MOREIRA, Maria Odete Parente; PASSAVANTE, José Zanon de Oliveira; MACÊDO, Sílvio José de. Phytoplankton primary productivity in a tropical estuary Coco river estuary, Fortaleza, Ceará, Brazil. In: CONFERENCE SUSTAINABLE USE OF ESTUARIES AND MANGROVE: CHALLENGES AND PROSPECTS, 2000. Recife. **Proceedings...** Recife: 2000. p. 116.

ABSTRACT

Phytoplankton primary productivity was measured in Cocó River estuary (3º 45" – 3º 47" Lat. S; 38º 26" – 38º 30" Long. W), Fortaleza- Ceará State, at the Northeastern Brazilian coast. Climate in the region is characterized by two seasons, dry and rainy. The tide regime is semidiurnal and the estuary may be classified as a partially mixed. The Cocó River has a low water flux and both, the river and the estuary, are under increasing anthropogenic pressure, receiving effluents from domestic and industrial origins. A series of samplings was carried out every two months, from February 1991 to March 1992, at three fixed stations in the lower, middle and upper estuarine regions. Samples were taken from the surface layer, at low tides in the morning. Water samples were collected using a bucked or van Dorn bottle. Phytoplankton primary productivity was measured by inoculation of ^{14}C and incubated *in situ*. The radioactivity of ^{14}C assimilated by phytoplankton was measured with a liquid scintillator. Water temperature, salinity, transparency, pH, O_2 and inorganic nutrient (nitrite, nitrate. phosphate and silicate), were also measured. Phytoplankton produtivity ranged from 12.07 (lower estuarine portion- rainy season) up to 726.65mgC.m^{-3}.h^{-1} (middle estuarine portion - dry seasons). Productivity presented a clear seasonal pattern in the three portions of the estuary, with the lowest values being found during rainfall, spite of high nutrient concentration in the water. The increasing light extinction coefficient, observed during this period seems to limit phytoplankton growth in the estuary. High values of productivity and nutrients concentration (0,01 to 65,8µg-at N-NO_2.L^{-1}; 0,22 to 61,75µg-at-N-NO_3.L^{-1}; 0,29 to 20,02µg-at PO_4-3.L^{-1} and 4,58 to 117,41µg- at Si-SiO_2.L^{-1}; 0,29 to 20,02µg-at PO_4-3.L^{-1} and 4,58 to 117,41µg at Si-SiO_2.L^{-1}), together with oxygen sub-saturation conditions recored on several occasions, shows that the Cocó River estuary is under strong eutrophication process.