high (greater than 5,000/m²). Moreover, relatively few areas were found on the Continental Shelf where the density was low (less than 200/m²). Conversely, in the southern region, off Delaware-Virginia-North Carolina, there are few areas where benthic animals were found in very high density and limited expanses of high density. Moderate to low density areas were not uncommon. The middle region (New York-New Jersey region), located between the relatively high density northern area and the somewhat depauperate southern sector, was more or less intermediate in density. This north to south trend of decreasing density on the Continental Shelf is shown in figure 7, where the density of all taxonomic groups combined is plotted. There were no detectable north-south differences in density of the fauna in deepwater (Continental Slope and Rise) areas.

Biomass distribution (fig. 8) of the total macrobenthic fauna revealed patterns similar to those of density. Both inshore-offshore and north-south trends are clearly shown. In the Middle Atlantic Bight region, most large biomasses (greater than 500 g/m²) were found along the Inner Continental Shelf. In addition to their presence inshore, moderately large biomasses (100 to 500 g/m²) were characteristic of central and offshore parts of the shelf. Small and moderately small (less than 100 g/m²) biomasses prevailed in the deepwater areas beyond the shelf break.

The north-south differences in biomass were very pronounced. On the inshore Continental Shelf off southern Massachusetts and Rhode Island, extensive areas of large biomasses were found. Throughout much of the shelf region there were substantial expanses of moderately large biomasses. Small quantities (less than 25 g/m²) were limited to a relatively few tracts of small or moderate size. This general pattern contrasts sharply with that found off the Delaware-Virginia-North Carolina region. Large and moderately large biomasses were much less common and were more restricted in areal extent. Also, small biomasses (less than 25 g/m²) prevailed in rather extensive areas. No important north-south differences in either biomass or density were found in offshore deepwaters—Continental Slope and Rise.

MAJOR TAXONOMIC COMPONENTS

Porifera (figs. 9 and 10) were found in small areas widely scattered throughout the region. A large proportion were on the outer shelf, slope, and rise. Densities were predominantly between 1/m² and 24/m². At four inshore and midshelf localities, density ranged from 25/m² to 75/m². Biomass was generally small, less than 0.5 g/m², but localities ranged from 0.5 and 11.5 g/m² in nine localities.

Coelenterata (figs. 11 and 12) were distributed broadly throughout the region. They were particularly widespread on the Continental Shelf and Slope. Densities over most of their range were low, less than 25/m². Moderate densities (25/m² to 999/m²) were found in only a few small areas, and high densities (greater than 1,000/m²) were rare. Biomasses of coelenterates revealed a distribution pattern similar to that of density (except for the moderate quantities (5 to 99 g/m²) in rather extensive areas off southern New England), and throughout most of their range were less than 5 g/m².

Hydrozoa (figs. 13 and 14) have a rather wide distribution in the Middle Atlantic Bight region. Except for part of southern New England, they were present in a broad band on the Continental Shelf extending from Cape Cod to Cape Hatteras. They were present in some of the northern bays, but were not found in central or southern bays. They were found in a few places on the Continental Slope. Densities over most of their range averaged between 1/m² and 49/m². They were present in moderate to high densities (50/m² to 1,071/m²) in a few relatively small areas. Biomass was small (less than 0.5 g/m²) over most of their range, but moderate to large quantities (0.5 to 47 g/m²) were present in in small areas, especially inshore and in the Cape Cod region and Chesapeake Bight.

Alcyonaria [Alcyonacea] (figs. 15 and 16) were distributed in a narrow band in offshore waters along the Outer Continental Shelf, Slope, and part of the Continental Rise. The band extended from the Cape Cod region southward to within 100 km of Cape Hatteras. Densities at all localities were low (less than 26/m²) and were very low (less than 9/m²) over much of their range. Biomass was small to moderate (0.01 to 5 g/m²) over most of their range, but in two small areas south of Cape Cod, it was between 5 and 9 g/m².

Zoantharia (figs. 17 and 18) were widely distributed in a somewhat scattered pattern throughout the region. Their largest area of occurrence was in offshore Southern New England. Although they were taken in the bays, on the Continental Shelf, Slope, and Rise, they were most common on the Outer Continental Shelf. Throughout most of their range their densities were less than 25/m². For a rather large area on the outer shelf of Southern

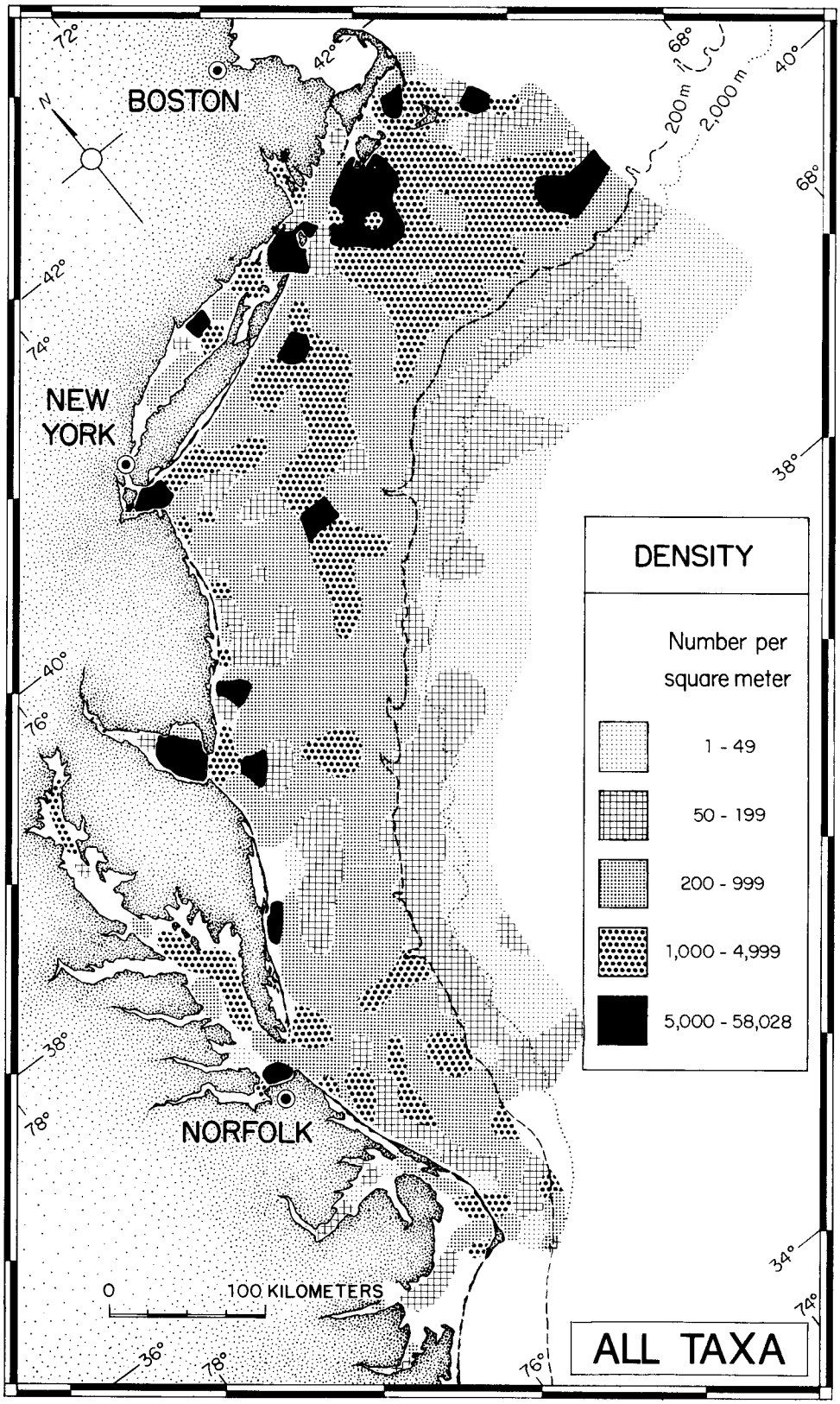

FIGURE 7.—Geographic distribution of the density of all taxonomic groups combined for the Middle Atlantic Bight region. Density is expressed as number of individuals per square meter of bottom area.

