



ZooX Fund
Update –
Cyclone Edition

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GREAT BARRIER REEF
foundation

Cyclone Yasi and the Great Barrier Reef



This report provides a summary of the impacts of Cyclone Yasi on the Great Barrier Reef and local communities. It follows a recent report addressing the effects of the recent flood events in Queensland.

“Cyclones are a fact of life on the Reef but warming and acidification of the ocean linked to climate change have both increased their frequency and left corals more vulnerable”. Dr Russell Reichelt, Chairman and Chief Executive, Great Barrier Reef Marine Park Authority


Just before midnight on Wednesday February 3rd, Cyclone Yasi hit Mission Beach on the Queensland coast. The cyclone continued inland for a staggering 900 kilometres before weakening into a tropical rain depression over Mt Isa. The effects were felt across the country with torrential rain and flash flooding experienced in parts of Northern Adelaide, Alice Springs and Melbourne’s CBD. The category five cyclone, the strongest cyclone on record to make landfall in Queensland, came less than three weeks after major flood events which affected more than two thirds of the State.

It will be some time before the full extent of damage to the Great Barrier Reef as a result of the cyclone is known, but marine experts agree that the 290 km/hr winds and subsequent flooding will have some impact on the Reef system.

General Cyclone Information

The impacts of Cyclone Yasi were devastating to several communities. However, highly populated areas were spared from the full force of cyclone, limiting the loss of life.

- Tully, Tully Heads, Cardwell, Mission Beach, Hull Heads and Innisfail were in the direct path of the cyclone and experienced major damage to homes, buildings and infrastructure;
- Cairns escaped the worst of the cyclone, while buildings and homes in Townsville suffered minor structural damage, with large amounts of debris littering the streets.
- More than 180 000 homes were without power at the peak of the cyclone, with 45 000 home still without power as at the 10th February. Many of these will be without power for up to 4 weeks;
- Local Government Association of Queensland Executive Director, Greg Hallam, expects the bill to local councils for repairs from Cyclone Yasi to local roads, bridges and other structures will reach somewhere between \$300 million and \$500 million;

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- Some 90,000km of Queensland's 140,000km road network has been damaged this summer (combined effect of floods and cyclone), giving an indication of the extent of disruption and damage to essential infrastructure.

Page 6 of this document provides some additional comparative details on the cyclone.

Ecological impact of Cyclone Yasi on the Reef

Physical Damage to the Reef:

On a positive note, the cyclone passed across the Reef at high tide providing a potential buffer against physical damage, however, winds of 290 km/hr will have caused some physical damage to the Reef. This is already in evidence with coral debris washing up on nearby beaches. Damaged corals will begin to regenerate immediately, however cyclones inevitably change the shape of reefs for very long periods. The full extent of the physical damage will not be known until surveys of the area are completed.

Flood Events - Cyclone Yasi:

Early reports indicate that there is extensive flooding in the wet tropics rivers following Cyclone Yasi. The resultant flood plumes can be expected to release large volumes of freshwater, silt, nutrients, pollutants and pesticides onto northern parts of the Reef. Flood plume mapping and water quality sampling is expected to commence early next week.

Management Response – Media Release from the GBRMPA website¹

Cyclone Yasi is expected to have damaged some parts of the Great Barrier Reef, with severe damage likely to have occurred along the cyclone track as it crossed the Reef and reached the coast near Mission Beach.

Great Barrier Reef Marine Park Authority (GBRMPA) Chairman Russell Reichelt said that because the cyclone tracked across rather than along the length of the Reef, most other parts of the 340,000sq km World Heritage-listed Marine Park are expected to have escaped damage from the cyclone.

“Cyclones are regular events and do affect the coral reef ecosystem dramatically,” Dr Reichelt said. “However, they tend to be localised to a specific area compared to other large scale effects such as mass coral bleaching caused by climate change.

“With good water quality, the Great Barrier Reef can bounce back from severe storms such as Cyclone Yasi. We saw this with the impact of Cyclone Larry which hit the Reef in 2006.”

Dr Reichelt said the extent of damage to the Reef will likely be similar to that caused by Cyclone Larry but possibly it will be spread over a wider strip given the greater size of Yasi. The footprint left by Cyclone Yasi on the Reef will be larger.

Expected damage will include smashed coral beds, movements of coral boulders, sand and rubble and major disturbance to seagrass beds.

