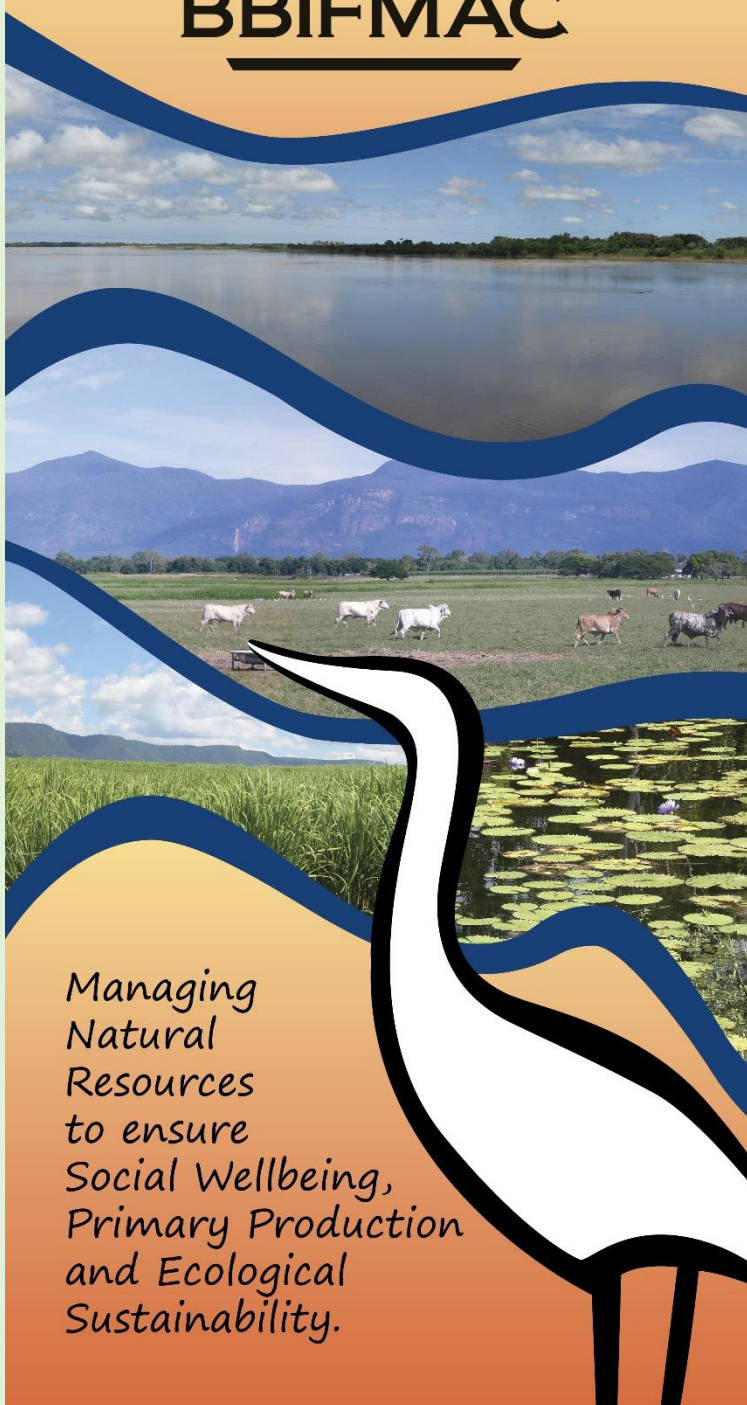


NEWSLETTER

Issue 8

December 2020



Managing Natural Resources to ensure Social Wellbeing, Primary Production and Ecological Sustainability.

The Year in Review...

2020 has been a challenging year for many, with Covid-19 disrupting a lot of plans for the year and casting plenty of uncertainty.

Despite the challenges, the BBIFMAC team has had a successful year, with the continuation of several projects, the beginning of new exciting projects, and some completed projects now finalised. As well as moving premises and welcoming new staff members.

This year saw the Constructed Wetland Proof of Concept Project, funded by Dept. Environment and Sciences (DES), come to completion after nearly 200 water samples were collected and analysed over a 2-year period. The aim of the project was to demonstrate the feasibility of converting an abandoned 2-hectare borrow pit into a low cost, low energy constructed surface-flow treatment wetland. Overall the water quality results indicated that the wetland functioned well over the monitoring period and had a positive impact on reducing various forms of nitrogen, total suspended solids, and several key pesticide concentrations when comparing levels obtained at the inlet to the outlet.



