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Food of Northwest Atlantic Fishes and Two Common Species of Squid

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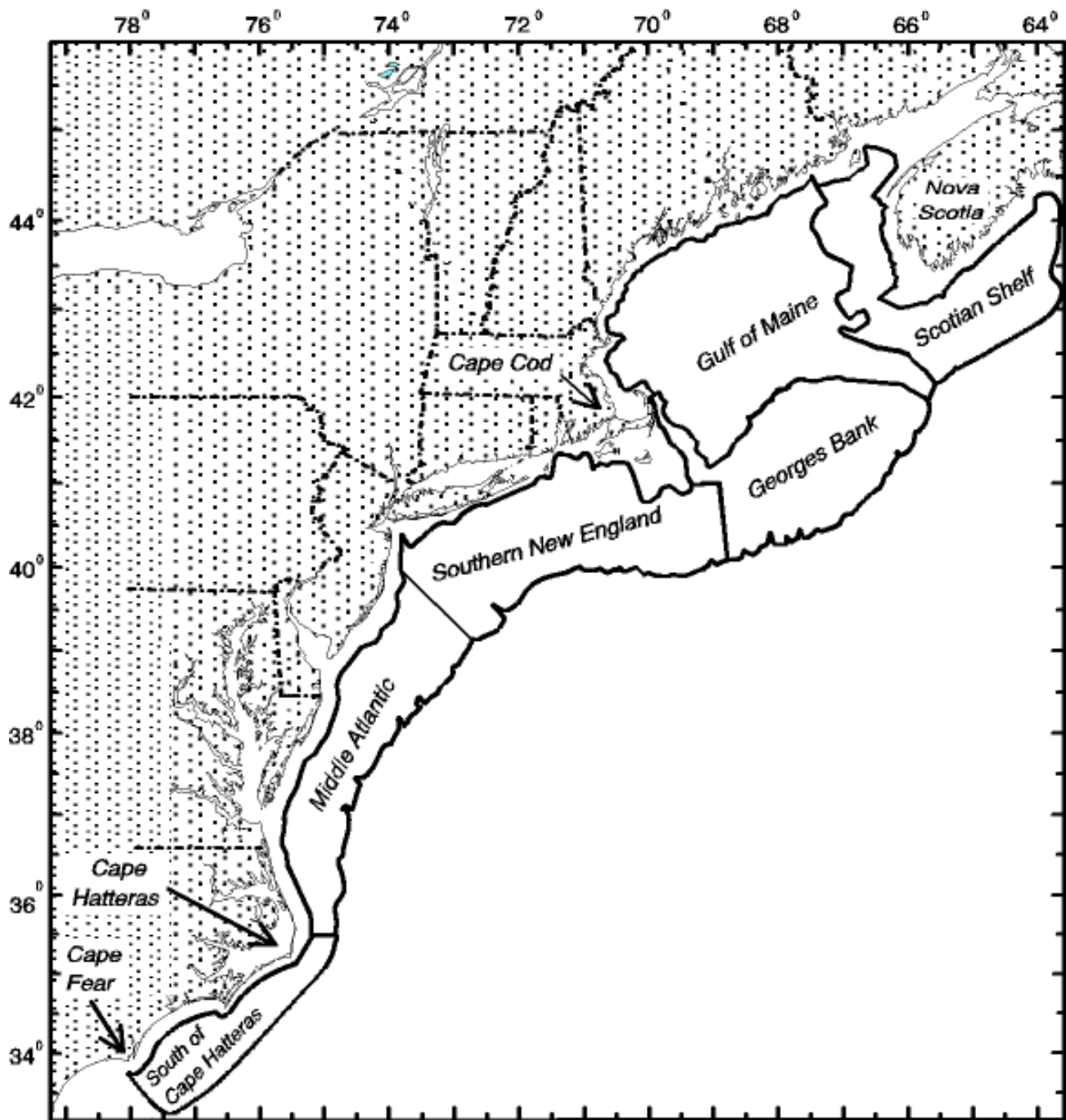


Figure 1. Delineation of the six principal offshore geographic areas, and the two inshore areas referred to as inshore north of Cape Hatteras and inshore south of Cape Hatteras, surveyed by the NEFSC during 1977-80. (Bottom depth of the offshore areas ranges from 27 to 366 m, and of the inshore areas ranges from 8 to <27 m. The inshore area north of Cape Hatteras extends from Cape Hatteras to the western portion of the Scotian Shelf. The inshore area south of Cape Hatteras extends from Cape Hatteras to Cape Fear.)

ABSTRACT

This paper provides a reference document for researchers interested in the types of prey eaten by fishes and two common species of squids in continental shelf waters off the northeastern United States. The stomach contents of 31,567 individuals representing 180 species were analyzed. Collection of specimens was primarily by bottom trawl or longline during 1963-84. Most of the smaller-sized fish species (*i.e.*, < 100 cm long) and the two squid species were collected by bottom trawl during 1977-80. Most of the apex predators, including the large sharks and tunas, and other large-sized species were collected by longline.

Dietary data are initially presented as a summary table which lists for each of 170 predators the relative contribution of six major functional prey groups (*i.e.*, fish, squid, polychaete, decapod crustacean, other crustacean, and all other) to its diet. Such data are subsequently presented as summary tables which list for each of those six functional prey groups the predators involved and the relative contribution of seven geographic areas (*i.e.*, Middle Atlantic, Southern New England, Georges Bank, Gulf of Maine, Scotian Shelf, inshore north of Cape Hatteras, and south of Cape Hatteras) to each predator's consumption of that functional prey group. Also, appendix tables provide a detailed listing of the overall stomach contents for each predator species and, for selected species, the stomach contents according to predator size, or to both predator size and geographic area of collection.

Fifty-nine species fed primarily (*i.e.*, >50% of the stomach contents by weight or volume) on fish and/or squid. Some of the major piscivores (not listed in any particular order) were Atlantic cod, silver hake, almost all of the sharks, winter skate, thorny skate, goosefish, white hake, bluefish, striped bass, weakfish, Atlantic bonito, little tunny, sea raven, Atlantic halibut, and summer flounder. Common fish and squid taken as prey included northern sand lance, hakes, herrings, mackerels, butterfish, anchovies, scup, flatfishes, sculpins, longfin inshore squid, and northern shortfin squid.

A variety of prey groups other than fish and squid were important food for different predators. For example, polychaetes (mostly spionids, nereids, and nephtyids) were important constituents of the diet of seven species. Decapod shrimp (*e.g.*, *Pandalus* spp., *Dichelopandalus leptocerus*, and *Crangon septemspinosa*) and crabs (principally *Cancer* spp., *Pagurus* spp., and *Ovalipes* spp.) were the main food of 17 species. Crustaceans other than decapod shrimp and crabs made up a substantial portion of the stomach contents of 32 species, and included prey such as copepods, amphipods, euphausiids, mysids, and stomatopods. Other prey groups such as echinoderms, bivalve mollusks, cnidarians, and tunicates made up most of the food of 37 predators. Eighteen predator species were diverse feeders and didn't feed intensively on any one of the above-noted prey categories.

Taxonomic Index (common and scientific names) of Fish and Squid Species Sampled, Including for Each Species the Number of Stomachs Examined, Percentage of Stomachs Found Empty, and Associated Appendix Table Number

Common Name	Scientific Name	Stomachs		Appendix Table No.
		No.	% Empty	
CLASS CEPHALOPODA -- SQUIDS				
ORDER TEUTHIDIDA				
Northern shortfin squid	<i>Illex illecebrosus</i>	2447	25.7	B-1a,b
Longfin inshore squid	<i>Loligo pealeii</i>	2498	26.8	B-2a,b
CLASS AGNATHA -- JAWLESS FISHES				
ORDER MYXINIFORMES				
Atlantic hagfish	<i>Myxine glutinosa</i>	4	75.0	A-1
CLASS CHONDRICHTHYES -- CARTILAGINOUS FISHES				
ORDER LAMNIFORMES				
Sand tiger	<i>Odontaspis taurus</i>	8	0.0	A-1
Bigeye thresher	<i>Alopias superciliosus</i>	24	25.0	A-1
Thresher shark	<i>A. vulpinus</i>	19	36.8	A-1
White shark	<i>Carcharodon carcharias</i>	23	39.1	A-1
Shortfin mako	<i>Isurus oxyrinchus</i>	400	31.5	A-1
Longfin mako	<i>I. paucus</i>	10	40.0	A-1
Porbeagle	<i>Lamna nasus</i>	6	33.3	A-1
Chain dogfish	<i>Scyliorhinus retifer</i>	35	5.7	B-3
Bignose shark	<i>Carcharhinus altimus</i>	22	59.1	A-2
Silky shark	<i>C. falciformis</i>	54	66.7	A-2
Dusky shark	<i>C. obscurus</i>	53	18.9	B-4a,b
Sandbar shark	<i>C. plumbeus</i>	7	57.1	A-2
Night shark	<i>C. signatus</i>	66	53.0	A-2
Tiger shark	<i>Galeocerdo cuvier</i>	52	23.1	A-2
Smooth dogfish	<i>Mustelus canis</i>	688	3.1	B-5a,b
Blue shark	<i>Prionace glauca</i>	1199	51.5	A-2
Atlantic sharpnose shark	<i>Rhizoprionodon terraenovae</i>	85	25.9	B-6a,b
Scalloped hammerhead	<i>Sphyrna lewini</i>	2	0.0	A-2
Smooth hammerhead	<i>S. zygaena</i>	16	56.3	A-2
ORDER SQUALIFORMES				
Spiny dogfish	<i>Squalus acanthias</i>	2662	47.8	B-7a,b
Atlantic angel shark	<i>Squatina dumeril</i>	58	10.3	B-8
ORDER RAJIFORMES				
Atlantic torpedo	<i>Torpedo nobiliana</i>	7	42.9	A-3
Cleanose skate	<i>Raja eglanteria</i>	50	12.0	B-9
Little skate	<i>R. erinacea</i>	504	9.3	B-10a,b
Rosette skate	<i>R. garmani</i>	16	6.3	A-3
Barndoor skate	<i>R. laevis</i>	3	0.0	A-3
Winter skate	<i>R. ocellata</i>	745	20.1	B-11a,b
Thorny skate	<i>R. radiata</i>	269	9.7	B-12a,b
Smooth skate	<i>R. senta</i>	29	27.6	B-13
Southern stingray	<i>Dasyatis americana</i>	2	0.0	A-3
Roughtail stingray	<i>D. centroura</i>	4	0.0	A-3
Bluntnose stingray	<i>D. say</i>	26	15.4	B-14
Spiny butterfly ray	<i>Gymnura altavela</i>	8	50.0	A-3
Bullnose ray	<i>Myliobatis freminvillei</i>	15	13.3	A-3
Cownose ray	<i>Rhinoptera bonasus</i>	3	0.0	A-3
CLASS OSTEICHTHYES -- BONY FISHES				
ORDER ANGUILLIFORMES				
Margined snake eel	<i>Ophichthus cruentifer</i>	3	0.0	A-3
Slender snipe eel	<i>Nemichthys scolopaceus</i>	1	0.0	A-4
Conger eel	<i>Conger oceanicus</i>	9	22.2	A-4
ORDER CLUPEIFORMES				
Blueback herring	<i>Alosa aestivalis</i>	11	18.2	A-4
Hickory shad	<i>A. mediocris</i>	4	50.0	A-4
Alewife	<i>A. pseudoharengus</i>	240	11.7	B-15a,b
American shad	<i>A. sapidissima</i>	21	0.0	A-4

Taxonomic Index (cont.)

Common Name	Scientific Name	Stomachs		Appendix Table No.
		No.	% Empty	
Atlantic menhaden	<i>Brevoortia tyrannus</i>	32	9.4	B-16
Atlantic herring	<i>Clupea harengus</i>	139	23.0	B-17a,b
Round herring	<i>Etrumeus teres</i>	98	15.3	B-18
Atlantic thread herring	<i>Opisthonema oglinum</i>	6	33.3	A-4
Spanish sardine	<i>Sardinella aurita</i>	8	0.0	A-4
Striped anchovy	<i>Anchoa hepsetus</i>	15	6.7	A-4
ORDER SALMONIFORMES				
Atlantic argentine	<i>Argentina silus</i>	184	58.7	B-19
Atlantic salmon	<i>Salmo salar</i>	1	0.0	A-4
ORDER AULOPIFORMES				
Shortnose greeneye	<i>Chlorophthalmus agassizi</i>	6	0.0	A-5
Inshore lizardfish	<i>Synodus foetens</i>	2	50.0	A-5
Offshore lizardfish	<i>Synodus poeyi</i>	6	0.0	A-5
Snakefish	<i>Trachinocephalus myops</i>	3	66.7	A-5
Longnose lancetfish	<i>Alepisaurus ferox</i>	2	0.0	A-5
ORDER MYCTOPHIFORMES				
Lanternfish uncl.	Myctophidae	10	0.0	A-5
NA	<i>Hygophum taaningi</i>	9	0.0	A-5
NA	<i>Maurolicus weitzmani</i>	16	37.5	A-5
ORDER GADIFORMES				
Cusk	<i>Brosme brosme</i>	49	55.1	B-20
Fourbeard rockling	<i>Enchelyopus cimbrius</i>	7	14.3	A-5
Atlantic cod	<i>Gadus morhua</i>	718	4.6	B-21a,b
Haddock	<i>Melanogrammus aeglefinus</i>	950	2.3	B-22a,b
Offshore hake	<i>Merluccius albidus</i>	17	82.4	A-6
Silver hake	<i>M. bilinearis</i>	2263	28.4	B-23a,b
Pollock	<i>Pollachius virens</i>	82	12.2	B-24a,b
Longfin hake	<i>Urophycis chesteri</i>	17	23.5	A-6
Red hake	<i>U. chuss</i>	1482	22.5	B-25a,b
Spotted hake	<i>U. regia</i>	47	12.8	B-26
White hake	<i>U. tenuis</i>	283	19.4	B-27a,b
Marlin-spike	<i>Nezumia bairdi</i>	10	11.1	A-6
Longnose grenadier	<i>Coelorhynchus carminatus</i>	18	0.0	A-6
Grenadier uncl.	Macrouridae	3	0.0	A-6
Fawn cusk-eel	<i>Lepophidium profundorum</i>	165	33.9	B-28a,b
Striped cusk-eel	<i>Ophidion marginatum</i>	2	0.0	A-6
ORDER BATRACHOIDIFORMES				
Atlantic midshipman	<i>Porichthys plectrodon</i>	10	0.0	A-6
ORDER LOPHIIFORMES				
Goosefish	<i>Lophius americanus</i>	872	53.6	B-29a,b
ORDER ATHERINIFORMES				
Atlantic needlefish	<i>Strongylura marina</i>	5	80.0	A-6
Atlantic saury	<i>Scomberesox saurus</i>	30	6.7	A-7
Silverside uncl.	<i>Menidia</i> sp.	36	83.3	A-7
ORDER ZEIFORMES				
Buckler dory	<i>Zenopsis conchifera</i>	5	40.0	A-7
Deepbody boarfish	<i>Antigonia capros</i>	5	0.0	A-7
ORDER GASTEROSTEIFORMES				
Threespine stickleback	<i>Gasterosteus aculeatus</i>	1	0.0	A-7
Red cornetfish	<i>Fistularia petimba</i>	5	0.0	A-7
Cornetfish uncl.	Fistulariidae	1	0.0	A-7
Longspine snipefish	<i>Macrorhamphosus scolopax</i>	6	33.3	A-7
Northern pipefish	<i>Syngnathus fuscus</i>	38	65.0	B-30
ORDER SCORPAENIFORMES				
Blackbelly rosefish	<i>Helicolenus dactylopterus</i>	80	31.3	B-31a,b
Acadian redfish	<i>Sebastes fasciatus</i>	266	57.1	B-32a,b
Scorpionfish uncl.	Scorpaenidae	1	0.0	A-8

Taxonomic Index (cont.)

