FAUNAL COMPOSITION

Entire Middle Atlantic Bight Region

According to the number of species present or number of groups of higher taxa present, the faunal composition in the Middle Atlantic Bight Region is moderate -- the number of species and higher taxa are neither very abundant nor very sparse. The different species encountered in the samples numbered 435; they represented 17 phyla. This modest variation in taxonomic diversity is typical of a temperate marine fauna. However, to some extent the observed variation resulted from our knowledge of particular taxonomic groups and our facility (and that of cooperating scientists) in identifying the components of the various groups. This is evident from the relatively large numbers of species in Arthropoda, Annelida, and Mollusca. Also, our priorities in establishing taxonomic work assignments resulted in relatively small effort being devoted to identifying the species composition of the less important (in terms of abundance or biomass) groups, such as Porifera, Platyhelminthes, Hemichordata, Nemertea, and Aschelminthes.

In evaluating the total fauna (all taxonomic groups from all samples) it was found to be dominated by four groups: Arthropoda, Annelida, Mollusca, and Echinodermata. Dominance of these groups was apparent both in number and biomass; however, the order of importance differed substantially between the two measures (table 3; fig. 5). Numerical dominance, here indicated by mean density per square meter and percentage of the total fauna they constituted, was as follows: Arthropoda - 641 - (45%), Mollusca - 346 - (25%), Annelida - 298 - (21%), Echinodermata - 55 - (4%), and all other groups combined - 65 - (5%). Biomass, which is here expressed as mean wet weight or

Table 3.--Quantitative taxonomic composition of the macrobenthic invertebrate fauna, in terms of both number of individuals and biomass, representing the entire Middle Atlantic Bight Region.

Taxonomic group	Number of individuals			Biomass		
	Mean	Percent	Phylum rank	Mean	Percent	Phylum rank
	No./m^2			g/m^2		
PORIFERA	0.56	0.04	13	0.058	0.03	11
COELENTERATA	17.76	1.26	5	2.975	1.56	6
Hydrozoa	9.57	0.68		0.296	0.16	
Anthozoa	8.19	0.58		2.680	1.41	
Alcyonacea	0.51	0.04		0.091	0.05	
Zoantharia	3.81	0.27		2.425	1.27	
Unidentified	3.87	0.28		0.164	0.09	
PLATYHELMINTHES	0.64	0.05	12	0.007	0.004	15
Turbellaria	0.64	0.05		0.007	0.004	
NEMERTEA	4.61	0.32	8	0.619	0.32	8
ASCHELMINTHES	2.60	0.18	10	0.005	0.002	16
Nematoda	2.60	0.18		0.005	0.002	
ANNELIDA	297.77	21.18	3	13.814	7.24	3
POGONOPHORA	1.91	0.14	11	0.012	0.01	13
SIPUNCULIDA	3.94	0.28	9	0.689	0.36	7
ECHIURA	0.15	0.01	14	0.249	0.13	10
PRIAPULIDA	0.01	0.001	16	0.009	0.005	14
MOLLUSCA	346.29	24.63	2	136.131	71.38	1
Polyplacophora	0.45	0.03		0.144	0.08	
Gastropoda	35.79	2.55		3.081	1.62	
Bivalvia	308.27	21.93		132.878	69.68	
Scaphopoda	1.26	0.09		0.022	<0.001	
Cephalopoda	0.33	0.02		0.004	0.002	
Unidentified	0.19	0.01		0.001	<0.001	
ARTHROPODA	640.51	45.56	1	9.013	4.73	4
Pycnogonida	0.54	0.04		0.003	0.002	
Arachnida	0.05	0.004		<0.001	<0.001	
Crustacea	639.92	45.52		9.010	4.72	
Ostracoda	0.22	0.02		0.002	0.001	
Cirripedia	30.02	2.14		3.747	1.96	
Copepoda	0.04	0.003		<0.001	<0.001	
Nebaliacea	0.01	0.001		<0.001	<0.001	
Cumacea	15.92	1.13		0.071	0.04	
Tanaidacea	0.06	0.004		<0.001	<0.001	
Isopoda	12.31	0.88		0.290	0.15	
Amphipoda	572.09	40.70		3.675	1.93	
Mysidacea	2.06	0.15		0.009	0.005	
Decapoda	7.19	0.51		1.214	0.64	
BRYOZOA	12.22	0.87	7	0.329	0.17	9
BRACHIOPODA	<0.01	0.03	17	<0.001	<0.001	17
ECHINODERMATA	54.64	3.89	4	22.775	11.94	2
Holothuroidea	2.15	0.15		5.386	2.82	
Echinoidea	23.09	1.64		13.641	7.15	
Ophiuroidea	28.50	2.03		1.798	0.94	
Asteroidea	0.90	0.06		1.949	1.02	
HEMICHORDATA	0.13	0.01	15	0.029	0.01	12
CHORDATA	14.69	1.05	6	3.721	1.95	5
Ascidiacea	14.69	1.05		3.721	1.95	
UNIDENTIFIED	7.40	0.53		0.274	0.14	