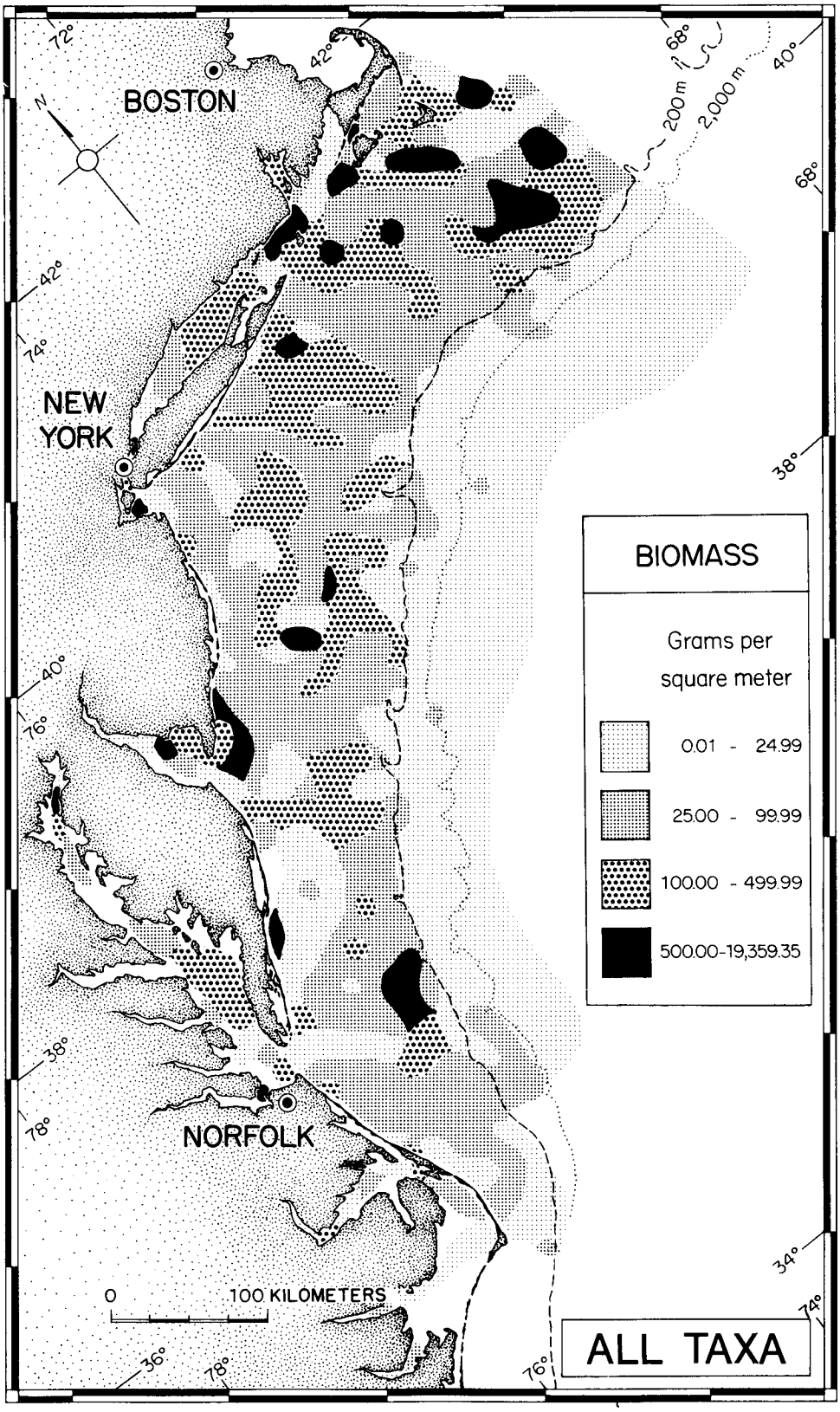

FIGURE 8.—Geographic distribution of the biomass of all taxonomic groups combined and expressed as damp weight per square meter of bottom area.

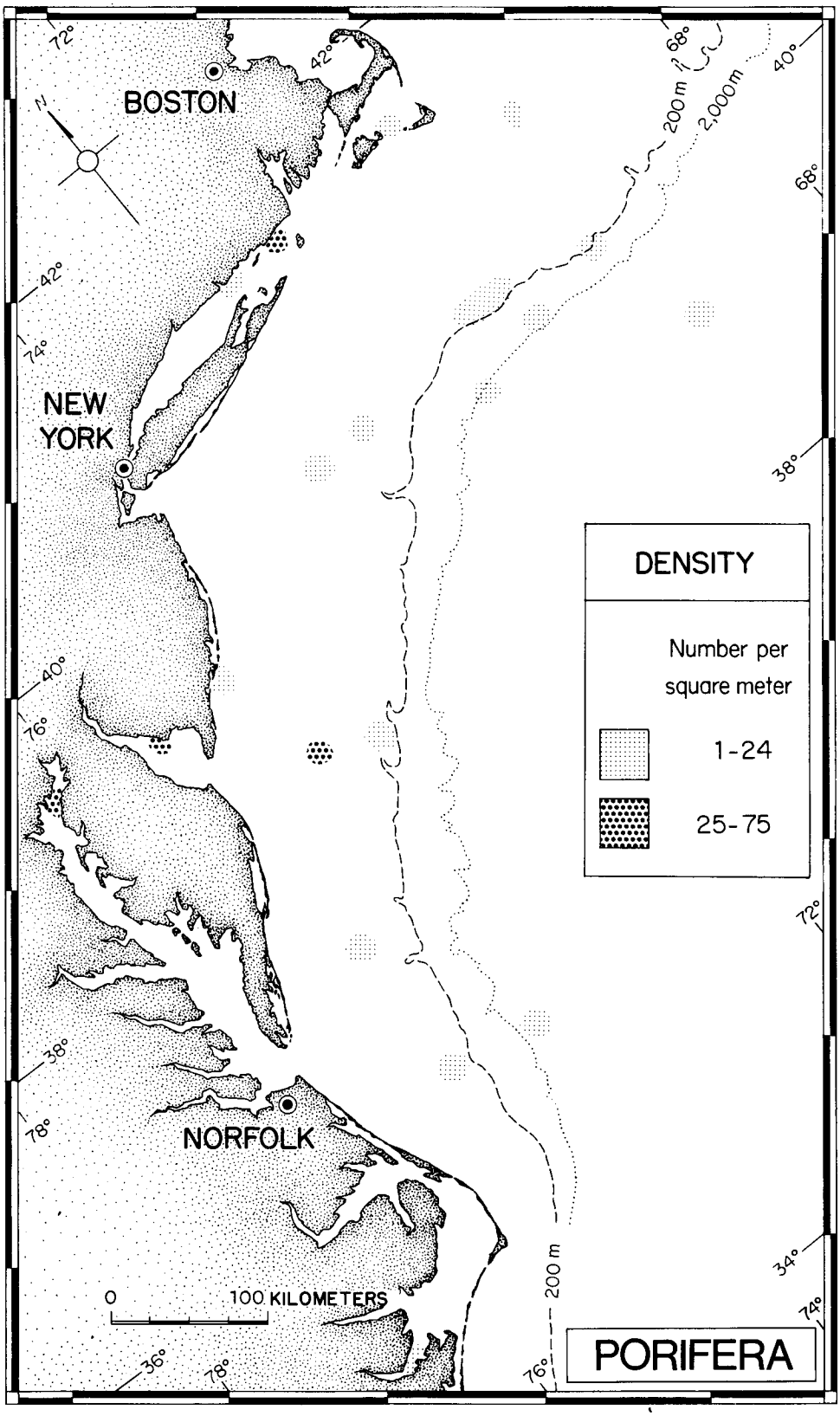

FIGURE 9.—Geographic distribution of the density of Porifera, expressed as number of individuals per square meter of bottom area.

