Nutrients Concentrations in the Southern Adriatic Sea

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In the Southern Adriatic Sea nutrients were measured during thirteen cruises from 1974 - 1990, at four profiles and twenty stations, from Vis Island to Otranto strait, about three expeditions per session were performed. Standard oceanographic parameters were also measured (transparency - Secchi disc, temperature, salinity, dissolved oxygen and pH).

All parameters were measured by standard oceanographic methods recommended by Strickland and Parsons (1975).

The region is under northern Adriatic cold water influences, mainly in the western part of the basin, and warm Mediterranean water influences in Central and Eastern part of the basin. Morphology of the basin enables existence of cyclonic current gyre with prevailing NE currents and Eastern coast, and SE currents at west Italian coast.

Orthophosphate and total phosphorus concentrations are smaller than in some other regions (less than 0.1 and 0.2 mol/m^3), and some exceptions at nearshore stations can be explained by local influences (Bojana run-off and smaller rivers at Italian coast).

Average nitrogen concentrations do not exceed 2 mol/m^3, mainly existed as nitrate, indicated highly oxidative region.

Orthosilicate concentrations are in similar range as nitrogen, with some exceptions, due to clastic region river run-off. In any case, the ratios (AOU : Si : N : P = -276 : 0.8 : 1.1 10.03) were significantly different from oceanic Redfields stoichiometric model (AOU : Si : N : P = -276 : 15 : 16 : 1, Redfield,1963), and those calculated for the Northern Adriatic (AOU : Si : N : P = -276 : 21 : 7 : 0.45, Degobbis, 1990). In this ratios extremelly low concentrations of phosphorus, nearly to the limits of the method, must not be neglected. Interestingly, differences in ratios due to seasons or depth variations are not noticeable.

It seems that phytoplankton assimilated more nitrogen than phosphorus, because of its relative enrichment in south Adriatic waters. Probably, phosphorus is the main limiting factor of bioproduction in the whole Adriatic Sea.

Nutrient budget in the South Adriatic is not quite clear, because of rare current measurements on main profiles, especially in advective outflowing North Adriatic waters and inflowing Mediterranean waters.

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