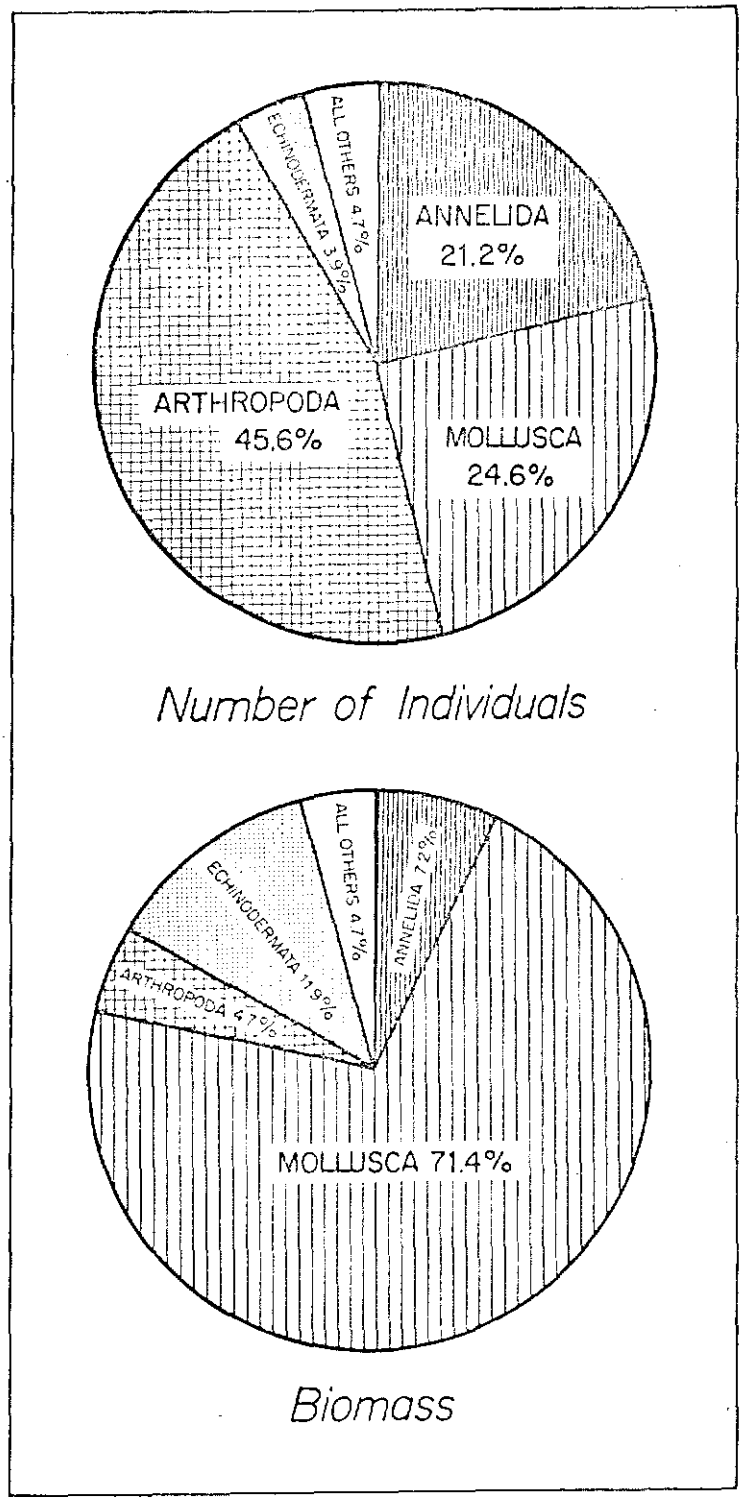


Figure 5.--Pie chart illustrating the taxonomic composition of the total macrobenthic fauna in the entire Middle Atlantic Bight Region: upper chart--percentage number of individuals; lower chart--percentage biomass.

damp weight in grams per square meter and percentage of the total fauna was even more heavily dominated by a few taxonomic groups than numerical density. Principal components in terms of biomass were: Mollusca - 136 - (71%), Echinodermata - 23 - (12%), Annelida - 14 - (7%), Arthropoda - 9 - (5%). Minor groups listed here in decreasing order of importance in terms of biomass were: Chordata, Coelenterata, Sipunculida, Nemertea, Bryozoa, Echiura, Porifera, Hemichordata, Pogonophora, Priapulida, Platyhelminthes, Aschelminthes, and Brachiopoda.

Dominance of the fauna by a relatively few groups of organisms was also apparent at more specific taxonomic levels - genera and species. In the taxonomic list of species given in table 4 are 435 species that were represented in samples within the Middle Atlantic Bight Region. Of this number less than approximately 10 percent are considered important in terms of number and/or biomass. In number of specimens some of the more important forms were: Scalibregma, Nephtys, Maldane, Sabella, Spiophanes (Annelida); Alvania, Cylichna, Nassarius (Gastropoda); Nucula, Cyclocardia, Astarte, Thyasira (Bivalvia); Balanus (Cirripedia); Trichophoxus, Leptocheirus, Ampelisca, Unciola (Amphipoda); Cirolana (Isopoda); Echinarachnius (Echinoidea).

Important as major contributors to the biomass were: Cerianthus (Coelenterata); Nephtys, Streblosoma, Maldane, Lumbrineris (Annelida); Arctica, Astarte, Cyclocardia, Mulinia, Ensis (Bivalvia); Buccinum, Nassarius (Gastropoda); Trichophoxus, Leptocheirus, Unciola (Amphipoda); Cancer (Decapoda); Cirolana (Isopoda); Astropecten (Asteroidea); Echinarachnius, Brisaster (Echinoidea).

Large differences occurred in dominant forms from one subarea to another, and these are described in the following section.

Table 4.--List of invertebrate species contained in quantitative samples taken within the Middle Atlantic Bight Region.

COELENTERATA
- Hydrozoa
  - *Hydractinia echinata* Fleming, 1828
- Anthozoa
  - Alcyonacea
    - *Pennatula aculeata* Danielson and Koren, 1858
  - Zoantharia
    - Zoanthidea
      - *Epizoanthus incrustatus* (Verrill) 1864
    - Actiniaria
      - *Anthaloba perdix* Verrill, 1882
      - *Edwardsia* sp.
      - *Haliplanella luciae* (Verrill) 1898
      - *Haloclava producta* Stimpson, 1856
      - *Paranthus rapiformis* Lesueur, 1817
    - Madreporaria
      - *Astrangia danae* Agassiz, 1847
    - Ceriantharia
      - *Cerianthus borealis* Verrill, 1873
      - *Ceriantheopsis americanus* Verrill, 1866

ANNELIDA
- Polychaeta
  - Phyllodocida
    - Phyllodocidae
      - *Eteone* sp.
      - *Eumida sanguinea* (Oersted) 1843
      - *Phyllodoce arenae* Webster, 1879
      - *Phyllodoce mucosa* Oersted, 1843
      - *Phyllodoce* sp.
    - Aphroditidae
      - *Aphrodita hastata* Moore, 1905
    - Polynoidae
      - *Harmathoe extenuata* (Grube) 1840
    - Sigalionidae
      - *Leanira* sp.
      - *Pholoe minuta* (Fabricius) 1780
      - *Sigalion arenicola* Verrill, 1879
      - *Sthenelais limicola* (Ehlers) 1864
    - Glyceridae
      - *Glycera americana* Leidy, 1855
      - *Glycera capitata* Oersted, 1843
      - *Glycera dibranchiata* Ehlers, 1868
      - *Glycera robusta* Ehlers, 1868
      - *Glycera tesselata* Grube, 1863

Goniadidae
- Goniada brunnea Treadwell, 1906
- Goniada maculata (Oersted) 1843
- Goniadella gracilis (Verrill) 1873

Sphaerodoridae
- Sphaerodorum gracilis (Rathke) 1843

Nephtyidae
- Aglaophamus circinata (Verrill) 1874
- Aglaophamus sp.
- Nephtys bucera Ehlers, 1868
- Nephtys incisa Malmgren, 1865
- Nephtys picta Ehlers, 1868

Syllidae
- Exogone verugera (Clarapede) 1868

Pilgaridae
- Ancistrosyllis sp.

