



Australian Government

Great Barrier Reef
Marine Park Authority

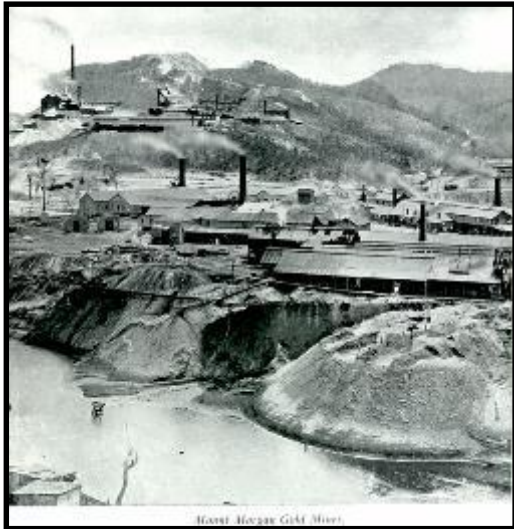


State of the Great Barrier Reef

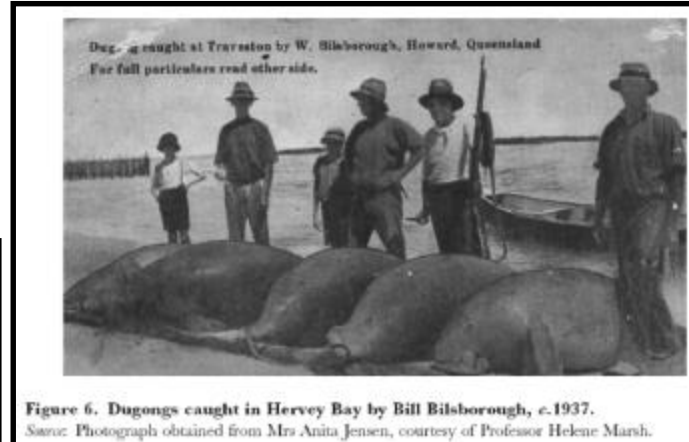
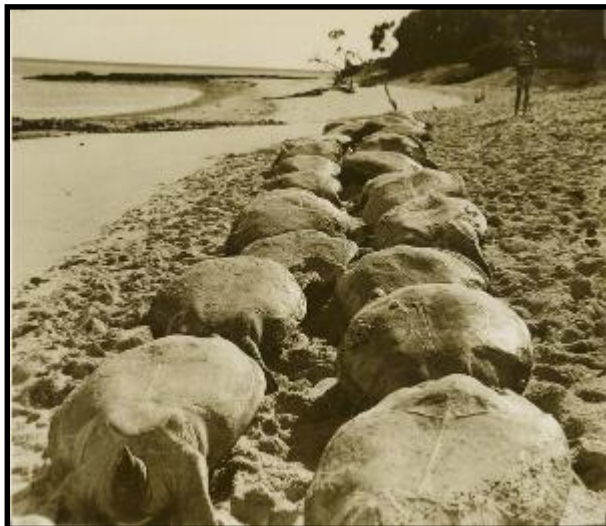
Presented by Dr David Wachenfeld
Great Barrier Reef Marine Park Authority

Reef-wide Traditional Owner Workshop
2 May 2018, Cairns

Legacy of eroded resilience



Barst. Hodge Gold Mine.



Modern use



Climate and ocean change

- Increased temperature
- Increased storm severity
- Increased flood/drought severity
- Ocean acidification
- Ocean currents
- Sea level rise



Extreme weather

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

- Flood
- Marine heatwave
- TC Hamish (5)

2010

- Flood
- TC Ului (3)

2011

- Flood
- TC Yasi (5)

2012

- Flood

2013

- Drought

2014

- TC Ita (5)

2015

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

2016

- Marine heatwave
- Drought

2017

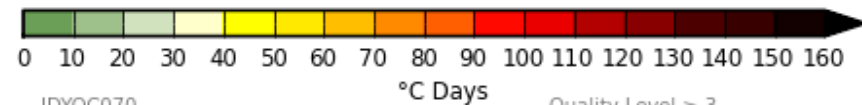
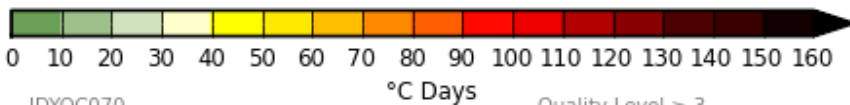
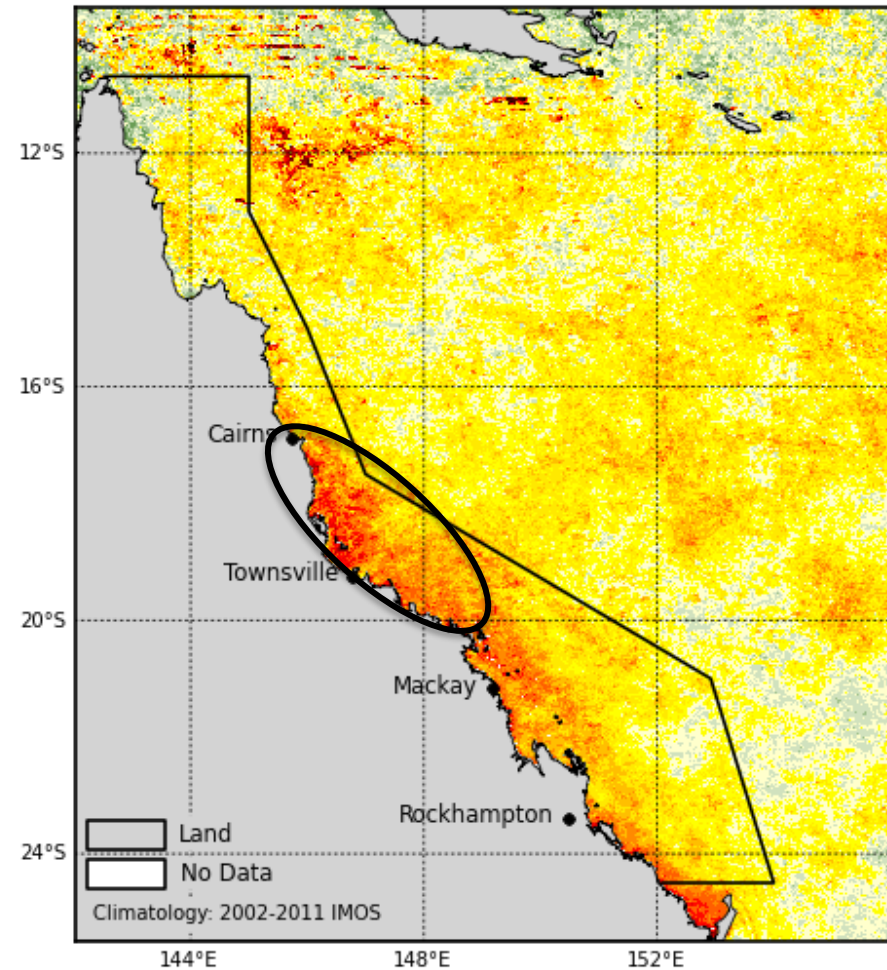
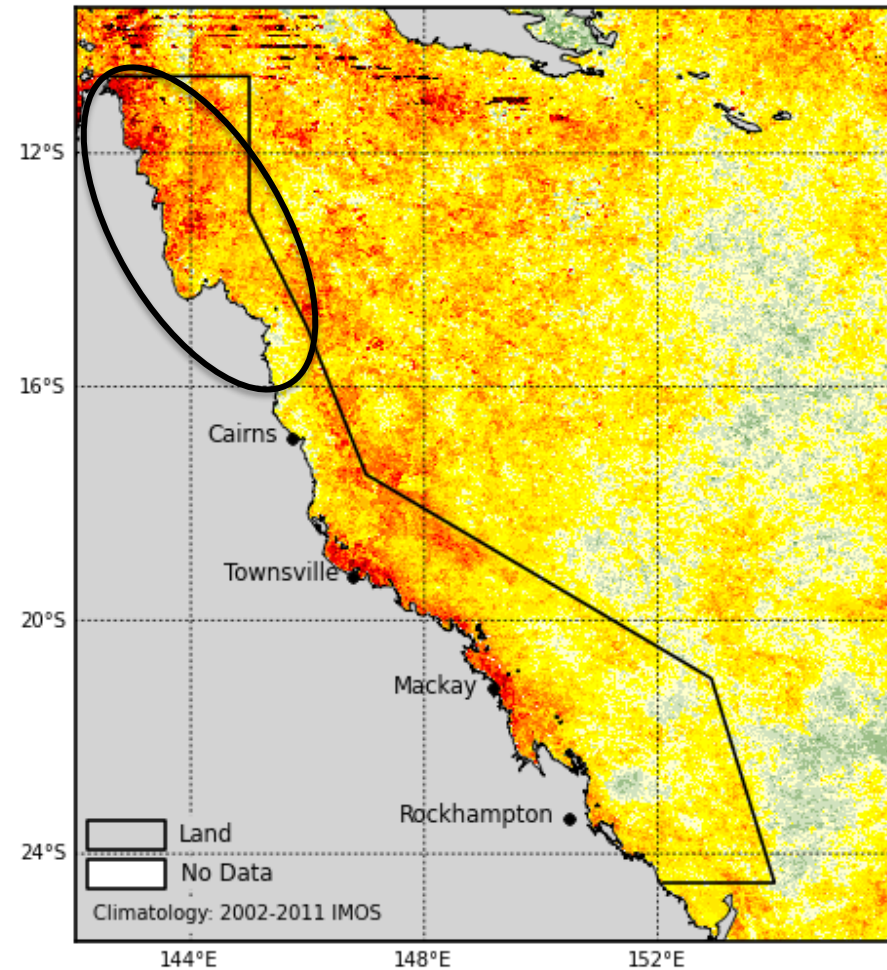
- Marine heatwave
- TC Debbie (4)
- Drought/Flood

