

Snapshot of the Tuggerah Lakes Estuary Management Plan



October 2006



Estuary management process

Tuggerah Lakes Estuary
Process Study, 2001

Tuggerah Lakes Estuary
Management Study, 2005

Tuggerah Lakes Estuary
Management Plan, 2006

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Roberts, D.E. (2006) Snapshot
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Summary document
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Dickinson, T.G. et. al. (2006).

Tuggerah Lakes Estuary
Management Plan. Prepared
for Wyong Shire Council
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the Tuggerah Lakes Estuary
Management Plan, contact:

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You can also find information
about the Tuggerah Lakes
Estuary Processes Study, and
Estuary Management Study
and Plan on Wyong Shire
Council's web site
www.wyong.nsw.gov.au

*Cover photography (top, left and middle)
and above: Andrew Rowland*

Prepared by

BIO-ANALYSIS PTY LTD

Marine, Estuarine & Freshwater Ecology

For



NSW Government

DEPARTMENT OF NATURAL RESOURCES

Community resource information for the Tuggerah Lakes Estuary Management Plan



Seahorse logo design competition

The Tuggerah Lakes Estuary is home to *Hippocampus whitei* – White’s Seahorse. A protected species that is only found in Australian waters and lives in the seagrass beds of the Tuggerah Lakes Estuary.

To celebrate this iconic resident, the Tuggerah Lakes Estuary, Coastal and Floodplain Committee has chosen White’s Seahorse as the logo for the Tuggerah Lakes Estuary Management Plan, and invited local primary schools to enter the seahorse logo design competition.

Council received over 400 entries of exceptionally high quality, making judging extremely difficult. After careful consideration, the judging panel chose the entry submitted by Amber Simpson from St Cecilia’s Catholic School as the overall competition winner.



Amber Simpson is congratulated by the Mayor, Cr Bob Graham and Council’s Environmental Health Officer (Education) Danielle Hargreaves.

Foreword



The Tuggerah Lakes Estuary is one of the most unique estuaries in Australia, and one of Wyong Shire's most valued natural assets. However, continued fast growth in the region means the Lakes are under considerable threat.

For the past ten years, in partnership with the NSW Department of Natural Resources, Council has been developing a management plan for the protection of the Tuggerah Lakes in line with the State Government's Estuary Management Policy.

Completion of the Tuggerah Lakes Estuary Process Study (2001) and Management Study (2005) provided Council with a sound basis to formulate the Tuggerah Lakes Estuary Management Plan.

The Tuggerah Lakes Estuary Management Plan is based on sound science and an appreciation of the community's values and perspectives, and I have been extremely encouraged by the involvement of the community in developing the Management Plan.

The Management Plan contains four action plans which are based on on-ground activities including a significant number of new projects to help restore parts of the estuary and Catchment and encourage people back to the Lakes.

The Shire's waterways are an integral part of our community's lifestyle and is therefore the focus of many recreational activities including fishing, boating, cycling, walking and picnicking. Their long-term protection will ensure that they are there for current and future generations to enjoy.

The challenge for us now is to ensure that the Plan is implemented to guarantee a sustainable future for the Tuggerah Lakes Estuary. The significant cost of this will be shared between the State Government, Council and ratepayers.

On behalf of Wyong Shire Council and the Tuggerah Lakes Estuary, Coastal and Floodplain Management Committee I proudly welcome the Tuggerah Lakes Estuary Management Plan.

Councillor Bob Graham
Mayor
Chair, Tuggerah Lakes Estuary,
Coastal and Floodplain
Management Committee

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Introducing the Tuggerah Lakes Estuary Management Plan



Why do we need estuary management plans?

The coastal zone of New South Wales has taken a bit of a beating over the last 200 years. The original bush and shorelines have often been replaced with farmland, industrial sites and housing estates. Increasing amounts of sediment and waste have inevitably found their way into our creeks and estuaries, causing all sorts of problems like flooding, excessive plant growth, bad smells and pollution. We like living on the coast and our estuaries are very important to us for commercial activities and recreation, so we've got to do something to put them right. We can fix these problems, but we need a plan to help us do it effectively, which is why the State government asked local authorities to come up with plans for the future management of our estuaries.

