

Ancient Oyster Beds of Alberta: Overlooked but Geologically Significant

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Summary

Numerous oyster beds outcrop across Alberta but have received little attention. They provide a valuable indicator of marine incursions and are robust, meaning that they have significant preservation potential. They can also provide other palaeoenvironmental data and occur over a wide geological time span.

Method

Oyster beds have received little attention in Alberta, despite their almost unique characteristics:

- Their shells are extremely robust, making them resistant to erosion
- They occur only in turbid conditions, in marine settings, meaning that their presence is an indicator of a truly coastal setting
- They typically occur as monospecific assemblages

Possibly for the first time, a series of Cretaceous oyster bearing deposits have been identified across the southern part of the province. These include oyster beds identified at Willow Creek, near Drumheller; at Springbank, 15 km west of Calgary; during construction of Stony Trail, in NW Calgary; and where oyster beds are being mined as a fertilizer additive in southern Alberta.

Each of these oyster beds has been studied in detail and put into sedimentological context with the overall succession. This has allowed potential marine incursions, lowstands and beach deposits to be identified, and methodologies have been developed to apply this knowledge to any further oyster beds identified in the fossil record.

Results

The depositional setting and sequence stratigraphic context for each of the oyster beds mentioned above has been interpreted. This work has been underpinned through the use of a variety of ancient analogues from the UK, Spain and elsewhere. An example is the oyster bed at Springbank, which can be interpreted as a monospecific bed deposit during a brief marine incursion into an otherwise terrestrial succession of the Brazeau Formation.

Novel Information

A completely new classification system has been erected that can be applied to any oyster bearing locality, to include interpretations of precise depositional setting and sequence stratigraphic context.

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Oyster bed exposed at Springbank, near Calgary



Core taken through oyster bed at Springbank