2018

- Flood

IMOS 14-Day Mosaic: DHD
31 March 2016 GBR region

IMOS 14-Day Mosaic: DHD
28 February 2017 GBR region



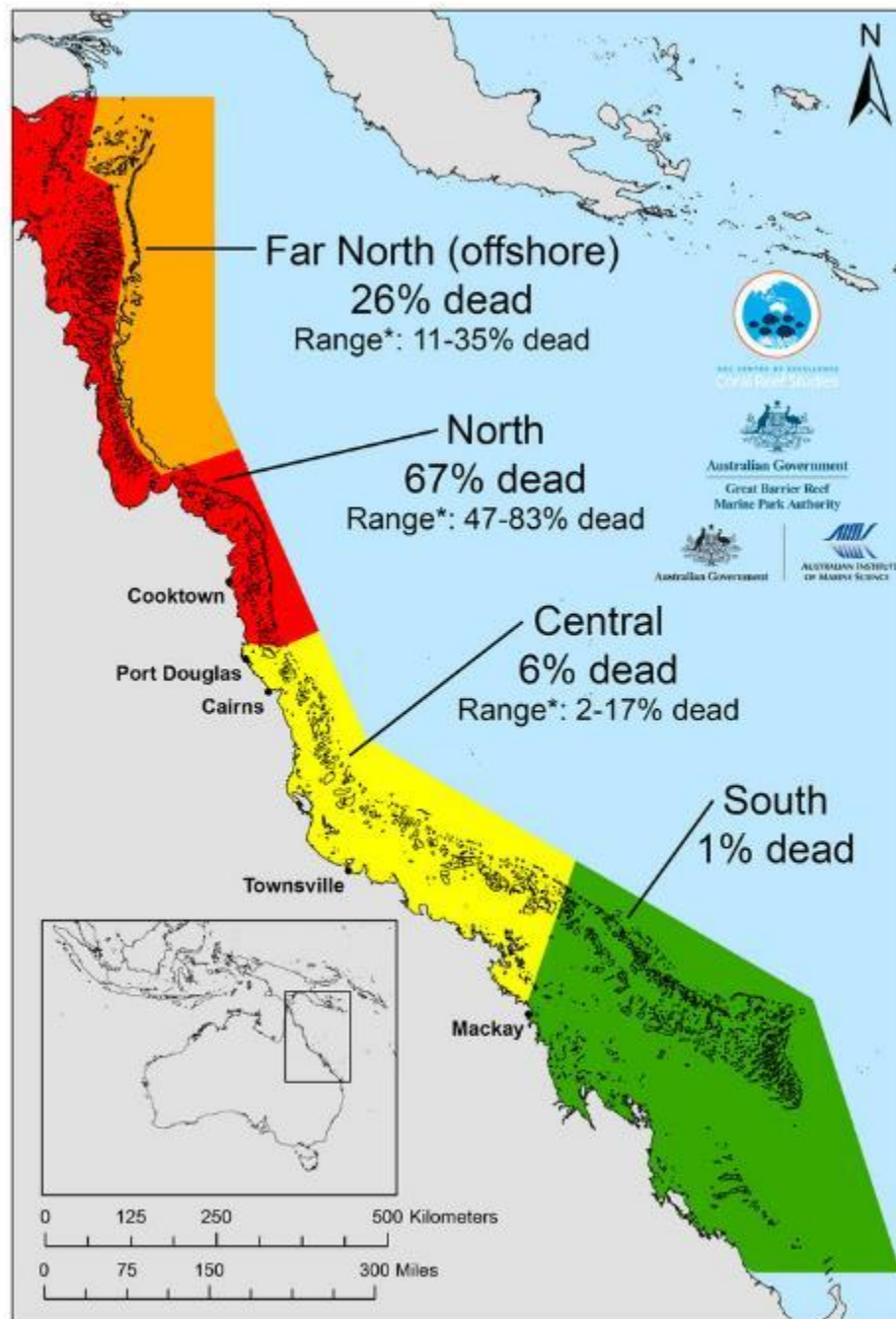
IDYOC070
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Quality Level ≥ 3
© Bureau of Meteorology 2017

IDYOC070
Created: 09-September-2017 06:09:31

Quality Level ≥ 3
© Bureau of Meteorology 2017





*upper and lower quartiles

Mapping the Global Coral Reef Bleaching Crisis

The longest and most widespread global coral bleaching event on record began in 2014, causing reefs near at least 38 countries and island groups to turn ghost white—and in some cases killing them. The bleaching is ongoing, triggered by high ocean temperatures, and scientists say 38 percent of reefs have already been impacted. The Great Barrier Reef and reefs around Kiribati are among the hardest hit. The worst is likely yet to come for the Caribbean and Florida.



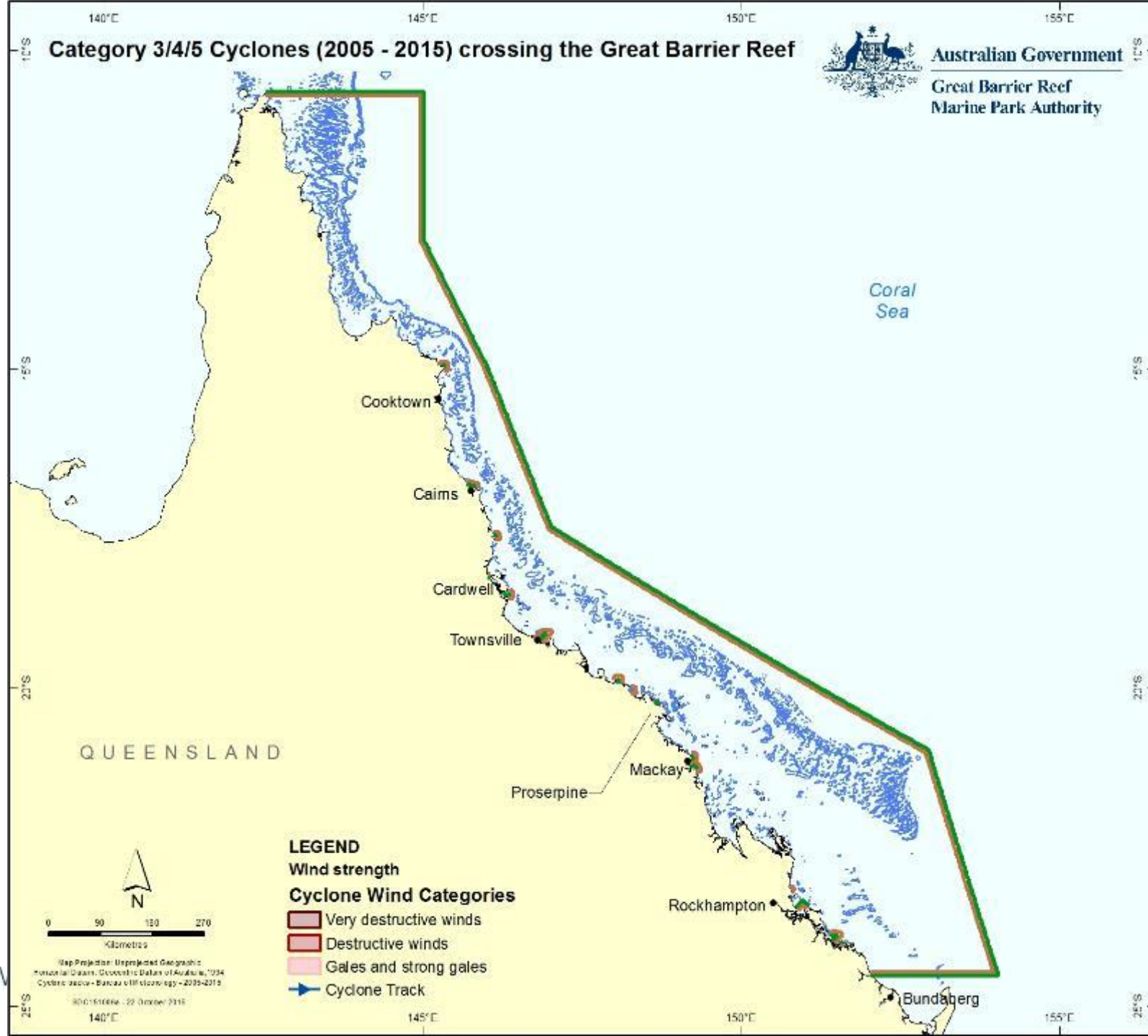
SOURCES: "Global Coral Bleaching 2014-2017" report by C.M. Eakin et al.; NOAA/Bernardo Vargas-Ángel; XL Catlin Seaview Survey; InsideClimate News research

PAUL HORN / InsideClimate News

Category 3/4/5 Cyclones (2005 - 2015) crossing the Great Barrier Reef



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Ingrid (4 - 16 March 2005)

Coral Sea

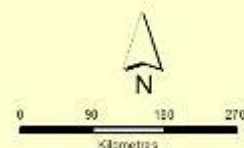
QUEENSLAND

LEGEND

Wind strength

Cyclone Wind Categories

- Very destructive winds
- Destructive winds
- Gales and strong gales
- Cyclone Track



Map Projection: Unprojected Geographic
Horizontal Datum: Geocentric Datum of Australia, 1994
Cyclone tracks: Bureau of Meteorology - 2005-2015