Developing your Estuary Management Plan

As the responsible authority, Wyong Shire Council has developed an Estuary Management Plan for the Tuggerah Lakes. This all started with the Tuggerah Lakes Estuary Process Study, which tells us how the lakes system works and how our activities affect it, however there is still some things we don't know. This was followed by the Estuary Management Study, which was completed in 2005 and combined the results of the Process Study with input from you, the community, so that objectives could be set to manage the condition of the estuary.

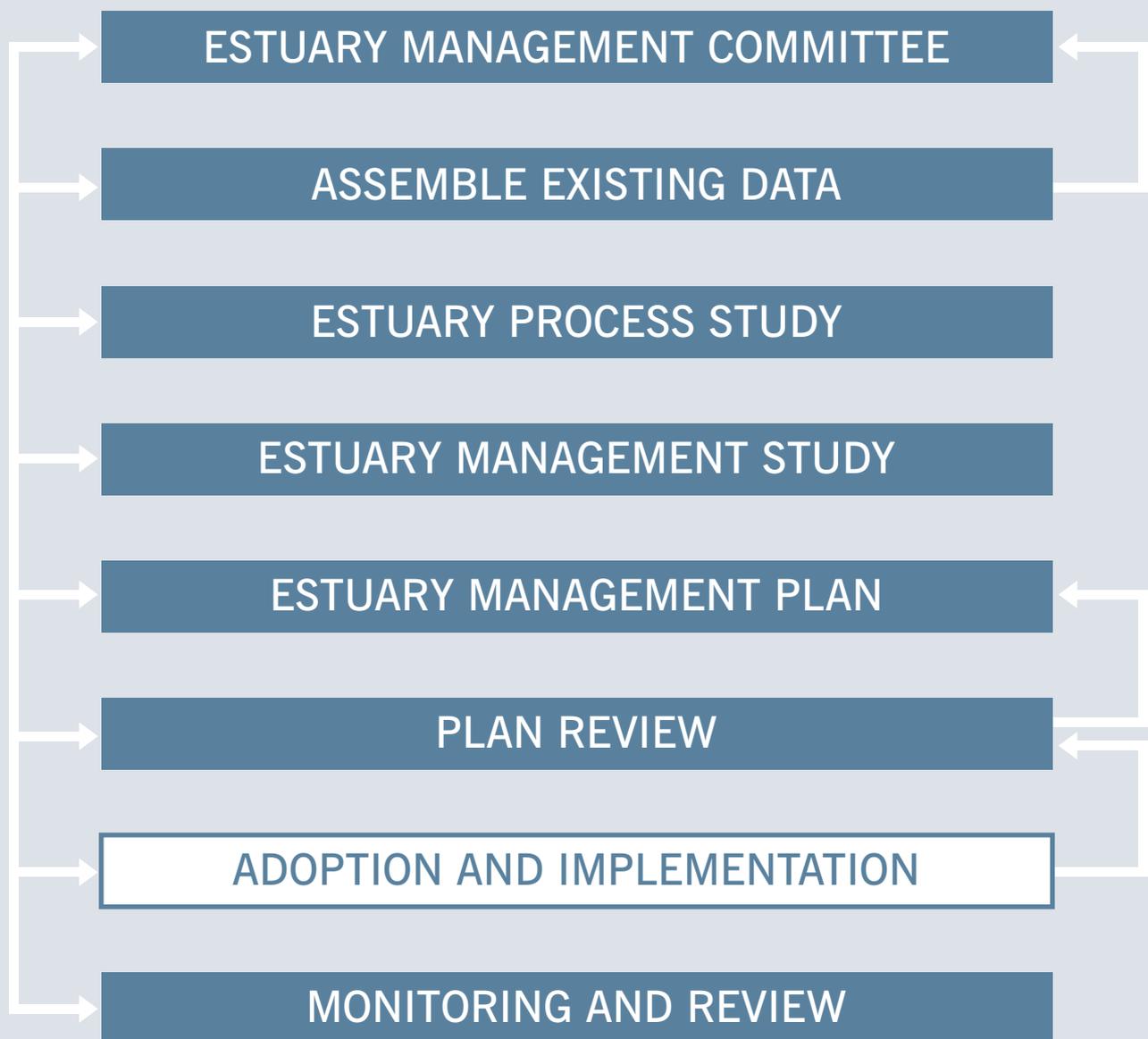
The final step is the development of the Estuary Management Plan. This gives us the detailed actions necessary to achieve the management objectives and also says why these are appropriate, who is responsible for doing them, how long each should take, how much it will cost and how it will be evaluated. If implemented fully, the actions listed in the Plan have the potential to halt the current rate of decline we are experiencing in our creeks, wetlands and lakes.

