Late Triassic–Early Jurassic bivalve biochronology and bioevents from northeast British Columbia

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Analysis of the stratigraphic distribution of pelagic bivalves Halobia, Monotis, and other genera, intercalibrated with ammonoids and conodonts, now permit recognition of several paleontologically defined Late Triassic to Early Jurassic bioevents from northeastern British Columbia. The bivalve data of diversity and extinction are derived primarily from the excellent exposures near Williston Lake from pelagic carbonate (Carnian-Norian, ?Rhaetian, Pardonet Fm.) and clastic shelf (?Rhaetian, Hettangian Fernie Fm.) settings.

Rather than extinction, the Carnian/Norian boundary is marked by the first appearance of several pelagic bivalve species—most notably Halobia beyrichi. The mid to late Norian decline in bivalve diversity and biomass largely stems from the disappearance of Monotis. Although truncated by erosional unconformities in most localities in which Hettangian strata rest on the Norian, the decline in bivalve diversity corresponds to a change in clastic dominated paleoenvironments. However, at no less than three localities near Williston Lake in northeast British Columbia, the Triassic/Jurassic boundary rests above the clastic facies change and is recognized by the first appearance of the pectinacean bivalves Agerchlamys and Ochotochlamys together with small psiloceratid ammonoids. The low-diversity post-extinction Jurassic faunas are ecologically homogenous, comprised mostly of r-selected generalists.