¹ http://www.gbrmpa.gov.au/corp_site/info_services/media/media_archive/2011/2011_02_06

“GBRMPA will commence a full assessment from next week but we expect the most damage will be from Mission Beach and Cardwell down to Townsville. We can expect to see other less severe storm effects over a wider area, mainly south of the cyclone’s centre and possibly extending to Bowen.”

Dr Reichelt said the GBRMPA had detailed information about the condition of the Reef before Cyclone Yasi, based on an extensive survey conducted by the Australian Institute of Marine Science (AIMS) after Cyclone Larry.

“With further assessments in the coming weeks, we will be able to establish the difference between the Reef’s condition before and after Cyclone Yasi,” he said.

“Our first priority will be to meet with our partners AIMS and James Cook University to develop a strategy for surveying the damage on the Reef and to ascertain the extent of the damage.

“We also have a comprehensive ongoing monitoring program which draws on reports from sources throughout the Marine Park, including our own field managers, tourism operators and a range of interested groups and individuals.

“The reef monitoring program will be invaluable for sourcing information that helps us to understand the extent and severity of damage.”

Effects on Reef-Related Industries and Infrastructure

The major industries affected by Cyclone Yasi are tourism and agriculture, particularly the banana and sugarcane industries.

Tourism:

- The tourism industry is expected to sustain losses of more than \$1 B, mainly as a result of falling international visitor numbers. All major resorts and hotels are open for business except those on Dunk and Bedarra Islands which sustained extensive damage. Tourism operators in popular sites in the Great Barrier Reef Marine Park near Cairns, Port Douglas and the Whitsundays are once again operational.



Island Resort
before and After
Cyclone Yasi

Agriculture

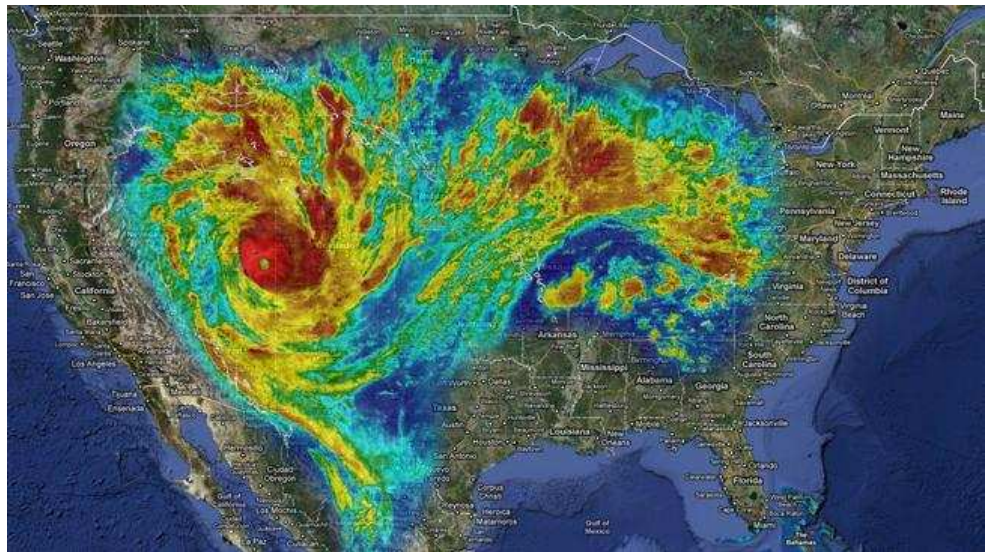
- \$500 M worth of sugarcane crop has been damaged in an area that makes up 30% of Australia's sugar harvest. This is in addition to the \$500 M destroyed by the floods;
- 75% of Australia's banana crop has been destroyed. The banana industry in Australia is valued at \$400 M per year;
- There is likely to be a sharp loss of employment for unskilled workers in these agricultural sectors.