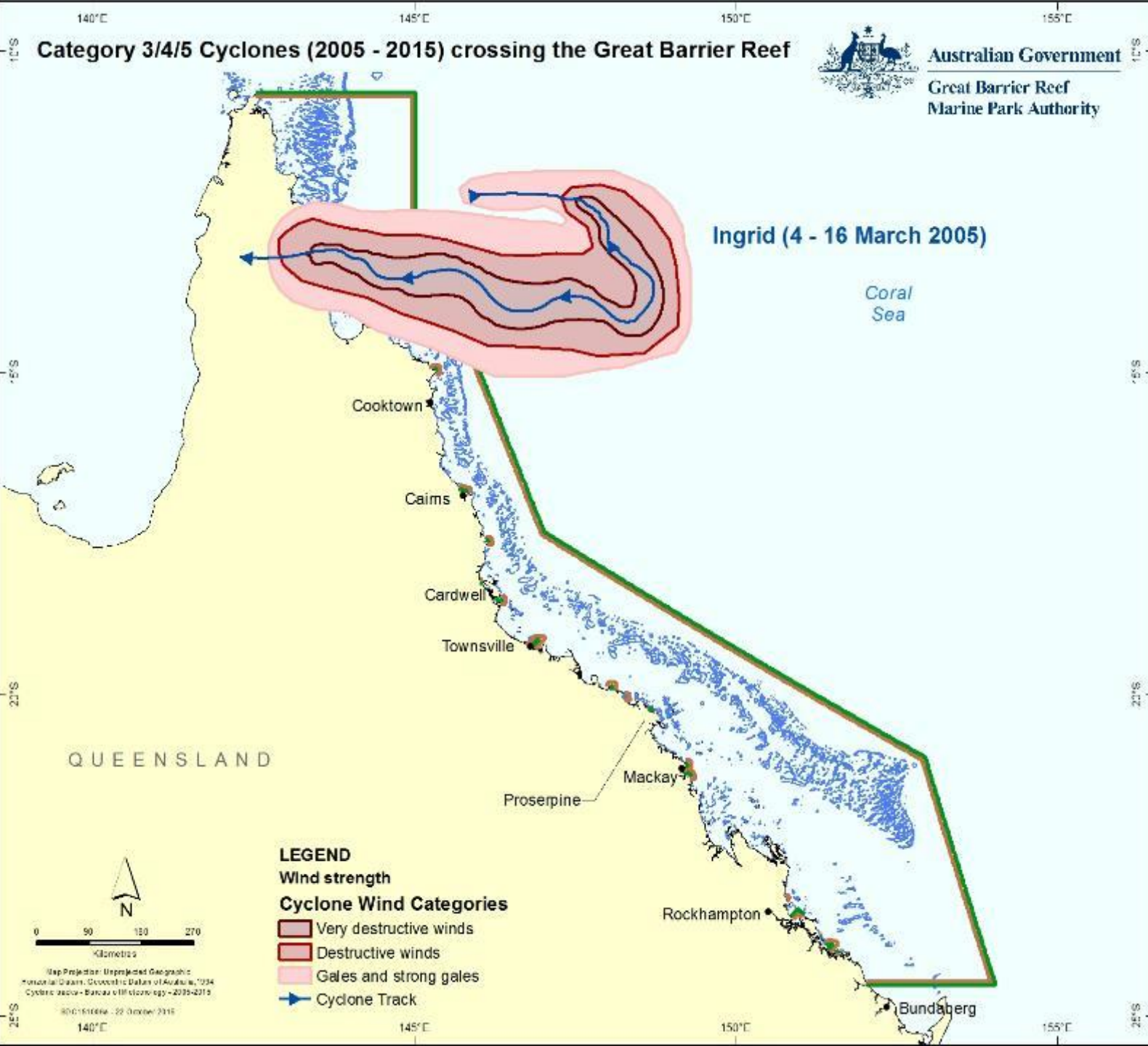
8001510000 - 22 October 2015

140°E

145°E

150°E

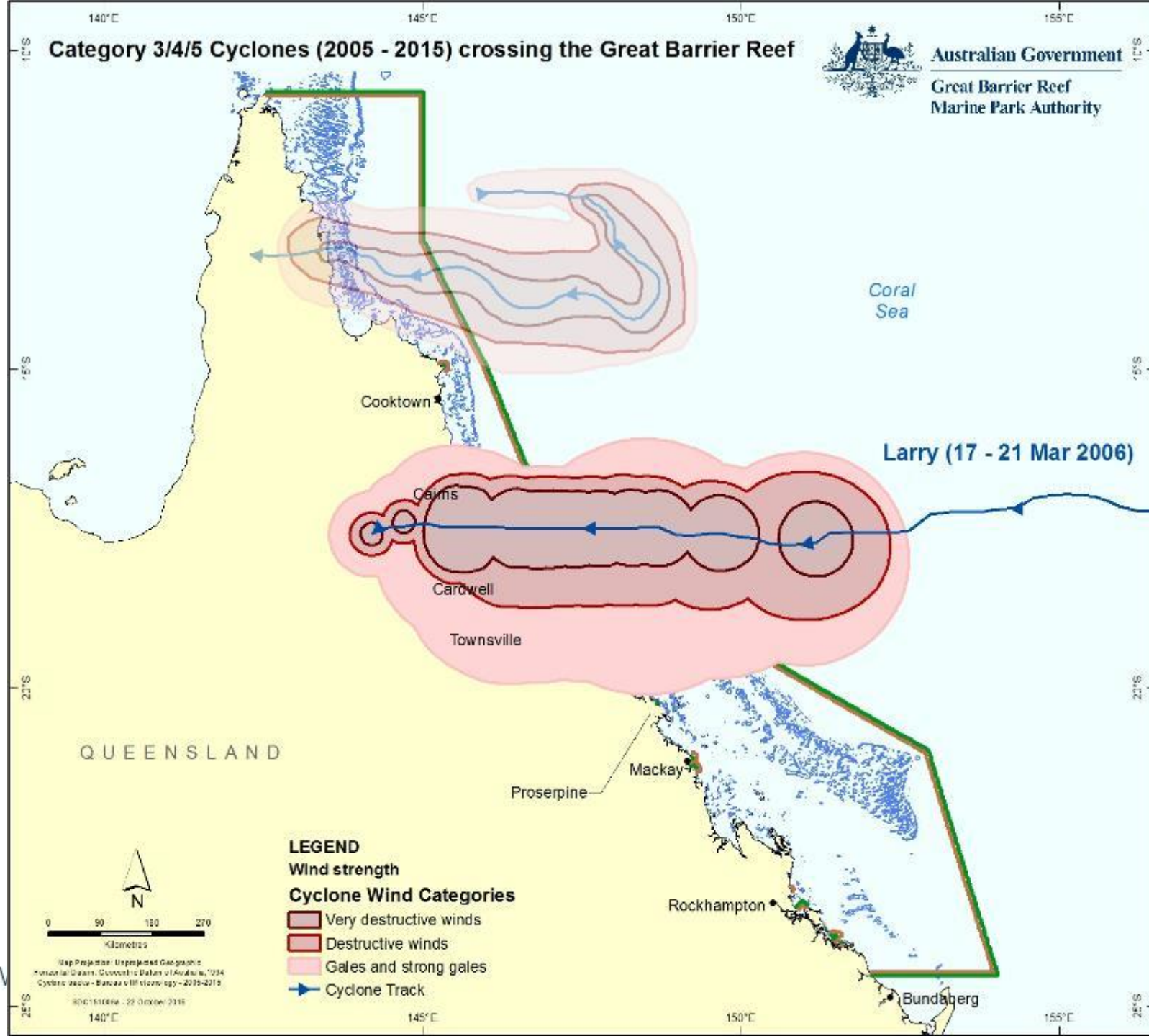
155°E



Category 3/4/5 Cyclones (2005 - 2015) crossing the Great Barrier Reef



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Larry (17 - 21 Mar 2006)

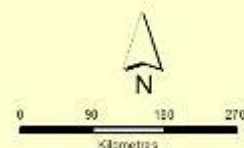
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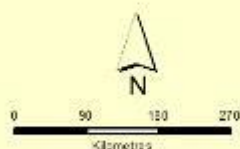


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Monica (17-24 April 2006)

Coral Sea

QUEENSLAND



Map Projection: Unprojected Geographic
Horizontal Datum: Geocentric Datum of Australia, 1994
Cyclone tracks: Bureau of Meteorology - 2005-2015

