

Environmental Levy Update

January - June 2016

In November 2013 we adopted an Environmental Action Plan that was developed in close consultation with the community to identify local environmental issues of concern.

To help fund the projects in the plan, an environmental levy in the form of a special rate variation was introduced in July 2014 for a period of 5 years.

The levy will raise just over **\$1.3 million** each year for projects that address a range of issues under the following themes:

- **Estuary & Water Quality**
- **Biodiversity**
- **Sustainability & Environmental Performance**
- **Dredging & Foreshore Improvements**

This update contains a summary of the achievements and projects undertaken between **1 January and 30 June 2016**.

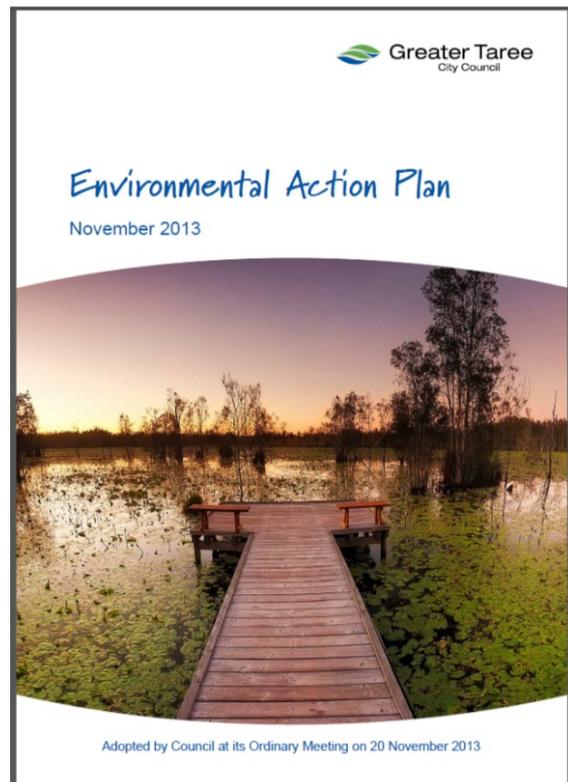
Successful Grant Applications

One of the benefits of the environmental levy is that it enables us to attract additional funding from the state and federal governments, as most grant programs require the applicant to provide matching funding. As of 30 June 2016 we have been successful in receiving an additional **\$2.16 million** in external funding to assist in implementing environmental projects funded through the levy.

Earlier this year we were successful in receiving \$77,770 in funding through the NSW Environmental Trust Restoration & Rehabilitation Program to restore three important lowland rainforest remnants, including the Wingham Foreshore Reserve, Manning Waters Reserve and Andrews Reserve at Taree.

Prior to European settlement this type of rainforest was found growing over most of the Manning River floodplain, yet today as a result of clearing for forestry, agriculture and urban development less than 1% remains. Council will also contribute \$66,000 from the environmental levy to the project.

We were also successful in our Expression of Interest to the NSW Environmental Trust Environmental Education Program to lodge an application for \$57,000 to help develop a school curriculum for the Cattai Wetlands. This program aims to develop key learning resources for school students visiting the site which will not only increase their awareness of natural resource management at a practical level but also incorporate opportunities for local Aboriginal groups to share their knowledge of the area's cultural heritage values.



Estuary & Water Quality

Harrington Riverbank Restoration Project

550 metres of severely eroding riverbank on a property on the Manning River at Harrington is now protected following the construction of a series of rock fillets which deflect wave energy and allow mangroves to recolonise the riverbank. Over a kilometre of stock exclusion fencing was also erected and almost 1000 native rainforest species planted to provide additional protection for this vulnerable section of riverbank. This project was made possible with matching funding provided through the NSW Fish Habitat Action Grant Program.



A further two riverbank restoration projects are currently being planned for Dumaresq Island and Oxley Island and will also involve a combination of best practice restoration techniques to restore over 2km of actively eroding riverbank on the Manning River. These two projects are being funded through the NSW Estuary Management Program and Council's environmental levy.