Nereidae
- Ceratocephale loveni Malmgren, 1867
- Nereis pelagica Linnaeus, 1758
- Nereis sp.

Capitellida

Capitellidae
- Capitella sp.

Scalibregmidae
- Scalibregma inflatum Rathke, 1843

Maldanidae
- Asychis biceps (Sars), 1861
- Maldane sp.

Opheleidae
- Ammotrypane aulogaster Rathke, 1843
- Ammotrypane sp.
- Ophelia denticulata Verrill, 1875
- Travisia sp.

Sternaspida

Sternaspidae
- Sternaspis scutata (Renier) 1807

Spionida

Spionidae
- Dispio uncinata Hartman, 1951
- Laonice cirrata (Sars) 1851
- Prionospio sp.
- Polydora concharum Verrill, 1880
- Polydora sp.
- Spio setosa Verrill, 1873
- Spiophanes bombyx (Clarapede) 1870

Paraonidae
- Aricidea jeffreysii (McIntosh) 1879
- Paraonis fulgens (Levinsen) 1883
- Paraonis neapolitana Cerruti, 1909

Chaetopteridae
- Chaetopterus sp.
- Spiochaetopterus sp.

Eunicida
- Onuphidae
  - *Diopatra cuprea* (Bosc) 1802
  - *Hyalinoecia tubicola* (Müller) 1776
  - *Onuphis conchylega* Sars, 1835
  - *Onuphis eremita* Audoin and Milne-Edwards, 1833
  - *Onuphis opalina* (Verrill) 1873
  - *Onuphis quadricuspis* Sars, 1872
  - *Paradiopatra* sp.
- Eunicidae
  - *Eunice pennata* (Müller) 1776
  - *Marphysa belli* (Audoin and Milne-Edwards) 1883
- Lumbrineridae
  - *Lumbrineris acuta* (Verrill) 1875
  - *Lumbrineris fragilis* (Müller) 1776
  - *Lumbrineris tenuis* (Verrill) 1873
  - *Ninoe nigripes* Verrill, 1873
- Arabellidae
  - *Arabella iricolor* (Montagu) 1804
  - *Drilonereis longa* Webster, 1879
  - *Notocirrus* sp.

Amphinomida
- Amphinomidae
  - *Paramphinome pulchella* Sars, 1872

Magelonida
- Magelonidae
  - *Magelona* sp.

Ariciida
- Orbiniidae
  - *Orbinia ornata* (Verrill) 1873
  - *Orbinia swani* Pettibone, 1957
  - *Scoloplos robustus* (Verrill) 1873

Cirratulida
- Cirratulidae
  - *Chaetozone* sp.
  - *Cirratulus* sp.
  - *Cossura longocirrata* Webster and Benedict, 1883
  - *Tharyx* sp.

Oweniida
- Oweniidae
  - *Owenia fusiformis* delle Chiaje, 1844

Terebellida
- Pectinariidae
  - *Pectinaria gouldii* (Verrill) 1873
- Ampharetidae
  - *Ampharete acutifrons* (Grube) 1860
  - *Ampharete arctica* Malmgren, 1866
  - *Asabellides oculata* Webster, 1879
  - *Melinna cristata* (Sars) 1851

Terebellidae
Amphitrite sp.
Streblosoma spiralis (Verrill) 1874
Flabelligerida
Flabelligeridae
Brada sp.
Flabelligera sp.
Pherusa sp.
Sabellida
Sabellidae
Chone infundibuliformis Kröyer, 1856
Euchone sp.
Potamilla reniformis (Linnaeus) 1788
Sabella sp.
POGONOPHORA
Oligobrachiidae
Oligobrachia floridana Nielsen, 1965
Siboglinidae
Siboglinum angustum Southward and Brattegard, 1968
Siboglinum bayeri Southward, 1971
Siboglinum ekmani Jagerston, 1956
Siboglinum gosnoldae Southward and Brattegard, 1968
Siboglinum holmei Southward, 1963
Siboglinum longicollum Southward and Brattegard, 1968
Siboglinum pholidotum Southward and Brattegard, 1968
Polybrachiidae
Crassibrachia sandersi Southward, 1968
Diplobrachia similis Southward and Brattegard, 1968
Diplobrachia sp.
Polybrachia lepida Southward and Brattegard, 1968
Polybrachia sp.
SIPUNCULIDA
Aspidosiphon spinalis Ikeda, 1904
Aspidosiphon zinni Cutler, 1969
Golfingia catharinae Müller, 1789
Golfingia constricticervix Cutler, 1969
Golfingia elongata (Keferstein) 1869
Golfingia eremita (Sars) 1851
Golfingia flagrifera (Selenka) 1885
Golfingia margaritacea (Sars) 1851
Golfingia minuta (Keferstein) 1865
Golfingia murinae murinae Cutler, 1969
Golfingia trichocephala (Sluiter) 1902
Onchnesoma steenstrupi Koren and Danielsson, 1875
Phascolion strombi (Montague) 1804
Sipunculus norvegicus Koren and Danielsson, 1875

MOLLUSCA
- Gastropoda
  - Prosobranchia
    - Archaegastropoda
      - *Acmaea testudinalis* (Müller) 1776
      - *Calliostoma bairdi* Verrill and Smith, 1880
      - *Calliostoma occidentale* (Mighels and Adams) 1842
    - Mesogastropoda
      - *Alvania brychia* (Verrill) 1884
      - *Alvania carinata* Mighels and Adams, 1842
      - *Crepidula fornicata* Linnaeus, 1767
      - *Crepidula plana* Say, 1822
      - *Crucibulum striatum* Say, 1824
      - *Epitonium dallianum* Verrill and Smith, 1880
      - *Epitonium greenlandicum* (Perry) 1811
      - *Epitonium multistriatum* (Say) 1826
      - *Fossarus elegans* Verrill and Smith, 1882
      - *Lunatia heros* (Say) 1822
      - *Lunatia triseriata* (Say) 1826
      - *Melanella intermedia* (Cantraine) 1835
      - *Natica clausa* Bowderup and Sowerby, 1829
      - *Natica pusilla* Say, 1822
      - *Polinices duplicatus* (Say) 1822
      - *Polinices immaculatus* (Totten) 1835
      - *Turritellopsis acicula* (Stimpson) 1851
    - Neogastropoda
      - *Anachis* sp.
      - *Buccinum undatum* Linnaeus, 1758
      - *Busycon carica* (Gmelin) 1791
      - *Colus pubescens* Verrill, 1882
      - *Colus pygmaeus* (Gould) 1841
      - *Eupleura caudata* (Say) 1822
      - *Mitrella lunata* (Say) 1826
      - *Mitrella zonalis* Gould, 1848
      - *Nassarius trivittatus* (Say) 1822
      - *Neptunea decemcostata* (Say) 1826
      - *Taranis cirrata* (Brugnone) 1822
  - Euthyneura
    - Pyramidelloida
      - *Odostomia gibbosa* Bush, 1909
      - *Turbonilla interrupta* (Totten) 1835
    - Cephalapsida
      - *Cylichna alba* (Brown) 1827
      - *Cylichna gouldi* (Couthouy) 1839
      - *Haminoea solitaria* (Say) 1822
      - *Retusa obtusa* (Montagu) 1807
      - *Scaphander punctostriatus* Mighels, 1841

