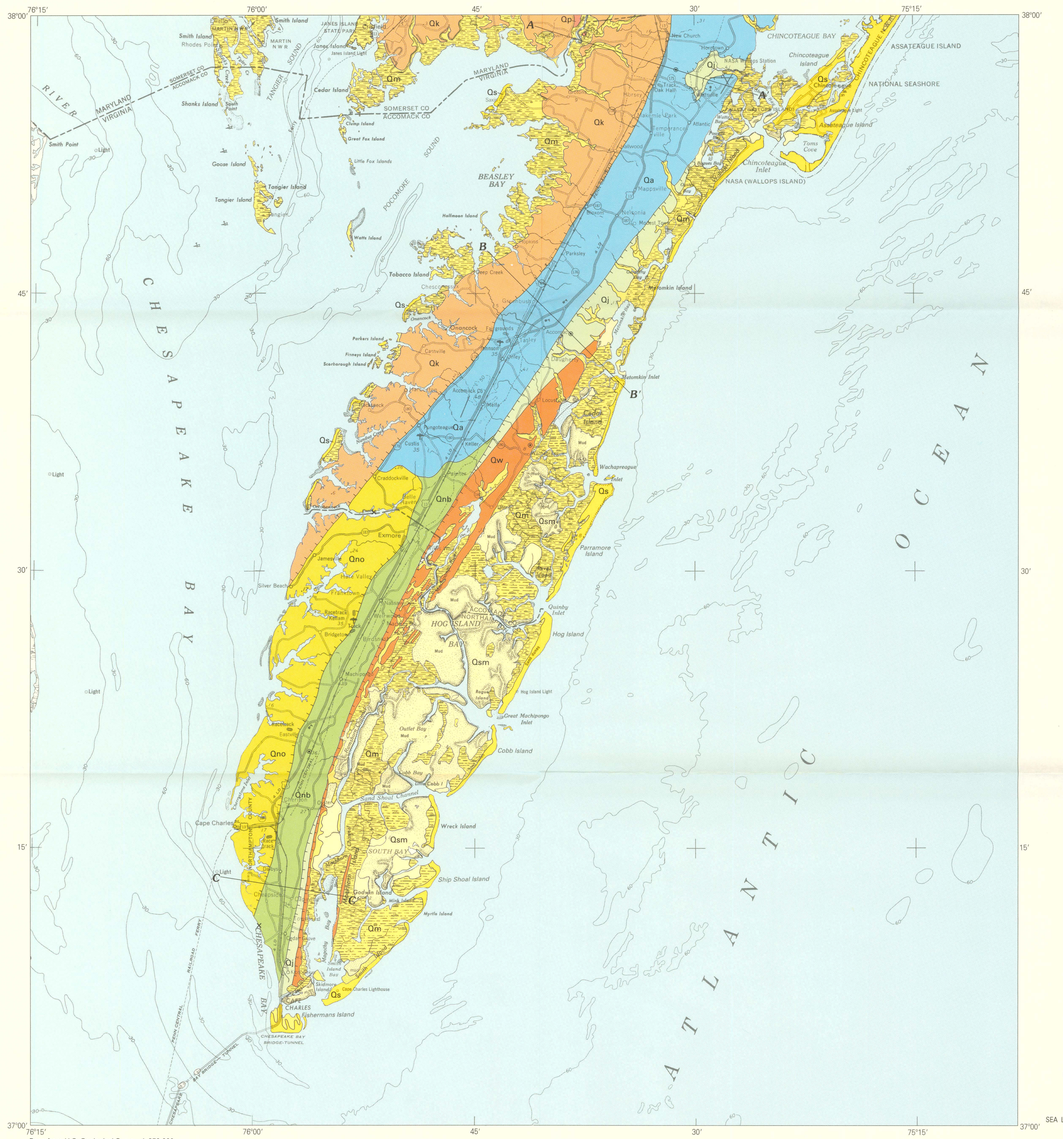


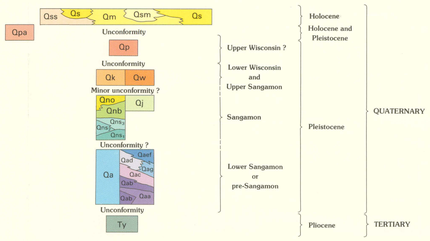
Base from U.S. Geological Survey, 1:250,000-scale topographic map series 1946–69

