

Working to Revive, Renew and Protect the Ecology of Lake Macquarie NSW

Wetland Welfare

The Office of the Lake Macquarie & Catchment Coordinator will spend \$240,000 over the next 13 months to repair natural wetlands in the Lake catchment area.

The money will be spent on target weeding, planting and bush regeneration, along with rubbish removal, fencing and signage. The program will begin this month.

“Almost 70% of the wetlands were found to have reduced in size over the five year period.”



\$240,000 will be spent on repairing natural wetlands in the Lake catchment area

The program was announced after a recent study in Lake Macquarie found that wetland areas in the region are being lost at an alarming rate.

Banksia Environmental Consulting conducted a monitoring program of 30 Lake Macquarie wetlands and compared the findings with a similar survey completed in 1998. Almost 70% of the wetlands were found to have reduced in size over the five year period. The report was commissioned by The Office of the Lake Macquarie & Catchment Coordinator.

Jeff Jansson said the study also identified some of the main causes of the problem.

“There has been an overall loss of 2% or 12.5 hectares of wetland vegetation.

“The major causes are activities such as slashing or mowing, vehicle access into sensitive areas, land clearing, weed infestation and altered hydrology.

“As you can see by that list, most if not all the causes are entirely preventable.”

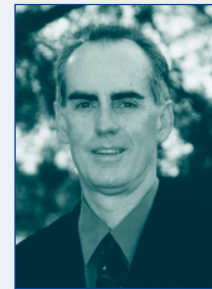
Jeff Jansson said the study also found that many swamp forest species were being lost.

“The main species which are being put at risk are Swamp Mahogany, Broad-leafed Paperbark and Cabbage Tree Palms,” he said. The Office of the Lake Macquarie & Catchment Coordinator has had work designs and technical specifications prepared to assist in the protection and remediation of a number of these wetlands.

The works program will integrate with the ongoing efforts of Landcare groups to improve selected wetlands.

Continues - Page 3

Action Stations in Lake Macquarie



Greg Piper
Chairman,
Lake Macquarie
Project
Management
Committee
Mayor of
Lake Macquarie

Welcome to the seventh edition of the Living Lake Macquarie newsletter.

A great deal has happened since our last issue was released in January.

The major works which form part of the long-term management plan for Fennell and Edmunds Bay are well underway (see the stories on page 2 and 3).

A major sediment trap and vegetated drainage line at Park Avenue, Caves Beach is also under construction. This will remove sediments and contaminants from the stormwater in the area and will assist in improving water quality in Black Neds Bay.

