Down and staying down?
signs of recovery in GBR corals

Hugh Sweatman
CHANGE IN CORAL COVER ON GBR REEFS 1985 - 2012

from De’ath et al. 2012
ROLE OF CYCLONES

Rate of loss since 2004 = 1.51% yr⁻¹
ROLE OF CYCLONES

Comparison of coral cover and annual mortality (%) between Center (N=118) and South (N=44) regions from 1985 to 2010. The data indicates a significant decline in coral cover and an increase in mortality, particularly during the late 2000s, due to cyclones and bleaching events.
March 2009 – Feb 2011

- 59% of GBR reefs experienced sustained winds >89 km.h\(^{-1}\)
- Overall cover on AIMS monitoring transects dropped 29.4 – 22.5%
- Central & southern reefs lost 40% of coral
DOES THE GEOGRAPHIC SCALE OF THE DAMAGE RECOVERY WILL BE COMPROMISED?

• While some corals can regrow from fragments, larval recruitment is thought to be very important for recovery.
• If coral populations have been decimated over a huge area, will supply of larvae be substantially reduced?
ABUNDANCE OF JUVENILE CORALS

Capricorn - Bunker reefs

Mean abundance/free space (m² ± CI)

Year


Reef
- Broomfield
- Lady Musgrave
- One Tree
- Wreck

TC Hamish
TC Yasi
TC Ului
ABUNDANCE OF JUVENILE CORALS

Outer-shelf reefs, Swains sector
ABUNDANCE OF JUVENILE CORALS

Mid-shelf reefs, Swains sector

Mean abundance/free space (m² ± CI)

Year
ABUNDANCE OF JUVENILE CORALS

Outer shelf reefs, Whitsunday sector

[Graph showing abundance of juvenile corals over time with different reefs labeled.]
ABUNDANCE OF JUVENILE CORALS

Outer shelf reefs, Townsville sector
ABUNDANCE OF JUVENILE CORALS

Outer shelf reefs, Cairns sector

Graph showing the mean abundance of juvenile corals over time for different reefs in the Cairns sector.
CONCLUSIONS

• As suggested by De’ath et al. (2012), corals on mid-shelf and outer reefs of the GBR retain capacity to recover from acute disturbances.
• BUT, much depends on the interval between disturbances.
• More recently there has been another intense cyclone (TC Ita).
• The fourth documented wave of *Acanthaster* appears to be moving south past Cairns.
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