

MICROFAUNA AND MICROFACIES FROM THE INITIAL REEF STADIUM OF BINOLEN IN THE HÖNNE VALLEY (SAUERLAND, MIDDLE DEVONIAN)

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The Middle Devonian was a phase of extensive reef systems on a global scale. In this context, one of the best-known examples is the Givetian-Frasnian Hönne Valley Reef Complex in the northern Rhenish Massif, Germany. While there are several studies on the reefal faunal composition and stratigraphy, there is a great lack of knowledge concerning microfaunal compositions of reef limestones including their potential use as a biofacies proxy. The initial stadium of Rhenish reefs is largely unexplored in terms of its microfossil content. Therefore, a section at Binolen is examined, which exposes the lower part of the Hagen-Balve Formation (“Massenkalk”) concerning its marine microfauna. A total of 4097 representatives of the Foraminifera, Porifera, Scolecodonta, Echinodermata, and other, partly problematic, microfossils were analysed quantitatively to visualize distribution patterns through the stratigraphic column and to reconstruct possible changes of the paleo-habitat. Furthermore, the taxonomical classification revealed an unexpected broad diversity spectrum within the initial reef. The quantitative microfossil analysis was able to distinguish 6 different biofacies types, namely the Porifera-Scolecodonta-biofacies, Porifera-Echinodermata-biofacies, Foraminifera-biofacies, Scolecodonta-biofacies, Chitinozoa-biofacies, and Ostracoda-biofacies. A correlation between reef microfacies analysis and the fluctuating microfossil assemblages is only partly comprehensible.