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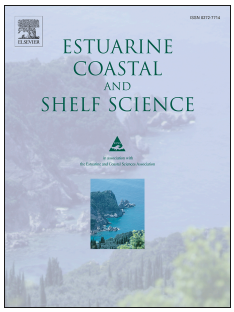

Carbon isotope fractionation in the mangrove *Avicennia marina* has implications for food web and blue carbon research

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ACCEPTED MANUSCRIPT

Carbon isotope fractionation in the mangrove *Avicennia marina* has implications for food web and blue carbon research

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Abstract

The ratio of stable isotopes of carbon ($\delta^{13}C$) is commonly used to track the flow of energy among individuals and ecosystems, including in mangrove forests. Effective use of this technique requires understanding of the spatial variability in $\delta^{13}C$ among primary producer(s) as well as quantification of the isotopic fractionations that occur as C moves within and among ecosystem components. In this experiment, we assessed $\delta^{13}C$ variation in the cosmopolitan mangrove *Avicennia marina* across four sites of varying physico-chemical conditions across two estuaries. We also compared the isotopic values of five distinct tissue types (leaves, woody stems, cable roots, pneumatophores and fine roots) in individual plants.

We found a significant site effect ($F_{3, 36} = 15.78$; $P < 0.001$) with mean leaf $\delta^{13}C$ values 2.0‰ more depleted at the lowest salinity site compared to the other locations. There was a larger

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