



VARIATIONS IN THE EUTROPHICATION-RELATED BIOCHEMICAL PROPERTIES OF THE İSKENDERUN AND MERSIN BAY SURFACE WATERS

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In the present study, physical (salinity, temperature) and eutrophication-related biochemical (Secchi Disc Depth, nutrients, total-P, Chl-*a*, dissolved oxygen) parameters were measured in the Iskenderun and Mersin Bay surface waters (0-10m depth) between September 2014 and August 2016. Data obtained from the 5 field studies were evaluated to assess the present trophic status of the Iskenderun and Mersin Bay using two multi-metric indices, namely Trophic Index (TRIX) and Eutrophication Index (E.I.). The present results indicate that surface concentrations of nutrients, TP and Chl-*a* concentrations enhanced in the coastal waters of Iskenderun and Mersin Bay due to terrestrial inputs. However, spatial enhancement in PO₄ concentrations (range: 0.02-0.29 µM) were less pronounced compared to the spatial NO_x variations increasing from 0.04 µM in the offshore to 24.50 µM in the polluted nearshore waters. Peak values of nutrients, TP and Chl-*a* with the lowest SDD values were consistently observed in wet winter periods when the surface layer was occupied by the nutrient-enriched less saline polluted waters. For the eutrophication classification, the TRIX Index values were calculated ranging seasonally and regionally between 0.4 in the oligotrophic offshore region to 4.8 in the highly productive less saline inner bay waters. Similar variations were also observed in E.I. values with the highest values (7-12.9) observed in the eutrophic coastal waters. Close correlations were observed between calculated values of the two eutrophication tools and the eutrophication indicators. Calculated indices and concentration values increased by about 10-fold in the coastal waters of the Iskenderun and Mersin Bays, indicating the development of human-induced eutrophication in the inner bay waters fed by domestic wastewater discharges and contaminated river water inflows.

Keywords: Eutrophication, nutrients, chlorophyll-*a*, Iskenderun Bay, Mersin Bay