The full Estuary Management Plan is a large document and is very detailed, so we've summarised it here.



Photo (above): Andrew Rowland

Estuary Management Planning Process (after DLWC, 1992).





The Tuggerah Lakes Estuary

The three interconnected lagoons that comprise the Tuggerah Lakes estuary are largely isolated from the sea, but it's this isolation that creates a special environment that supports a huge diversity of plants and animals. The beauty of the lakes attracts people; who either want to live here or want to visit. As a result, a wide range of commercial activities, including fishing, boating and tourism, take place on or around the lakes. Today, the Tuggerah Lakes and their catchment are home to over 130 000 people.

This attractiveness has also created big problems, because more people means greater stress on an already stressed environment.

The estuary is in better condition than it was 20 years ago, mainly because we now dispose of our sewage at sea, but the Estuary Management Study still showed that there are a number of issues that threaten the lakes. People need resources like land, water, electricity and sewerage systems. Natural vegetation

has been cleared for urban development, causing more sediment to wash into waterways and lakes. Water is diverted for domestic and industrial use and what's left is often of too low quality and sometimes quantity to help the estuary. A visionary plan of management is needed if we are to improve and maintain the health of the Tuggerah Lakes, not only for our benefit, but also for future generations.



Photo: Julie Garratley

The Tuggerah Lakes Estuary





Who is responsible for managing the Tuggerah Lakes Estuary?

The State Government “owns” the Tuggerah Lakes, whilst While Wyong Shire Council is the main “manager” of the catchment which flows into and impacts upon the “health” of the Tuggerah Lakes estuary. A number of State and Federal authorities also have a say

- Gosford-Wyong Councils Joint Water Authority
- The Hunter-Central Rivers Catchment Management Authority

- The NSW Government (Department of Environment and Conservation; Maritime Authority; Department of Natural Resources; Department of Primary Industries; Department of Lands; Department of Aboriginal Affairs)
- Federal Government (Department of Environment and Heritage)

You can find details of the involvement and responsibilities of these organisations in Section 3.7 of the larger version of the Plan. Getting all these agencies to work together in a coordinated way is a challenge in itself and the Plan has been setup to help this happen so that we can achieve our objectives for the estuary.

Photo (above): Julie Garratley
Photos (below and opposite): Andrew Rowland



Vision for the Tuggerah Lakes Estuary attribute description

Water Quality

Current water quality does not deteriorate in the face of new development. Recreational water quality is improved at lake and creek swimming areas.

Foreshores

Healthy foreshores that promote saltmarsh growth which in turn aid in the natural breakdown of seagrass wrack.

Public facilities

Excellent recreational facilities at access points.

Rivers and Creeks

Healthy rivers and creeks that connect well with the estuary and provide good habitat for estuarine animals.

Ocean entrances

Existing exchange with the ocean is maintained. A permanent entrance is not a cost-effective solution and will have unknown ecological impacts.

Seagrass wrack

Seagrass wrack will be harvested from locations where it accumulates too frequently to be broken down naturally. Wherever possible, saltmarsh will be used to encourage natural odourless decomposition of wrack on the foreshores.

Fish and prawns

Sustainable fish and prawn populations and habitat that provide for long-term recreational and commercial fishing.



Estuary Management Plan and associated Action Plans review cycles

The Estuary Management Plan

Putting together the Estuary Management Plan is the most important part of the process because it takes what we learned in the earlier stages and turns that knowledge into practical actions directed squarely at helping the estuary. The estuary management study identified six primary objectives that we should aim for in the management of Tuggerah Lakes.