8001510000 - 22 October 2015

LEGEND

Wind strength

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- Cyclone Track

Cooktown

Cairns

Cardwell

Townsville

Proserpine

Mackay

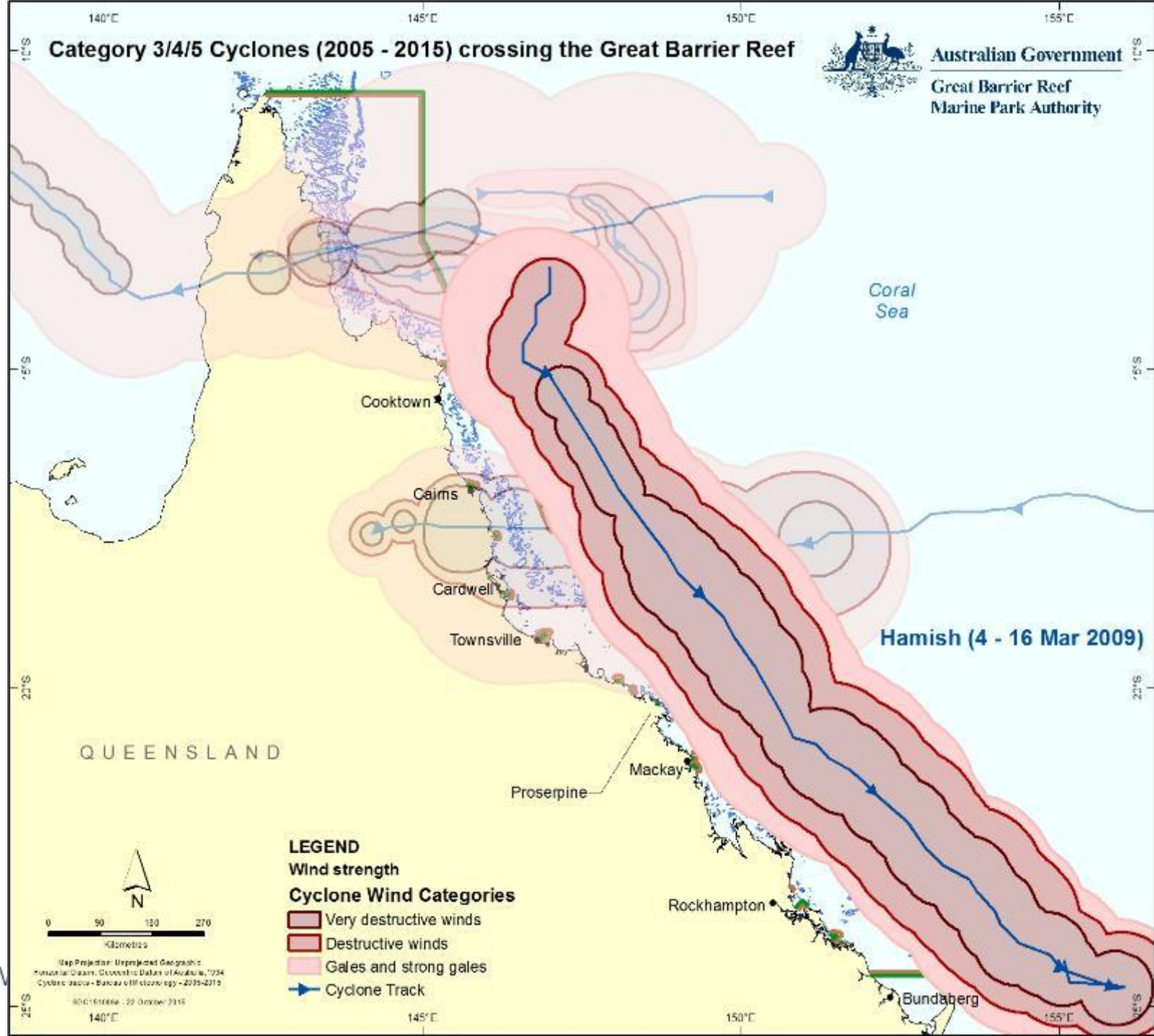
Rockhampton

Bundaberg

Category 3/4/5 Cyclones (2005 - 2015) crossing the Great Barrier Reef



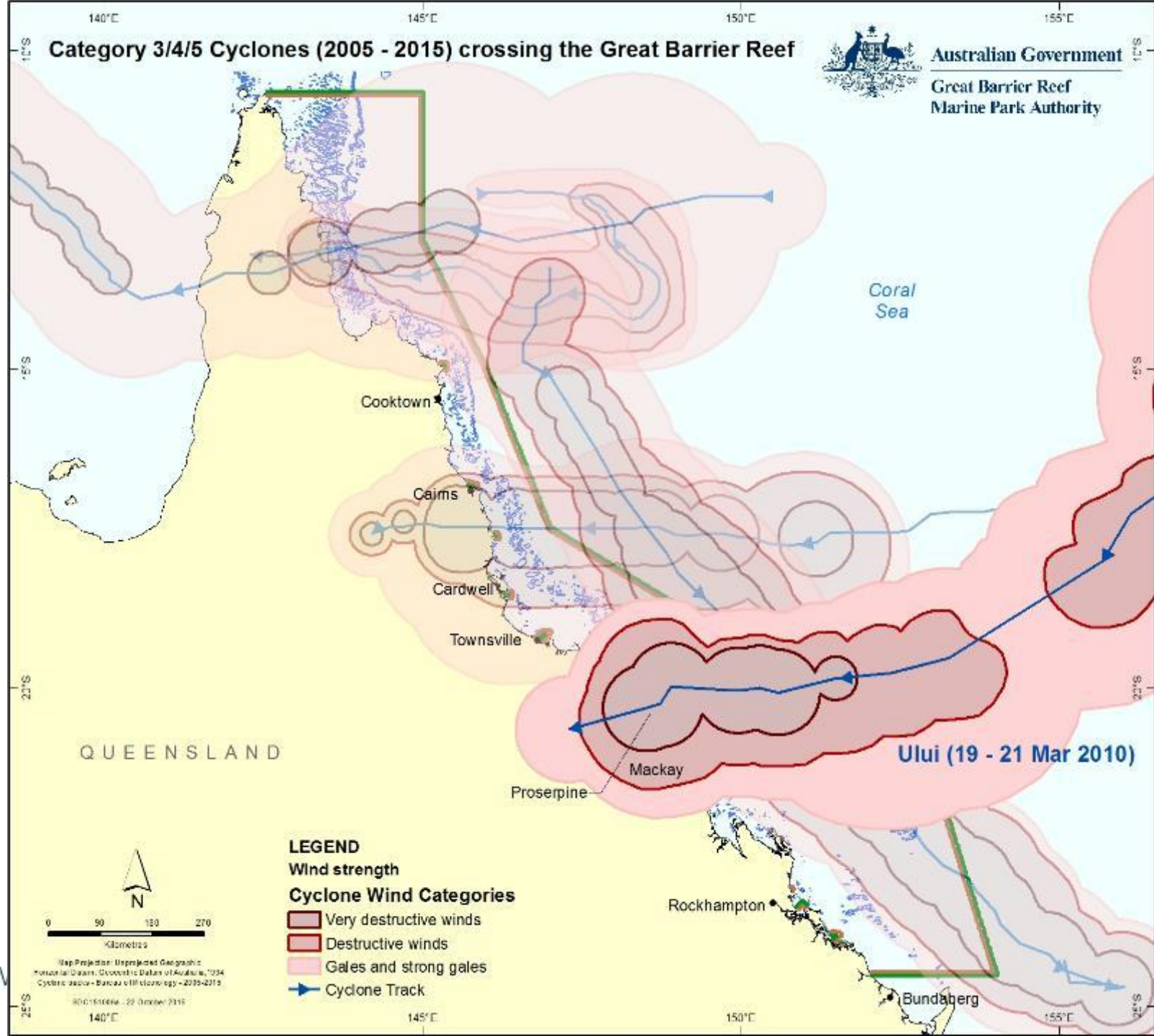
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Category 3/4/5 Cyclones (2005 - 2015) crossing the Great Barrier Reef



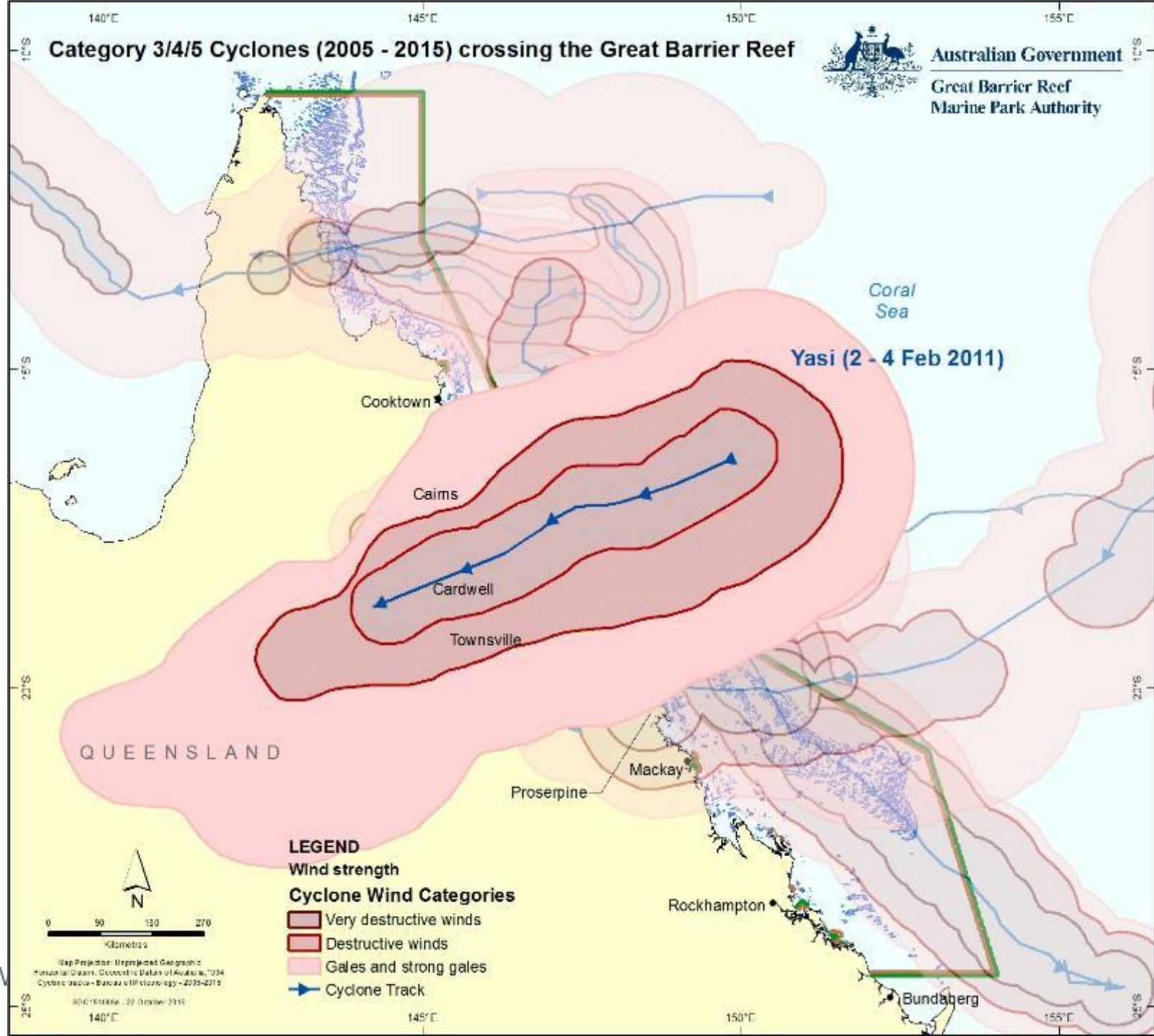
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Category 3/4/5 Cyclones (2005 - 2015) crossing the Great Barrier Reef



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Ita (4-14 April 2014)

Coral
Sea

Cooktown

Caïms

Cardwell

Townsville

Proserpine

Mackay

Rockhampton

Bundaberg

QUEENSLAND

LEGEND

Wind strength

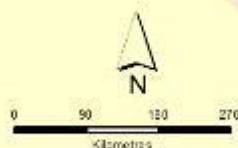
Cyclone Wind Categories

Very destructive winds

Destructive winds

Gales and strong gales

Cyclone Track



Map Projection: Unprojected Geographic
Horizontal Datum: Geocentric Datum of Australia, 1994
Cyclone tracks: Bureau of Meteorology - 2005-2015

8001510000 - 22 October 2015

140°E

145°E

150°E

155°E

10°S

15°S

20°S

25°S

150°E

155°E

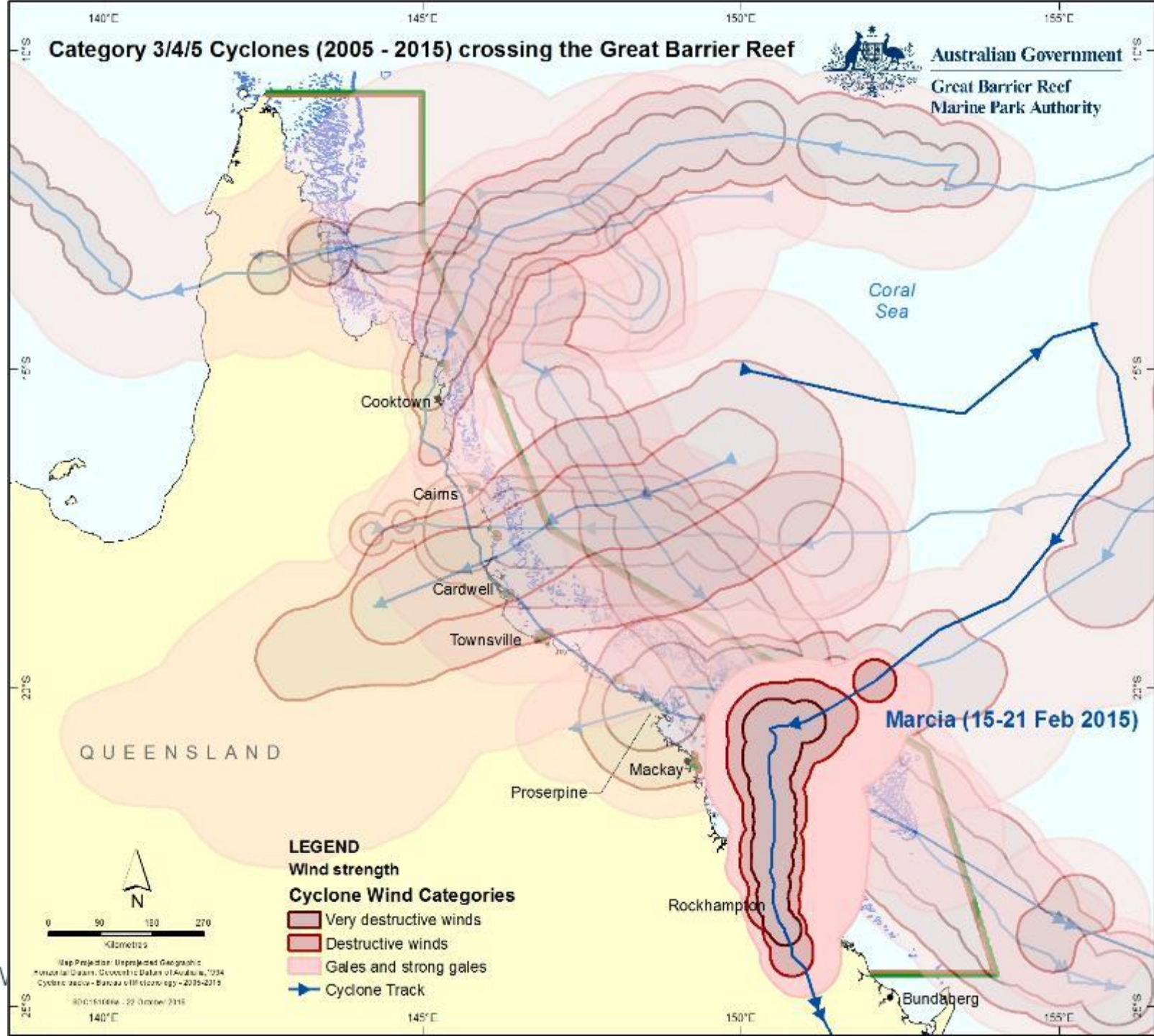
160°E

165°E

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Category 3/4/5 Cyclones (2005 - 2015) crossing the Great Barrier Reef



