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## Introduction:

The Upper Rhine Graben (URG) and the Mainz Basin represent the central part of the Tertiary European Continental Rift System (ECRIS) between Mainz/Wiesbaden (W Germany) and Basel (NW Switzerland). In the basal Oligocene, the Upper Rhine Graben is invaded by the basin-wide first Oligocene transgression from the North Sea, corresponding to the Ru1 sequence (BERGER et al., 2005). This event results in the deposition of the marly to calcareous, marine to brackish-lacustrine, fossil-rich "Zone fossilifère" in the southern URG (Allschwil 2 borehole: PIRKENSEER, 2007) and marly clavs to calcareous marls and black clavs of the Middle Pechelbronn Beds in the Mainz Basin (Wallau B98-BK5 borehole: GRIEßEMER et al., 2007). The transgression starts with marine Ostracoda (e.g., Hazelina indigena, Grinioneis camelus) and benthic foraminiferal assemblages, which are related to deeper and quiet water conditions possibly under restricted oxygen supply. The maximum flooding is achieved early in the sequence (GRIEBEMER et al., 2007). The regressive phase is characterised by a quick transition to brackish water ostracod taxa in mass occurrences (e.g. Hemicyprideis pechelbronnensis (UFFENORDE & RADTKE 2008) and Hemicyprideis spp., Cytheromorpha ex gr. C. zinndorfi) and freshwater species like Candona (Typhlocypris) pechelbronnensis.





## elian lithostratigraphy of the URG and adjacent basins



## Summary:

Both localities, although being remote, show a subdivision into five more or less distinct units. The first, marine unit correlates rather well in both boreholes and is related to the "Zone fossilifère à Mytilus". The transition from marine to brackish conditions develops earlier in the southern URG (units 2-3). A more diverse assemblage and later appearance of truly brackish water species is characteristic for the Mainz Basin (units 2-4) in this stratigraphical level (GREBENER et al., 2007). The succeeding assemblage of highly abundant brackish water taxa as well as freshwater ostracods show a remarkably parallel development at both locations.

The latter assemblage marks the top of the sequence in the Mainz Basin. In the southern Upper Rhine Graben, a recurrence of a more saline environment is indicated (Pirkenseen 2007), pointing to differences in the sedimentary or even the tectonic development between the northern and southern Upper Rhine Graben.

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