The effect of river discharge on the interannual and longer term variability of pink shrimp production in Patos lagoon (30°S, Brazil).

O. Möller (1), A. Vaz (1,3), J. Castello (2)

(1) Labortório de Oceanografia Física, Depto. Física, Fundação Universidade Federal do Rio Grande, Rio Grande, RS, Brazil (dfsomj@furg.br); (2) Departamento de Oceanografia, Fundação Universidade Federal do Rio Grande, Rio Grande, RS, Brazil (docjpc@furg.br); (3) Now at Hawaii University (vaz@hawaii.edu).

The Patos Lagoon estuary is an important environment for the life cycle of many species, including the pink shrimp Farfantepenaeus paulensis. This estuarine dependent organism uses the estuary as a nursery ground, being the most important fishery resource in the region. During austral spring and early summer (September to December) the post-larvae originated from the ocean are transported into the estuary by currents forced by the effect of SW winds. Pink shrimp catches can vary from less than 1000 t y^{-1} to 8000 t y^{-1}. This study is based on the analysis of river discharge and pink shrimp catches time series that cover a period from 1964 to 2004. The negative correlation with river discharge shows the important controlling effect of this variable on the entrance of salty water and larvae. This process becomes more intense during El Niño years when the rainy season lasts longer. In general, the seaward flow is enhanced by the morphology (choking) of Patos lagoon. During La Niña events, when river discharge is below average and dominant winds favor the entrance of larvae, the production tends to increase. The possible importance of the effect of the wind, as a mechanism for influencing larvae transport along continental shelf from the spawning area at 29°S to the entrance of Patos lagoon, is also considered in this analysis. Long term trends indicate an increase in river discharge of 20 m^{3}s^{-1}y^{-1} and a decreasing in shrimp catches of the order of 70 y^{-1}.