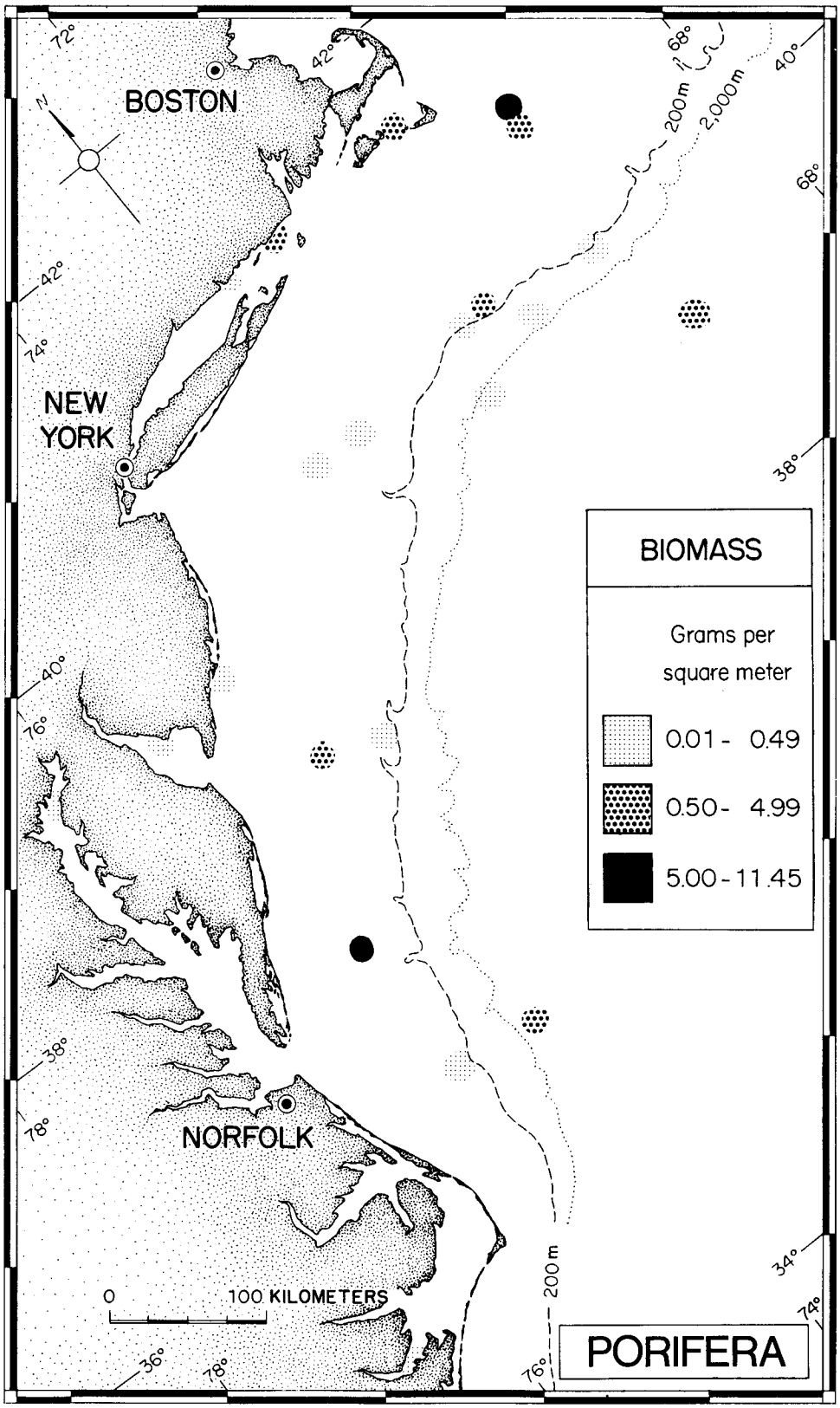

FIGURE 10.—Geographic distribution of the biomass of Porifera, expressed as damp weight per square meter of bottom area.

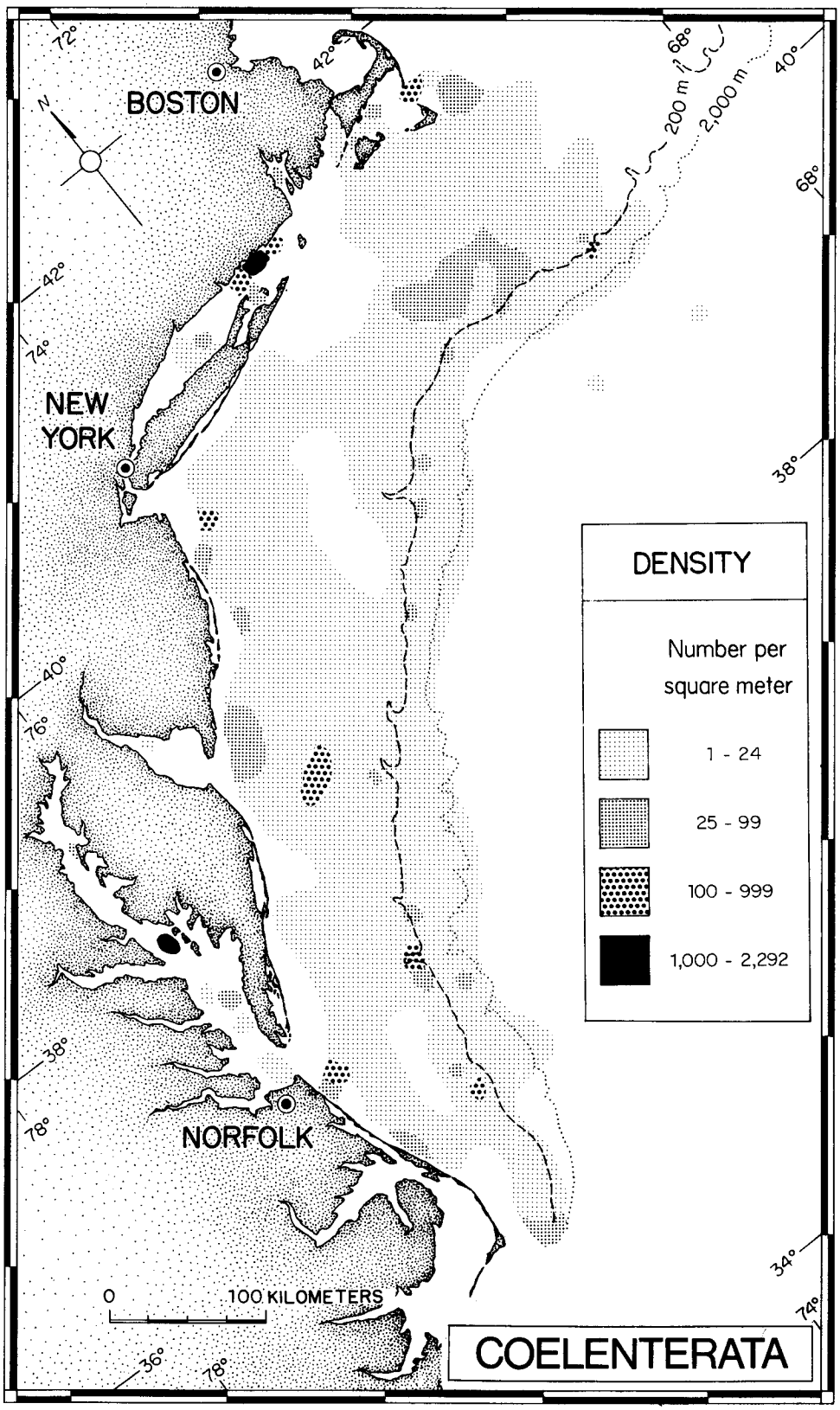

FIGURE 11.—Geographic distribution of the density of Coelenterata, expressed as number of individuals per square meter of bottom area.

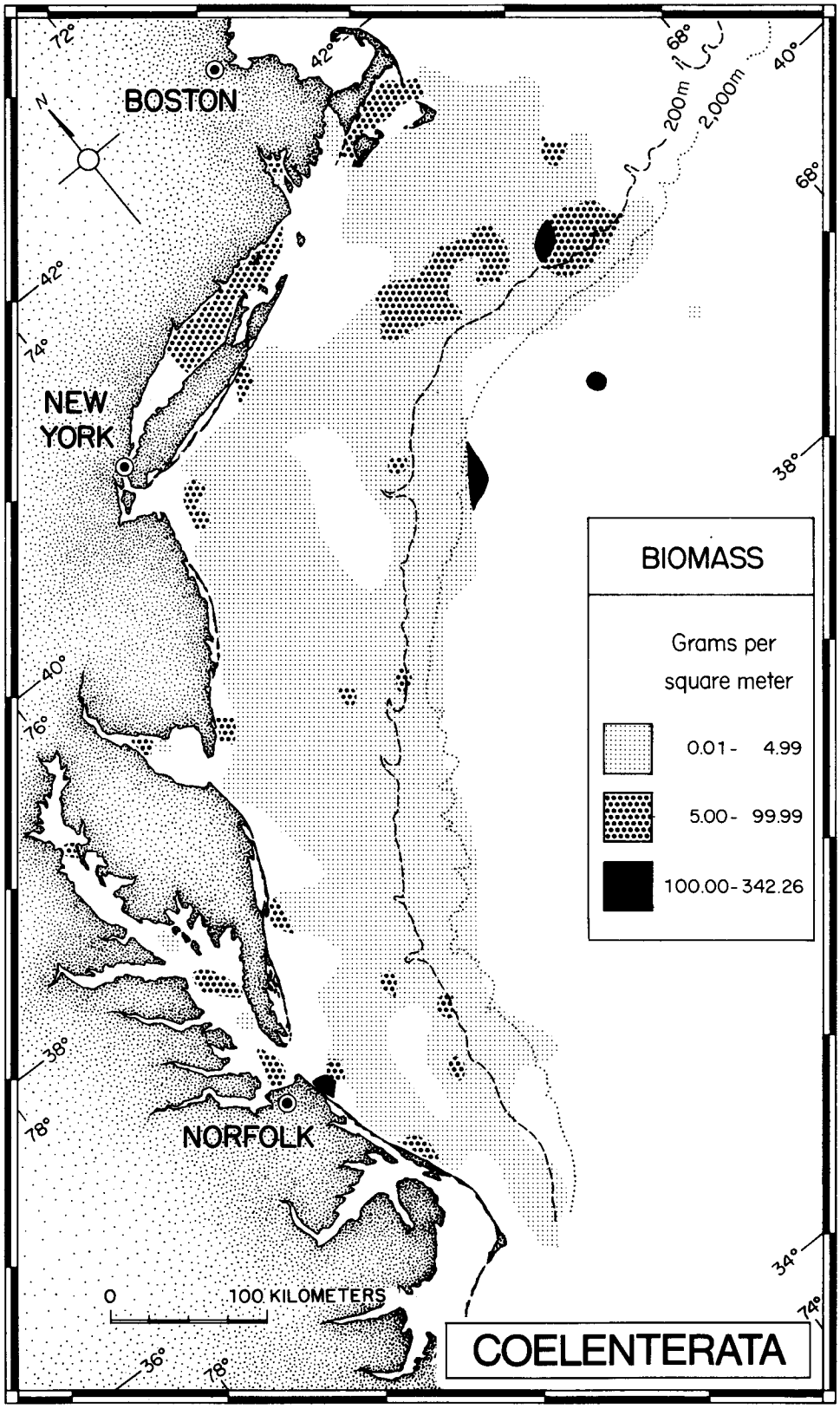

FIGURE 12.—Geographic distribution of the biomass of Coelenterata, expressed as damp weight per square meter of bottom area.

