Flow-rates of horizontal water exchange between coastal and off-shore regions of south-eastern Baltic (from 54°50´ to 57°40´ NL) during a “mean climatic year” are analyzed on the base on numerical experiments. Simulations of the flows in the entire Baltic Sea were performed using three-dimensional not hydrostatic hydrodynamic model MIKE3-FlowModel (DHI Water & Environment, http://www.dhi.dk) for annual cycle under mean-annual external conditions on the regular rectangular grid of 152 × 306 meshes in horizontal (5 km × 5 km) and 92 layers in vertical (4 m each); time step of integration – 90 s. Estimations of the flow-rates through vertical (curvilinear, from the surface to the bottom) cross-sections put along 15-m, 20-m, 30-m, 40-m and 50-m iso-baths are obtained, expressed in terms of the specific volumetric flow-rate Q/L (m³/s from 1 m of shore line). During the year, the simulated flow-rate (Q/L, (m³/s)/m) varied in the range: “off-shore” (Q/L-) - from 0.02 to 0.06 (at 15 m depth), 0.02-0.08 (20 m), 0.04-0.12 (30 m), 0.12-0.29 (40 m), 0.15-0.25 (50 m); “on-shore” (Q/L+) - 0.02-0.04 (15 m), 0.01-0.05 (20 m), 0.04-0.16 (30 m), 0.07-0.17 (40 m), 0.07-0.22 (50 m). Mean annually, the magnitude of Q/L (both Q/L- and Q/L+) at 50 m is 1.5 - 7 times (on average) larger than that at 15 m depth. The main conclusion is that horizontal water exchange between shallow and deep areas in south-eastern Baltic is much larger than total river run-off to this aquatory and is significantly influenced by local winds and convective processes. The investigation is supported by RFBR, grants № 10-05-00540, 10-05-00472, 11-05-00674.