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Benthic ostracods from the Early-Middle Frasnian transition in the north-western East European Platform, Russia

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Pronounced changes in benthic ostracod associations in the north-west part of the East European Platform, across the Early-Middle Frasnian (Devonian) transition, track a marine transgression event. More than 80 ostracod species belonging to the Eifelian Mega-Assemblage were recorded. Cavellinidae and Acratiidae generally dominate the Early Frasnian Sargaevo Horizon. Middle Frasnian ostracod associations of the Semiluki Horizon are more diverse and are characterised by different dominant both geographically and stratigraphically, resulting from significant palaeo-basin bottom relief and benthic biotope differentiation. The ostracod associations are indicative of very shallow, well oxygenated semi-restricted epeiric environment, with occasional marine influence, alternating with short periods of open shelf conditions. The relative abundance of ostracod species in the different associations, and faunal diversity indices, show considerable variations throughout the Early-Middle Frasnian, and suggest a less restricted position within an intra-platform setting in the Middle Frasnian, relative to a more restricted ostracod habitat in the Early Frasnian. The succession of Early-Middle Frasnian micro-benthic associations within the Main Devonian Field seems to be of a regional scale, and resulted from a marine regression-transgression couplet, corresponding to eustatic cycles IIb-IIc. This was paired with synsedimentary tectonic subsidence in adjacent areas of the north-east East European Platform, progressively improving marine water circulation in the extremely shallow-water shelf seas.

Key words: Ostracoda, palaeoecology, Frasnian, Main Devonian Field, East European Platform, Russia.

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