

Restoration of Manly Lagoon – Part 3

Environmental Flows and Water Extraction

Weirs: on Manly Creek to water [Warringah Golf Course](#)

on Burnt Bridge Creek to water [Balgowlah Golf Course](#)

Bore: to water [Manly Golf Course](#)

Manly Dam: to water [Wakehurst Golf Course](#)

WATER QUALITY

Manly Lagoon has been identified as the State's most polluted coastal lagoon. Boating, fishing, and swimming are no longer allowed and the area has now been classified as a high risk area.



The lagoon's degradation is:

- **twice that of the next most polluted lagoon, Curl Curl.**
- **20 times more polluted than most others.**

The **water quality** results for **1992/96** by Laxton showed that:

- **Dissolved oxygen** levels in Manly Lagoon and the tributary creeks were very variable and often fell to ecologically dangerous levels.
- Water in Manly Lagoon was often **turbid** due to suspended material derived from the catchment of phytoplankton blooms.

- **Nutrient levels** in Manly Lagoon, Brookvale Creek and Burnt Bridge Creeks were variable and considered, on average to be too high to control the growth of excess phytoplankton and other aquatic plants.

Source: Laxton, J. Water Quality of Manly Lagoon 1992/96

The following are compliance charts that illustrate water quality of Manly Lagoon over the last 8 years.

**COMPLIANCE OF MANLY LAGOON AND TRIBUTARIES
WITH SUGGESTED WATER QUALITY GUIDELINES:
SUMMARY OF DATA FROM WATER SAMPLES
COLLECTED 1992-1996**

Legend

Complied with ANZECC guidelines 

Did not comply with ANZECC guidelines 

PARAMETER	BROOKVALE CREEK	MANLY CREEK	BURNT BRIDGE	LAGOON BODY
Nutrient Concentrations¹				
Ammonia				
Oxidized Nitrogen				
Total Nitrogen				
Orthophosphate				
Total Phosphorus				
Water Clarity				
Turbidity				
Percentage Light Transmission				
Total Suspended Solids				
Volatile Suspended Solids				
Chlorophyll-a				

**COMPLIANCE OF MANLY LAGOON AND TRIBUTARIES
WITH SUGGESTED WATER QUALITY GUIDELINES:
SUMMARY OF DATA FROM WATER SAMPLES
COLLECTED 1994-1997**

Legend

Complied with ANZECC guidelines



Did not comply with ANZECC guidelines



PARAMETER	BROOKVALE CREEK	MANLY CREEK	BURNT BRIDGE	LAGOON BODY
Nutrient Concentrations¹				
Ammonia	X	X	X	X
Oxidized Nitrogen	X	X	X	X
Total Nitrogen	X	X	X	X
Orthophosphate	X	X	X	X
Total Phosphorus	X	X	X	X
Water Clarity				
Turbidity	X	X	X	X
Percentage Light Transmission	X	X	X	X
Total Suspended Solids	X	X	X	X
Volatile Suspended Solids	X	X	X	X
Chlorophyll-a	X	X	X	X

**COMPLIANCE OF MANLY LAGOON AND TRIBUTARIES
WITH SUGGESTED WATER QUALITY GUIDELINES:
SUMMARY OF DATA FROM WATER SAMPLES
COLLECTED 1994-1998***

Legend

Complied with ANZECC guidelines 

Did not comply with ANZECC guidelines 

PARAMETER	BROOKVALE CREEK	MANLY CREEK	BURNT BRIDGE	LAGOON BODY
Nutrient Concentrations[†]				
Ammonia				
Oxidized Nitrogen				
Total Nitrogen				
Orthophosphate				
Total Phosphorus				
Water Clarity				
Turbidity				
Percentage Light Transmission				
Total Suspended Solids				
Volatile Suspended Solids				
Chlorophyll-a				

**COMPLIANCE OF MANLY LAGOON AND TRIBUTARIES
WITH SUGGESTED WATER QUALITY GUIDELINES:
SUMMARY OF DATA FROM WATER SAMPLES
COLLECTED 1999**

Legend

Complied with ANZECC guidelines 

Did not comply with ANZECC guidelines 

PARAMETER	BROOKVALE CREEK	MANLY CREEK	BURNT BRIDGE	LAGOON BODY
Nutrient Concentrations¹				
Ammonia				
Oxidized Nitrogen				
Total Nitrogen				
Orthophosphate				
Total Phosphorus				
Water Clarity				
Turbidity				
Percentage Light Transmission				
Total Suspended Solids				
Volatile Suspended Solids				
Chlorophyll-a				

Aquatic Flora and Fauna

There is little habitat for aquatic life because:

- The natural vegetation of the lagoon has been greatly modified by urban development and the spread of introduced plant species.
- There are no saltmarshes or mangroves and only very small amounts of seagrass which fringe the shoreline in the lower reaches of the lagoon.

Fish species that can be found are:

- Mullet
- Bream
- Flathead
- Whiting

Tropical fish species that have been found in the Lagoon are:

- Mangrove Jack
- Giant Herring
- Big-eyed Trevally
- Australian Bass

A Gondwanan fish in Manly Lagoon Catchment!

In the creeks above Manly Dam, there is a Gondwanan fish species called [Galaxias Brevipinnis](#), commonly called the Climbing Galaxias. This Gondwanan fish, which lives in Curl Curl creek is also found in New Zealand, another fragment of the great southern continent Gondwana. This fish is reputed to be the first fish to conquer the New Zealand Glacial lakes because of its phenomenal climbing ability. It is a **threatened species** in Manly Dam.

Macrobenthic infauna :

The diversity and abundance of these is relatively low and particularly poor in the middle and upstream locations of the lagoon. This is indicative of poor bottom water quality and sediment contamination.

Frogs

The Red-Crowned Toadlet (*Pseudophryne australis*) is restricted to Hawkebury Sandstone areas in the Manly Dam area. It is also a **threatened species**.

Vegetation

The indigenous vegetation communities originally associated with Manly lagoon and its tributaries have been heavily altered by urban development. There has been widespread introduction of ornamental exotic species such as Coral Trees which seasonally contribute very substantial amounts of leaf matter into the tributaries and the lagoon to the detriment of water quality. Weed infestations are common throughout the study area, particularly where maintenance is less intensive, detracting from the water quality, habitat value and recreational amenity of the waterways.

A recent Survey of the Vegetation around Manly Lagoon found that:

Indigenous Species	67
Noxious Weeds	26
Exotic species	140

Total number of species 222

Endangered plant species: *Tetrastichia grandulosa* (community of endangered Duffy's forest vegetation) found at the top of the catchment