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Coral
Sea

Nathan (10-23 March 2015)

Cooktown

Cairns

Cardwell

Townsville

Proserpine

Mackay

Rockhampton

Bundaberg

QUEENSLAND

LEGEND

Wind strength

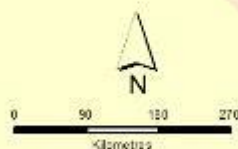
Cyclone Wind Categories

Very destructive winds

Destructive winds

Gales and strong gales

Cyclone Track



Map Projection: Unprojected Geographic
Horizontal Datum: Geocentric Datum of Australia, 1994
Cyclone tracks: Bureau of Meteorology - 2005-2015

8001510000 - 22 October 2015

140°E

145°E

150°E

155°E

10°S

15°S

20°S

25°S

150°E

155°E

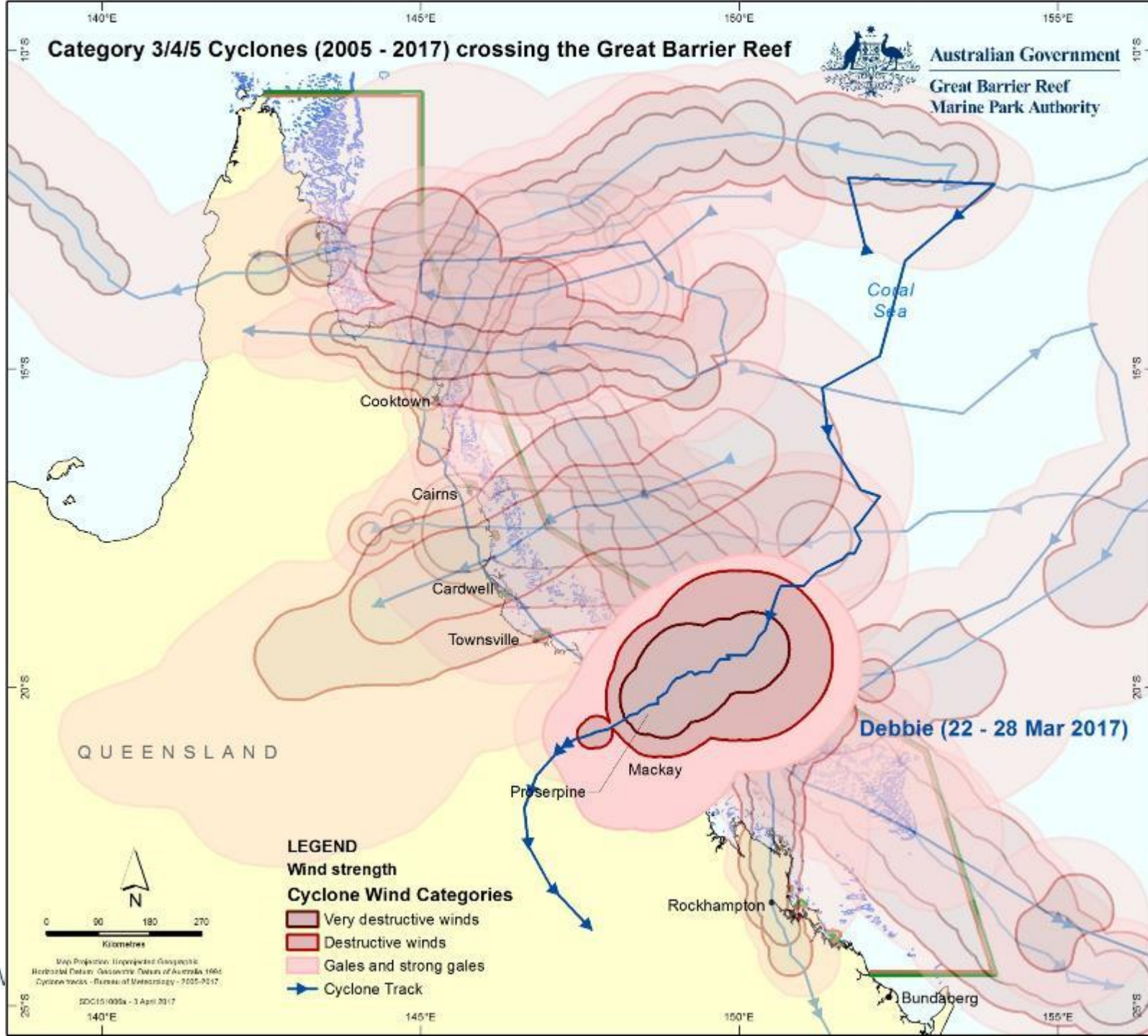
20°S

25°S

Category 3/4/5 Cyclones (2005 - 2017) crossing the Great Barrier Reef



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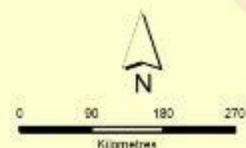


LEGEND

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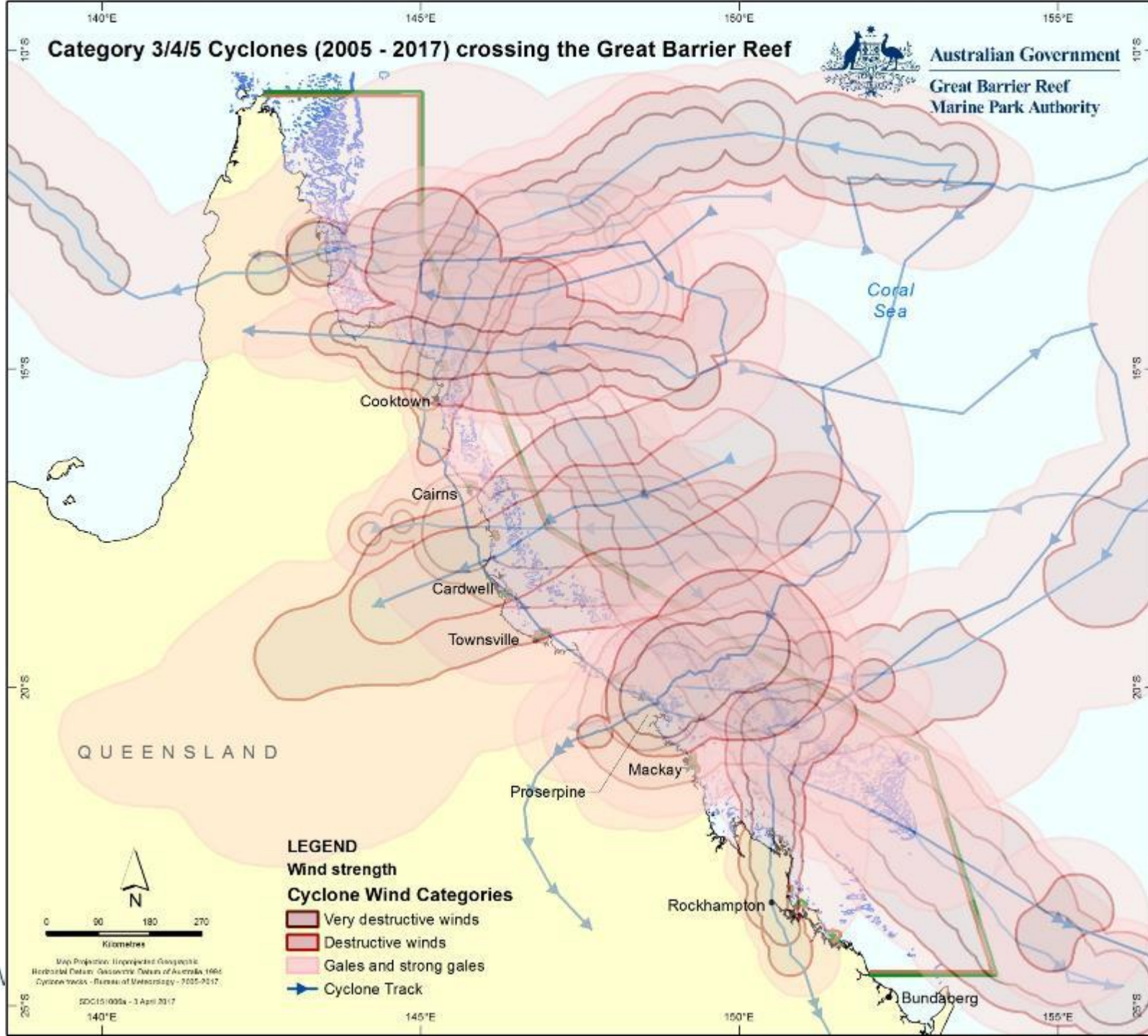
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Horizontal Datum: Geoscience Datum of Australia 1966
Cyclone tracks - Bureau of Meteorology - 7005-7017

