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Development of cold-water coral reefs in the Early Paleocene of southern Scandinavia

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Early Paleocene cold-water coral reefs developed in the Boreal Sea of the Danish Basin, southern Scandinavia. The reefs initiated in a bryozoan mound dominated outer shelf setting in the mid-Danian time. The coral reefs are dominated by framework building Dendrophyllia candelabrum with minor and varying occurrences of Faksephyllia faxoensis and Oculina becki. Following a period with prominent current-erosion, individual coral reefs nucleated in a patchy pattern on the eroded crests and flanks of bryozoan mounds. The reefs show a migrating and aggrading mode of growth and closely spaced small reefs merged into larger reef structures during growth. Individual reefs were 6–35 m high and 20–200 m long and forming reef complexes in areas of about 10 km2 along palaeostructural highs in the Danish Basin.

Data collection comprise reflection and shallow seismic profiles, and samples from drilling and scuba diving in bridge pier excavations in Øresund, the strait between Denmark and Sweden, together with extensive field work in the Limhamn Quarry in southern Sweden and in the Faxe Quarry in southeastern Denmark. Detailed palaeoecological and sedimentary facies analysis and measurements of three-dimensional reef-architecture at successive growth stages of the reefs enable a reconstruction of the depositional evolution of the reef complexes in the Danish Basin.