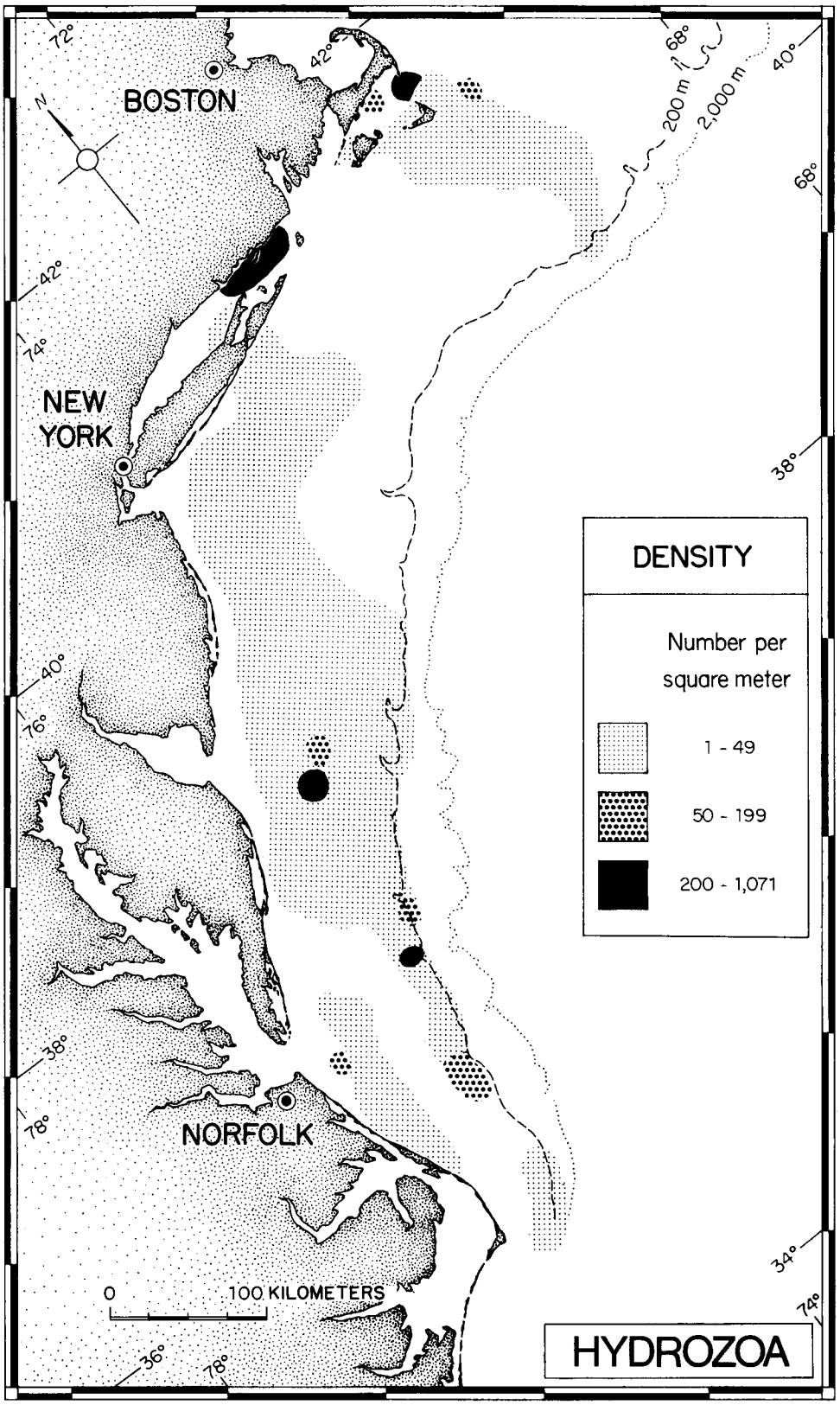

FIGURE 13.—Geographic distribution of the density of Hydrozoa, expressed as number of individuals per square meter of bottom area.

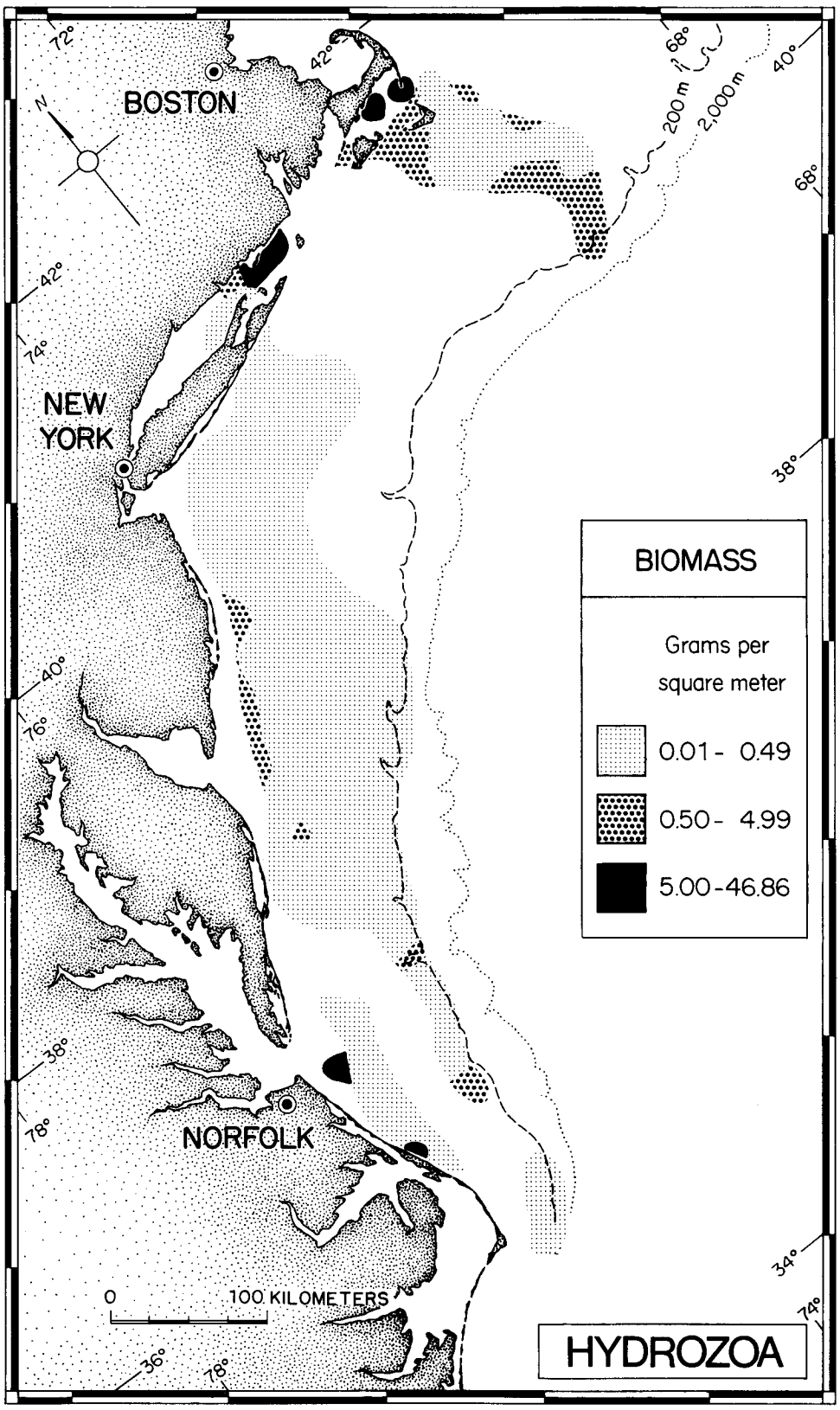

FIGURE 14.—Geographic distribution of the biomass of Hydrozoa, expressed as damp weight per square meter of bottom area.

