

DESCRIPTION AND CORRELATION OF MAP UNITS

NOTE: The distribution and lithology of the geologic map units are based, in part, on the acoustic nature of the reflection seismic data and, in part, on the vibracore data. In places, the map units may be overlain by younger sediments too thin to be resolved by the seismic profiler.

Qm

QUIET-WATER MARINE DEPOSITS

Recent marine deposits consisting mostly of silt and clay with some shells, shell fragments, and local lenses of fine to very fine sand. Shells are predominantly *Mercaenaria mercenaria* and *Crassostrea virginica* (Arthur Merrill, NMFS, oral commun., 1978). Bedding is mostly flat-lying and continuous. Offshore in deeper water, the unit thickens to 12 m. It grades onshore into coarser-grained beach and bar deposits. Deposits are thought to be largely locally derived by marine reworking of the adjacent glacial drift sediments.

Qb

MARINE BEACH AND BAR DEPOSITS

Recent marine deposits consisting of fine to very coarse sand containing minor amounts of gravel. Grades offshore to finer-grained quiet-water deposits. Sand is mostly quartz, and has abundant shells and shell fragments scattered throughout. Shells are predominantly *Mercaenaria mercenaria* and *Crassostrea virginica* (Arthur Merrill, NMFS, oral commun., 1978). Bedding is mostly flat-lying and continuous but in some places is steeply dipping, indicating foresets. Unit is locally up to 14 m thick. Sand waves are commonly associated with these deposits and, therefore, are thought to be active presently. Deposits are considered a potential source of sand and possibly gravel. Sands and gravels are thought to be mostly derived from the adjacent glacial drift sediments.

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FLUVIAL AND ESTUARINE DEPOSITS

Recent fluvial sands and gravels and fine-grained estuarine muds. Sands and gravels are medium-to-well sorted. Estuarine deposits are mostly silts and clays with abundant shells and shell fragments and occasional lenses of sand. In places, the unit contains remnant organic material from freshwater bog, pond, and salt-marsh environments. Internal stratification is predominantly flat-lying to cross-bedded; some places may be foreset bedded. Unit generally is 3-10 m thick. Top of unit is truncated by the marine planation surface formed during last sea-level rise. The unit occurs in the shallow subsurface of the inner shelf and crops out on the sea floor in many places. The fluvial deposits are considered to be potential sources of sand and gravel.

Qdo

GLACIAL DRIFT DEPOSITS

Ice-contact stratified drift, outwash plain, and proglacial lake sediments deposited by glacial meltwater streams. Deposits are derived mostly from the Buzzards Bay ice lobe and locally may include glacial drift derived from the Cape Cod Bay ice lobe. Unit is inferred to be mostly of late Wisconsinan Age, but in places it may include pre-upper Wisconsinan drift. Deposits consist predominantly of moderately-to-well sorted outwash sands and gravels and glacio-lacustrine silts and clays. Locally, unit is thought to include ice-contact fluvial and deltaic deposits and subglacial tills. Outwash sands and gravels are largely flat-lying, but probably are cross-bedded locally. Glacial lake deposits are well stratified, thin bedded to laminated. Unit thickness is highly variable, in places up to 150 m. Locally the deposits may be folded and faulted. The upper surface of the unit represents an unconformity that formed during the low stand of sea level in post-late glacial time. Most of the gravels encountered in the vibracores are associated with the unit. Glacial lake sediments recovered in the cores were unfossiliferous (Jack McLane, USGS, oral commun., 1977).

Qdm

BUZZARDS BAY MORaine DEPOSITS

Inferred to represent glacial outwash deposits that were glaciotectionally folded and thrust-faulted by overriding ice during a readvance of the Buzzards Bay ice lobe. Unit is thought to be of late Wisconsinan (Woodfordian) Age and to correlate with the Buzzards Bay end-moraine deposits that form the Elizabeth Islands. Although internal structure and lithology of unit are unknown, unit is inferred to consist of ice-thrust blocks of proglacial drift which are locally capped by basal till. Drift is believed to consist of deltaic sands and glacio-lacustrine silts and clays. Thickness of unit is variable, locally up to 70 m. Unit crops out on the sea floor as ridges or ledges that trend southwestward toward Block Island Sound. These ridges are blanketed by sand, gravel, and boulders. Atop some of the ridges sand waves and current ripples are common.

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COASTAL PLAIN DEPOSITS

Coastal plain and continental shelf sedimentary rocks inferred to be mostly of Late Cretaceous age and to consist of unconsolidated to semi-consolidated sands, gravels, silts, and clays. Deposits occur offshore beneath a deeply-eroded cuesta and thicken seaward. Internal bedding is mostly continuous, flat-lying to gently seaward-dipping. Locally the strata are folded and faulted. Top of unit is an unconformity, having local relief of up to 130 m, that is inferred to have formed during the late Tertiary or early Pleistocene. Locally, unit may include continental shelf strata of Tertiary and early Pleistocene age.

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PzZ

BEDROCK

Inferred to represent igneous, metamorphic, and consolidated sedimentary rocks of Proterozoic Z to early Paleozoic age.

EXPLANATION

CONTACT
(dashed where gradational)

A ——— A'
B ——— B'

INTERPRETIVE GEOLOGIC SECTIONS
(see fig. 11)

Base from Coast and Geodetic Survey Chart 0808N-51
Mercator projection

SCALE 1:125,000

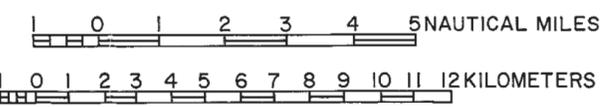


FIGURE 10 MAP SHOWING SURFICIAL GEOLOGY

