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### RESUMO

The Rocas Atoll a Biological Brazilian Reserve is locate att the South Atlantic Ocean at  $31^{\circ} 51' 30''$  S and  $33^{\circ} 49' 29''$  W, arround 265km offshore from Natal City, Rio Grande do Norte State. This Atoll ocupies a  $3\text{km}^2$  area being an arid and of carcarious formation free of anthopic influence. This stady was carried out in order know the area hydrology and the phytoplakton community producion. In January/99 diurnal sampling were made at surface at low tide in three natural pools inside measure the Atoll (Tartarugas, Âncora e Barretão) and one collection out side to measure the *in situ* productivity by the  $^{14}\text{C}$  method and biomass by the spectrophotometric method. Concurrent hydrological data (salinity, tempreature, pH, dissoved oxygen, nitrite, nitrate, phosphate and silicate) were obaind for comparation with the phytoplankton. The results showed that the area is free of pollution with oxygen saturation over 100% the pH is alkaline and salinity of 35,29‰, the silicate varied from 8,91 to  $16,51\mu\text{mol.l}^{-1}$ , nitrate from 0,66 to  $1,34\mu\text{mol.l}^{-1}$ , nitrite from 0,04 to  $0,06\mu\text{mol.l}^{-1}$ , and phosphate from 0,01 to  $0,02\mu\text{mol.l}^{-1}$ , and the chlorophyll *a* concentration varied from 0,64 to  $1,10\text{ mg.l}^{-3}$ .