DESCRIPTION OF MAP UNITS

Central upland—A flat to gently rolling ridge or upland that forms the higher, central part of the Delmarva Peninsula in Virginia. Surfaces of less dissected interfluves in most of the upland area are characterized by shallow, circular to elliptical depressions known as Carolina bays. The poorly drained bay floors are rimmed by low, well-drained, sandy ridges which are evident on air photos as pale gray circles and ellipses. Relief from bay floor to ridge crest ranges from about 1 ft (0.3 m) to a maximum of 10 ft (3 m). Bay diameters range from 0.1–1.3 mi (0.1–2 km). The long axes of the elliptical bays, which are the dominant forms, trend southeast to east-southeast. The bays are thought to be relict lakes which were oriented by prevailing winds (Thom, 1970). West-southwest-trending Ames Ridge in southern Accomack County, which is inferred to be a relict marine shoreline, divides the central upland into a higher, more rolling northern part and a lower, flatter southern part. On the west side of the upland, two intermediate-level terraces of local extent (units mu and ou, see below) are separated from the main ridge by low, west-facing scarps.

- **nu** — Northern part—3.5–4.5 mi (5.6–7.2 km) wide and deeply dissected by streams; interfluve areas generally range from 38–50 ft (11.5–15 m) in altitude but locally are as high as 60 ft (18 m). Surficial deposits are medium to coarse sand, gravelly in part. The upland deposits in this area are interpreted to have formed as a barrier-island or barrier-spit complex that prograded southwestward across the mouth of an ancestral Chesapeake Bay
- **su** — Southern part—Narrower (1.5–2.5 mi [2.4–4 km] wide) than the northern part and less dissected by streams; interfluves range from 35–40 ft (10.5–12 m) in altitude. The surficial upland deposits are inferred to have formed a low barrier spit or shoal that extended south-southwesterly at an angle to the older barrier complex of the northern upland area
- **mu ou** — Small, steplike terraces—About 27–35 ft (8–10.5 m) in altitude. Terrace west of Machipongo (unit mu) may be a remnant of a back-barrier flat associated with the southern barrier spit. Northern terrace in vicinity of Oak Hall and New Church (unit ou) and the Temperanceville scarp adjacent on the east may have formed by superficial beveling and notching of the older, northern spit complex during a high stand of the sea associated with development of the southern spit

Terrace plains bordering Chesapeake Bay—Include two extensive surfaces that slope toward the present-day Chesapeake Bay. Surficial deposits are fine to medium sand, which locally has minor clay and silt as matrix material.