DOC15/095a - 3 April 2017

Category 3/4/5 Cyclones (2005 - 2017) crossing the Great Barrier Reef



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January 2010



January 2008



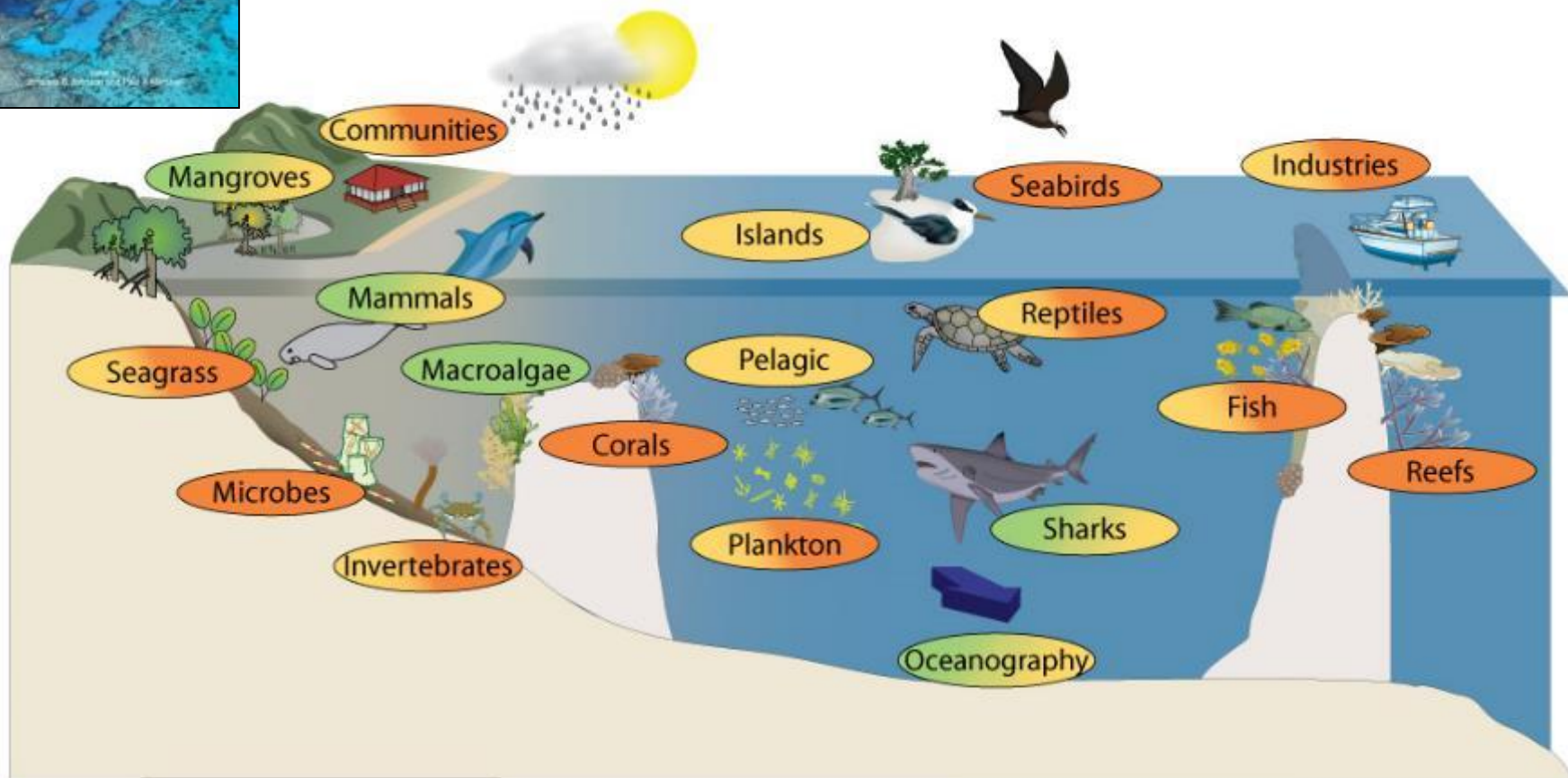
October 2012



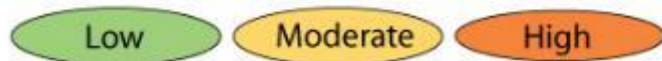
August 2011

© Queensland Government (QPWS)





