

STATE OF ZOOPLANKTON IN THE BULGARIAN AND ROMANIAN BLACK SEA COASTAL WATERS DURING THE SUMMER OF 1992

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Surveys of the composition, quantity development and distribution of zooplankton in the Black Sea are important for ascertaining trophic stability, as well as for clarifying the process mechanisms and phenomena related to translocation, transformation and sedimentation of organic matter, inflowing acutely polluting agents and the resulting high rate of eutrophication (KONSOULOV, 1986)

The results herewith, regarding the state of zooplankton within the above mentioned areas, have been obtained from a number of research expeditions within the programme Coms-Black 92/07/07-17/07/92 in particular. Zooplankton samples were collected on board R/V "Akademik" by means of Jeddly plankton net (mesh size 100 microns) at stations located in front of the Bulgarian and Romanian coast vertically off the 10-0, 25-10, 50-25, 100-50 and 150-200 metre horizons (Fig. 1).

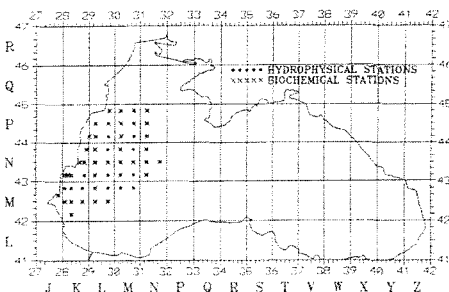
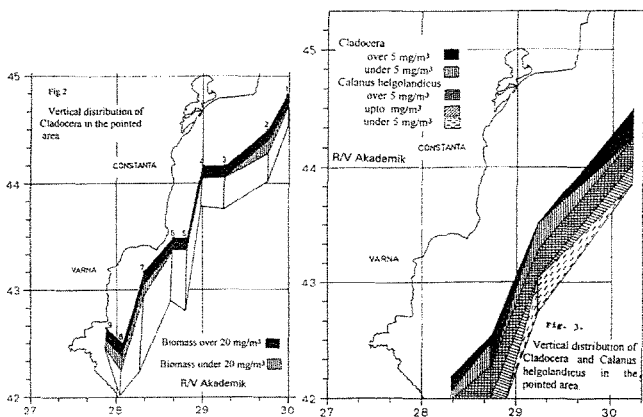


Fig. 1 : Akademik station network

Monospecific biomass is calculated according to standard weights (IASHNOV, 1984). Highest quantitative abundance and biomass with quasi-homogeneous water structure in front of the Bulgarian and Romanian coasts during the summer of 1992 (July) were those of *Pleopsis polyphemoides*, *Acartia clausi* and *Noctiluca scintillans*. Quantitative abundance of these three species varies both vertically and horizontally. The *P. polyphemoides* biomass amounted to 62.24 mg/m³ in front of the Romanian coast, whereas it was 26.41 mg/m³ in front of the Bulgarian coast. Results were similar with *N. scintillans* showing 428.36 mg/m³ in Romanian coastal waters compared to 138.49 mg/m³ in Bulgarian coastal waters. Quantitative abundance of *A. clausi* compared to that of the *Cladocera* species showed opposite results with 36.49 mg/m³ of biomass at a 20 metre depth in front of the Bulgarian coast and 13.26 mg/m³ at the estuary of the Danube, in front of Konstanzta.

Vertically, surface strata ranging from 10 to 15 metre are chiefly inhabited by the *Cladocera* species (Fig. 2). Deeper down as far as the 20-25th metric isobath and 20-40 miles offshore, both biomass areas are dominated by *Pseudocalanus elongatus* and *Calanus helgolandicus* together with their copepodites and nauplii (Fig. 3). Together with the constantly living unicellular euriphagous *N. scintillans* in the surveyed areas, there have been records the new invader in the Black Sea the *Ctenophora Mnemiopsis leidyi*, amounting to 68 ind/m³ and sizing 20 mm along the Romanian coast, and 26 ind/m³ in the shallow shelf of Bulgaria. More detailed analyses of data related to the composition of zooplankton and its quantitative development along the western parts of the Black Sea, as well as comparisons with previous years, show that during the summer 1992 the species *Oithona minuta* and *Oithona similis* were registered singularly, whereas over the 1984-1989 period mean values were 1928 and 424 ind/m³ respectively. There is a similar trend of decrease with *Sagitta setosa*, *Paracalanus parvus*, *Centropages kroyeri* and *Penilia avirostris*. Thus the average number of these species for the middle and western parts of the basin over the 1984-1989 period is respectively 29 ind/m³, 178 ind/m³, 96 ind/m³ and 487 ind/m³ dropping down to 4, 18, 31 and 63 ind/m³ just in the summer 1992.

The surveyed process of destruction of pelagic zoocenoses during the ComsBlack'92 expedition can be explained with the high rate of eutrophication in the coastal zone. It is our opinion that the negative changes taking place within pelagic zoocenoses are not a result of the direct impact of eutrophication but a result of the favourable conditions created for the development of the predatory *Ctenophora - M. leidyi*. This species (together with *N. scintillans*) while developing and permanently spawning (KONSOULOV, 1990) consumes enormous quantities of juvenile and mature forms of lower *Crustacea* mainly at surface strata of coastal areas. Therefore if biodiversity is to be preserved, *M. leidyi* has to be most seriously considered as a part of the Black Sea ecosystem which by the rights of its existence undoubtedly influences ecosystemic composition and structure.



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