Coastal systems of the eastern Gulf of Finland were formed during Holocene as a result of several sea level changes caused by interaction of transgressions/regressions of postglacial Baltic Sea basins and tectonic movements. Genesis and succession of accretion forms development was determined by geomorphic analyses and geological study carried out offshore using acoustic profiling and sediment sampling and onshore using ground-penetrating radar and shallow drilling. In some cases the age of accretion forms was clarified using archeological data. One of reasons of active accretion form development within study area was existence of big amount of sediment material, deposited earlier, in Late Pleistocene during deglaciation. During Littorina Sea transgression (about 7.6-7.3 ka BP) the coastal line formed several deeply incised bays (e.g. Narva-Luga Klint, Sestroretsky, Lakhta bays and Vysokinskoye Lake). The hugest sand spits (bars): Ligovskaya, Sestroretskaya, Kudrukula and lagoon systems were formed 6.5-6.0 ka BP. Recently sand relict bars, spits and dunes are located onshore due to glacioisostatic uplift while most part of the nearshore bottom is formed by boulder-pebble benches, as a result erosion dominates. Nowadays longshore sand migration and growing of sand spit occurred locally; their maximal length not exceeds 900 m that is 3-4 times less than the early Holocene spits. Such reducing of the spits size is explained by significant deficiency of material in sediment flux.