TABLE 21.—*Mean number of individuals and biomass of the macrobenthic invertebrate fauna in relation to bottom sediments for each subarea and for the entire Middle Atlantic Bight region*

Sediment type	Mean number of individuals				Mean biomass			
	SNE	NYB	CHB	Entire area	SNE	NYB	CHB	Entire area
	No./m²	No./m²	No./m²	No./m²	g/m²	g/m²	g/m²	g/m²
Gravel	2,667	-	-	2,667	286	-	-	286
Sand-gravel	3,157	448	311	2,089	379	94	12	256
Shell	2,925	-	1,211	1,639	117	-	706	559
Sand-shell	259	769	2,804	2,006	3	82	72	74
Sand	2,912	1,391	989	1,716	321	146	85	179
Silty-sand	1,131	1,906	1,157	1,286	105	1,725	100	414
Silt	660	464	343	486	76	72	35	59
Clay	62	105	249	165	5	6	102	52

Unlike density, the mean biomass of all organisms in relation to sediments within the Middle Atlantic Bight region (table 21, fig. 96) did not show a consistent trend of decreasing quantity as particle size decreased. The largest biomass values occurred in shell, 559 g/m², and silty sand, 414 g/m². The smallest biomass values of 52, 59, and 74 g/m² were found in clay, silt, and sand-shell, respectively. Intermediate quantities were present in gravel, sand-gravel, and sand where biomasses of 286, 256, and 179 g/m², respectively, were found.

SUBAREAS

SOUTHERN NEW ENGLAND

The mean density of all organisms in relation to bottom sediments in the Southern New England subarea (fig. 97) showed a trend similar (a general decrease in density as particle size decreased) to that described above for the entire Middle Atlantic Bight region (fig. 95). Two exceptions are notable in this correlation with substrates. The highest density was in sand-gravel, the second coarsest sediment type, where 3,157/m² were found, and gravel, the coarsest, contained 2,667/m². Sand-shell, ranked fourth in coarseness, contained the second lowest density of 259/m², and clay, the finest grained substrate, contained the lowest density, 62/m². Densities in shell, sand, silty sand, and silt were 2,925/m², 2,912/m², 1,131/m², and 660/m², respectively.

Biomass in the Southern New England subarea ranged from 379 g/m² in sand-gravel substrates to 3 g/m² in sand-shell (fig. 98). No definite linear relationship between biomass and decreasing particle size was seen; although, in general, the coarser grained substrates contained larger biomasses than the finer grained. Gravel, shell, and sand sediments contained, respectively, 286, 117, and 321 g/m², whereas silty sand, silt, and clay substrates contained a biomass of 105, 77, and 5 g/m², respectively.

NEW YORK BIGHT

Gravel and shell substrates were not present at sampling stations in the New York Bight. The sandy substrates contained the highest densities, which increased as particle size decreased; the highest density was found in silty-sand (1,906/m²) (fig. 97). Sand-gravel, sand-shell, and sand sediments contained densities of 448/m², 769/m², and 1,391/m², respectively, but silt had a density of 464/m² and clay a density of 105/m².

The mean biomass of all organisms was generally small, below 100 g/m², in most substrates. Sand-gravel contained 94 g/m²; sand-shell, 82 g/m²; silt, 72 g/m²; and clay, 6 g/m²; sand with a biomass of 146 g/m² exceeded the norm, but silty sand with 1,725 g/m² contained the largest biomass of all sediment types throughout the entire study area (fig. 98). No definite correlation with sediment particle size was discernible.

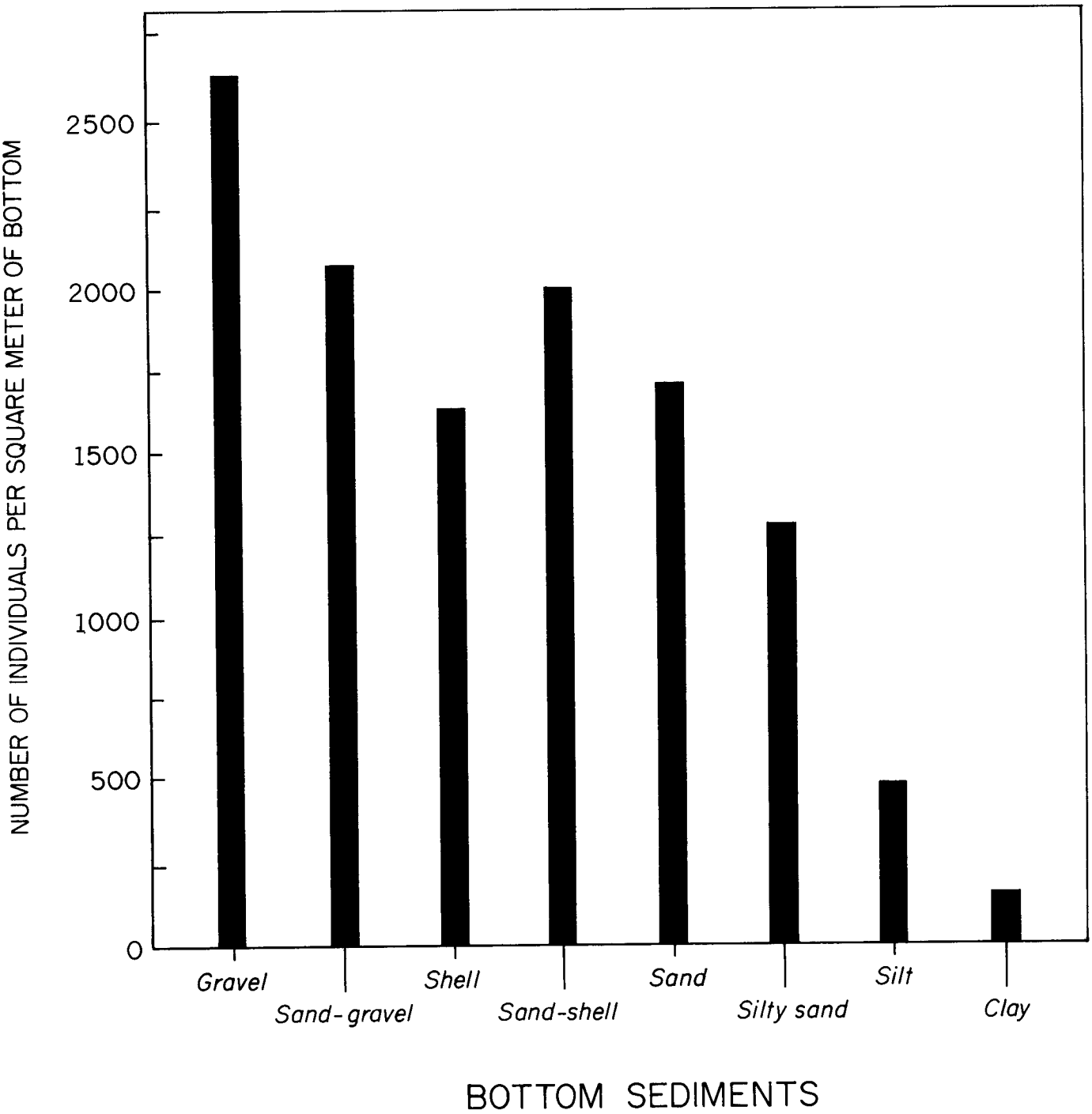

FIGURE 95.—Relation between number of individuals and bottom-sediment types. Values represent all taxonomic groups combined for the entire Middle Atlantic Bight region.

CHESAPEAKE BIGHT

Gravel was the only sediment type absent from the Chesapeake Bight subarea. The density of organisms in this subarea showed a general tendency of being relatively low in both the coarsest and finest substrates (fig. 97). In the coarse sediments, sand-gravel ranked first with a density of 311/m². Among the finer sediments, densities of 343/m² and 249/m² were found in silt and clay, respectively. Density values in the medium to moderately fine substrates averaged approximately 1,000 individuals per square meter; 989/m², 1,157/m², and 1,211/m²

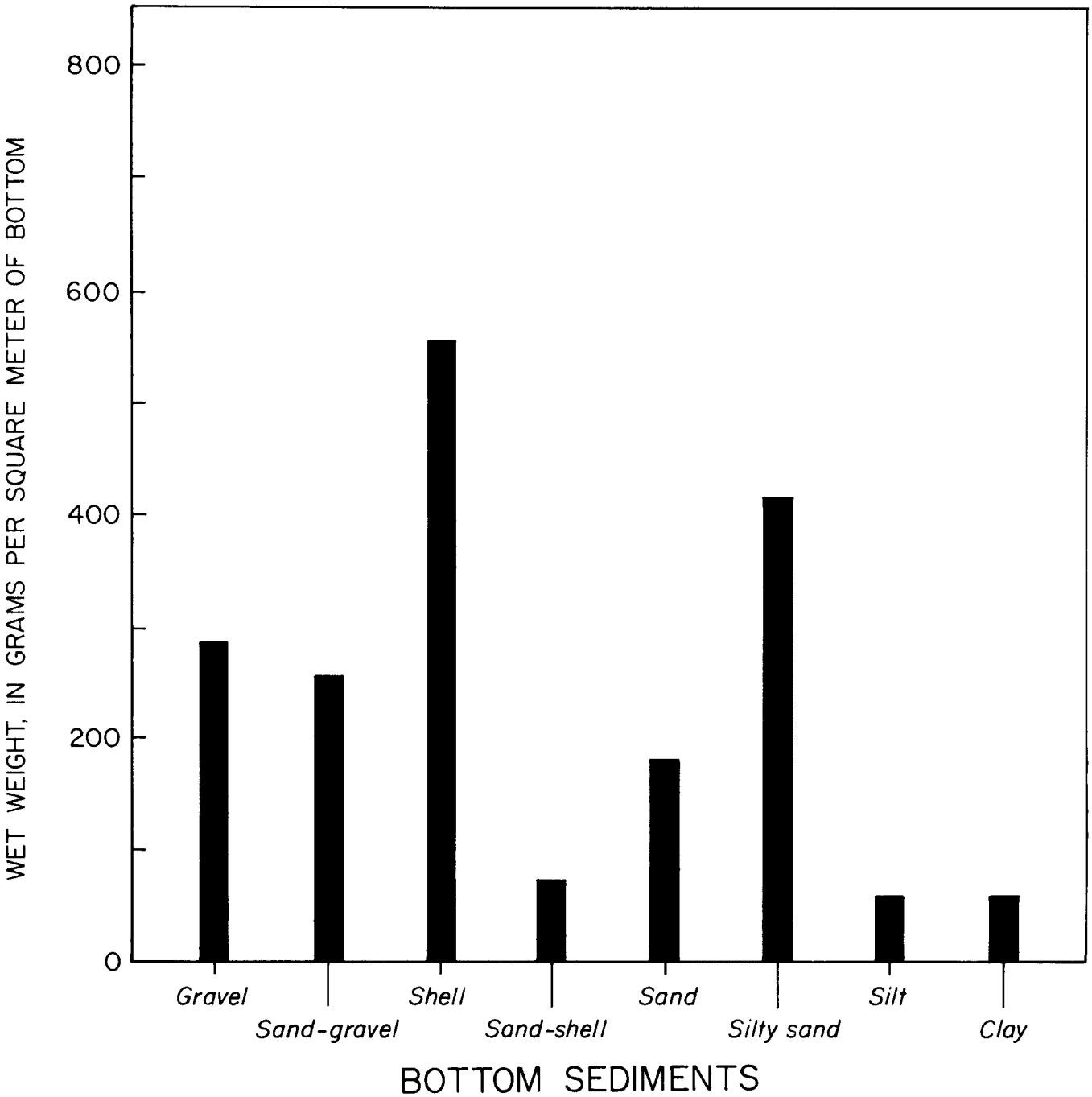

FIGURE 96.—Relation between biomass and bottom-sediment types. Values represent all taxonomic groups combined for the entire Middle Atlantic Bight region.

