MANGROVES

Distribution and community composition

Port Clinton supports a creek-fed intertidal wetland which includes an area of approximately 46 sq. km of mangroves. With the exception of a few isolated trees, all of the mangroves that would be included in any future State Marine Park are found here. Red mangrove *Rhizophora stylosa,* is the most common of the 11 mangrove species recorded from Port Clinton (table 1).

Table 1. Mangrove species recorded in Port Clinton

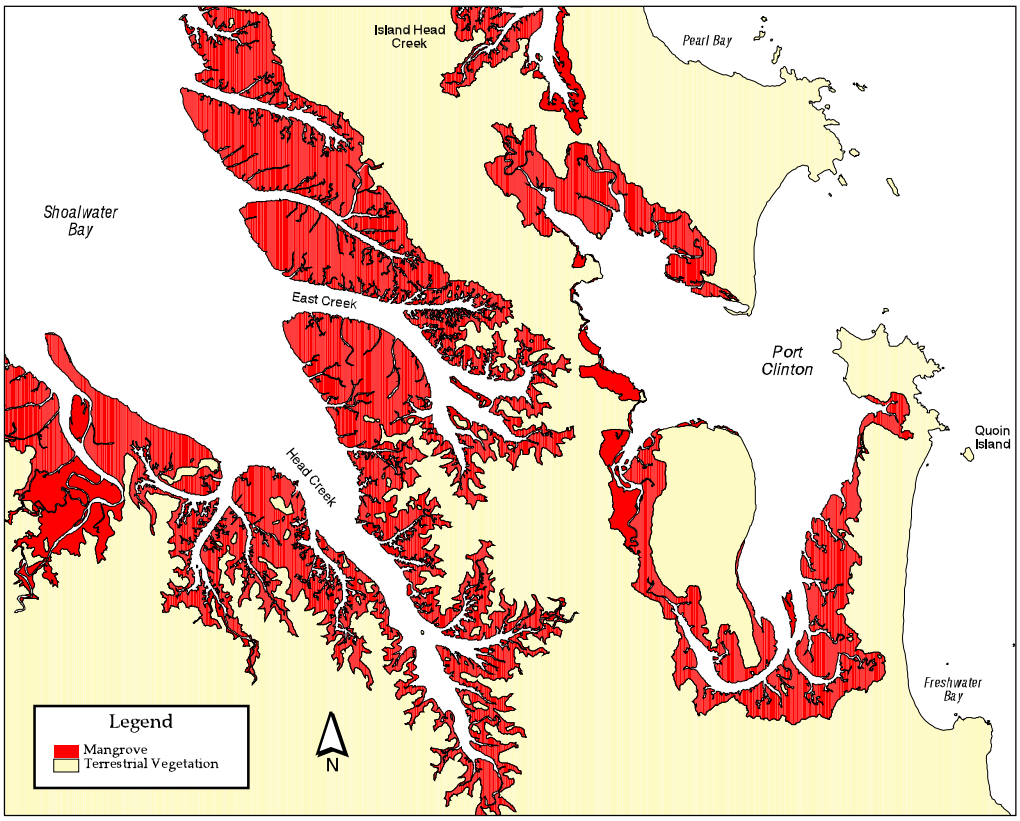
Family	Species	Common name
Avicenniaceae	*Avicennia marina*	grey mangrove
Combretaceae	*Lumnitzera racemosa*	black mangrove
Meliaceae	*Xylocarpus granatum*	cannonball mangrove
Myrsinaceae	*Aegiceras corniculatum*	river mangrove
Myrtaceae	*Osbornia octodonta*	myrtle mangrove
Plumbaginaceae	*Aegialitis annulata*	club mangrove
Rhizophoraceae	*Bruguiera gymnorhiza*	large-leafed orange mangrove
	Ceriops tagal	yellow mangrove
	Rhizophora apiculata	tall-stilted mangrove
	Rhizophora stylosa	red mangrove
Sonneratiaceae	*Sonneratia alba*	mangrove apple

Over 60% of the area occupied by mangroves is comprised of relatively extensive stands of 'low (2–10 m) closed *Rhizophora* forest' consisting predominately of *Rhizophora stylosa*. The next most common alliance is '*Ceriops tagal* low (2–10 m) open forest, which tends to occur higher in the intertidal zone as smaller single species stands. These make up nearly 15% of the total area covered by mangroves.

Another common although not particularly extensive (about 5% of the area) community type associated with the mangroves is the saltpan / saltmarsh alliance. This occurs behind the mangroves in relatively small (average 1.7 ha) but numerous patches at the highest extreme of the tide.