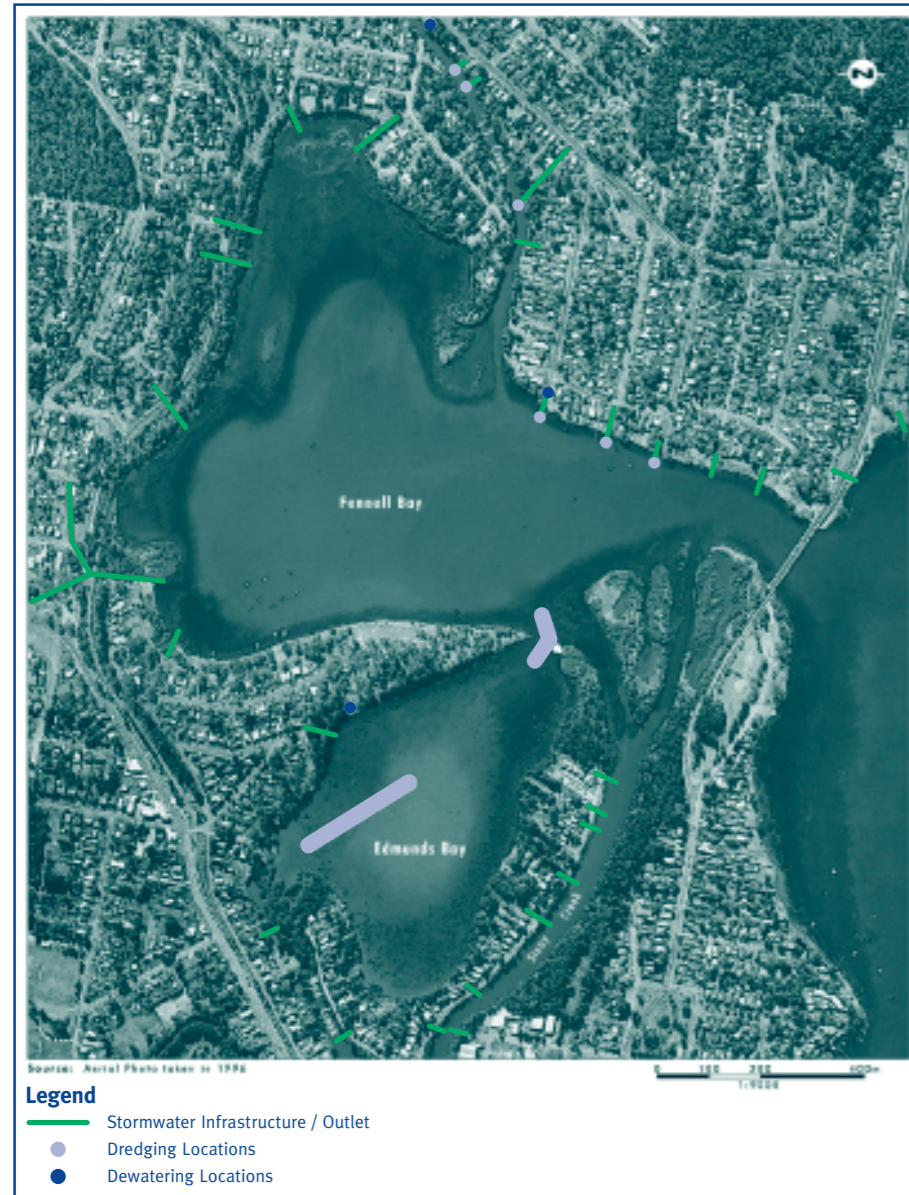
At Cockle Creek we are trialling some unique foreshore stabilisation techniques, employing a strategy called fillets. This involves constructing rows of rock which are cut into the eroding bank, with spaces left in between to allow water flow. While restricting the impact of the wave action which causes erosion, the fillets still allow for the natural processes which help maintain water quality and encourage new vegetation to grow. The strategy has been used in the Manning River on the north coast with great success and we will report back on the results in our own environment.

Continues - Page 3

CONTENTS	Dredging up the Past for the Lake's Future	Pg 2	Website Promotion	Pg 3
	Natural Change at Mudd Creek	Pg 2	Lake Latest In Brief	Pg 4
	Natural Selection	Pg 3	Seawalls And Organic Sediment Build-Up	Pg 4

Dredging Up The Past for the Lake's Future

An intensive dredging operation is continuing in LT Creek and Fennell and Edmunds Bays with work expected to be completed in late June.



Dredging Locations in Fennell and Edmunds Bay

The project involves dredging up to 0.5 metres of sediment from specific areas within Edmunds Bay to enhance water circulation, as well as the removal of sediment from a number of selected stormwater outlets in Fennell Bay and LT Creek. The works are part of the \$1.5 million Fennell and Edmunds Bays Management Plan, initiated and funded by the Office of the Lake Macquarie & Catchment Coordinator. This Management Plan also involves the construction of stormwater treatment devices and foreshore stabilisation and vegetation in this area. "Fennell and Edmunds Bays have been the victim of sediment and excessive nutrient enrichment from the surrounding urbanised environment over many years. Sediment build up such as this leads to the smothering of seagrass and problems with algal blooms," said Mayor Greg Piper, Chairman of the Lake Macquarie Project Management Committee. Key outcomes were identified for the sustainable management of Fennell and Edmunds Bays in the Management Plan prepared by environmental consultants, Umwelt. The outcomes included restoration and protection of habitat for fish and water birds, restoration of natural vegetation, further recovery of seagrass beds, efficient, but naturally slow water circulation and improved water quality. The Management Plan did not recommend major dredging as part of the ongoing strategy to restore and provide protection for the ecological health of Edmunds Bay, preferring dredging of specific areas to assist in the repair of natural processes.

Natural Change at Mudd Creek

Blackalls Park resident Greg Duff has seen the benefits of improvement strategies around Mudd Creek, which runs into Edmunds Bay.

Mudd Creek was the victim of effluent discharge from a nearby sewerage treatment plant for many years, which had contributed to high levels of nutrients to the creek. Mudd Creek suffered two major fish kills in the early 1990's, as algal blooms resulting from the nutrient-rich environment deprived the water of oxygen.

