



S3.06. Hydrochemical characteristics of waters of the Lower Danube

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Three surveys were organized in the Lower Danube area in 2014 (June, July and October). Hydrochemical studies performed enabled us to reveal certain regularities in nutrients concentrations in the main flow of the Danube and its branches.

Maximal concentrations of mineral nitrogen (1200 - 1400 mg/l) were found in June near the towns Izmail, Chilia, Vilcovo, Isaccea, as well as in the Babina Channel. The content of mineral forms of nitrogen in the Danube Arms (Potapovskiy, Starostambulskiy, Vostochniy and Bistriy) was in general some 200 mg/l lower. The share of organic nitrogen was generally lower than that of the mineral one and made ca. 30-40% of total nitrogen content.

Unlike the situation with nitrogen, maximum of mineral phosphorus concentration was observed in October and minimum – in June. Phosphate concentration was within the range 40 – 80 mg/l. Similar with nitrate increase in phosphate concentration was registered on the sampling stations Reni, Izmail, Chilia, Vilcovo and Isaccea (60-80 mg/l). Their concentrations in the branches of the Danube were lower and fluctuated around the level of 40 mg/l. Absolute maximum of total phosphorus (140 mg/l) was revealed on the station near town Reni. Maximum of organic phosphorus was also found there (59.3 mg/l). Concentrations of organic phosphorus on other sampling stations were lower, within the range 5-15 mg/l with minimum in Ukrainian Danube branches of the Vostochniy and the Bistriy.

The highest concentrations of silica (7000-8000 mg/l) were expectedly observed in autumn and the lowest (up to 1000 mg/l) in summer, during the period of its intensive consumption. Content of silica in the Danube branches in July was 200 mg/l lower.

The level of Biochemical Oxygen Demand (BOD) in the waters of the Danube and its delta was insignificant and almost on all the stations did not exceed 1 mgO₂/l. The maximum of BOD-5 (1.04 mgO₂/l) was registered in June in the area of Izmail. Increased values (more than 0.6 mgO₂/l) were also observed near Galati, Isaccea, Reni, Chilia and Vilcovo, which proved the general picture water quality decrease in the areas under anthropogenic pressure. The same regularity was revealed for Chemical Oxygen Demand (COD), with maximum near Reni in June (19 mgO₂/l).

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