Common Name	Scientific Name	Stomachs		Appendix Table No.
		No.	% Empty	
Armored searobin	<i>Peristedion miniatum</i>	24	33.3	A-8
Spiny searobin	<i>Prionotus alatus</i>	1	0.0	A-8
Northern searobin	<i>P. carolinus</i>	41	19.5	B-33
Striped searobin	<i>P. evolans</i>	7	28.6	A-8
Bluespotted searobin	<i>Prionotus roseus</i>	1	0.0	A-8
Searobin uncl.	Triglidae	8	50.0	A-8
Hookear sculpin uncl.	<i>Artediellus</i> spp.	22	9.1	A-8
Sea raven	<i>Hemitripterus americanus</i>	146	45.2	B-34a,b
Longhorn sculpin	<i>Myxocephalus octodecemspinosus</i>	149	16.8	B-35a,b
Shorthorn sculpin	<i>M. scorpius</i>	10	20.0	A-8
Moustache sculpin	<i>Triglops murrayi</i>	28	7.1	B-36
Bigeye sculpin	<i>T. nybelini</i>	21	28.6	A-8
Alligatorfish	<i>Aspidophoroides monopterygius</i>	24	20.8	A-9
Lumpfish	<i>Cyclopterus lumpus</i>	2	0.0	A-9
Atlantic seasnail	<i>Liparis atlanticus</i>	2	0.0	A-9
ORDER PERCIFORMES				
Striped bass	<i>Morone saxatilis</i>	2	0.0	A-9
Black sea bass	<i>Centropristis striata</i>	680	28.7	B-37a,b
Sand perch	<i>Diplectrum formosum</i>	3	33.3	A-9
Red grouper	<i>Epinphelus mystacinus</i>	1	0.0	A-9
Scamp	<i>Mycteroperca phenax</i>	3	33.3	A-9
Bigeye	<i>Priacanthus arenatus</i>	2	0.0	A-9
Tilefish	<i>Lopholatilus chamaeleonticeps</i>	9	33.3	A-10
Bluefish	<i>Pomatomus saltatrix</i>	568	27.3	B-38a,b
Cobia	<i>Rachycentron canadum</i>	3	0.0	A-10
Atlantic bumper	<i>Chloroscombrus chrysurus</i>	5	20.0	A-10
Round scad	<i>Decapterus punctatus</i>	5	40.0	A-10
Bigeye scad	<i>Selar crumenophthalmus</i>	10	0.0	A-10
Greater amberjack	<i>Seriola dumerili</i>	3	0.0	A-10
Banded rudderfish	<i>S. zonata</i>	2	0.0	A-10
Rough scad	<i>Trachurus lathami</i>	11	0.0	A-10
Vermilion snapper	<i>Rhombolites aurorubens</i>	10	10.0	A-10
Tomtate	<i>Haemulon aurolineatum</i>	23	39.1	A-11
White grunt	<i>H. plumieri</i>	14	21.4	A-11
Pigfish	<i>Orthopristis chrysoptera</i>	11	9.1	A-11
Whitebone porgy	<i>Calamus leucosteus</i>	11	81.8	A-11
Spottail pinfish	<i>Diplodus holbrooki</i>	6	16.7	A-11
Pinfish	<i>Lagodon rhomboides</i>	11	54.5	A-11
Longspine porgy	<i>Stenotomus caprinus</i>	72	45.8	B-39
Scup	<i>S. chrysops</i>	438	34.7	B-40a,b
Silver perch	<i>Bairdiella chrysoura</i>	5	80.0	A-11
Weakfish	<i>Cynoscion regalis</i>	393	19.8	B-41a,b
Banded drum	<i>Larimus fasciatus</i>	11	27.3	B-11
Spot	<i>Leiostomus xanthurus</i>	442	15.6	B-42a,b
Southern kingfish	<i>Menticirrhus americanus</i>	88	20.5	B-43a,b
Northern kingfish	<i>M. saxatilis</i>	78	6.4	B-44a,b
Atlantic croaker	<i>Micropogonias undulatus</i>	263	21.3	B-45
Atlantic spadefish	<i>Chaetodipterus faber</i>	1	0.0	A-11
Hogfish	<i>Lachnolaimus maximus</i>	1	0.0	A-12
Tautog	<i>Tautoga onitis</i>	2	33.3	A-12
Cunner	<i>Tautoglabrus adspersus</i>	54	46.3	B-46
Ocean pout	<i>Macrozoarces americanus</i>	94	22.3	B-47a,b
Atlantic soft pout	<i>Melanostigma atlanticum</i>	3	66.7	A-12
Radiated shanny	<i>Ulvaria subbifurcata</i>	6	16.7	A-12
Wrymouth	<i>Cryptacanthodes maculatus</i>	1	0.0	A-12
Atlantic wolffish	<i>Anarhichas lupus</i>	75	25.3	B-48a,b
Southern stargazer	<i>Astroscopus y-graecum</i>	1	0.0	A-12

Taxonomic Index (cont.)

Common Name	Scientific Name	Stomachs		Appendix Table No.
		No.	% Empty	
Northern sand lance	<i>Ammodytes dubius</i>	1353	29.0	B-49a,b
Atlantic cutlassfish	<i>Trichiurus lepturus</i>	11	0.0	A-12
Little tunny	<i>Euthynnus alletteratus</i>	1	0.0	A-12
Atlantic bonito	<i>Sarda sarda</i>	3	0.0	A-12
Chub mackerel	<i>Scomber japonicus</i>	25	4.0	A-13
Atlantic mackerel	<i>S. scombrus</i>	114	18.4	B-50a,b
King mackerel	<i>Scomberomorus cavalla</i>	5	20.0	A-13
Spanish mackerel	<i>S. maculatus</i>	12	0.0	A-13
Swordfish	<i>Xiphias gladius</i>	171	9.9	A-13
Harvestfish	<i>Peprilus alepidotus</i>	2	0.0	A-13
Butterfish	<i>P. triacanthus</i>	852	20.2	B-51a,b
ORDER PLEURONECTIFORMES				
Gulf Stream flounder	<i>Citharichthys arctifrons</i>	224	28.1	B-52a,b
Summer flounder	<i>Paralichthys dentatus</i>	655	61.4	B-53a,b
Fourspot flounder	<i>P. oblongus</i>	178	38.2	B-54a,b
Windowpane	<i>Scophthalmus aquosus</i>	1092	34.7	B-55a,b
Dusky flounder	<i>Syacium papillosum</i>	1	0.0	A-13
Witch flounder	<i>Glyptocephalus cynoglossus</i>	130	16.2	B-56a,b
American plaice	<i>Hippoglossoides platessoides</i>	300	49.0	B-57a,b
Atlantic halibut	<i>Hippoglossus hippoglossus</i>	125	27.2	B-58a,b
Winter flounder	<i>Pseudopleuronectes americanus</i>	1746	30.8	B-59a,b
Yellowtail flounder	<i>Limanda ferruginea</i>	225	34.7	B-60a,b
ORDER TETRAODONTIFORMES				
Planehead filefish	<i>Monacanthus hispidus</i>	8	50.0	A-13
Fish Which Had Empty Stomachs for All Samples				
Striated argentine	<i>Argentina striata</i>	1	100.0	NA
Polka-dot batfish	<i>Ogcocephalus radiatus</i>	1	100.0	NA
Sheepshead minnow	<i>Cyprinodon variegatus</i>	1	100.0	NA
Seahorse uncl.	<i>Hippocampus</i> sp.	1	100.0	NA
Horned searobin	<i>Bellator militaris</i>	1	100.0	NA
Bighead searobin	<i>Prionotus tribulus</i>	1	100.0	NA
Gag	<i>Mycteroperca microlepis</i>	1	100.0	NA
Wolf eelpout	<i>Lycenchelys verrilli</i>	1	100.0	NA
Gray triggerfish	<i>Balistes capriscus</i>	2	100.0	NA
Striped burrfish	<i>Chilomycterus schoepfi</i>	1	100.0	NA

**Alphabetic Index (common names) of Fish and Squid Species Sampled, Including for Each Species
the Geographic Areas Where Collected, Types of Data Listed, and Associated Appendix Table Number**

[Area-collected codes are: 1 - Middle Atlantic, 2 - Southern New England, 3 - Georges Bank, 4 - Gulf of Maine, 5 - Scotian Shelf, 6 - offshore south of Cape Hatteras, 7 - inshore south of Cape Hatteras, 8- inshore north of Cape Hatteras, and 9 - Northwest Atlantic (for large pelagic fish). Data-type codes are: T - overall listing of prey, L - listing of prey according to predator length, and A - listing of prey according to geographic area.]

Common Name	Area(s) Collected									Data Types			Appendix Table No.
Acadian redfish			3	4	5					T	L	A	B-32a,b
Alewife	1	2	3	4	5			8		T	L	A	B-15a,b
Alligatorfish				4						T			A-9
American plaice			3	4	5			8		T	L	A	B-57a,b
American shad	1	2		4				8		T			A-4
Armored searobin	1	2								T			A-8
Atlantic angel shark	1					6		8		T	L		B-8
Atlantic argentine				4	5					T	L		B-19
Atlantic bonito		2								T			A-12
Atlantic bumper							7			T			A-10
Atlantic cod	1	2	3	4	5			8		T	L	A	B-21a,b
Atlantic croaker	1	2				6	7	8		T	L		B-45
Atlantic cutlassfish							7			T			A-12
Atlantic hagfish				4						T			A-1
Atlantic halibut			3	4	5			8		T	L	A	B-58a,b
Atlantic herring			3	4	5	6		8		T	L	A	B-17a,b
Atlantic mackerel		2	3	4	5			8		T	L	A	B-50a,b
Atlantic menhaden							7	8		T	L		B-16
Atlantic midshipman							7			T			A-6
Atlantic needlefish				4	5					T			A-6
Atlantic salmon				4						T			A-4
Atlantic saury			3							T			A-7
Atlantic seasnail			3							T			A-9
Atlantic sharpnose shark						6	7	8		T	L	A	B-6a,b
Atlantic soft pout				4						T			A-12
Atlantic spadefish							7			T			A-11
Atlantic thread herring							7			T			A-4
Atlantic torpedo	1	2	3			6				T			A-3
Atlantic wolffish		2	3	4	5			8		T	L	A	B-48a,b
Banded drum							7			T			A-11
Banded rudderfish								8		T			A-10
Barndoor skate			3		5					T			A-3
Bigeye							7			T			A-9
Bigeye scad	1									T			A-10
Bigeye sculpin			3							T			A-8
Bigeye thresher								9		T			A-1
Bignose shark								9		T			A-2
Black sea bass	1	2	3			6	7	8		T	L	A	B-37a,b
Blackbelly rosefish	1	2	3	4						T	L	A	B-31a,b
Blue shark								9		T			A-2
Blueback herring	1				5					T			A-4
Bluefish	1	2	3			6	7	8		T	L	A	B-38a,b
Bluespotted searobin						6				T			A-8
Bluntnose stingray	1					6	7	8		T	L		B-14
Buckler dory	1									T			A-7
Bullnose ray						6	7	8		T			A-3
Butterfish	1	2	3			6	7	8		T	L	A	B-51a,b
Chain dogfish	1	2								T	L		B-3
Chub mackerel							7	8		T			A-13
Clearnose skate	1					6	7	8		T	L		B-9
Cobia						6				T			A-10

Alphabetic Index (cont.)

Common Name	Area(s) Collected									Data Types	Appendix Table No.
Conger eel	1	2	3							T	A-4
Cornetfish uncl.							7			T	A-7
Cownose ray									8	T	A-3
Cunner		2	3						8	T L	B-46
Cusk			3	4	5					T L	B-20
Deepbody boarfish	1									T	A-7
Dusky flounder						6				T	A-13
Dusky shark	1					6	7	8		T L A	B-4a,b
Fawn cusk-eel	1	2	3						8	T L A	B-28a,b
Fourbeard rockling				4						T	A-5
Fourspot flounder	1	2	3							T L A	B-54a,b
Goosefish	1	2	3	4	5		7	8		T L A	B-29a,b
Greater amberjack						6				T	A-10
Grenadier uncl.		2								T	A-6
Gulf Stream flounder	1	2	3							T L A	B-52a,b
Haddock	1	2	3	4	5				8	T L A	B-22a,b
Harvestfish							7			T	A-13
Hickory shad		2								T	A-4
Hogfish						6				T	A-12
Hookear sculpin uncl.				4	5					T	A-8
<i>Hygophum taaningi</i>	1									T	A-5
Inshore lizardfish						6		8		T	A-5
King mackerel						6		8		T	A-13
Lanternfish uncl.	1									T	A-5
Little skate	1	2	3						8	T L A	B-10a,b
Little tunny						6				T	A-12
Longfin inshore squid	1	2	3	4	5	6	7	8		T L A	B-2a,b
Longfin hake	1	2		4	5					T	A-6
Longfin mako									9	T	A-1
Longhorn sculpin		2	3	4	5					T L A	B-35a,b
Longnose grenadier	1	2								T	A-6
Longnose lancetfish									9	T	A-5
Longspine porgy	1						7	8		T L	B-39
Longspine snipefish	1									T	A-7
Lumpfish								8		T	A-9
Margined snake eel		2								T	A-3
Marlin-spike				4						T	A-6
<i>Maurolicus weitzmani</i>				4						T	A-5
Moustache sculpin			3		5					T L	B-36
Night shark	1								9	T	A-2
Northern kingfish						6	7	8		T L A	B-44a,b
Northern pipefish								8		T L	B-30
Northern sand lance	1	2	3	4					8	T L A	B-49a,b
Northern searobin	1	2	3						8	T L	B-33
Northern shortfin squid	1	2	3	4	5				8	T L A	B-1a,b
Ocean pout		2	3	4	5				8	T L A	B-47a,b
Offshore hake	1		3							T	A-6
Offshore lizardfish						6				T	A-5
Pigfish							7			T	A-11
Pinfish							7			T	A-11
Planehead filefish							7	8		T	A-13
Pollock			3	4	5				8	T L A	B-24a,b
Porbeagle									9	T	A-1
Radiated shanny				4	5					T	A-12
Red cornetfish						6				T	A-7
Red grouper	1									T	A-9
Red hake	1	2	3	4	5				8	T L A	B-25a,b

Alphabetic Index (cont.)

Common Name	Area(s) Collected									Data Types	Appendix Table No.
Rosette skate	1									T	A-3
Rough scad						7	8			T	A-10
Roughtail stingray	1						8			T	A-3
Round herring	1	2				7	8			T L	B-18
Round scad						7				T	A-10
Sand perch						6	7			T	A-9
Sand tiger						7	8	9		T	A-1
Sandbar shark	1					6	7	8		T	A-2
Scalloped hammerhead						7	9			T	A-2
Scamp						6	7			T	A-9
Scorpionfish uncl.						7				T	A-8
Scup	1	2				6	7	8		T L A	B-40a,b
Sea raven		2	3	4	5		8			T L A	B-34a,b
Searobin uncl.						6				T	A-8
Shortfin mako		2						9		T	A-1
Shorthorn sculpin					5					T	A-8
Shortnose greeneye			3							T	A-5
Silky shark								9		T	A-2
Silver hake	1	2	3	4	5		8			T L A	B-23a,b
Silver perch						7				T	A-11
Silverside uncl.		2								T	A-7
Slender snipe eel		2								T	A-4
Smooth dogfish	1	2				7	8			T L A	B-5a,b
Smooth hammerhead						7		9		T	A-2
Smooth skate			3	4						T L	B-13
Snakefish						6				T	A-5
Southern kingfish						7	8			T L A	B-43a,b
Southern stargazer						7				T	A-12
Southern stingray						6				T	A-3
Spanish mackerel						7	8			T	A-13
Spanish sardine						7				T	A-4
Spiny butterfly ray						6	8			T	A-3
Spiny dogfish	1	2	3	4	5	6	7	8		T L A	B-7a,b
Spiny searobin						6				T	A-8
Spot	1					7	8			T L A	B-42a,b
Spottail pinfish						7				T	A-11
Spotted hake	1	2					8			T L	B-26
Striped anchovy							8			T	A-4
Striped bass							8			T	A-9
Striped cusk-eel							8			T	A-6
Striped searobin	1						8			T	A-8
Summer flounder	1	2	3	4		6	7	8		T L A	B-53a,b
Swordfish								9		T	A-13
Tautog						7				T	A-12
Thorny skate			3	4	5		8			T L A	B-12a,b
Threespine stickleback							8			T	A-7
Thresher shark								9		T	A-1
Tiger shark								9		T	A-2
Tilefish		2								T	A-10
Tomtate						6	7			T	A-11
Vermilion snapper						7				T	A-10
Weakfish	1	2				7	8			T L A	B-41a,b
White grunt						6	7			T	A-11
White hake		2	3	4	5		8			T L A	B-27a,b
White shark								9		T	A-1
Whitebone porgy						7				T	A-11

Alphabetic Index (cont.)

Common Name	Area(s) Collected						Data Types			Appendix Table No.	
Windowpane	1	2	3			7	8	T	L	A	B-55a,b
Winter flounder	1	2	3	4	5		8	T	L	A	B-59a,b
Winter skate		2	3	4			8	T	L	A	B-11a,b
Witch flounder			3	4	5		8	T	L	A	B-56a,b
Wrymouth				4				T			A-12
Yellowtail flounder		2	3				8	T	L	A	B-60a,b

INTRODUCTION

Trophic structure of fish assemblages on the continental shelf from New England to Cape Hatteras, North Carolina, has been examined by the Northeast Fisheries Science Center (NEFSC) in several large-scale dietary studies. Past studies have described food-web structure and trophic interactions among Northwest Atlantic fishes. For the 1969-72 study period, see Maurer and Bowman (1975) and Langton and Bowman (1980, 1981); for the 1973-76 period, see Edwards and Bowman (1979) and Bowman and Michaels (1984). Also see Cohen *et al.* (1982), Sissenwine (1984), and Sherman (1986).