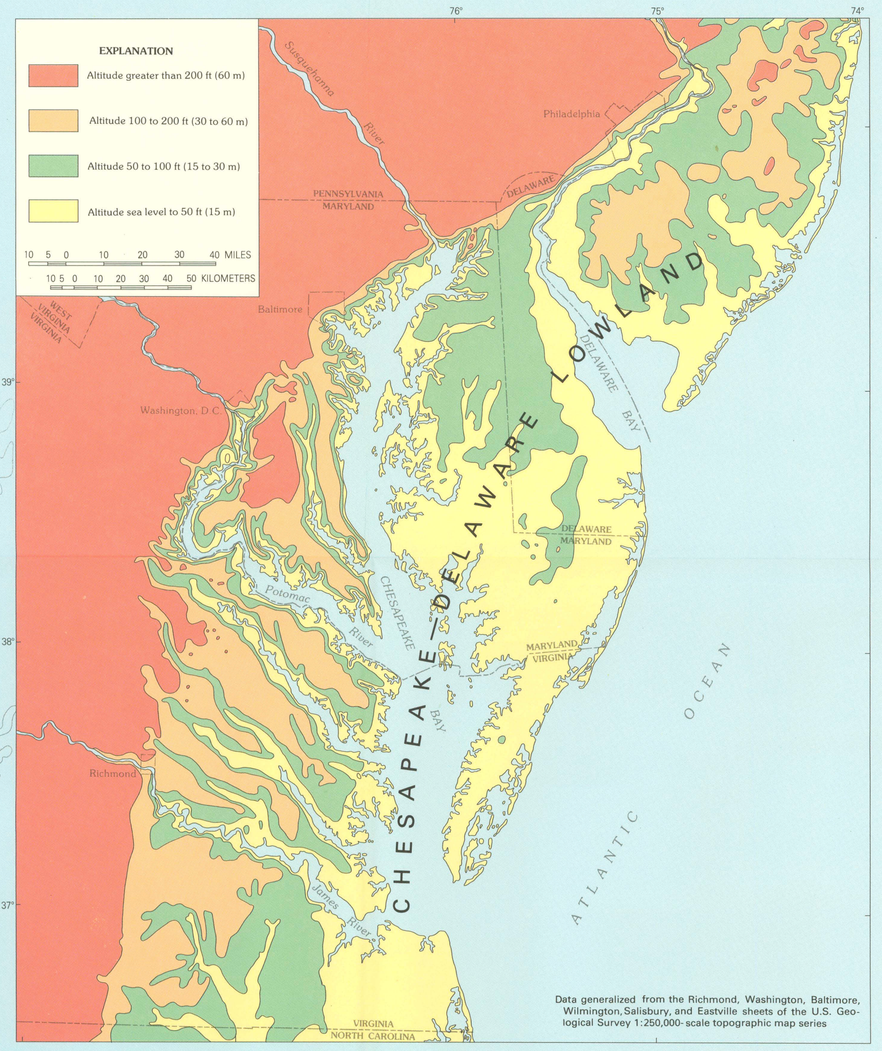
- **fp** — Franktown plain—A southwestward-sloping surface between Cheriton scarp on east and Pungoteague scarp on northwest. Altitude of less dissected interfluve areas ranges from about 30 ft (9 m) at north end of plain to less than 17 ft (5 m) south of Cape Charles City. Differs markedly from the upland surfaces in that Carolina bays are not present
- **fd** — Vegetated dunes—Dunes on Franktown plain ranging from 2–10 ft (0.6–3 m) high forming irregular, patch-like dune fields, mainly in areas southeast of Nassawadox and Hungars Creeks. Poor soil development on dunes and association of dunes with shallow estuarine creeks suggest derivation of the dune sand from the creek beds during the last glacially controlled time of lower sea level
- **cd** — Dune fields paralleling Chesapeake Bay shoreline—Sand dunes 20–50 ft (6–15 m) high forming linear and arcuate dune fields as much as 2 mi (3 km) long and 0.3 mi (0.5 km) wide; unit parallels actively eroding segments of the lower Chesapeake Bay shoreline. Locally, unit includes narrow beaches and small spits developed at the mouth of small estuaries tributary to the Chesapeake Bay. Lack of appreciable soil development and young radiocarbon ages from bark chips and logs indicate a recent origin for the dunes
- **ol** — Onancock lowland—A northwestward-sloping surface ranging in altitude from sea level at the Chesapeake Bay shoreline to about 15–23 ft (4.5–7 m) at the toes of the Pungoteague and Oak Hall scarps. North of Onancock, the lowland surface is characterized by scattered Carolina bays
- **or** — Low, linear sand ridges on Onancock lowland—Ridges 5–8 ft (1.5–2.5 m) high and as much as 8 mi (13 km) long that parallel inner edge of lowland in vicinity of Parksley and Bloxom. Interpreted to be a regressive sequence of beach ridges
- **mr** — Sand ridges in marshland bordering Onancock lowland—Crescentic to elliptical ridges standing 3–6 ft (1–2 m) above level of surrounding marsh are believed to be rims of Carolina bays that formed on the lowland surface during the late Pleistocene. Linear ridge at edge of marsh between Deep Creek and Hopkins is a relict beach ridge of uncertain age. Locally, unit includes dunes and spoil from dredging of channels
- **sf** — Sandy flats and low, arcuate sand ridges in Pocomoke River valley—Altitude of depositional surfaces ranges from sea level to about 6 ft (2 m). Ridge-and-runnel topography and relationship to abandoned river meanders suggest formation as point-bar and channel deposits of ancestral Pocomoke River

