

Growth dynamics of mangroves in South Africa: a matter of latitudinal importance?

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Abstract

Unregulated harvesting continues to be a chief threat to mangrove forests as well as the ecological services they provide. It is important to determine the rate at which the seedlings and subsequent regeneration classes grow and to determine the suite of conditions that are best suited for growth. In South Africa and other parts of the world *Avicennia marina* is harvested for firewood by local communities. In countries, at the limits of mangrove distribution, this species is usually the most dominant and wide spread. The objectives of this study were to determine variations in growth rates of mangroves along a latitudinal gradient. Long term monitoring sites were setup at St Lucia, Mngazana and Nxaxo estuaries. Growth rates were determined for *A. marina*, the most widely distributed mangrove species in South Africa and the world. The average growth rate for this species at St Lucia was 3.77 ± 0.39 cm.month⁻¹, at Mngazana was 1.01 ± 0.05 cm.month⁻¹ and at Nxaxo Estuary was 1.03 ± 0.43 cm.month⁻¹. The growth of Regeneration Class 1 (0-51 cm) of *Avicennia* at Mngazana Estuary was correlated to sediment moisture content ($r = 0.8$, $p < 0.05$) and the amount of silt found in the site (silt: $r = -7.2$, $p < 0.05$). The higher growth rate at St Lucia may be a consequence of the localised flooding of some areas due to prolonged mouth closure as opposed to higher temperatures. Therefore an increase in water depth has stimulated higher growth rates of individuals at St Lucia.

Keywords

St Lucia, *Avicennia marina*, temperature, distributional limit