Controlling Roadside Erosion

With funding provided through the NSW Estuary Management Program, Council has undertaken a number of erosion control projects along gravel roadsides at river crossings in an effort to reduce the amount of sediment entering the waterway. This has involved cleaning out excess sediment from the roadside table drains and lining them with rock check dam structures. These structures work by slowing down the speed of the water flowing along the table drains and allowing the sediment to drop out of suspension before being washed into the river.

The works have also involved cleaning out culverts that have become clogged with sediment and no longer function as they should, leading to damage of the road surface. One location in the Wallis Lake catchment required the complete rebuild of the drainage line which had become severely eroded over many years. There are hundreds of kilometres of unsealed roads in our area with hundreds of creek and river crossings. These unsealed roads contribute massive amounts of sediment to our local waterways which impacts on aquatic health by smothering seagrass beds and reducing the clarity of the water.



Riverbank Fencing

Council is working with local farmers to help protect their riverbanks from erosion by contributing to the cost of stock exclusion fencing. Council has recently fenced off over 2.5km of riverbank, in an effort to protect the riverbank from the damaging effects of grazing.

Unfenced riverbanks on farming properties are vulnerable to cattle and other hard-hoofed animals trampling and grazing the riverbank. This contributes to riverbank collapse and erosion, resulting in a loss of productive farming land and sedimentation of the river. Excess sediment in the river can have serious impacts on the aquatic environment by smothering important fish habitat. It can also have impacts on boating in the river by clogging up navigable channels. Additionally, cattle standing in the river allows their excrement to pollute the waterway.

Fencing an affected riverbank will help save the riverbank from further degradation, in turn pre-emptively avoiding the need to use more extensive (and expensive) bank stabilisation measures such as rock filllets. Riverbank fencing combined with a good weed control and revegetation program will provide the resilience the riverbank needs to withstand the elements.



Manning River Floodplain Acid Sulfate Soil Remediation Plan

Over the past 100 years, flood mitigation schemes, extensive artificial drainage and the construction of floodgates in high risk acid sulfate soil (ASS) areas of the Manning River floodplain, have caused ongoing environmental and economic impacts in the estuary. In particular, the man-made drains that discharge into the Manning River, Scotts Creek, Lansdowne River, Cattai Creek, Dickensons Creek and Ghinni Ghinni Creek are regulated by floodgate structures that produce large volumes of acidic drainage water following rainfall events.

Following a highly successful partnership with the Water Research Laboratory (WRL) UNSW on the Big Swamp project, WRL were engaged to prepare an ASS Remediation Plan for the entire Manning River floodplain which is now complete. Following the application of an evidence-based prioritisation methodology to rank the flood mitigation drains and drainage sub-catchments of the floodplain, Moto, Ghinni Ghinni, and Big Swamp, were identified as the highest priorities as they were estimated to be contributing over 80% of the total acid being discharged into the Manning River estuary.

Action Plans have been developed for each area which recommend a combination of remediation strategies over various timeframes. Approximate costs for each remediation strategy have also been provided. Research has shown that it is very difficult to limit further acid production once the soil is acidified. Since the majority of the floodplain soils are already acidic, most remediation strategies focus on (i) containing the acid within the soil; (ii) neutralising the acidic water onsite before it is discharged into the estuary; or (iii) encouraging low oxygen/anaerobic conditions onsite.

This strategic approach to floodplain planning ensures the ASS drainage sites that have the greatest potential for adverse impact are prioritised and future investments provide the best value-for-money and environmental outcomes. Based on the outcomes of the plan, two priority sites will be selected for remediation in 2016.

This project is being funded from the environmental levy with funding assistance provided through the NSW Estuary Management Program and the Hunter Local Land Services.