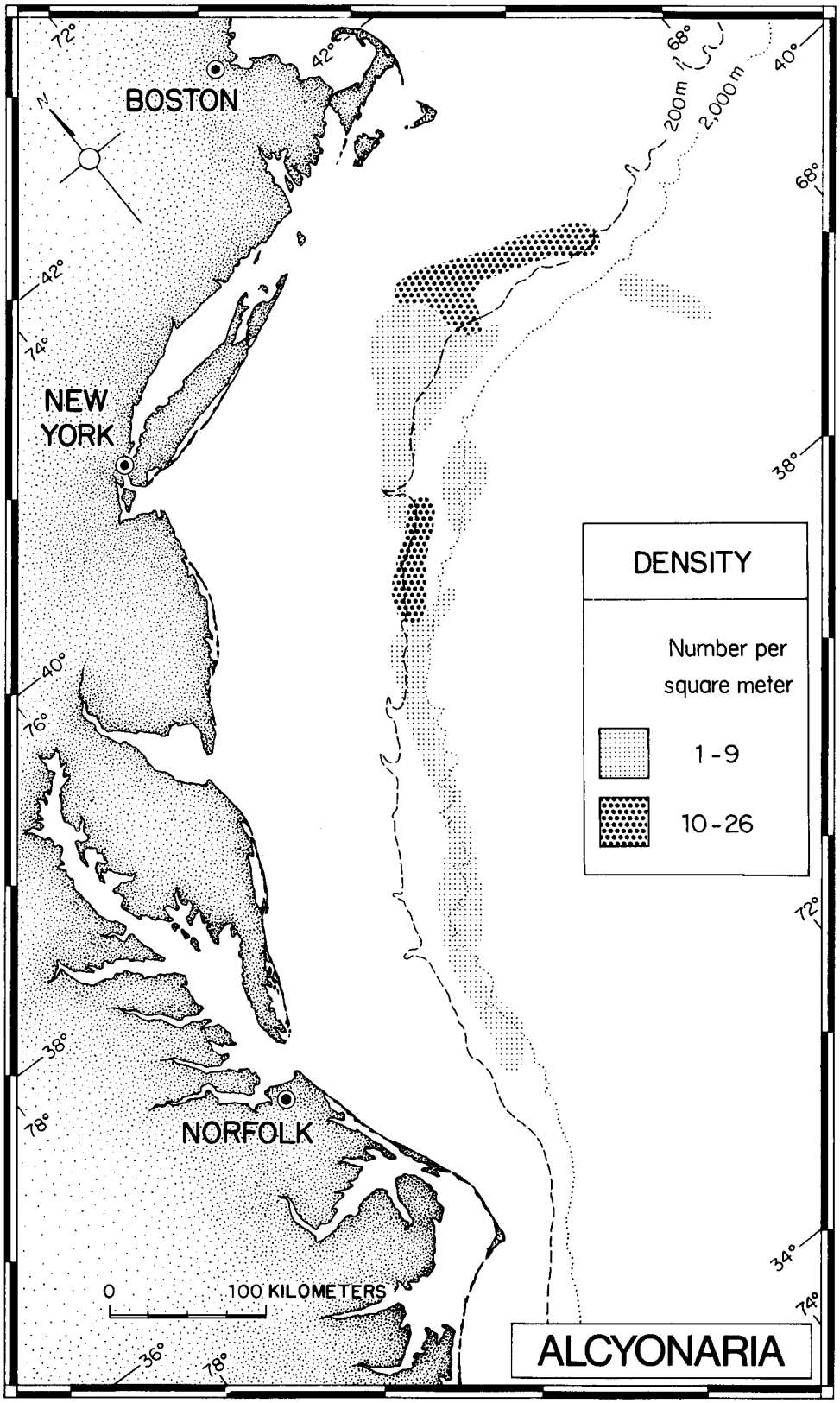

FIGURE 15.—Geographic distribution of the density of Alcyonaria, expressed as number of individuals per square meter of bottom area.

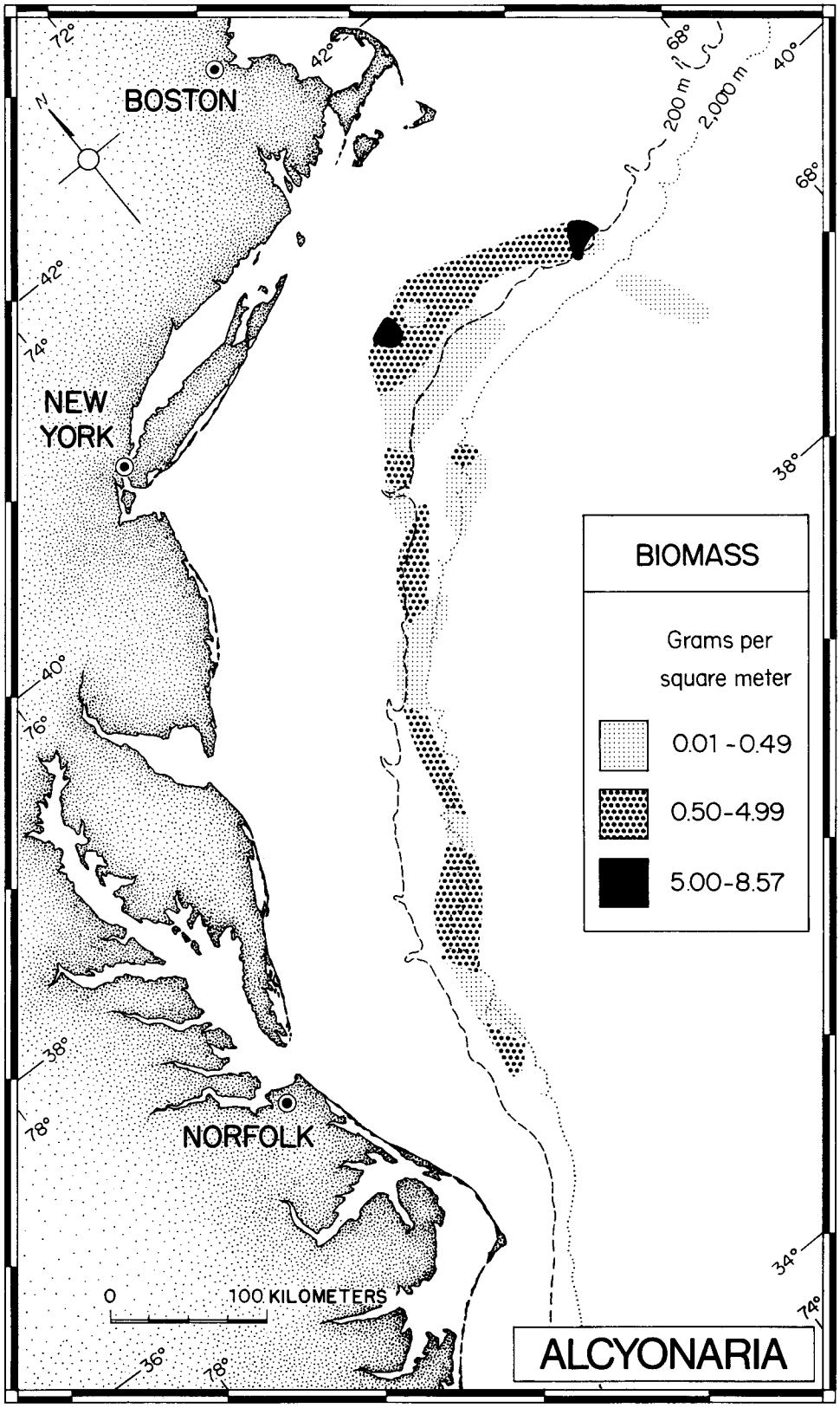

FIGURE 16.—Geographic distribution of the biomass of Alcyonaria, expressed as damp weight per square meter of bottom area.

