Northampton and Halifax counties on the north to Wayne County on the south the formation is in contact with the crystalline rocks of the Piedmont Plateau. In places it can be seen to rest upon an irregular surface of crystalline rocks that were probably above the water during the entire Eocene time and so did not receive any deposits belonging to that period. Along Quankey Creek, near Halifax, the St. Marys beds are in direct contact with the crystalline rocks, as shown in some of the sections which follow. In the vicinity of Rocky Mount the Miocene also occurs in small patches, filling old depressions in the crystalline rocks. Along the Neuse River to the west of Goldsboro the St. Marys probably at one time rested upon the Trent (Eocene), as the two formations are represented in that vicinity.

Along the Roanoke and Tar rivers there are many exposures where the St. Marys is found resting directly on the Cretaceous formations. Passing down the Roanoke, both the Patuxent and the St. Marys formations are exposed in certain sections, while in other sections the materials are entirely Pleistocene and Cretaceous, with the Miocene wanting, while in still other regions the Miocene extends to the water level. This rising and falling of the Cretaceous in the sections gives evidence of the irregular Cretaceous surface upon which the St. Marys was deposited. Further, the absence of the Miocene beneath the Pleistocene in other sections gives evidence of the erosion interval following the St. Marys, during which time the entire thickness of St. Marys in certain places was removed. In general, the Cretaceous formation that most commonly underlies the St. Marys is the Patuxent, though this is not always the case along the lower Tar River, as, for example, at Blue Banks Landing, where the Black Creek is directly overlain by the St. Marys beds.

Whatever formation lies beneath the St. Marys, there is in every instance a marked unconformity at its base, and the fact that it overlies beds of such varied ages indicates that there must have been a greater transgression of the ocean during St. Marys time than during the preceding periods. The absence of the St. Marys in the southern part of the State is probably due to its never having been deposited in this place, though it may be explained by its complete removal at some subsequent period.

The St. Marys formation is overlain by beds of Pleistocene age in almost every locality where exposures occur. Along the stream divides it is almost everywhere concealed from view by Pleistocene sand, gravels, and clays which are unconformable to the underlying beds.

The strata composing the St. Marys formation in North Carolina are in the main very similar, lithologically, and on the basis of lithology