	NA	E 5.5%	E 4.3%
Burnett Mary	D 33%	D 42%	C 47%	NA	A 89%	B 31.5%	E 3%	C 33.1%

Scoring

A Very good B Good C Moderate D Poor E Very poor ND No data available NA Not applicable in region C Highlighted scores indicate priority pollutant for region

Indicator confidence: based on expert opinion and direct measures of error.

Further details on the scoring system and qualitative confidence rankings for each indicator are outlined in the supporting technical information on the Reef Water Quality Protection Plan website, www.reefplan.qld.gov.au/scoring.

^ Ground cover monitors pasture and plant litter relative to bare ground across most grazing lands. Areas with very high tree cover are not reported.

* Significant areas of low ground cover within the Burdekin and Fitzroy regions which were drought-declared.

Inshore marine condition 2014-15

It will take time for marine condition to show improvements as there are significant time lags between implementation of land management practices and measurable outcomes in these natural systems.

Inshore marine condition is also strongly influenced by severe weather events, such as tropical cyclones and floods, which have impacted all regions in recent years.

Confidence in the marine results for Cape York and the Burnett Mary remains low due to limited data availability and validation. Consequently, data from these regions is not used in the Great Barrier Reef-wide assessment.

This section focuses mainly on the inshore area of the Great Barrier Reef. Water quality at mid and outer shelf sites is generally good to very good overall because it is less directly influenced by river discharge.

Unsustainable coastal developments

~ 8 risks

- Modifying coastal habitats
- Sediment run-off
- Artificial light
- Barriers to flow
- Marine debris
- Disposal of dredge material
- Terrestrial discharge
- Acid Sulphate soils

Overall level of risk:

- Very High risk
- High risk
- Medium risk

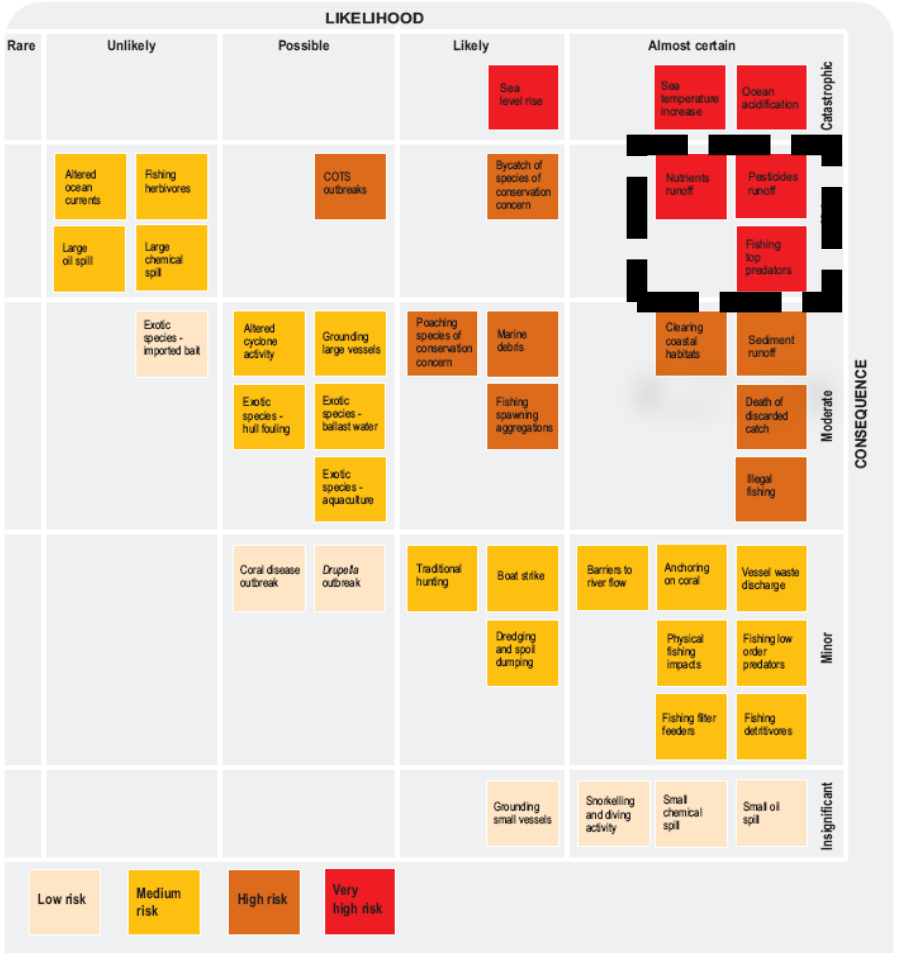
Unsustainable fishing impacts

~ 10 risks

- Illegal fishing and poaching
- Incidental catch of species of conservation concern
- Extraction of predators
- Discarded catch
- Extraction from spawning aggregations
- Outbreaks of disease
- Extraction of particle feeders
- Damage to reef structures
- Extraction of herbivores
- Introduction of exotic species

