

Abstract

Boka Kotorska Bay is an enclosed water body with a narrow and shallow connection to the Adriatic Sea; the shallowest point is only 37.6 m deep at present, limiting exchange of water with the Adriatic. The Bay is one of the most important transitional areas of the Adriatic from both an environmental and a socio-economic viewpoint. High resolution geophysical data collected during several scientific cruises carried out between 2008 and 2013 reveal unknown details of present-day morphology and sedimentary infilling geometry. Multibeam bathymetry combined with seismic reflection images suggests that the observed morphologies are due to the interaction at different timescales of climate, water circulation, sealevel changes, erosion, sedimentation and tectonics constrained by the geological and structural setting of the area. The Bay is composed by three major basins (Herceg Novi, Tivat and Morinj-Risan-Kotor), connected by two narrow straits (Kumbor and Verige) with a maximum depth of 67 m. It shows steep upper slopes and flat sub-basin central sectors lying at depths ranging from 35 to 45 m. Among the several morphological features shaping the seafloor, we note: deeply incised valleys and delta fans related to past sealevel falls; slope failures and mass wasting triggered by strong earthquakes; channels bounding the steep slopes of Kumbor and Verige narrow passages, and sediment wave fields in Verige Strait formed by strong bottom currents; and karst morphologies developing at seafloor with submarine siphons, springs and resurgences (pockmarks) fed by karst hydrology of Boka Kotorska Bay ' s surroundings.