
Biostratigraphic and paleoenvironmental implications
of early Cretaceous macrofossils from offshore
cores of the Scotian Shelf

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In offshore wells, microfossils are of great use in biostratigraphic and paleoenvironmental studies because of their abundance and preservation, even in cuttings samples. By comparison, body macrofossils usually receive minimal attention in offshore wells. We have surveyed macrofossil distribution in conventional cores from the Alma K-85 well, which samples the Cree Member of the Logan Canyon Formation and the Upper Mississauga Formation. Substantial numbers of well preserved body fossils occur. These include callianassid shrimp (probably the producer of associated *Ophiomorpha* traces), several species of bivalves and gastropods, echinoids, and, most significantly, several species of ammonite.

With careful observation of the body fossil assemblages, it is possible to recognize stenohaline versus euryhaline faunas, adding greater precision to interpretations from trace fossils and sedimentology alone. For example, the co-occurrence of echinoids and ammonites with other diverse macrofauna indicates normal marine salinities (stenohaline), whereas the presence of monospecific oyster faunas probably implies brackish/variable salinity environments (euryhaline). Furthermore, the presence of several identifiable ammonite species (e.g., *Hypacanthoplites clavatus* and ?*Barremites* sp.) enables direct correlation of the core sections with the ammonite zonation of the stratotype sections in Europe, providing independent calibration points for Scotian Margin microfossil zonations. As the first reported ammonites of this age north of Blake Nose and south of Greenland, ammonites also have implications for the paleoceanography of the northwest Atlantic Ocean in the Early Cretaceous.
