

HOLOCENE EVOLUTION OF THE KRKA RIVER ESTUARY

Natalia Šenolt,^{1,*} Slobodan Miko,¹ Ozren Hasan,¹ Dea Brunović,¹ Nikolina Ilijanić,¹

¹ Croatian Geological Survey, Sachsova 2, Zagreb, Croatia

* nsenolt@hgi-cgs.hr

The beginning of the Holocene is marked by rapid sea level rise resulted in the flooding of many coastal environments and formation of various sedimentary bodies, including estuaries. Since estuaries are coastal water bodies under the influence of the land-sea interface, thus, they are a very important subject for the studies of sea level change. The Krka River estuary represents such a unique example and opportunity to reconstruct Quaternary paleoenvironmental changes and geological processes related to sea level changes. It is a karstic salt-wedge estuary located in the central part of the Eastern Adriatic coast. The estuary was studied by applying concepts of high-resolution seismic stratigraphy coupled with sediment core analysis and radiocarbon ¹⁴C data. The seismic analysis revealed a unique submerged paleolandscape and more than 16 m of sedimentary infill. The identified seismic units correlate with the sediment cores extracted from the estuary. Our data revealed that at the beginning of the postglacial transgression, a favorable conditions were developed for growing of the tufa deposits and accumulation of the fluvial and lacustrine sediments. With further sea level rise, the sea started to flood the studied area and prevent further development of tufas with the deposition of the estuarine deposits. The fully estuarine salt wedge conditions were established at approx. 7500 y BP. This study revealed a very dynamic paleoenvironmental evolution of the estuary controlled by a rapid sea level rise, geomorphology and hydrodynamics.

ACKNOWLEDGMENTS

This work was supported by the Croatian Science Foundation Project “Sediments between source and sink during a late Quaternary eustatic cycle: the Krka River and the Mid Adriatic Deep System” (QMAD) (HRZZ IP-04-2019-8505).