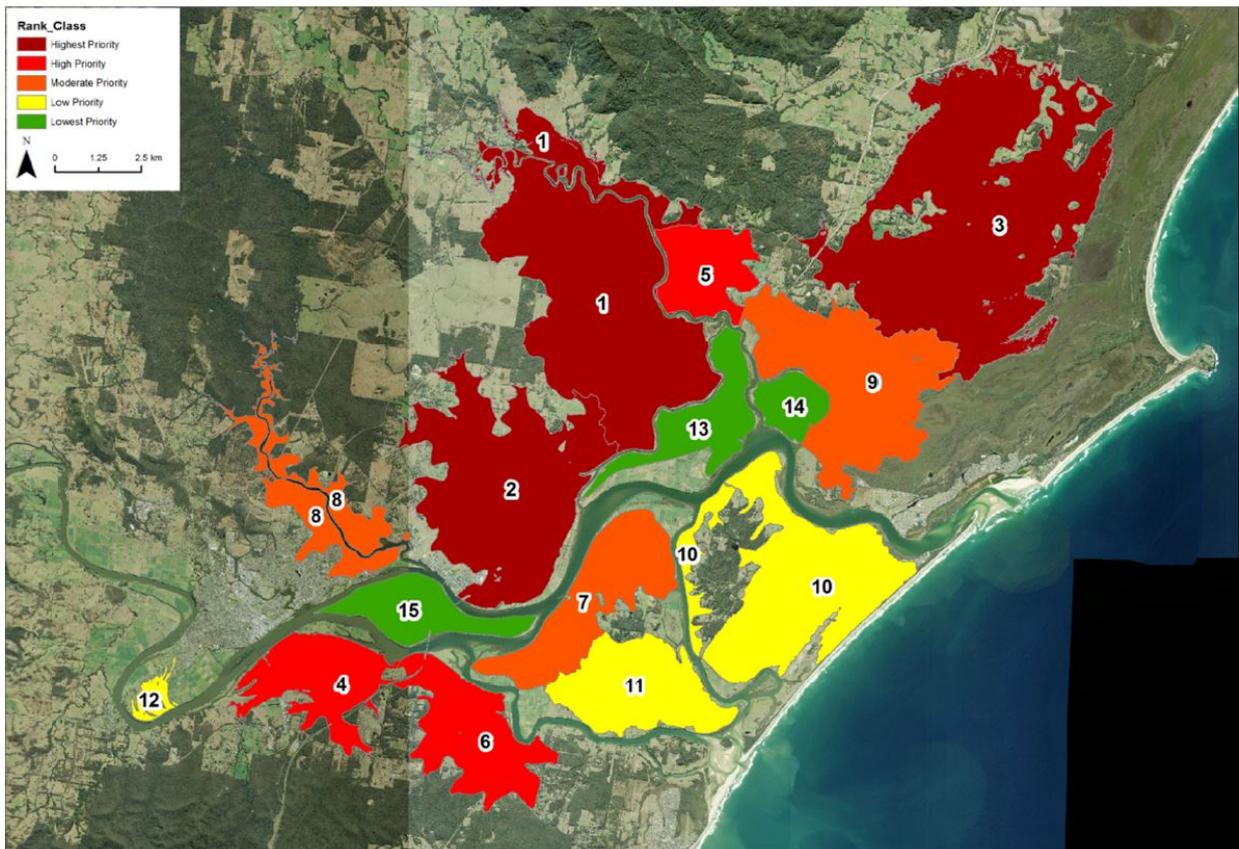


Figure 5.3: Final Rankings of Catchment-Wide Priority Assessment

Browns Creek Improvements

With funding provided through the NSW Estuary Management Program and Council's environmental levy a number of projects have been undertaken within the Browns Creek catchment to improve the health of the waterway and the condition of the riparian zone. These works have been undertaken in partnership with the Friends of Browns Creek and have included the installation of rock revetment and associated landscaping at the Railway Street pedestrian bridge to control creek bank erosion; and the construction of a small rain garden and the laying of turf to assist in filtering out sediment laden stormwater before it reaches the creek.

Significant work has also been undertaken to control environmental and noxious weeds including the removal of approximately 50 mature Camphor Laurels that were suppressing native vegetation and acting as a significant seed source. Council are also assisting Manning Landcare and the Friends of Browns Creek to coordinate the activities of a Work for the Dole team who are undertaking bush regeneration within the forested areas fringing Browns Creek. A large component of this work is the removal of invasive environmental weeds such as Madeira Vine, Morning Glory, Lantana, Small-leaved Privet and Ochna. The planting of locally native rainforest species sourced from Council's nursery has also been undertaken to assist the regeneration of the area. Follow up weed control is also occurring on private land that was fenced off from stock last year to protect significant areas of coastal saltmarsh, mangrove and swamp oak.