Understanding trophic interrelationships among the majority of fish species within an ecosystem is necessary to define more precisely the role that predation plays in determining ecosystem structure and the possible long-term effects of various fisheries exploitation regimes. The primary purpose of this report is to provide basic diet composition data on fishes and two species of squids commonly caught in the Northeast Continental Shelf Ecosystem.

Diet data for some of the species covered in this report are scant or nonexistent in the published literature. This report's data expand on existing diet data for major fish and squid species sampled during the 1969-72 and 1973-76 study periods, and cover the broader geographic area from Nova Scotia to Cape Fear, North Carolina, including inshore areas where bottom depth ranges from 8 to 27 m. Previous studies only covered the area from Nova Scotia to Cape Hatteras in water depths of 27-366 m. The majority of data presented here represent the last of a series of quantitative stomach content collections initiated in 1973.

Detailed stomach content data, based on percentage composition by weight or volume, are presented for individual predator species. Also, we identify six major functional prey groups based on the predators' stomach contents.

METHODS AND MATERIALS

Specimens sampled for stomach content analysis were primarily collected during NEFSC bottom trawl survey cruises conducted during the spring, summer, autumn, and winter from 1977 to 1980. Stratified random sampling was conducted in continental shelf waters from Nova Scotia to Cape Fear, North Carolina and sampling occurred 24 hr/day. Tows were 30 min in duration at a vessel speed of 6.5 km/hr, usually in the direction of the next sampling station. Bottom depths sampled ranged from 8 to 366 m. The 27-m depth contour (along the coast) delineates inshore versus offshore sampling areas of the NEFSC. Eight general areas surveyed by the NEFSC are depicted in Figure 1. They include the six traditional offshore areas -- offshore south of Cape Hatteras, Middle Atlantic, Southern New England, Georges Bank, Gulf of Maine, and Scotian Shelf -- along

with two inshore areas -- inshore south of Cape Hatteras and inshore north of Cape Hatteras.

Stomach content samples taken during bottom trawl survey cruises were based on three criteria as follows: 1) offshore species of particular interest to investigators at the NEFSC for a variety of reasons (*e.g.*, species making up the majority of commercial catches or species known to consume primarily fish), 2) species making up the majority of catches (by weight) in inshore areas (hitherto not sampled), and 3) species for which dietary information was scant or nonexistent. Survey technicians sampled species first for criterion no. 1 if the station was offshore, or for criterion no. 2 if the station was inshore. Other samples were taken when time permitted. Samples generally represented the length frequency of each species caught.

Stomachs of large fish or squid were excised aboard ship, individually wrapped in gauze with a label denoting vessel, cruise, station, species, specimen size (*i.e.*, fork length when applicable, otherwise total length, disk width for rays, or mantle length for squid), sex, and maturity, and preserved in a 3.7% formaldehyde solution (Formalin and sea water) by volume. Small fish and squid were preserved whole.

The preserved stomachs were individually opened in the laboratory and their contents emptied onto a 0.25-mm-mesh-opening screen sieve to permit washing away the formaldehyde without the loss of any food items. The stomach contents were sorted, identified, counted, and damp dried on absorbent paper. Major prey items and commonly occurring but relatively minor prey, in terms of weight, were identified to species whenever practical. The wet weight of all stomach content groups was determined to the nearest 0.001 g, and all data recorded. A stomach was considered empty when no material was found in the stomach, or when the material found in the stomach both could not be identified and weighed less than 0.001 g.

We also provide information on the food of large pelagic species. These samples were gathered from various sources during 1963-84. Stomach content samples of apex predators, including large sharks and tunas, and other large species (*i.e.*, >100 cm) were mostly collected from fish caught by rod and reel, or by longline during research vessel cruises. Some samples were collected from fish caught during fishing tournaments over the years. The sampling area covered continental shelf waters from Florida to the Grand Banks (southeast of Newfoundland).

As noted earlier, stomach content data associated with the 1977-80 period of bottom trawl survey cruises were measured as percentage composition by wet weight. Data associated with the 1963-66 period were measured as percentage composition by occurrence. Data associated with the 1969-72 period are based on samples first being grouped according to fish length, then being measured as percentage composition by wet weight. Stomach content data presented for apex predators are based on percentage composition by volume.

No statistical weighting (*e.g.*, length frequency, sample size, population size, or species distribution) was applied to

any stomach content data. Sources of potential bias or variation in the data include age/size, sex, maturity stage, and various sampling factors (*i.e.*, time of day, season, year, area, and bottom depth and temperature). Accordingly, dietary listings should be considered only as broad summaries. Some items listed as stomach contents are parasites (*e.g.*, trematodes, cestodes, and nematodes), some of which may have been ingested by the predator when it ate other parasitized organisms. Similarly, some items identified in the stomachs may have originated from the stomachs of fish prey and were not directly consumed by a particular predator.

Life history and distribution data for many economically important species (*e.g.*, Atlantic cod, haddock, silver hake, and Atlantic herring) may be found in Grosslein and Azarovitz (1982). Details of stomach content sampling procedures and data processing methods utilized by the NEFSC are given in Langton *et al.* (1980). All common and scientific names of fishes and invertebrates (both predator and prey), whenever possible, are according to Robins *et al.* (1991) for fishes except pleuronectids, Cooper and Chapleau (1998) for pleuronectid fishes, Turgeon *et al.* (1988) for mollusks except loliginids, Turgeon *et al.* (1998) for loliginid mollusks, Williams *et al.* (1989) for decapod crustaceans, Cairns *et al.* (1991) for cnidarians and ctenophores, and either Gosner (1971) or Barnes (1987) for other invertebrates.

RESULTS AND OBSERVATIONS

Detailed diet data for each predator species are given in tabular form in Appendices A and B. In the appendix tables, diet composition is expressed as the percentage by weight that each stomach content group makes up of the total stomach contents for each predator species (except in a few cases, which are noted in the tables, where percentage by volume or occurrence is given because a different measurement method was utilized during the particular study from which those data were taken). Percentage subtotals for phyla and other major taxonomic groups are shown in brackets; subtotals for minor groups within major groups are in parentheses. The number sampled, number empty, mean stomach content by weight or volume, and mean predator length are provided at the bottom of each table.

The stomach contents of 31,567 individual predators, representing 178 species of fish and 2 common species of squid were examined. The total number of each species examined and the percentage empty are listed in the earlier-presented taxonomic index. The area(s) in which samples were collected and the type(s) of data which are presented for each species are given in the earlier-presented alphabetic index. All stomachs of 10 species collected were empty; they are listed at the end of the taxonomic index.

OVERALL PREY

A summary of the stomach content data for the 170 species with food in their stomachs is provided in Table 1. (Also refer to Appendices A and B for a detailed listing of prey.) The functional prey groups (*i.e.*, fish, squid, polychaete, decapod crustacean, other crustacean, and all other) noted immediately below and listed in Table 1 collectively made up at least 50% by weight (or volume) of the stomach contents of the predators indicated.

Fish and/or squid made up the majority of the stomach contents of 59 species. Identified fish prey, for the most part, were northern sand lance, silver hake, other hakes, herrings, mackerels, butterfish, anchovies, scup, flatfishes, and sculpins. Squid prey were primarily longfin inshore and northern shortfin squids. Polychaetes (mostly spionids, nereids, and nephtyids) were important constituents of the diet of seven species. Decapod shrimp (mainly *Pandalus* spp., *Dichelopandalus leptocerus*, and *Crangon septemspinosa*) and crabs (principally *Cancer* spp., *Pagurus* spp., and *Ovalipes* spp.) were the principal food of 17 predators. Crustaceans other than decapods made up a substantial portion of the stomach contents of 32 species, and included prey such as copepods, amphipods, mysids, and euphausiids. Note, however, that some of the unidentified crustacean matter included here may have been decapod remains). The "all other" group (*i.e.*, stomach contents other than the groups noted above) is primarily made up of some combination of bivalve mollusks, gastropods, echinoderms, cnidarians, urochordates, sand, or unidentified material. This group made up most of the stomach contents of 37 species. Eighteen predator species were diverse feeders and didn't feed predominantly on any one of the above functional prey groups.

PREY ACCORDING TO PREDATOR LENGTH

Different diet compositions for fish in different length ranges are observed for 60 species (Appendix B). Generally, fish 20 cm long tended to eat some combination of organisms such as chaetognaths, copepods, amphipods, mysids, polychaetes, and small decapod shrimp. Fish >20 cm long (*e.g.*, little skate, Atlantic cod, silver hake, pollock, and white hake) consumed mostly fish, squid, decapod shrimp, and/or crabs.

Exceptions to this pattern are seen in three groups of predators. The first group are those species which fed intensively on fish and/or squid for most of their life. Predators in this group included, in part, northern shortfin and longfin inshore squids, most of the sharks (*e.g.*, dusky shark, sharpnose shark, and spiny dogfish), goosefish, and bluefish.

The second group are those predators which ate primarily planktonic organisms (*e.g.*, chaetognaths, copepods, pelagic amphipods, mysids, euphausiids, and/or salps). Most of the herrings, Atlantic argentine, northern sand lance, Atlantic mackerel, Acadian redfish, and butterfish are among the fishes included in this group.

The third group of fishes preyed almost totally on some combination of small benthic crustaceans (mostly amphipods), echinoderms, cnidarians, and polychaetes. Species such as haddock, Gulf Stream flounder, witch flounder, American plaice, yellowtail flounder, and winter flounder are among the predators in this group.

PREY ACCORDING TO GEOGRAPHIC AREA

A qualitative and quantitative understanding of predation on fish by fish (*i.e.*, natural mortality, in part) is critically important for development of multispecies fishery models. The percentage of fish in the diet of all piscivores sampled from at least two geographic areas, in sufficient numbers for analysis (about 20 fish per area), during bottom trawl surveys from 1977 to 1980 are presented in Table 2. Excluding apex predators, the listed species represent the majority of the demersal fish and squid biomass within the entire study area.

Spotted hake, which is not listed in Table 2, is a dominant piscivore in the Middle Atlantic, but too few were sampled during the 1977-80 period to warrant inclusion. However, during the 1973-76 period in the Middle Atlantic, 15.9% and 36.9% of their food was fish and squid, respectively (Bowman and Michaels 1984).

Many large apex predators which fed primarily on fish and/or squid (*e.g.*, blue shark, thresher shark, and swordfish) are migratory. They occur in the survey area only during certain periods of the year. Their predatory impact on fish and squid populations during these periods should not be overlooked.

Information on how functional prey groups such as fish, squid, polychaetes, decapods, other crustaceans, and other organisms are partitioned by predators within the study area is given in Tables 2-7. (See also Appendix B.) For each functional prey group, the principal predators which utilize that group as food are discussed, by area, in the following sections.

Fish

Overall, northern sand lance was the primary fish prey in almost all geographic areas during the study period. (See Table 2 and the detailed prey listings in Appendix B.) In the Middle Atlantic, northern sand lance was an important food (>10% of all food by weight) of little skate, silver hake, red

hake, summer flounder, and windowpane. Other notable fish prey in the Middle Atlantic were silver hake (consumed by silver hake, fourspot flounder, and windowpane), herrings (eaten by spiny dogfish, summer flounder, and bluefish), and scup (prey of smooth dogfish and black sea bass).

Southern New England piscivores which ate northern sand lance include, in part, smooth dogfish, winter skate, silver hake, Atlantic cod, summer flounder, windowpane, and yellowtail flounder. In this area, silver hake were prey of fourspot flounder, silver hake, and goosefish. Atlantic cod were identified as prey of Atlantic cod and fourspot flounder. Unidentified gadids were found in the stomachs of spiny dogfish, white hake, red hake, and Gulf Stream flounder. Herrings were the prey of spiny dogfish and summer flounder. One of the few instances of predation on spiny dogfish (*i.e.*, by Atlantic cod) was observed in this area.

Georges Bank predators fed on a wide assortment of fish prey. Major fish prey were northern sand lance (eaten by winter skate, thorny skate, Atlantic cod, pollock, red hake, summer flounder, winter flounder, windowpane, bluefish, and longhorn sculpin), herrings (consumed by spiny dogfish, thorny skate, silver hake, and bluefish), various gadids (found in the stomachs of spiny dogfish, white hake, red hake, Atlantic halibut, bluefish, sea raven, and goosefish, with Atlantic cod and haddock specifically being identified as food of Atlantic halibut and goosefish, respectively), and longhorn sculpin (prey of little skate, Atlantic halibut, bluefish, and goosefish).

Gulf of Maine predators ate primarily northern sand lance (food of spiny dogfish, winter skate, silver hake, haddock, red hake, and Atlantic halibut), silver hake (prey of silver hake, Atlantic cod, white hake, red hake, Atlantic halibut, Acadian redfish, sea raven, and goosefish), and herrings (found in the stomachs of thorny skate, silver hake, Atlantic cod, Atlantic halibut, and goosefish). Haddock was preyed on by goosefish.

Scotian Shelf fishes ate northern sand lance (prey of red hake), mackerel (eaten by spiny dogfish and silver hake), herrings (food of silver hake), silver hake (preyed upon by silver hake, white hake, and red hake), haddock (identified in the stomachs of red hake and goosefish), unidentified gadids (a portion of the diet of Atlantic halibut and goosefish), and longhorn sculpin (found in the stomachs of goosefish).

Inshore north of Cape Hatteras (*i.e.*, Cape Hatteras to Nova Scotia), fish prey were northern sand lance (>10% of the food of winter skate, silver hake, Atlantic cod, pollock, summer flounder, black sea bass, and scup), herrings (consumed by Atlantic sharpnose shark, spiny dogfish, thorny skate, Atlantic cod, Atlantic halibut, summer flounder, bluefish, weakfish, and goosefish), mackerel (eaten by dusky shark), silver hake (a food of silver hake, red hake, Atlantic halibut, and windowpane), butterfish (prey of smooth dog-

fish and bluefish), and anchovies (preyed upon by Atlantic sharpnose shark, black sea bass, weakfish, northern kingfish, and windowpane).

South of Cape Hatteras (including inshore and offshore areas from Cape Hatteras to Cape Fear), fish prey were almost exclusively anchovies (food of Atlantic sharpnose shark, dusky shark, summer flounder, bluefish, black sea bass, weakfish, southern kingfish, northern kingfish, and spot) and herrings (consumed by Atlantic sharpnose shark, bluefish, black sea bass, and weakfish).

Squid

Longfin inshore and northern shortfin squids were the principal squid species identified as prey within all areas sampled except the Middle Atlantic (Appendix B). In the Middle Atlantic, only longfin inshore squid was found to be a major squid prey, although it didn't make up >50% of the stomach contents of a single species.

Table 3 shows that several species fed intensively on squid (*i.e.*, the stomachs of all predators noted immediately below contained on average >50% squid by weight). For example, the diet of summer flounder and bluefish sampled in Southern New England was mostly squid. On Georges Bank, squid was an important prey of bluefish and fourspot flounder. In Scotian Shelf waters, predation on squid was noted by pollock and northern shortfin squid. Goosefish was identified as having >50% squid in the diet for the inshore area north of Cape Hatteras. No predators were observed with >50% squid in their diet for the area south of Cape Hatteras.

Polychaetes

Polychaetes were an important food source (*i.e.*, >50% of stomach contents by weight) for relatively few species, but they were taken as prey in all areas sampled (Table 4 and Appendix B). Taxonomic groups making up the majority of the polychaete prey were nephtyids, nereids, lumbrinerids, flabelligerids, spionids, and ampharetids.

Species in the Middle Atlantic whose main prey was polychaetes are winter flounder, Gulf Stream flounder, and scup. In Southern New England, polychaetes didn't make up >50% of the stomach contents of any predator examined. However, the stomachs of haddock, winter flounder, and Gulf Stream flounder all contained >40%. On Georges Bank, yellowtail and witch flounders were identified as two species which fed intensively (*i.e.*, >50%) on polychaetes. Of all species examined from the Gulf of Maine and Scotian Shelf, only witch flounder stomachs contained >50% polychaetes (in both areas). The inshore area north of Cape Hatteras yielded the most predator species (*i.e.*, 10) with >10% by weight of polychaetes in their stomachs, but the stomachs of only two species, witch flounder and spot,

contained >50%. Not a single species examined from waters south of Cape Hatteras had stomachs containing >50% polychaetes, and only scup stomachs contained >10%.

