

# **THERMOHALINE INTRUSION IN THE WHITE SEA IN JUNE 2000.**

**L.Latché** (1), G. Shapiro (1), A. N. Pantiulin (2).

(1) Institute of Marine Sciences, University of Plymouth, UK. (2) Moscow State University, Moscow. (l.latche@plymouth.ac.uk)

Fine thermohaline features and water mass formation are studied following the summer cruise 2000 in the northern part of the White Sea. CTD measurements were carried out using a SEACAT 19 profiler. The data analysis for temperature, salinity and density revealed distinct signatures of step-like structures in the profiles, and indicated the characteristic of water masses. Four quasi-homogeneous layers and temperature inversions were identified with T S indexes (27.25psu;1.1C), (27.5psu;0.5C), (26.3psu;7.5C) (25.3psu;7C). Contour plots along an east-west transect in the northern White Sea from Gorlo to Kandalaksha were used to show prominent thermohaline features, with horizontal scale of 350km. An intrusion of the east-generated water mass from Gorlo was evident. A possible cause is the strong vertical mixing due to the presence of a shallow 50m sill. The intruded water was traced across the whole section, in the vicinity of an active boundary layer ( 50m depth) that separated active upper layers from stagnant deep-water masses. This core of water was also found in bottom waters in the Western part of the White Sea in Kandalaksha. It is likely that the variation in thickness and depth seen in the quasi-homogeneous steps were formed by turbulent boundary mixing. Initial observations suggest that these mixing processes are lead by lateral salt fluxes in the overlaying pycnocline (due to the freshness of river runoff) and are sustained by tidal variability in the underlying pycnocline. The study was partially supported by INTAS grant 97-1881.