

SPOTLIGHT ON: CYCLONE DEBBIE

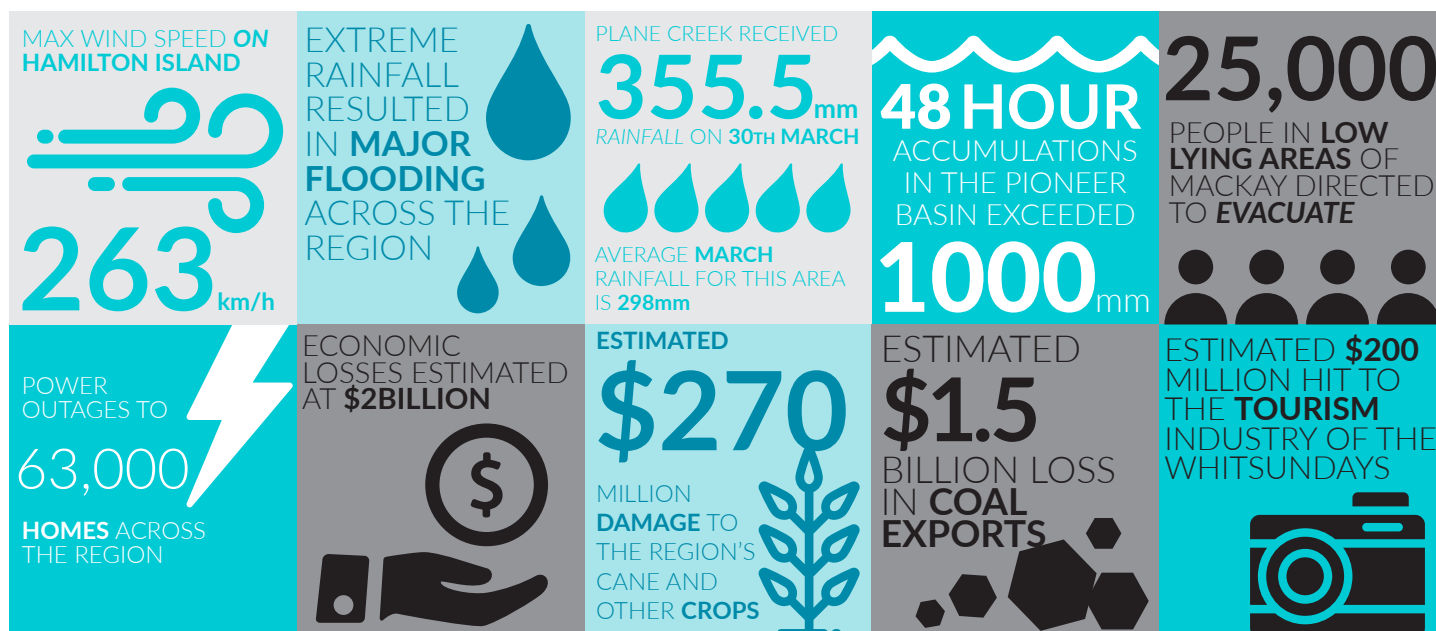


HEALTHY RIVERS TO
REEF PARTNERSHIP
MACKAY-WHITSUNDAY

SEVERE TROPICAL CYCLONE DEBBIE IN THE **MACKAY-WHITSUNDAYS**

Severe Tropical Cyclone Debbie was a category 4 cyclone that made landfall near Airlie Beach on the north Queensland coast at midday on the 28th of March 2017. The storm system had significant impacts on many of the Mackay-Whitsunday-Isaac's communities and ecosystems. The Mackay-Whitsunday Healthy Rivers to Reef Partnership have produced this featurette in addition to the 2016 report card to highlight impacts of the cyclone on our river basins and the Whitsunday inshore zone, as well as the multiagency and community response to help rebuild community and ecosystem resilience.

CYCLONE DEBBIE AT A GLANCE



Severe Tropical Cyclone Debbie crosses the Queensland Coast
near Airlie Beach (NASA)



Bank erosion and loss of the Department of Science, Information Technology and Innovation's monitoring station on the O'Connell River (Reef Catchments)

CYCLONE SPOTLIGHT: FLOOD DAMAGE TO OUR RIVER BASINS

Land use is an important factor in the way flood events impact our Region. Productive land uses in our river basins are predominantly sugarcane and cattle grazing, which has led to reduced areas of river bank vegetation to buffer against stream bank erosion. Impacts of the flooding caused by the cyclone were more severe in cleared areas.

Environmental consultants, Alluvium Consulting were engaged by Reef Catchments, with financial support from Canegrowers Mackay and the Whitsunday Rivers Improvement Trust, to provide an assessment of flood related impacts to our stream banks and watercourses as a result of the cyclone.

Significant erosion, resulting in channel change in eight systems, was found in the following areas:

- Gregory River
- O'Connell River
- St. Helens Creek
- Bakers Creek
- Oaky Creek
- Plane Creek
- West Hill Creek
- Cherry Tree Creek

The cyclone resulted in significant loss to public and private assets, damage to the local agricultural industry as well as large amounts of sediment and associated nutrients moving downstream towards the Great Barrier Reef Marine Park (GBRMP). Alluvium recommended a combination of repair work to existing system repair rehabilitation structures like the O'Connell River rock toes and pile fields, bank re-profiling at most sites, plus re-vegetation in a number of critical areas. It is anticipated that investment into the recommendations will assist in protecting assets, farmland and the GBRMP from further channel erosion in future flood events.

