

## Evaluation of Water Chemistry and Quality Characteristics of Işıklı Lake, Denizli, Türkiye

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**Abstract :** It is of great importance to reveal their current status and conduct research in this direction for the sustainable use and protection of lakes, which are among the most important water resources for meeting water needs and ensuring ecological balance. In this context, the purpose of this study is to determine the hydrogeochemical properties, as well as water quality and usability characteristics of Işıklı Lake within the Lakes Region of Turkey. Işıklı Lake is a tectonic lake located in the Aegean Region of Turkey. The lake has a surface area of approximately 36 km<sup>2</sup>. Temperature (T), electrical conductivity (EC) and hydrogen ion concentration (pH), dissolved oxygen (%), mg/l, Oxidation Reduction Potential (ORP; mV) and amount of dissolved solids in water (TDS; mg) of water samples taken from the lake. /l) values were determined by in situ analysis. Major ion and heavy metal analysis were carried out under laboratory conditions. According to the results obtained, it is seen that especially Mg, Ca and HCO<sub>3</sub> ions are dominant in the lake water, and it has been determined that the lake water is in the Ca-Mg-HCO<sub>3</sub> water facies. Although the waters are generally in water quality class I, they are in class IV in terms of sulfur and aluminum. It is included in the water quality class. This situation is due to the rock-water interaction in the region. When the analysis results of the lake water were compared with the drinking water limit values specified by TSE-266 (2005) and WHO (2017), it was determined that it was not suitable for drinking water use in terms of Pb, Se, As, and Cr. When the waters were evaluated in terms of pollution, it was determined that 50% of the samples carried pollution loads in terms of Al, As, Fe, NO<sub>3</sub>, and Cu.

**Keywords :** Işıklı Lake, water chemistry, water quality, pollution, arsenic, Denizli

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