



Relevance of estuaries adjacent to megalopolis as modifiers of internal shelf areas

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Guanabara Bay located in the humid tropical region is a eutrophic estuarine system bordered by the second largest metropolitan area of Brazil. Human intervention resulted in water conditions ranging from complete anoxia in the polluted inner bay area to the adjacent, relatively pristine, open coastal area. In the present work the goals were to estimate nutrients and carbon fluxes between the bay and the adjacent coastal waters and to characterize by using stable isotopes, hydrocarbons and sterols the provenance of the exported/imported organic matter. Water samples were collected from three different depths over 25 hours cycles in the wet and dry seasons at a single station strategically positioned in the bay. Measurements included CTD, nutrients, chlorophylls, DOC, POC, PN, $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$, hydrocarbons and sterols in SPM. Most substances showed higher concentrations in ebb tide events and through statistical tools a significant difference between the campaigns was proved. The fluxes estimated on annual basis revealed the expressive exportation to the inner continental shelf of 1.27×10^4 Kmol DIN yr⁻¹, 9.52×10^2 Kmol DIP yr⁻¹, 2.65×10^4 tons DOC yr⁻¹, 1.96×10^4 tons COP yr⁻¹, 2.96×10^4 tons NP yr⁻¹.