in sand, silty sand, and shell, respectively. The highest density of all organisms in this subarea, by a significant amount, 2,804/m², was found in sand-shell.

The mean biomass of all organisms in the Chesapeake Bight was generally lower than that in either the Southern New England or the New York Bights. However, shell and clay sediments in this subarea contained the largest recorded biomasses of the entire region (fig. 98). The biomass of all organisms in shell was 706 g/m² in Chesapeake Bight versus 117 g/m² in Southern New England. Silty-sand and clay sediments were the only other substrates whose biomasses equalled or exceeded 100 g/m² in this sub-

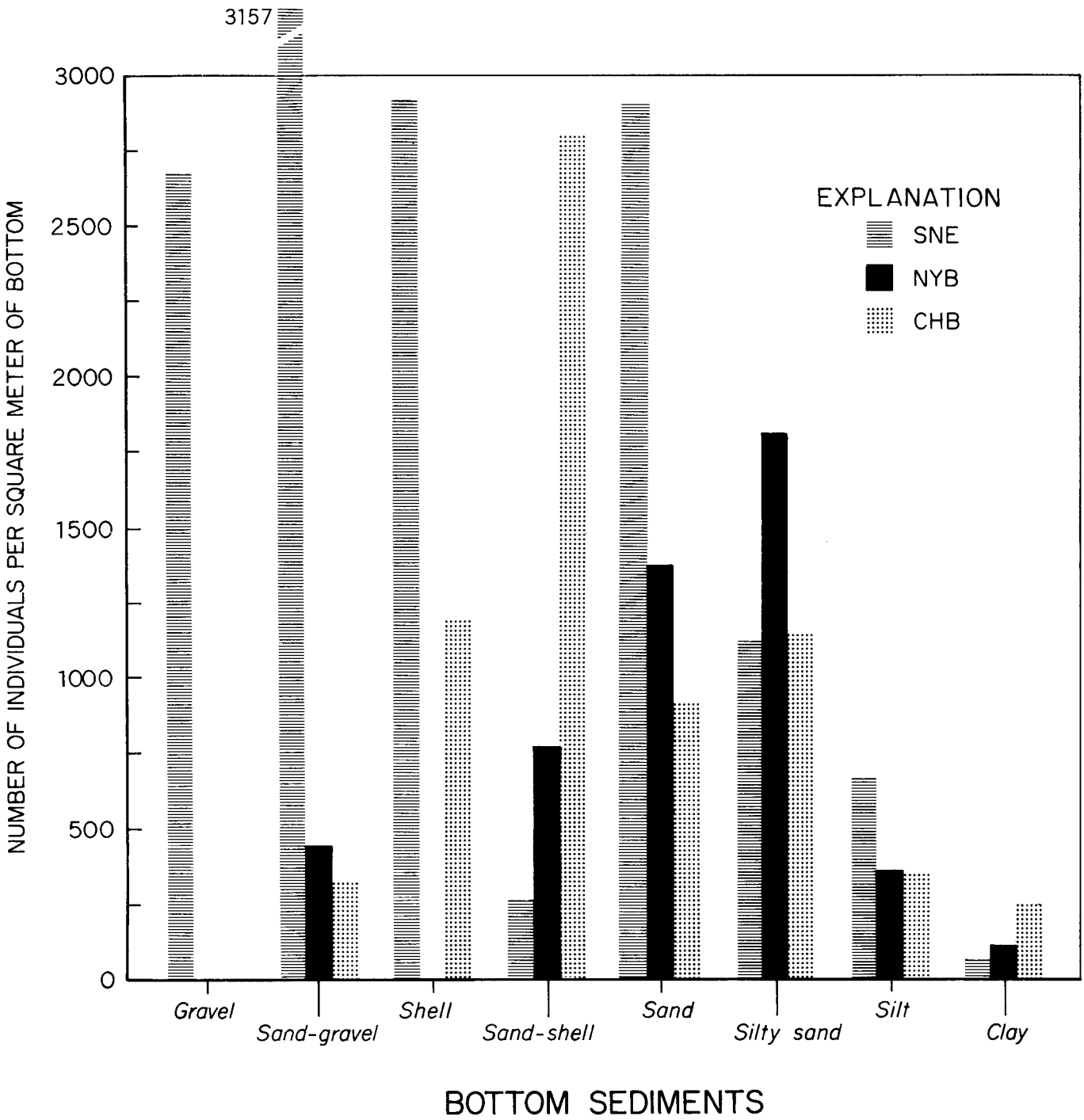

FIGURE 97.—Relation between number of individuals and bottom-sediment types. Values represent all taxonomic groups combined for each subarea. Abbreviations: SNE, Southern New England; NYB, New York Bight; CHB, Chesapeake Bight.

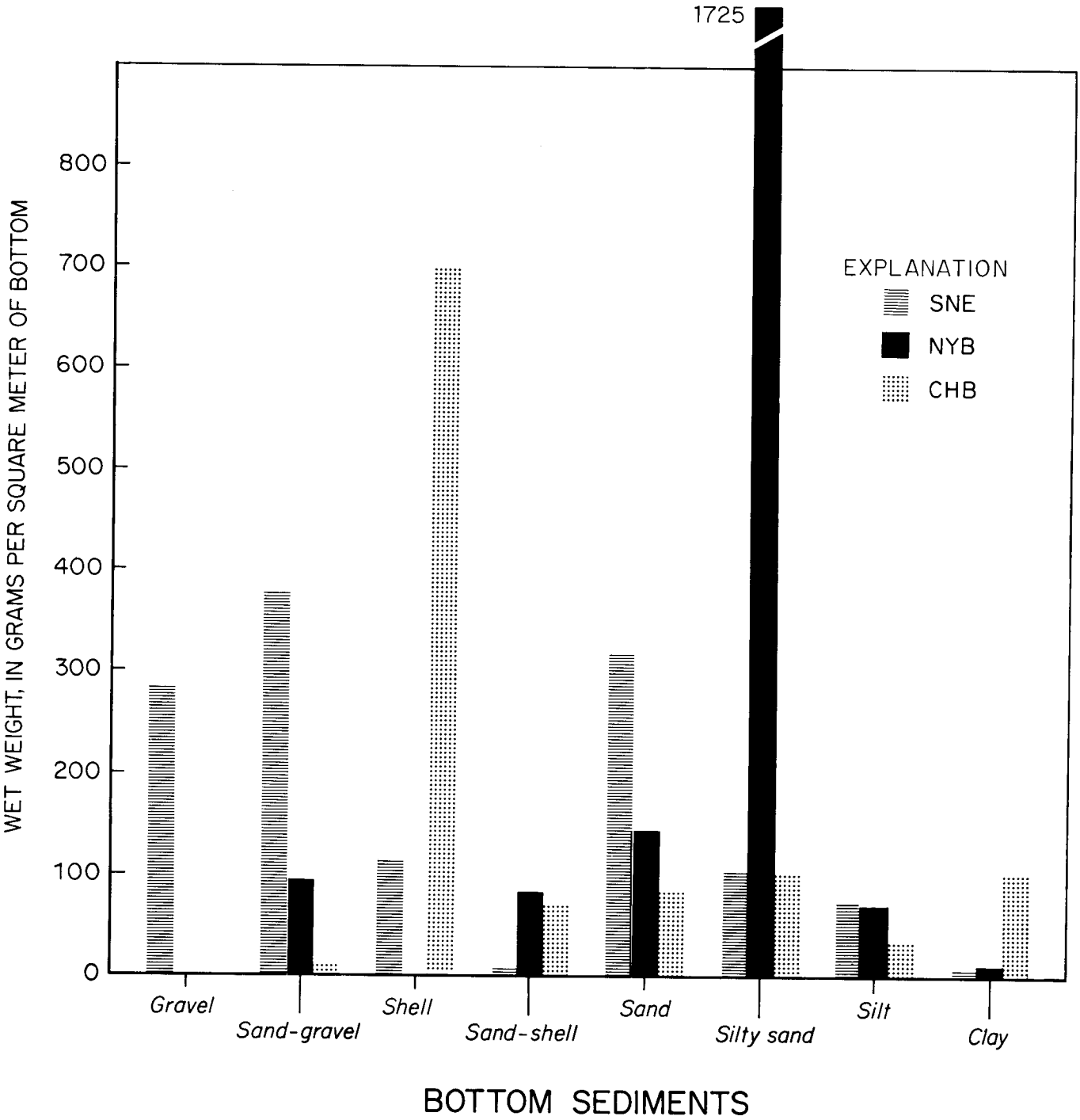

FIGURE 98.—Relation between biomass (wet weight) and bottom-sediment types. Values represent all taxonomic groups combined for each subarea. Abbreviations: SNE, Southernern New England; NYB, New York Bight; CHB, Chesapeake Bight.

area. Biomasses of 85, 72, 35, and 12 g/m² were found in sand, sand-shell, silt, and sand-gravel sediments, respectively.

TAXONOMIC GROUPS

ENTIRE MIDDLE ATLANTIC BIGHT REGION

Mean densities and biomass of individual taxa, in relation to bottom sediments, for the entire Middle Atlantic Bight region are given in tables 22 and 23, and illustrated in figures 99–104.