Notapsida
Pleurobranchia tarda Verrill, 1880
Bivalvia
Paleotaxodonta
Nuculoida
Nuculidae
Nucula delphinodonta Mighels and Adams, 1842
Nucula proxima Say, 1822
Nucula tenuis Montagu, 1808
Malletiidae
Malletia obtusata G.O. Sars, 1872
Nuculanidae
Nuculana acuta (Conrad) 1831
Nuculana tenuisulcata (Couthouy) 1838
Portlandia inflata (Verrill and Bush) 1897
Portlandia iris (Verrill and Bush) 1897
Yoldia limatula (Say) 1831
Yoldia sapotilla (Gould) 1841
Cryptodonta
Solemyoida
Solemyacidae
Solemya velum Say, 1822
Pteriomorphia
Arcoida
Arcidae
Anadara ovalis (Brugiere) 1789
Bathyarca anomala (Verrill and Bush) 1898
Bathyarca pectunculoides (Scacchi) 1833
Limopsidae
Limopsis minuta Philippi, 1836
Limopsis sulcata Verrill and Bush, 1898
Mytiloida
Mytilidae
Crenella decussata (Montagu) 1808
Crenella glandula (Totten) 1834
Crenella pectinula (Gould) 1841
Dacrydium vitreum (Holboll and Müller) 1842
Modiolus modiolus (Linnaeus) 1758
Musculus corrugatus (Stimpson) 1851
Musculus discors (Linnaeus) 1767
Musculus niger (Gray) 1824
Mytilus edulis Linnaeus, 1758
Pteroidea
Pectinidae
Aequipecten glyptus (Verrill) 1882
Pecten thalassinus Dall, 1886
Placopecten magellanicus (Gmelin) 1791

Anomiidae
Anomia aculeata Linnaeus, 1758
Anomia simplex Orbigny, 1842
Limidae
Limatula subauriculata (Montagu) 1808
Heterodonta
Veneroida
Lucinidae
Lucinoma filosa (Stimpson) 1851
Leptonidae
Aligena elevata (Stimpson) 1851
Thyasiridae
Thyasira ferruginosa Forbes, 1844
Thyasira flexuosa (Montagu) 1803
Thyasira ovata Verrill and Bush, 1898
Thyasira pygmaea Verrill and Bush, 1898
Thyasira trisinuata Orbigny, 1842
Carditidae
Cyclocardia borealis (Conrad) 1831
Astartidae
Astarte borealis (Schumacher) 1817
Astarte castanea (Say) 1822
Astarte elliptica (Brown) 1827
Astarte quadrans Gould, 1841
Astarte subequilatera Sowerby, 1854
Astarte undata Gould, 1841
Cardiidae
Cerastoderma pinnulatum (Conrad) 1831
Laevicardium mortoni (Conrad) 1830
Mactridae
Mulinia lateralis (Say) 1822
Spisula solidissima (Dillwyn) 1817
Solenidae
Ensis directus Conrad, 1843
Siliqua costata Say, 1822
Tellinidae
Macoma balthica (Linnaeus) 1758
Macoma tenta (Say) 1834
Tellina agilis Stimpson, 1857
Semelidae
Abra longicallis Verrill and Bush, 1898
Arcticidae
Arctica islandica (Linnaeus) 1767
Veneridae
Liocyma fluctuosa (Gould) 1841
Mercenaria mercenaria (Linnaeus) 1758
Pitar morrhuanus Linsley, 1848

Mesodesmatidae
Mesodesma arctatum (Conrad) 1830
Petricolidae
Petricola pholadiformis (Lamarck) 1818
Myoida
Myidae
Mya arenaria Linnaeus, 1758
Corbulidae
Corbula contracta Say, 1822
Hiatellidae
Cyrtodaria siliqua (Spengler) 1793
Hiatella arctica (Linnaeus) 1767
Panomya arctica (Lamarck) 1818
Analodesmacea
Pholadomyoida
Lyonsiidae
Lyonsia hyalina Conrad, 1831
Pandoridae
Pandora gouldiana Dall, 1886
Pandora inflata Boss and Merrill, 1965
Pandora inornata Verrill and Bush, 1898
Thraciidae
Thracia conradi Couthouy, 1838
Thracia myopsis (Möller) 1842
Periplomatidae
Periploma afinis Verrill and Bush, 1898
Periploma fragile (Totten) 1835
Periploma leanum (Conrad) 1831
Periploma papyratium (Say) 1822
Septibranchoida
Poromyidae
Poromya granulata (Nyest and Westendorp) 1839
Cuspidariidae
Cardiomya perrostrata Dall, 1881
Cardiomya striata (Jeffreys) 1876
Cuspidaria parva Verrill and Bush, 1898
Myonera limatula Dall, 1881
Scaphopoda
Cadulus pandionis Verrill and Smith, 1880
Cadulus verrilli Henderson, 1920
Dentalium occidentale Stimpson, 1851
ARTHROPODA
Pycnogonida
Achelia spinosa (Stimpson) 1853
Anoplodactylus parvus Giltay, 1934
Nymphon sp.