A total of ten different mangrove community types (Table 2) have been identified in Port Clinton. The south arm of Port Clinton, which contains all types, is the most diverse area of mangroves within the whole of the Shoalwater Bay area.

The development and maintenance of Port Clinton's large expanse of mangroves is dependant on its large tidal range (5.6 m) and shallow intertidal gradient. Variable substrates combined with the substantial intertidal run create a variety of formations within the forests and thickets. Deeply incised mangrove-lined creeks which penetrate deep mud deposits are common.



Distribution of mangroves in Port Clinton/Southern Shoalwater Bay

Table 2. Mangrove community types found in Port Clinton

Community type	Number of patches	sq. km	%
Mangroves			
Avicennia marina low open forest 2–10 m	10	0.15	0.3
Rhizophora spp. and *A. marina* low closed forest	47	2.03	4.4
Rhizophora spp. closed forest > 10 m	6	0.55	1.2
Rhizophora spp. low closed forest 2–10 m	6	28.36	61.5
Rhizophora spp. closed thicket 0–2 m	6	0.57	1.2
Mixed mangrove low closed forest 2–10 m	56	4.39	9.5
Mixed mangrove closed thicket 0–2 m	2	0.06	0.1
Aegiceras corniculatum closed thicket	5	0.05	0.1
Ceriops tagal low open forest 2–10 m	133	6.76	14.7
Ceriops tagal open thicket 0–2 m	3	0.78	1.7
Associated communities			
Sporobolus virginicus meadows	1	0.02	0.04
Saltpan / saltmarsh alliance	140	2.40	5.2
Total	469	46.12	100.0

Ecological significance

Port Clinton's system of intertidal wetlands experiences relatively little human disturbance and provides important feeding and roosting areas for migratory waders and other seabirds. In particular the mangrove communities provide hightide roosts for migratory birds such as the whimbrel, grey-tailed tattler and Terek sandpiper, while the saltflats on the landward side of the mangroves are a roosting habitat for other shorebirds such as the eastern curlew, Mongolian plover (lesser sand plover) and pied oystercatcher.

The seasonal populations of waders that have been recorded in Port Clinton and Shoalwater Bay suggest that the whole area is a significant stopover point in the migration route of many species. In 1996 in recognition of its importance the area was nominated for listing under the Convention on Wetlands of International Importance (Ramsar Convention).

The high productivity, complex food webs, and shelter provided by Port Clinton's mangrove forests and intertidal flats also make Port Clinton's estuarine wetland system an important nursery and feeding ground for fish. Similarly crabs, oysters and prawns rely on the system during at least some stage of their life cycle.

Management

Estuarine and coastal wetlands are generally recognised as highly productive areas which support important inshore fisheries. In recognition of these habitats the Queensland Fisheries Act and associated legislation provides for the protection of all marine plants, including mangroves, seagrass and saltmarsh.

In terms of management Port Clinton has a major advantage over most similar systems. There is only one land owner, the Department of Defence, responsible for managing the catchment areas which contribute to the marine ecosystems of the area. The development of the shoreline is minimal and disturbances to the intertidal wetlands are limited to a boat ramp such as Sea Hound Hard which provide access for vessel launching and retrieval through the mangroves. A Strategic Plan for the area has been developed designating mangrove communities as 'No Go' areas to Defence personnel, allowing for increased protection of the mangrove forests.

Broad-scale destruction or degradation of mangroves through human induced changes in freshwater input, tidal inundation, concentrations of pollutants in catchment run-off and coastal development do not threaten Port Clinton at this stage.

Discharge of wastes from private vessels anchoring in the popular anchorages in Port Clinton may be one minor source of pollution. However, due to the frequent closure of the area for Defence activities, vessel use of the area is regularly limited to a small number of commercial fishermen, and to small boat users on trips of short duration. The impacts of vessel-sourced water pollution are consequently not considered significant.

The ecological value and undisturbed state of Port Clinton's mangrove communities make them a priority for continued conservation management.

Sources

This report is based on the results of a survey of mangrove communities in Shoalwater Bay and Port Clinton undertaken in 1996 by G. Byron and M. Hall for the Queensland Department of Environment.

This report has been prepared as background material for the declaration and zoning of the Gumoo Woojabudee Section of the Great Barrier Marine Park and the adjacent areas including the waters of Port Clinton, Freshwater Bay and the Byfield coast. There are no management proposals contained in this report. If you have any questions about the process contact:

GREAT BARRIER REEF
MARINE PARK AUTHORITY
PO Box 1379
Townsville Qld 4810
Telephone (07) 4750 0700