SUBAREAS

The following six tables deal with each taxon's density and biomass in relation to bottom sediments in each subarea:

Tables 24 and 25, Southern New England
Tables 26 and 27, New York Bight
Tables 28 and 29, Chesapeake Bight

RELATION TO SEDIMENT

ORGANIC CARBON

This section contains an analysis of the relationships between the quantity of organic matter in bottom sediments, and the quantity of benthic organisms. Prior to making the analysis, we considered two general cause-and-effect relationships: first, the possibility that where organic carbon was more abundant, it might provide a greater quantity of food, and thus support a larger standing crop of benthic animals; and second, the possibility (converse of the preceding) that where animals were more abundant, they might produce a larger amount of organic matter (fecal deposits, for example) in the sediments. In either possibility, high abundance would be associated with high carbon content.

Results of the analyses, as described below, revealed no general correlation between sediment organic carbon and the quantity of benthic animals. A few taxonomic groups showed good correlations—some direct and some inverse—between abundance and organic content, but they were the rare exceptions. (See table 30 for the number of samples for each class of sediment organic carbon.)

DISTRIBUTION OF SEDIMENT ORGANIC CARBON

The geographic distribution of organic carbon in the bottom sediments of the Middle Atlantic Bight region is shown in figure 105. Sediments blanketing almost the entire Continental Shelf throughout this region contained only a small amount (0.01–0.49 percent weight class) of organic carbon. Slightly larger quantities (0.5–0.99 percent) were broadly distributed in sediments on the Continental Slope and Rise, plus a moderately large area on the Outer Continental Shelf off Southern New England. Moderate quantities of organic carbon (1.0–1.99 percent) were widely distributed along the Continental Slope, with some incursions onto the shelf and onto the Continental Rise. The largest quantities of organic carbon (2.00–7.16 percent) were found in the bays and sounds, plus in one small area on the upper Continental Slope northeast of Cape Hatteras. Sediments in some inshore waters such as Buzzards Bay, Long Island Sound, Delaware Bay, Chesapeake Bay, and Pamlico Sound also contained patches of small and moderate quantities of organic carbon.

TOTAL MACROBENTHIC FAUNA OF ALL TAXONOMIC GROUPS

Mean quantities of benthic animals were calculated for seven sediment organic carbon classes within each of the three subareas and for the entire Middle Atlantic Bight region. These data, for both density and biomass, are listed in table 31 and illustrated in figures 106 and 107. The values for density range from 182/m² to 5,236/m², and no trends are apparent. There were no correlations between density of organisms and the quantity of organic carbon in any of the subareas or for the region as a whole. Mean biomasses for the seven organic carbon classes in the various subareas and the entire region ranged from 14 g/m² to 2,657 g/m². No correlations were seen between biomass and the quantity of sediment organic carbon. Because of the erratic values within carbon classes and between adjacent carbon classes in both density and biomass, we consider the trends to be spurious.

TAXONOMIC GROUPS

ENTIRE MIDDLE ATLANTIC BIGHT REGION

The analysis in this section is based on the density and biomass of each major taxonomic group in the seven classes of sediment organic carbon from the entire Middle Atlantic Bight region. Density values are listed in table 32 and biomass values in table 33; these data are illustrated in figures 108 through 113.

TABLE 22.—*Mean number of individuals listed by taxonomic groups in each bottom-sediment type for the entire Middle Atlantic Bight region*

[In number per square meter]

Taxonomic group	Bottom sediments							
	Gravel	Sand-gravel	Shell	Sand-shell	Sand	Silty sand	Silt	Clay
	No./m^2	No./m^2	No./m^2	No./m^2	No./m^2	No./m^2	No./m^2	No./m^2
PORIFERA	5.53	4.44	-	2.25	0.19	0.26	0.46	0.28
COELENTERATA	28.33	165.17	40.00	9.00	10.45	30.70	5.11	3.50
Hydrozoa	3.67	95.17	29.25	6.02	6.40	15.47	0.03	-
Anthozoa	24.66	70.00	10.75	2.98	4.05	15.23	5.08	3.50
Alcyonacea	-	-	-	-	0.17	1.41	1.12	0.61
Zoantharia	10.33	1.83	-	2.30	1.87	12.27	2.61	2.43
Unidentified	14.33	68.17	10.75	0.68	2.01	1.55	1.35	0.46
PLATYHELMINTHES	-	13.17	-	0.36	0.29	-	0.32	-
Turbellaria	-	13.17	-	0.36	0.29	-	0.32	-
NEMERTEA	8.00	5.50	1.50	2.52	5.39	6.67	1.57	0.61
ASCHELMINTHES	0.67	40.78	39.25	1.93	0.75	1.67	2.45	0.30
Nematoda	0.67	40.78	39.25	1.93	0.75	1.67	2.45	0.30
ANNELIDA	289.00	389.39	362.75	174.09	412.36	272.42	90.70	27.39
POGONOPHORA	-	-	-	-	0.04	3.18	3.86	1.80
SIPUNCULIDA	-	9.61	-	0.43	4.32	4.48	4.81	0.89
ECHIURA	-	-	-	-	0.01	0.50	0.32	0.30
PRIAPULIDA	-	-	-	-	-	-	0.09	0.04
MOLLUSCA	1083.33	93.12	414.25	1448.41	198.41	478.90	270.18	96.51
Polyplacophora	2.00	4.17	-	-	0.17	0.56	0.84	0.33
Gastropoda	1064.33	21.67	87.50	6.00	20.88	89.54	19.78	4.70
Bivalvia	17.00	67.28	326.75	1442.23	176.18	383.70	247.13	91.28
Scaphopoda	-	-	-	0.18	0.79	3.20	2.43	0.20
Cephalopoda	-	-	-	-	0.02	1.90	-	-
Unidentified	-	-	-	-	0.37	-	-	-
ARTHROPODA	361.34	1176.35	705.00	298.85	1007.93	349.33	40.94	20.95
Pycnogonida	-	5.11	-	1.05	0.28	0.12	-	1.65
Arachnida	-	-	-	-	0.09	-	-	-
Crustacea	361.34	1171.24	705.00	297.80	1007.56	349.21	40.94	19.30
Ostracoda	-	1.17	-	0.91	0.20	-	0.09	-
Cirripedia	6.67	141.28	-	0.59	22.28	84.38	0.49	-
Copepoda	-	-	-	-	0.04	0.06	0.07	-
Nebaliacea	-	-	-	-	0.02	-	-	0.02
Cumacea	-	1.56	6.25	31.73	23.84	5.74	2.35	0.46
Tanaidacea	-	-	-	-	-	0.02	0.28	0.26
Isopoda	-	5.78	6.25	10.68	16.86	11.09	7.00	0.11
Amphipoda	272.00	1008.67	266.25	238.57	933.33	240.55	30.33	18.41
Mysidacea	-	0.11	-	3.93	2.83	1.86	-	-
Decapoda	82.67	12.67	50.25	11.39	8.16	5.51	0.33	0.04
BRYOZOA	3.00	163.56	376.00	24.34	3.78	29.04	-	-
BRACHIOPODA	-	-	-	-	0.01	-	-	-
ECHINODERMATA	-	1.45	6.25	32.34	56.90	114.49	30.97	3.71
Holothuroidea	-	0.17	-	0.36	1.38	7.51	1.23	0.22
Echinoidea	-	-	-	30.07	40.85	0.24	0.10	0.04
Ophiuroidea	-	1.28	6.25	1.52	13.53	105.62	28.84	3.41
Asteroidea	-	-	-	0.39	1.14	1.12	0.80	0.04
HEMICHORDATA	-	-	-	-	0.14	0.33	0.07	-
CHORDATA	885.33	17.56	68.75	5.70	10.90	13.67	3.85	2.54
Ascidiacea	885.33	17.56	68.75	5.70	10.90	13.67	3.85	2.54
UNIDENTIFIED	2.33	8.56	1.50	6.16	6.12	6.83	15.67	5.72

TABLE 23.—*Mean biomass of each taxonomic group listed by bottom-sediment type for the entire Middle Atlantic Bight region*

[In grams per square meter]

Taxonomic group	Bottom sediments							
	Gravel	Sand-gravel	Shell	Sand-shell	Sand	Silty sand	Silt	Clay
	g/m^2	g/m^2	g/m^2	g/m^2	g/m^2	g/m^2	g/m^2	g/m^2
PORIFERA	0.210	0.886	-	0.245	0.011	0.010	0.002	0.030
COELENTERATA	18.600	6.382	1.550	6.930	1.003	7.052	1.977	1.954
Hydrozoa	1.133	2.767	0.788	0.634	0.263	0.085	<0.001	-
Anthozoa	17.467	3.615	0.762	6.297	0.740	6.966	1.977	1.954
Alcyonacea	-	-	-	-	0.023	0.107	0.146	0.115
Zoantharia	17.047	2.140	-	6.233	0.619	6.702	1.746	1.626
Unidentified	0.420	1.475	0.762	0.063	0.098	0.158	0.086	0.213
PLATYHELMINTHES	-	0.071	-	0.007	0.008	-	0.002	-
Turbellaria	-	0.071	-	0.007	0.008	-	0.002	-
NEMERTEA	5.813	0.739	0.110	0.355	0.714	0.694	0.474	0.006
ASCHELMINTHES	0.007	0.011	0.072	0.009	0.002	0.004	0.009	0.003
Nematoda	0.007	0.011	0.072	0.009	0.002	0.004	0.009	0.003
ANNELIDA	24.283	8.709	27.802	8.591	14.117	26.146	6.744	2.436
POGONOPHORA	-	-	-	-	<0.001	0.024	0.059	0.007
SIPUNCULIDA	-	1.589	-	0.033	0.560	1.094	1.292	0.142
ECHIURA	-	-	-	-	0.006	0.308	1.154	0.648
PRIAPULIDA	-	-	-	-	-	-	0.058	0.022
MOLLUSCA	16.953	156.634	387.138	37.523	121.066	343.231	25.886	43.874
Polyplacophora	0.227	4.292	-	-	0.004	0.010	0.009	0.005
Gastropoda	11.487	2.424	1.062	2.195	3.114	6.856	0.331	0.019
Bivalvia	5.240	149.919	386.075	35.327	117.933	336.270	25.513	43.848
Scaphopoda	-	-	-	0.001	0.012	0.068	0.033	0.002
Cephalopoda	-	-	-	-	<0.001	0.026	-	-
Unidentified	-	-	-	-	0.002	-	-	-
ARTHROPODA	14.573	73.624	33.640	6.019	10.010	5.865	0.277	0.126
Pycnogonida	-	0.022	-	0.006	0.001	0.002	-	0.011
Arachnida	-	-	-	-	<0.001	-	-	-
Crustacea	14.573	73.602	33.640	6.013	10.008	5.863	0.277	0.115
Ostracoda	-	0.012	-	0.007	0.002	-	0.001	-
Cirripedia	0.143	61.358	-	0.003	2.872	1.969	0.015	-
Copepoda	-	-	-	-	<0.001	<0.001	0.001	-
Nebaliacea	-	-	-	-	<0.001	-	-	<0.001
Cumacea	-	0.016	0.015	0.089	0.111	0.029	0.016	0.008
Tanaidacea	-	-	-	-	-	<0.001	0.002	0.002
Isopoda	-	0.239	0.062	0.433	0.448	0.089	0.057	0.001
Amphipoda	0.600	4.649	1.032	2.052	5.768	2.464	0.149	0.081
Mysidacea	-	0.001	-	0.021	0.010	0.015	-	-
Decapoda	13.830	7.328	19.520	2.894	0.646	1.244	0.036	0.022
BRYOZOA	1.187	3.236	13.010	0.514	0.154	0.051	-	-
BRACHIOPODA	-	-	-	-	<0.001	-	-	-
ECHINODERMATA	-	0.974	0.125	13.563	29.792	25.147	5.687	1.449
Holothuroidea	-	0.163	-	0.352	2.393	14.665	0.158	0.927
Echinoidea	-	-	-	12.632	24.411	1.171	0.799	0.040
Ophiuroidea	-	0.811	0.125	0.044	1.187	5.425	1.816	0.480
Asteroidea	-	-	-	0.535	1.780	3.886	2.914	0.001
HEMICHORDATA	-	-	-	-	0.022	0.105	0.001	-
CHORDATA	204.080	1.627	108.645	0.479	1.890	3.922	0.826	0.725
Ascidiacea	204.080	1.627	108.645	0.479	1.890	3.922	0.826	0.725
UNIDENTIFIED	0.350	1.373	0.020	0.589	0.138	0.362	0.241	0.269

