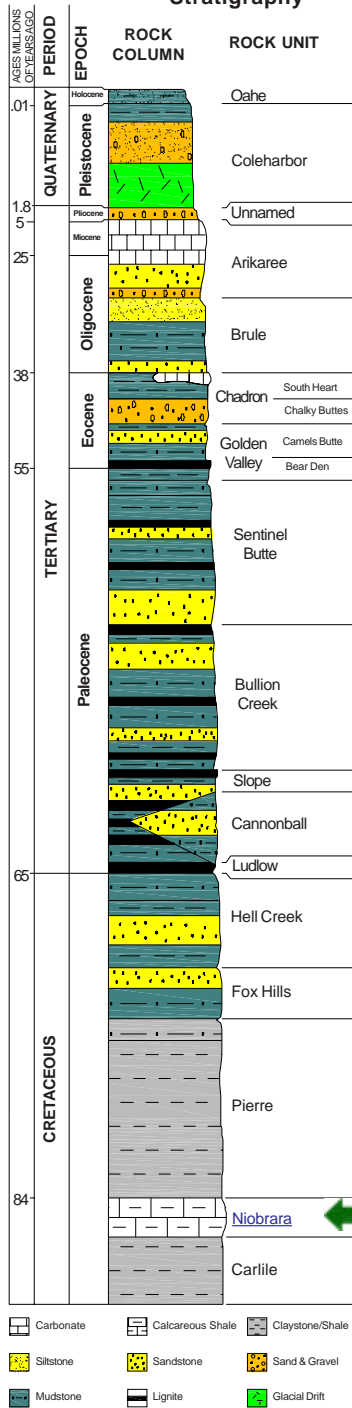


## North Dakota Stratigraphy



## NORTH DAKOTA'S UNDERWATER WORLD

During the Cretaceous, from about 90 million to 65 million years ago, North Dakota was either completely or partially covered by subtropical to warm temperate, shallow epicontinental seas. These seas occupied what was called the Western Interior Seaway, essentially the North American mid-continent. The seas were never very deep, perhaps a few hundred feet at most, and at their greatest extent they connected the Arctic Ocean with the Gulf of Mexico. During low sea level, the Hell Creek Delta covered western North Dakota and Fox Hills Sea shoreline habitats occurred in central North Dakota. Fine grained sediments, mostly silt and clay, deposited on the floor of these oceans are now rocks of the Carlile, [Niobrara](#), and Pierre Formations. These are the oldest rocks exposed in North Dakota. Entombed in these rocks are fossils of the animals and plants that inhabited the seas. Remains of marine reptiles, including the mosasaur *Plioplatecarpus*, plesiosaurs, and the sea turtle, *Archelon*; fish (such as sharks, rays, and ratfish); birds; and invertebrates (including clams, cephalopods, snails, corals, and crabs) have been recovered from these rocks.



Outcrop near Wallhalla in Cavalier County showing the [Niobrara](#) Formation overlain by the Pierre Formation (Cretaceous). Outcrop is 20 m thick. View is to the northwest.