Crustacea
- Ostracoda
  - *Cycloberis* sp.
  - *Pseudophilomedes ferulanus* Kornicker, 1959
- Cirripedia
  - *Balanus balanus* (Linnaeus) 1758
  - *Balanus crenatus* Brugiere, 1789
  - *Balanus venustus niveus* Darwin, 1854
- Nebaliacea
- Cumacea
  - *Diastylis polita* S.I. Smith, 1879
  - *Diastylis quadrispinosa* G.O. Sars, 1871
  - *Diastylis sculpta* G.O. Sars, 1871
  - *Eudorella emarginata* (Kröyer) 1846
  - *Eudorellopsis* sp.
  - *Leptostylis* sp.
  - *Petalosarsia declivis* (G.O. Sars) 1864
- Tanaidacea
  - *Anorthura* sp.
  - *Neotanais* sp.
- Isopoda
  - *Calathura* sp.
  - *Chiridotea arenicola* Wigley, 1960
  - *Chiridotea tuftsi* (Stimpson) 1883
  - *Cirolana polita* (Stimpson) 1853
  - *Cyathura polita* (Stimpson) 1855
  - *Edotea triloba* (Say) 1818
  - *Erichsonella filiformis* (Say) 1818
  - *Idotea* sp.
  - *Ptilanthura tenuis* Harger, 1879
- Amphipoda
  - Gammaridea
    - Gammaridae
      - *Gammarus annulatus* Smith, 1873
      - *Gammarus mucronatus* Say, 1818
      - *Gammarus palustris* Bousfield, 1969
    - Crangonycidae
      - *Crangonyx pseudogracilis* Bousfield, 1958
    - Melitidae
      - *Casco bigelowi* (Blake) 1929
      - *Elasmopus levis* Smith, 1873
      - *Maera danae* Stimpson, 1853
      - *Maera loveni* (Bruzelius) 1859
      - *Melita dentata* (Kröyer) 1842
      - *Melita palmata* (Montagu) 1894

Haustoriidae
- Acanthohaustorius millsi Bousfield, 1965
- Amphiporeia virginiana Shoemaker, 1933
- Bathyporeia parkeri Bousfield, 1973
- Bathyporeia quoddyensis Shoemaker, 1949
- Protohaustorius wigleyi Bousfield, 1965
- Pseudohaustorius borealis Bousfield, 1965

Phoxocephalidae
- Harpinia propinqua Sars, 1895
- Phoxocephalus holbolli Kröyer, 1842
- Trichophoxis epistomus (Shoemaker) 1938

Pontogeneidae
- Pontogeneia inermis (Kröyer) 1842

Pleustidae
- Stenopleustes gracilis (Holmes) 1905
- Stenopleustes inermis Shoemaker, 1949

Ampeliscidae
- Ampelisca abdita Mills, 1967
- Ampelisca aequicornis Bruzelius, 1859
- Ampelisca agassizi Judd, 1896
- Ampelisca macrocephala Liljeborg, 1852
- Ampelisca vadorum Mills, 1963
- Ampelisca verrilli Mills, 1967
- Byblis gaimardi (Kröyer) 1846
- Byblis serrata Smith, 1873

Liljeborgiidae
- Liljeborgia sp.
- Listriella sp.

Lysianassidae
- Anonyx liljeborgi Boeck, 1870
- Anonyx sp.
- Hippomedon propinquus Sars, 1870
- Hippomedon serratus Holmes, 1905
- Orchromenella groenlandica (Hansen) 1887
- Orchromenella pinguis (Boeck) 1861
- Psammonyx nobilis (Stimson) 1853

Aoridae
- Lembos sp.
- Leptocheirus pinguis (Stimpson) 1853
- Leptocheirus plumulosus Shoemaker, 1932
- Pseudunciola obliquua (Shoemaker) 1949
- Unciola inermis Shoemaker, 1942
- Unciola irrorata Say, 1818
- Unciola leucopis (Kröyer) 1845

Photidae
- Photis macrocoxa Shoemaker, 1945
- Photis reinhardi Kröyer, 1842
- Protomedia fasciata Kröyer, 1842

Ischyroceridae
- Ischyrocerus anguipes Kröyer, 1838

Corophiidae
Cerapis tubularis Say, 1818
Corophium insidiosum Crawford, 1937
Corophium volutator (Pallas) 1766
Corophium sp.
Erichthonius brasiliensis (Dana) 1853
Erichthonius rubricornis Smith, 1873
Siphonoecetes smithianus Rathbun, 1908
Podoceridae
Dulichia porrecta (Bate) 1857
Caprellidea
Caprellidae
Aeginina longicornis (Kröyer) 1842-43
Caprella penantis Leach, 1814
Caprella septentrionalis Kröyer, 1838
Caprella unica Mayer, 1903
Caprella sp.
Luconatia incerta Mayer, 1903
Mysidacea
Bowmaniella portoricensis Bacescu, 1968
Erythrops erythropthalma (Goes) 1864
Heteromysis formosa S.I. Smith, 1873
Mysidopsis bigelowi Tattersall, 1926
Neomysis americana (S.I. Smith) 1873
Promysis atlantica Tattersall, 1923
Decapoda
Caridea
Crangon septemspinosus Say, 1818
Dichelopandalus leptocerus (Smith) 1881
Anomura
Axius serratus Stimpson, 1852
Callichirus atlanticus (Smith) 1874
Munida sp.
Pagurus acadianus Benedict, 1901
Pagurus arcuatus Squires, 1964
Pagurus pubescens (Kröyer) 1838
Upogebia affinis (Say) 1817
Brachyura
Cancer borealis Stimpson, 1859
Cancer irroratus Say, 1817
Hyas coarctatus Leach, 1815
Libinia emarginata Leach, 1815
Ocypode quadrata (Fabricius) 1787
Pinnixa sayana Stimpson, 1860

BRYOZOA
Ctenostomata
Alcyonidiidae
Alcyonidium sp.

Cyclostomata
Crisiidae
Crisia eburnea (Linnaeus) 1758
Cheilostomata
Scrupraridae
Eucratea loricata (Linnaeus) 1758
Haplota clavata (Hincks) 1857
Membraniporidae
Conopeum reticulum (Linnaeus) 1767
Membranipora tenuis Desor, 1848
Membranipora tuberculata (Bosc) 1802
Electridae
Electra hastingsae Marcus, 1938
Electra pilosa (Linnaeus) 1767
Calloporidae
Amphiblestrum flemingii (Bush) 1854
Callopora aurita (Hincks) 1877
Callopora lineata (Linnaeus) 1767
Bugulidae
Bugula turrita (Desor) 1848
Dendrobeania murrayana (Johnston) 1847
Cribrilinidae
Cribrilina punctata (Hassall) 1841
Schizoporellidae
Schizoporella unicornis (Johnston) 1847
Microporellidae
Microporella ciliata (Pallas) 1766
Hippoporinidae
Hippoporina americana (Verrill) 1875
Hippoporina porosa (Esper) 1796
Smittinidae
Rhamphostomella costata Lorenz, 1886
Cheiloporinidae
Cryptosula palasiana (Moll) 1803
ECHINODERMATA
Holothuroidea
Dendrochirodota
Cucumaria planci Marenzeller, 1893
Havelockia scabra (Verrill) 1873
Psolus fabricii (Duben and Koren) 1846
Stereoderma unisemita (Stimpson) 1851
Thyone fusus (Müller) 1788
Apodida
Chirodota wigleyi Pawson, 1976
Synapta sp.
Molpadiida
Caudina arenata Gould, 1841
Molpadia musculus Risso, 1826
Molpadia oolitica (Pourtales) 1857

