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Paleoenvironmental analysis of the Lower Cretaceous  
(Aptian-Albian) sediments of the Musquodoboit  
and Shubenacadie basins, Nova Scotia

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The unconsolidated sand and clay deposits of the Shubenacadie and Musquodoboit basins have been documented in detailed studies since the 1950s. General mapping projects from as early as the 1900s have postulated that the deposits are of Cretaceous age. More recently they have been found to be of late Early Cretaceous (Aptian–Albian) age. Previous workers have hypothesized a non-marine depositional environment, but marine foraminifera have also been reported, suggesting the possibility of marine pulses. The present study has found freshwater protists such as the dinoflagellate *Nyktericysta* sp., zygnetatacean (algal) cysts *Lecaniella foveata*, *Lecaniella irregularis*, *Ovoidites grandis*, *Ovoidites parvus*, and *Ovoidites spriggii* and other protists such as *Schizocystia rugosa*, *Schizospora reticulatus*, and *Botryococcus* sp. A variety of trilete spores, gymnosperm pollen grains, and angiosperm pollen grains have also been found. The palynomorphs tend to occur in assemblages dominated by one or more fossil types. For example, assemblages dominated by freshwater protists represent an environment of shallow, slow moving fresh water, while the assemblages dominated by trilete spores and pollen represent terrestrial deposits where little or no standing water was present. All of the assemblages found in the present study support a non-marine depositional environment.

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