Decapod Crustaceans

Relatively few species made up the majority of decapod crustacean prey throughout the entire survey area, but those species were an important food source for many predators (Table 5 and Appendix B). For example, decapods accounted for >50% of the stomach contents of dusky shark, smooth dogfish, and blackbelly rosefish in the Middle Atlantic, and for >50% of the stomach contents of smooth dogfish, windowpane, northern kingfish, and southern kingfish in waters south of Cape Hatteras.

In the Middle Atlantic and in waters south of Cape Hatteras, *Crangon septemspinosa*, portunids (*e.g.*, *Ovalipes ocellatus*), *Cancer irroratus*, and *Munida* spp. were important decapod prey.

Four predators examined from the Southern New England area (*i.e.*, smooth dogfish, black sea bass, longhorn sculpin, and sea raven) fed intensively on decapods. In this area, for all predators which ate decapods, the most important prey were *C. irroratus*, *C. borealis*, *Crangon septemspinosa*, and *Dichelopandalus leptocerus*.

On Georges Bank, the same species of prey as noted for Southern New England were also principal food, along with *Hyas* spp. and *Pagurus* spp. Only the stomachs of longhorn sculpin and sea raven sampled on Georges Bank contained >50% decapods.

The largest portion of the decapods consumed in the Gulf of Maine was made up of a combination of *Cancer borealis*, *Hyas* spp., *Pandalus borealis*, and *D. leptocerus*. Predators in this area with >50% decapod prey were blackbelly rosefish and longhorn sculpin.

In Scotian Shelf waters, decapods such as *C. irroratus*, *Pasiphaea* spp., *Crangon septemspinosa*, and *D. leptocerus* were the most important prey. The stomach contents of both sea raven and longhorn sculpin contained >50% decapods. Also worthy of mention is Atlantic halibut with 49.6% decapods.

Fish from the inshore area north of Cape Hatteras fed principally on *Cancer irroratus*, *O. ocellatus*, *Crangon septemspinosa*, and *D. leptocerus*. Predators in the inshore area with >50% decapod prey were smooth dogfish and black sea bass.

Crustaceans Other than Decapods

Five taxonomic groups accounted for the majority of crustacean prey other than decapods. Three of these (*i.e.*, copepods, amphipods, and euphausiids) were an important food in all geographic areas sampled (*i.e.*, either individually or in some combination they made up >50% of the diet

by weight of several predators). The other two groups, mysids and stomatopods, were important prey in only four of the seven areas sampled (Table 6 and Appendix B). Mysids were important as a food source in the Middle Atlantic, Southern New England, inshore north of Cape Hatteras, and on Georges Bank. Stomatopods were major prey of several predators in the Middle Atlantic, Southern New England, inshore north of Cape Hatteras, and south of Cape Hatteras.

In the Middle Atlantic, crustaceans other than decapods made up >50% of the diet of alewife, haddock (only one fish was examined), and northern sand lance. Southern New England fishes which fed intensively on one or more of the nondecapod crustacean groups noted earlier in this section are alewife, yellowtail flounder, Atlantic mackerel, northern sand lance, and ocean pout. Predators identified for Georges Bank were alewife, Atlantic mackerel, black sea bass, Acadian redfish, and northern sand lance. In the Gulf of Maine, seven predators fed for the most part only on nondecapod crustaceans: Atlantic herring, alewife, Atlantic mackerel, summer flounder, Acadian redfish, northern sand lance, and longfin inshore squid). Within the Scotian Shelf area, the stomachs of Atlantic herring, alewife, Atlantic mackerel, Acadian redfish, and ocean pout all contained >90% by weight of crustaceans other than decapods. Predation on these crustaceans inshore north of Cape Hatteras was most important to species such as alewife, Atlantic mackerel, northern sand lance, fawn cusk-eel, and windowpane. None of the species examined from waters south of Cape Hatteras had stomachs containing >50% nondecapod crustaceans.

Other Prey

Major stomach content categories such as echinoderms, gastropods, bivalve mollusks, chaetognaths, cnidarians, nemertean (*i.e.*, rhynchocoels), tunicates, animal remains, and sand made up the majority (either individually or in some combination) of what is found in the stomachs of 32 predators (Table 7). Of these categories, only those which individually made up >50% of the stomach contents by weight of a predator within a particular area are noted in the remainder of this section (excluding animal remains and sand).

None of these prey categories totaled >50% of the stomach contents of any predator in the Middle Atlantic or Southern New England. On Georges Bank, Atlantic herring fed intensively on chaetognaths, American plaice ate (for the most part) only echinoderms (92.3%), and Atlantic wolf-fish consumed bivalve mollusks. In the Gulf of Maine, echinoderms were an important food of haddock and ocean pout. Only one predator each within the Scotian Shelf, inshore area north of Cape Hatteras, and area south of Cape

Hatteras fed primarily on any prey category considered here (*i.e.*, winter flounder eating cnidarians, ocean pout consuming echinoderms, and butterfish preying on tunicates, respectively).

OBSERVATIONS

Scientists at the NEFSC's Woods Hole Laboratory have conducted broadscale dietary studies of fishes sampled during bottom trawl surveys since 1963. Dietary data presented here, which are largely based on samples from the 1977-80 portion of the survey series, corroborate earlier reports that relatively few species account for a substantial portion of the food of Northwest Atlantic continental shelf fishes and squids [Edwards and Bowman (1979), Bowman and Michaels (1984), Bowman *et al.* (1984), Maurer and Bowman (1985)]. The abundances of some species identified as critical prey are known to fluctuate among seasons and years based on indices generated by these surveys. During 1977-80 (*i.e.*, this study's period, in part), when the survey indices rose for northern sand lance, we simultaneously found sand lance to be a major prey item.

This report summarizes much dietary information into various predator/prey groups, but that information does not take into account predator/prey population sizes, or spatial/temporal aspects, of predation (*i.e.*, overlap of predator and prey populations). Before the impact of predation on a population can be determined, these factors must be considered.

A complete list of all stomach contents for all predator species in this report can be obtained from the Food Chain Dynamics Investigation at the NEFSC.

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Table 1. Percentage of total stomach contents by weight of six functional prey groups for 170 species of fish and squid collected in the Northwest Atlantic. (The order of species follows the taxonomic index presented earlier.)

Predator	Functional Prey Group					
	Fish	Squid	Polychaete	Decapod Crustacean	Other Crustacean	All Other
Northern shortfin squid	19.0	34.6	<0.1	0.4	16.2	29.8
Longfin inshore squid	13.7	5.6	<0.1	0.2	4.5	76.0
Atlantic hagfish	47.6	-	-	-	-	52.4
Sand tiger	100.0	-	-	-	-	-
Bigeye thresher	83.5	15.1	-	-	-	1.4
Thresher shark	97.1	2.9	-	-	-	-
White shark	27.0	-	-	-	-	73.0
Shortfin mako	98.2	1.4	-	-	-	0.4
Longfin mako	91.9	4.9	-	-	-	3.2
Porbeagle	0.7	99.3	-	-	-	-
Chain dogfish	49.5	20.7	6.3	10.0	12.4	1.1
Bignose shark	38.4	-	-	-	-	61.6
Silky shark	57.5	32.3	-	-	-	10.2
Dusky shark	58.1	14.4	-	11.5	6.1	9.9
Sandbar shark	98.2	-	-	-	-	1.8
Night shark	1.2	97.9	-	-	-	0.9
Tiger shark	57.6	0.3	-	-	-	42.1
Smooth dogfish	7.4	8.2	0.8	72.1	2.6	8.9
Blue shark	53.9	33.8	-	-	-	12.3
Atlantic sharpnose shark	80.0	5.2	-	8.3	1.4	5.1
Scalloped hammerhead	100.0	-	-	-	-	-
Smooth hammerhead	98.0	-	-	-	-	2.0
Spiny dogfish	53.7	17.8	-	3.3	1.0	24.2
Atlantic angel shark	83.3	7.7	<0.1	0.2	<0.1	8.8
Atlantic torpedo	100.0	-	<0.1	-	-	-
Clearnose skate	57.8	0.6	0.4	38.6	0.8	1.8
Little skate	9.5	-	12.9	40.5	25.0	12.1
Rosette skate	1.7	2.6	0.7	81.8	9.9	3.3
Barndoor skate	-	-	-	100.0	-	-
Winter skate	66.2	7.0	8.5	4.8	2.6	10.9
Thorny skate	45.3	22.9	6.4	9.1	3.9	12.4
Smooth skate	<0.1	-	-	69.2	27.4	3.4
Southern stingray	0.7	-	0.3	98.7	0.3	-
Roughtail stingray	31.1	-	<0.1	68.7	0.1	0.1
Bluntnose stingray	40.9	-	10.2	23.2	1.0	24.7
Spiny butterfly ray	6.9	-	-	-	-	93.1
Bullnose ray	<0.1	-	2.2	6.2	0.2	91.4
Cownose ray	90.7	-	-	0.3	8.6	0.4
Margined snake eel	-	-	31.7	61.7	6.4	0.2
Slender snipe eel	-	-	-	-	100.0	-
Conger eel	96.5	-	-	-	0.1	3.4
Blueback herring	-	-	-	0.9	49.6	49.5
Hickory shad	-	-	-	100.0	-	-
Alewife	1.7	0.1	-	2.5	86.2	9.5

Table 1. (cont.)

Predator	Functional Prey Group					
	Fish	Squid	Polychaete	Decapod Crustacean	Other Crustacean	All Other
American shad	16.3	1.1	-	-	78.1	4.5
Atlantic menhaden	-	-	-	0.5	49.3	50.2
Atlantic herring	<0.1	-	-	<0.1	85.2	14.8
Round herring	32.8	-	-	21.3	41.3	4.6
Atlantic thread herring	-	-	-	-	-	100.0
Spanish sardine	-	-	-	-	100.0	<0.1
Striped anchovy	0.3	-	5.9	2.8	79.5	11.5
Atlantic argentine	10.3	0.5	1.0	1.6	70.8	15.8
Atlantic salmon	-	-	4.6	0.3	-	95.1
Shortnose greeneye	-	-	10.7	-	68.8	20.5
Inshore lizardfish	100.0	-	-	-	-	-
Offshore lizardfish	2.5	96.2	-	1.3	-	-
Snakefish	-	-	-	-	-	100.0
Longnose lancetfish	2.8	1.0	-	13.5	82.6	0.1
Lanternfish uncl.	6.2	-	-	20.5	52.4	20.9
<i>Hygophum taaningi</i>	-	-	0.5	3.3	95.7	0.5
Mullers pearlsides	-	-	-	-	100.0	-
Cusk	15.5	0.1	<0.1	47.7	3.7	33.0
Fourbeard rockling	-	-	65.7	-	1.2	33.1
Atlantic cod	56.8	12.5	2.5	17.8	3.3	7.1
Haddock	3.0	1.1	14.1	2.9	15.4	63.5
Offshore hake	-	-	-	-	82.5	17.5
Silver hake	63.0	7.7	-	5.2	23.4	0.7
Pollock	54.1	23.5	-	2.6	18.3	1.5
Longfin hake	0.5	-	-	-	99.1	0.4
Red hake	21.7	5.7	2.6	25.9	37.4	6.7
Spotted hake	39.1	25.0	0.9	11.9	16.4	6.7
White hake	57.1	21.4	0.1	7.1	13.5	0.8
Marlin-spike	-	-	0.4	-	99.6	-
Longnose grenadier	-	-	80.1	2.9	10.9	6.1
Grenadier uncl.	-	-	16.7	-	27.3	56.0
Fawn cusk-eel	9.8	-	25.7	23.9	27.3	13.3
Striped cusk-eel	-	-	-	70.3	29.7	-
Atlantic midshipman	68.9	23.2	-	2.8	5.1	-
Goosefish	73.9	24.9	-	-	-	1.2
Atlantic needlefish	-	-	-	-	100.0	-
Atlantic saury	-	-	-	-	45.6	54.4
Tidewater silverside	-	-	-	-	100.0	-
Buckler dory	100.0	-	-	-	-	-
Deepbody boarfish	3.3	-	-	-	43.1	53.6
Threespine stickleback	75.0	-	-	-	25.0	-
Red cornetfish	100.0	-	-	-	-	-
Cornetfish uncl.	26.7	-	-	-	73.3	-
Longspine snipefish	-	-	-	-	100.0	-
Northern pipefish	-	-	-	-	100.0	-

Table 1. (cont.)

Predator	Functional Prey Group					
	Fish	Squid	Polychaete	Decapod Crustacean	Other Crustacean	All Other
Blackbelly rosefish	2.1	3.0	3.3	46.7	5.4	39.5
Acadian redbfish	7.5	-	0.1	3.1	88.2	1.1
Scorpionfish uncl.	-	-	-	100.0	-	-
Armored searobin	1.1	-	-	39.1	48.0	11.8
Spiny searobin	-	-	-	-	100.0	-
Northern searobin	14.7	-	15.2	37.3	14.2	18.6
Striped searobin	77.3	-	-	21.3	1.3	0.1
Bluespotted searobin	-	-	-	-	100.0	-
Searobin uncl.	-	-	-	-	44.4	55.6
Hookear sculpin uncl.	-	-	54.2	-	25.3	20.5
Sea raven	73.8	1.4	-	24.0	-	0.8
Longhorn sculpin	10.5	-	2.1	77.2	5.2	5.0
Shorthorn sculpin	-	-	-	58.4	2.9	38.7
Moustache sculpin	-	-	16.1	67.9	15.6	0.4
Bigeye sculpin	-	-	47.9	34.7	15.6	1.8
Alligatorfish	-	-	-	3.4	96.6	-
Lumpfish	-	-	10.9	0.4	0.4	88.3
Atlantic seasnail	-	-	-	-	100.0	-
Striped bass	100.0	-	-	-	-	-
Black sea bass	28.5	3.8	1.9	45.6	8.9	11.3
Sand perch	100.0	-	-	-	-	-
Red grouper	-	100.0	-	-	-	-
Scamp	97.0	-	-	3.0	<0.1	-
Bigeye	-	-	21.2	-	15.4	63.4
Tilefish	<0.1	-	0.2	4.4	17.5	77.9
Bluefish	58.8	40.0	0.4	0.4	0.2	0.2
Cobia	29.5	12.9	-	54.3	-	3.3
Atlantic bumper	-	-	-	-	-	100.0
Round scad	-	-	-	-	-	100.0
Bigeye scad	13.6	-	-	10.6	4.1	71.7
Greater amberjack	100.0	-	-	-	-	-
Banded rudderfish	97.0	-	-	3.0	-	-
Rough scad	-	-	-	-	38.0	62.0
Vermilion snapper	0.5	81.7	-	<0.1	0.1	17.7
Tomtate	0.4	-	5.6	1.0	5.6	87.4
White grunt	13.1	-	18.9	13.2	4.3	50.5
Pigfish	-	-	61.2	5.8	0.7	32.3
Whitebone porgy	100.0	-	-	-	-	-
Spottail pinfish	0.2	-	-	4.6	5.2	90.0
Pinfish	1.7	-	-	-	-	98.3
Longspine porgy	2.9	0.8	11.3	21.6	7.2	56.2
Scup	23.5	11.8	21.0	7.3	13.1	23.3
Silver perch	-	-	-	-	100.0	-
Weakfish	76.0	7.8	1.0	10.4	4.5	0.3
Banded drum	-	-	-	19.9	80.1	-

Table 1. (cont.)

