OBSERVATIONS ON ZOOPLANKTON IN THE NORTH AND CENTRAL ADRIATIC SEA.

FONDA UMANI S.,MILANI L. & SPECCHI M.
Dipartimento di Biologia,Università di Trieste,Italia.

SUMMARY:We are describing the distribution of net zooplankton collected in the North and Central Adriatic Sea during the cruise of the first decade in September 1977.Results of the Sørensen test,which was applied to 58 sample stations,allow us to identify three main areas:the first strictly coastal neritic including a lot of the North Adriatic and the stations along the Italian coast of the Central Adriatic;the second,including mainly the central stations of the southern part of the North and of the northern part of the Central Adriatic; characterized by neritic elements too;and a third one,including the more southern stations,much less homogeneous,where off shore elements become more and more important.

RESUME:On reporte la distribution du zooplancton récueilli pendant une croisière faite en Adriatique pendant les premiers jours du septembre 1977.Le test de Sørensen nous a permis d'identifier trois zones:la première néritique côtière qui comprend l'Adriatique du Nord et la zone côtière de la Moyenne Adriatique;la deuxième qui comprend la partie méridionale de la Haute Adriatique et celle septentrionale de la Moyenne Adriatique avec charactéristiques tipiques du néritique du large;la troisième,enfin,comprenent les zones au large de la Moyenne Adriatique et la partie septentrionale de la Basse Adriatique dans la quelles l'élément océanique est toujours plus important.

In 1976 a research in collaboration with the Laboratories of Fano and Split on the stock assessment of small pelagic fish in the Adriatic Sea was started.The material collected for that research was also employed in the study on net zooplankton distribution.The data relative to the cruise done during the first week of September 1977 are reported in this paper.Plankton was collected by double-oblique hauls (0-50m) of 260 µm mesh size Bongo 20 plankton net equipped with the flowmeter and depthmeter.

Plankton has the peculiar summer structure of the Adriatic Sea and in particular of its northern area where Cladocerans,mainly *Penilia avirostris*, prevail.An analogous situation occurs in the northern part and along the Italian coast of the Middle Adriatic Sea as well.Viceversa,in the central and southern areas of the Central Adriatic,in line with Jabuka Pit and the area close to the meso Adriatic drop,the Copepods prevail,particularly in their open-sea structures,as already remarked by Hure & al.(1980).

Besides *P.avirostris*,the Cladocerans are represented by the three species of the genus *Evadne:E.spinifera,E.tergestina* and *E.nordmanni* and,to a lesser extent,by *Podon polyphemoides* and *P.intermedius*.The distribution of *P.avirostris* follows the one already described by Specchi (1968),thus bearing witness to this organism preference for neritic areas.

E.nordmanni,present in its Automn reappearing,unlike what occured up to few years ago,has the same distribution of *P.avirostris*.Even *E.tergestina* and *E.spinifera* show their preference for the neritic environment,but the latter is far better represented in the central area of the North Adriatic Sea.

As frequently reported,*Acartia clausi* and *P.avirostris* alternate in the dominance of the North Adriatic neritic community (Specchi & al.,1981;Specchi & al.,1983).In September,as shown above,*P.avirostris* is still clearly predominant while the presence of *A.clausi* is restricted to the neritic area of the Venetian estuary.

Most interesting is the distribution of the two species of the genus *Temora*,particularly if compared to the observations available in literature. Actually,*T.stylifera*,most of the times classified as a coastal form,does populate,besides the coastal,the open-sea areas above the 100 m bathymetric.

T.longicornis - a boreal species,confined to the Northern Adriatic Sea; an estuarine species according to Hure & al. (1980) - is,as expected,well represented in the northern areas,partcularly north of the transversal line Cesenatico - Lussino.Yet,a considerable amount of individuals are present in everyone of the six sample stations of the transversal line Civitanova - Sibenik.It is rather difficult to explain that unless invoke peculiar hydrologic and ecologic conditions which could be connected to discontinuity fronts due to the particular circulation at the passing from the neritic environment to the open - sea.

61 species of Copepods and Cladocerans,out of the whole zooplankton have been assessed.To these species the Sørensen similarity test was applied and from them it was possible to derive the minimum spanning tree.The results of these analyses form a cluster where 6 groups are identifiable.The neritic station group is the most homogeneous while the four groups of the southern areas present less connection levels between the stations.

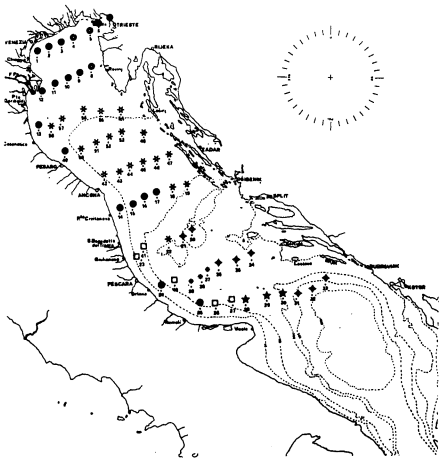

fig.1

These groupings have located three principal areas in the Northern and Middle Adriatic Sea (fig.1).A first one,north of the transversal line Po - Rovigno,typically neritic with coastal and estuarine elements;which extends along the Italian coast down to the Gargano;a central intermediate area,mainly between the transversal lines Porto Civitanova - Sibenik and Po-Rovigno, with open - sea neritic elements;and a southern area,much less omogeneous,where the evolvement from the neritic to the oceanic community is easily observed and the typical forms of the open - sea appear progressively

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