

WORKING TO REVIVE, RENEW AND PROTECT THE ECOLOGY OF LAKE MACQUARIE

Water Clarity Results Show Positive Trend

Water clarity in Lake Macquarie is continuing to show signs of improvement, with the addition of last years long-term monitoring results highlighting this encouraging trend. Good light penetration is very important to the health of the Lake.

Clarity can be affected by two different sources suspended in the water column. The first and most obvious is fine sediments or silt. The second is the amount of microalgae or phytoplankton, which also interferes with light penetration and visibility.

Microalgae is a response to the excessive amounts of nutrients (like fertiliser) that washes into the lake from the catchment with stormwater. Chlorophyll 'a' is monitored to measure the amount of microalgae present in the water column.

Whilst there can always be great seasonal variation, recent monitoring results show a 77% improvement in chlorophyll 'a' levels at

site B1 (between Eleebana and Bolton Point) and a 50% improvement at site B2 (between Goonda Point and Balcolyn) since 1989 / 1990. The levels at site B1 are now the lowest since modern monitoring began in 1984.

Lake Macquarie and Catchment Coordinator, Jeff Jansson said that the results are scientifically used to back up improvements in water clarity witnessed by the community.

"The results confirm how important effective stormwater management is within the catchment, to prevent sediments and nutrients entering the Lake," he said.

A key component of the Lake Improvement

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These vegetation filters, recently installed at Edgeworth, assist in improving water clarity.

Working Together For the Lake's Health



Greg Piper
Chairman,
Lake Macquarie
Project Management
Committee

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

One of my most fulfilling roles has been with the Lake Macquarie Improvement Project, which has set high standards and achieved impressive results in the improvement of an estuarine system that has been highly impacted by development since white settlement. Thanks to all of the hard work of the Committee in partnership with the community, we are now starting to see our most valuable natural asset, Lake Macquarie, return to being a more healthy and diverse estuary.

These improvements, being witnessed by the community, are now being confirmed by long-term scientific data. As reported in the newsletter chlorophyll 'a' levels, an indicator of good water clarity, have improved by up to 77% at one site since the early 1990s.

It is important to find a balance in Lake Macquarie between the necessary accommodation of growth and the protection of the environment. Although the project has achieved many milestones, its latest challenge is overcoming changes to funding agreements.

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Working Together For the Lake's Health

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The project now has to seek and compete with normal funding programs. This means that the cost-efficiencies available in planning a large program may also be reduced.

As Chair of the Lake Macquarie Project Management Committee, I will be working with the State Government to pursue arrangements for the efficient and cost-effective operation of the project. For more information on the Lake Macquarie Improvement Project go to www.livinglakemacquarie.org. I hope you enjoy this edition of the Living Lake Macquarie newsletter.

Greg Piper

Mayor of Lake Macquarie
Chairman, Lake Macquarie Project Management Committee

Landcare Groups Working to Improve Lake Macquarie

Local Landcare groups contribute over \$3.6 million per year in volunteer hours (based on \$30 per hour) to help improve and beautify Lake Macquarie.

In the past eight years alone, the number of registered Landcare groups has grown from 22 to 250 groups, including three indigenous groups, all working for local environmental improvements.



Landcare volunteers at work

Working in partnership with Landcare and other service clubs, the Lake Macquarie Improvement Project has at times funded materials to groups to assist with catchment works.

"It is very encouraging that the local community is volunteering with groups like Landcare to help improve the local environment," the Lake Macquarie and Catchment Coordinator, Jeff Jansson said.

"There is an increasing awareness of the importance of a healthy environment and how individual actions can impact on this," Jeff said. In the past few years Landcare groups have carried out extensive weeding and planting works addressing problems of eroding areas, wetland rehabilitation and riparian / littoral vegetation. During the last seven years groups have planted in excess of 500,000 endemic plants. 🌱

Lake's Latest

Recently Completed Projects

- Work has been completed at Durham Drive, Edgeworth to improve stormwater quality through a series of macrophyte beds cut into the base of a concrete channel.
- A Gross Pollutant Trap (GPT) has been installed at Sealand Road, Fishing Point, within an existing stormwater easement.

Current Projects

- Wetland rehabilitation works are currently being carried out at Whiteheads Lagoon and part of Pelican Inlet Wetlands.