Predator	Functional Prey Group					
	Fish	Squid	Polychaete	Decapod Crustacean	Other Crustacean	All Other
Spot	2.9	-	53.9	2.6	11.3	29.3
Southern kingfish	15.9	-	10.3	48.2	15.3	10.3
Northern kingfish	9.4	-	3.8	82.7	2.1	2.0
Atlantic croaker	12.5	2.0	37.4	10.3	13.4	24.4
Atlantic spadefish	-	-	-	-	-	100.0
Hogfish	-	-	-	0.9	29.7	69.4
Tautog	-	-	-	100.0	-	-
Cunner	1.8	-	0.8	72.0	2.9	22.5
Ocean pout	<0.1	-	2.1	5.4	19.3	73.2
Atlantic soft pout	-	-	-	-	100.0	-
Radiated shanny	-	-	2.3	-	5.4	92.3
Wrymouth	-	-	-	100.0	-	-
Atlantic wolffish	-	-	0.1	13.0	1.6	85.3
Southern stargazer	100.0	-	-	-	-	-
Northern sand lance	0.8	-	<0.1	-	74.8	24.4
Atlantic cutlassfish	69.2	-	-	21.9	8.1	0.8
Little tunny	99.3	-	-	-	0.6	0.1
Atlantic bonito	80.7	19.3	-	-	-	-
Chub mackerel	0.8	-	-	-	12.6	86.6
Atlantic mackerel	0.1	0.2	<0.1	0.7	89.5	9.5
King mackerel	99.9	0.1	-	-	-	-
Spanish mackerel	82.5	16.5	-	0.4	-	0.6
Swordfish	32.5	67.4	-	-	-	0.1
Harvestfish	-	-	-	-	-	100.0
Butterfish	0.1	-	2.3	0.1	1.7	95.8
Gulf Stream flounder	4.6	-	47.2	7.2	34.1	6.9
Summer flounder	61.1	34.2	-	1.8	2.6	0.3
Fourspot flounder	11.8	54.3	2.0	27.3	2.5	2.1
Windowpane	31.4	-	0.9	14.3	51.6	1.8
Dusky flounder	8.7	-	-	25.5	65.8	-
Witch flounder	-	-	85.7	-	3.4	10.9
American plaice	-	-	2.2	4.0	1.2	92.6
Atlantic halibut	65.7	18.5	-	15.4	<0.1	0.4
Winter flounder	3.5	-	35.6	0.8	7.1	53.0
Yellowtail flounder	0.7	-	38.5	6.4	42.5	11.9
Planehead filefish	-	5.8	66.7	-	-	27.5

Table 2. Percentage by weight of fish component of diet of piscivores according to geographic area of collection

Predator	Area						
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras	South of Cape Hatteras
Northern shortfin squid	23.0	12.3	5.2	13.1	7.1	73.3	-
Longfin inshore squid	17.0	15.3	7.6	0.0	0.0	21.4	17.8
Dusky shark	17.9	-	-	-	-	86.2	21.5
Smooth dogfish	10.1	7.8	-	-	-	5.8	24.6
Atlantic sharpnose shark	-	-	-	-	-	77.1	81.0
Spiny dogfish	72.7	55.8	49.9	40.9	30.6	60.4	92.4
Little skate	24.2	1.7	2.9	-	-	17.5	-
Winter skate	-	66.6	65.2	88.1	-	88.2	-
Thorny skate	-	-	68.1	38.3	15.4	64.8	-
Alewife	1.9	2.0	0.4	0.1	-	7.3	-
Atlantic herring	-	-	0.0	<0.1	-	0.0	0.0
Atlantic cod	74.2	71.9	40.3	43.8	4.0	61.4	-
Haddock	-	<0.1	<0.1	3.9	<0.1	0.0	-
Silver hake	74.1	88.9	62.2	50.2	85.7	51.6	-
Pollock	-	-	56.1	4.9	15.4	100.0	-
Red hake	51.9	31.5	8.9	22.6	30.9	51.3	-
White hake	-	97.8	55.2	42.9	51.0	93.5	-
Fawn cusk-eel	0.0	19.9	0.0	-	-	0.0	-
Goosefish	96.0	63.2	28.5	81.1	91.2	46.6	-
Blackbelly rosefish	10.1	2.9	0.6	0.0	-	-	-
Acadian redfish	-	-	0.0	15.6	<0.1	-	-
Sea raven	-	0.0	44.2	97.6	36.5	90.6	-
Longhorn sculpin	-	1.0	12.9	0.0	0.0	-	-
Black sea bass	23.6	3.0	0.0	-	-	18.4	44.8
Bluefish	98.1	4.6	33.9	-	-	75.5	94.1
Scup	0.0	0.8	-	-	-	30.0	55.7
Weakfish	0.0	100.0	-	-	-	76.3	74.1
Spot	0.0	-	-	-	-	0.1	9.9
Southern kingfish	-	-	-	-	-	6.4	21.0
Northern kingfish	-	-	-	-	-	27.9	5.2
Ocean pout	-	<0.1	0.0	0.0	0.0	<0.1	-
Northern sand lance	6.5	2.5	0.5	0.0	-	<0.1	-
Atlantic mackerel	-	0.0	<0.1	0.2	2.4	0.0	-
Butterfish	<0.1	0.0	0.0	-	-	<0.1	0.2
Gulf Stream flounder	0.0	6.8	0.0	-	-	-	-
Summer flounder	95.7	43.2	100.0	0.0	-	60.3	90.2
Fourspot flounder	41.6	19.5	0.3	-	-	-	-
Windowpane	55.7	23.6	71.6	-	-	22.1	0.0
Atlantic halibut	-	-	84.0	51.8	25.7	97.3	-
Winter flounder	0.0	<0.1	5.2	0.0	0.0	2.1	-
Yellowtail flounder	-	0.9	0.0	-	-	0.9	-

Table 3. Percentage by weight of squid component of diet of predators which eat squid according to geographic area of collection

Predator	Area						
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras	South of Cape Hatteras
Northern shortfin squid	36.1	30.3	40.8	22.7	70.0	3.2	-
Longfin inshore squid	10.1	8.0	0.3	0.0	0.0	8.0	4.6
Dusky shark	0.0	-	-	-	-	12.2	24.6
Smooth dogfish	3.7	0.7	-	-	-	10.1	<0.1
Atlantic sharpnose shark	-	-	-	-	-	0.0	7.1
Spiny dogfish	5.0	22.4	17.2	24.7	26.3	9.1	3.4
Winter skate	-	10.2	6.9	11.7	-	0.0	-
Thorny skate	-	-	6.4	32.6	16.3	<0.1	-
Alewife	2.5	0.0	0.0	0.0	0.0	0.0	-
Atlantic cod	0.0	<0.1	1.6	43.6	0.0	<0.1	-
Haddock	0.0	0.0	0.0	1.3	1.9	0.0	-
Silver hake	17.0	3.2	0.0	0.0	3.5	32.7	-
Pollock	-	-	5.9	46.8	80.9	0.0	-
Red hake	0.0	30.1	6.2	1.4	23.6	0.5	-
White hake	-	0.0	0.0	29.5	40.1	0.0	-
Goosefish	0.0	22.7	49.6	14.6	3.5	53.3	-
Blackbelly rosefish	0.0	0.0	4.5	0.0	-	-	-
Sea raven	-	0.0	3.6	0.0	0.0	<0.1	-
Black sea bass	1.6	0.0	0.0	-	-	5.3	5.5
Bluefish	1.3	95.3	65.8	-	-	22.2	3.5
Scup	0.0	0.0	-	-	-	15.8	0.0
Weakfish	0.0	0.0	-	-	-	5.9	19.0
Atlantic mackerel	-	<0.1	0.5	0.0	0.0	0.0	-
Summer flounder	1.3	55.6	0.0	0.0	-	31.1	-
Fourspot flounder	0.0	45.3	73.1	-	-	-	-
Atlantic halibut	-	-	15.4	25.4	22.9	1.1	-

Table 4. Percentage by weight of polychaete component of diet of predators which eat polychaetes according to geographic area of collection

Predator	Area						
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras	South of Cape Hatteras
Northern shortfin squid	0.0	0.0	0.0	0.0	<0.1	0.1	-
Longfin inshore squid	<0.1	<0.1	<0.1	0.0	0.0	0.4	0.0
Smooth dogfish	0.3	0.8	-	-	-	0.6	0.6
Little skate	3.2	21.7	15.0	-	-	3.3	-
Winter skate	-	9.0	8.4	<0.1	-	2.7	-
Thorny skate	-	-	5.6	8.5	45.5	29.6	-
Alewife	0.0	0.0	0.0	0.0	0.0	0.6	-
Atlantic cod	1.1	5.4	2.4	0.1	<0.1	1.9	-
Haddock	0.0	47.1	18.6	7.8	29.4	42.2	-
Red hake	0.6	1.8	0.6	2.4	1.2	9.4	-
White hake	-	0.0	0.2	<0.1	0.0	0.3	-
Fawn cusk-eel	46.4	13.6	26.3	-	-	22.1	-
Blackbelly rosefish	0.0	11.2	1.8	15.8	-	-	-
Acadian redfish	-	-	0.0	0.0	<0.1	-	-
Longhorn sculpin	-	5.0	1.1	17.9	2.5	-	-
Black sea bass	3.7	0.3	0.0	-	-	0.9	0.2
Bluefish	0.0	0.0	0.0	-	-	0.8	0.4
Scup	52.5	34.0	-	-	-	14.8	18.1
Weakfish	0.0	0.0	-	-	-	1.0	0.1
Spot	1.7	-	-	-	-	73.2	3.5
Southern kingfish	-	-	-	-	-	24.6	2.0
Northern kingfish	-	-	-	-	-	14.4	1.3
Ocean pout	-	3.9	0.6	5.7	0.0	<0.1	-
Atlantic wolfish	-	0.0	0.0	0.2	0.0	0.0	-
Northern sand lance	0.0	<0.1	<0.1	0.0	-	<0.1	-
Atlantic mackerel	-	0.0	0.1	0.0	0.0	0.0	-
Butterfish	0.0	3.7	0.0	-	-	3.3	<0.1
Gulf Stream flounder	61.0	43.2	46.4	-	-	-	-
Fourspot flounder	6.0	4.1	0.0	-	-	-	-
Windowpane	0.5	0.5	2.3	-	-	0.9	0.0
Witch flounder	-	-	76.7	82.6	74.7	90.7	-
American plaice	-	-	0.5	1.0	0.0	7.9	-
Winter flounder	74.2	43.8	24.2	37.1	<0.1	48.5	-
Yellowtail flounder	-	28.9	71.9	-	-	25.6	-

Table 5. Percentage by weight of decapod crustacean component of diet of predators which eat decapods according to geographic area of collection

Predator	Area						
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras	South of Cape Hatteras
Northern shortfin squid	1.2	1.2	<0.1	<0.1	<0.1	<0.1	-
Longfin inshore squid	0.2	<0.1	<0.1	0.0	0.0	1.3	0.0
Dusky shark	79.0	-	-	-	-	0.2	4.8
Smooth dogfish	74.2	89.2	-	-	-	70.0	59.9
Atlantic sharpnose shark	-	-	-	-	-	22.1	3.6
Spiny dogfish	1.3	1.1	5.7	0.1	0.1	11.9	1.6
Little skate	42.8	25.7	47.1	-	-	49.4	-
Winter skate	-	1.5	4.5	0.0	-	6.5	-
Thorny skate	-	-	17.1	5.8	10.9	3.5	-
Alewife	0.0	0.7	0.3	<0.1	0.0	15.4	-
Atlantic herring	-	-	0.0	<0.1	0.0	0.0	-
Atlantic cod	24.3	17.9	34.1	5.5	10.0	21.6	-
Haddock	0.0	8.1	2.2	1.7	7.0	8.9	-
Silver hake	2.8	4.5	5.6	6.8	1.9	5.5	-
Pollock	-	-	3.4	5.2	2.1	0.0	-
Red hake	41.0	25.5	33.3	19.3	30.3	29.0	-
White hake	-	1.6	39.3	5.4	7.7	5.1	-
Fawn cusk-eel	19.0	30.1	17.4	-	-	11.4	-
Blackbelly rosefish	72.3	39.1	39.2	84.2	-	-	-
Acadian redfish	-	-	0.0	0.5	5.6	-	-
Sea raven	-	64.8	51.5	1.5	63.5	8.4	-
Longhorn sculpin	-	85.5	74.9	72.4	94.2	-	-
Black sea bass	48.1	52.4	21.1	-	-	55.9	32.4
Bluefish	0.0	0.0	<0.1	-	-	0.4	1.2
Scup	17.0	2.7	-	-	-	7.7	2.0
Weakfish	0.0	0.0	-	-	-	11.1	6.2
Spot	2.6	-	-	-	-	2.3	2.5
Southern kingfish	-	-	-	-	-	43.1	51.1
Northern kingfish	-	-	-	-	-	46.2	90.7
Ocean pout	-	10.2	5.8	0.8	0.0	0.0	-
Atlantic wolfish	-	0.0	7.9	14.6	22.0	12.2	-
Atlantic mackerel	-	0.0	2.1	<0.1	0.0	0.0	-
Butterfish	0.0	0.2	0.3	-	-	0.2	0.0
Gulf Stream flounder	2.5	9.0	5.6	-	-	-	-
Summer flounder	2.4	0.6	0.0	0.0	-	2.8	5.2
Fourspot flounder	48.8	20.9	22.9	-	-	-	-
Windowpane	14.6	32.7	15.3	-	-	7.5	100.0
American plaice	-	-	0.1	1.0	0.0	17.4	-
Atlantic halibut	-	-	0.1	22.0	49.6	1.5	-
Winter flounder	2.5	1.2	0.4	2.8	0.0	0.4	-
Yellowtail flounder	-	1.6	0.6	-	-	39.5	-

Table 6. Percentage by weight of crustaceans (other than decapods) in diet of predators which eat such crustaceans according to geographic area of collection

Predator	Area						
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras	South of Cape Hatteras
Northern shortfin squid	8.5	18.6	22.0	26.4	4.8	3.9	-
Longfin inshore squid	3.4	7.5	3.1	70.1	0.0	3.6	1.4
Dusky shark	0.0	-	-	-	-	1.1	18.1
Smooth dogfish	2.3	0.4	-	-	-	2.5	9.9
Atlantic sharpnose shark	-	-	-	-	-	<0.1	2.0
Spiny dogfish	<0.1	0.2	<0.1	3.4	0.3	2.6	0.0
Little skate	10.7	36.0	20.3	-	-	23.6	-
Winter skate	-	6.7	1.7	0.1	-	1.6	-
Thorny skate	-	-	0.4	4.9	9.8	0.5	-
Alewife	56.5	92.4	82.1	93.1	99.9	68.3	-
Atlantic herring	-	-	4.3	97.6	97.2	2.3	0.0
Atlantic cod	<0.1	1.3	5.4	3.8	21.1	3.1	-
Haddock	100.0	6.1	20.1	14.9	5.7	11.7	-
Silver hake	5.4	2.3	31.7	41.9	8.4	9.7	-
Pollock	-	-	32.4	39.3	0.5	0.0	-
Red hake	1.6	6.9	38.6	46.7	11.7	4.3	-
White hake	-	0.3	3.5	21.1	0.0	0.1	-
Fawn cusk-eel	29.5	14.5	47.6	-	-	66.5	-
Blackbelly rosefish	10.5	13.9	2.5	0.0	-	-	-
Acadian redfish	-	-	100.0	82.1	93.8	-	-
Sea raven	-	0.0	<0.1	0.0	0.0	<0.1	-
Longhorn sculpin	-	5.9	4.3	7.0	<0.1	-	-
Black sea bass	15.0	44.3	76.3	-	-	8.2	0.5
Bluefish	0.0	0.0	0.0	-	-	0.3	0.2
Scup	0.1	9.5	-	-	-	14.6	0.3
Weakfish	0.0	0.0	-	-	-	4.9	<0.1
Spot	3.4	-	-	-	-	6.8	20.2
Southern kingfish	-	-	-	-	-	4.8	20.9
Northern kingfish	-	-	-	-	-	5.5	1.3
Ocean pout	-	61.0	5.3	<0.1	100.0	<0.1	-
Atlantic wolfish	-	33.3	0.1	4.2	0.5	0.0	-
Northern sand lance	61.6	57.5	79.8	70.7	-	87.8	-
Atlantic mackerel	-	96.2	74.9	85.2	95.9	98.4	-
Butterfish	2.6	3.3	4.3	-	-	1.3	0.1
Gulf Stream flounder	31.7	33.1	42.3	-	-	-	-
Summer flounder	0.6	0.2	0.0	100.0	-	5.0	4.4
Fourspot flounder	1.4	3.8	2.3	-	-	-	-
Windowpane	27.9	41.0	3.2	-	-	67.8	0.0
Witch flounder	-	-	11.2	1.9	0.0	2.4	-
American plaice	-	-	2.2	1.3	0.0	0.2	-
Atlantic halibut	-	-	<0.1	<0.1	<0.1	<0.1	-
Winter flounder	1.3	10.3	2.8	0.8	0.0	11.8	-
Yellowtail flounder	-	54.8	14.6	-	-	23.0	-

Table 7. Percentage by weight of all other prey (other than those noted in Tables 2-6) in diet of predators according to geographic area of collection

