Preliminary results on the nutrient distributions in the Patraikos Gulf and the Acheloos estuary, Greece.

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S u m m a r y

Nutrient distributions were studied in a coastal area of the Ionian sea consisting of three sections. One corresponds to the estuary of the Acheloos river and is enriched in nitrates; another is influenced by the effluents of the city of Patras and there phosphates and ammonia predominate. Finally the third section corresponding approximately to the central part of the Patraikos gulf has an intermediate character and generally lower nutrient levels due to admixture and dilution processes.

R é s u m é

Les distributions des sels nutritifs ont été étudiées dans une région côtière de la mer Ionienne pouvant être divisée en trois secteurs. L' un correspond à l' estuaire de l' Acheloos et est enrichi en nitrates; le second, où prédominent les phosphates et l'ammonium est influencé par les eaux d'écoulement de la ville de Patras; le troisième secteur enfin correspond grossièrement à la partie centrale du golfe de Patras et est de caractère intermédiaire avec des niveaux de sels nutritifs moins élevés à cause des processus de mélange et de dilution.

Although the Mediterranean is an oligotrophic sea, certain coastal areas influenced by rivers and/or domestic and industrial effluents, have high nutrient levels and unpredictable elemental ratios. An area where all the above mentioned sources are present is the one studied which was sampled at standard depths in October 1982 and May 1983, on a basis of a twelve station grid.

Nitrites, nitrates, ammonia and phosphates were determined using respectively the methods of Wood et al (1967), Bendschneider and Robinson(1952) Solorzano (1969) and Murphy and Riley (1962), Dissolved oxygen and hydrological parameters were also measured. The results indicate that the major nutrient sources in the area are the Acheloos river and the effluents of the city of Patras the volume of which was estimated (Scoullos, 1982) to appro-

ximately 10^4 $m^3.d^{-1}$.

The Acheloos is primarily a source of inorganic nitrogen in the form of nitrates.

The section corresponding to the estuary of the Acheloos has autumn nitrate values ranging from 1.5 to 8.9 μg $at.l^{-1}$ (mean areal 3.4 μg $at.l^{-1}$) and low phosphate ones (0.1-0.7 μgat.l^{-1}). The ΣN: PO_4^{3-} ratio value for the same period was around 25, a figure decreased drastically in spring 1983,due to lower ΣN values.

The picture is altogether different in the section affected by the effluents of the area of Patras. Ammoniac nitrogen contributes the 88,5% of the total and phosphates levels are 2 to 3 times higher than those of the Acheloos estuary. The ΣN: PO_4^{3-} ratio is $\lesssim 7$.

Nitrites have low concentrations throughout the area and the period studied. Such dramatic differences in the nutrient distributions need further investigation and may have serious implications on the ecosystem.

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