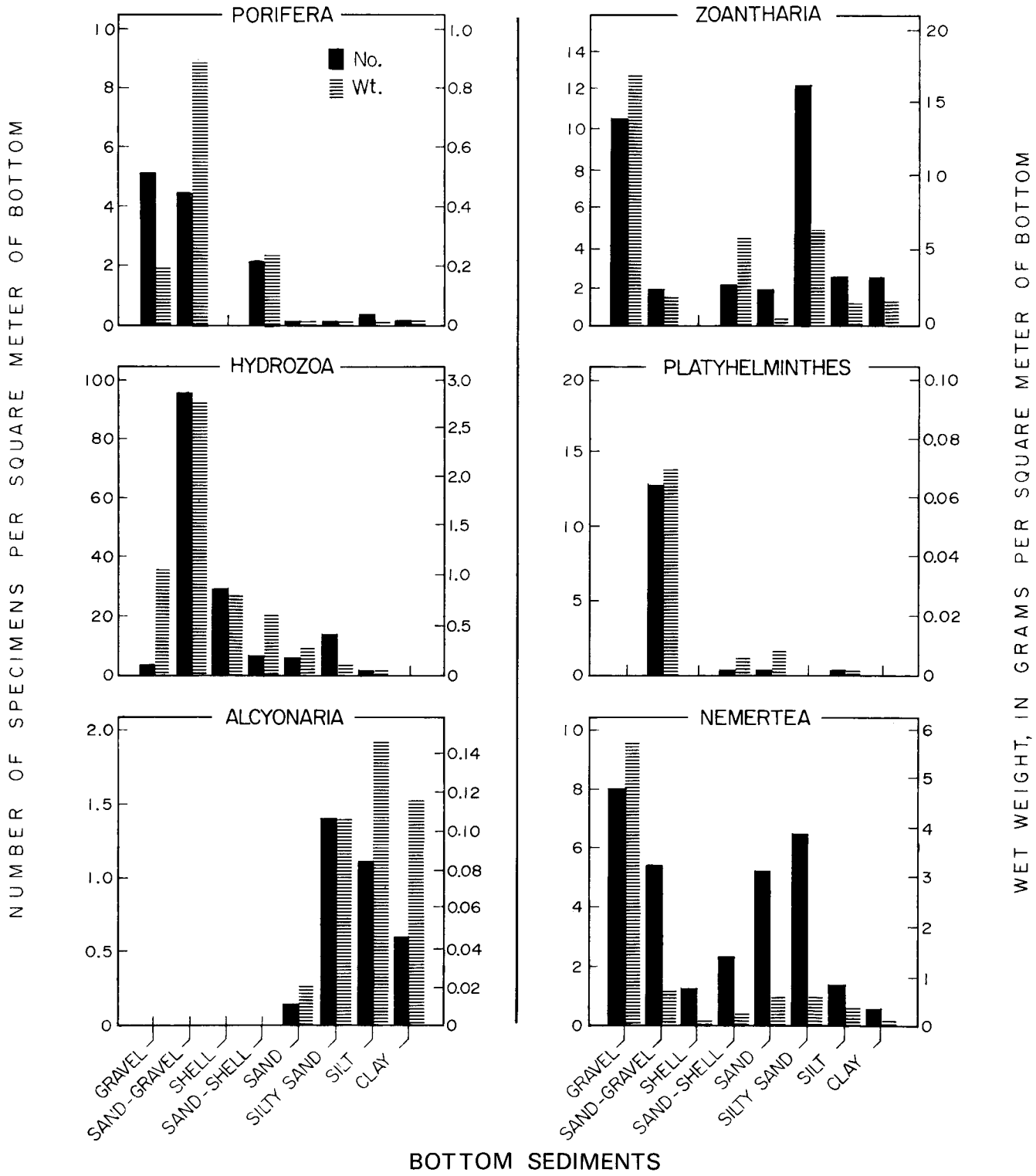

FIGURE 99.—Density (No.) and biomass (wt.) in relation to bottom sediments in the entire Middle Atlantic Bight region for Porifera, Hydrozoa, Alcyonaria, Zoantharia, Platyhelminthes, and Nemertea.

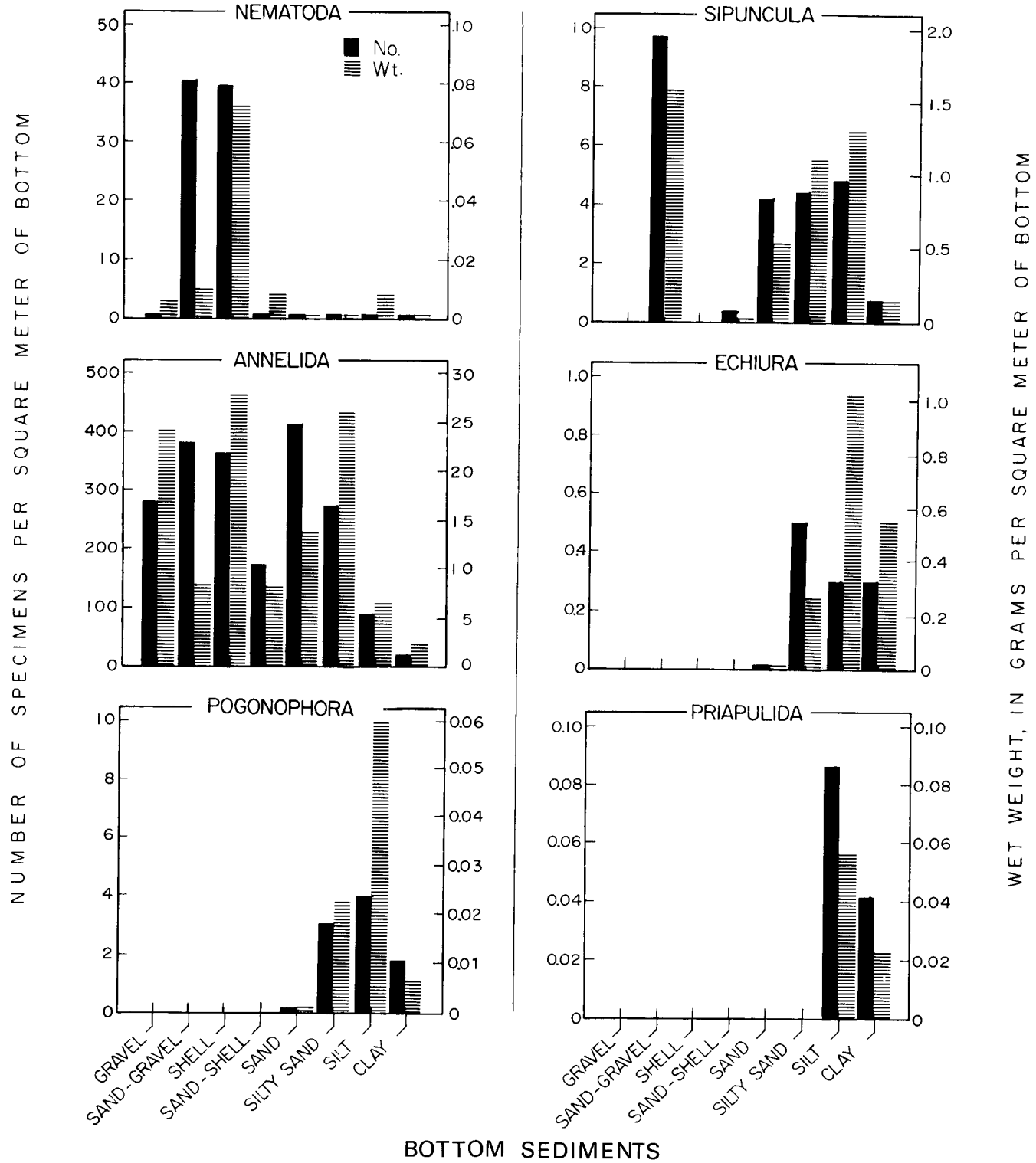

FIGURE 100.—Density (No.) and biomass (wt.) in relation to bottom sediments in the entire Middle Atlantic Bight region for Nematoda, Annelida, Pogonophora, Sipuncula, Echiura, and Priapulida.

