

BASIC HYDROGRAPHIC AND CHEMICAL DATA FROM TWO MICROLOCATIONS AT THE EASTERN ADRIATIC COAST LINE : THE ROGOZNICA LAKE AND THE ROGOZNICA UNDERWATER CAVE

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Based on time-to-time occurrences of brown-reddish colored surface water, the Rogoznica Lake (Fig. 1) is a locally mystified lake, named "The Dragons eye". The lake covers a surface of about 5000 m², with an average depth of 10 m. Salinity data (Fig. 2) indicate the existence of a Lake-Sea connection. The vertical temperature profile (Fig. 2) shows a remarkable "high temperature" layer in spring. Investigations of the basic chemical properties have shown a vertical decrease of oxygen and the occurrence of H₂S in the bottom layer. In the anoxic layer nitrate was converted to ammonia. Phosphate and silicate are found to be strongly enriched. Hydrographic and chemical data for the lake refer to 11 a.m. on March 31, 1993.

The Rogoznica underwater cave, named "The Dragons ear", (Fig. 1) has an opening of d=1.5 m two meters below the sea level. The cave extends to a depth of 28 meters, with an average width of 10 m. In comparison to a nearby reference station, the vertical temperature distribution in the cave showed a higher degree of stratification (Fig. 3). Oxygen saturation in the cave decreases rapidly below the thermocline down to 40% at the bottom layer (Fig. 4). A similar trend was also established for pH. Contrary to oxygen and pH, the vertical distribution of nutrients (Figs. 5, 6) showed much stronger gradients at the reference station than in the cave. Data shown in Figs. 3, 4, 5 refer 11 a.m. (cave) and 1 p.m. (ref. station) on August 18, 1993.

Hydrographic data from these two locations were collected using a TS sonde (Rosemount RS-5), dissolved oxygen was determined by Winckler titration, while nutrients were analyzed on a Technicon AutoAnalyzer II.

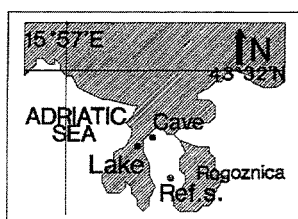


Fig. 1. The Rogoznica area

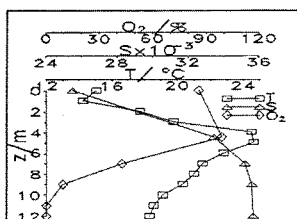


Fig. 2. Vertical distribution of temperature, salinity and oxygen in the lake

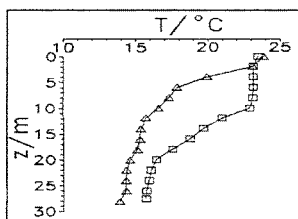


Fig. 3. Temperature distribution in the cave (□-□) and at ref. station (Δ-Δ)

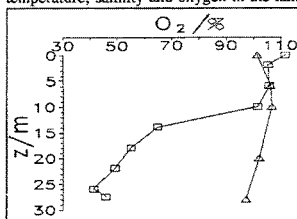


Fig. 4. Oxygen distribution in the cave (□-□) and at ref. station (Δ-Δ)

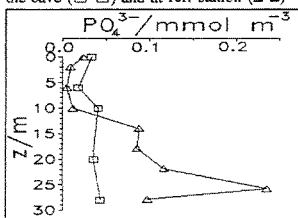


Fig. 5. Phosphate distribution in the cave (□-□) and at ref. station (Δ-Δ)

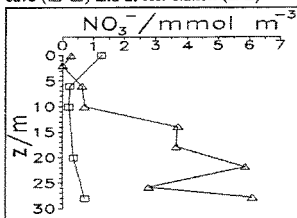


Fig. 6. Nitrate distribution in the cave (□-□) and at ref. station (Δ-Δ)