Pacific Parade Coastal Protection Project

With funding provided through the environmental levy a number of improvements have recently been made to the coastal foreshore area at Pacific Parade, Old Bar. While the main aim of the project was to improve beach access, the works have also helped to address the erosion of the dunal system and the loss of local biodiversity.

The range of improvements have included:

- weed control and the replanting of native shrubs and groundcovers;
- upgrade of the existing beach access and viewing platform at the end of Rose Street;
- the closure and rehabilitation of informal beach access tracks;
- formalisation of a second beach access track on Pacific Parade; and
- fencing to protect vegetated areas and encourage the use of the formal beach access points.



Biodiversity

Improving our Natural Areas

Over the last 6 months Council has continued to undertake a number of bush regeneration projects within the public reserve system in an effort to reduce the impact of weeds and improve biodiversity. Over 600 hectares of land has been targeted which contains vegetation of high conservation value including littoral rainforest, coastal wetlands, lowland floodplain rainforest and riparian vegetation growing along riverbanks. The reserves affected include:

- Cattai Wetlands
- Queen Elizabeth Park, Taree
- Butea Reserve, Taree
- William Wynter Park, Taree
- Kendall Reserve, Cundletown
- Manning Waters Reserve, Taree
- Taree Recreation Centre
- Deans Creek Flora Reserve, Tinonee
- Tallships Reserve, Tinonee
- Wingham Bight Cemetery
- Wingham Foreshore
- Bungay Reserve, Wingham
- Schoolhouse Gully, Wingham
- Kolodong Reserve, Taree
- Oxley Reserve, Harrington
- Racecourse Creek, Old Bar
- Old Bar Park
- Kanangra Reserve, Taree
- Redhead Rainforest Reserve
- Diamond Beach Sportsfield

Council frequently works with community groups such as Manning Landcare, Taree Landcare, Friends of Browns Creek, Cundletown Landcare, Manning Coastcare and Hallidays Point Landcare to undertake these works which helps to achieve better outcomes on the ground and value for money.



Littoral Rainforest Regeneration – Hallidays Point Landcare Project

Asparagus and Bitou Bush are two major weeds invading the littoral rainforest on the headland at Black Head and the coastal vegetation growing on the dunes at Black Head Beach. The escarpment of the headland is a dangerous area to work and difficult to access, and consequently the Asparagus and Bitou Bush has been able to thrive unchecked. As a result these weeds have displaced much of the native vegetation that once grew here which is reducing the biodiversity of this remnant rainforest system.

This year, Council and Hallidays Point Landcare have very successfully worked together to devise a safe technique for working around the edge of the escarpment and have been able to control the two weed incursions. A skilled bush regenerator was engaged to work in these areas where Landcare haven't been able to safely work. This has resulted in a remarkable reduction in the extent of these weeds. Where the escarpment edge was once heavily infested with Asparagus, it has now been removed. Follow up weed control will be required however to manage any weed seedlings germinating from the seed bank in the soil. Council and Hallidays Point Landcare will continue to work together to manage the threat of weeds on the headland and extend the works into other rainforest areas.



Community Nursery

The Community Nursery located at Council's Depot at Kolodong was established by Manning Coastcare in the early 2000s to assist community groups undertaking revegetation projects on public land by propagating local native plants free of charge. Local native stock is critical to the success of any revegetation project as they are specifically adapted to local conditions and help to maintain local provenance. The nursery currently operates 2 days per week with the assistance of a number of dedicated community volunteers.

Last year Council undertook a review of its nursery operations to determine its value to the community and how it could be improved. Following consultation with key staff and a number of community groups it was found that the nursery has significant value for local Landcare groups and the success of their projects. A number of improvements to the nursery's operations were also identified to better meet the needs of these groups including more targeted seed collection for specific projects and better programming of plant propagation and supply. It was considered that the best way to deliver these improvements was to engage the services of a specialist contractor to oversee the work of the volunteers and coordinate the operations of the nursery.

