

Recovery of benthos after anoxic stress. II. Bivalve Molluscs

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After a mass mortality of benthic organisms in the autumn of 1989 (JAKLIN & ZAHTILA, 1990) the recovery of bivalve populations was studied at stations 005, 007 and 107 (Fig. 1). Samplings from a 0.4 m² bottom surface were done by a Van Veen 0.1 m² grab at almost one month intervals, from December 1989 to September (005 and 007), and November (107) 1990.

Samples collected at station 005 in December 1989 contained *Corbula gibba*, *Chione ovata*, *Myrtea spinifera*, *Mysis undata* and *Thracia papracea*; at station 007 *Corbula gibba*, *Mysis undata* and *Nucula nucleus*; and at station 107 *Corbula gibba*, *Nucula nitida*, *Thyasira flexuosa* and *Tellina* sp. Only adult specimens were noted.

After the autumn of 1989 anoxia the repopulation process started in the spring of 1990 either by juveniles of survived species, by species inhabiting in neighboring zones, or by species distributed southwards which larvae were drifted towards the northern Adriatic by the main currents. First juveniles of several species appeared in February, especially at station 107. From December 1989 the bivalve species numbers increased from 5 to 16 species at station 005, from 3 to 17 at station 007, and from 4 to 20 at station 107. An insignificant species decrease was noted in April 1990 (Fig. 2).

Some bivalve species showed a high recruitment rate until June. The most abundant species was *Corbula gibba* (390 specimens per sample), the next ones were *Chione ovata* (219) and *Musculus marmoratus* (77). Less abundant were *Acanthocardia echinata* (43) in March, *Mantellum hians* (42) in June, *Nucula nitida* (37) in September, *Laevicardium oblongum* (41) in November, and others (Fig. 3). In 1990 the recovery of *Pinna pectinata* populations was recorded from specimens 38 mm (Apr.) to 160 mm in length (Sept.) according to diver sampling collections.

At station 107 in December an adult *Corbula gibba* population consisted of specimens 10.0-12.2 mm in length. The settlement of juveniles about 2 mm in length started in February and continued until June, when the smallest specimen was about 4 mm in length. It seems that a natural mortality of adults had begun in February but until June the *Corbula* population structure, in general, did not altered (Fig. 4).

The recovery of bivalve species in the area affected by anoxia in the autumn of 1989 was successful and rapid, as their reproduction season began already in the spring of 1990.

Figure 1. Research stations in the area stressed by 1989 anoxia.

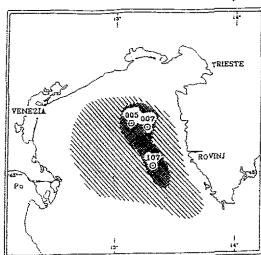


Figure 2. Bivalve species numbers in the early recovered period.

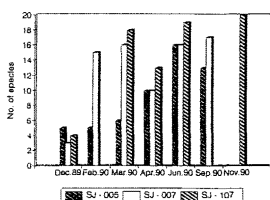


Figure 3. Population recovery of some common bivalves.

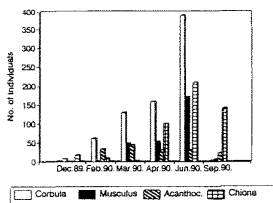
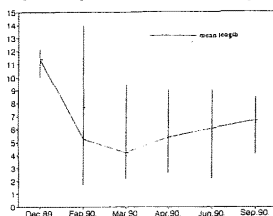


Figure 4. Population structure of *Corbula gibba*.



REFERENCES

- JAKLIN A. & ZAHTILA E., 1990.- 1989 anoxia and mass mortality of macrobenthos in the Northern Adriatic Sea. 1st Int. Symp. "Ecological problems in the Adriatic Sea", Split, 7-9 November, 1990. Abstracts: 44-45.