

Figure 1.—Map showing location of the study area (diagonal-stripe-filled polygon). Also shown are the locations of subbottom seismic profiles A and B, presented in Figure 4, and major outflow channels (Luis and Stone, 1991). Open polygons indicate the sites of other surveys that are part of this series: Norwalk—Tasch and others (1997); Milford—Tasch and others (1998); New Haven Harbor and New Haven During Ground-Poise and others (1998); Falkner Island—Pope and others (1997a); Hammonasset—Pope and others (1997a); Shanic Bay—Pope and others (1998); New London—Pope and others (1995); Middle and others (1994); and Tappan and others (1995).



Figure 3.—Regional bathymetric perspective, looking southwest, of southeastern Long Island Sound created from digital National Ocean Service data (National Oceanic and Atmospheric Administration, 1996). Vertical dimension is greatly exaggerated for emphasis. Figure shows the topographic character of the Jacobs Point, Roanoke Point, and Herod Point Shoals, areas of erosion at the base of the shoals, sediment accumulations between the shoals, and the elongate sand depression that extends the length of the sound.

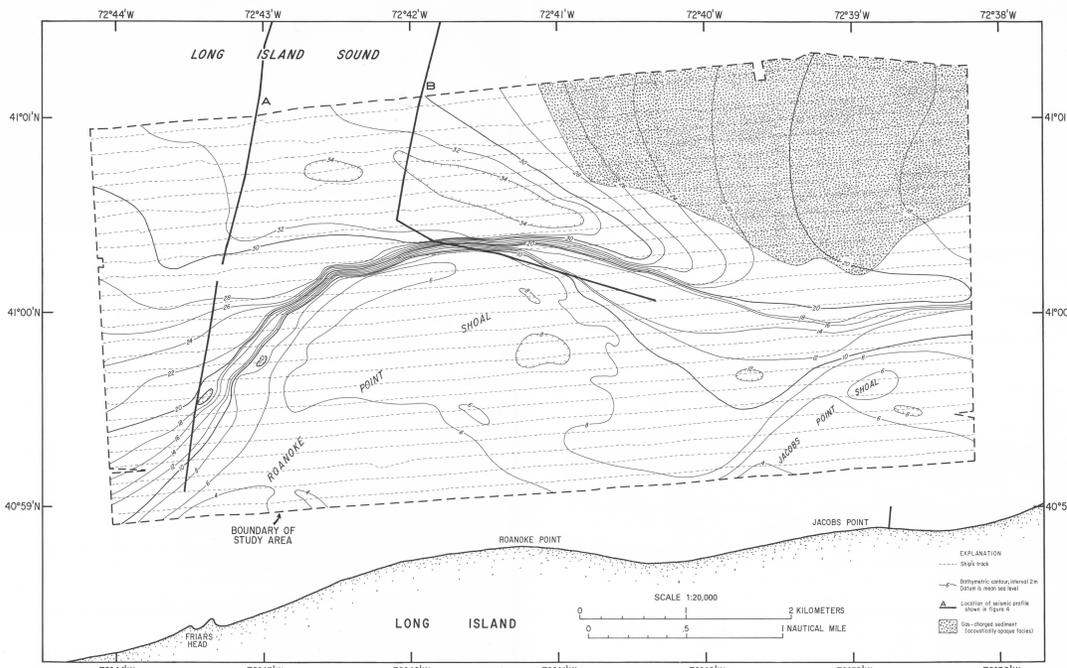


Figure 2.—Bathymetric map of the study area. Depths are in meters, have been corrected for tides, and are adjusted to mean sea level. Fine dashed lines represent tracks along which the geophysical data were collected. The distribution of six coarse sidescan acoustic facies interpreted to be ge-charged sediment and the locations of profiles A and B, shown in figure 4, are indicated.

