

Eutrophication assessment, classification and management in the Northeastern Mediterranean Sea

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Abstract

The Cilician Basin of NE Mediterranean Sea with low concentrations of dissolved nutrient, algal biomass (Chl-a) and low primary productivity displays typical oligotrophic properties. However, semi-enclosed Mersin and Iskenderun bays on the wide shelf of Cilician Basin are fed by nutrient-laden regional rivers and domestic water discharges, leading to development of eutrophic conditions in surface waters of the inner bays. Long-term national monitoring studies have been conducted to assess current trophic status of the NE Mediterranean coastal waters. For this goal, physical parameters (temperature, salinity, density, in-situ fluorescence, turbidity) and principal eutrophication indicators (nutrients, dissolved oxygen, Chl-a, Secchi Disc Depth) parameters were determined in the summer and winter periods of 2014-2016, using variety of assessment tools and indices (TRIX, HEAT, Chl-a, E.I). Classical TRIX Index could not provide adequate classification of human-induced eutrophication in the oligotrophic coastal seas. This study addresses current capacities of these assessment tools, their flaws and suggested improvements for their future use. New approaches aligning with Marine Strategy Framework Directive goals, are needed to develop more sensitive and improved assessment tools for implementation of sustainable marine policies and improved management plans in the oligotrophic seas.

Keywords: Northeastern Mediterranean, eutrophication, water quality classification, trophic status, nutrients, good environmental status; threshold values