Other Industries

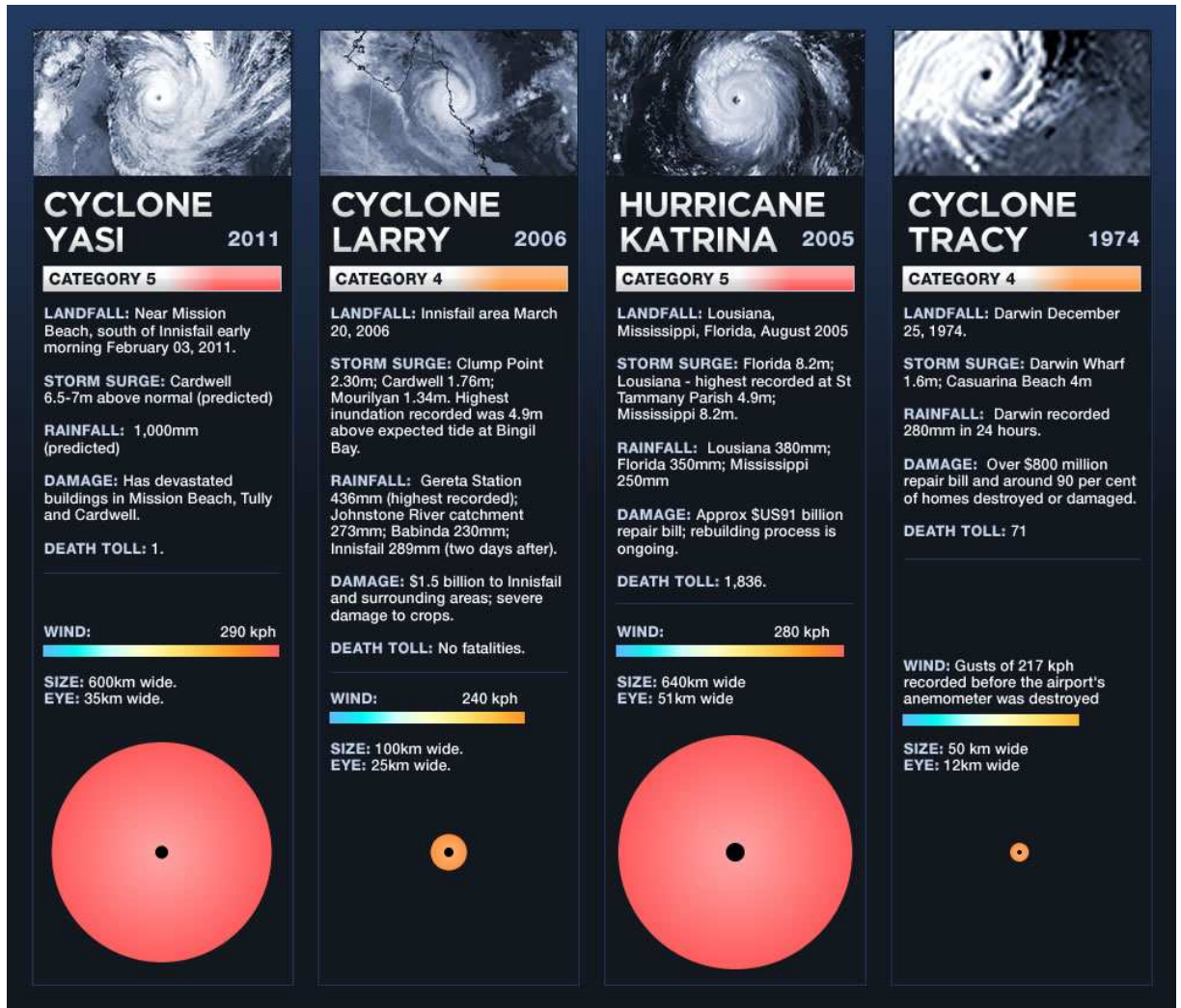
- Ports and shipping were affected by short term closures but are now all operational;
- Fish farming and aquaculture infrastructure was severely affected at some sites;
- The value of insurance payouts continues to rise in the wake of the natural disasters in Queensland. QBE Insurance are predicting to pay out \$100 M in claims from the cyclone on top of another \$145 M in claims for the recent floods;
- The mining industry was relatively unscathed but may suffer the effects of the enforced operational shutdowns and port closures.

Climate and Weather

Scientists warn that Queensland could be battered by more cyclones due to one of the strongest La Nina phases on record. In October last year the BOM forecast 6 or 7 cyclones for Queensland during the wet season because of the strong La Nina, but the trigger for Cyclone Anthony and Cyclone Yasi has been an "active phase" associated with a storm belt that generally runs close to the equator. The active phase has retreated but is likely to return before the end of the wet season in March.



Cyclone Scale – Cyclone Yasi superimposed over the USA



Comparison of Yasi with other extreme storm events