Geophysical Research Abstracts, Vol. 9, 02141, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-02141

The fate of river-borne nitrogen in the Baltic Sea - an example for the River Oder

T. Neumann

Baltic Sea Research Institute Warnemünde, Germany (thomas.neumann@io-warnemuende.de)

The Baltic Sea is one of the largest brackish water systems of the world. Its topography, with shallow and narrow connecting channels to the North Sea, restricts water exchange with the ocean. As a consequence, introduced nutrients may remain in the Baltic Sea for a residence time as long as 30 years. Using an ecosystem model, nitrogen from the River Oder is traced. The main sink for nitrogen is denitrification in sediments. The shallow Pomeranian Bight plays an important role for nitrogen originating from the River Oder. Approximately half of the nitrogen is denitrified in this area. Denitrification in coastal areas, inter alia, maintains a strong gradient for the N/P ratio, with high values at the river outlets and low values in the central Baltic Sea. Nitrogen from the River Oder spreads into the adjacent basins via intermediate water. After recycling in ocean-floor sediment, nutrients are transported mainly via deep water circulation.