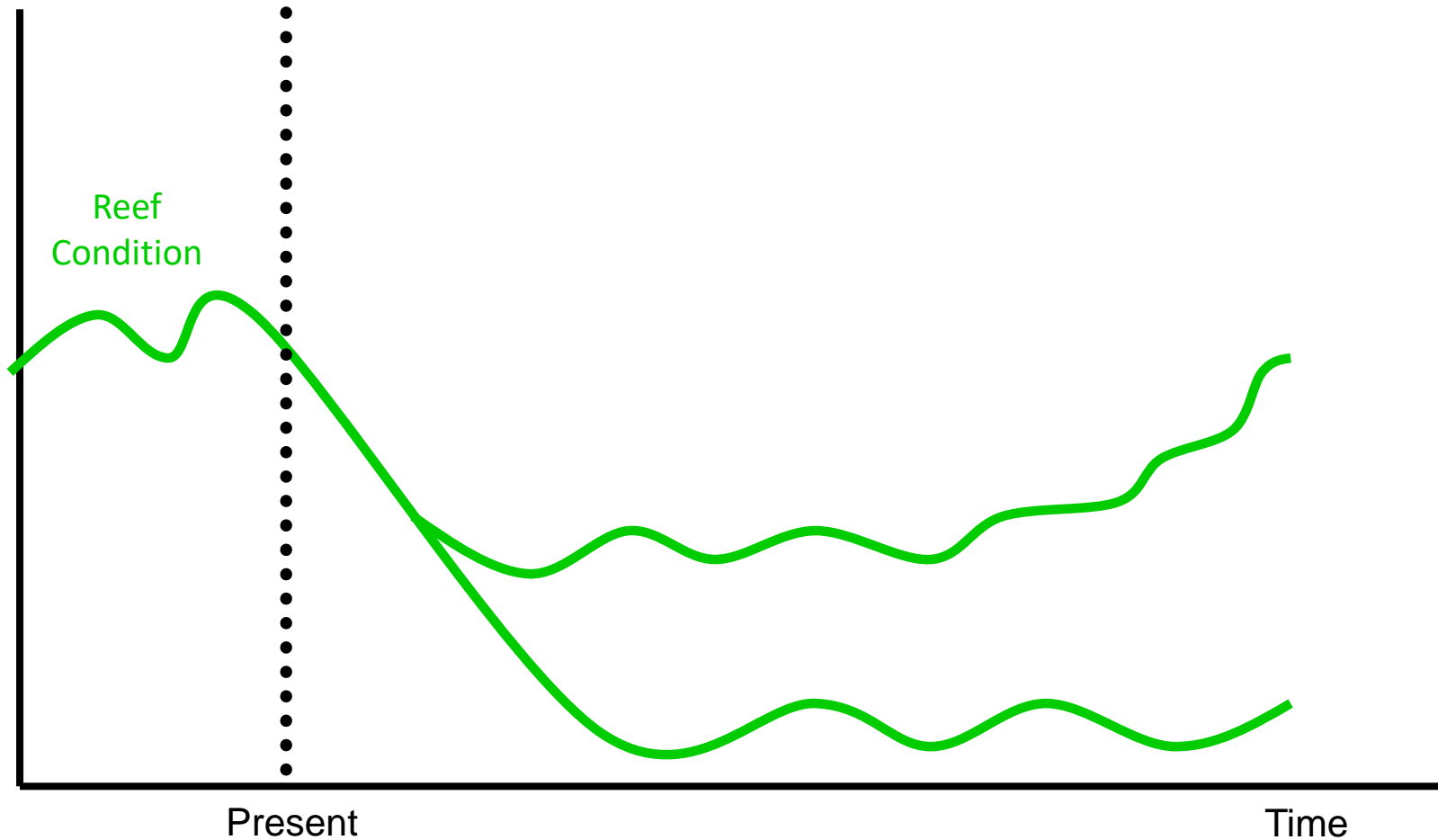
Predicted vulnerability



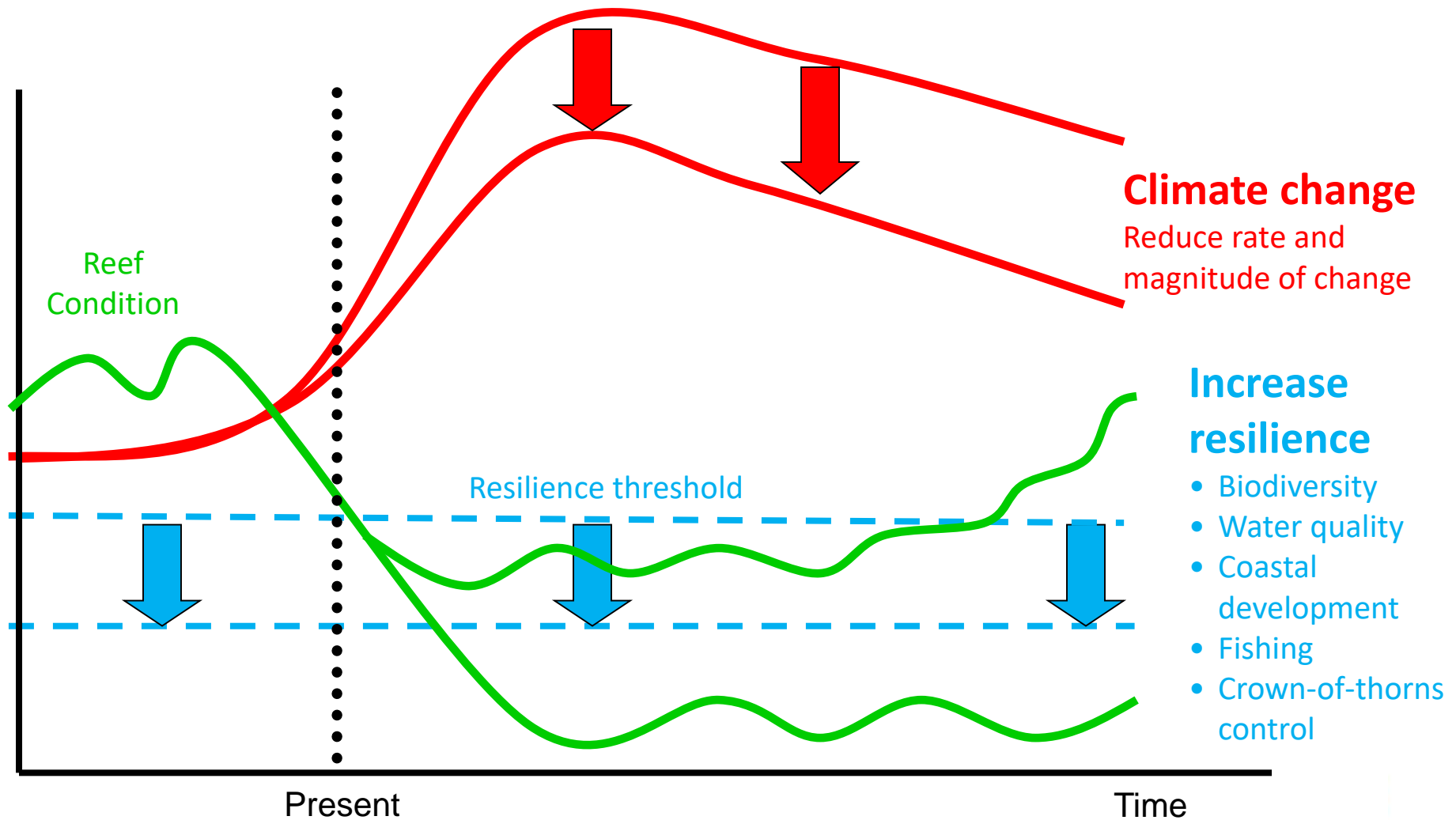
Stories of hope



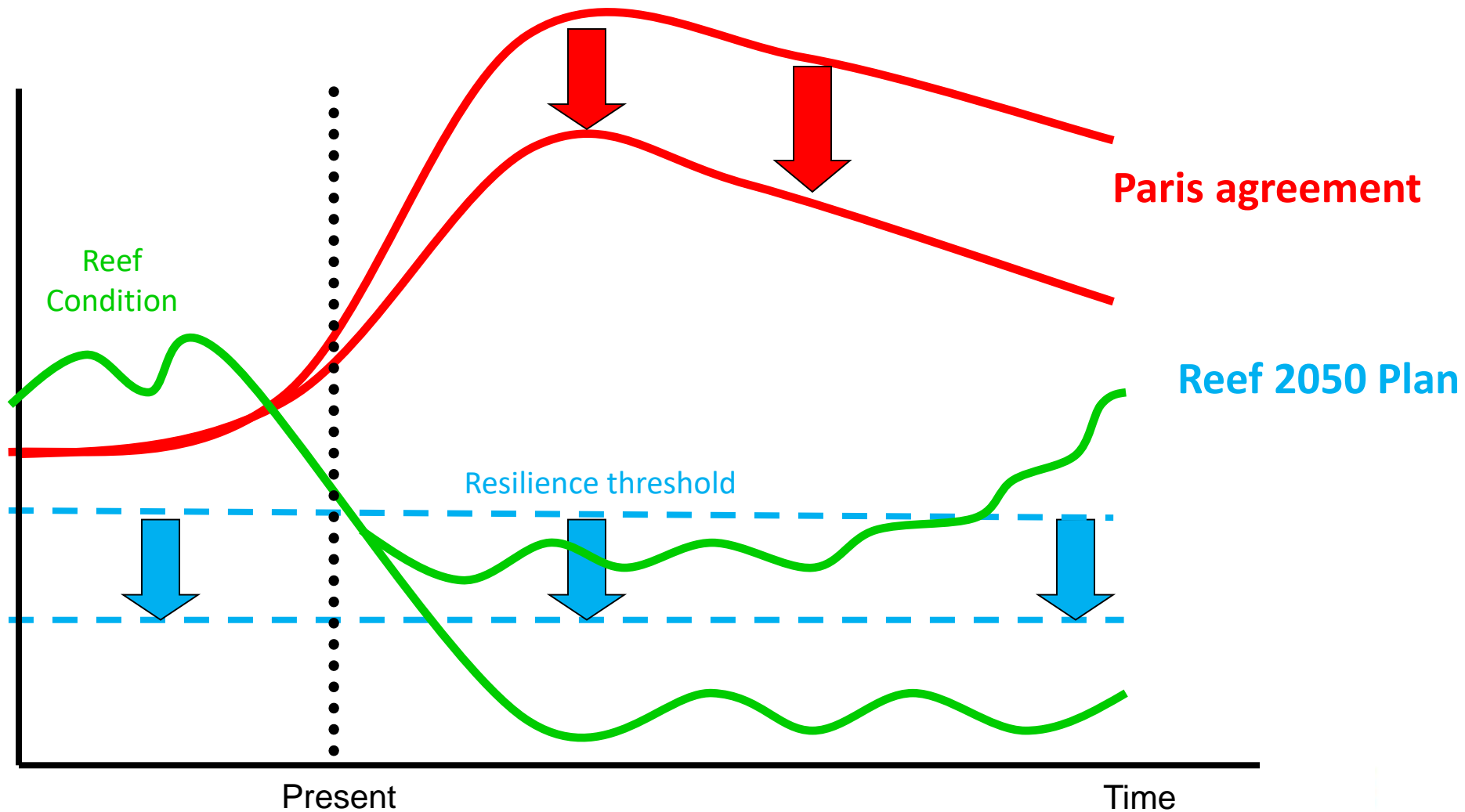
Resilient Reef ecosystem



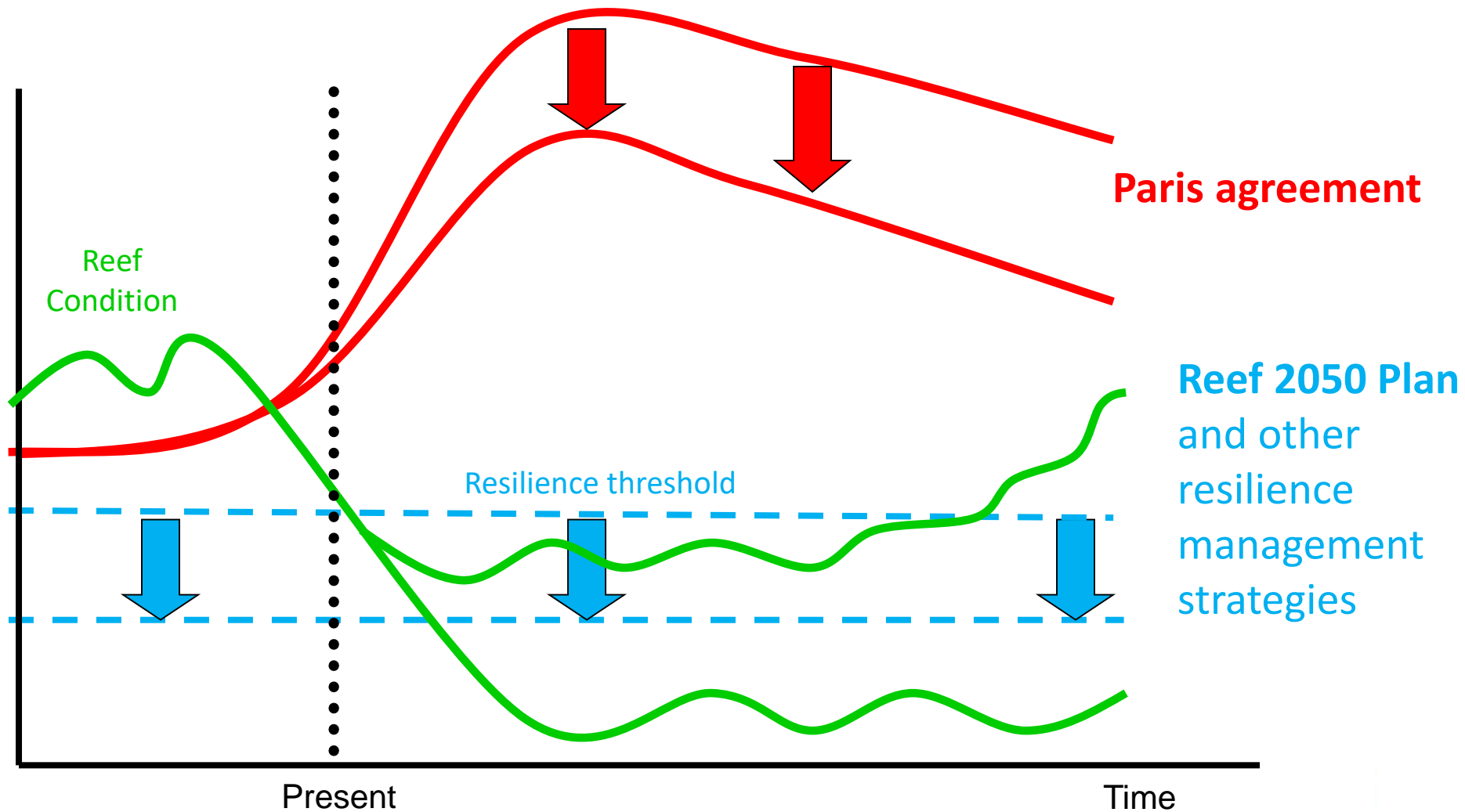
Resilient Reef ecosystem



Resilient Reef ecosystem



Resilient Reef ecosystem

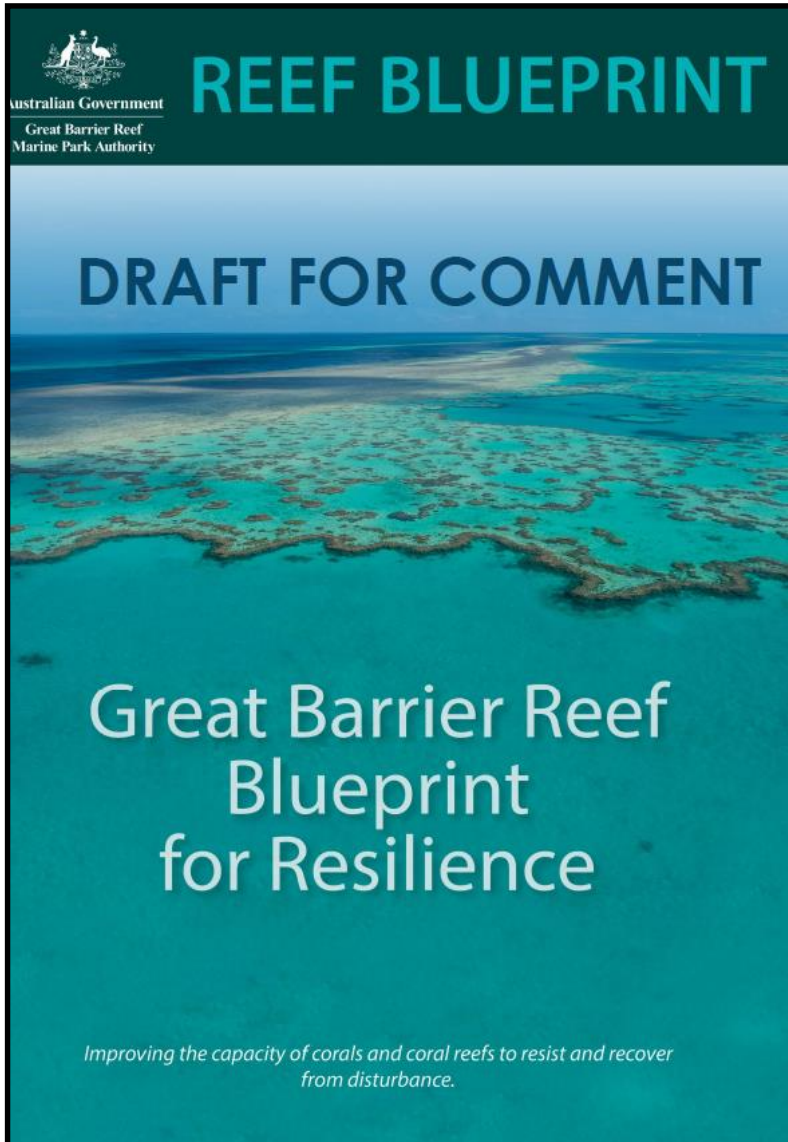




Foundational programmes

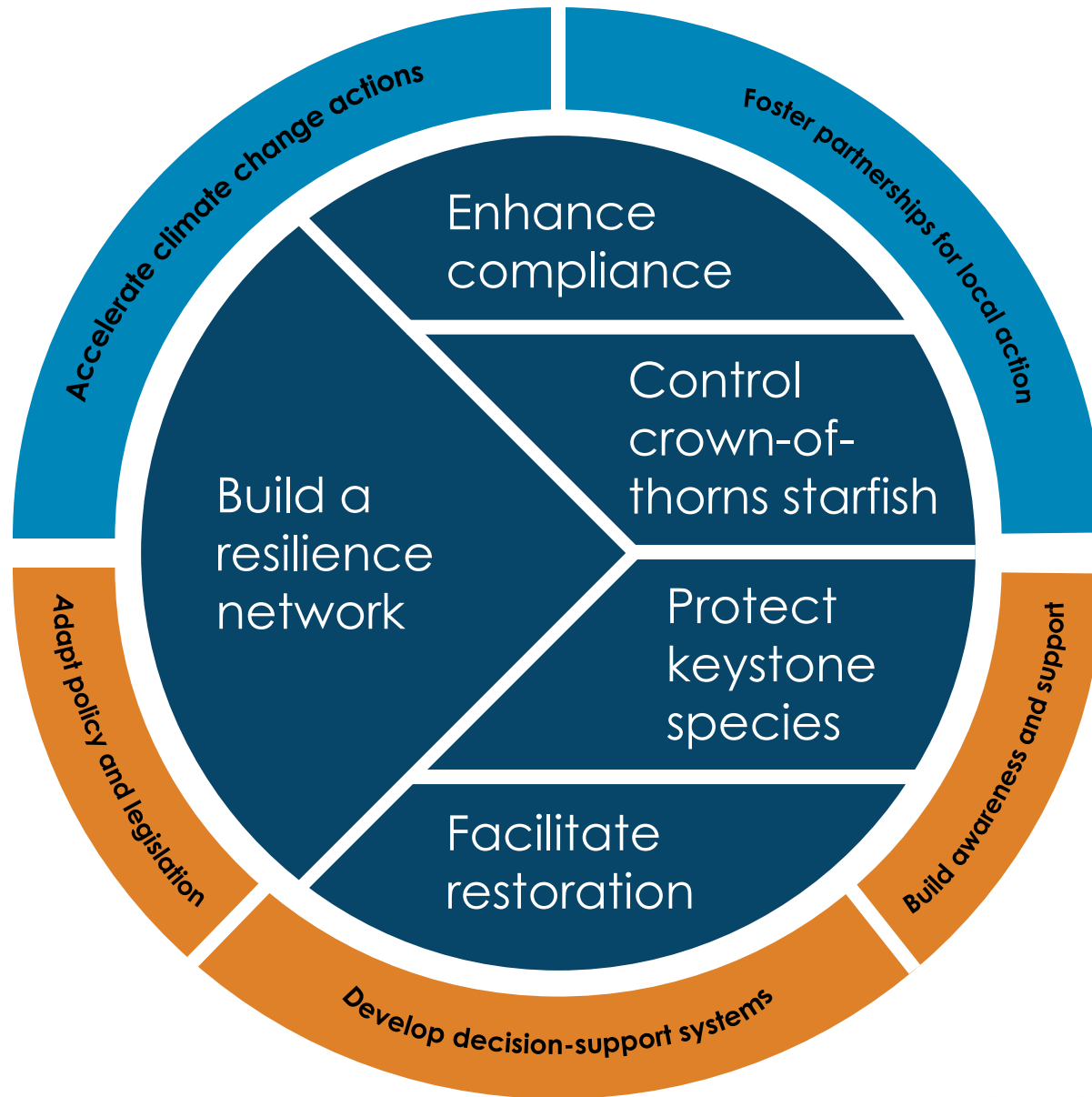


Reef Summit