1. Ensure that the quality and quantity of water meet the needs of the community and lakes and rivers.
2. Ensure that the plants along the banks of rivers, lakes and in wetlands are protected because these are essential to a healthy ecosystem.
3. Ensure that biodiversity and ecological integrity of the lakes ecosystem are maintained or enhanced.
4. Ensure that human activities can take place while protecting cultural heritage and enhancing soil, water and ecosystem health.
5. Ensure that the social and economic needs of the community are met while protecting the environment of the coastal zone.

6. Ensure that we continue to improve our understanding of how the estuary works and incorporate this knowledge into management.

After extensive community consultation during the Estuary Management Study, 27 priority actions were identified to achieve these objectives. In the Estuary Management Plan, these were expanded into Action Plans each with a series of specific actions. The Action Plans are intended to help meet management goals for Water Quality, Ecology, Socio-Economic, and Knowledge & Management for the next 5 years. Each Action Plan will be developed and implemented by teams of stakeholders (groups who have a responsibility or interest in the actions). These teams will be involved in finalising actions and managing budgets each year. Every financial year the plans will be reviewed to see whether targets have been met and new plans drafted for the next year. At the end of the first five year period, the current priorities should be reviewed and a revised set of priorities should be set to govern Lakes management for the next five year period.

This summary gives you an overview of what's in the Action Plans, why they make sense and what you could expect to see happening around the lakes.



Water Quality Action Plan



Processes and issues

The quality of water in the Tuggerah Lakes estuary depends much more on the quality of the water that flows into it through rivers, creeks, stormwater drains and directly from the surrounding land rather than the seawater entering through the Entrance Channel. In a catchment with no development this water will contain some nutrients and sediment, but not much else. The estuary doesn't just absorb these; they are actually essential for its wellbeing. The problem today is that we have damaged the catchment by clearing vegetation for construction and agriculture and exposing sediments, nutrients and in some cases acids, to erosion.

Natural vegetation which allows rain to percolate into the groundwater system, has been replaced with hard surfaces

like roofs, roads, car parks and culverts. These surfaces channel rain into creeks, and increase the velocity of flow and its ability to erode stream banks, adding even more nutrients and sediment to the system. To make matters worse, this water is often contaminated with chemicals and litter.

Why are excess nutrients a problem? Just as fertilizers help your garden plants to grow, so nutrients feed the plants in the estuary. Too much nutrients means too much plant growth, which chokes the system. As if this wasn't bad enough, the process of decay uses up the oxygen in the water causing bad odours and even killing fish and other animals.

Excess sediment and growth of microscopic plants is also a problem because it increases the cloudiness of the water, reducing the amount of light that penetrates the water, affecting aquatic plants like seagrass and affecting the animals that depend on it. Because Tuggerah Lakes drains a large catchment (670km²), it is prone to the build-up of nutrients and sediments. To reduce these problems, we need to manage the amounts entering the estuary.

Another important aspect of water quality is the amount of salt it contains. In Tuggerah lakes, seawater from the ocean is diluted by fresh water

flowing from the catchment. The salt-content of the lake water is usually about two-thirds that of seawater and that's just the way the animals and plants like it. The system can stand short periods when there is more freshwater such as during floods, or periods of full-strength sea water, as may occur during droughts, but prolonged periods of either would be disastrous and many kinds of plants and animals would disappear.

For this reason the Plan gives careful attention to the problems of water quality and quantity and to the balance between fresh and salt water. By using fresh water more efficiently, we can ensure that enough is left to meet the ecological needs of the system. Keeping the entrance open will maintain the mix of fresh and sea water that the lakes depend on.

A third very important aspect of water quality concerns public health. Bacteria and other harmful bugs from sewage and stormwater are a potential threat to health, particularly in areas of high recreational use, such as popular bathing spots. There will be ongoing monitoring of water quality and additional work to identify the sources of this contamination and methods for reducing its occurrence.

Photo (above): Andrew Rowland

