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Determination of Trophic Status of Afsar (Manisa-Turkey) Dam Lake

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Author(s): [Muavviz Ayvaz](#) | [Ersin Tenekecioglu](#) | [Edis Koru](#)

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ABSTRACT

In this study; temperature, dissolved oxygen, pH, electric conductivity (EC) and secchi disc parameters were in situ measured in water samples, collected seasonally, of Afsar Dam Lake, situated in Manisa province. Chlorophyll-a, ammonium (NH₄⁺), nitrite (NO₂⁻), nitrate (NO₃⁻), ortho-phosphate (PO₄⁻³) analyses were conducted. Trophic status was detected according to Carlson Trophic Index and OECD criteria. According to the findings; the highest chlorophyll-a average value was reached in autumn with 39.1 µg/L. Secchi-disc value varied between minimum 26 cm and maximum 312 cm. Correlation coefficient among secchi-disc and chlorophyll-a values was -0.4. Water temperature was minimum 11.7°C and maximum 29.5°C. Ammonium values were minimum 0.13 mg/L and maximum 1.35 mg/L. Nitrite values were minimum 0 mg/L and maximum 0.025 mg/L. Nitrate values were minimum 0 mg/L and maximum 1.80 mg/L. Ortho-phosphate value was minimum 0 mg/L and maximum 1.16 mg/L. Dissolved oxygen was minimum 5.2 mg/L and maximum 10.7 mg/L. pH value was minimum 7.08 and maximum 8.53. Electrical conductivity (EC) was minimum 472 µmhos/cm, maximum 588 µmhos/cm. A total of 37 phytoplankton and 19 zooplankton taxa were determined. Of these, 7 belong to Cyanobacteria, 12 to Ochrophyta, 5 to Charophyta, 8 to Chlorophyta, 2 to Dinoflagellata, 2 to Cryptophyta, 1 to Euglenozoa, 11 to Rotifera, 5 to Crustacea and 3 to Protozoa. Dam lake water was eutrophic according to Carlson trophic index and OECD.



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