

Benthic paleoecology in the Givetian: An example from the Kersadiou Formation

(Massif Armoricain, NW France)

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ABSTRACT

The Kersadiou Formation is well known for its exceptional preservation, diversity, and abundance of mid-Devonian marine fossils. A complete faunal inventory of the Kersadiou Formation over its entire outcrop area is presented here for the first time. Twelve complete sections have been thoroughly sampled from the 28 known outcrops in the Rade de Brest area. The detailed vertical and geographic distribution of 149 identified taxa, coupled with multivariate analyses, allows us to recognize three benthic brachiopod-dominated associations—the *Holynetes*, *Ogorella*, and *Arcuaminetes* associations. These associations reflect a progressive shallowing, which had been previously proposed based on lithological changes from the underlying Quaternary Formation to the overlying Tibidy Formation. The corresponding environmental changes are from a protected or restricted marine environment, with a high diversity fauna (*Holynetes* association), to a shallower, open, higher-energy environment, characterized by a low-diversity assemblage (*Arcuaminetes* association); the *Ogorella* association occupies an intermediate position. While the three associations are well developed in the central and eastern parts of the Rade de Brest, only the *Arcuaminetes* association is well developed in the western outcrop area. This east-west distribution of faunas correlates with the paleoecological gradient evidenced in the studied area.