Predator	Area						
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras	South of Cape Hatteras
Northern shortfin squid	31.2	37.6	31.6	37.8	18.1	19.5	-
Longfin inshore squid	69.3	69.2	89.0	29.9	100.0	65.3	76.2
Dusky shark	3.1	-	-	-	-	0.3	3.1
Smooth dogfish	9.4	1.1	-	-	-	11.0	5.0
Atlantic sharpnose shark	-	-	-	-	-	0.8	6.4
Spiny dogfish	21.0	20.5	27.2	30.9	42.7	16.0	2.6
Little skate	19.1	14.9	14.7	-	-	6.2	-
Winter skate	-	6.0	13.3	0.1	-	1.0	-
Thorny skate	-	-	2.4	9.4	2.1	1.6	-
Alewife	39.1	5.6	17.5	6.8	0.1	23.8	-
Atlantic herring	-	-	95.7	2.4	2.8	97.7	100.0
Atlantic cod	0.4	3.5	15.1	3.2	64.9	12.0	-
Haddock	0.0	38.7	59.1	70.4	56.0	37.2	-
Silver hake	0.7	1.1	0.5	1.1	0.5	0.5	-
Pollock	-	-	2.2	3.8	1.1	0.0	-
Red hake	4.9	4.2	11.6	7.6	2.3	5.5	-
White hake	-	0.3	1.8	1.1	1.2	1.0	-
Fawn cusk-eel	5.1	21.9	8.7	-	-	0.0	-
Goosefish	1.0	1.2	0.7	2.4	<0.1	0.1	-
Blackbelly rosefish	7.1	32.9	51.4	0.0	-	-	-
Acadian redfish	-	-	0.0	1.8	0.6	-	-
Sea raven	-	35.2	0.7	0.9	0.0	1.0	-
Longhorn sculpin	-	2.6	6.8	2.7	3.3	-	-
Black sea bass	8.0	0.0	2.6	-	-	11.3	21.6
Bluefish	0.6	0.1	0.3	-	-	0.8	0.7
Scup	30.4	53.0	-	-	-	17.1	21.3
Weakfish	100.0	0.0	-	-	-	0.8	0.6
Spot	92.3	-	-	-	-	17.6	63.9
Southern kingfish	-	-	-	-	-	21.1	5.0
Northern kingfish	-	-	-	-	-	6.0	1.6
Ocean pout	-	24.9	88.3	93.5	0.0	100.0	-
Atlantic wolfish	-	66.7	92.0	81.0	77.5	87.8	-
Northern sand lance	31.9	40.0	19.7	29.3	-	12.2	-
Atlantic mackerel	-	3.8	22.4	14.6	1.7	1.6	-
Butterfish	97.4	92.8	95.4	-	-	95.2	99.8
Gulf Stream flounder	4.8	7.9	5.7	-	-	-	-
Summer flounder	<0.1	0.4	0.0	0.0	-	0.8	0.2
Fourspot flounder	2.2	6.4	1.4	-	-	-	-
Windowpane	1.3	2.2	7.6	-	-	1.7	0.0
Witch flounder	-	-	12.1	15.5	25.3	6.9	-
American plaice	-	-	97.2	96.7	100.0	74.5	-
Atlantic halibut	-	-	0.5	0.8	1.8	0.1	-
Winter flounder	22.0	44.7	67.4	59.3	100.0	37.2	-
Yellowtail flounder	-	13.8	12.9	-	-	11.0	-

APPENDIX A

Overall Prey of 110 Predators Which Were Lightly Sampled and/or Not Well Represented in Collections during the NEFSC's 1977-80 Bottom Trawl Surveys

Stomach content data for 110 subjectively chosen predator species are given in Tables A-1 through A-13. These tables present data for: 1) 86 predator species for which 25 or fewer individuals were sampled during the 1977-80 NEFSC bottom trawl surveys, and 2) 28 predator species not well represented in the 1977-80 survey samples (*i.e.*, there is some duplication with the aforementioned 86 species). Data were gathered over a number of years (*i.e.*, 1963-84) from various areas, and were

collected and analyzed using different methods. Sources of the data and other information for each species are included in the 13 tables.

Data on the latter 28 species are important because some of the species are large pelagic predators which make up a considerable biomass (*e.g.*, blue shark), and which are known to feed primarily on fish and squid.

Table A-1. Diet composition and sampling data for Atlantic hagfish, sand tiger, bigeye thresher, thresher shark, white shark, shortfin mako, longfin mako, and porbeagle. (Subscripts indicate data source: 1 = 1977-80 trawl surveys, and 2 = Apex Predators Investigation studies. Superscripts indicate data type: * = percentage by volume, and none = percentage by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Predator									
	Atlantic hagfish ₁	Sand tiger ₁	Sand tiger ₂ [*]	Bigeye thresher ₂ [*]	Thresher shark ₂ [*]	White shark ₂ [*]	Shortfin mako ₁	Shortfin mako ₂ [*]	Longfin mako ₂ [*]	Porbeagle ₂ [*]
CEPHALOPODA	-	-	-	[15.1]	[2.9]	-	[22.9]	[1.4]	[4.9]	[99.3]
<i>Illex illecebrosus</i>	-	-	-	11.9	2.2	-	-	1.2	-	69.5
<i>Loligo pealeii</i>	-	-	-	-	-	-	22.9	<0.1	-	-
Cephalopoda unid.	-	-	-	3.2	0.7	-	-	0.2	4.9	29.8
ARTHROPODA	[52.4]	-	-	-	-	-	-	-	-	-
CHONDRICHTHYES	-	[33.2]	[76.3]	-	-	[1.1]	-	[0.3]	[12.1]	-
Odontaspidae	-	33.2	-	-	-	-	-	-	-	-
<i>Carcharhinus</i> sp.	-	-	-	-	-	-	-	-	12.1	-
<i>Mustelus canis</i>	-	-	-	-	-	0.3	-	-	-	-
<i>Prionace glauca</i>	-	-	-	-	-	0.1	-	0.2	-	-
Squaliformes	-	-	-	-	-	0.7	-	-	-	-
<i>Raja eglanteria</i>	-	-	76.3	-	-	-	-	-	-	-
Chondrichthyes unid.	-	-	-	-	-	-	-	0.1	-	-
OSTEICHTHYES	[47.6]	[66.8]	[23.7]	[83.5]	[97.1]	[25.9]	[77.1]	[97.9]	[79.8]	[0.7]
<i>Anguilla rostrata</i>	-	-	-	-	-	-	-	0.2	-	-
<i>Etrumeus teres</i>	-	-	-	1.7	-	-	-	-	-	-
<i>Brevoortia tyrannus</i>	-	-	-	-	-	-	-	0.1	-	-
Gadidae	-	-	0.1	-	-	-	-	0.2	-	-
<i>Macrozoarces americanus</i>	-	-	-	-	-	-	-	0.1	-	-
Exocoetidae	-	-	-	-	1.8	-	-	-	-	-
<i>Scomberesox saurus</i>	-	-	-	-	3.3	-	-	0.4	-	-
<i>Pomatomus saltatrix</i>	-	-	-	-	22.3	11.0	-	77.5	6.2	-
<i>Stenotomus chrysops</i>	-	0.9	-	-	-	-	-	-	-	-
<i>Leiostomus xanthurus</i>	-	12.0	-	-	-	-	-	-	-	-
Sciaenidae	-	-	-	3.3	-	-	-	-	-	-
Labridae	-	-	2.9	-	-	-	-	-	-	-
<i>Ammodytes dubius</i>	-	-	-	-	66.3	-	-	-	-	-
<i>Euthynnus pelamis</i>	-	-	-	-	-	-	-	0.4	-	-
<i>Scomber scombrus</i>	-	-	-	1.5	-	-	-	0.6	-	-
<i>Thunnus thynnus</i>	-	-	-	-	-	13.7	-	-	73.2	-
<i>Thunnus</i> sp.	-	-	-	-	-	-	-	0.5	-	-
Scombridae	-	-	-	6.8	2.7	-	-	2.4	-	-
<i>Xiphias gladius</i>	-	-	-	-	-	-	-	12.4	0.4	-
<i>Peprilus triacanthus</i>	-	17.7	-	-	-	-	30.8	<0.1	-	-
Scorpaenidae	-	-	-	53.8	-	-	-	0.4	-	-
<i>Sebastes fasciatus</i>	-	-	-	-	-	-	-	0.3	-	-
Triglidae	-	-	20.6	-	-	-	-	0.1	-	-
Osteichthyes unid.	47.6	36.2	0.1	16.4	0.7	1.2	46.3	2.2	-	0.7
MAMMALIA	-	-	-	-	-	[73.0]	-	[0.3]	-	-
ANIMAL REMAINS AND MISC.	-	-	-	[1.4]	-	-	-	[0.1]	[3.2]	-
Number sampled	4	5	3	24	19	23	1	399	10	6
Number empty	3	0	0	6	7	9	0	126	4	2
Mean stomach content (g or cm ³)	<0.1	275.1	687.0	245.7	388.4	2857.8	141.1	1226.5	1851.7	586.7
Mean fish length (cm)	42	235	169	238	199	187	146	NA	155	126
Fish length range (cm)	33-55	213-246	80-207	123-335	155-240	111-459	-	67-328	97-242	78-209

Table A-2. Diet composition and sampling data for bignose shark, silky shark, sandbar shark, night shark, tiger shark, blue shark, scalloped hammerhead, and smooth hammerhead. (Subscripts indicate data source: 1 = 1977-80 trawl surveys, and 2 = Apex Predators Investigation studies. Superscripts indicate data type: * = percentage by volume, and none = percentage by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Predator								
	Bignose shark ₂ [*]	Silky shark ₂ [*]	Sandbar shark ₁	Night shark ₂ [*]	Tiger shark ₂ [*]	Blue shark ₂ [*]	Scalloped hammerhead ₁	Smooth hammerhead ₁	Smooth hammerhead ₂ [*]
BIVALVIA	-	-	[1.0]	-	-	-	-	-	-
<i>Spisula solidissima</i>	-	-	1.0	-	-	-	-	-	-
CEPHALOPODA	-	[32.3]	-	[97.9]	[0.3]	[33.8]	-	-	-
<i>Illex illecebrosus</i>	-	29.2	-	38.8	-	3.7	-	-	-
Octopodida	-	-	-	-	-	21.4	-	-	-
Cephalopoda unid.	-	3.1	-	59.1	0.3	8.7	-	-	-
CHONDRICHTHYES	[0.9]	[0.2]	-	-	[20.0]	[2.1]	-	-	[0.1]
<i>Cetorhinus maximus</i>	-	-	-	-	8.3	-	-	-	-
<i>Prionace glauca</i>	-	-	-	-	-	0.5	-	-	-
<i>Carcharhinus obscurus</i>	-	-	-	-	6.2	-	-	-	-
<i>Galeocerdo cuvieri</i>	-	-	-	-	3.2	-	-	-	-
Squaliformes	0.9	-	-	-	0.1	1.1	-	-	-
<i>Raja</i> sp.	-	-	-	-	2.0	0.4	-	-	-
Rajidae	-	0.2	-	-	0.2	0.1	-	-	0.1
OSTEICHTHYES	[37.5]	[57.3]	[98.2]	[1.2]	[37.6]	[51.8]	[100.0]	[100.0]	[97.9]
<i>Ophichthus cruentifer</i>	-	-	29.4	-	-	-	-	-	-
<i>Clupea harengus</i>	-	-	-	-	-	0.4	-	-	17.1
<i>Etrumeus teres</i>	-	0.8	-	-	-	-	-	-	-
<i>Brevoortia tyrannus</i>	-	16.9	-	-	-	-	-	-	-
Clupeidae	-	-	-	-	-	2.2	-	-	-
<i>Anchoa hepsetus</i>	-	-	-	-	-	-	12.0	-	-
<i>Lophius americanus</i>	-	-	-	-	31.6	0.1	-	-	-
<i>Alepisaurus</i> sp.	-	-	-	-	-	8.9	-	-	-
<i>Urophycis tenuis</i>	-	-	5.5	-	-	-	-	-	-
Gadidae	-	-	-	-	0.2	13.2	-	-	-
<i>Pomatomus saltatrix</i>	-	-	-	-	4.4	13.4	-	-	-
<i>Coryphaena hippurus</i>	-	-	-	-	-	-	-	-	63.8
<i>Stenotomus chrysops</i>	-	-	-	-	<0.1	0.1	-	-	-
<i>Leiostomus xanthurus</i>	-	-	23.4	-	-	-	-	-	-
<i>Scomber scombrus</i>	-	-	-	-	0.3	2.5	-	-	-
Sciaenidae	-	0.2	-	-	-	-	-	-	-
<i>Peprilus triacanthus</i>	0.8	-	-	1.1	-	1.1	-	-	6.5
Scorpaenidae	0.4	-	-	-	-	-	-	-	-
Triglidae	-	-	-	-	<0.1	-	-	-	5.9
<i>Pleuronectes ferruginus</i>	-	-	-	-	-	2.1	-	-	-
Osteichthyes unid.	36.3	39.4	39.9	0.1	1.1	7.8	88.0	100.0	4.6
SEA TURTLE	-	-	-	-	[7.6]	-	-	-	-
SEA AND LAND BIRDS	-	-	-	-	[0.2]	[0.4]	-	-	-
MAMMALIA	[61.6]	-	-	-	[30.1]	[8.0]	-	-	-
ANIMAL REMAINS AND MISC.	-	[10.2]	[0.8]	[0.9]	[4.2]	[3.9]	-	-	[2.0]
Number sampled	22	54	7	66	52	1199	2	1	15
Number empty	13	36	4	35	12	617	0	0	9
Mean stomach content (g or cm ³)	180.8	60.3	12.7	40.5	1788.1	170.6	36.8	2.1	175.1
Mean fish length (cm)	155	111	160	112	181	187	67	92	146
Fish length range (cm)	66-210	73-212	104-240	60-196	102-305	53-356	54-81	-	128-204

Table A-3. Diet composition and sampling data for Atlantic torpedo, rosette skate, barndoor skate, southern stingray, rough-tail stingray, spiny butterfly ray, bullnose ray, cownose ray, and margined snake eel. (Data source: 1977-80 trawl survey. Data type: percentage by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Predator								
	Atlantic torpedo	Rosette skate	Barndoor skate	Southern stingray	Rough-tail stingray	Spiny butterfly ray	Bullnose ray	Cownose ray	Margined snake eel
RHYNCHOCOELA	-	-	-	-	-	-	[3.8]	-	-
MOLLUSCA	-	[2.6]	-	-	-	-	[84.9]	-	-
Gastropoda	-	-	-	-	-	-	(1.1)	-	-
Bivalvia	-	-	-	-	-	-	(73.1)	-	-
<i>Yoldia</i> sp.	-	-	-	-	-	-	0.6	-	-
<i>Ensis directus</i>	-	-	-	-	-	-	26.3	-	-
Bivalvia unid.	-	-	-	-	-	-	46.2	-	-
Cephalopoda	-	(2.6)	-	-	-	-	-	-	-
Nudibranchia	-	-	-	-	-	-	(8.1)	-	-
Mollusca unid.	-	-	-	-	-	-	(2.6)	-	-
POLYCHAETA	[<0.1]	[0.7]	-	[0.3]	[<0.1]	-	[2.2]	-	[31.7]
<i>Lumbrineris tenuis</i>	-	-	-	-	-	-	-	-	31.1
Polychaeta unid.	-	-	-	-	-	-	-	-	0.6
CRUSTACEA	-	[91.7]	[100.0]	[99.0]	[68.8]	-	[6.4]	[8.9]	[68.1]
Amphipoda	-	(1.0)	-	-	-	-	(<0.1)	-	(6.4)
<i>Melita</i> sp.	-	-	-	-	-	-	-	-	1.2
<i>Leptocheirus pinguis</i>	-	-	-	-	-	-	-	-	4.9
<i>Unciola irrorata</i>	-	0.8	-	-	-	-	-	-	-
Amphipoda unid.	-	0.2	-	-	-	-	<0.1	-	0.3
Mysidacea	-	(3.4)	-	-	-	-	-	(8.6)	-
<i>Mysidopsis bigelowi</i>	-	-	-	-	-	-	-	8.5	-
Mysidacea unid.	-	3.4	-	-	-	-	-	0.1	-
Decapoda	-	(81.8)	(100.0)	(98.7)	(68.7)	-	(6.2)	(0.3)	(61.7)
<i>Ranilia muricata</i>	-	-	-	-	-	-	4.8	-	-
<i>Dichelopandalus leptocerus</i>	-	-	38.4	-	-	-	-	-	-
<i>Crangon septemspinosa</i>	-	27.3	-	<0.1	<0.1	-	0.2	0.1	34.3
<i>Pagurus</i> sp.	-	-	5.8	-	-	-	0.2	0.2	-
<i>Cancer irroratus</i>	-	49.1	37.2	-	<0.1	-	1.0	-	-
<i>Cancer borealis</i>	-	-	18.6	-	-	-	-	-	-
<i>Ovalipes ocellatus</i>	-	-	-	68.1	68.7	-	-	-	-
<i>Portunus</i> sp.	-	-	-	17.7	-	-	-	-	-
<i>Munidairis</i> sp.	-	-	-	-	-	-	-	-	27.4
<i>Munida</i> sp.	-	5.0	-	0.2	-	-	-	-	-
Decapoda unid.	-	0.4	-	12.7	<0.1	-	-	<0.1	-
Crustacea unid.	-	(5.5)	-	(0.3)	(0.1)	-	(0.2)	-	-
OSTEICHTHYES	[100.0]	[1.7]	-	[0.7]	[31.1]	[6.9]	[<0.1]	[90.7]	-
<i>Ophichthus cruentifer</i>	-	1.6	-	-	-	-	-	-	-
<i>Anchoa hepsetus</i>	-	-	-	-	-	-	-	90.7	-
Gadidae	-	-	-	-	-	-	-	-	-
<i>Merluccius bilinearis</i>	58.7	-	-	-	-	-	-	-	-
<i>Stenotomus chrysops</i>	-	-	-	-	7.2	-	-	-	-
<i>Ammodytes dubius</i>	-	-	-	-	23.9	-	-	-	-
Osteichthyes unid.	41.3	0.1	-	0.7	<0.1	6.9	<0.1	-	-
ANIMAL REMAINS AND MISC.	-	[3.3]	-	-	[0.1]	[93.1]	[2.7]	[0.4]	[0.2]
Number sampled	7	16	3	2	4	8	15	3	3
Number empty	3	1	0	0	0	4	2	0	0
Mean stomach content (g)	5.8	0.6	17.1	47.6	132.8	0.2	10.0	4.9	0.1
Mean fish length (cm)	70	32	85	85	99	63	70	47	39
Fish length range (cm)	25-125	19-42	78-92	84-87	76-129	52-112	37-123	40-52	36-42

