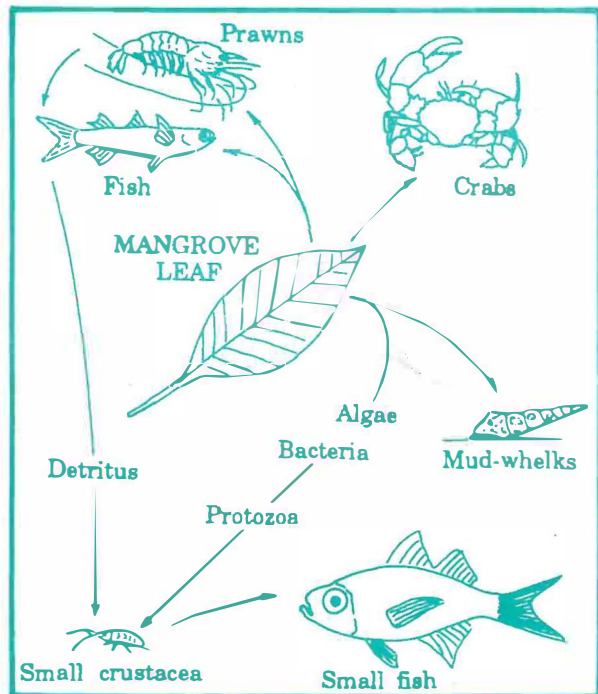


Ecosystems

Being a highly adapted plant in such an adverse environment, the mangrove has become the key organism in forming a very complex and productive ecosystem. The intertidal banks and mudflats of a mangal are more productive than most of the worlds oceans. Mangroves trap organic debris, concentrate nutrients, reduce erosion and provide shelter, food and habitat for many species of insects, crustaceans as well as the birds that feed on them. The mangrove tree contributes to detrial food web with the leaf from the tree falling to the ground and water. Fungi and bacteria break down the leaves and fragments may be eaten by fish and crustaceans. Mangroves can produce in the order of 1 kg (dry weight) of leaf material per square metre per year.

The mangal forms an ideal nursery for juvenile fish which develop and feed in the shallows between the mangroves roots. Part of the complex food web produced is illustrated below.

MANGROVE FOOD WEB



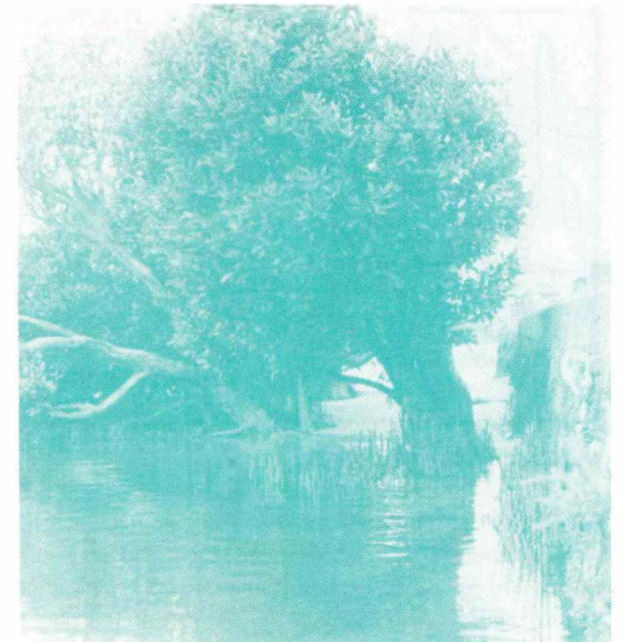
Management of Koombana Bay Reserve

Koombana Bay Reserve is managed by the City of Bunbury in consultation with the Leschenault Inlet Management Authority and the Department of Conservation and Land Management in accordance with the management plan developed for the area. The mangal area is currently vested in the City of Bunbury for recreation purposes.



WATERWAYS COMMISSION

MANGROVES OF LESCHENAULT INLET



For More Information Contact :

Leschenault Inlet Management Authority (097) 211875

Waterways Commission (09) 321 8677

Festival of Arts and Nature (097) 911025

Department of Conservation and Land Management (097) 254 300

Prepared by Scott Woodcock and Eric Wright (Waterways Commission) Artwork by Greg Baxter
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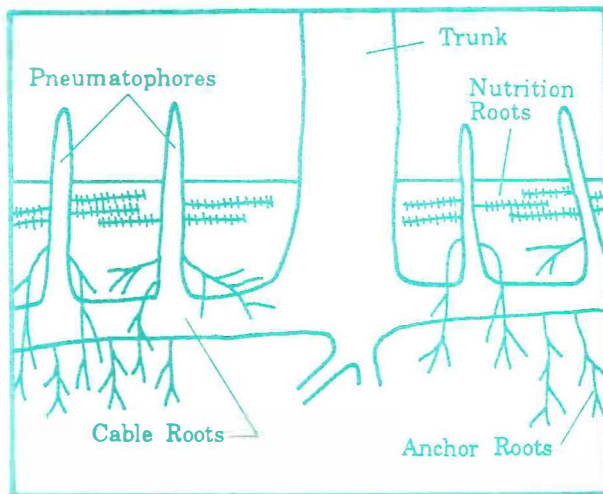
Waterways Advice No.8
APRIL 1992

What is a mangrove ?

Mangroves are trees or bushes that usually grow between high tide and sea level. A community of individual mangrove plants is referred to as a mangal.

The species of mangrove existing in Koombana Bay Reserve is called the White Mangrove due to its distinctive white bark. Its scientific name is *Avicennia marina* and may be recognised by its "pencil-like" pneumatophores which arise from the roots. Pneumatophores are a specialised type of root which rise above the soil surface to increase the plant's capacity to respire.

MANGROVE ROOT STRUCTURE - *Avicennia marina*



Where are they found?

Mangrove communities are found all over the world. *Avicennia marina* is only one of seventeen species found in Western Australia. Typically, mangals are observed on tropical shores as the plants prefer a warm climate above 20°C and a seasonal temperature range of only 5°C. The ecology of the plant also depends upon depositional shores such as those located along tropical coasts, gulfs, lagoons and inlets where they are protected from strong currents and wave action.

The colony inhabiting Koombana Bay is the most southern extremity of the species in Australia. The nearest other significant mangal is located south of the Abrolhos Islands, 700 km to the north.

Why are they important ?

The Koombana Bay mangrove community is important primarily as it is a relic of a past geological era when the climate of the south-west of Western Australia was warmer than today. The mangal has in effect existed here for over 1 million years, preserved by the unique conditions that occur in the Leschenault Inlet.

Mangroves are considered to be significant in respect to their specialised life strategy. Mangals inhabit a very

extreme environment, being neither land nor sea. The mangrove tree is tolerant of a wide range of salinity, however they do require some fresh water in the soil. Mangroves can sustain themselves on highly saline water and have developed the most active salt secretion systems known. The fluid secreted after the plant has removed the freshwater, may be as much as twenty times more concentrated as the sap of the plant and more concentrated than sea water itself.

The seeds that mangroves produce also represent a very important adaptation to these conditions. Mangroves are known as viviparous plants, in that the seed germinates whilst still attached to the parent. It only drops to the ground after two leaves have been developed to allow it to arise from the silt which would otherwise smother the seedling.

