# Assessment on phytoplankton composition and heavy metal pollution in a drinking water resource: Lake Terkos (Istanbul, Turkey)

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## ABSTRACT

In this study, the level of water pollution in Lake Terkos, one of the important drinking water resources of Istanbul Metropolitan, was examined by determining the phytoplankton distribution, some physicochemical parameters, nutrients and heavy metal concentrations. For this purpose, samples were collected from eight sampling stations in March and September from the surface water. 34 taxa, from 8 divisions were categorized as Bacillariophyta (17), Charophyta (2), Chlorophyta (5), Cryptophyta (1), Cyanobacteria (5), Euglenozoa (2), Miozoa (1) and Ochrophyta (1). The habitat of blue-green algae *Anabaena spiroides* (Klebahn), which was found to be dominant in Lake Terkos, was identified as eutrophic as well as stratified signifying shallow lakes with low nitrogen content. Recording high reproduction of *Anabaena spiroides* particularly in autumn demonstrated that the characteristics of the lake was altering from mesotrophic to eutrophic. The measured heavy metal concentrations denote that the Lake Terkos was extremely polluted by some metals/metalloids. Particularly boron (B) and cadmium (Cd) concentrations show a class of 4 water quality. Since it fulfills the demand for drinking water in Istanbul to a large extent, it is crucial to take measures to improve the water quality of Lake Terkos urgently. Also it is considered that, limnological monitoring studies must be carried out continuously at the lake for controlling the water quality.

*Keywords:* Phytoplankton; Water pollution; Heavy metals; Nutrients; Drinking water resource

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