European Mineralogical Conference
Vol. 1, EMC2012-657, 2012
European Mineralogical Conference 2012

Seasonal distribution of physico-chemical parameters in water and bulk sediment properties of some lakes from Danube Delta - Romania. Case study: Matita, Babina, Rosu, Uzlina and Isacova Lakes – 2010 and 2011.

I. Catianis (1), S. Radan (2), and D. Grosu (2)

(1) (1) University of Bucharest, Faculty of Geology and Geophysics, 6 Traian Vuia St., RO–70139, Bucharest, PO 37, Romania (catianis_irina@yahoo.com), (2) (2) National Institute of Marine Geology and Geoecology – GeoEcoMar, 23-25 Dimitrie Onciul St, RO–024053, Bucharest, Romania (radan@geoecomar.ro,dan.grosu@geoecomar.ro)

A basic assessment of some deltaic lakes was planned in order to determine the elemental physico-chemical characteristics of waters and lithological characteristics of lacustrine sediments. During the sampling campaigns have been investigated five lakes located in different hydrographical units having various characteristics in terms of hydromorphology, sedimentogenesis and dynamic regime. These lakes receive different amounts of water through hydrographic network (canals, streams etc.). Seasonal variation of water level presents a major role controlling all physico-chemical and biological processes which occur during Danube River fluvial transport input (pollutants, nutrients, suspended solids etc.). Due to the upstream anthropogenic activities deltaic lakes are subjected to susceptible pollution because they receive significant quantities of industrial, agricultural and urban wastewaters.

The water and sediment sample were collected from many sampling stations during the four campaigns implemented in 2010 and 2011. A series of field and laboratory techniques were used to investigate fluctuations in surface waters and aquatic sediment quality status. The followings water physico-parameters were measured: dissolved oxygen, temperature, electrical conductivity, total dissolved solids, pH, redox potential, nitrates, nitrites, phosphates, sulphates etc. The examined bulk sediment characteristics were: total organic matter, carbonates and siliciclastic material.

Generally, the physico-chemical specific environmental indicators of lakes and associated canals present lowly fluctuations. Only in few sampling points were noticed some decreasing concentrations of oxygen content and some variations of pH from slightly alkaline to alkaline. Chemical assays (nitrates, nitrites and sulphates) present values in conformity with standards and regulations for surface waters, though for phosphates were recorded some exceedances.

Lacustrine sediment characteristic exposed silty to silty clayey (fine and very fine) and rarely sandy deposits. The distribution of sediment bulk components (organic matter, carbonates and siliciclastic material) depend on numerous factors as: local geological background, hydrogeology, lake depths and morphology, climatic parameters (temperature, light, humidity, winds, storms, rainfalls, floodings, etc.), fluvial sedimentary input, etc. Overall were not observed significant variations in sedimentary organic matter, carbonate content and siliclastic fraction within and between the investigated lakes.

The explorative outcomes show that scrutinized lakes are actually influenced by different factors as: morphological features, water level, climatic parameters (pressure, humidity, temperature, wind-speed, rainfall etc.) and their direct interrelation with Danube fluvial input.

Further on, are required detailed chemical assays concerning the origin of phosphates in water and the origin and mineralogical composition of organic matter and carbonates from these lacustrine sediments.

Acknowledgments: „This work was supported by the strategic grant POSDRU/89/1.5/S/58852, Project „Postdoctoral programme for training scientific researchers” cofinanced by the European Social Found within the Sectorial Operational Program Human Resources Development 2007 – 2013”, and also was performed with scientific and technical assistance, logistical support and field site access provided by NIRD GeoEcoMar – Romania.