Upcoming Projects

- Plans are being finalised for the installation of GPTs and Wetlands over the next few months at the following locations:
Macquarie Road, Barnsley
Mitchell Street, Cardiff
Chandler Close, Edgeworth
- Kilaben Creek Restoration planning has been completed

to undertake bush regeneration and track erosion stabilisation at Kilaben Creek Reserve. This is a joint project between Kilaben Bay Landcare, Office of the Lake Macquarie and Catchment Coordinator and the Catchment Management Authority.

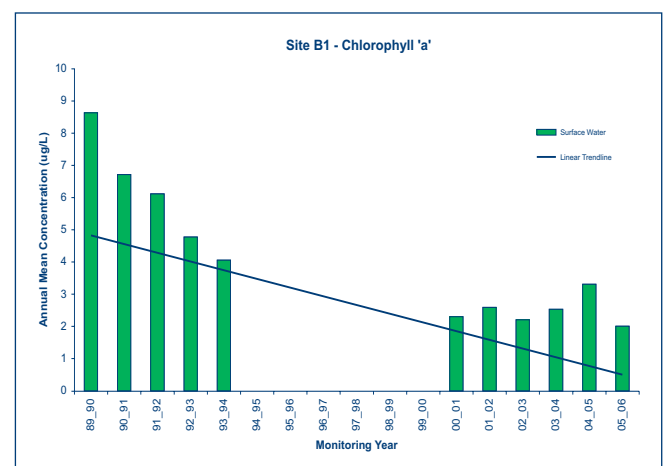
- Stony Creek Rehabilitation, Toronto - permits are being sought for the commencement of works to stabilise the eroding southern bank of Stony Creek adjacent to Lyle Peacock Oval.
- Flaggy Creek Restoration - Works are planned for bush regeneration and track stabilisation activities at a number of locations along Flaggy Creek in both Holmesville and Barnsley.
- Swan Bay and Fullers Creek Wetlands - planning nearing finalisation to undertake extensive bush regeneration works at both these high priority wetlands in Lake Macquarie.

Water Clarity Results Show Positive Trend

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Project has been to develop community awareness about the treatment chain process, protecting the Lake from sediments and nutrients.

"The sparing use of garden fertilisers, preventing soil erosion, proper disposal of pet faeces and the use of vegetation filters can have a profound effect on the Lake environment," Jeff said.



Plan Underway to Rebuild Saltmarsh

One of nature's natural filters and important estuary processing facilities, saltmarsh areas, may be re-established on the shores of Lake Macquarie if feasibility studies prove the project is worthwhile.

Listed as an endangered ecological community, saltmarsh helps to rapidly break down dead seagrass, attract migratory birds and provide habitat for fish and other marine animals during high tide.

Found in the low-lying tidal zone between land and salty or brackish water, saltmarshes



Important salt tolerant plant species found in the low lying areas of the Lake Macquarie foreshore that typify the saltmarsh areas.

have sometimes been treated as "wastelands", along with other wetlands. Research has proven that saltmarshes are crucial to the ecosystem and one of the most biologically

productive habitats on the planet.

It is believed that between 50 and 80 per cent of Lake Macquarie's saltmarsh areas have been wiped out since development began in the 1800s. Many once existed in areas that now house waterfront properties.

The plan, still in its infancy, still needed to review complex factors such as rising sea levels and cost efficiency.

Lake Macquarie and Catchment Coordinator, Jeff Jansson, said low-lying areas such as Swansea Flats, were ideal for saltmarsh. Potential sites are public reserves that don't attract high recreational use.

The project will involve the excavation of fill material to very exact levels followed by the provision of a specialist soil base, before the planting of salt tolerant native species.

"One of the key objectives of the Lake Improvement Project is to reinstate natural ecological processes. Rebuilding saltmarsh area will help get the system back in balance," Jeff said. 🍷

Staff Profile:



Jason Parsons
PROJECT MANAGEMENT OFFICER

Jason Parsons has recently been employed as Project Management Officer for the Office of the Lake Macquarie and Catchment Coordinator.

The previous incumbent recently left to undertake similar work in the USA.

Jason comes from a background in biodiversity and vegetation management with extensive experience in restoration and rehabilitation projects. He also has experience in the assessment of flora and fauna.

Jason has a Bachelor of Environmental Science (Honours) degree from the University of Newcastle and has experience working in a range of environments extending from the coastal areas to the upper Hunter Valley. Jason grew up in the Lake Macquarie area having spent the earlier years on the western side of the lake and more recently lives with his wife and two children at Caves Beach. 🍷

Lake Macquarie Shares Environmental Management Expertise with Thailand

Lake Macquarie's experience and expertise in improving lake water quality was shared with academics in Thailand in February.