The Office of the Lake Macquarie & Catchment Coordinator had works carried out in the second half of last year to enlarge culverts and increase water flow from Stoney Creek, as Stage 1 of a project to gently improve water flows through Mudd Creek and Edmunds Bay. Stage 2 of this particular project involves important dredging work through the delta mouth of Mudd Creek that is currently being

carried out. This project is part of a broader \$1.5 million program for the improvement of Fennell and Edmunds Bay. Following completion of the Stage 1 works, the water quality improved and fish life returned to the Creek. "We're getting a lot more water flow into Mudd Creek as a result (of the works) and not just during the really high tides like we were

Wetland Welfare

Continued from page 1

Did You Know?

- In 1983 the then State Pollution Control Commission undertook an Environmental Audit of Lake Macquarie to investigate issues affecting lake water quality. The study estimated that nearly 35% of the total area of wetlands in the Lake Macquarie catchment had been lost.
- Wetlands, apart from being rich in biodiversity, performs a similar role for the Lake as the kidney does for the human body, filtering out sediments, nutrients and other contaminants and preventing them from entering the lake.

Natural Selection

Toronto resident Hamish Meek says that nature's own "kerb and guttering" systems work just fine, and he should know.

Mr Meek's property and most of the surrounding neighbourhood features healthy vegetated swales that help filter stormwater, absorb run-off and contribute to a healthier Lake Macquarie. "Instead of the concrete kerb and guttering which you'll find around most modern Australian neighbourhoods, we've still got the natural grass swales." "I'm certainly not complaining. The grass catches sediments from the stormwater and absorbs it into the soil, so the water that flows into the drain and ends up in Lake Macquarie is much cleaner." "The vegetation also filters out litter which you might normally see carried down drains and into our waterways."



Project Management Officer, Mark Saunders, inspects the grass swale at Moore Street, Toronto

Hamish Meek says that with minimal care and maintenance, vegetated swales can be attractive and efficient. "We normally mow the swales once a fortnight in season and maybe once a month during winter. We don't have to sweep rubbish and we reuse clippings and leaves as mulch." Mr Meek says that the swales are so effective at managing overflow after heavy rain that he would be opposed to concrete kerb and guttering being introduced in the area. "I would fight against it for sure." "I think more communities should be encouraged to reinstate vegetated swales and drainage lines instead of concrete systems." "It's one way of slowing down the flow of sediments into the Lake."

Tell Us What You Think



Hit the Office of the Lake Macquarie & Catchment Coordinator's website, www.livinglakemacquarie.org and vote in the weekly community polls that are conducted to get your views on

issues affecting the Lake. The results of the poll questions will be another method used by the Lake Macquarie Project Management Committee to gauge community opinions on important issues. The website also contains the latest media releases, background information, contact details and an extensive 'Student Support' link that has been specifically designed to assist students of all ages with their school assignments.

previously. The quality of the water is very good now." "There has also been a noticeable increase in the number of smaller fish at the mouth of the creek," said Greg Duff. The program to revitalise Fennell and Edmunds Bays also illustrates the complexities involved in environmental management. While water quality has improved dramatically in Mudd Creek, there were some outbreaks of algae in the summer months during the early stages of this project, demonstrating how ecosystems react to environmental changes. Lake Macquarie and Catchment Coordinator Jeff Jansson said that the algal blooms are likely to be a by-product of the ecosystem adapting to the significant changes that have been imposed upon it, but that it will settle down over time. "The works at Mudd Creek and in Edmunds

Bay are just one part of the \$1.5 million project. In the longer term all of the individual aspects of the program will result in significant improvements to the local environment." "Outbreaks of algae indicate an imbalance of some kind, such as an environment which is nutrient rich. This can be caused by any number of factors and might be triggered by major rain events which result in high volumes of stormwater." "To use an analogy, it's a little bit like a patient who undergoes a serious operation. There is a period of recovery and then an extended period where the body adapts to the major changes that have taken place. The benefits are realised in the longer term." "What it does illustrate very clearly is that even when a long standing problem such as the one at Mudd Creek is treated effectively, the environment does not magically return to perfect health. The ecosystem is always changing and adapting."

Action Stations

Continued from page 1

Our website is constantly changing, with fortnightly polls published on-line so that you can have your say on a wide range of issues affecting the Lake. If you haven't visited us for a while, log on and go to www.livinglakemacquarie.org. You will also have seen us in print and on television, raising the profile of the Lake's environmental issues with an intensive advertising campaign. In my new role as Mayor of Lake Macquarie I will be continuing my push for responsible environmental management from within the community. I believe my commitment to the environment and to Lake Macquarie in particular was one of the main contributors to my successful campaign. This is exciting, because the people of Lake Macquarie demonstrated at the polls just how important the environment is to them.

