

Carbon Accumulation Rates in Coastal Lagoons

¹B. KNOPPERS AND ²B.TURCQ. ¹Departamento de Geoquímica, UFF, RJ; ²IRD, Bondy, France.

Coastal lagoon systems play an important role in the retainance of carbon at the land-sea interface. This is mainly brought about by their large degree of enclosure from the sea. One of the prime export terms of organic carbon in coastal lagoons is the accumulation in sediments. This study compares the external input, primary production and accumulation rates of organic carbon of tropical and temperate coastal lagoons in order to assess the degree of carbon retainance by these systems.

The overall range of carbon accumulation rates established for about 20 lagoons is 10 to 170 gCm⁻²yr⁻¹. Most of the accumulated carbon originates from autochthonous primary production, a minor fraction is derived from external sources. Annual average carbon accumulation rates amount to about 15 to 20% of primary production. Carbon accumulation rates generally increase with enhanced primary production in phytoplankton dominated systems and decrease with higher lagoon flushing.