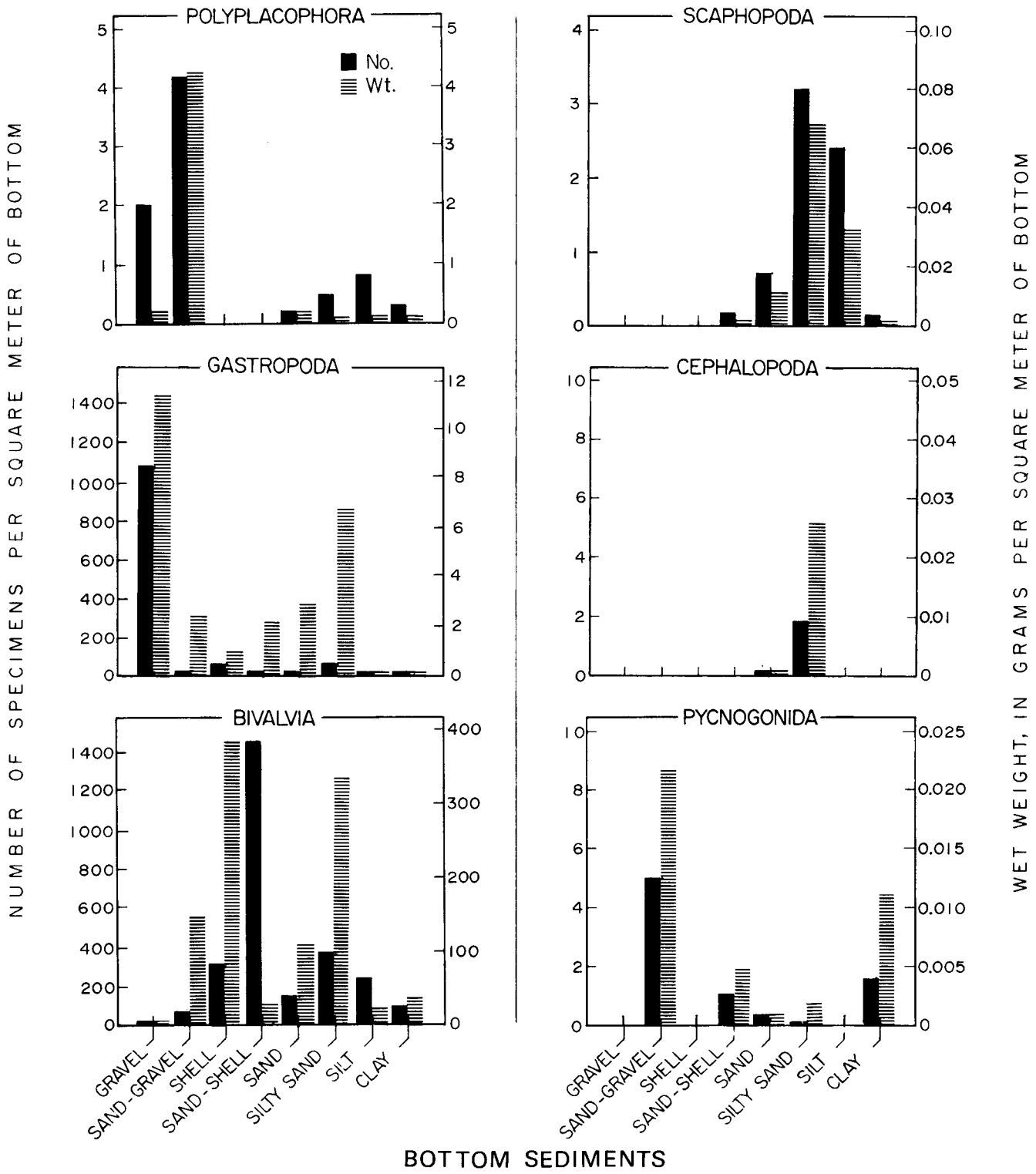

FIGURE 101.—Density (No.) and biomass (wt.) in relation to bottom sediments in the entire Middle Atlantic Bight region for Polyplacophora, Gastropoda, Bivalvia, Scaphopoda, Cephalopoda, and Pycnogonida.

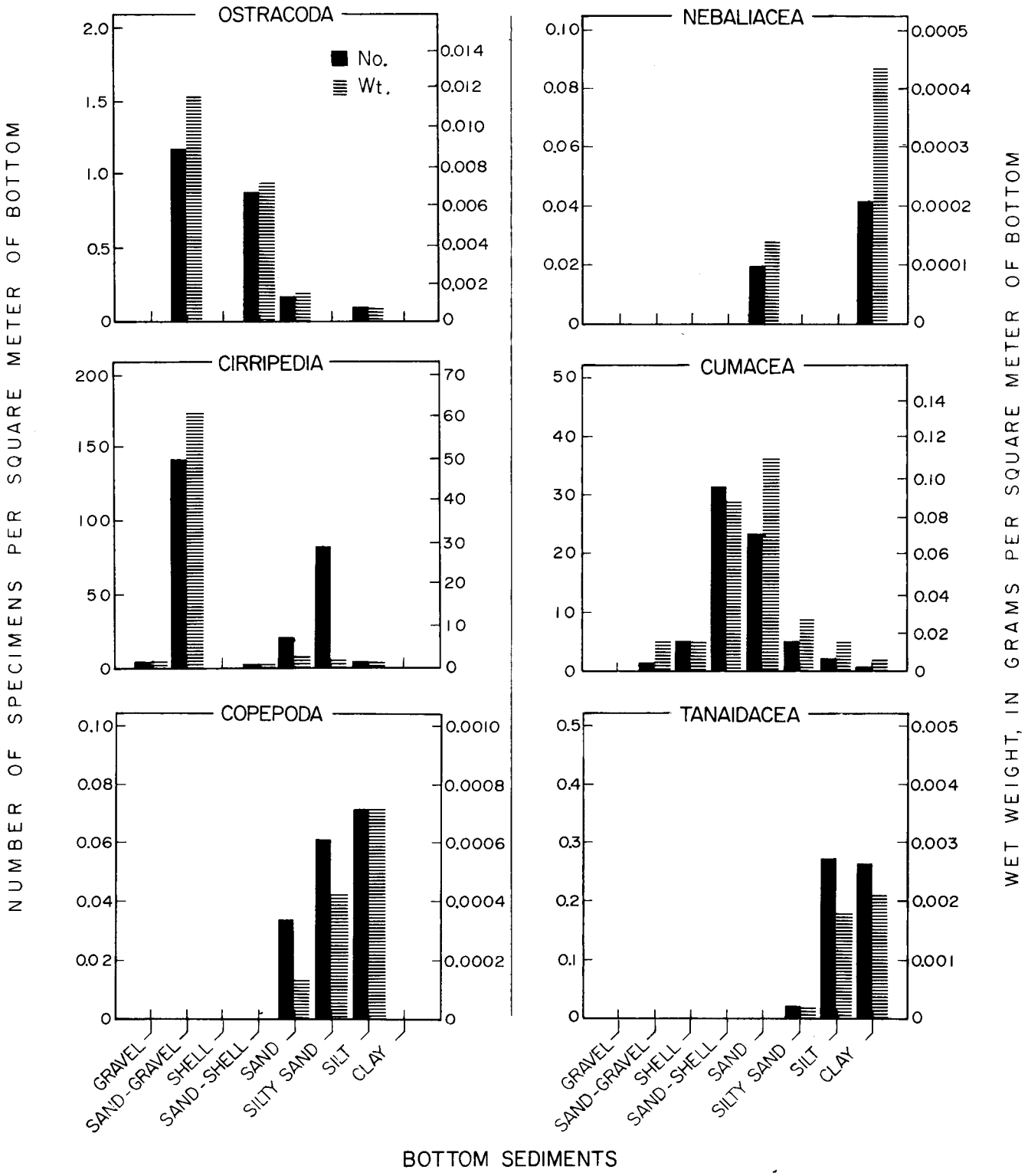

FIGURE 102.—Density (No.) and biomass (wt.) in relation to bottom sediments in the entire Middle Atlantic Bight region for Ostracoda, Cirripedia, Copepoda, Nebaliacea, Cumacea, and Tanaidacea.

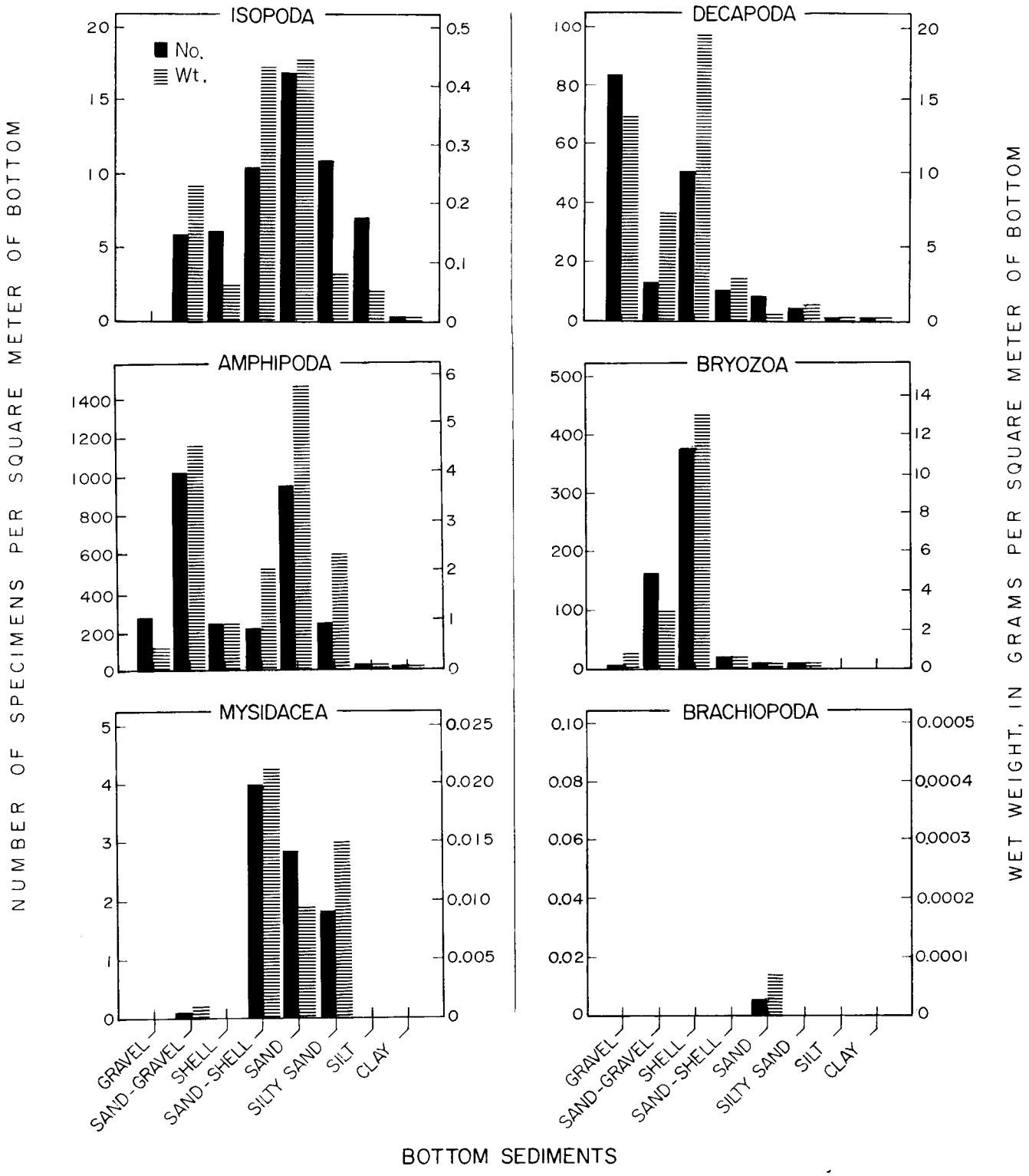

FIGURE 103.—Density (No.) and biomass (wt.) in relation to bottom sediments in the entire Middle Atlantic Bight region for Isopoda, Amphipoda, Mysidacea, Decapoda, Bryozoa, and Brachiopoda.