Terrace plains and lowlands bordering Atlantic Ocean

- **mp** — Metomkin plain—Ranges in altitude from 23–26 ft (7–8 m) at toe of Metomkin scarp to 16 ft (5 m) or less along crest of scarp at western edge of present-day coastal lagoon. Surface exhibits a few rounded depressions resembling small Carolina bays. South and east of Daugherty, the Metomkin surface drops off fairly abruptly to the lower terrain of the Bell Neck sand-ridge complex. Interpreted to be a remnant of a formerly extensive shelf plain
- **wp** — Wattsville plain—Small, irregular embayment incised into northern part of central upland. Highly dissected depositional surface ranges in altitude from 25–30 ft (7.5–9 m), suggesting correlation with the Metomkin and Kiptopeke plains
- **kp** — Kiptopeke plain—Narrow, coast-parallel terrace extending from Cape Charles north-northeast about 10 mi (16 km) to point of truncation by Mappsburg scarp. Surface slopes gently seaward from altitude of 25 ft (7.5 m) or slightly more at toe of Kiptopeke scarp to about 15 ft (4.5 m) along crest of scarp at east side of plain
- **bl br** — Bell Neck sand-ridge complex—Seaward-sloping coastal lowland (unit bl) ranging in altitude from 10–15 ft (3–4.5 m) at the toe of the Mappsburg scarp to sea level at the present-day coastal lagoon. Middle and outer parts of the lowland comprise a series of alternating ridges and swales interpreted to be a regressive sequence of barriers and lagoons (see section on Wachapreague Formation). The ridges (unit br) range from about 0.1 mi (0.2 km) or less to about 0.6 mi (1 km) in width and are as much as 12 mi (19 km) long. Relief between ridge crests and adjacent swales is as much as 10 ft (3 m). The swales have been flooded, in large part, by the on-going Holocene transgression and are covered by a veneer of present-day salt-marsh deposits

Coastal and estuarine barrier-lagoon complex

- **b** — Barrier islands—Comprise mainly sandy beach, dune, and back-dune flat deposits. Altitudes of barrier surfaces on the ocean side of the Delmarva Peninsula generally range from sea level to about 16 ft (5 m); rarely, however, dunes attain altitudes of 50 ft (15 m) or more. Small estuarine barriers bordering the Chesapeake Bay are much lower and narrower than the coastal barriers, rarely exceeding 6 ft (2 m) in altitude
- **m** — Salt marsh—Vegetated muddy and sandy flats; flora is dominated by the salt-marsh grasses *Spartina alterniflora*, *Spartina patens*, and *Distichlis spicata* and the glasswort *Salicornia* sp. The fauna includes the snails *Littorina* and *Ilyanassa*, the mussel *Modiolus*, the common oyster *Crassostrea*, and the fiddler crab *Uca*
- **t** — Tidal flats—Include sandy and muddy flats, as much as 7 mi (11 km) in width, which are exposed at low tide. The characteristic flora is a diatom-algal mat composed mainly of the blue-green algae *Microcoleus sociatus* and *Schizothrix calciola* and the diatom *Nitzschia sigma* (see Harrison, 1972). The fauna includes the clams *Mercenaria*, *Tagelus*, and *Crassostrea*, the scavenger snail *Nassarius*, the oyster drills *Urosalpinx* and *Eupleura*, the burrowing shrimp *Callianassa*, and several species of marine worms. The fiddler crab *Uca* is abundant in the upper tidal-flat area



Data generalized from the Richmond, Washington, Baltimore, Wilmington, Salisbury, and Eastville sheets of the U.S. Geological Survey 1:250,000-scale topographic map series

MAP SHOWING TOPOGRAPHIC RELIEF OF THE CHESAPEAKE—DELAWARE LOWLAND AND ADJACENT PARTS OF THE MIDDLE ATLANTIC COASTAL PLAIN

Base from U.S. Geological Survey, 1:250,000-scale topographic map series 1946–69

SCALE 1:125 000

5 4 3 2 1 0 5 MILES

5 4 3 2 1 0 5 10 KILOMETERS

CONTOUR INTERVAL 50 AND 100 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

INTERIOR—GEOLOGICAL SURVEY, RESTON, VA.—1985—GB3752

GENERALIZED GEOMORPHIC MAP OF THE SOUTHERN DELMARVA PENINSULA, VIRGINIA AND MARYLAND