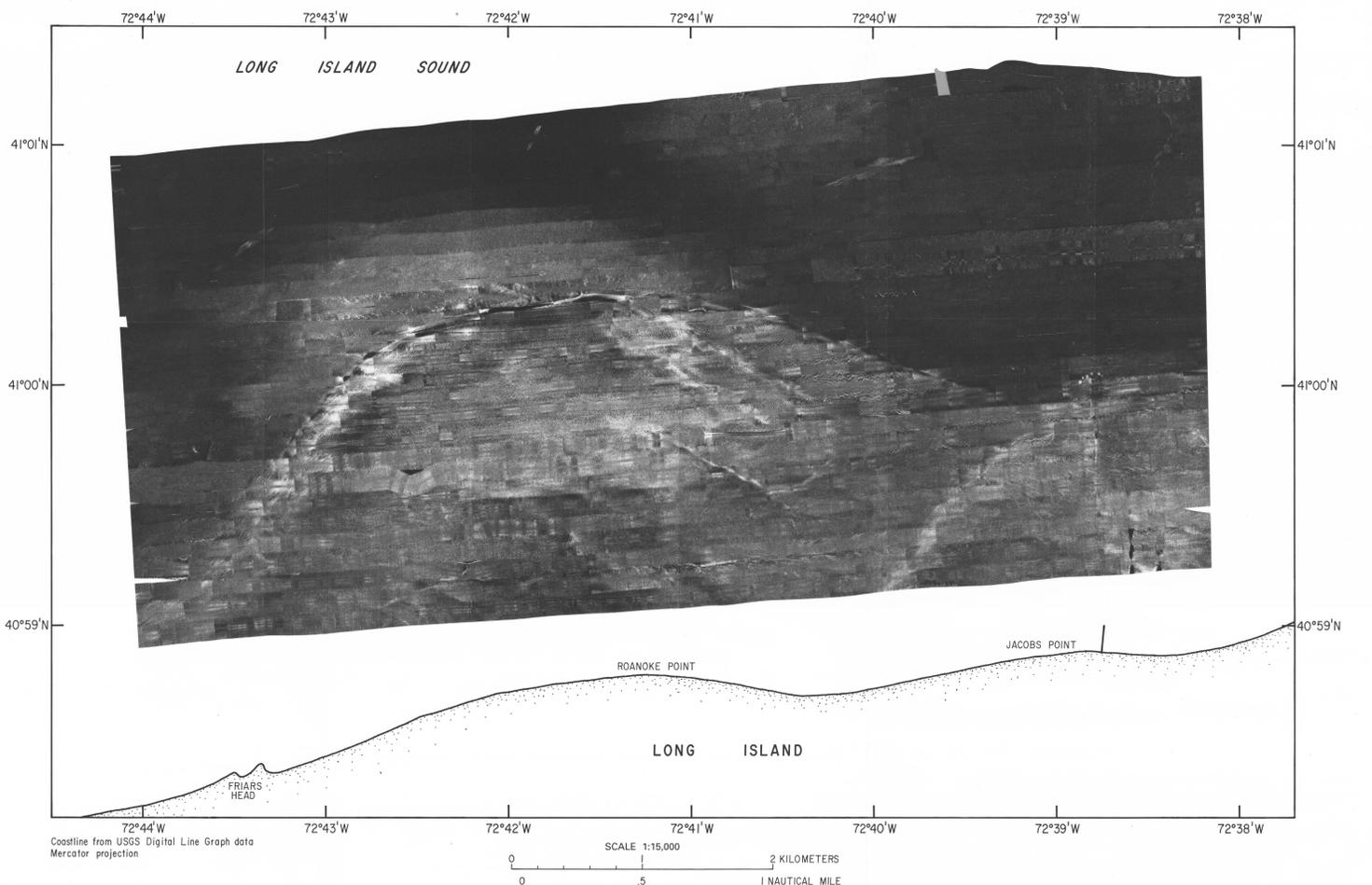


Figure 5.—Sidescan sonar mosaic of the sea floor in the study area off Roanoke Point. Light tones on the image represent areas of high backscatter (typically coarser grained sediments); dark tones represent areas of low backscatter (typically finer grained sediments).