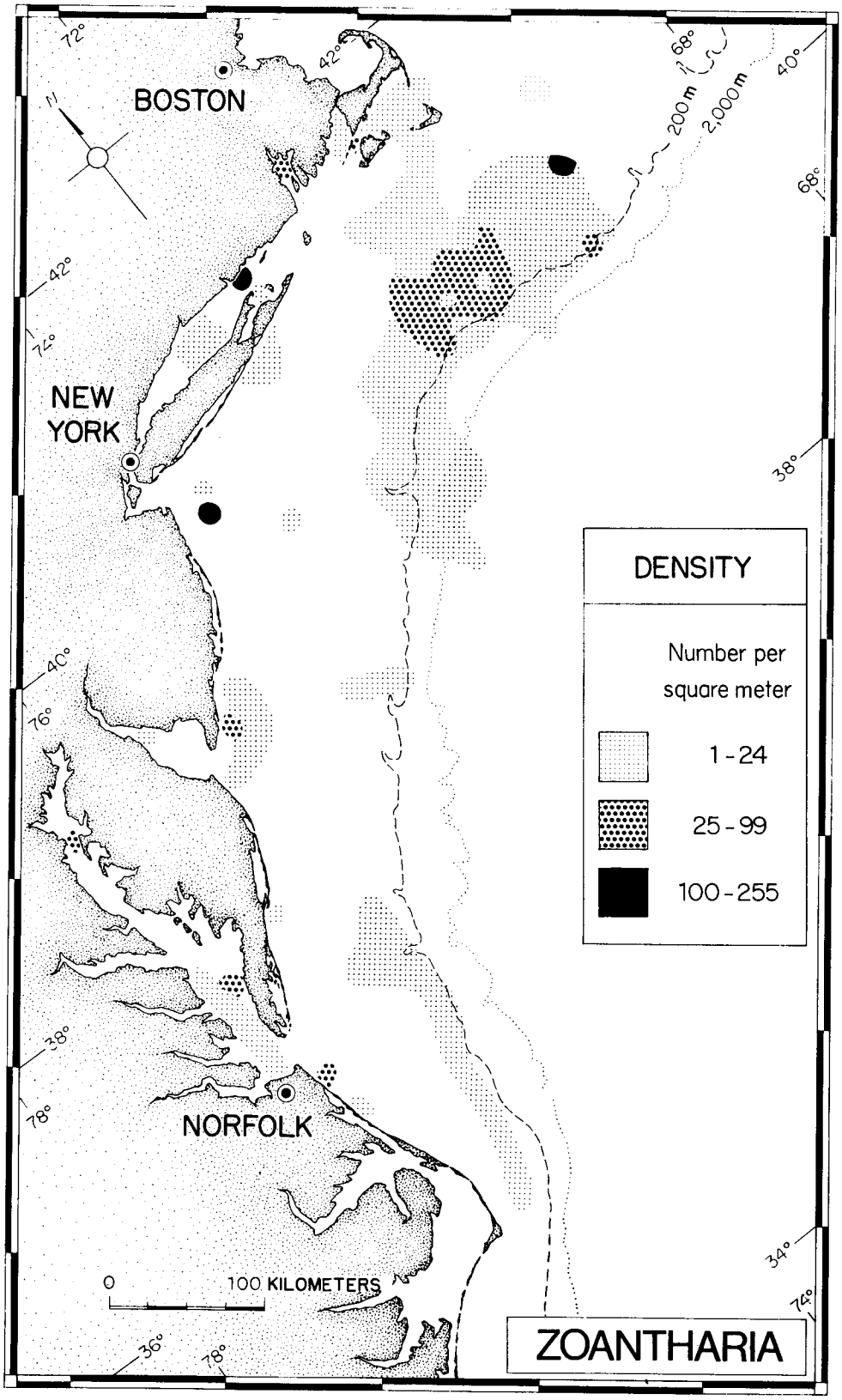

FIGURE 17.—Geographic distribution of the density of Zoantharia, expressed as number of individuals per square meter of bottom area.

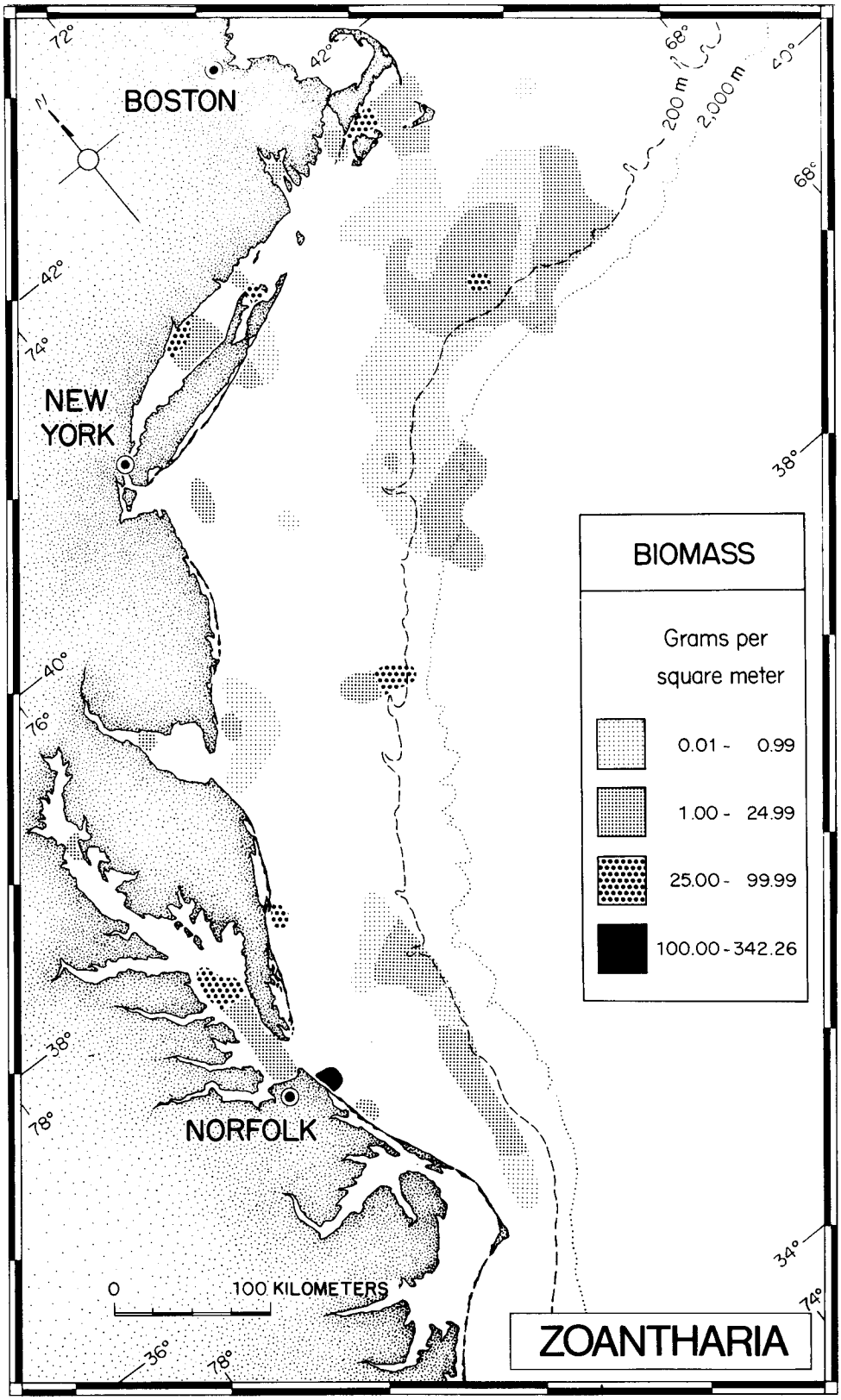

FIGURE 18.—Geographic distribution of the biomass of Zoantharia, expressed as damp weight per square meter of bottom area.

New England, their density was between 25/m² and 99/m². They were present in only three small areas at densities greater than 100/m². Biomass in about half their area of occurrence was less than 1 g/m², and between 1 and 25 g/m² in the other half. A few relatively small areas, most of which were in coastal or inshore locations, had biomasses ranging from 25 to 342 g/m².

Platyhelminthes (figs. 19 and 20) were distributed rather widely on the Continental Shelf throughout the region. For the most part they occurred in rather small patches. Densities were low (less than 25/m²) at all locations except one. Biomass was small (less than 0.5 g/m²) throughout their range, except at two localities.

Nemertea (figs. 21 and 22) were very common and were distributed over a large part of the Middle Atlantic Bight region. Their density, however, was generally low, between 1/m² and 24/m². At only a few places in the bays and on the Continental Shelf south of Cape Cod did their density average between 25/m² and 235/m². Nemertea were absent from most sampling stations in the bays and on the Continental Rise. Nemerteans accounted for a small proportion of the region's biomass. At most localities where they were found, their biomass was less than 1 g/m². Over an estimated 10 percent of their range, their biomass was between 1 to 25 g/m². At only two localities was their biomass greater than 25 g/m².

Nematoda (figs. 23 and 24) were found in a moderate-sized area of the region, somewhat scattered, but most common along the Outer Continental Shelf, Slope, and Continental Rise. Densities were generally low, ranging from 1/m² to 24/m². Moderate densities (25/m² to 627/m²) were found in a few localities, mainly on the Continental Shelf south of Cape Cod. Biomass was very small, less than 0.2 g/m² in most localities, and between 0.2 and 0.4 g/m² in one area in the Chesapeake Bight subarea. A very large number of small nematodes, particularly the larval stages, are believed to have passed through the sieving screen during sample processing. What proportion of the nematode biomass that is represented by the large specimens retained on the screen, reported here, is unknown.

Annelida (figs. 25 and 26) were ubiquitous throughout the entire Middle Atlantic Bight region. Densities were highest on the Continental Shelf. A particularly large area of moderately high density (500/m² to 1,999/m²) was found on the shelf south of Massachusetts. Moderate densities prevailed in the New York Bight subarea, and low densities (less than 25/m²) in extensive areas in Chesapeake Bight. Low densities, also, were characteristic of the Continental Rise. Biomass reflected the same pattern as density. Over a very large part of the Continental Shelf, extending from Long Island, N.Y., southward to Cape Hatteras, the biomass of Annelida was between 1 to 25 g/m². Off southern Massachusetts, a large expanse contained between 25 and 200 g/m². Low biomasses (less than 1 g/m²) were characteristic of the Continental Rise.

