Activities *Spotlight*

HEALTHY RIVERS TO REEF PARTNERSHIP
MACKAY-WHITSUNDAY

Healthy Rivers to Reef Partnership

The Mackay-Whitsunday Healthy Rivers to Reef Partnership brings together diverse stakeholders and organisations to focus on the health of the Region's five river basins and adjacent coastal marine areas of the Great Barrier Reef.

The Partnership supports the development of an annual Mackay-Whitsunday waterway health report card, based on rigorous independent science and straightforward public reporting, providing the community with the information needed to make informed decisions around waterway health and management.

Partners recognise that more can be achieved together than alone and acknowledge the value of collaboration in realising outcomes beyond those that could be attained by any single agency or organisation.

Partners are committed to sharing regional knowledge, program actions and monitoring and research information to assist in a broader understanding of the health of the catchments, rivers and estuaries, and the Reef.

This spotlight contains a small sample of the extensive work being done across the Mackay-Whitsunday Region by involved Partners, and is not exhaustive. For more information, visit **www.healthyriverstoreef.org.au**

Why develop a report card?

The condition of our waterways and the Great Barrier Reef has been declining in recent decades, influenced by a wide range of short and long term pressures.

Governments, industries and communities are committed to working together to address these pressures and improve the future health of our Region's valuable water resources.

Waterway health reporting takes a whole-of-catchment approach, focused on connectivity between catchments, rivers and estuaries, and the Reef.

YOUR REGION, *YOUR STORIES*

Dalrymple Bay Coal Terminal (DBCT)

Water Quality Improvement Project

Water management strategy

DBCT has an extensive water quality monitoring program implemented in conjunction with a local consultancy firm and with a local consultancy firm and a National Association of Testing Authorities (NATA) accredited laboratory. This monitoring program was designed and executed in accordance with all relevant licence conditions. DBCT has not discharged from the Industrial Dam to the receiving environment since implementing the Water Quality Improvement Project (WQIP). Controlled discharges were undertaken from Quarry Dam to the receiving environment to ensure the terminal was able to manage high rainfall events and prevent the uncontrolled release of water off-site.

Since implementing the WQIP, the water quality monitoring results demonstrate compliance with licence conditions for each discharge event. But more than that, the quality has significantly improved to the point that when DBCT presented this information at a recent Australian Coal Terminal meeting, other participants were keen to consider a similar strategy for their own water management and have visited the DBCT site to determine if elements of the WQIP could work for them.

Two primary solutions were targeted to provide environmental benefits to the receiving environment through:

1. Reduced likelihood of uncontrolled releases; and
2. Improved water quality when used as industrial water supply or discharged.

What's happening here...

The Dalrymple Bay Coal Terminal water management strategy involves recycling all rainwater collected on-site as industrial water supply. When frequent intense rainfall is received, water that meets certain quality criteria, as licensed by the Department of Environment and Heritage Protection, can be released to the receiving environment. DBCT committed to undertake a WQIP to investigate and implement a broad range of initiatives, resulting in significant water management enhancements to ensure when DBCT does discharge, it will be compliant.

The WQIP was implemented in three phases during the past three years, with an environmental investment of $55 million. Combined, these initiatives have considerably reduced the likelihood of future exceedances of total suspended solids from the terminal. The WQIP not only demonstrates DBCT's commitment to achieving compliance with our environmental licence to operate, but to also go beyond current best practice in water management and set the benchmark for other coal terminals.

FACTS AND FIGURES

Outcomes summary from implementing the WQIP:

- DBCT has not had an uncontrolled discharge from Industrial Dam since 2013
- DBCT has undertaken five controlled discharges from Quarry Dam in preparation for the anticipated rainfall from tropical cyclones and rainfall events
- DBCT water quality discharged has not only been compliant with licence requirements but has dramatically improved

"The overall aim of our multi-faceted water management project was to reduce the likelihood of water quality exceedances from Industrial Dam discharging into the receiving environment of the Great Barrier Reef World Heritage Area. To meet this aim two primary solutions were targeted to provide environmental benefits to the receiving environment."

– Ricci Churchill, Manager Environment DBCT P/L

Reef Catchments NRM

Urban water quality, fish health and invasive aquatic species control (tilapia)

Mackay's first fish hotels

There's one area in town that's not been hit hard by a real estate downturn – and it's underwater.

For the first time, there are fish hotels in Mackay. It's good news for targeted tenants, including barramundi, mangrove jack and sleepy cod, to name a few.

What's happening here...

