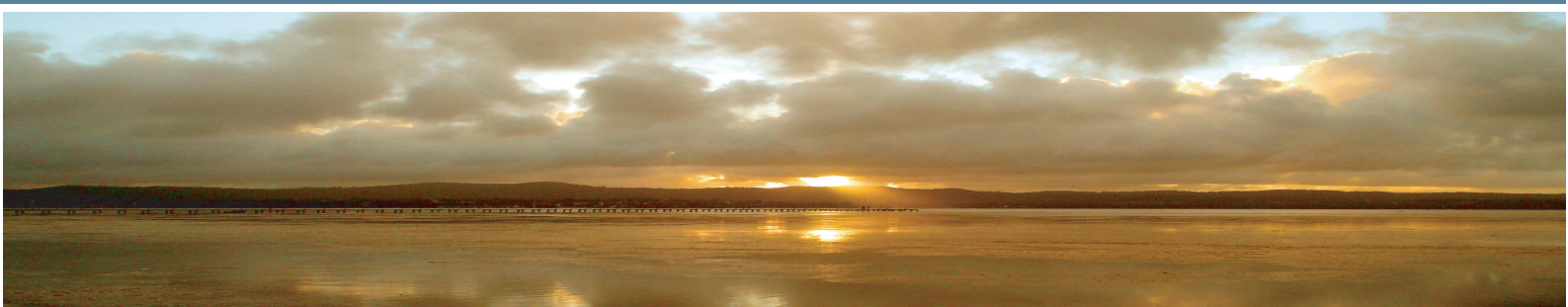


Estuary Management Process

Tuggerah Lakes Estuary Process Study, 2001

Tuggerah Lakes Estuary Management Study, 2005

Tuggerah Lakes Estuary Management Plan



Roberts, D.E. and Dickinson, T.G. (2005).

Tuggerah Lakes Estuary Management Study. Prepared for Wyong Shire Council and Department of Infrastructure, Planning and Natural Resources.
BIO-ANALYSIS: Marine, Estuarine and Freshwater Ecology, Narara

Layout and Design - Elena Lazzarotto

Front cover and inside cover photographs courtesy of Andrew Rowland

For copies of this document or more information about the Tuggerah Lakes Estuary Management Study, contact Wyong Shire Council's Project Manager Siân Fawcett on 43505506 or email: fawcetts@wyong.nsw.gov.au

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

Prepared by



For



Summary

The catchment of the Tuggerah Lakes represents around 80% of the area of the Wyong Shire. The study area, located on the central coast of NSW, is comprised of three shallow coastal lagoons, Tuggerah Lake, Budgewoi Lake and Lake Munmorah. The three lakes are interconnected and open to the sea at The Entrance. The Tuggerah Lakes estuary has always been important to the shire in terms of its value to tourism, recreation and fisheries.

The State Government's Estuary Management Policy is a component policy of the State Rivers and Estuaries Policy of the NSW Government, which in turn comes under the umbrella of Total Catchment Management. The Estuary Management Study builds on the findings of the Tuggerah Lakes Estuary Process Study, adding a managerial framework as a pre-cursor to the development of an Estuary Management Plan.

The Estuary Process Study was completed in 2001 and described physical, chemical and biological patterns (and some processes) and identified management issues that would be the focus of a subsequent management study. The objective of the Tuggerah Lakes Estuary Process Study was to identify data gaps and key estuarine processes so that there was better understanding of how the estuary "worked".

The Tuggerah Lakes estuary was formed some 6,500 years ago when sea levels rose after the last ice age. Most of the geomorphic features of the estuary are no longer active, except for the river deltas of Wyong and Ourimbah Creeks and the tidal delta at The Entrance. Sedimentary processes within the estuary are slow, with no evidence for general depth changes since comprehensive bathymetry studies in the 1970's. There are however, small-scale changes with some places becoming shallower around inflows (e.g. Tumby Creek) whereas other places have become deeper, some due to the effects of mine subsidence. The Tuggerah estuary is one of the slowest infilling estuaries on the NSW coast, and at current rates, would take over 1000 years to fill completely. Tidal flushing contributes very little to circulation and mixing patterns. The bottom sediments within the estuary are relatively "healthy" apart from some small-scale problems in some areas. Investigations on pollutants within the sediments indicated very small amounts of pesticides whilst heavy metals were below those found to cause adverse ecological effects. The sediments within the estuary have significant concentrations of nutrients which are available for plant growth. Nutrient concentrations within the water column are above the water quality guidelines and the estuary can be classified as having a medium nutrient status.

The entrance is now kept open to the sea by a sand dredge, which allows some limited flushing and mixing to occur, however, the overall effects of flushing are small when the size of the estuary is taken into account. As there are no new sources of marine sands entering the estuary, the eastern shorelines have become siltier and in areas where there is continued organic enrichment, "organic oozes" can still be found.