Table A-4. Diet composition and sampling data for slender snipe eel, conger eel, blueback herring, hickory shad, American shad, Atlantic thread herring, Spanish sardine, striped anchovy, and Atlantic salmon. (Subscripts indicate data source: 1 = 1977-80 trawl survey, and 4 = 1963-66 trawl survey. Superscripts indicate data type: # = percentage by occurrence, and none = percentage by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Predator								
	Slender snipe eel ₁	Conger eel ₁	Blueback herring ₁	Hickory shad ₄ [#]	American shad ₁	Atlantic thread herring ₁	Spanish sardine ₁	Striped anchovy ₁	Atlantic salmon ₁
CTENOPHORA	-	-	[42.5]	-	-	-	-	-	-
CHAETOGNATHA	-	-	-	-	[0.2]	-	-	-	-
MOLLUSCA	-	-	[<0.1]	-	[1.1]	-	-	-	-
Gastropoda	-	-	<0.1	-	-	-	-	-	-
Bivalvia	-	-	<0.1	-	-	-	-	-	-
Cephalopoda	-	-	-	-	1.1	-	-	-	-
POLYCHAETA	-	-	-	-	-	-	-	[5.9]	[4.6]
Phyllodoceidae	-	-	-	-	-	-	-	0.2	-
<i>Lumbrineris tenuis</i>	-	-	-	-	-	-	-	-	-
Polychaeta unid.	-	-	-	-	-	-	-	5.7	4.6
CRUSTACEA	[100.0]	[0.1]	[50.5]	25.0	[78.1]	-	[100.0]	[82.3]	[0.3]
Copepoda	-	-	(41.6)	-	(2.8)	-	(100.0)	(0.3)	-
<i>Centropages</i> sp.	-	-	-	-	-	-	-	0.1	-
Calanoida	-	-	-	-	-	-	100.0	0.2	-
Copepoda unid.	-	-	41.6	-	2.8	-	-	-	-
Amphipoda	-	(<0.1)	(8.0)	-	(0.2)	-	-	-	-
<i>Parathemisto</i>	-	-	8.0	-	0.2	-	-	-	-
<i>Melita</i> sp.	-	-	-	-	-	-	-	-	-
<i>Leptocheirus pinguis</i>	-	-	-	-	-	-	-	-	-
Amphipoda unid.	-	<0.1	-	-	-	-	-	-	-
Mysidacea	-	-	-	-	-	-	-	(78.8)	-
<i>Neomysis americana</i>	-	-	-	-	-	-	-	30.9	-
Mysidacea unid.	-	-	-	-	-	-	-	47.9	-
Euphausiacea	-	-	-	-	(74.6)	-	-	-	-
<i>Meganyctiphanes norvegica</i>	-	-	-	-	59.7	-	-	-	-
Euphausiacea unid.	-	-	-	-	14.9	-	-	-	-
Decapoda	-	-	(0.9)	25.0	-	-	-	(2.8)	(0.3)
Penaeidae	-	-	-	-	-	-	-	1.7	-
<i>Callinassa setimanus</i>	-	-	-	-	-	-	-	1.1	-
<i>Crangon septemspinosa</i>	-	-	-	25.0	-	-	-	-	-
<i>Munidairis</i> sp.	-	-	-	-	-	-	-	-	-
Decapoda larvae	-	-	0.9	-	-	-	-	-	-
Decapoda unid.	-	-	-	-	-	-	-	-	0.3
Crustacea unid.	(100.0)	(0.1)	-	-	(0.5)	-	-	(0.4)	-
OSTEICHTHYES	-	[96.5]	-	-	[16.3]	-	-	[0.3]	-
Gadidae	-	96.4	-	-	-	-	-	-	-
<i>Merluccius bilinearis</i>	-	-	-	-	14.4	-	-	-	-
Osteichthyes scales	-	-	-	-	-	-	-	0.3	-
Osteichthyes unid.	-	0.1	-	-	1.9	-	-	-	-
ANIMAL REMAINS AND MISC.	-	[3.4]	[7.0]	-	[4.3]	[41.6]	[<0.1]	[11.1]	[95.1]
SAND	-	-	-	-	-	[58.4]	-	[0.4]	-
Number sampled	1	9	11	4	21	6	8	15	1
Number empty	0	2	2	2	0	2	0	1	0
Mean stomach content (g)	<0.1	5.0	<0.1	NA	1.7	<0.1	<0.1	0.1	2.6
Mean fish length (cm)	45	61	22	43	25	14	5	11	34
Fish length range (cm)	-	39-90	14-28	37-50	15-48	14-16	5-6	10-13	-

Table A-5. Diet composition and sampling data for shortnose greeneye, inshore lizardfish, offshore lizardfish, snakefish, longnose lancetfish, lanternfish unclassified, *Hygophum taaningi*, *Maurolicus weitzmani*, and fourbeard rockling. (Subscripts indicate data source: 1 = 1977-80 trawl survey, 3 = 1969-72 trawl survey, and 5 = Food Chain Dynamics Investigation special studies. Data type: percentage by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Predator								
	Shortnose greeneye ₁	Inshore lizardfish ₁	Offshore lizardfish ₁	Snakefish ₁	Longnose lancetfish ₅	Lanternfish uncl. ₁	<i>Hygophum taaningi</i> ₁	<i>Maurolicus weitzmani</i> ₃	Fourbeard rockling ₁
PLATYHELMINTHES	-	-	-	[7.7]	-	-	-	-	-
MOLLUSCA	-	-	[96.2]	-	[1.0]	-	-	-	-
Bivalvia	-	-	-	-	-	-	-	-	(0.7)
Cephalopoda	-	-	(96.2)	-	(1.0)	-	-	-	-
Octopodida	-	-	-	-	0.8	-	-	-	-
Cephalopoda unid.	-	-	96.2	-	0.2	-	-	-	-
POLYCHAETA	[10.7]	-	-	-	-	-	[0.5]	-	[65.7]
Spionidae	-	-	-	-	-	-	-	-	20.7
Polychaeta unid.	10.7	-	-	-	-	-	0.5	-	45.0
CRUSTACEA	[68.8]	-	[1.3]	-	[96.1]	[72.9]	[99.0]	[100.0]	[1.2]
Copepoda	-	-	-	-	-	(38.9)	(48.4)	(38.9)	-
Pontellidae	-	-	-	-	-	-	-	5.6	-
<i>Centropages</i> sp.	-	-	-	-	-	4.2	-	-	-
Calanoida	-	-	-	-	-	-	-	33.3	-
Copepoda unid.	-	-	-	-	-	34.7	48.4	-	-
Stomatopoda	-	-	-	-	-	(3.3)	-	-	-
Amphipoda	-	-	-	-	(74.5)	(7.9)	(0.9)	-	(0.2)
<i>Parathemisto gaudichaudi</i>	-	-	-	-	-	2.8	-	-	-
<i>Parathemisto</i> sp.	-	-	-	-	71.5	-	-	-	-
<i>Prosina</i> sp.	-	-	-	-	1.8	-	-	-	-
Platyscelidae	-	-	-	-	0.5	-	-	-	-
<i>Pronima</i> sp.	-	-	-	-	0.4	-	-	-	-
Hyperiididae	-	-	-	-	0.3	0.7	0.9	-	-
<i>Ampelisca</i> sp.	-	-	-	-	-	4.4	-	-	-
Amphipoda unid.	-	-	-	-	-	-	-	-	0.2
Mysidacea	-	-	-	-	-	(0.4)	-	-	-
Euphausiacea	-	-	-	-	-	(1.9)	(36.1)	-	-
<i>Euphausia krohni</i>	-	-	-	-	-	-	35.2	-	-
Euphausiacea unid.	-	-	-	-	-	1.9	0.9	-	-
Decapoda	-	-	(1.3)	-	(13.5)	(20.5)	(3.3)	-	-
<i>Lucifer faxoni</i>	-	-	-	-	-	-	0.5	-	-
<i>Crangon septemspinosa</i>	-	-	-	-	-	16.5	-	-	-
Crabs unid.	-	-	1.3	-	-	-	2.8	-	-
Brachyuran (megalops)	-	-	-	-	13.5	-	-	-	-
Decapoda unid.	-	-	-	-	-	4.0	-	2.8	-
Crustacea unid.	(68.8)	-	-	-	(8.1)	-	(10.3)	(61.1)	(1.0)
OSTEICHTHYES	-	[100.0]	[2.5]	-	[2.8]	[6.2]	-	-	-
Ogcocephalidae	-	-	-	-	1.0	-	-	-	-
Osteichthyes unid.	-	100.0	2.5	-	1.8	6.2	-	-	-
ANIMAL REMAINS AND MISC.	[20.5]	-	-	[92.3]	[0.1]	[20.9]	[0.5]	-	[32.4]
Number sampled	6	2	6	3	2	10	9	16	7
Number empty	0	1	0	2	0	0	0	6	1
Mean stomach content (g)	<0.1	0.2	0.7	<0.1	25.1	0.1	<0.1	<0.1	0.1
Mean fish length (cm)	12	26	10	18	73	8	6	NA	22
Fish length range (cm)	11-14	22-31	7-15	14-20	NA	8-10	6-7	NA	15-32

Table A-6. Diet composition and sampling data for offshore hake, longfin hake, marlin-spike, longnose grenadier, grenadier unclassified, striped cusk-eel, Atlantic midshipman, and Atlantic needlefish. (Subscripts indicate data source: 1 = 1977-80 trawl survey, and 3 = 1969-72 trawl survey. Data type: percentage by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Predator							
	Offshore hake ₁	Longfin hake ₁	Marlin-spike ₁	Longnose grenadier ₁	Grenadier uncl. ₁	Striped cusk-eel ₁	Atlantic midshipman ₁	Atlantic needlefish ₃
MOLLUSCA	-	-	-	-	-	-	[23.2]	-
Cephalopoda	-	-	-	-	-	-	23.2	-
POLYCHAETA	-	-	[0.4]	[80.1]	[16.7]	-	-	-
<i>Glycera</i> sp.	-	-	-	2.2	-	-	-	-
<i>Nephtys incisa</i>	-	-	-	15.6	-	-	-	-
<i>Nephtys</i> sp.	-	-	-	1.6	-	-	-	-
<i>Ophelina</i> sp.	-	-	-	26.0	-	-	-	-
Spionidae	-	-	-	0.2	-	-	-	-
<i>Lumbrineris fragilis</i>	-	-	-	5.6	-	-	-	-
<i>Lumbrineris</i> sp.	-	-	-	1.0	-	-	-	-
<i>Ninoe nigripes</i>	-	-	-	5.4	-	-	-	-
Ampharetidae	-	-	-	-	4.4	-	-	-
Polychaeta unid.	-	-	0.4	22.5	12.3	-	-	-
CRUSTACEA	[82.5]	[99.1]	[99.6]	[13.8]	[27.3]	[100.0]	[7.9]	[100.0]
Copepoda	-	(3.7)	-	(0.3)	-	-	-	(100.0)
<i>Calanus</i> sp.	-	1.7	-	-	-	-	-	-
<i>Centropages</i> sp.	-	-	-	0.3	-	-	-	-
Calanoida	-	-	-	-	-	-	-	100.0
Copepoda unid.	-	2.0	-	-	-	-	-	-
Stomatopoda	-	-	-	-	-	-	(0.4)	-
Cumacea	-	-	(<0.1)	(0.1)	(0.2)	-	-	-
Isopoda	-	(0.2)	(0.5)	-	(17.7)	-	-	-
<i>Cirolana</i> sp.	-	0.2	0.5	-	17.7	-	-	-
Amphipoda	-	(0.3)	-	(5.5)	(1.2)	(29.7)	(<0.1)	-
Hyperiididae	-	0.3	-	-	-	-	-	-
<i>Ampelisca</i> sp.	-	-	-	2.0	-	-	<0.1	-
<i>Unciola</i> sp.	-	-	-	3.0	-	-	-	-
Amphipoda unid.	-	-	-	0.5	1.2	29.7	-	-
Mysidacea	-	-	(0.1)	-	(4.6)	-	(1.6)	-
<i>Pseudomma affine</i>	-	-	-	-	4.6	-	-	-
Mysidacea unid.	-	-	0.1	-	-	-	1.6	-
Euphausiacea	(82.5)	(57.6)	(99.0)	-	-	-	-	-
<i>Meganyctiphanes norvegica</i>	-	47.3	99.0	-	-	-	-	-
<i>Thysanoessa raschi</i>	20.6	-	-	-	-	-	-	-
Euphausiacea unid.	61.9	10.3	-	-	-	-	-	-
Decapoda	-	-	-	(2.9)	-	(70.3)	(2.8)	-
<i>Crangon septemspinosa</i>	-	-	-	2.8	-	70.3	-	-
Decapoda unid.	-	-	-	0.1	-	-	2.8	-
Crustacea unid.	-	(37.3)	-	(5.0)	(3.6)	-	(3.1)	-
OSTEICHTHYES	-	[0.5]	-	-	-	-	[68.9]	-
Engraulidae	-	-	-	-	-	-	64.5	-
Osteichthyes unid.	-	0.5	-	-	-	-	4.4	-
ANIMAL REMAINS AND MISC.	[17.5]	[0.4]	-	[6.1]	[56.0]	-	-	-
Number sampled	17	17	10	18	3	2	10	5
Number empty	14	4	1	0	0	0	1	4
Mean stomach content (g)	<0.1	0.2	0.3	0.2	0.1	0.1	0.1	<0.1
Mean fish length (cm)	27	20	20	15	26	25	14	NA
Fish length range (cm)	13-35	16-35	15-26	10-23	26	22-29	14	NA

Table A-7. Diet composition and sampling data for Atlantic saury, silverside unclassified, buckler dory, deepbody boarfish, threespine stickleback, red cornetfish, cornetfish unclassified, and longspine snipefish. (Subscripts indicate data source: 1 = 1977-80 trawl survey, 3 = 1969-72 trawl survey, and 5 = Food Chain Dynamics Investigation special studies. Superscripts indicate data type: # = percentage by occurrence, and none = percentage by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Predator							
	Atlantic saury ₅	Silverside uncl. ₃	Buckler dory ₃	Deepbody boarfish ₁	Threespine stickleback ₁	Red cornetfish ₁	Cornetfish uncl. ₁	Longspine snipefish ₃ [#]
HYDROZOA	[54.4]	-	-	-	-	-	-	-
Siphonophora	54.4+	-	-	-	-	-	-	-
CRUSTACEA	[45.6]	[100.0]	-	[43.1]	[25.0]	-	[73.3]	66.7
Copepoda	-	-	-	(4.2)	(25.0)	-	-	-
<i>Metridia</i> sp.	-	-	-	3.6	-	-	-	-
Calanoida	-	-	-	-	-	-	-	16.7
Copepoda unid.	-	-	-	0.6	25.0	-	-	-
Cumacea	-	-	-	(0.9)	-	-	-	-
Bodotriidae	-	-	-	0.9	-	-	-	-
Amphipoda	-	(100.0)	-	(0.3)	-	-	-	-
Hyperiididae	-	-	-	0.2	-	-	-	-
Caprellidae	-	100.0	-	-	-	-	-	-
Gammaridea	-	-	-	-	-	-	-	66.7
Amphipoda unid.	-	-	-	0.1	-	-	-	-
Mysidacea	-	-	-	-	-	-	(73.3)	-
<i>Praunus flexuosus</i>	-	-	-	-	-	-	73.3	-
Euphausiacea	(45.6)+	-	-	-	-	-	-	-
Crustacea unid.	-	-	-	(37.7)	-	-	-	-
OSTEICHTHYES	-	-	[100.0]	[3.3]	[75.0]	[100.0]	[26.7]	-
<i>Stenotomus chrysops</i>	-	-	32.1	-	-	-	-	-
Labridae	-	-	-	-	-	91.0	-	-
Percophidae	-	-	-	-	-	1.5	-	-
Osteichthyes larvae	-	-	-	-	75.0	-	-	-
Osteichthyes unid.	-	-	67.9	3.3	-	7.5	26.7	-
ANIMAL REMAINS AND MISC.	-	-	-	[53.6]	-	-	-	16.7
Number sampled	30	36	5	5	1	5	1	6
Number empty	2	30	2	0	0	0	0	2
Mean stomach content (g)	0.7	<0.1	5.4	0.6	<0.1	11.0	<0.1	NA
Mean fish length (cm)	32	NA	NA	12	5	69	32	NA
Fish length range (cm)	NA	NA	NA	12-14	-	43-115	-	NA

+ Not a positive identification due to being well digested.