Lake Macquarie and Catchment Coordinator, Jeff Jansson, on holidays in Thailand, took some time out to visit Khon Kaen. The visit was arranged at the invitation of Khon Kaen University and involved the inspection of some nearby lakes.

During the visit Jeff advised on environmental management techniques for successfully improving lake health, in addition to meeting with a number of Government officials.

The Lake Macquarie Improvement Project, headed by Jeff Jansson, received international acclaim for environmental

management after being announced as one of four finalists for both the National and International Thiess Riverprize in 2006.

"It is satisfying knowing that our expertise was sought out to assist in educating environmental managers in a developing country like Thailand," Jeff said.

As a member of Rotary, Jeff also met with Rotary Club members in Khon Kaen to explore the possibility of undertaking joint works through the Toronto Sunrise Rotary Club and Rotary International to improve water quality in the lakes around Khon Kaen. 🍷



Jeff Jansson meeting the Mayor of Khon Kaen.

Climate Change a Major Threat to Wetlands

As the world focused on the impact of climate change on World Environment Day, Lake Macquarie residents are being asked to consider the impacts locally, especially for wetlands.

Wetlands are among the most threatened ecosystems in Australia. Although the importance of wetlands is being recognised through initiatives to protect them, many have been reduced in size or destroyed in recent years.

An audit conducted by the then State Pollution Control Commission in 1983 found that one third of Lake Macquarie's wetlands had been destroyed, contributing to the declining water quality. Later studies have also indicated that wetlands have continued to decrease in size. Lake Macquarie and Catchment Coordinator, Jeff Jansson, said that wetlands help to maintain water quality in Lake Macquarie and it is important they are protected.

"Wetlands are nature's way of filtering out sediments, nutrients and other contaminants before they enter the Lake. This natural filtration system acts like a 'kidney' and is vital to the health of the Lake," Jeff said.

"Climate change poses a major threat to wetlands, which are already under stress due to human activities such as land clearing and mowing," he said. Higher temperatures and reduced rainfall will

impact on wetlands, in addition to sea level rises that have already been partly responsible for the decline in salt marsh habitat in coastal estuaries.

Over the past seven years the Office of the Lake Macquarie and Catchment Coordinator has been running a community awareness campaign highlighting the importance of wetlands, as well as undertaking rehabilitation works. In partnership with local Landcare and community service organisations, 14 natural wetlands have been rehabilitated and many others constructed to date. 📍



Living LAKE MACQUARIE

Seven Simple Steps

TO A CLEANER LAKE MACQUARIE

- 1. Help keep pollution out of stormwater drains
- 2. Fertilise sparingly and carefully
- 3. Clean up after your pet
- 4. Carefully store and handle household cleaners, paints and oils
- 5. Prevent soil erosion
- 6. Choose native landscaping
- 7. Preserve and protect our wetland areas

Our Lake. Our Future. Ours to Protect

THE OFFICE OF THE LAKE MACQUARIE & CATCHMENT COORDINATOR

FIND OUT MORE AT - www.livinglakemacquarie.org

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Wetlands Workshop

A wetlands workshop was held in early May to provide information to the community on issues facing wetlands in Lake Macquarie.

The workshop, organised by the Lake Macquarie Landcare Network, was attended by approximately 40 community members.

Speakers included Ken McBride from Koombahtoo Aboriginal Lands Council who spoke about Aboriginal heritage with wetlands; Lake Macquarie and Catchment Coordinator, Jeff Jansson, who spoke about loss of wetlands in Lake Macquarie and impacts on lake water quality; Chris Herbert and Liz Crawford from Hunter Bird Observers Club who spoke on changes made over the years to Toronto wetlands and the importance of wetlands to birdlife; and wetland ecologist Dr Peter Nelson who spoke on wetland protection.

Participants were also taken on a tour through the Toronto Wetlands to observe improvements and birdlife.

The meeting resolved to form a working group to identify some unlisted wetlands in Lake Macquarie and to explore the possibility of getting wetlands in the area listed in the Federal Government's publication "Directory of Important Wetlands in Australia."

Anyone interested in learning more can contact the Landcare Resource Centre on 4959 5080. 📍