

THE SLUPSK CHANNEL – IMPORTANT DUCT FOR THE DEEP WATER TRANSPORT

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Abstract

The Slupsk Channel is the only deep passage connecting the Western Baltic Sea with deeps in the Baltic Proper. From the CHEMSEA project point of view, this 90 km long furrow may be considered as the duct between dumping areas in the Bornholm and Gdansk/Gotland Basins. Dynamical processes – eddies creation and overflow over the Slupsk Sill, deep dense/saline water gravity currents and vertical mixing are very important for the Baltic Proper deepwater forming. The inflowing oxygen rich water is the main source for ventilation of waters below the permanent halocline. Ventilation strongly depends on intensity of major inflow events, though additional oxygen is contributed to the dense water gravity currents due to turbulent entrainment from the overlying intermediate layer.

During the CHEMSEA project Institute of Oceanology Polish Academy of Sciences and Shirshov Institute of Oceanology Russian Academy of Sciences conducted in the Slupsk Channel region dedicated field works. The structure and water mass distributions were investigated. The current meters recorded flows in the near-bottom and the profiling devices measured water properties and currents in the whole water column were deployed. The water column microstructure and mixing conditions were investigated. Results from the measurements and modelling in the Channel and nearest deep basins are presented.