Quantitative and qualitative composition of zooplankton in two areas of Saronicos gulf

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Summary. The zooplankton of two areas of Saronicos gulf has been studied by monthly sampling (WP2 net, oblique hauls) on an annual basis. The Station located in the vicinity of the sewage outfall of Athens and Piraeus presented similar composition but lower biomass values than the Station located about 20 Km southwards at the entrance of a small touristic harbour.

Résumé. La composition, quantitative et qualitative en deux points du golfe Saronique (golfe d'Athènes) a été étudiée. Une Station (SI) était située près de l'embouchure de l'émissaire des villes d'Athènes et du Pirée, l'autre (S2) à l'entrée d'un petit port touristique, situé à une distance approximative de 20 Km du SI. La difference principale à la composition qualitative de deux Stations concerne le pourcentage de deux groupes principaux: copépodes:43,39% au SI et 63,59% au S2,cladocères: 32,55% au SI et 17,42% au S2. La Station SI présente une diversité spécifique basse. La biomasse zooplanctonique à SI est plus basse que celle de S2.

Saronicos gulf (gulf of Athens) has focused during the last 15 years the interest of marine scientists of Greece. The importance of the area is due not only to his geographical position, but also to its pollution conditions. The most important polluting sources are the main sewage outfall of the metropolitan complex of Athens and a large number of industries. Both sources are situated at the N.E. coasts of the gulf.

Zooplanktonological studies have been conducted at Saronicos since 1969, but the zooplanktonic communities of the area are not,as yet, well known, due to the complexity of Saronicos ecosystems, but also to their continuous modifications caused by the addition of new polluting material.

In this study we have examined the zooplankton of two areas of Saronicos: One at a distance of about 5 Km of the sewage outfall, (SI), the other about 20 Km southwards where the influence of outfall is strongly attenuated, at the entrance of the touristic harbour of Vouliagmeni (S2) and where, presumably, local pollution and eutrophication conditions are created. The sampling (WP2 net)

was performed monthly by oblique hauls between September 1982 and October 1983.
Both Stations presented similar zooplankton composition as far as the quantitative presence of the different groups is concerned.Their principal difference concerned the abundance of the two main zooplanktonic groups:copepods and cladocerans.In the following Table is shown the zooplankton composition of the two Stations expressed as percentages of the different groups to the total zooplankton numbers (means and ranges)

St.	Copepods	Cladocer.	Chaetogn.	Appendic	Doliolid.	Siphonoph.
	43,39	32,55	0,48	5,38	0,44	0,36
SI	(19,90 to 82,97)	(0,84 to 70,35)	(0,05 to 1,25)	(0,71 to 30,91)	(0 to to 1,23)	(0 to to 1,10)
	63,59	17,42	1,36	5,48	2,75	0,82
S2	(46,34 to 92,71)	(0,32 to 58,42)	(0,03 to 12,28)	(0,61 to 11,92)	(0 to 9,48)	(0 to to 2,64)

The next Table presents the zooplankton biomass values per cubic meter (annual means and ranges) expressed as wet weight,dry weight and organic matter content.

Stat.	Wet Weight (mg)	Dry Weight (mg)	Organic matter (mg)
	53,26	3,68	0,56
SI	(0,38 to 156,35)	(1,81 to 7,50)	(0,00 to 2,16)
	135,72	9,44	1,44
S2	(16,67 to 449,31)	(1,12 to 45,3)	(0,06 to 5,39)

In Station I the influence of the sewage outfall is strongly felt: high nutrients concetrations and phytoplankton biomass have been noticed (L.Ignatiades,personal communication).The zooplankton biomass is however lower than that of Station 2.The observed low biomass values could simply be due to the cloging of the nets from the very abundant phytoplankton.It is also possible that the rich phytoplankton sets inverse relationships with the zooplankton due to the phenomenon of animal exclusion.Besides the pollution conditions and the very low water transparency observed at S1 (mean 6,95m compared with 20,42m of Station S2) favour only a restricted number of zooplankton species and especially some cladocerans which were found in large numbers in Station 1.In fact low species diversity has been noticed at Station 1. In addition some small zooplankton species that have been found previously in very large numbers at the Elefsis Bay are probably only partially retained by our nets. Finally Station 2 cannot be considered as a typical "clean" Station.