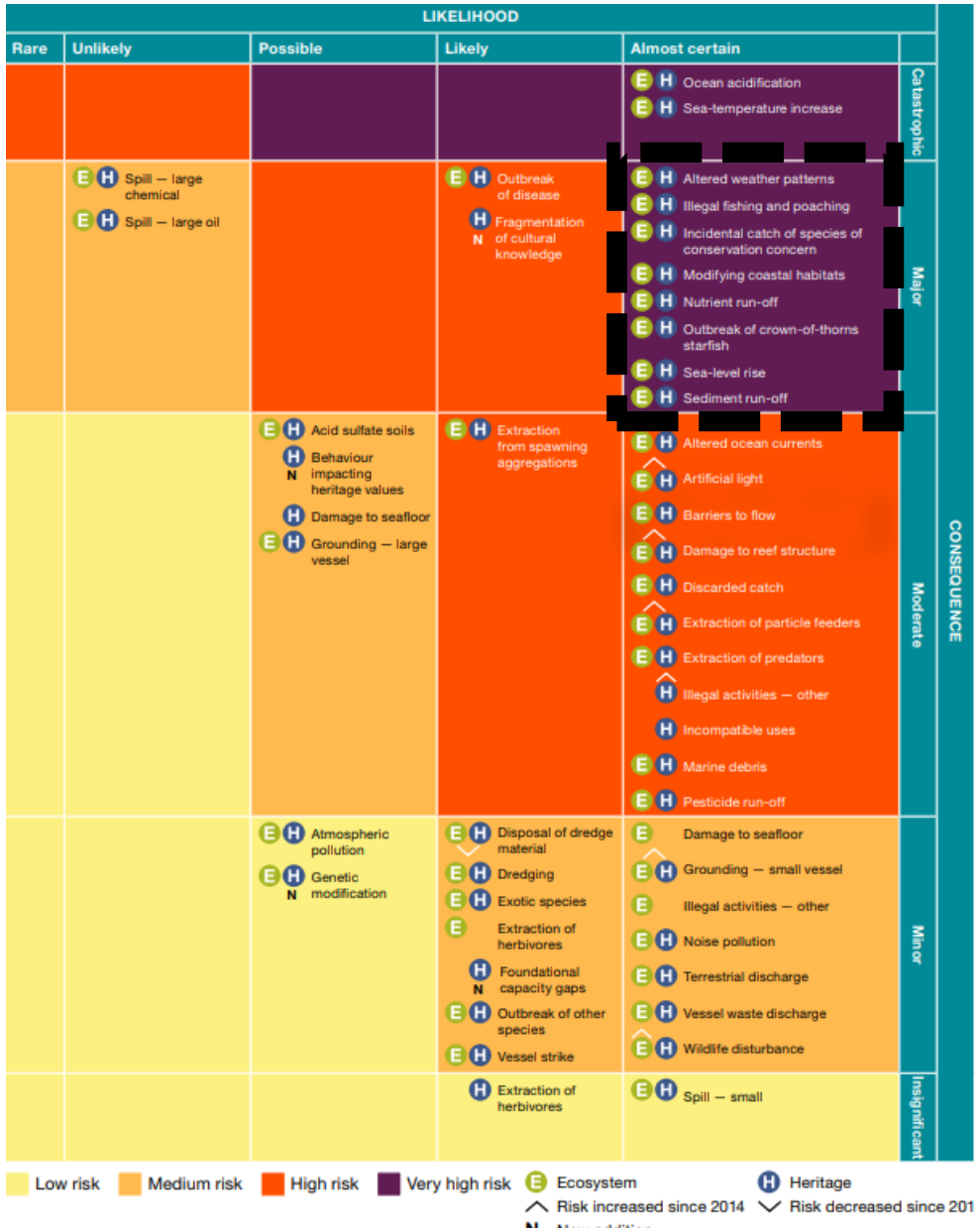
Overall level of risk:

- Very High risk
- High risk
- Medium risk



Outlook Report 2009

- 3 Very High risks (Almost certain, Major consequence)



Outlook Report 2019

- 8 Very High risks (Almost certain, Major consequence)



The issues facing the GBR are the same for most other coastal and marine areas i.e.:

- **Climate change** – *especially coral bleaching*
- **Water Quality** - *downstream effects of land use*
- **Increasing coastal developments**
- **Some unsustainable fishing impacts**
- **Increasing shipping and pollution incidents**
- **Increasing recreational use**

Cumulative impacts

The future for the GBR?

- **GBR is under unprecedented pressures:**
  - **natural**
  - **man-made**
- **Biggest threat is cumulative pressures (both direct and indirect)**
- **Many pressures are likely to increase**
- **A need for managers to prioritize the available management resources in response to these pressures**
- **Still a possibility of being listed as 'World Heritage in Danger'….**

Despite the pressures, the GBR is still 'one of the best' …

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