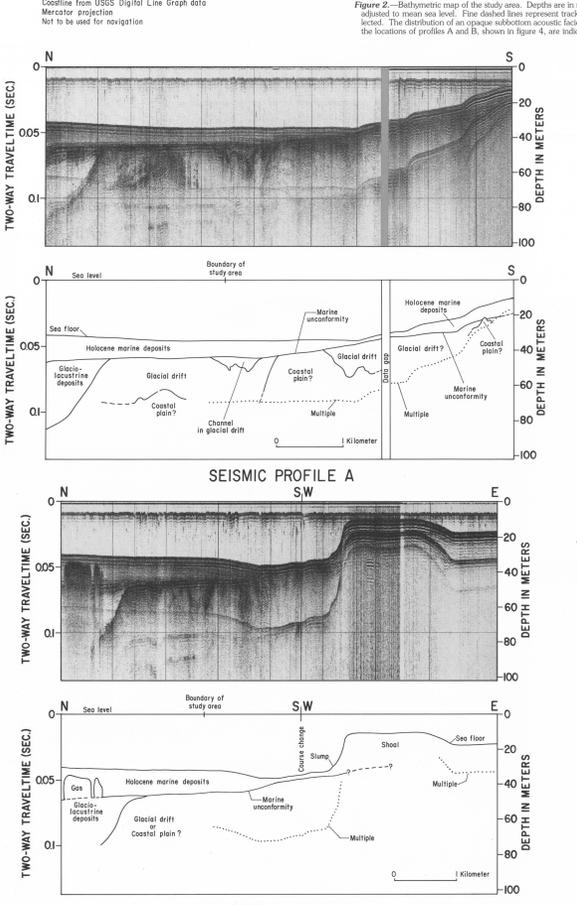


Figure 4.—Subbottom profiles (Peebles and others, 1987) showing the stratigraphy and different echofacies types. Contacts are dashed where inferred, dotted lines indicate multiple returns. Scale bars are approximate because the ship's speed varied. (A) Unbroken profile and interpretation showing truncation of the coastal plain, glacial drift, and glaciolacustrine strata by the marine unconformity. Profile also shows the strong of the Holocene marine strata around the base of the shoal and the upper surface of the glacial drift (ring shown). (B) Unbroken profile and interpretation showing the marine unconformity truncating the coastal plain, glaciolacustrine sediments, and a slump deposit at the base of the shoal. Profile locations are indicated in figures 1 and 2.

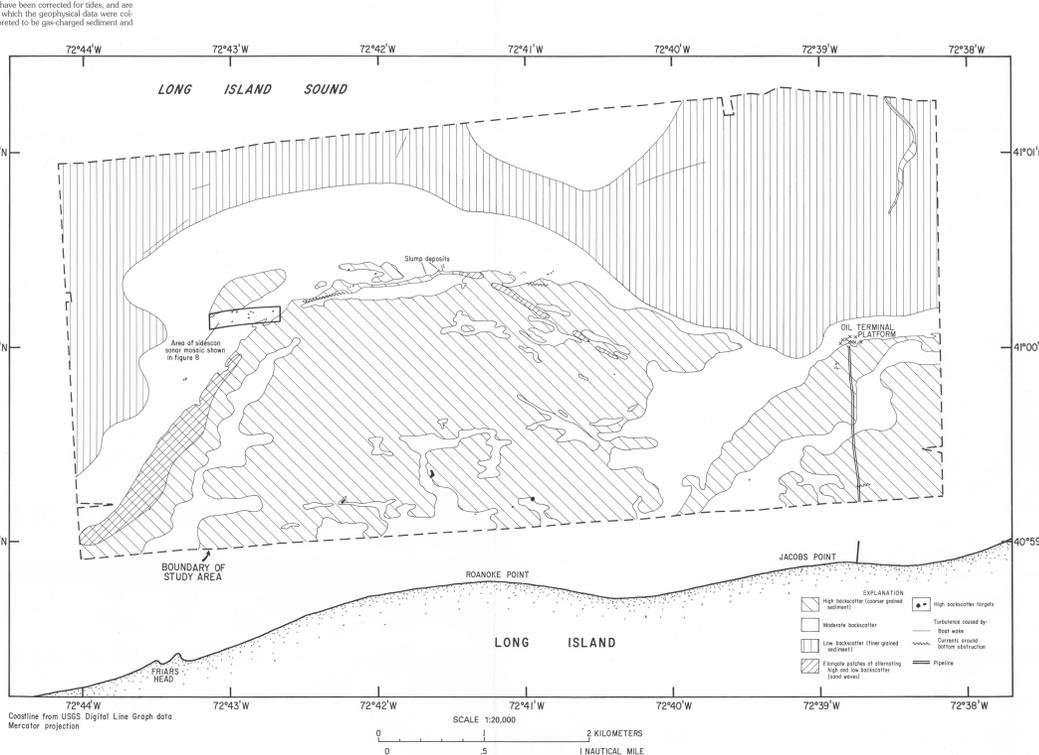


Figure 6.—Interpretation of the sidescan sonar mosaic. The different patterns are defined in the explanation and discussed in the text. The location of the section of sidescan sonar record shown in figure 8 is indicated.