Over the last 9 months the Nursery Coordinator has been successful in achieving better communication with Landcare groups to determine their planting needs, developed a targeted seed collection and propagation program, provided training to the volunteers, and coordinated a number of upgrades to the nursery facility. The nursery has propagated more than 60 species of native plants and is currently on target to supply 20,000 plants in 2016.



Sustainability & Environmental Performance

Farquhar Inlet Sand Monitoring Program

With matching funding provided through NSW Rescuing our Waterways Program, Council is able to undertake maintenance dredging of navigation channels within the Manning River. Dredging sites are directed by the priorities identified in the Manning River Maintenance Dredging Strategy. Farquhar Inlet is a popular boating area in the Manning and is rated as a high priority in the Strategy.

Farquhar Inlet is a highly dynamic estuarine system due to the influence of tidal currents which continually move the sand around. Sometimes this sand builds up within navigation channels which can cause a hazard for boaters. While dredging is necessary to remove the sand shoals it is important to monitor the effectiveness of such measures to ensure the outcomes are long-lasting and to guide the investment of funding.

These decisions are dependent on having reliable data. Information on the Farquhar Inlet exists in the form of historical aerial photography, scientific literature and local knowledge. While this information forms an important part of the overall picture, it does not provide real-time data of what is happening in the estuary.

In an effort to obtain this data, Council has commenced an annual sand monitoring program at Farquhar Inlet by using a camera mounted drone that creates an aerial image of the whole inlet. It is difficult to observe these changes from ground level, so having a birds-eye view of the estuary allows us to monitor the navigation channels more effectively. The images also enable Council to discern short-term trends in sediment dynamics in regards to the movement of sand in the inlet and to better plan future dredging programs that complement natural fluvial processes and therefore make the most efficient use of funds. Additionally, the imagery becomes an important historical record of the location of channels and show how channels respond to different flow regimes.

Council undertook the first round of this monitoring program in April this year. The above image is the result of this monitoring and clearly shows the location of recent dredging and where the river is predominantly flowing. Council will repeat this monitoring every 12 months to help tailor the dredging program to better suit the needs of boaters and the river.



Old Bar Sand Tracing Project

There is a long history of erosion at Old Bar Beach, with some of the highest recession rates on the NSW coast. A better understanding of the complex sediment transport processes in the region was required to fully assess the feasibility of any beach nourishment strategy. Understanding the sediment transport pathways and loss mechanisms also assists in assessing the feasibility of other possible coastal management strategies.

In partnership with OEH and MidCoast Water, Council engaged Royal HaskoningDHV and Environmental Tracing Systems to undertake a sand tracing study aimed at improving the understanding of sediment transport processes at Old Bar Beach. The results from each sampling exercise material was transported widely during the study period, with sediment transport occurring both alongshore and offshore from the tracer release sites. Sampling analysis also suggests that the most significant erosion occurred around the southern end of Old Bar Beach. Predominantly northwards alongshore transport was consistently inferred from the results for each sampling exercise.



This information will be used to help develop a coastal management program for Old Bar Beach.

Protecting the Health of the Manning

In 2015/16 Council continued the water quality monitoring program within the Manning River to assess the condition and health of the estuary. The monitoring program which is in its third year, is undertaken by the NSW Office of Environment and Heritage and is jointly funded through the NSW Estuary Management Program and the environmental levy.

The data collected as part of the monitoring program is used to create a report card grade for the Manning River estuary. This year the estuary received an overall rating of B, which is the same grade as the previous two years. This indicates that the condition of Manning River is consistently fair to good.

The ecological health of the river is subject to both short term and long term pressures. The data from this year's sampling program highlighted a persistent increase in both turbidity and chlorophyll-a following high rainfall events which indicates the river is suffering stress from both nutrient and sediment loads entering the system from the surrounding catchment. This shows that management actions that target both nutrient and sediment reduction are necessary for the long term health of the river.

Ongoing monitoring programs are required to inform management, assist in planning and enable communication of river health issues to the wider community. By using a number of different components in a monitoring program it is possible to begin to understand ecological processes within the river system, and to identify the pressures that may affect it. Now three years in, this monitoring program is forming a solid foundation of information on the ecological health of the Manning River.