

Sedimentation and Water Quality

Living

LAKE MACQUARIE

Phone 02 4921 0230 Fax 02 4958 7257 Website - www.livinglakemacquarie.org



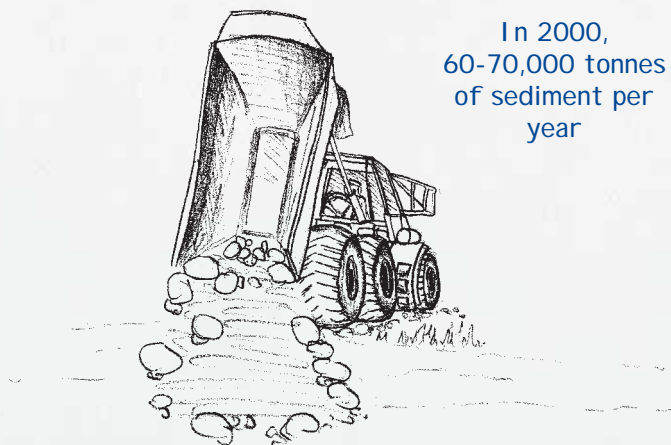
Introduction

Every human action within the catchment has an effect on the waters of Lake Macquarie. Sediments and soils washed from the catchment silt up drainage channels and creeks and eventually end up in the Lake. Urban, industrial and agricultural areas in the Lake Macquarie catchment all contribute to this process.

Stormwater flowing into the Lake can contain nutrients, bacteria and other pollutants. The Lake's ecological balance and consequently our economic and recreational values are all damaged in the process.



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.

Sedimentation and Water Quality

The quality of the water in the Lake is in part influenced by tidal flushing through Swansea Channel, as well as stormwater from the catchment which discharges into the Lake from drainage channels.

Runoff from roofs, gardens, footpaths and roads carries fine sediments, nutrients, oils, grease, bacteria and other pollutants to the Lake. Other contributors to Lake water quality include:

-  Discharges, overflows or leakages from septic tanks, and reticulated sewerage systems
-  Effluent from boats
-  Litter and pet faeces
-  Industrial effluents

The sediments found in the Lake are an accumulation from many different sources. While no one source is solely responsible for the problem, the combined effect of all contributing factors amounts to a huge influx of sedimentation which effects the balance of the Lake ecosystem.



Sediment from urban, industrial and agricultural areas ends up in the Lake.



While the construction of buildings, services and roads are necessary, it's important to minimise the removal of the vegetation cover that holds the soil in place in the catchment. Rain erodes exposed soil and carries it to drainage lines and creeks, where it is finally deposited into the Lake.







Urban development usually means more paved and sealed areas. More water runs off these hard surfaces and at greater speed, increasing erosion when the water reaches unsealed areas. The answer is therefore not always to build more concrete drainage systems. Wherever possible, natural vegetated lines should be preserved.

The State of Play

All drainage channels leading to the Lake show increased deposition of sediments. Increased sediment has built up around the mouths of creeks and drainage lines entering the Lake.

Sediments that originate predominantly from the industrial areas of the catchment may contain the heavy metals lead, zinc, copper, cadmium and selenium. These metals accumulate in marine life and can make them unhealthy to eat in large quantities.

Water quality studies have been carried out on the Lake since 1954. There are a number of concerns with water quality in the Lake, including:

-  increasing nutrient concentrations,
-  excess bacteria levels,
-  decreased clarity of the water,
-  increased water temperatures at the southern end of the Lake,
-  reduced oxygen content of bottom waters after rain and
-  poor water quality in creeks and drainage lines leading to the Lake.

Poor water quality affects the natural processes in the Lake. Increased water temperature is sometimes associated with loss of seagrass and

changes in fish distribution. Excess nutrient levels can result in algal blooms which destroy the beauty and recreational benefits of the Lake, as well as killing fishing stocks.

What Is Being Done?







Management of excess sediments and poor water quality requires a total catchment approach, where activities occurring everywhere in the catchment are evaluated as to their impact on the waters of Lake Macquarie. Nearly \$7M has already been allocated to implement strategies aimed at improving the water quality and reducing excess sedimentation.

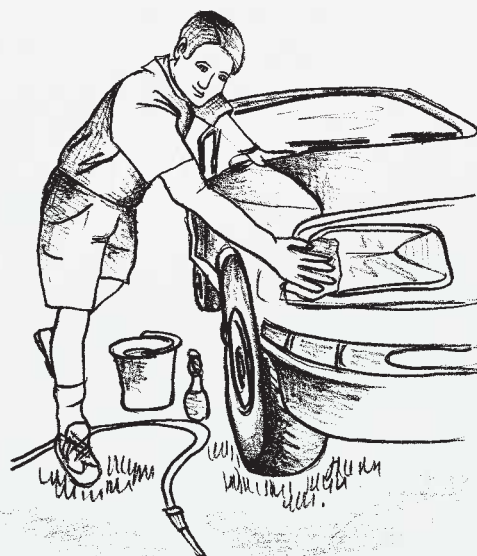
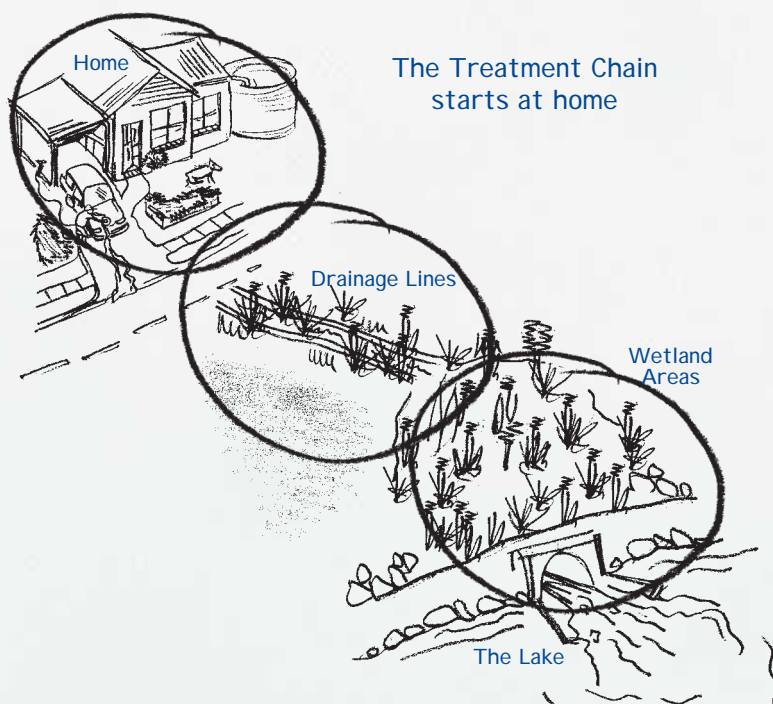
Sedimentation and related water quality problems need a three pronged attack:

1. Reduce the loss of soil from the catchment.
2. Prevent sediments entering the Lake.
3. In some circumstances, remove excess sediments from the Lake.

What Can You Do?

There are a number of ways everyone can help restrict sedimentation and improve water quality in the Lake, including:

-  Sweep your driveways instead of using a hose.
-  Compost grass clippings and never place them in or near a drainage system.
-  Wash your car on the lawn, rather than on the road or in your driveway.
-  Encourage water absorption on your property by installing a rain water tank. Use the water for the garden and car washing.
-  Vegetate areas where there is exposed soil.
-  Ensure the appropriate erosion and sediment controls are in place when undertaking building works.



Wash cars on the lawn instead of on the road.