In September 2017, Reef Catchments, with support from all key regional stakeholders, submitted an application to the Queensland Government for urgent repair works in the eight damaged systems.

Under the jointly funded Natural Disaster Relief and Recovery Arrangements (NDRRA) the Australian and Queensland Governments have approved \$35 million in Category D exceptional circumstances funding (Recovery to Resilience environmental recovery package) to assist with relief and recovery from Tropical Cyclone Debbie.

Initial funding of \$1.67 million has been made available to the Region for urgent projects identified within the Alluvium study to prevent continued erosion from stream bank damage. Further funding could be made available after a final scope of works has been identified.





Broken coral litters the ocean floor at Blue Pearl Bay, off the Whitsunday Islands (GBRMPA)

CYCLONE SPOTLIGHT: WHITSUNDAY INSHORE ZONE

Severe Tropical Cyclone Debbie crossed the coast at Airlie Beach, directly impacting the inshore Whitsunday area and consequently causing major damage to the Whitsunday Islands and inshore ecosystems.

Tourism operators were particularly hard hit by the cyclone from both the damage to major infrastructure, including island resorts, vessels and boat ramps, and damage to inshore coral reefs visited by tourism operators. A multi-agency response was coordinated to determine the level of impact to these inshore reef systems.

A full picture of the cyclone's impact to the coastal and reef ecosystems of the Whitsundays is still being collated, however the RHIS surveys revealed extensive damage to many of the inshore reef systems directly exposed to cyclonic winds, including Manta Ray Bay off Hook Island, Blue Pearl Bay off Hayman Island, and the reefs off Double Cone Island.

Reef Health and Impact Surveys (RHIS) were undertaken in the months following the cyclone by a number of organisations including:

- Queensland Parks and Wildlife Service (QPWS)
- The Great Barrier Reef Marine Park Authority (GBRMPA)
- The Association of Marine Park Tourism Operators
- Tourism Whitsundays
- The Australian Institute of Marine Science
- A number of tourism operators and local community groups



THE WHITSUNDAY AREA IS HOME TO A THRIVING
TOURISM INDUSTRY,
ATTRACTING MORE THAN

40%

OF THE TOTAL VISITATION
TO THE GREAT BARRIER REEF
MARINE PARK IN **1%** OF ITS TOTAL AREA.



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Solway Lass (Explore Whitsundays)

Mechanisms put in place post-cyclone to support the recovery of our inshore ecosystems and tourism industry include:

- Tourism operators received a special four-week authorisation to assist in re-orienting corals flipped by the cyclone.
- A \$7million recovery package has been provided to support investment in land-based tourism infrastructure such as the development of new walks, extension of lookout areas, re-vegetation of dune areas and investment in new interpretive signage and toilet blocks. This project is designed to assist in transitioning visitors to the Whitsundays to land-based activities and help take the pressure off visitation of inshore coral reefs that have been impacted by the cyclone.
- For impacted coral reef sites around the Whitsunday islands, GBRMPA/QPWS have re-examined no anchoring areas and provision of public moorings. Formal site planning will be undertaken at Peter Bay (Whitsunday Island) and West Butterfly Bay (Hook Island) which are home to areas of higher coral cover that are being visited by tourists since the cyclone.
- Extensive live coral, consisting of large *Porites* (finger coral) bommies, were pushed from deeper waters into the shallower intertidal area of Manta Ray Bay (Hook Island) by Tropical Cyclone Debbie. The exposed *Porites* died shortly after the cyclone passed through the

Region, as they need to be submerged to survive. QPWS contractors relocated approximately 400 tonnes of dead coral from the shallower areas of the Bay into the deeper waters to create a habitat for new corals to attach to in the future.

The Mackay-Whitsunday Healthy Rivers to Reef Partnership has coordinated a research project with CSIRO, AIMS and Tourism Whitsundays in response to poor water clarity in the Whitsunday region, which was highlighted in both the 2014 and 2015 report cards. The project began in February 2017, before the cyclone hit, and will continue until February 2019. It aims to improve our understanding of water clarity issues in the Whitsunday region and includes modelling of the processes impacting water quality and collecting new observational data. A water quality logger was installed on the tall ship Solway Lass in September 2017 to help collect more data for the project. The project's outputs will provide guidance for management priorities/interventions to improve water quality, and so assist in decreasing pressures on impacted ecosystems such as coral reefs and seagrass habitats.

FUTURE REPORT CARDS WILL MEASURE THE IMPACT

The next Mackay-Whitsunday Healthy Rivers to Reef report card will reveal the results of monitoring programs running immediately before and after Tropical Cyclone Debbie impacted the region. If you are interested in finding out more about the Partnership head to our website: www.healthyriverstoreef.org.au

To see how the Region's waterways and marine environments scored in the reporting year before the cyclone (2015/16), download our 2016 report card.