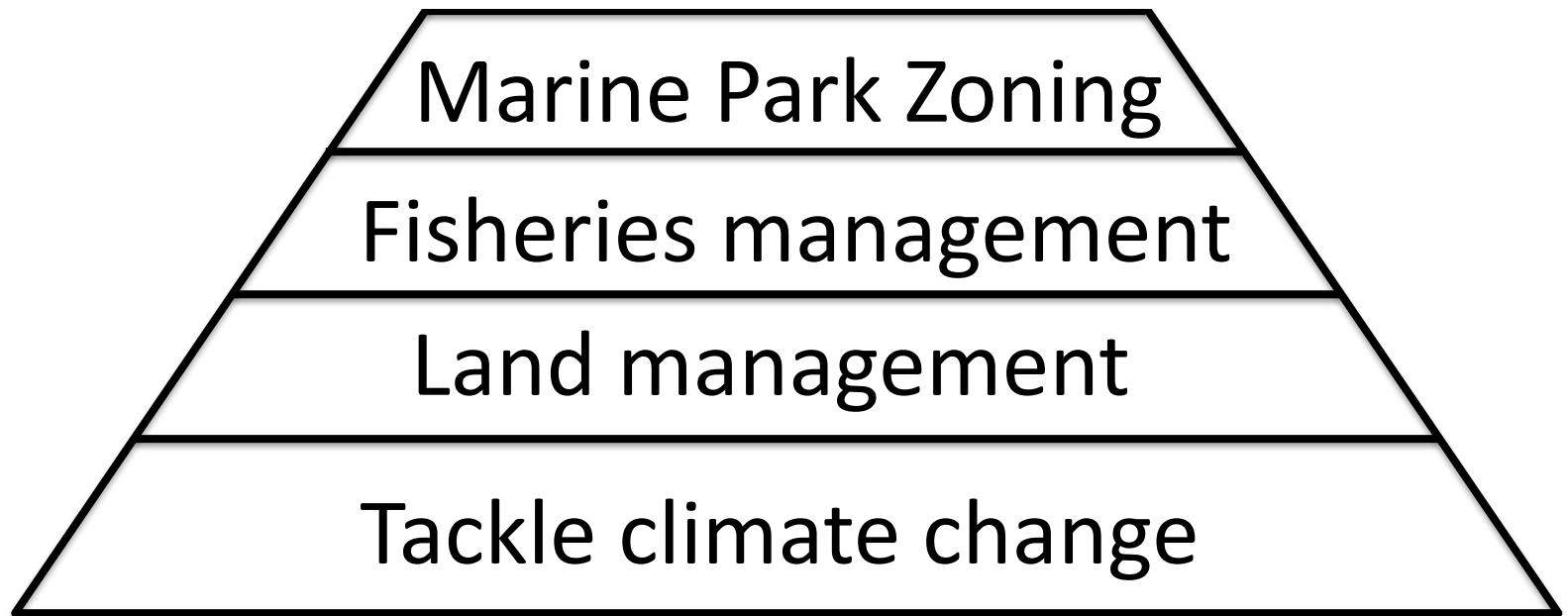


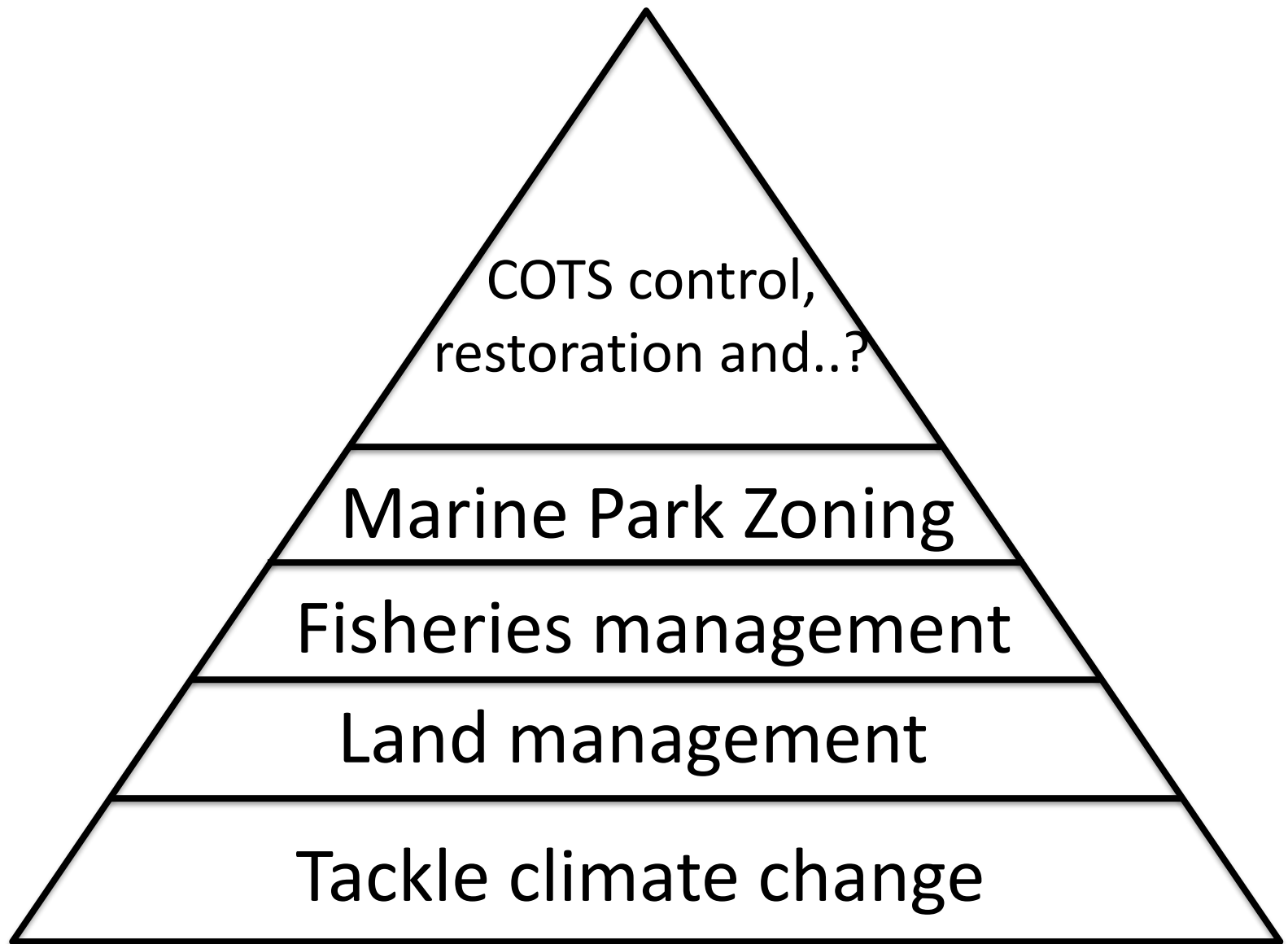
‘Together we can secure the future of the Great Barrier Reef – but we need to try harder, do more and act now’





Tackle climate change









Australian Government

Great Barrier Reef
Marine Park Authority

www.gbrmpa.gov.au



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Email david.wachenfeld@gbrmpa.gov.au

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