Pogonophora (figs. 27 and 28) were present throughout the entire deepwater area between Cape Cod and Cape Hatteras, primarily, on the Continental Slope and Rise, plus several localities on the Outer Continental Shelf. They were present in rather low densities (to 24/m²) throughout most of their area of occurrence. Moderate densities (25/m² to 99/m²) were found in several areas along the Continental Slope. In only one locality, densities were high (100/m² to 335/m²). Biomass was small, less than 0.5 g/m², in all localities except two, where it ranged from 0.5 to 2.9 g/m².

Sipuncula [=Sipunculida] (figs. 29 and 30) were found over a wide geographic area, extending from the Cape Cod region southward to Cape Hatteras and were centered primarily on the Continental Shelf and Slope. Moderate numbers were found on the Continental Rise, but only limited numbers in the bays and sounds. In the northern part, they were found in shallow waters, whereas in the middle and southern sectors they were absent from the inner and middle shelf regions. Their density was less than 24/m² throughout most of their range, but in several localities in the northern shelf area it ranged from 25/m² to 99/m². At only one location, a northern inshore area off Rhode Island, were they found in high density (100 and 311/m²). In roughly half their area of occurrence, biomass was less than 1 g/m²; in somewhat less than half their area of occurrence, biomass ranged from 1 to 25 g/m²; in only two areas, the Continental Slope and Rise biomass was large (25 to 85 g/m²).

Echiura (figs. 31 and 32) were sparsely distributed in the region, and most were found on the Continental Rise. One small patch was found on the mid-Continental Shelf off Virginia and two small patches were found in inshore waters at the tip of Long Island, N.Y., and in Pamlico Sound, N.C. Density ranged from 1/m² to 21/m² and biomass ranged from 0.01 g/m² to 27 g/m².

Priapulida (figs. 31 and 32) were found in only three places—two on the Continental Slope and one on the Continental Rise. Quantities were very small.

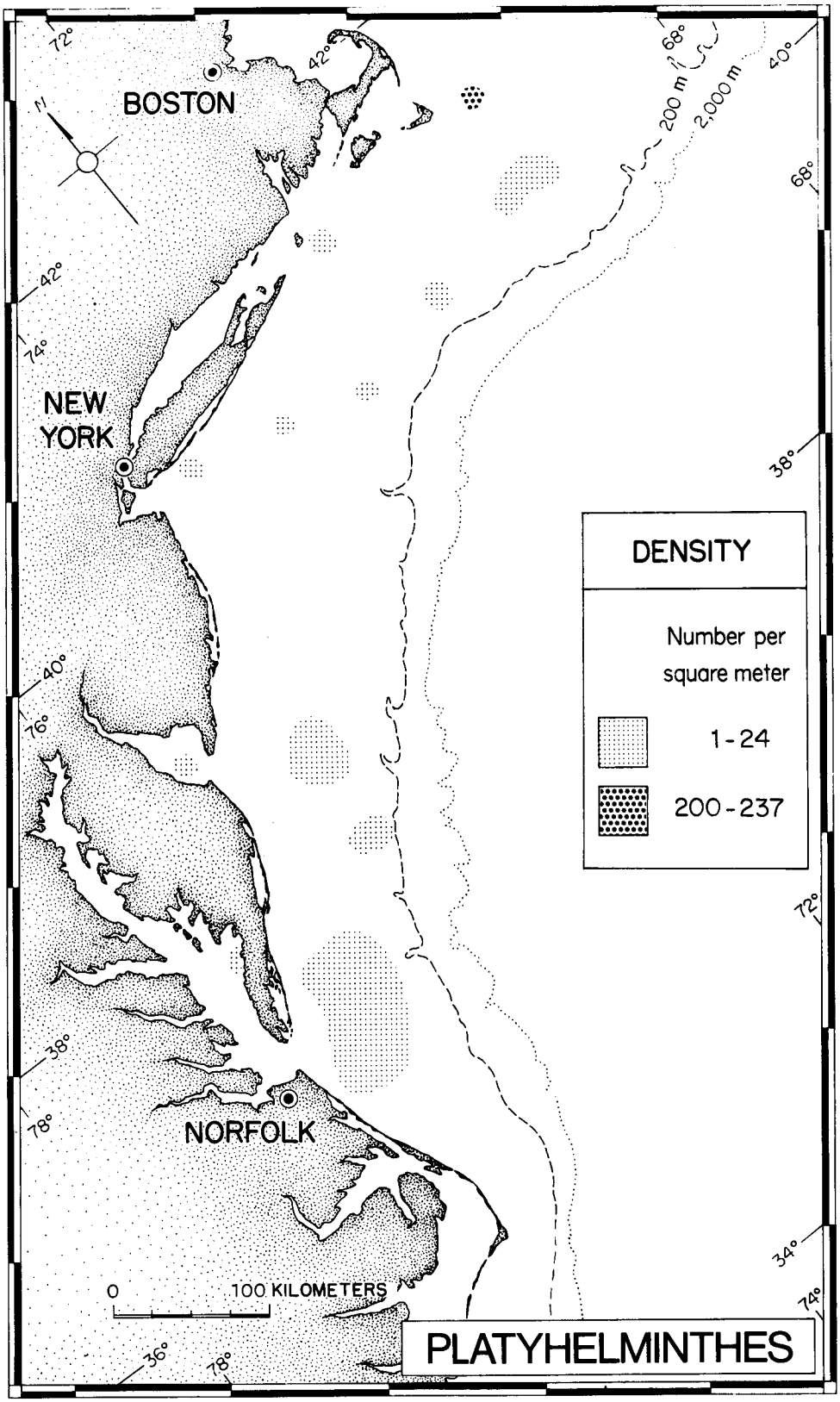

FIGURE 19.—Geographic distribution of the density of Platyhelminthes, expressed as number of individuals per square meter of bottom area.

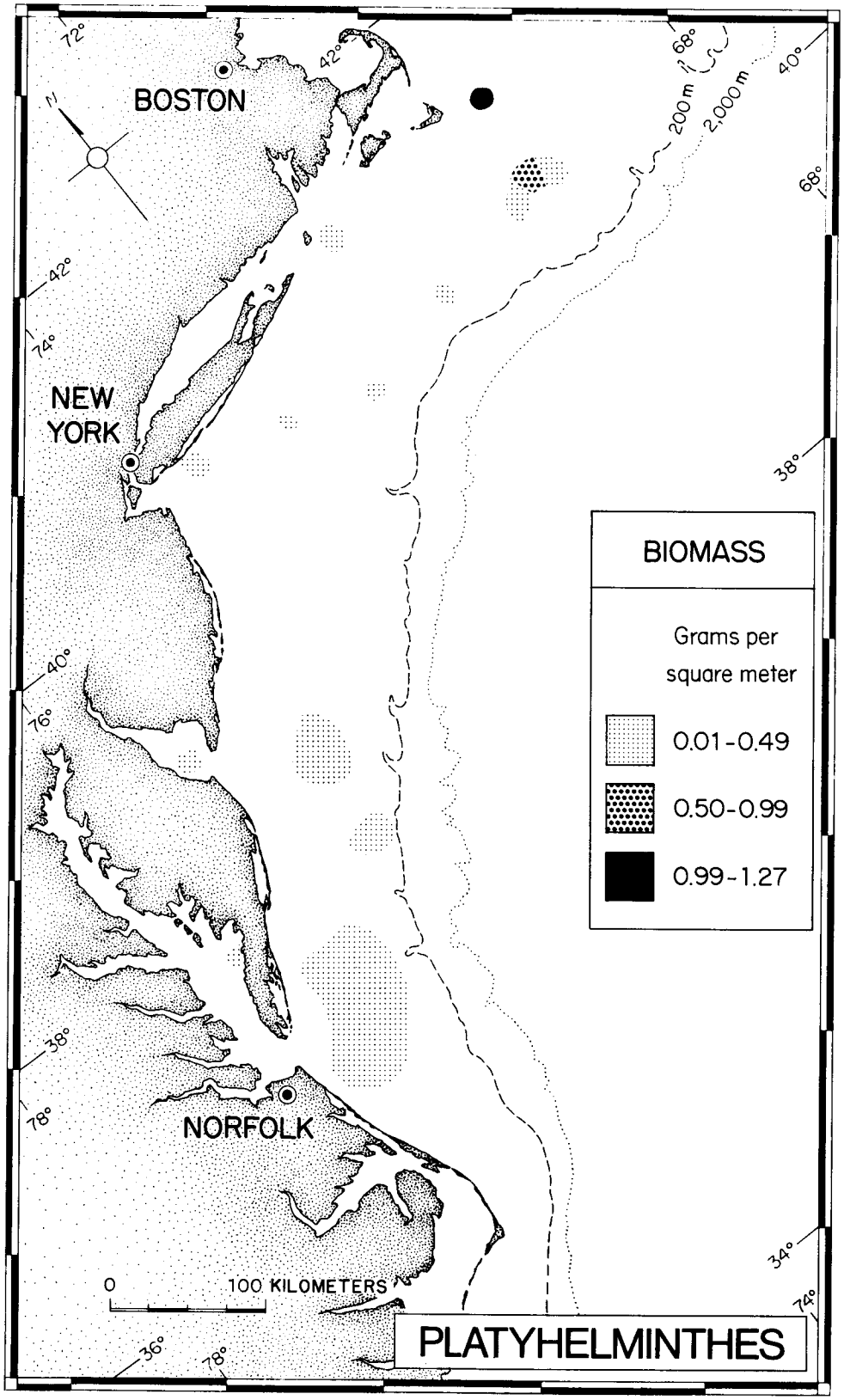

FIGURE 20.—Geographic distribution of the biomass of Plathyhelminthes, expressed as damp weight per square meter of bottom area.

