TEMPORAL VARIATION OF HYDROCHEMICAL PARAMETERS IN THE TRABZONCOAST (SOUTHEASTERN BLACKSEA) DURING THE SPRING OF 2009

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Abstract
The study was conducted between March and May 2009 at one station in the Trabzon Coast (Southeastern Black Sea). Physical parameters were obtained by Idronaut Ocean Seven 316 CTD probe. Nutrients were measured by spectrophotometric methods (Parsons et al.1984). Chl-a analysis were carried out by HPLC technique. During the sampling period, Oxygen minimum layer was observed between at 160-170 meter depth. The seasonal thermocline was observed above 55 m in May 2009. PAR depths were observed min at 22 m and the max at 30 m in May and March respectively. Among the sampling period, the minimum nitrite, ammonium and silicate concentrations were observed in May 2009. Because of no nutrient limitation, among the environmental parameter studied, the light intensity is more important for phytoplankton spring bloom at the coastal area.
Keywords: Black Sea, Nutrients

Introduction
The Black Sea is a unique marine environment representing the largest landlocked/semi-enclosed and deep anoxic basin in the world. The coastal waters of the Black Sea are principally fed by the river input and by the lateral/ vertical nutrient transport mechanisms (1). In the spring period; the coastal area is characterized by homogeneity of the water column in respect of temperature, salinity and nutrients. Dissolved Oxygen (DO) gradually decreases with depth. The coastal marine eutrophication is significant which is characterized by higher nutrient content with compare to the surface water of the offshore areas. The aim of this study was to evaluate hydrochemical parameters of region, reveal hydrographic status and response of the phytoplankton biomass to environmental factors during the spring 2009, mixing period.

Material and Methods
The sampling was performed between in March-May 2009 at one station in the Trabzon Coast (Southeastern Black Sea). Water samples were taken from the surface to 60 m, 5 meter interval using 5 liter Niskin bottles mounted on a SEB 32 Carousel Rosette sampler. Hydrographic data were collected by using Idronaut Ocean Seven 316 CTD probe. Nutrients (nitrite, nitrate, ammonia and silicate) were measured by Shimadzu UV 1800 spectrophotometer (2). PAR was measured by Li-193 SA Spherical Quantum Sensor and Li-190 SAT Quantum terrestrial sensor. Chl-a analysis were carried out by using Shimadzu LC-20 AT/ Prominence HPLC (3).

Result and Discussion
The vertical distribution of temperature, salinity, dissolved oxygen and pH profiles were given in figure 1.

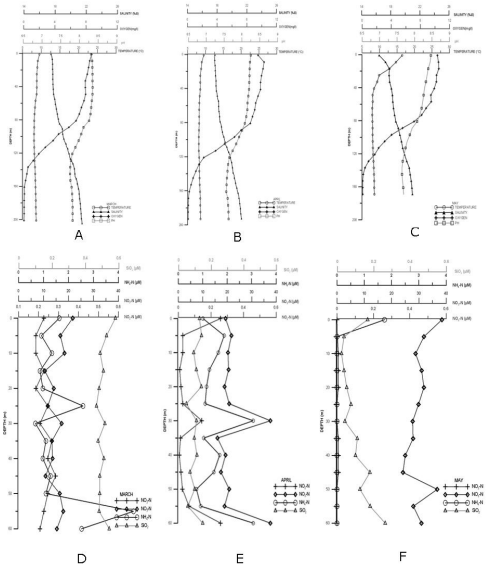

Fig. 1. CTD profiles (A: March, B: April, C: May) and Nutrient profiles (D: March, E: April, F: May)

DO was obtained as 9,96 mgL^{-1}, 10,72 mgL^{-1} 10,62 mgL^{-1} in March, April and May respectively at the surface water of sampling station. During the sampling period,Oxygen minimum layer was observed between at 160-170 meter depths. pH showed similar profile for March, April and May during the sampling period. Although the stagnation was present in March and the April 2009, the seasonal thermocline was observed above 55 m in May 2009. PAR depths were observed min at 22 m and the max at 30 m in May and March respectively (figure 2). Throughout spring 2009, the maximum concentrations of nitrate, nitrite, ammonium and silicate were not higher than 0,29 µM, 38,48µM, 3,06µM and 0,58 µM respectively in the whole sampling depth. Among the sampling period, the minimum nitrite, ammonium and silicate concentrations were observed in May 2009. Although the chlorophyll-a, which can be used as indicator of phytoplankton biomass, was to be expected to have high values at surface water in May , the maximum value was found as a 6,41µgL^{-1} at 15 m in March 2009 (figure 2).

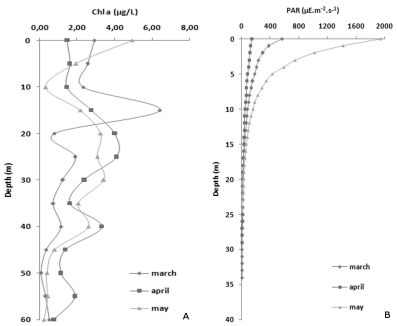

Fig. 2. Chl-a concentrations (A) and PAR values (B)

Because of no nutrient limitation, among the environmental parameter studied, the light intensity is more important for phytoplankton spring bloom at the coastal area. When not only the nutrient but also the chlorophyll-a concentrations were considered, it seem that the coastal water of Trabzon was eutrophic in spring 2009.

References
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