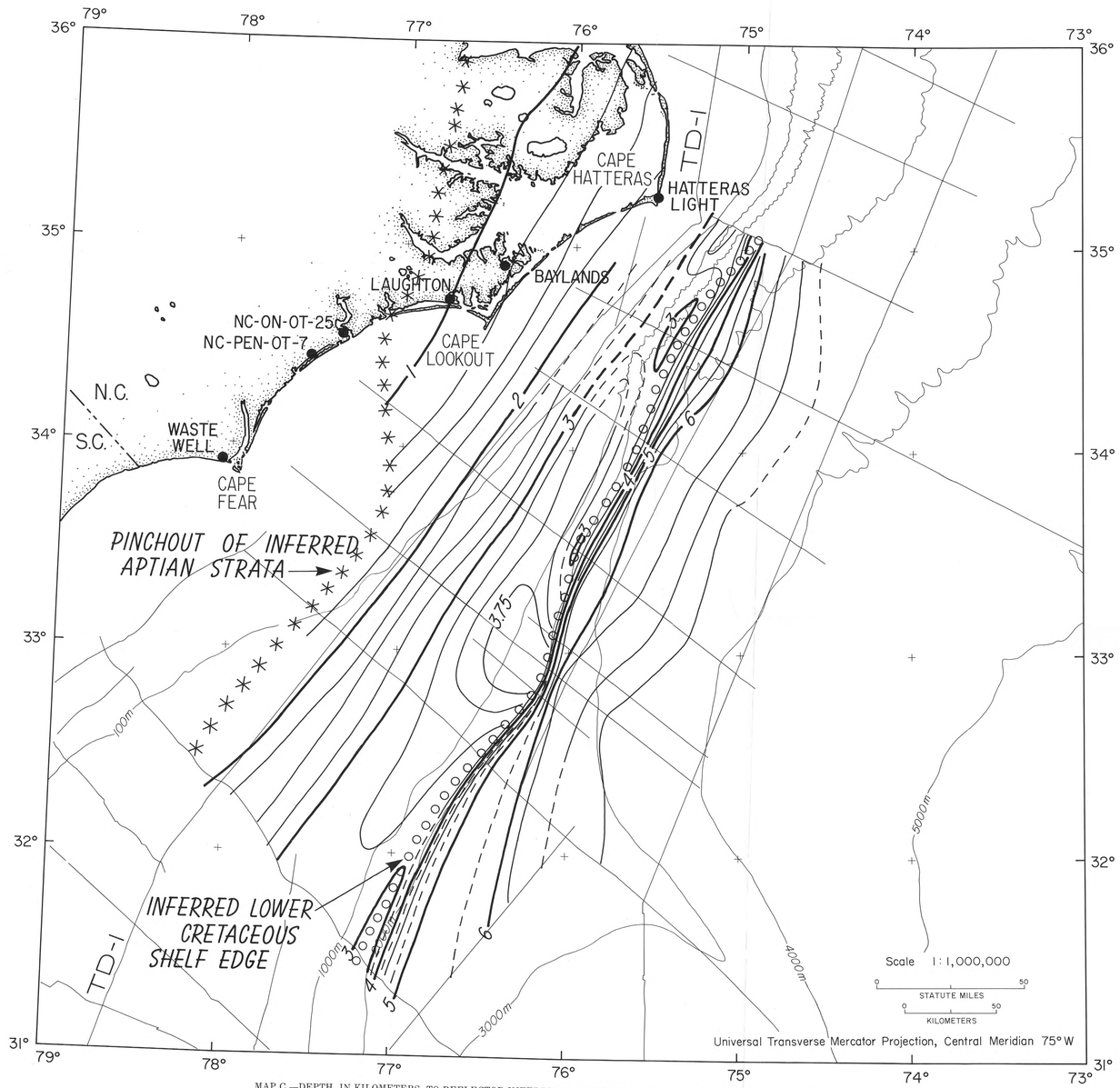
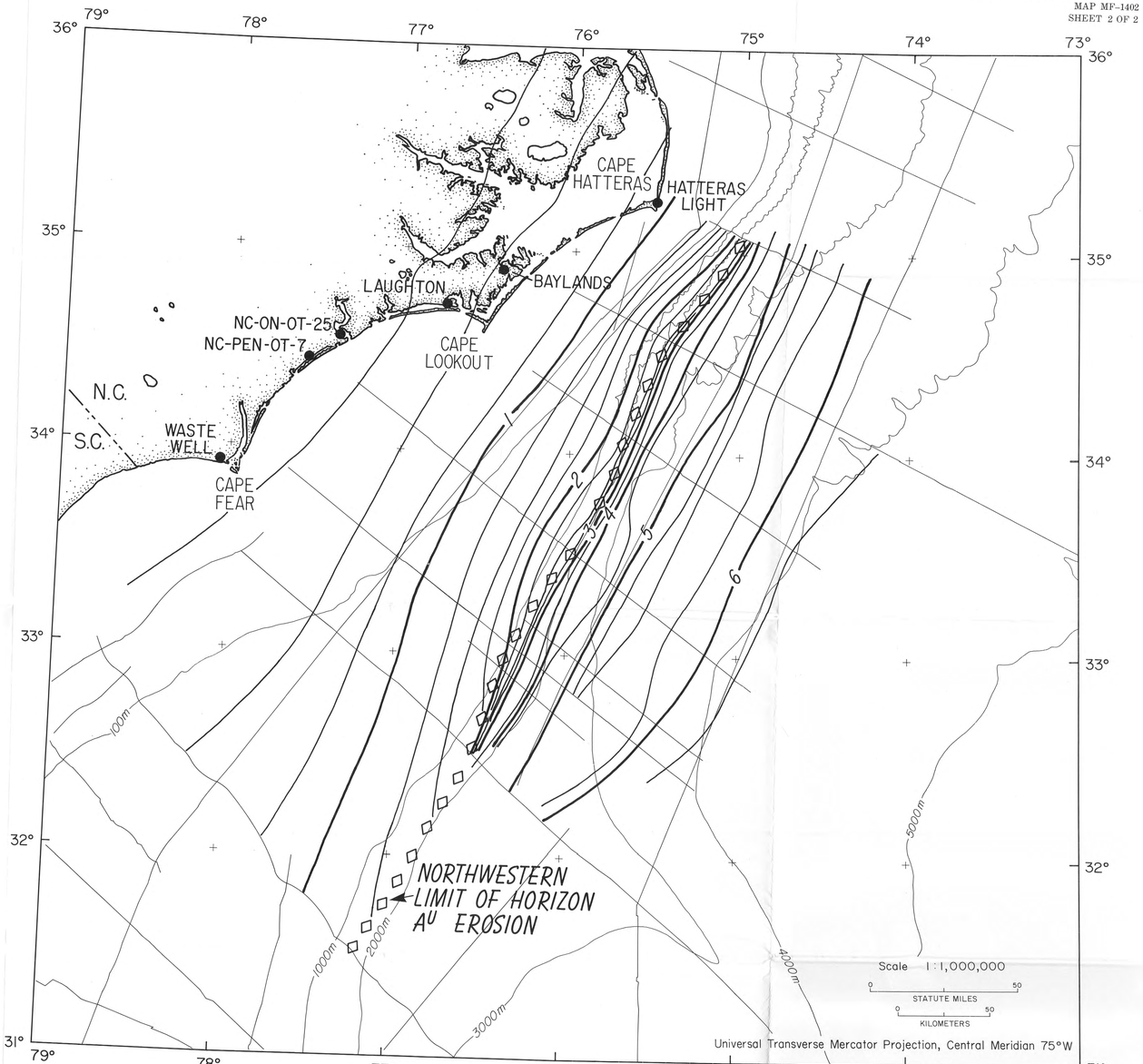
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF-1402
SHEET 2 OF 2



