



FIGURE 12 MAP SHOWING POTENTIAL GEOLOGIC HAZARDS

EXPLANATION

This map is intended to serve as a guide to future engineering and environmental impact studies relating to offshore mining of sand and gravel deposits, offshore disposal of solid waste and harbor dredge-spoil materials, and possible oil and gas pipeline construction beneath the seabed.

Inferences regarding potential geologic hazards are based on the morphology of the sea floor, on the lithology and internal structure of the shallow (upper 10m) subbottom sediments, and on the geology and geological development of the region deduced from the seismic-reflection, side-scan sonar, and vibrocore data. More detailed information on the nature, distribution and thickness of the unconsolidated sediments and the structural configuration of the major seismic horizons that occur on this part of the shelf can be found in figures 4 through 9.

hb Irregular sea floor with hummocky relief. Surficial sediments are mostly sand and gravel and, locally, till. Bedrock is exposed or thinly covered off Sakonnet Point, R. I. (figs. 4 and 10). These areas, thought to be presently undergoing erosion by wave action and bottom currents especially during major coastal storms, are considered unsuitable as containment sites for disposal of solid waste and dredge-spoil materials.

sb Smooth sea floor of little or no relief. Predominantly sand in shallower water and silt and clay in deeper water. These areas are thought to be undergoing mostly deposition. Areas in deeper water (southern part of eastern Rhode Island Sound) are most likely suitable as containment sites for disposal of solid waste and dredge-spoil materials.

gc Acoustically turbid, gas-charged sediments. Deposits are highly organic muds saturated with gases probably of biogenic origin. These areas may not be suitable for emplacement of any type of sea-floor structures because of the presence of interstitial gas and resultant sediment instability.



Presence of boulders on the sea floor. Boulders could hamper dredging of sand and gravel resources and may preclude emplacement of any sea-floor structures or buried pipelines.



Extent of major buried channel deposits. Deposits occur in the shallow subsurface of the shelf and consist of sand, gravel, and fine-grained mud. In some places, thick deposits of fresh and salt marsh peats may occur. Texture is highly variable. The fine-grained sediments and peats may be poorly compacted, and some settling could occur under the weight of any sea-floor structure.



Areas of intense bottom sediment movement as shown by the presence of large sand waves and megaripples. Bedforms are thought presently to be actively migrating in response to strong tidal-driven bottom currents. These areas are considered unsuitable as containment sites for disposal of solid waste and fine-grained dredge-spoil materials, but may be acceptable for clean sand spoil. Also, these areas are thought to be unacceptable for emplacement of buried pipelines. Bedform migration over a period of time could result in exposure of sections of pipe on the sea floor.



Location of observed asymmetrical sand waves, showing apparent direction of net bottom current flow.



Location of observed symmetrical sand waves (oscillatory bottom currents).