# The recent study of the Copepod community from the Eastern Adriatic Coast caused by eutrophication

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This paper presents some recent results about progressive changes of the copepod community from the eastern Adriatic coast caused by eutrophication. Previous long-term results in front of the most important harbours of the eastern Adriatic, showed some changes of copepod composition and biomass (REGNER,D., 1987). As summer was found the most threatened season throughout the year, investigations were continued with the special attention to this season.

The material for this study was taken by vertical hauls of the Hensen plankton net (73/100, silk N°3), from bottom to surface at the permanent stations in front of Zadar, Šibenik, Split, Kardeljevo and Dubrovnik (Gruž), and from two stations in the Bay of Kaštela, situated in the middle part of the bay, and at the eastern - the most threatened area under the influence of the industrial wastes (Fig. 1).

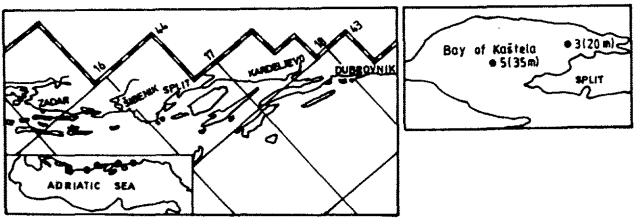


Fig. 1. The study area

In 1985-1988 period, about 40 species of copepods including two genera were found at the investigated stations in summer season.Neritic species that usually occur in higher density, dominated again at whole investigated area. Between all of them, Acartia clausi was markedly dominant, even with higher percentage than in the previous results (Fig. 2).

Furthermore, the long-term data on copepod biomass (expressed with number of copepods per $m^3$), showed the trend of the increasing, too. This phenomenon we can connect with the permanent increasing of phytoplankton density in the eastern Adriatic coast (PUCHER-PETKOVIĆ, 1989) in the same period.

Studies on some hydrographic and chemical parameters in 1984-1988 period have shown some oscillations, too. According Morović (in DUJMOV et al.,1988)sea-water

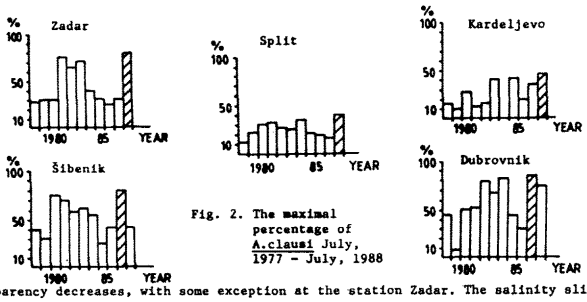


Fig. 2. The maximal percentage of A.clausi July, 1977 - July, 1988

transparency decreases, with some exception at the station Zadar. The salinity slightly increases in front of Zadar and Šibenik, while nitrate and phosphate levels slightly increase at all investigated stations (Stojanoski, Vukadin and Zvonarić in DUJMOV et al., 1988).

Besides, more interesting results were found at the Kaštela Bay during Red tide event. The percentage of Acartia clausi increased in summer from ten percents in the eastern part of the bay, to almost twice in the middle of the bay in three - years period (Tab. 1).

Tab. 1. The percentage of Acartia clausi at the Kaštela Bay

| | Station 3 | Station 5 |
|---|---|---|
| July 1982-1985 | 60 % | 35 % |
| July 1988 | 70 % | 65 % |

The biomass expressed by density showed the trend of the increasing from 1970. to 1988, too (Tab.2), even in the middle part of the bay, where the influence of the coast was not so strong as in the coastal part (before Red tide phenomena became rather frequent).

Tab. 2. The biomass of copepods (number/$m^3$) at the station 5

| | |
|---|---|
| July 1970-74 | 188 |
| July 1982-83 | 350 |
| July 1988 | 484 |

So, the markedly increased percentage of Acartia clausi,as the increasing of copepod density, we can clearly connect with the progressive eutrophication of the eastern Adriatic coastal waters, and the increasing phytoplankton density especially in summer.

References

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