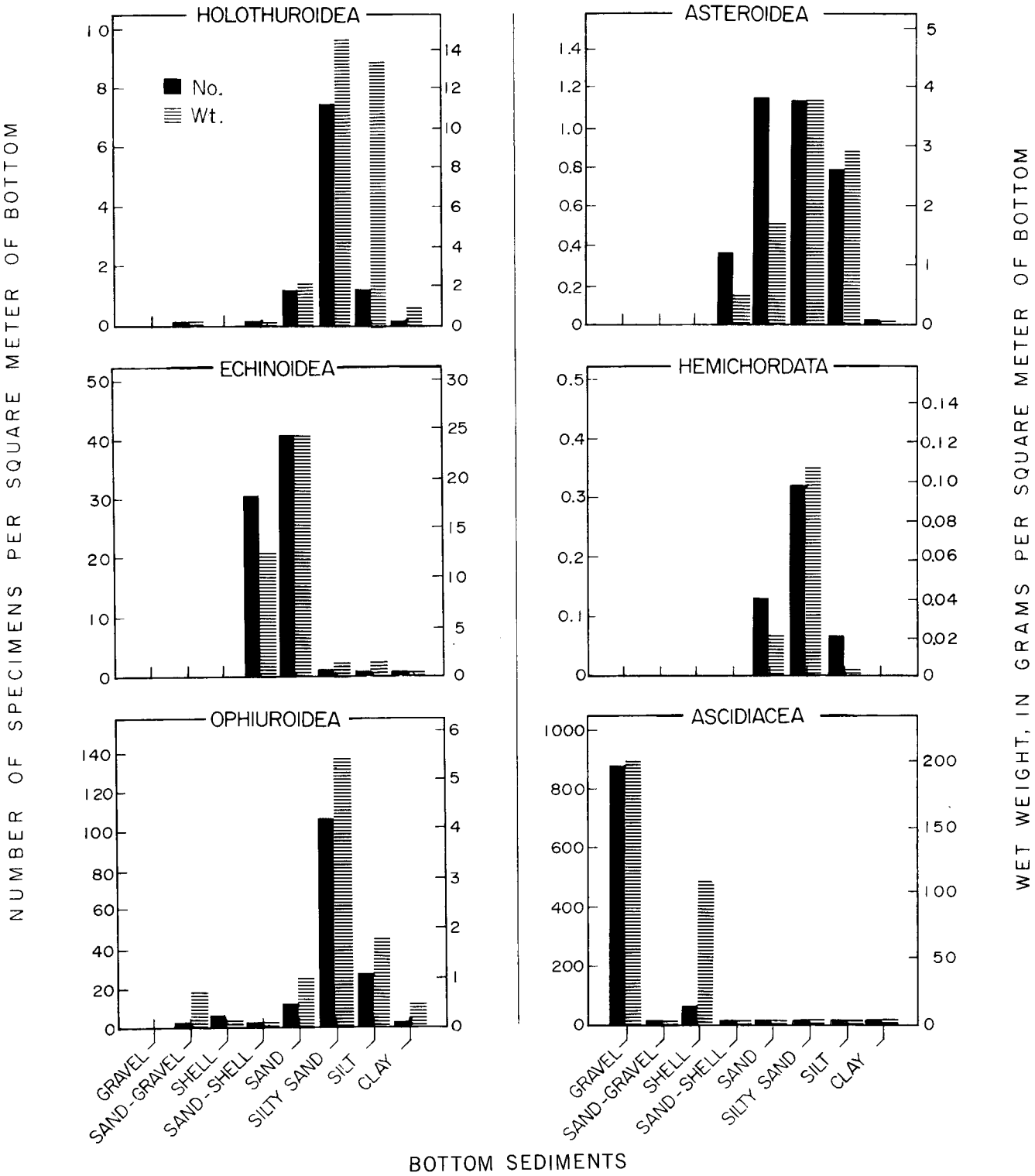

FIGURE 104.—Density (No.) and biomass (wt.) in relation to bottom sediments in the entire Middle Atlantic Bight region for Holothuroidea, Echinoidea, Ophiuroidea, Asteroidea, Hemichordata, and Ascidiacea.

TABLE 24.—*Mean number of individuals listed by taxonomic group in each bottom-sediment type for the Southern New England subarea*

[In number per square meter]

Taxonomic group	Bottom sediments							
	Gravel	Sand-gravel	Shell	Sand-shell	Sand	Silty sand	Silt	Clay
	No./m^2	No./m^2	No./m^2	No./m^2	No./m^2	No./m^2	No./m^2	No./m^2
PORIFERA	5.33	7.27	-	-	0.39	0.17	-	0.20
COELENTERATA	28.33	256.91	-	-	18.38	15.29	7.44	2.40
Hydrozoa	3.67	144.09	-	-	13.23	0.12	-	-
Anthozoa	24.66	122.82	-	-	5.15	15.17	7.44	2.40
Alcyonacea	-	-	-	-	0.13	1.50	2.08	0.70
Zoantharia	10.33	1.27	-	-	4.29	12.63	4.56	0.20
Unidentified	14.33	111.55	-	-	0.73	1.04	0.80	1.50
PLATYHELMINTHES	-	21.55	-	-	0.40	-	0.04	-
Turbellaria	-	21.55	-	-	0.40	-	0.04	-
NEMERTEA	8.00	6.91	-	4.00	7.94	5.56	2.52	-
ASCHELMINTHES	0.67	66.73	-	-	2.29	2.65	2.20	0.80
Nematoda	0.67	66.73	-	-	2.29	2.65	2.20	0.80
ANNELIDA	289.00	555.18	750.00	23.00	433.31	330.82	118.52	9.10
POGONOPHORA	-	-	-	-	0.05	1.33	5.36	3.00
SIPUNCULIDA	-	15.73	-	-	11.20	7.06	10.12	0.90
ECHIURA	-	-	-	-	-	0.04	0.24	0.80
PRIAPULIDA	-	-	-	-	-	-	0.24	-
MOLLUSCA	1083.33	145.10	375.00	76.00	126.94	222.47	336.44	21.10
Polyplacophora	2.00	6.82	-	-	0.37	0.98	1.32	0.20
Gastropoda	1064.33	33.64	275.00	65.00	19.23	34.19	4.40	0.60
Bivalvia	17.00	104.64	100.00	11.00	105.51	182.73	328.00	20.30
Scaphopoda	-	-	-	-	0.49	1.13	2.72	-
Cephalopoda	-	-	-	-	0.06	3.44	-	-
Unidentified	-	-	-	-	1.28	-	-	-
ARTHROPODA	361.34	1770.35	300.00	154.00	2228.16	326.63	54.60	3.80
Pycnogonida	-	8.36	-	-	-	-	-	-
Arachnida	-	-	-	-	-	-	-	-
Crustacea	361.34	1761.99	300.00	154.00	2228.16	326.63	54.60	3.80
Ostracoda	-	1.91	-	-	0.47	-	-	-
Cirripedia	6.67	231.18	-	-	15.22	-	-	-
Copepoda	-	-	-	-	0.07	0.12	0.20	-
Nebaliacea	-	-	-	-	-	-	-	-
Cumacea	-	2.36	-	-	57.65	8.27	5.64	1.20
Tanaidacea	-	-	-	-	-	0.04	0.44	0.80
Isopoda	-	4.36	25.00	-	19.05	2.58	0.96	0.30
Amphipoda	272.00	1508.18	225.00	154.00	2125.11	309.40	47.36	1.50
Mysidacea	-	-	-	-	0.89	3.37	-	-
Decapoda	82.67	14.00	50.00	-	9.70	2.85	-	-
BRYOZOA	3.00	267.45	1500.00	-	5.59	0.17	-	-
BRACHIOPODA	-	-	-	-	-	-	-	-
ECHINODERMATA	-	0.28	-	-	58.59	187.35	81.28	8.20
Holothuroidea	-	-	-	-	3.83	9.69	3.00	0.20
Echinoidea	-	-	-	-	22.01	0.37	0.28	0.20
Ophiuroidea	-	0.28	-	-	30.11	175.85	76.28	7.80
Asteroidea	-	-	-	-	2.64	1.44	1.72	-
HEMICHORDATA	-	-	-	-	0.31	0.38	0.20	-
CHORDATA	885.33	28.45	-	2.00	18.98	23.37	7.20	3.50
Ascidiacea	885.33	28.45	-	2.00	18.98	23.37	7.20	3.50
UNIDENTIFIED	2.33	13.73	-	-	7.33	8.10	6.88	8.30

TABLE 25.—*Mean biomass of each taxonomic group listed by bottom-sediment type for the Southern New England subarea*

[In grams per square meter]