The outlet at the Constructed Wetland Treatment system.

As one door closes another one opens, with newly contracted projects towards the end of 2020 including the Fine Scale Water Quality Monitoring Project funded by DES; and the SRA Irrigation Efficiency Project, in which BBIFMAC is a partner, a step closer to being funded by the Great Barrier Reef Foundation (GBRF). These projects will certainly keep us busy as we move into 2021.



Luke Buono and Arwen Rickert met with Dr. Ryan Turner of DES to discuss the new Fine Scale Water Quality Monitoring Project.

This year's existing projects which will also be carried through to 2021 include the Reducing Burdekin Sediment Project, funded by NQ Dry Tropics; Cane to Creek 2.0, funded by Sugar Research Australia (SRA);

the Barratta Creek Water Quality Project, managed by BRIA Irrigators Ltd and funded by GBRF; 'Spicing up the North' in partnership with Central Queensland University (CQU) with funding from the Cooperative Research Centre for developing Northern Australia (CRCNA); and the 'Telstra Bluespot' Project, in partnership with Intelli Design and funded by DES.

In mid 2020, the BBIFMAC team moved premises from our office of over 10 years, to a larger office space at 154 Graham Street to accommodate our growing team and the increase in project workload. Mackenzie Severns joined the team full-time at the beginning of this year after her university placement with BBIFMAC was completed in late 2019. Keeley Glasson joined the team as a placement student for her Masters Degree at James Cook University, and worked with us from July to November.



Keeley assisting with the sampling equipment installation at one of the sites for the NQ Dry Tropics 'Reducing Burdekin Sediment' Project.

BBIFMAC Technical Officer, Luke, has spent a lot of time this year in developing new technologies for the KP Smart water sampler, and updating our website.

We were finally able to hold the BBIFMAC Annual General Meeting on December 1st after delays due to Covid-19. Tim Hunt, General Manager, Rabobank, gave a presentation on the impact of COVID on agricultural markets globally, and the outlook for Australia and North Queensland. We welcome Frank Mugica who was voted onto the BBIFMAC committee as an Ordinary Member at this year's AGM.

We were saddened to hear of the passing of Bill Lucas who had been involved with BBIFMAC since 2005. Bill resigned from the BBIFMAC management committee in 2019 due to ill health. We send our condolences to Bill's family.



Attendees of the BBIFMAC AGM listened eagerly to a presentation by Tim Hunt, General Manager, Rabobank.

The BBIFMAC team would like to extend a huge thanks to the famers, stakeholders, and partnering organisations who have supported us and been involved with our projects throughout 2020.

Recent Events

The Greening Australia bioreactor project, located in the west of the Haughton River Catchment, commenced in October 2019 and aims to demonstrate the effectiveness of a denitrifying bioreactor bed to intercept and reduce loads of dissolved nutrients contained in sugar cane irrigation tail water. The first year of water quality monitoring at the site was completed in May 2020, and second-year water quality monitoring began in late October 2020.

BBIFMAC was engaged by Greening Australia to undertake the water quality monitoring to determine the effectiveness of the bioreactor. This includes monitoring the five piezometers for water height and in-situ water quality parameters. In addition, samples from the inflow and outflow piezometers are also sent to the Department of Environment and Science laboratory for detailed water quality analysis.



Arwen and Keeley collecting a water sample from one of the piezometers at the bioreactor for the in-situ parameter measurements.

The results from the first season (October 2019 to May 2020) indicate that there are some evident trends and in most cases the results are consistent with that observed in other bioreactors that BBIFMAC has monitored in the Burdekin region.

It is too early to draw too many conclusions based on this first season of data, however on average, the bioreactor is achieving the optimal residence time, though the period of dormancy between irrigation events may have influenced the effectiveness of the bioreactor in removing nutrients from the tail water.

The bioreactor appeared to achieve good nitrate reductions when it was not nitrogen limited (e.g. when the incoming nitrate levels were higher). This is consistent with other bioreactors that BBIFMAC has monitored in the Burdekin.