SCALE 1:250 000

5 0 5 10 15 MILES

5 0 5 10 15 20 KILOMETERS

CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Deposits of coastal barrier-lagoon complex and estuarine marshes (Holocene)

Qs Quartz and shell sand, fine to coarse, moderately well sorted to well-sorted, pale gray to light-yellowish-gray. Shell fraction consists of angular to rounded fragments and whole valves of mollusks. Unit comprises coastal barrier islands and beach-dune ridges bordering brackish-water marshes of Chesapeake Bay

Qm Soft mud, medium- to dark-gray, and peat, grayish-brown. Comprises sediment of coastal and estuarine marshes

Qsm Muddy fine sand and sandy mud, light- to dark-gray. Locally, unit contains abundant shell material characterized by *Crassostrea virginica* and *Mercenaria mercenaria*. Comprises sediment of shallow bays and tidal flats in area of coastal lagoon. Unit not mapped in Chesapeake Bay area

Qb Deposits of coastal barrier-lagoon complex, undifferentiated. Unit shown only in cross sections

Qss Sandy bottom deposits of Chesapeake Bay (Holocene)—Quartz sand, silty and clayey, mostly fine to very fine grained, light- to dark-gray. Comprises sediment of shallow, shelf-like Chesapeake Bay area adjacent to west of peninsula. Units shown only in cross sections B–B′, and C–C′

Fluvial and estuarine deposits of Onancock lowland

Qpa Pocomoke River alluvium, undifferentiated (Pleistocene and Holocene)—Fine to coarse gravelly sand and sandy gravel, in part clayey and silty, of Pocomoke River valley. Commonly overlain by veneer of brackish- to fresh-water marsh deposits. Unit shown only in cross section A–A′

Qp Point-bar deposits (Pleistocene)—Fine to coarse sand underlying ridge-and-swale topography of abandoned Pocomoke River meanders

Qk Kent Island Formation (Pleistocene)—North of Onancock, unit consists of coarse to very coarse, gray sand and sandy gravel grading upward into poorly to well-sorted, fine to medium sand, in part clayey and silty. South of Onancock, unit is chiefly moderately well sorted to well-sorted, fine to medium, yellowish-gray sand. Thickness ranges from 3–25 ft (1–8 m)

Marginal-marine deposits bordering eastern side of central upland (Pleistocene)

Qw Wachapreague Formation—Coarsening-upward sequence, as much as 40 ft (12 m) in thickness, which includes (1) a lower member of clayey and silty, fine to very fine, gray sand interbedded with clay-silt, and (2) an upper member of medium to coarse, gravelly sand comprising surficial deposits of Bell Neck sand-ridge complex. Mollusks, including *Mesodesma arctatum* and *Siliqua costata*, and ostracode assemblage dominated by *Elofsonella concinna* and *Muellerina canadensis* indicate cooling climatic conditions during deposition of unit. Pollen assemblage dominated by pine, spruce, birch, and alder suggests cool- to cold-temperate conditions in nearby land areas

Qj Joynes Neck Sand—Loose, fine to coarse, yellowish-gray quartz sand interbedded, in lower and middle parts of unit, with gravelly sand and sandy gravel. Crossbedding in outcrop sections is generally inconspicuous but finer sands show cross-lamination emphasized by black, heavy minerals. Thickness is 30 ft (9 m) or more

Qjw Joynes Neck Sand and Wachapreague Formation, undifferentiated. Unit shown only in cross section C–C′

Marginal - marine, estuarine, and fluvial deposits of central upland and Franktown plain (Pleistocene)

Qno Nassawadox Formation—Sand, gravel, silt, clay, and peat of southern central upland and Franktown plain

Occohannock Member—Quartz sand, fine to medium, light-yellowish-gray; dominantly massive to horizontally bedded, but shows some small-scale crossbedding. Locally, contains minor amounts of clay and silt as matrix and thin beds. Unit composes surficial deposits of Franktown plain. Thickness ranges from a featheredge near Cheriton scarp to 20 ft (6 m) or more in downdip areas

Qnb Butlers Bluff Member—Quartz sand, fine to coarse, gravelly in part; commonly strongly crossbedded. Molluscan assemblage includes *Mulinia*, *Spisula*, *Olivella*, and *Nassarius*. Thickness is as much as 60 ft (18 m). Unit directly underlies central upland in area south of Ames Ridge shoreline. In cross section C–C′, unit is subdivided into Qnb_1, consisting mainly of fine to medium sand, and Qnb_2, which is mainly medium to coarse gravelly sand and sandy gravel