MAP C.—DEPTH, IN KILOMETERS, TO REFLECTOR INFERRED TO REPRESENT APTIAN ROCKS ON THE CONTINENTAL SHELF OR HORIZON β SEAWARD OF THE PALEOSHELF EDGE

The reflector contoured under the shelf appears to be a stratigraphically significant surface because it is strong and continuous. The age assigned to the surface is derived from correlations with strata from the Blake Plateau (Dillon and others, 1979a, b) that are traced northward along profile TD-1. The contours under the Coastal Plain are from a structure map (Brown and others, 1972) of surface G. Brown and others (1972) correlate surface G with the top of Aptian strata. The continuity of the strong reflection surface offshore with surface G suggests that the reflection occurs near the top of Aptian strata. The contours were drawn to represent three different surfaces; the inferred Aptian reflector under the shelf seaward to where it truncates at the paleoslope, reflector β to where it pinches out against the paleoslope, and the paleoslope itself in the intervening area. The inferred Aptian surface contoured under the shelf is traced seaward to the Lower Cretaceous shelf edge where it terminates at the buried paleoslope; seaward it merges with the deep-sea reflector β. Reflector β is generally correlated with the top of Neocomian strata in the deep sea (Tucholke and Mountain, 1979).



MAP D.—DEPTH, IN KILOMETERS, TO TOP OF INFERRED CRETACEOUS ROCKS

Depth to inferred Cretaceous rocks is contoured at two intervals. For depths less than 3 km and greater than 5 km, the contour interval is 0.25 km, and for depths between 3 and 5 km, the interval is 0.5 km. The age estimates for reflectors under the shelf are derived from tracing the contoured horizons to offshore wells through the network of seismic surveys (Dillon and others, 1979a, b; Schlee 1981; Paull and Dillon, 1980a) and by projecting the horizons to onshore wells (Brown and others, 1972). No significant discrepancies exist, indicating that our inferred top of Cretaceous age rocks is quite reasonable. The contours under the coastal plain are adapted from Brown and others (1972). The diamond-shaped pattern on the map locates the intersection of deep-sea reflecting horizon A^U with the Cretaceous shelf strata. Seaward of this line, the contoured surface is A^U. Horizon A^U is correlated with a major deep-sea unconformity, perhaps of erosional origin (Tucholke and Mountain, 1979; Paull and Dillon, 1980b). At DSDP site 391 in the Blake Basin (the closest deep-sea drill site) the horizon A^U unconformity separates Miocene from Cretaceous strata (Benson, and others, 1978). In making this figure we assume that the entire Paleogene section is also missing at the A^U unconformity under the rise off the Carolinas, which implies that the contours of horizon A^U represent the top of Cretaceous strata. If some Paleogene strata exist under the rise off the Carolinas, then the contours are as much as a few hundred meters too shallow.

CAROLINA TROUGH STRUCTURE CONTOUR MAPS

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