Echinoidea
- Cideroidea
  - Stylocidaris affinis Phillips, 1845
- Arbacioidea
  - Arbacia punctulata (Lamarck) 1816
- Temnopleuroidea
  - Genocidaris maculata Agassiz, 1869
- Clypeasteroidea
  - Echinarachnius parma (Lamarck) 1816
  - Encope sp.
  - Mellita quinquiesperforata (Leske) 1778
- Spatangoidea
  - Aceste bdellifera Wyville Thompson, 1877
  - Aeropsis rostrata Norman, 1876
  - Brisaster fragilis (Duben and Koren) 1844
  - Brissopsis atlantica Mortensen, 1907
  - Echinocardium cordatum Pennant, 1777
  - Schizaster orbignyanus A. Agassiz, 1883

Ophiuroidea
- Ophiuridae
  - Ophiocten scutatem Koehler, 1896
  - Ophiocten sericeum (Forbes) 1852
  - Ophiomusium lymani Thompson, 1873
  - Ophiura acenata
  - Ophiura ljungmani (Lyman) 1878
  - Ophiura sarsi Lütken, 1858
- Ophiocanthidae
  - Amphilimna olivacea (Lyman) 1869
- Ophiactidae
  - Ophiopholus aculeata (Linnaeus) 1788
- Amphiuridae
  - Amphioplus abdita (Verrill) 1872
  - Amphioplus tumidus (Lyman) 1878
  - Amphiura fragilis (Verrill) 1885
  - Amphiura otteri Ljungman, 1871
  - Axiognathus squamatus (delle Chiaje) 1828
  - Micropholis atra
- Amphilepidae
  - Amphilepis ingolfiana Mortensen, 1933

Asteroidea
- Asterias forbesii (Desor) 1848
- Asterias vulgaris Verrill, 1866
- Astropecten americana (Verrill) 1880
- Astropecten articulatus Say, 1825
- Leptasterias sp.

HEMICHORDATA
- Enteropneusta
  - *Balanoglossus* sp.

CHORDATA
- Ascidiacea
  - *Bostrichobranchus pilularis* (Verrill) 1871
  - *Ciona intestinalis* (Linnaeus) 1767
  - *Cnemidocarpa mollis* (Stimpson) 1852
  - *Craterostigma singulare* (Van Name) 1912
  - *Molgula citrina* Alder and Hancock, 1848
  - *Molgula complanata* Alder and Hancock, 1870
  - *Molgula siphonalis* Sars, 1859

Subarea Differences in Composition

The macrobenthic fauna in all three subareas of the Middle Atlantic Bight Region was dominated by the same four major taxonomic groups - Arthropoda, Mollusca, Annelida, and Echinodermata (tables 5, 6, 7; and fig. 6). However, there were pronounced variations in absolute and proportional quantities within these groups.

Number of Specimens: Striking diversity in proportional makeup of the fauna was evident in all four dominant taxonomic groups. Arthropoda were particularly abundant in Southern New England, where they constituted 62% of the total number of specimens. They decreased in nearly equal amounts to the southward, and accounted for 41% of the total fauna in New York Bight and 21% in Chesapeake Bight. Nearly the opposite trend was evident in the abundance of Mollusca. In Southern New England they accounted for about 10% of the number of animals, but increased southward to 18% in New York Bight and 57% in Chesapeake Bight. Annelida exhibited a somewhat different trend in percentage composition. They formed approximately equal proportions in Southern New England (18%) and Chesapeake Bight (15%), but constituted a substantially larger proportion of the fauna in New York Bight (33%). Echinodermata made up a moderately small (2% to 5%) share of the fauna in all areas, but the number present in Southern New England (4.6% of the total fauna), and in New York Bight (4.2%), was double the proportion present in Chesapeake Bight (2.3%).

Biomass: Proportional composition of the biomass was more consistent from one subarea to another than number of specimens. Furthermore, the components exhibited a different order of dominance. In terms of biomass the Mollusca were especially important -- constituting percentage compositions of 64% in both Southern New England and Chesapeake Bight and the extraordinarily high quantity of 79.6% in New York Bight. Echinodermata ranked second with roughly equal proportions, between 11% and 13% in all subareas. Annelida ranked third in importance; they accounted for 9% of the biomass in Southern New England, 5% in New York Bight, and 10% in Chesapeake Bight. Arthropoda, which ranked first in number of specimens, ranked fourth in biomass. They were substantially more important in Southern New England (where they formed 7.5% of the fauna) than in the two more southern subareas where they made up 3.2% and 3.1% of the biomass, respectively. Miscellaneous taxonomic groups (Ascidiacea, Coelenterata, Bryozoa, Nemertea and nine additional groups) were moderately important in Southern New England (6.9%) and Chesapeake Bight (10.0%), whereas in New York Bight they accounted for only 1.3% of the biomass.

Faunal composition is further analyzed in subsequent sections as it pertains to geographic distribution, relationships with water depth, bottom sediments, sediment organic content, and range in water temperature. Quantitative geographic distribution of dominant faunal components is discussed in a separate section below, entitled Dominant Faunal Components, page 371.

Table 5.--Quantitative taxonomic composition of the macrobenthic invertebrate fauna, in terms of both number of individuals and biomass, representing the Southern New England subarea.

