

SEAGRASSES OF SINGAPORE: REVIEW OF CURRENT KNOWLEDGE

MARCH 2007

From McKenzie, L.J., Yaakub, S.M., and Yoshida, R.L. (2007). Seagrass-Watch: Guidelines for TeamSeagrass Singapore Participants. Proceedings of a training workshop, National Parks Board, Biodiversity Centre, Singapore, 24th – 25th March 2007 (DPI&F, Cairns). 32pp.

INTRODUCTION	1
CHEK JAWA (PULAU UBIN).....	2
PULAU SEMAKAU	2
REFERENCES.....	2

INTRODUCTION

Seagrass meadows in Singapore play a vital role in supporting coastal marine communities and in maintaining diverse flora and fauna. They are an important component of coastal fisheries productivity and they play an important role in maintaining coastal water quality and clarity. The seagrasses of Singapore are also important food for marine green turtles and dugongs.

The coastal and marine ecosystems of Singapore are however, limited and modified by development and the port industry (which is one of the biggest income-earning businesses in the country). Port limits extend to almost all the entire territorial waters, and reclamation has transformed almost the entire southern and northeastern coasts of the main island considerably (Chou and Goh 1998). The steep beach front along the southeastern coast was once composed of sandy beaches and mudflats and original rocky shores are found mainly on the southern offshore islands and small parts of the northern coast. There are currently no specific laws for the protection of existing seagrass meadows (ICRI 1997).

There are 11 seagrass species found in the country: *Cymodocea rotundata*, *Cymodocea serrulata*, *Enhalus acoroides*, *Halodule pinifolia*, *Halodule uninervis*, *Halophila beccarii*, *Halophila minor*, *Halophila ovalis*, *Halophila spinulosa*, *Syringodium isoetifolium* and *Thalassia hemprichii* (den Hartog 1970; Green and Short 2003). Seagrasses were reported to be common between late 1950's and the early 1970's on reef-flats and the intertidal zones at Kranji and West Johore Strait (Chuang 1961; Johnson 1973). Loo *et al.* (1996) reported seagrass at Changi beach and Beting Bemban Besar (patch reef). Other studies reported the presence of seagrasses from locations south of the main island of Singapore which included Pulau Hantu, Pulau Semakau, Terumbu Raya (patch reef) and Hantu West (patch reef) and in the north, Pulau Tekong (Hsu and Chou, 1989a,b).

Nevertheless, mapping of seagrass distribution is limited and *ad-hoc*. We are not aware of any significant efforts to map the distribution of seagrasses within the territorial water of Singapore. Although seagrass meadows can be found scattered in various coastal areas, a few notable locations are the extensive reef flats of the Cyrene reefs, west of Pulau Semakau and off Pulau Ubin.

CHEK JAWA (PULAU UBIN)

Tanjong Chek Jawa is a cape and the name of its surrounding areas located on the south-eastern tip of Pulau Ubin, an island off the north-eastern coast of the main island of Singapore. Pulau Ubin is one of the last areas in Singapore that has been preserved from urban development, concrete buildings and tarmac roads.

Eight seagrass species have been reported from Chek Jawa: *Halophila beccarii*, *Halophila spinulosa*, *Cymodocea rotundata*, *Halophila ovalis*, *Halophila minor*, *Halodule uninervis*, *Thalassia hemprichii* and isolated clumps of *Enhalus acoroides*. The meadows are predominately within a shallow protected lagoon behind a large sand bank. Meadows are mainly intertidal, however the seaward edges of the sand bank are fringed by large *Halophila spinulosa* meadows.

PULAU SEMAKAU

Pulau Semakau is located to the south of the main island of Singapore, off the Straits of Singapore. The current island was formed by the amalgamation of the then much smaller Pulau Semakau and Pulau Sakeng. Pulau Semakau is Singapore's first offshore landfill and now the only remaining landfill in Singapore.

Semakau Landfill is filled mainly with inert ash produced by Singapore's four incineration plants, which incinerate the country's waste, shipped there in a covered barge (to prevent the ash from get blown into the air) every night.

Vast tracts of *Enhalus acoroides* (tape seagrass) fringe the island, stretching for kilometres. Pulau Semakau is one of the few places in Singapore where *Syringodium isoetifolium* occurs in abundance.

For more information, visit www.seagrasswatch.org

REFERENCES

- Chou, L. M. and Goh, B. P. L. (1998). Singapore coral reefs – balancing development and conservation. In: B. Morton (Ed.) Marine Biology of the South China Sea, Proceedings of the Third International Conference on the Marine Biology of the South China Sea, 28 Oct – 1 Nov 1996, Hong Kong. Hong Kong University Press, pp. 355-368.
- Chuang, S.H. (1961). On Malayan Shores. Muwu Shosa. 225pp.
- den Hartog C. (1970). The seagrasses of the world. (North-Holland Publishing, Amsterdam). 293pp.
- Green EP. and Short FT (Eds) (2003). World Atlas of Seagrasses. Prepared by the UNEP World Conservation Monitoring Centre. (University of California Press, Berkeley. USA). 298pp.



- Hsu, L.H.L. and Chou, L.M. (1989a). Seagrasses. *Singapore Scientist*, **15(2)**:51-53.
- Hsu, L.H.L. and Chou, L.M. (1989b). Seagrass Communities in Singapore. First Southeast Asian Seagrass Resources Research and Management Workshop (SEAGREM), 17-22 January 1989. Manila, Philippines.
- ICRI (1997). Report of the International Coral Reef Initiative (ICRI). Second Regional Workshop for the East Asian Seas held in Okinawa. Environmental Agency, Government of Japan, Tokyo, March 1997.
- Johnson, A. (1973). Vegetation. *In*: S.H. Chuang (ed.), Animal Life in Singapore. Singapore University Press. Pp. 40-52.
- Loo, M.G.K., Tun, K.P.P. and Chou, L.M. (1996) Environmental status of seagrass communities in Singapore. *Journal of the Singapore National Academy of Science*. **22-24**: 97-102.

