

# Sedimentary Formations



Blufftown Formation In eastern Alabama, the bottom layers of the Upper Cretaceous sequence are composed mainly of river sediments and take the form of a combination of river and coastal deposits in western and west-central areas of Alabama; these oldest deposits are called the Tuscaloosa Formation. Younger detrital strata are found mainly in eastern and east-central Alabama (Figure 2), where they are called, from bottom to top, the Eutaw, Blufftown, Cusseta, Ripley, and Providence Formations. The sandstone beds of these formations are typically porous and form excellent groundwater aquifer systems, notably the Black Warrior River aquifer in the northern and central Coastal Plain, and the Chattahoochee River aquifer in the eastern Coastal Plain. Coccolithophore in western Alabama (and across much of the world), most of the Cretaceous deposits are composed of chalk, a type of limestone that is made up almost entirely of the microscopic fossils of planktonic marine organisms called coccolithophores. These tiny organisms flourished in oceans all over the world until the end of the Cretaceous, when they were reduced to a fraction of their former diversity. Indeed, the name Cretaceous comes from the Latin word for chalk (*creta*). In Alabama, chalks comprise, from bottom to top, the Mooreville, Demopolis, and Prairie Bluff Formations. They represent marine deposits formed on the continental shelf far offshore from the sands, muds, and marls of the coast.

Cretaceous formations in Alabama are undeformed, meaning that they have not been folded or faulted through geologic activity. In fact, in some areas, they can hardly even be called "rocks," being instead mostly loosely compacted sediments. There are two main kinds of sedimentary materials: detrital (or clastic) sediments such as sand, gravel, and mud (silt and clay), and carbonate sediments, such as chalk and other limestones.

Detrital sediments are formed by the breakdown of Paleozoic rocks north of the Coastal Plain. During the warm, wet Cretaceous, these very old rocks weathered, eroded, and decomposed, and the resulting loose sediments were carried south by rivers and deposited at the coastline. Currents in the shallow seas picked up these sediments and spread them along the shore. Studies of the resulting layers, known as strata, show that they were deposited in coastal settings such as beaches, barrier islands, lagoons, estuaries, and marshes. Just offshore, fine-grained muds accumulated and were interlayered with thin beds of storm-swept sand. Even farther offshore, muds mixed with limey sediments to form rocks called marls.