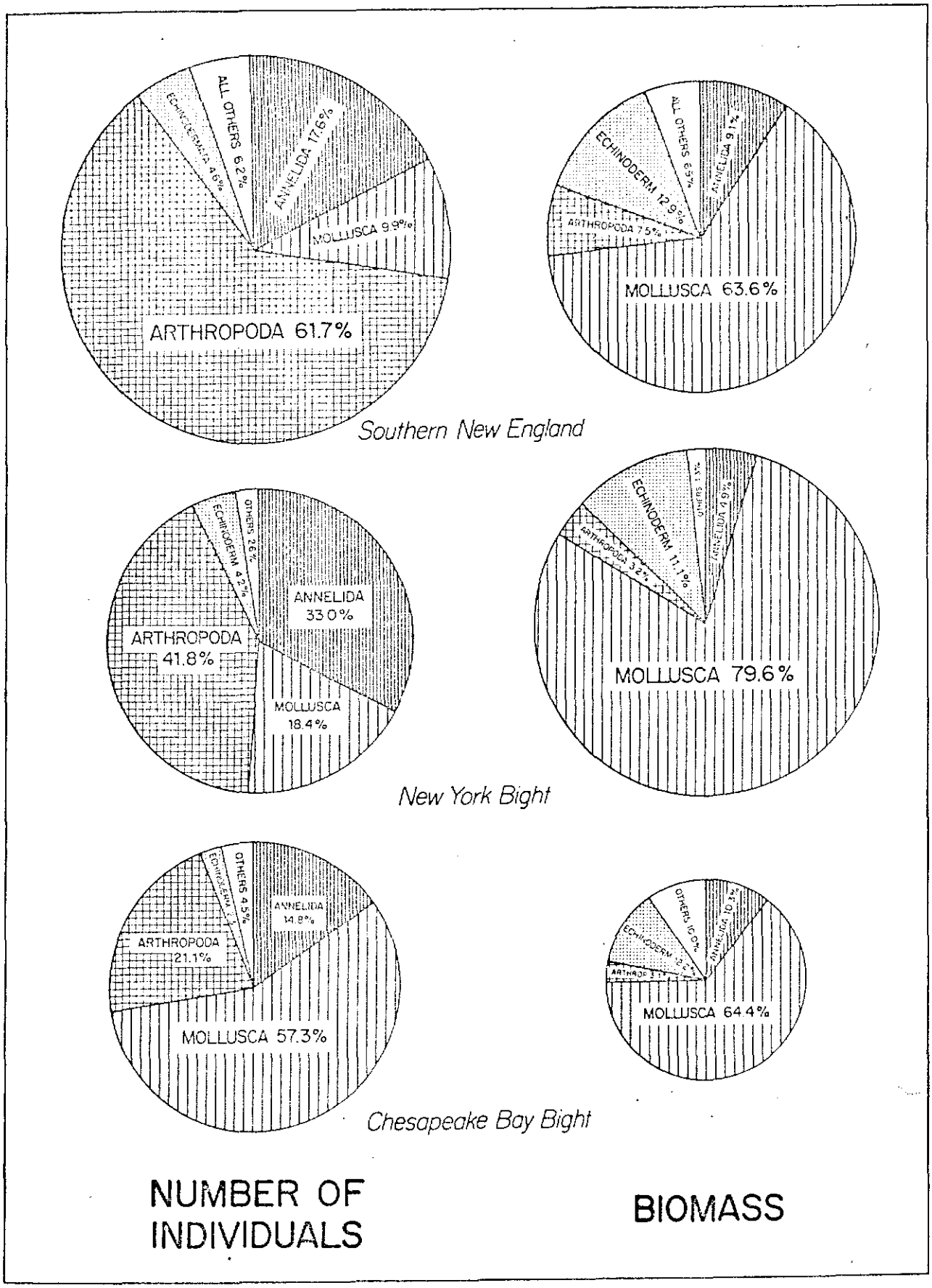
Taxonomic group	Number of individuals			Biomass		
	Mean	Percent	Phylum rank	Mean	Percent	Phylum rank
	No./m^2			g/m^2		
PORIFERA	0.75	0.04	13	0.113	0.05	10
COELENTERATA	29.26	1.50	6	4.617	2.19	6
Hydrozoa	14.52	0.74		0.624	0.30	
Anthozoa	14.74	0.75		3.993	1.90	
Alcyonacea	0.80	0.04		0.165	0.08	
Zoantharia	6.31	0.32		3.566	1.69	
Unidentified	7.63	0.39		0.262	0.12	
PLATYHELMINTHES	1.46	0.07	11	0.012	0.01	14
Turbellaria	1.46	0.07		0.012	0.01	
NEMERTEA	5.99	0.31	10	0.781	0.37	8
ASCHELMINTHES	6.06	0.31	9	0.007	<0.01	16
Nematoda	6.06	0.31		0.007	<0.01	
ANNELIDA	343.92	17.60	2	19.051	9.05	3
POGONOPHORA	1.27	0.06	12	0.009	<0.01	15
SIPUNCULIDA	9.31	0.48	8	1.369	0.65	7
ECHIURA	0.09	<0.01	15	0.051	0.02	11
PRIAPULIDA	0.03	<0.01	16	0.021	0.01	13
MOLLUSCA	193.67	9.91	3	133.869	63.58	1
Polyplacophora	1.06	0.05		0.428	0.20	
Gastropoda	39.75	2.03		3.489	1.66	
Bivalvia	150.40	7.69		129.924	61.70	
Scaphopoda	0.90	0.05		0.014	<0.01	
Cephalopoda	0.99	0.05		0.013	<0.01	
Unidentified	0.57	0.03		0.002	<0.01	
ARTHROPODA	1206.10	61.71	1	15.746	7.48	4
Pycnogonida	0.49	0.03		0.002	<0.01	
Arachnida	-	-		-	-	
Crustacea	1205.61	61.68		15.744	7.48	
Ostracoda	0.32	0.02		0.002	<0.01	
Cirripedia	20.57	1.05		7.339	3.49	
Copepoda	0.09	<0.01		0.001	<0.01	
Nebaliacea	-	-		-	-	
Cumacea	29.00	1.48		0.135	0.06	
Tanaidacea	0.11	<0.01		0.001	<0.01	
Isopoda	9.76	0.50		0.218	0.10	
Amphipoda	1136.87	58.17		7.023	3.34	
Mysidacea	1.34	0.07		0.009	<0.01	
Decapoda	7.55	0.39		1.017	0.48	
BRYOZOA	26.47	1.35	7	0.774	0.37	9
BRACHIOPODA	-	-		-	-	
ECHINODERMATA	90.00	4.60	4	27.276	12.95	2
Holothuroidea	4.83	0.25		14.038	6.67	
Echinoidea	9.97	0.51		6.397	3.04	
Ophiuroidea	73.39	3.75		4.612	2.19	
Asteroidea	1.81	0.09		2.231	1.06	
HEMICHORDATA	0.27	0.01	14	0.050	0.02	12
CHORDATA	32.13	1.64	6	6.364	3.02	5
Ascidiacea	32.13	1.64		6.364	3.02	
UNIDENTIFIED	7.75	0.40		0.445	0.21	

Table 6.--Quantitative taxonomic composition of the macrobenthic invertebrate fauna, in terms of both number of individuals and biomass, representing the New York Bight subarea.