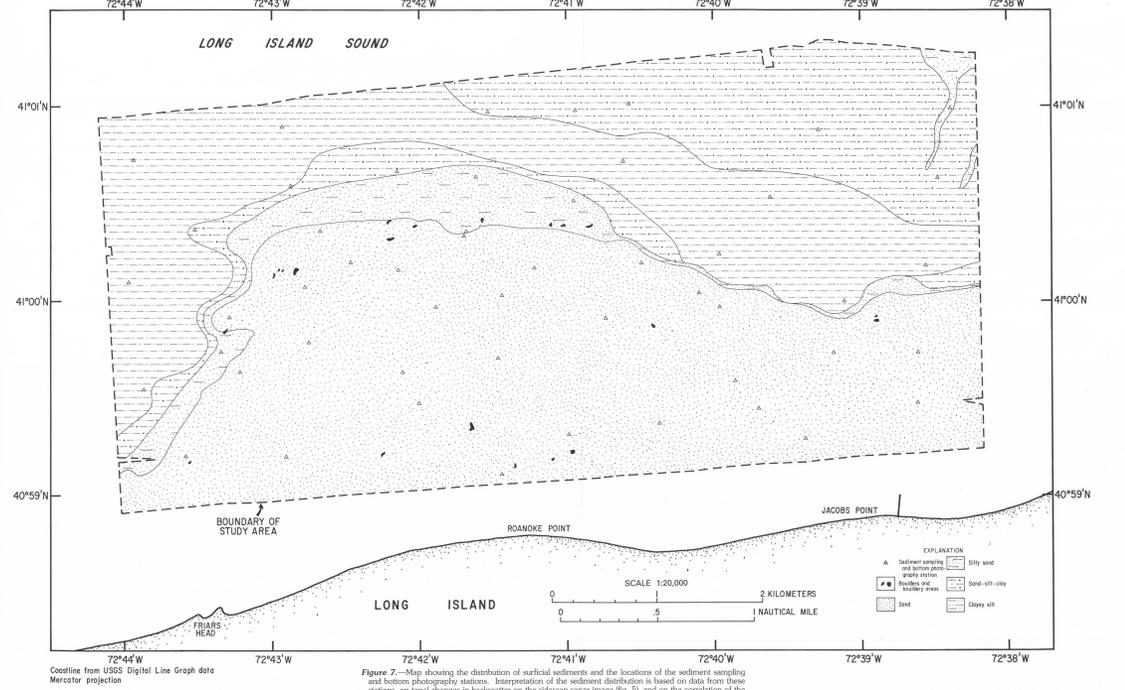


Figure 7.—Map showing the distribution of surficial sediments and the locations of the sediment sampling and bottom photography stations. Interpretation of the sediment distribution is based on data from these stations, on tonal changes in backscatter on the sidescan sonar image (fig. 5), and on the correlation of the textural and backscatter data with the bathymetry (figs. 2 and 3).

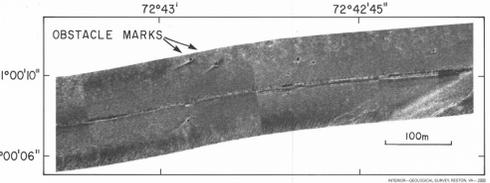


Figure 8.—Section of a sidescan sonar record from northwest of Roanoke Point Shoal. The features labelled 'obstacle marks' appearing as high-backscatter streaks are linear accumulations of sediment on the east and west sides of boulders. They attest the strong oscillatory nature of the tidal currents. Net transport direction is toward the side with the larger accumulation. Location of section is shown in figure 6.

SIDESCAN SONAR IMAGE, SURFICIAL GEOLOGIC INTERPRETATION, AND BATHYMETRY OF THE LONG ISLAND SOUND SEA FLOOR OFF ROANOKE POINT, NEW YORK

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