Taxonomic group	Bottom sediments							
	Gravel	Sand-gravel	Shell	Sand-shell	Sand	Silty sand	Silt	Clay
	g/m²	g/m²	g/m²	g/m²	g/m²	g/m²	g/m²	g/m²
PORIFERA	0.210	1.450	-	-	0.036	0.003	-	0.127
COELENTERATA	18.600	9.225	-	-	1.470	9.294	2.576	0.928
Hydrozoa	1.133	4.019	-	-	0.796	0.047	-	-
Anthozoa	17.467	5.206	-	-	0.674	9.247	2.576	0.928
Alcyonacea	-	-	-	-	0.003	0.047	0.168	0.129
Zoantharia	17.047	2.793	-	-	0.586	9.075	2.367	0.163
Unidentified	0.420	2.414	-	-	0.085	0.125	0.041	0.636
PLATYHELMINTHES	-	0.116	-	-	0.012	-	<0.001	-
Turbellaria	-	0.116	-	-	0.012	-	<0.001	-
NEMERTEA	5.813	1.111	-	0.020	0.887	0.750	0.119	-
ASCHELMINTHES	0.007	0.018	-	-	0.005	0.006	0.010	0.008
Nematoda	0.007	0.018	-	-	0.005	0.006	0.010	0.008
ANNELIDA	24.283	11.169	30.500	1.670	21.470	25.835	7.427	0.445
POGONOPHORA	-	-	-	-	<0.001	0.023	0.017	0.012
SIPUNCULIDA	-	2.600	-	-	1.256	1.761	0.958	0.628
ECHIURA	-	-	-	-	-	0.001	0.093	0.709
PRIAPULIDA	-	-	-	-	-	-	0.159	-
MOLLUSCA	16.953	223.297	4.250	0.430	252.317	22.494	10.734	0.525
Polyplacophora	0.227	7.023	-	-	0.003	0.018	0.016	0.002
Gastropoda	11.487	3.917	3.750	0.370	6.302	0.793	0.104	0.029
Bivalvia	5.240	212.357	0.500	0.060	245.996	21.622	10.664	0.494
Scaphopoda	-	-	-	-	0.009	0.014	0.039	-
Cephalopoda	-	-	-	-	0.001	0.047	-	-
Unidentified	-	-	-	-	0.005	-	-	-
ARTHROPODA	14.573	113.338	30.500	0.630	17.579	2.761	0.380	0.049
Pycnogonida	-	0.036	-	-	-	-	-	-
Arachnida	-	-	-	-	-	-	-	-
Crustacea	14.573	113.303	30.500	0.630	17.579	2.761	0.380	0.049
Ostracoda	-	0.019	-	-	0.003	-	-	-
Cirripedia	0.143	100.404	-	-	3.136	-	-	-
Copepoda	-	-	-	-	<0.001	0.001	0.002	-
Nebaliacea	-	-	-	-	-	-	-	-
Cumacea	-	0.024	-	-	0.260	0.037	0.037	0.030
Tanaidacea	-	-	-	-	-	<0.001	0.004	0.006
Isopoda	-	0.357	0.250	-	0.392	0.171	0.010	0.001
Amphipoda	0.600	6.501	1.750	0.630	13.252	2.354	0.327	0.012
Mysidacea	-	-	-	-	0.002	0.027	-	-
Decapoda	13.830	5.998	28.500	-	0.533	0.171	-	-
BRYOZOA	1.187	5.293	52.000	-	0.364	0.001	-	-
BRACHIOPODA	-	-	-	-	-	-	-	-
ECHINODERMATA	-	1.326	-	-	23.924	35.282	49.234	0.756
Holothuroidea	-	-	-	-	7.238	21.704	35.195	0.174
Echinoidea	-	-	-	-	12.642	1.605	2.206	0.185
Ophiuroidea	-	1.326	-	-	3.215	9.134	3.896	0.397
Asteroidea	-	-	-	-	0.829	2.840	7.937	-
HEMICHORDATA	-	-	-	-	0.062	0.080	0.002	-
CHORDATA	204.080	2.646	-	0.170	1.894	6.313	2.054	0.542
Ascidiacea	204.080	2.646	-	0.170	1.894	6.313	2.054	0.542
UNIDENTIFIED	0.350	2.228	-	-	0.334	0.344	0.424	0.094

TABLE 26.—*Mean number of individuals listed by taxonomic group in each bottom-sediment type for the New York Bight subarea*

[In number per square meter]

Taxonomic group	Bottom sediments							
	Gravel	Sand-gravel	Shell	Sand-shell	Sand	Silty sand	Silt	Clay
	No./m^2	No./m^2	No./m^2	No./m^2	No./m^2	No./m^2	No./m^2	No./m^2
PORIFERA	-	-	-	4.31	0.15	0.72	-	-
COELENTERATA	-	6.40	-	9.01	3.53	50.17	4.89	1.78
Hydrozoa	-	2.60	-	8.63	2.07	23.89	0.13	-
Anthozoa	-	3.80	-	0.38	1.46	26.28	4.76	1.78
Alcyonacea	-	-	-	-	0.32	2.94	0.50	1.21
Zoantharia	-	3.80	-	0.38	0.53	23.72	4.13	0.14
Unidentified	-	-	-	-	0.61	2.56	0.13	0.43
PLATYHELMINTHES	-	-	-	0.25	0.07	-	-	-
Turbellaria	-	-	-	0.25	0.07	-	-	-
NEMERTEA	-	4.00	-	3.31	3.03	2.28	1.38	0.14
ASCHELMINTHES	-	-	-	-	0.07	0.50	0.50	-
Nematoda	-	-	-	-	0.07	0.50	0.50	-
ANNELIDA	-	142.40	-	224.25	532.79	285.39	48.69	11.29
POGONOPHORA	-	-	-	-	0.02	2.89	4.69	2.07
SIPUNCULIDA	-	-	-	0.56	2.46	1.89	1.88	0.79
ECHIURA	-	-	-	-	-	1.33	0.38	0.29
PRIAPULIDA	-	-	-	-	-	-	-	-
MOLLUSCA	-	4.60	-	127.50	141.52	837.97	378.38	74.72
Polyplacophora	-	-	-	-	0.05	-	0.13	0.29
Gastropoda	-	0.40	-	8.25	25.66	39.17	13.44	2.43
Bivalvia	-	4.20	-	119.25	114.54	793.33	362.50	71.36
Scaphopoda	-	-	-	-	1.27	5.67	2.31	0.64
Cephalopoda	-	-	-	-	-	-	-	-
Unidentified	-	-	-	-	-	-	-	-
ARTHROPODA	-	289.80	-	330.38	620.04	700.27	15.45	2.14
Pycnogonida	-	-	-	-	-	0.61	-	-
Arachnida	-	-	-	-	0.22	-	-	-
Crustacea	-	289.80	-	330.38	619.82	699.66	15.45	2.14
Ostracoda	-	-	-	2.50	0.11	-	-	-
Cirripedia	-	-	-	-	43.03	440.67	2.13	-
Copepoda	-	-	-	-	0.03	-	-	-
Nebaliacea	-	-	-	-	-	-	-	0.14
Cumacea	-	0.40	-	10.31	11.80	1.67	0.38	0.64
Tanaidacea	-	-	-	-	-	-	-	0.29
Isopoda	-	8.60	-	11.00	12.25	12.28	5.69	0.14
Amphipoda	-	267.60	-	286.44	541.72	233.33	6.56	0.79
Mysidacea	-	0.40	-	3.13	1.07	-	-	-
Decapoda	-	12.80	-	17.00	9.81	11.71	0.69	0.14
BRYOZOA	-	0.40	-	18.56	3.90	9.06	-	-
BRACHIOPODA	-	-	-	-	-	-	-	-
ECHINODERMATA	-	-	-	23.70	73.02	9.61	1.95	3.64
Holothuroidea	-	-	-	0.63	0.50	4.44	0.38	0.43
Echinoidea	-	-	-	21.38	60.83	0.22	-	-
Ophiuroidea	-	-	-	0.75	10.94	3.39	1.44	3.21
Asteroidea	-	-	-	0.94	0.75	1.56	0.13	-
HEMICHORDATA	-	-	-	-	0.11	-	-	-
CHORDATA	-	0.60	-	15.56	5.62	0.22	3.94	2.43
Ascidiacea	-	0.60	-	15.56	5.62	0.22	3.94	2.43
UNIDENTIFIED	-	-	-	11.69	4.97	0.94	1.94	5.50

TABLE 27.—*Mean biomass of each taxonomic group listed by bottom-sediment type for the New York Bight subarea*

[In grams per square meter]

Taxonomic group	Bottom sediments							
	Gravel	Sand-gravel	Shell	Sand-shell	Sand	Silty sand	Silt	Clay
	g/m^2	g/m^2	g/m^2	g/m^2	g/m^2	g/m^2	g/m^2	g/m^2
PORIFERA	-	-	-	0.292	0.002	0.007	-	-
COELENTERATA	-	1.596	-	0.476	0.778	4.605	3.908	0.452
Hydrozoa	-	0.036	-	0.046	0.055	0.253	0.001	-
Anthozoa	-	1.560	-	0.430	0.722	4.352	3.906	0.452
Alcyonacea	-	-	-	-	0.054	0.226	0.039	0.058
Zoantharia	-	1.560	-	0.430	0.609	3.784	3.830	0.149
Unidentified	-	-	-	-	0.059	0.342	0.038	0.245
PLATYHELMINTHES	-	-	-	0.005	0.004	-	-	-
Turbellaria	-	-	-	0.005	0.004	-	-	-
NEMERTEA	-	0.212	-	0.358	0.814	0.562	1.594	0.001
ASCHELMINTHES	-	-	-	-	<0.001	0.001	0.005	-
Nematoda	-	-	-	-	<0.001	0.001	0.005	-
ANNELIDA	-	4.126	-	9.349	12.187	42.360	6.749	1.839
POGONOPHORA	-	-	-	-	<0.001	0.017	0.024	0.009
SIPUNCULIDA	-	-	-	0.020	0.456	0.216	0.153	0.009
ECHIURA	-	-	-	-	-	1.327	1.676	0.142
PRIAPULIDA	-	-	-	-	-	-	-	-
MOLLUSCA	-	72.496	-	50.451	78.800	1640.064	55.188	0.880
Polyplacophora	-	-	-	-	<0.001	-	0.001	0.009
Gastropoda	-	0.092	-	3.828	1.786	8.334	1.069	0.018
Bivalvia	-	72.404	-	46.623	76.994	1631.601	54.088	0.846
Scaphopoda	-	-	-	-	0.020	0.128	0.029	0.006
Cephalopoda	-	-	-	-	-	-	-	-
Unidentified	-	-	-	-	-	-	-	-
ARTHROPODA	-	15.284	-	9.858	8.771	19.821	0.209	0.091
Pycnogonida	-	-	-	-	-	0.012	-	-
Arachnida	-	-	-	-	0.001	-	-	-
Crustacea	-	15.284	-	9.858	8.770	19.808	0.209	0.091
Ostracoda	-	-	-	0.020	0.001	-	-	-
Cirripedia	-	-	-	-	4.728	10.283	0.064	-
Copepoda	-	-	-	-	<0.001	-	-	-
Nebaliacea	-	-	-	-	-	-	-	0.001
Cumacea	-	0.004	-	0.036	0.062	0.017	0.004	0.006
Tanaidacea	-	-	-	-	-	-	-	0.003
Isopoda	-	0.054	-	0.481	0.480	0.074	0.042	0.001
Amphipoda	-	2.090	-	2.209	2.765	5.758	0.028	0.008
Mysidacea	-	0.004	-	0.016	0.006	-	-	-
Decapoda	-	13.132	-	7.097	0.726	3.677	0.071	0.071
BRYOZOA	-	0.004	-	0.308	0.096	0.164	-	-
BRACHIOPODA	-	-	-	-	-	-	-	-
ECHINODERMATA	-	-	-	8.437	44.257	101.885	2.436	2.096
Holothuroidea	-	-	-	0.054	0.335	0.427	1.560	1.634
Echinoidea	-	-	-	7.184	39.688	1.479	-	-
Ophiuroidea	-	-	-	0.008	0.587	87.889	0.721	0.463
Asteroidea	-	-	-	1.191	3.648	12.090	0.155	-
HEMICHORDATA	-	-	-	-	0.009	-	-	-
CHORDATA	-	0.036	-	1.307	0.264	0.029	0.273	0.462
Ascidiacea	-	0.036	-	1.307	0.264	0.029	0.273	0.462
UNIDENTIFIED	-	-	-	1.567	0.066	0.668	0.018	0.047