Qnb_1

Stumptown Member (?)—Gravel, peat, and clay-silt preserved in paleotopographic low on erosion surface at top of Tertiary section near Cape Center, Va. Units shown only in cross section C–C′

Qns_3 Clay-silt, dark-greenish-gray, contains abundant *Crassostrea virginica*

Qns_2 Peat and brownish-gray sand

Qns_1 Coarse gravelly sand, pale-gray; pebbles are mainly quartz and chert

Qa Accomack Member of Omar Formation—Surficial sandy and gravelly deposits of central upland in area to north and west of Ames Ridge shoreline. In cross section A–A′ and B–B′, unit is subdivided into sedimentary facies representing barrier, backbarrier, and nearshore-shelf depositional environments (see text, facies A through G). Thickness is as much as 80 ft (24 m)

Qag Muddy and shelly, fine to very fine sand (facies G), light- to medium-gray, commonly interstratified with lesser amounts of clay-silt. Thickness is as much as 25 ft (8 m)

Qaef Clean, crossbedded, gravelly sand (facies E), pale-gray to light-yellowish-gray, commonly 25–40 ft (8–12 m) in thickness, and planar-bedded, well-sorted, fine to medium sand (facies F) in units as much as 10 ft (3 m) or more in thickness

Qad Bedded, fine to coarse, muddy sand (facies D), light- to medium-gray, in part pebbly and shelly. Thickness ranges from about 5–25 ft (1.5–8 m)

Qac Clay-silt and non-bedded sand (facies C), medium- to dark-gray; locally, contains abundant *Crassostrea virginica*. Unit averages 3–10 ft (1–3 m) in thickness

Qab Peat and brownish-gray, organic-rich mud and fine sand (facies B); thickness ranges from about 1–8 ft (0.3–2.5 m)

Qaa Clean, loose, medium to coarse gravelly sand and sandy gravel (facies A), pale-gray; thickness ranges from less than a foot (0.3 m) to as much as 30 ft (9 m)

Qaa-d Facies A, B, C, and D, undifferentiated. Unit shown only in cross section B–B′

Ty Yorktown Formation (middle Pliocene)—Fine to coarse, glauconitic quartz sand, greenish-gray, clayey and silty, in part shelly; some beds contain very fine to fine pebbles of quartz, chert, and phosphate. Unit includes lesser amounts of sandy gravel, silt, and clay. In northern part of map area, clay-silt beds contain abundant siderite nodules. Diverse molluscan assemblage includes *Chesapecten* sp., *Pleuromeris* sp., *Crassinella lunulata* (Conrad), *Cyclocardia granulata* (Say), *Dosinia* sp., *Carditamera arata* (Conrad), *Anadara lineosa?* (Say), *Cadulus thallus* (Conrad), *Phacoides crenulatus* (Conrad). Northwest of Pocomoke River, lower part of unit includes upper Miocene beds (Eastover Formation). Unit shown only in cross sections