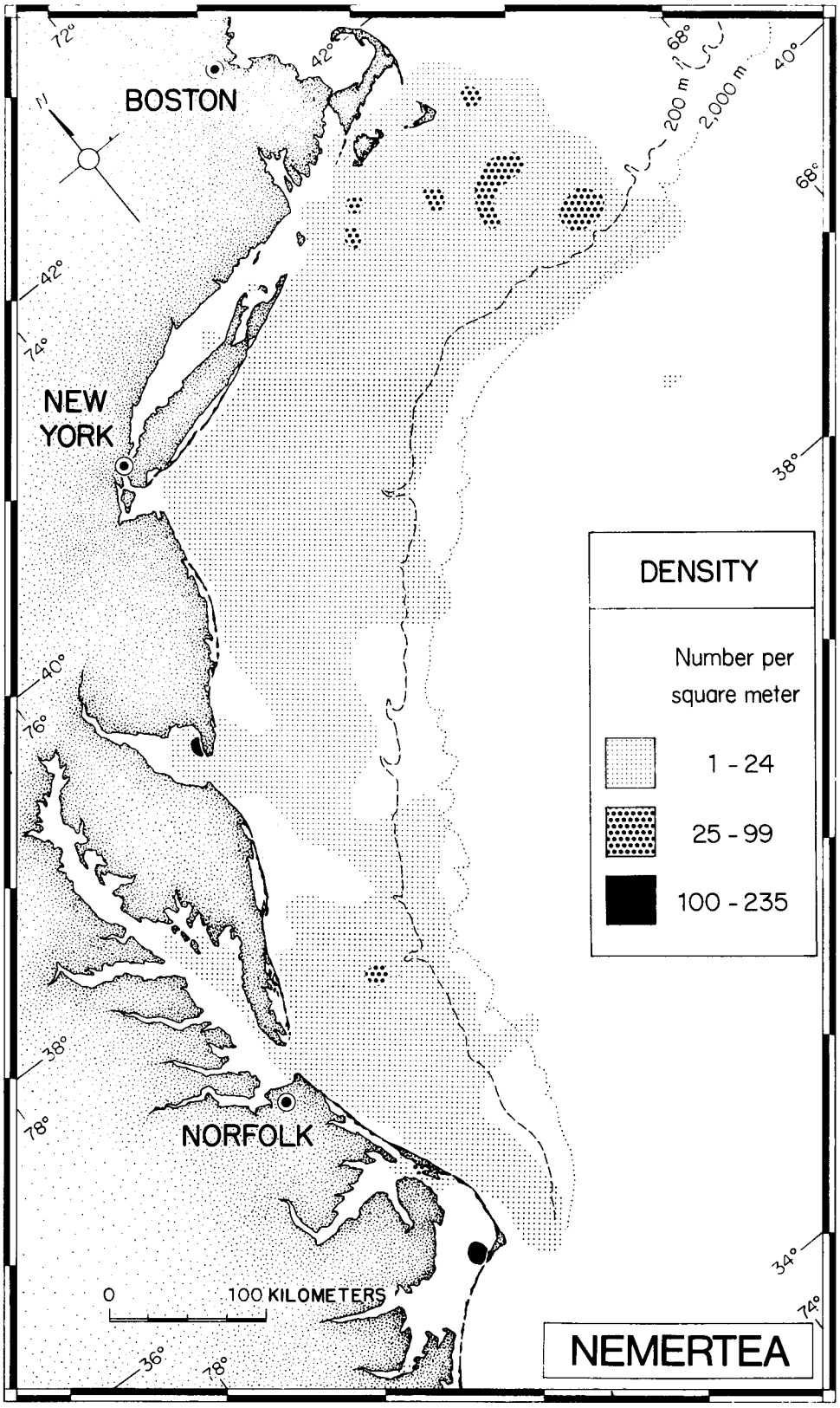

FIGURE 21.—Geographic distribution of the density of Nemertea, expressed as number of individuals per square meter of bottom area.

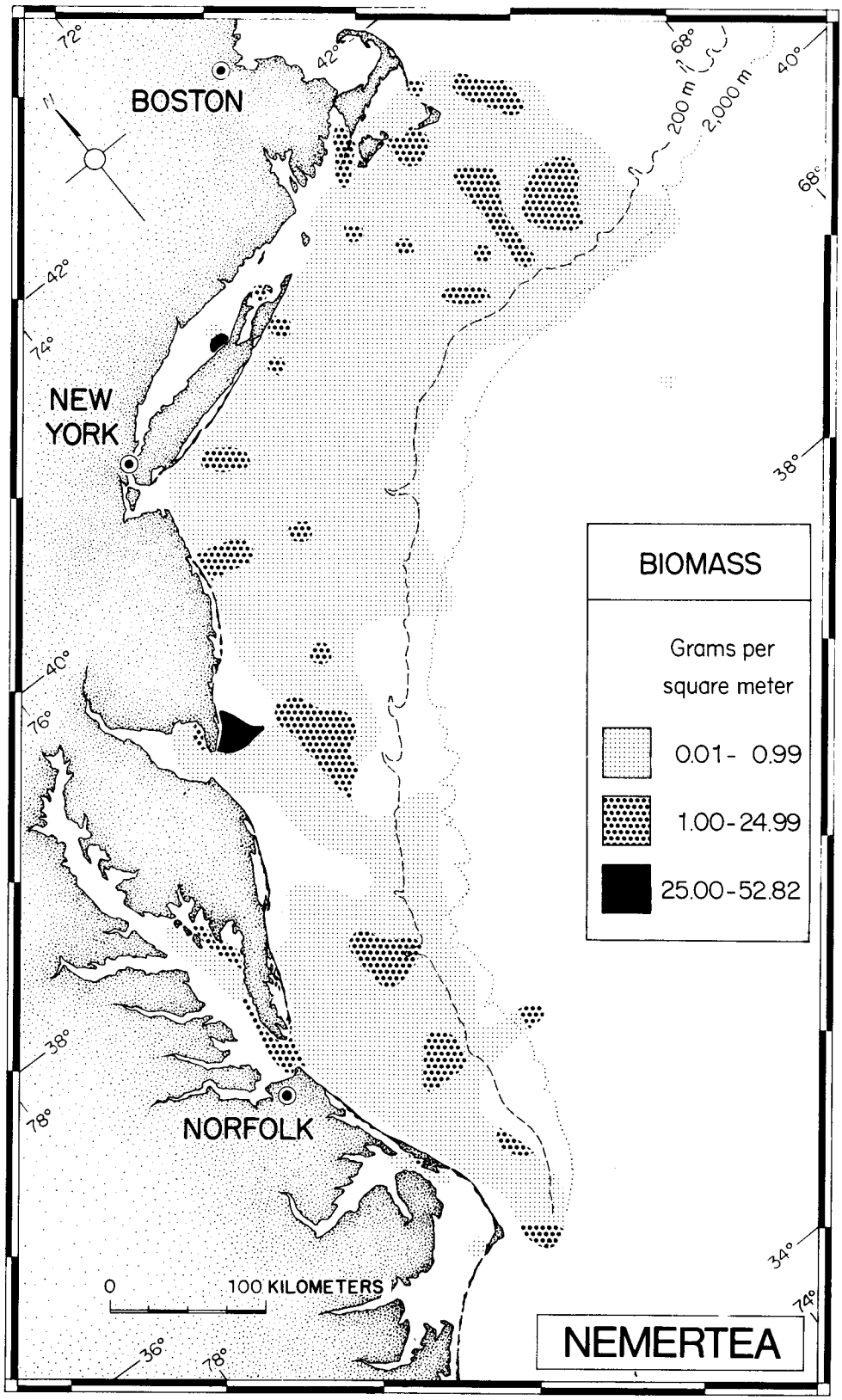

FIGURE 22.—Geographic distribution of the biomass of Nemertea, expressed as damp weight per square meter of bottom area.

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