TABLE 28.—*Mean number of individuals listed by taxonomic group in each bottom-sediment type for the Chesapeake Bight subarea*

[In number per square meter]

Taxonomic group	Bottom sediments							
	Gravel	Sand-gravel	Shell	Sand-shell	Sand	Silty sand	Silt	Clay
	No./m^2	No./m^2	No./m^2	No./m^2	No./m^2	No./m^2	No./m^2	No./m^2
PORIFERA	-	-	-	1.11	0.05	0.08	11.11	0.50
COELENTERATA	-	57.50	53.33	9.33	8.13	47.30	3.15	5.09
Hydrozoa	-	57.50	39.00	4.70	1.51	42.42	-	-
Anthozoa	-	-	14.33	4.63	6.62	4.88	3.15	5.09
Alcyonacea	-	-	-	-	-	0.08	0.61	0.18
Zoantharia	-	-	-	3.52	1.38	2.88	-	4.91
Unidentified	-	-	14.33	1.11	5.24	1.92	2.54	-
PLATYHELMINTHES	-	-	-	0.44	0.50	-	0.75	-
Turbellaria	-	-	-	0.44	0.50	-	0.75	-
NEMERTEA	-	1.50	2.00	2.00	6.17	12.38	0.82	1.18
ASCHELMINTHES	-	-	52.33	3.15	0.18	0.42	1.32	0.32
Nematoda	-	-	52.33	3.15	0.18	0.42	1.32	0.32
ANNELIDA	-	95.00	233.67	149.96	222.50	136.38	89.86	45.95
POGONOPHORA	-	-	-	-	0.07	7.42	16.93	1.09
SIPUNCULIDA	-	-	-	0.37	0.14	0.83	1.75	0.95
ECHIURA	-	-	-	-	0.02	0.88	0.36	0.09
PRIAPULIDA	-	-	-	-	-	-	-	0.09
MOLLUSCA	-	28.50	427.33	2282.00	348.92	764.78	149.21	144.64
Polyplacophora	-	-	-	-	0.13	0.08	0.82	0.41
Gastropoda	-	9.00	25.00	2.48	15.81	247.25	37.14	8.00
Bivalvia	-	19.50	402.33	2279.22	332.58	511.92	109.00	136.23
Scaphopoda	-	-	-	0.30	0.40	5.83	2.25	-
Cephalopoda	-	-	-	-	-	-	-	-
Unidentified	-	-	-	-	-	-	-	-
ARTHROPODA	-	125.50	338.66	285.51	347.06	135.38	43.32	40.77
Pycnogonida	-	-	-	1.70	0.94	-	-	3.45
Arachnida	-	-	-	-	-	-	-	-
Crustacea	-	125.50	338.66	283.81	346.12	135.38	43.32	37.32
Ostracoda	-	-	-	-	0.05	-	0.21	-
Cirripedia	-	-	-	0.96	0.11	-	-	-
Copepoda	-	-	-	-	-	-	-	-
Nebaliacea	-	-	-	-	0.07	-	-	-
Cumacea	-	-	8.33	45.59	7.33	3.33	0.54	-
Tanaidacea	-	-	-	-	-	-	0.29	-
Isopoda	-	6.50	-	10.89	21.17	28.63	13.14	-
Amphipoda	-	114.00	280.00	213.33	305.83	96.79	28.71	37.32
Mysidacea	-	-	-	4.56	7.23	-	-	-
Decapoda	-	5.00	50.33	8.48	4.33	6.63	0.43	-
BRYOZOA	-	-	1.33	28.67	1.86	4.21	-	-
BRACHIOPODA	-	-	-	-	0.02	-	-	-
ECHINODERMATA	-	1.50	8.33	38.66	32.54	35.29	2.64	1.73
Holothuroidea	-	1.50	-	0.22	0.18	5.08	0.14	0.09
Echinoidea	-	-	-	36.33	31.39	-	-	-
Ophiuroidea	-	-	8.33	2.04	0.77	30.13	2.14	1.55
Asteroidea	-	-	-	0.07	0.20	0.08	0.36	0.09
HEMICHORDATA	-	-	-	-	-	0.46	-	-
CHORDATA	-	-	0.92	-	10.33	2.75	0.82	2.18
Ascidiacea	-	-	0.92	-	10.33	2.75	0.82	2.18
UNIDENTIFIED	-	1.50	2.00	3.11	6.52	8.50	31.36	4.68

TABLE 29.—*Mean biomass of each taxonomic group listed by bottom-sediment type in the Chesapeake Bight subarea*

[In grams per square meter]

Taxonomic group	Bottom sediments							
	Gravel	Sand-gravel	Shell	Sand-shell	Sand	Silty sand	Silt	Clay
	g/m²	g/m²	g/m²	g/m²	g/m²	g/m²	g/m²	g/m²
PORIFERA	-	-	-	0.226	0.001	0.026	0.004	0.005
COELENTERATA	-	2.710	2.067	10.988	0.858	3.883	0.340	3.375
Hydrozoa	-	2.710	1.050	0.982	0.028	0.042	-	-
Anthozoa	-	-	1.017	10.006	0.830	3.841	0.340	3.375
Alcyonacea	-	-	-	-	-	0.004	0.187	0.144
Zoantharia	-	-	-	9.903	0.665	3.747	-	3.231
Unidentified	-	-	1.017	0.103	0.165	0.090	0.153	-
PLATYHELMINTHES	-	-	-	0.009	0.011	-	0.004	-
Turbellaria	-	-	-	0.009	0.011	-	0.004	-
NEMERTEA	-	0.015	0.147	0.366	0.404	0.672	0.151	0.012
ASCHELMINTHES	-	-	0.097	0.015	0.001	0.002	0.011	0.002
Nematoda	-	-	0.097	0.015	0.001	0.002	0.011	0.002
ANNELIDA	-	6.640	26.903	8.398	9.562	14.659	6.131	3.722
POGONOPHORA	-	-	-	-	<0.001	0.031	0.117	0.004
SIPUNCULIDA	-	-	-	0.042	0.016	0.308	2.241	0.006
ECHIURA	-	-	-	-	0.022	0.210	1.804	0.941
PRIAPULIDA	-	-	-	-	-	-	-	0.046
MOLLUSCA	-	0.335	514.767	31.236	50.749	65.537	22.591	90.937
Polyplacophora	-	-	-	-	0.011	0.001	0.007	0.004
Gastropoda	-	0.040	0.167	1.295	1.830	18.885	0.111	0.015
Bivalvia	-	0.295	514.600	29.939	48.903	46.511	22.444	90.918
Scaphopoda	-	-	-	0.002	0.005	0.141	0.030	-
Cephalopoda	-	-	-	-	-	-	-	-
Unidentified	-	-	-	-	-	-	-	-
ARTHROPODA	-	1.040	17.340	3.106	3.755	2.143	0.225	0.183
Pycnogonida	-	-	-	0.009	0.005	-	-	0.024
Arachnida	-	-	-	-	-	-	-	-
Crustacea	-	1.040	17.340	3.097	3.751	2.143	0.225	0.160
Ostracoda	-	-	-	-	<0.001	-	0.001	-
Cirripedia	-	-	-	0.005	0.004	-	-	-
Copepoda	-	-	-	-	-	-	-	-
Nebaliacea	-	-	-	-	<0.001	-	-	-
Cumacea	-	-	0.020	0.124	0.031	0.021	0.005	-
Tanaidacea	-	-	-	-	-	-	0.001	-
Isopoda	-	0.050	-	0.422	0.457	0.146	0.107	-
Amphipoda	-	0.860	0.793	2.011	2.589	0.231	0.060	0.160
Mysidacea	-	-	-	0.026	0.022	-	-	-
Decapoda	-	0.130	16.527	0.510	0.646	1.745	0.050	-
BRYOZOA	-	-	0.013	0.655	0.027	0.075	-	-
BRACHIOPODA	-	-	-	-	<0.001	-	-	-
ECHINODERMATA	-	1.470	0.167	17.104	15.197	10.890	0.806	1.352
Holothuroidea	-	1.470	-	0.543	0.498	10.092	0.217	0.820
Echinoidea	-	-	-	16.328	14.579	-	-	-
Ophiuroidea	-	-	0.167	0.067	0.025	0.796	0.583	0.529
Asteroidea	-	-	-	0.166	0.096	0.002	0.005	0.002
HEMICHORDATA	-	-	-	-	-	0.240	-	-
CHORDATA	-	-	144.867	-	4.170	1.662	0.047	0.976
Ascidiacea	-	-	144.867	-	4.170	1.662	0.047	0.976
UNIDENTIFIED	-	0.100	0.027	0.032	0.046	0.172	0.204	0.490