

## **The Middle Devonian Geneseo Shale Succession of New York: Interplay between Eustatic Sea Level Rise and Tectonically Driven Sediment Supply**

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The Middle Devonian Geneseo Shale of New York was deposited as part of the westward prograding Catskill Delta complex. Acadian uplift supplied the sediment for delta growth, and coincides with a general rise of eustatic sea level. Depositional parameters were derived from core description, hand specimen and thin section examination. The Geneseo Shale is a ~30 m succession of black and dark gray shales. It overlies the Tully Limestone (surface of maximum starvation) and contains a benthic fauna suggestive of dysaerobic basinal conditions. The lower Geneseo is a “banded” black shale with relict lamination and cryptobioturbation (indicating surficial sediment mixing by benthos). Upsection, the Geneseo exhibits multiple interbedded “black to gray” shale cycles (1 to 25 cm thick). Both black and gray shale intervals show bioturbation. Cycles decrease in thickness upsection and grade into dark gray shales with scours, wave and current ripples, and macroscopically visible bioturbation. This interval suggests decreasing sediment supply, dysoxic setting, and continued transgression and sea level rise. Above the Geneseo follows the Lodi Limestone, a thin concretionary carbonate/calcareous siltstone unit that marks an interval of strongly reduced clastic input. In the context of global eustasy in the Devonian, it appears the Geneseo Shale represents a budding regression (growing sediment input from the east) that was overpowered by sea level rise (accommodation outstrips sedimentation). The time of Lodi deposition marks the maximum eastward “push-back” of the shoreline.