

Foraminiferal species responses to in situ, experimentally induced anoxia in the Adriatic Sea

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Titre Foraminiferal species responses to in situ, experimentally induced anoxia in the Adriatic Sea

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Anoxia was successfully induced in four benthic chambers installed at 24 m depth in the northern Adriatic Sea for periods varying from 9 days to 10 months. During the 10-month period, species richness significantly decreased. Although no significant change in Shannon diversity and evenness was observed, the composition of the foraminiferal assemblages changed with time. This change is due to interspecific differences in tolerance to anoxia. *Reophax nanus*, *Textularia agglutinans* and *Quinqueloculina stelligera* all showed a significant decrease with time, strongly suggesting they are sensitive to anoxia. Conversely, *Eggerella scabra*, *Bulimina marginata*, *Lagenammina atlantica*, *Hopkinsina pacifica* and *Bolivina pseudoplicata* appeared to be resistant to the experimental conditions. *Quinqueloculina seminula* was apparently sensitive to anoxia but showed a clear standing stock increase during the first month of the experiment, which we interpret as an opportunistic response to increasing organic matter availability due to the degradation of the dead macrofaunal organisms. None of the anoxia-sensitive species is able to accumulate intracellular nitrates. Nitrate accumulation could be shown for some tested specimens of the dominant anoxia-tolerant species *E. scabra* and *B. marginata*. However, tests on the denitrification capacity of these taxa yielded negative results, suggesting that their resistance to long-term anoxia is not due to their ability to denitrify.

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