The Office of the Lake Macquarie & Catchment Coordinator has been hard at work in the first half of 2004 to continue the environmental revitalisation of Lake Macquarie. The second half of 2004 will be just as hectic.

Recent Projects

- The rehabilitation of drainage outlets along the public reserve at **Swansea Flats** involved the removal of stormwater sediment deltas and the construction of outlet protection berms and littoral revegetation areas. **Completed January 2004.**

- The installation of a stormwater treatment device and vegetated swale at **Edward Street, Fennell Bay**. **Completed April 2004.**
- The rehabilitation of riparian areas within the upper reaches of **Mudd Creek, Blackalls Park** and **L.T Creek, Fassifern**. **Completed April 2004.**

Seawalls And Organic Sediment Build-Up Go Hand In Hand

A recent judgement by the Land & Environment Court could have far reaching implications for Lake Macquarie.

The court ruled that Lake Macquarie City Council was right in refusing a development application for a 47 metre long vertical seawall in west Lake Macquarie. The finding was that there was no justification for a seawall for the purposes of foreshore stabilisation and that if a need did arise, alternative stabilisation strategies, such as naturally sloping beaches, would be preferred. The Office of the Lake Macquarie & Catchment Coordinator was identified as having successfully implemented preferred strategies at various sites around the Lake. Lake Macquarie Project Management Committee Chairman and Mayor of Lake Macquarie, Greg Piper, said the Land & Environment Court ruling was a landmark decision in regional planning and environmental management.

"I think it's a very important decision. It reaffirms the new way of thinking, to preserve and or reinstate natural systems like sloping beaches and vegetation in preference to hard engineering solutions that are unsympathetic to the environment."

Greg Piper also said the implications of the decision went beyond restrictions on development of private property.

"While the Project Management Committee has committed in excess of \$1 million for organic sediment removal, this type of work cannot be done in isolation. In some instances it might be futile unless there are modifications to the waterfront, such as the removal of seawalls in some cases."

Asked if Council would promote a move toward the removal of seawalls, Greg Piper said there

were a number of factors to be considered.

"In principle, I would say yes, Council would support the removal of seawalls on grounds of environmental responsibility. In practice this is difficult, as unfortunately some properties contain buildings that extend almost to the water's edge."

"To replace a seawall with a natural beach you would need to reclaim some land to allow for the gentle slope. In some cases the removal of seawalls would therefore be impossible, because the land is occupied by structures. It would be very much as a case-by-case scenario."

"The critical point is that seawalls contribute to the build-up of organic materials like black ooze, degradation of water quality and the loss of fish life. The question is, why remove the organic sediment if you're going to leave the cause of the problem intact?"

Seawall Symptoms

While it is sometimes argued that seawalls prevent erosion and make waterfront properties look neat and tidy, they also damage water quality by interrupting natural processes and cause scouring due to rebounding wave action. Seawalls make it impossible for floating wrack to be removed naturally onto the shore where it can dry out and break down naturally and provide a source of food for many micro-organisms on the shoreline. As these materials cannot be removed naturally they rot in shallow areas, forming a build-up of black organic ooze that reduces the water and sediment quality, causes offensive odours and drive away marine life.

Current Projects

- Maintenance dredging at selected locations in **Fennell and Edmunds Bay** to improve water circulation and ecological health.
- The development of a Seagrass Wrack Management Strategy for Lake Macquarie to assist in 'best practice' management of the Lake foreshore.
- The installation of a stormwater sediment basin and channel improvement works along an existing concrete drainage channel at **Park Street, Caves Beach**.
- The installation of a constructed wetland within an existing natural drainage channel at **Clarence Street, Glendale**.
- Feasibility investigations for the partial closure of the **Swan Bay southern entrance** and maintenance dredging of the **Swan Bay northern entrance**.
- The application for planning approvals for environmental improvement works at the entrance to **Cockle Creek**, including the construction of a rock groyne and the removal of a portion of the entrance spit formation.
- Feasibility investigations for removal of organic sediments from selected locations around the Lake Macquarie near shore area.

Upcoming Projects

- The installation of two stormwater treatment devices and a vegetated swale within a concrete drainage system at **The Esplanade, Speers Point**.
- The rehabilitation of 13 priority wetland areas, targeting issues such as weed infestation, uncontrolled access, rubbish removal and community awareness. 