

# **Bivalves from the Innviertel Group of Allerding in the North Alpine Foreland Basin (lower Miocene, Upper Austria)**

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During the Ottnangian (Burdigalian, early Miocene), the North Alpine Foreland Basin operated as a sea-way connecting the Central Paratethys Sea with the Rhône Basin in the Western Mediterranean. Within this short time window, an intensive faunal exchange between the two paleobiogeographic units occurred, which is reflected in macrofossil assemblages. The extraordinarily rich fossil record of the study site, Allerding, located in the westernmost Central Paratethys, provides valuable insights into the composition and origins of the bivalve fauna colonizing the marine gateway. The site documents the early Ottnangian marine transgression over deeply weathered crystalline basement, grading from fossil bearing shallow water clay and sand into the open marine "Schlier" facies of the Ottnang Formation.

Despite considerable taphonomic overprint including aragonite leaching and mechanical abrasion of bivalve shells under turbulent shallow-water conditions, a total of 46 species are recorded, including two new species (*Lima allerdingensis* and *Astarte danningeri*). The dominance of suspension feeders, and the presence of several deposit feeders and chemosymbiotic taxa point to well diversified inshore settings, including low intertidal mudflats, as well as seagrass meadows. An abundance of primary and secondary hardgrounds is reflected in the high number of cementing and byssate species, as well as in the occurrence of species drilling actively into hard substrate. Finally, the dominance of active burrowers suggests a patchwork of habitats, where sandy and muddy soft bottoms occur interspersed.

Biostratigraphic analysis constrains the deposits to the early to middle Ottnangian, based on the presence of the index species *Flexopecten davidi* and the concurrence of several taxa, which have their last or first occurrences within this interval. These are predominantly taxa persisting into the Badenian, therefore allowing for a straightforward differentiation between late Eggenburgian and early Ottnangian assemblages. While a few Central Paratethys endemics reflect a continued semi-isolated position of the area, the majority of the newly arriving species are shared with the Mediterranean and NE Atlantic, documenting the establishment of a faunal migration route via the North Alpine Foreland Basin.