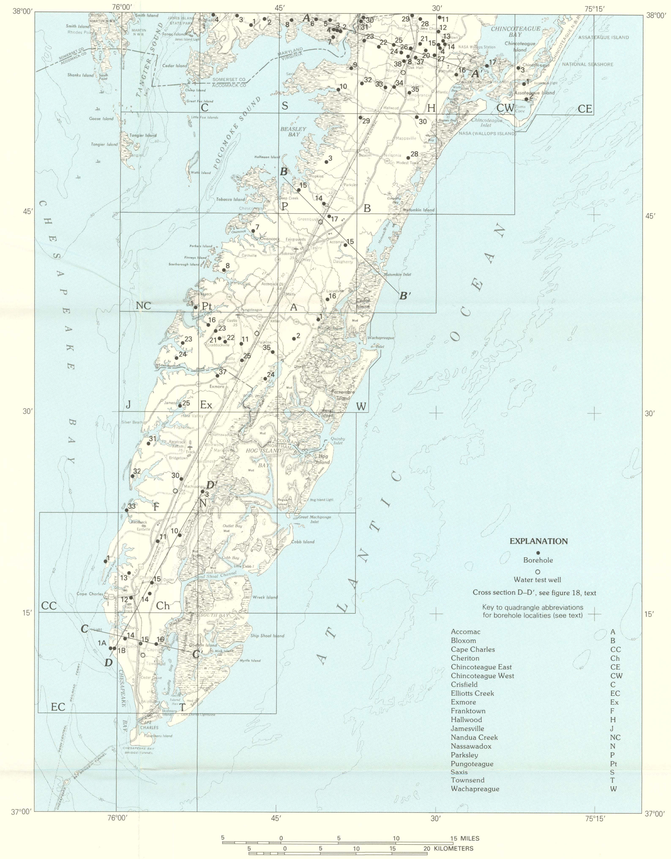
Contact

Type locality of stratigraphic unit

× Outcrop section

⊛ Borehole section

Scarp—ticks on downslope side



EXPLANATION

Borehole

Water test well

Cross section D–D′, see figure 18, text

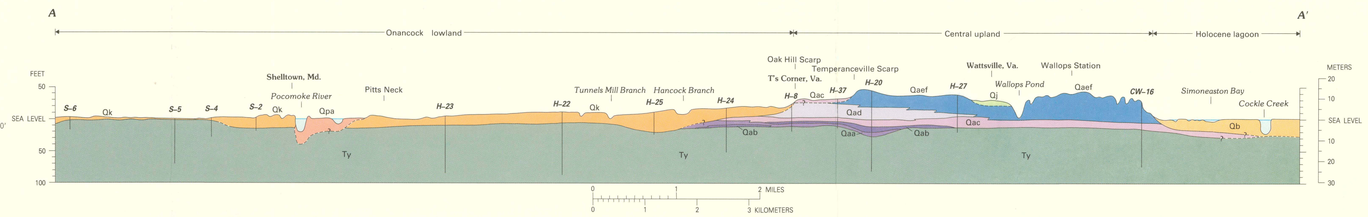
Key to quadrangle abbreviations for borehole localities (see text)

Accomac	A
Bloxom	B
Cape Charles	CC
Cheriton	Ch
Chincoteague East	CE
Chincoteague West	CW
Crisfield	C
Elliotts Creek	EC
Exmore	Ex
Franktown	F
Hallwood	H
Jamesville	J
Nandua Creek	NC
Nassawadox	N
Parksley	P
Pungoteague	Pt
Saxis	S
Townsend	T
Wachapreague	W

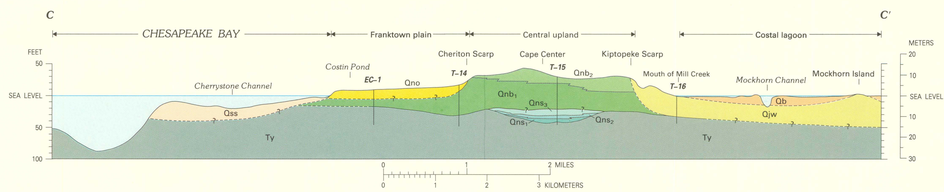
5 0 5 10 15 MILES

5 0 5 10 15 20 KILOMETERS

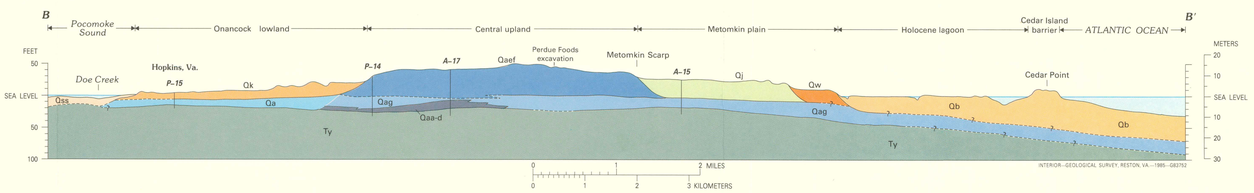
MAP SHOWING LOCATION OF U.S. GEOLOGICAL SURVEY BOREHOLES AND WATER TEST WELLS



GEOLOGIC CROSS SECTION: SHELLTOWN, MD. TO WALLOPS STATION, VA.



RECONNAISSANCE GEOLOGIC CROSS SECTION ACROSS THE DELMARVA PENINSULA NEAR CAPE CENTER, VIRGINIA



RECONNAISSANCE GEOLOGIC CROSS SECTION: HOPKINS, VA. TO CEDAR ISLAND, VA.

INTERIOR—GEOLOGICAL SURVEY, RESTON, VA.—1995—G67067

GENERALIZED GEOLOGIC MAP AND CROSS SECTIONS OF THE SOUTHERN DELMARVA PENINSULA, VIRGINIA AND MARYLAND