

# Native Vegetation Protecting Lake Macquarie



## Introduction

The shores of Lake Macquarie are an important part of our lifestyle and local economy. While we continue to enjoy the benefits the Lake has to offer, we also have a role as guardians of the area. The Lake is effected by every human action within the catchment.

Lake Macquarie's shoreline is already heavily altered by human activity. Over 75% of the shore has already been cleared in some way, resulting in the removal of native foreshore vegetation and the loss of important wetland areas.

The Lake and its catchment are a dynamic, living thing. Its survival depends on maintaining balance between all elements of the ecosystem.



Native vegetation stabilises the natural beach

## What Do Plants Do For The Lake?

There are three main areas where vegetation is vital to the Lake system.

### **(1) ON THE SHORELINE OF CREEKS AND THE LAKE**

**ROLE** Native vegetation binds banks and makes them strong to resist erosion. It also filters pollutants from the stormwater.

**ISSUE** With great expanses of foreshore vegetation often cleared during urban development, or planted with exotic grasses, the shoreline becomes weak and vulnerable to erosion. When heavy rain falls or waves wash against the shore, the land will erode because there is nothing to hold it in place.

### **(2) IN DRAINAGE LINES AND WETLANDS**

**ROLE** Vegetation filters pollutants from stormwater run-off, capturing nutrients and sediments before they enter the Lake. It also provides oxygen which helps nitrogen to be processed into the atmosphere, and plays a role in water absorption into the ground.

**ISSUE** We are often too eager to replace vegetated drainage lines with concrete versions, to satisfy our desire to be "neat and tidy". While these substitutes are highly efficient, they cannot provide the filtration benefits of the natural vegetation. The hard surfaces also result in faster water flow, which impacts on water quality and the Lake habitat.

### **(3) AT SITES SUFFERING EROSION**

**ROLE** The re-establishment of native vegetation helps stabilise eroding areas within the catchment. The plants prevent the escape of sediments and nutrients from the soil into the stormwater and also act as a filter.

**ISSUE** Without native vegetation to hold it in place, the land will wash away into creeks and the Lake, along with nutrients and pollutants contained within the catchment. This seriously effects the natural balance of the Lake ecosystem and puts marine and other plant life at risk.



## Finding a Balance

The way to balance our economic and social values with the needs of the Lake is to become aware of the **treatment chain**. This term refers to the combination of people's actions in their domestic surroundings, vegetated drainage lines and where necessary, the installation of external treatment devices such as constructed wetlands. For the treatment chain to function properly, each of these three elements must play its role effectively.

## What Does The Future Hold?

There are over sixty wetlands known to exist in Lake Macquarie. Thirty-six of these are protected by State Government legislation. NSW Fisheries are also working to conserve mangroves.

New Water Sensitive Urban Design techniques provide the opportunity to balance urban development with the needs of the Lake. These strategies retain or assimilate existing water tributaries and natural ecosystems into new urban developments.

## What Can You Do?



We need to accept that nature is not always "neat and tidy", particularly when infested with exotic weeds. While vegetated drainage lines might not always look as clean as their concrete substitutes, they perform an important filtration role that man made versions cannot hope to recreate effectively.



Appreciate the balance that is provided by vegetated drainage lines as opposed to conquering natural processes with hard engineering solutions.



We should resist the desire to clear native vegetation around shorelines, as it looks attractive and protects the land by binding it and slowing wave action. We need to plant native shrubs and trees.



Join a local Landcare group and assist with the re-vegetation program.



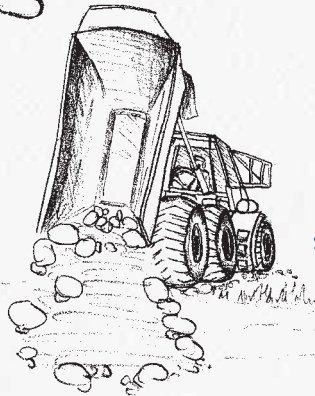
Support the principles of Water Sensitive Urban Design.



Appreciate the sensitive balance between enjoying the Lake and caring for the catchment.



In 1850, 6,600 tonnes of sediment per year



In 2000, 60-70,000 tonnes of sediment per year

Estimates of annual sedimentation of Lake Macquarie has increased by 10 times since European settlement.

## The State of Play

It has been estimated that approximately 70,000 tonnes of sediment and 383 tonnes of nutrients (nitrogen and phosphorous) enter the Lake with stormwater each year. The estimate for natural sediment runoff prior to European development is just 6,600 tonnes.

Studies of aerial photographs taken from 1961 to 1987 show that there has been a dramatic loss of plant life around the Lake. While some of this has occurred naturally, our own actions have sped up the changes because we have disrupted the balance of the ecosystem.

Clearing land for urban and industrial purposes around the shoreline are quick ways to degrade the beauty of Lake Macquarie. While development will sometimes interrupt the natural processes, we need to find a way to balance lifestyle and economic decisions with the needs of the Lake.

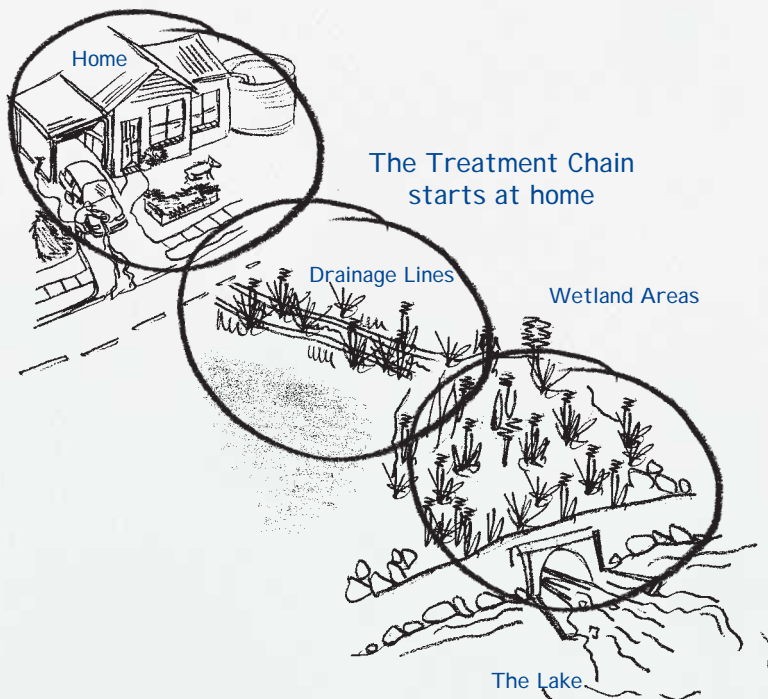


Photo courtesy of Ric Woods

**Wetlands** are areas of flooded land usually identified with dense fringing vegetation. They are an important part of aquatic ecosystems. Around 35% of the total wetland areas have been lost in Lake Macquarie. There are two main types of shoreline vegetation, known as **littoral** (lake-edge) and **riparian** (stream-edge).

Join a local Landcare group