Taxonomic group	Number of individuals			Biomass		
	Mean	Percent	Phylum rank	Mean	Percent	Phylum rank
	No./m^2			g/m^2		
PORIFERA	0.53	0.04	11	0.027	0.01	11
COELENTERATA	8.82	0.74	5	1.386	0.50	5
Hydrozoa	4.42	0.37		0.064	0.02	
Anthozoa	4.40	0.37		1.321	0.50	
Alcyonacea	0.62	0.05		0.064	0.02	
Zoantharia	3.11	0.26		1.166	0.42	
Unidentified	0.67	0.06		0.092	0.03	
PLATYHELMINTHES	0.06	0.01	15	0.003	<0.01	14
Turbellaria	0.06	0.01		0.003	<0.01	
NEMERTEA	2.65	0.22	8	0.740	0.27	6
ASCHELMINTHES	0.13	0.01	13	0.001	<0.01	15
Nematoda	0.13	0.01		0.001	<0.01	
ANNELIDA	391.67	33.00	2	13.393	4.88	3
POGONOPHORA	0.84	0.07	10	0.004	<0.01	13
SIPUNCULIDA	2.00	0.17	9	0.324	0.12	7
ECHIURA	0.18	0.02	12	0.282	0.10	9
PRIAPULIDA	-	-		-	-	
MOLLUSCA	218.98	18.45	3	218.634	79.60	1
Polyplacophora	0.06	0.01		0.001	<0.01	
Gastropoda	22.01	1.85		2.352	0.86	
Bivalvia	195.32	16.46		216.253	78.74	
Scaphopoda	1.59	0.13		0.028	0.01	
Cephalopoda	-	-		-	-	
Unidentified	-	-		-	-	
ARTHROPODA	496.15	41.81	1	8.719	3.17	4
Pycnogonida	0.06	0.01		0.001	<0.01	
Arachnida	0.14	0.01		0.001	<0.01	
Crustacea	495.95	41.79		8.717	3.17	
Ostracoda	0.28	0.02		0.002	<0.01	
Cirripedia	69.75	5.88		3.979	1.45	
Copepoda	0.02	<0.01		<0.001	<0.01	
Nebaliacea	0.01	<0.01		<0.001	<0.01	
Cumacea	8.58	0.72		0.045	0.02	
Tanaidacea	0.02	<0.01		<0.001	<0.01	
Isopoda	10.58	0.89		0.356	0.13	
Amphipoda	396.58	33.42		2.547	0.93	
Mysidacea	0.95	0.08		0.005	<0.01	
Decapoda	9.18	0.77		1.782	0.65	
BRYOZOA	4.93	0.42	7	0.103	0.04	10
BRACHIOPODA	-	-		-	-	
ECHINODERMATA	49.48	4.17	4	30.446	11.09	2
Holothuroidea	0.86	0.07		0.513	0.19	
Echinoidea	40.24	3.39		25.801	9.39	
Ophiuroidea	7.66	0.65		0.552	0.20	
Asteroidea	0.72	0.06		3.581	1.30	
HEMICHORDATA	0.07	0.01	14	0.004	<0.01	12
CHORDATA	5.43	0.46	6	0.340	0.12	8
Ascidiacea	5.43	0.46		0.340	0.12	
UNIDENTIFIED	4.81	0.41		0.245	0.09	

Table 7.--Quantitative taxonomic composition of the macrobenthic invertebrate fauna, in terms of both number of individuals and biomass, representing the Chesapeake Bight subarea.

Taxonomic group	Number of individuals			Biomass		
	Mean	Percent	Phylum rank	Mean	Percent	Phylum rank
	No./m^2			g/m^2		
PORIFERA	0.42	0.04	12	0.037	0.04	11
COELENTERATA	15.26	1.41	5	2.933	3.31	5
Hydrozoa	9.78	0.90		0.202	0.23	
Anthozoa	5.48	0.51		2.731	3.08	
Alcyonacea	0.12	0.01		0.045	0.05	
Zoantharia	2.04	0.19		2.549	2.87	
Unidentified	3.32	0.31		0.138	0.16	
PLATYHELMINTHES	0.39	0.04	13	0.007	0.01	14
Turbellaria	0.39	0.04		0.007	0.01	
NEMERTEA	4.88	0.45	8	0.342	0.39	9
ASCHELMINTHES	1.64	0.15	10	0.006	0.01	15
Nematoda	1.64	0.15		0.006	0.01	
ANNELIDA	160.16	14.78	3	9.102	10.27	3
POGONOPHORA	3.59	0.33	9	0.022	0.02	13
SIPUNCULIDA	0.59	0.05	11	0.383	0.43	8
ECHIURA	0.18	0.02	14	0.411	0.46	7
PRIAPULIDA	0.01	<0.01	16	0.005	0.01	16
MOLLUSCA	620.97	57.29	1	57.144	64.45	1
Polyplacophora	0.24	0.02		0.006	0.01	
Gastropoda	45.46	4.19		3.400	3.83	
Bivalvia	573.98	52.95		53.713	60.58	
Scaphopoda	1.29	0.12		0.025	0.03	
Cephalopoda	-	-		-	-	
Unidentified	-	-		-	-	
ARTHROPODA	228.88	21.12	2	2.711	3.06	6
Pycnogonida	1.06	0.10		0.006	0.01	
Arachnida	-	-		-	-	
Crustacea	227.82	21.02		2.705	3.05	
Ostracoda	0.05	<0.01		<0.001	0.05	
Cirripedia	0.18	0.02		0.003	<0.01	
Copepoda	-	-		-	-	
Nebaliacea	0.03	<0.01		<0.001	<0.01	
Cumacea	10.35	0.95		0.035	0.04	
Tanaidacea	0.04	<0.01		<0.001	<0.01	
Isopoda	16.53	1.53		0.297	0.33	
Amphipoda	191.93	17.71		1.509	1.70	
Mysidacea	3.84	0.35		0.013	0.02	
Decapoda	4.87	0.45		0.848	0.96	
BRYOZOA	5.45	0.50	7	0.115	0.13	10
BRACHIOPODA	0.01	<0.01	17	<0.001	<0.01	17
ECHINODERMATA	25.07	2.31	4	10.818	12.20	2
Holothuroidea	0.80	0.07		1.714	1.93	
Echinoidea	19.04	1.76		8.766	9.89	
Ophiuroidea	5.06	0.47		0.271	0.31	
Asteroidea	0.17	0.02		0.067	0.08	
HEMICHORDATA	0.06	<0.01	15	0.030	0.03	12
CHORDATA	6.74	0.62	6	4.461	5.03	4
Ascidiacea	6.74	0.62		4.461	5.03	
UNIDENTIFIED	9.61	0.89		0.135	0.15	



gure 6.--Pie chart illustrating the taxonomic composition of the total macrobenthic fauna for each subarea in the Middle Atlantic Bight Region. Numbers of individuals are shown on the left-hand side, and biomasses are shown on the right-hand side. The area of each circle is proportional to the mean density or mean biomass.