Aquatic ecologist, Trent Power, said the installation of ten fish hotels in two priority sites at the Mackay Gooseponds was exciting news – "We're looking to attract a variety of fish to our new 'real estate' by creating the kind of habitat they love to live in," Mr Power said.

"The fish hotels will help increase the habitat for the fish species that prefer these areas, particularly predatory species that can help combat the pest fish tilapia. These include barramundi, sleepy cod and mangrove jack.

"By increasing habitat availability, our native fish communities can become more resilient and are better able to cope with threats."

Fish hotels are engineered wooden structures, built to emulate what naturally occurs in rivers and streams when trees fall into the waterway (snags/woody debris). Unfortunately, in areas that have been cleared or developed, this natural process is interrupted. The hotels create spaces that provide habitat, refuge and a living and breeding area for important fish species. Fish hotels provide an additional level of complexity to the habitats available for native fish and other aquatic fauna.

The project will help contribute to outcomes identified in the Mackay-Whitsunday waterway health report card, which for the first time this year includes indicators for fish community health and fish barriers.

With many hands making light work, this project is truly collaborative. It is proudly supported by Reef Catchments in collaboration with Rio Tinto, through funding from the Australian Government and the Hail Creek Mine Community Development Fund. The hotels were designed and delivered by environmental consultants, Catchment Solutions. The project is also strongly supported by in-kind partners Mackay Regional Council, Mackay Recreational Fishers Alliance Inc, and the Mackay Area Fish Stocking Association.

FACTS AND FIGURES

- Habitat protection and water quality are two essential ingredients of fish recruitment and sustainability
- Favourable habitat gives native species a better chance of out-competing and combating invasive pest species like tilapia
- Fish hotel installation followed a comprehensive feasibility study, including flood modelling in conjunction with Mackay Regional Council

"Reef Catchments is now heavily involved in supporting the construction of fishways in key priority areas to assist diadromous (migratory) species, and connect fresh water systems to the sea."

– Katrina Dent, Reef Catchments Manager

Mackay Regional Council

Water quality, habitat connectivity and enhancing landscape values

Lagoon Creek Wetland

FACTS AND FIGURES

- Over 200 tonnes of boulders
- 2 wetland ponds
- 4 rock ramp fishways
- 100s of cubic metres of mulch
- 12 people and 4 augers to pre drill ~1500 holes

"This project has seen the transformation of what was a previously weed infested paddock into two large wetland areas. Not only have we seen a dramatic improvement in the overall aesthetics of the area, the project will offer significant improvement in biodiversity, fish numbers and water quality moving forward."

– Luke Galea, Mackay Regional Council Waterways Team Supervisor

This project involves the construction of two wetland areas and four rock ramp fishways to significantly improve fish passage between the Pioneer River and the fresh water lagoons within the Mackay Regional Botanic Gardens. It also incorporates revegetation to enhance visual aesthetics of the area while increasing habitat and biodiversity. The introduction of these plants will help filter out sediment and improve the quality of water flowing into the Pioneer River and ultimately the Great Barrier Reef Marine Park.

Mackay Regional Council contributed $200,000 in funding towards this project through the Natural Environment Levy, while the Department of Transport and Main Roads and Reef Catchments (through Australian Government Reef Programme funding) contributed $79,000 and $100,000 respectively. A further contribution from the Department of Transport and Main Roads will enable ongoing monitoring to take place to evaluate the outcomes of the works.

What's happening here...

Stage 1 of the Lagoons Creek rehabilitation project was completed in 2015, with the removal of para grass and placement of 200 tonnes of boulders along Lagoons Creek under the Bluewater Trail. The boulders stop erosion of the creek banks, prevent para grass from growing and create a tiered pathway for fish to swim up the creek. The planting of vegetation along the freshly profiled banks also complemented these works.

Stage 2 Phase 1 was completed in July 2016 and focused on reshaping the grassed area between Glenella Connection and Lansdowne roads, to create two wetland areas. It also included the construction of additional rock ramp fish ways to further improve fish passage. Stage 2 Phase 2 will focus on the inclusion of vegetation surrounding the two newly formed wetland areas to increase habitat values and improve the visual aesthetics of the area.

Moving forward the Lagoon Creek Wetland project aims to:

- Create habitat and assist native fish passage for species that migrate, such as barramundi
- Filter out sediment and improve the quality of water flowing into the Pioneer River and the Great Barrier Reef Marine Park
- Enhance landscape and ecological values to provide a range of passive recreational and aesthetic benefits for the community