Table A-8. Diet composition and sampling data for scorpionfish unclassified, armored searobin, spiny searobin, striped searobin, bluespotted searobin, searobin unclassified, hookear sculpin unclassified, shorthorn sculpin, and bigeye sculpin. (Subscripts indicate data source: 1 = 1977-80 trawl survey, and 3 = 1969-72 trawl survey. Data type: percentage by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Predators								
	Scorpionfish uncl. ₁	Armored searobin ₁	Spiny searobin ₁	Striped searobin ₁	Bluespotted searobin ₁	Searobin uncl. ₁	Hookear sculpin ₁	Shorthorn sculpin ₃	Bigeye sculpin ₃
MOLLUSCA	-	-	-	[0.1]	-	-	[12.1]	-	-
Bivalvia	-	-	-	0.1	-	-	12.1	-	-
ANNELIDA	-	-	-	-	-	-	[56.1]	-	[47.9]
Polychaeta	-	-	-	-	-	-	(54.2)	-	(47.9)
Nephtyidae	-	-	-	-	-	-	34.4	-	-
Polychaeta unid.	-	-	-	-	-	-	19.8	-	47.9
Annelida	-	-	-	-	-	-	(1.9)	-	-
CRUSTACEA	[100.0]	[87.1]	[100.0]	[22.6]	[100.0]	[44.4]	[25.3]	[61.3]	[50.3]
Stomatopoda	-	(10.1)	-	-	-	-	-	-	-
<i>Heterosquilla armata</i>	-	10.1	-	-	-	-	-	-	-
Cumacea	-	-	-	-	-	-	0.3	-	-
Amphipoda	-	(14.9)	-	-	-	-	(17.6)	(<0.1)	(9.6)
<i>Harpinia propinqua</i>	-	-	-	-	-	-	0.3	-	-
<i>Unciola irrorata</i>	-	12.2	-	-	-	-	-	-	-
Amphipoda unid.	-	2.7	-	-	-	-	17.3	<0.1	9.6
Mysidacea	-	-	-	-	-	-	-	-	(3.6)
Decapoda	(100.0)	(38.8)	-	(21.3)	-	-	-	(58.4)	(34.7)
Pasiphaeidae	-	-	-	-	-	-	-	47.6	-
Crangonidae	-	6.8	-	-	-	-	-	-	-
<i>Crangon septemspinosa</i>	-	-	-	6.0	-	-	-	-	-
Decapod shrimp	-	-	-	-	-	-	-	-	12.0
<i>Cancer irroratus</i>	-	9.1	-	2.6	-	-	-	-	-
<i>Pelidnota mutica</i>	-	-	-	-	-	-	-	6.0	-
<i>Munida</i> sp.	-	22.9	-	-	-	-	-	-	-
<i>Pilumnus sayi</i>	100.0	-	-	-	-	-	-	-	-
Crab unid.	-	-	-	12.7	-	-	-	-	-
Decapoda unid.	-	-	-	-	-	-	-	4.8	22.7
Crustacea unid.	-	(23.3)	(100.0)	(1.3)	(100.0)	(44.4)	(7.4)	(2.9)	(2.4)
OSTEICHTHYES	-	[1.1]	-	[77.3]	-	-	-	-	-
ANIMAL REMAINS AND MISC.	-	[11.8]	-	-	-	[55.6]	[6.5]	[38.7]	[1.8]
Number sampled	1	24	1	7	1	8	22	10	21
Number empty	0	8	0	2	0	4	2	2	6
Mean stomach content (g)	0.5	<0.1	<0.1	0.6	<0.1	<0.1	<0.1	<0.1	0.1
Mean fish length (cm)	20	25	13	30	16	8	6	153	NA
Fish length range (cm)	-	7-34	-	21-39	-	5-11	4-8	NA	NA

Table A-9. Diet composition and sampling data for alligatorfish, lumpfish, Atlantic seasnail, striped bass, sand perch, red grouper, scamp, and bigeye. (Subscripts indicate data source: 1 = 1977-80 trawl survey, and 3 = 1969-72 trawl survey. Data type: percentage by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Predator								
	Alligator-fish ₁	Alligator-fish ₃	Lumpfish ₁	Atlantic seasnail ₃	Striped bass ₁	Sand perch ₁	Red grouper ₃	Scamp ₁	Bigeye ₁
MOLLUSCA	-	-	-	-	-	-	[100.0]	<0.1]	-
Gastropoda	-	-	-	-	-	-	-	<0.1)	-
Cephalopoda	-	-	-	-	-	-	(100.0)	-	-
Octopodida	-	-	-	-	-	-	100.0	-	-
POLYCHAETA	-	-	[10.9]	-	-	-	-	-	[21.2]
Nereidae	-	-	10.9	-	-	-	-	-	-
Polychaeta unid.	-	-	-	-	-	-	-	-	21.2
CRUSTACEA	[100.0]	[100.0]	[0.8]	[100.0]	-	-	-	[3.0]	[15.4]
Copepoda	-	-	(0.4)	-	-	-	-	<0.1)	-
Amphipoda	(100.0)	(86.3)	-	(100.0)	-	-	-	-	-
<i>Stenopleustes gracilis</i>	18.2	-	-	-	-	-	-	-	-
<i>Dyopodos porrectus</i>	81.8	-	-	-	-	-	-	-	-
Aoridae	-	36.0	-	-	-	-	-	-	-
Caprellidae	-	49.3	-	-	-	-	-	-	-
Gammaridea	-	-	-	100.0	-	-	-	-	-
Amphipoda unid.	<0.1	1.0	-	-	-	-	-	-	-
Decapoda	-	(3.4)	(0.4)	-	-	-	-	(3.0)	-
<i>Portunus spinicarpus</i>	-	-	-	-	-	-	-	2.5	-
Decapoda larvae	-	-	0.4	-	-	-	-	-	-
Decapoda unid.	-	3.4	-	-	-	-	-	0.5	-
Crustacea unid.	-	(10.3)	-	-	-	-	-	-	15.4
ASCIDIACEA	-	-	[29.4]	-	-	-	-	-	-
OSTEICHTHYES	-	-	-	-	[100.0]	[100.0]	-	[97.0]	-
<i>Brevoortia tryannus</i>	-	-	-	-	68.8	-	-	-	-
<i>Urophycis chuss</i>	-	-	-	-	30.1	-	-	-	-
<i>Macrozoarces americanus</i>	-	-	-	-	1.1	-	-	-	-
<i>Cyprinodon variegatus</i>	-	-	-	-	-	-	-	95.7	-
Osteichthyes larvae	-	-	-	-	-	2.5	-	-	-
Osteichthyes unid.	-	-	-	-	-	97.5	-	1.3	-
ANIMAL REMAINS AND MISC.	-	-	[58.9]	-	-	-	-	-	[63.4]
Number sampled	1	23	2	2	2	3	1	3	2
Number empty	0	5	0	0	0	1	0	1	0
Mean stomach content (g)	<0.1	<0.1	27.9	<0.1	542.3	0.4	<0.1	14.2	<0.1
Mean fish length (cm)	9	NA	35	NA	107	20	NA	71	18
Fish length range (cm)	-	NA	31-40	NA	102-112	18-24	NA	54-99	18

Table A-10. Diet composition and sampling data for tilefish, cobia, Atlantic bumper, round scad, bigeye scad, greater amberjack, banded rudderfish, rough scad, and vermilion snapper. (Data source: 1977-80 trawl survey. Data type: percentage by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Predator								
	Tilefish	Cobia	Atlantic bumper	Round scad	Bigeye scad	Greater amberjack	Banded rudderfish	Rough scad	Vermilion snapper
MOLLUSCA	[0.2]	[12.9]	[<0.1]	[17.1]	-	-	-	-	[81.7]
Gastropoda	(0.1)	-	(<0.1)	(17.1)	-	-	-	-	-
Bivalvia	(0.1)	-	(<0.1)	-	-	-	-	-	-
Pectinidae	0.1	-	-	-	-	-	-	-	-
Bivalvia unid.	-	-	<0.1	-	-	-	-	-	-
Cephalopoda	-	(12.9)	-	-	-	-	-	-	-
<i>Illlex</i> sp.	-	12.9	-	-	-	-	-	-	-
Cephalopoda unid.	-	-	-	-	-	-	-	-	81.7
POLYCHAETA	[0.2]	-	-	-	-	-	-	-	-
CRUSTACEA	[21.9]	[54.3]	-	-	[14.7]	-	[3.0]	[38.0]	[0.1]
Copepoda	-	-	-	-	-	-	-	(25.7)	(<0.1)
Isopoda	(1.2)	-	-	-	-	-	-	-	-
<i>Cirolana polita</i>	1.0	-	-	-	-	-	-	-	-
Isopoda unid.	0.2	-	-	-	-	-	-	-	-
Amphipoda	(0.2)	-	-	-	-	-	-	-	(0.1)
Euphausiacea	(0.5)	-	-	-	-	-	-	-	-
Decapoda	(4.4)	(54.3)	-	-	(10.6)	-	(3.0)	-	(<0.1)
<i>Euprognatha rastellifera</i>	1.6	-	-	-	-	-	-	-	-
<i>Ovalipes ocellatus</i>	-	28.4	-	-	-	-	-	-	-
<i>Bathynectes</i> sp.	-	13.8	-	-	-	-	-	-	-
<i>Munida irrasa</i>	1.3	-	-	-	-	-	-	-	-
Shrimp unid.	-	-	-	-	-	-	3.0	-	-
Crabs unid.	-	-	-	-	10.6	-	-	-	-
Decapoda unid.	1.5	12.1	-	-	-	-	-	<0.1	<0.1
Crustacea unid.	(15.6)	-	-	-	(4.1)	-	-	(12.3)	-
ECHINODERMATA	[74.8]	-	-	-	-	-	-	-	-
Ophiuroidea	(74.8)	-	-	-	-	-	-	-	-
<i>Amphioplus</i> sp.	10.4	-	-	-	-	-	-	-	-
Amphiuridae	64.4	-	-	-	-	-	-	-	-
ASCIDIACEA	-	-	-	-	-	-	-	-	[16.4]
OSTEICHTHYES	[<0.1]	[29.5]	-	-	[13.6]	[100.0]	[97.0]	-	[0.5]
<i>Myoxo. octodecemspinosus</i>	-	-	-	-	-	32.4	-	-	-
<i>Scophthalmus aquosus</i>	-	28.4	-	-	-	-	-	-	-
Pleuronectiformes	-	1.1	-	-	-	-	-	-	-
Osteichthyes scales	-	-	-	-	1.8	-	-	-	-
Osteichthyes unid.	<0.1	-	-	-	11.8	67.6	97.0	-	0.5
ANIMAL REMAINS AND MISC.	[2.9]	[3.3]	[100.0]	[82.9]	[71.7]	-	-	[62.0]	[1.3]
Number sampled	9	3	5	5	10	3	2	11	10
Number empty	3	0	1	2	0	0	0	0	1
Mean stomach content (g)	0.8	24.0	<0.1	<0.1	<0.1	133.7	3.8	<0.1	0.8
Mean fish length (cm)	39	94	10	14	13	96	18	13	17
Fish length range (cm)	25-45	84-100	9-16	14-16	13-15	92-100	18	12-15	12-24

Table A-11. Diet composition and sampling data for tomate, white grunt, pigfish, whitebone porgy, spottail pinfish, pinfish, silver perch, banded drum, and Atlantic spadefish. Data source: 1977-80 trawl survey. Data type: percentage by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Predator								
	Tomate	White grunt	Pigfish	Whitebone porgy	Spottail pinfish	Pinfish	Silver perch	Banded drum	Atlantic spadefish
CNIDARIA	-	-	-	-	[50.6]	[16.3]	-	-	-
Hydrozoa	-	-	-	-	19.7	-	-	-	-
Anthozoa	-	-	-	-	30.9	16.3	-	-	-
MOLLUSCA	-	[40.8]	-	-	[14.9]	[81.3]	-	-	-
Bivalvia	-	17.9	-	-	14.9	-	-	-	-
Mollusca unid.	-	22.9	-	-	-	81.3	-	-	-
POLYCHAETA	[5.6]	[18.9]	[61.2]	-	-	-	-	-	-
Glyceridae	-	-	3.1	-	-	-	-	-	-
<i>Diopatra cuprea</i>	-	-	17.6	-	-	-	-	-	-
<i>Lumbrineris</i> sp.	1.2	-	-	-	-	-	-	-	-
Arabellidae	-	2.2	-	-	-	-	-	-	-
Terebellidae	-	7.1	-	-	-	-	-	-	-
Polychaeta unid.	4.4	9.6	40.5	-	-	-	-	-	-
SIPUNCULA	-	-	[9.8]	-	-	-	-	-	-
CRUSTACEA	[6.6]	[17.5]	[6.5]	-	[9.8]	-	[100.0]	[100.0]	-
Stomatopoda	-	(4.0)	-	-	-	-	-	-	-
Amphipoda	(3.7)	(0.3)	(0.2)	-	(5.2)	-	-	(1.4)	-
<i>Aeginina longicornis</i>	-	-	-	-	5.1	-	-	-	-
Gammaridea	-	-	-	-	-	-	-	1.4	-
Amphipoda unid.	3.7	0.3	0.2	-	0.1	-	-	-	-
Mysidacea	-	-	-	-	-	-	(100.0)	(64.4)	-
<i>Mysidopsis bigelowi</i>	-	-	-	-	-	-	100.0	64.4	-
Decapoda	(1.0)	(13.2)	(5.8)	-	(4.6)	-	-	(19.9)	-
<i>Acetes americanus</i>	-	-	0.3	-	2.1	-	-	-	-
<i>Crangon septemspinosa</i>	1.0	-	-	-	-	-	-	-	-
Shrimps unid.	-	0.3	5.1	-	-	-	-	-	-
Crabs unid.	-	6.6	0.1	-	-	-	-	19.9	-
Decapoda unid.	-	6.3	0.3	-	2.5	-	-	-	-
Crustacea unid.	(1.9)	(<0.1)	(0.5)	-	-	-	-	(14.3)	-
ECHINODERMATA	-	[1.7]	-	-	[1.0]	[0.7]	-	-	-
Echinoidea	-	0.8	-	-	-	-	-	-	-
Ophiuroidea	-	0.5	-	-	1.0	0.7	-	-	-
Echinodermata unid.	-	0.4	-	-	-	-	-	-	-
OSTEICHTHYES	[0.4]	[13.1]	-	[100.0]	[0.2]	[1.7]	-	-	-
<i>Anchoa</i> sp.	-	-	-	90.6	-	-	-	-	-
Engraulidae	-	-	-	-	-	1.7	-	-	-
Osteichthyes unid.	0.4	13.1	-	9.4	0.2	-	-	-	-
ANIMAL REMAINS AND MISC.	[87.4]	[8.0]	[22.5]	-	[23.5]	-	-	-	[100.0]
Number sampled	23	14	11	11	6	11	5	11	1
Number empty	9	3	1	9	1	6	4	3	0
Mean stomach content (g)	0.1	1.5	0.4	0.1	0.2	0.2	<0.1	<0.1	<0.1
Mean fish length (cm)	15	29	18	27	17	16	19	15	12
Fish length range (cm)	11-19	24-39	16-24	20-32	12-20	15-18	18-20	14-20	-

Table A-12. Diet composition and sampling data for hogfish, tautog, Atlantic soft pout, radiated shanny, wrymouth, southern stargazer, Atlantic cutlassfish, little tunny, and Atlantic bonito. (Subscripts indicate data source: 1 = 1977-80 trawl survey, and 4 = 1963-66 trawl survey. Superscripts indicate data type: # = percentage by occurrence, and none = percentage by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Predator								
	Hogfish ₁	Tautog ₄ [#]	Atlantic soft pout ₁	Radiated shanny ₁	Wrymouth ₁	Southern stargazer ₁	Atlantic cutlassfish ₁	Little tunny ₁	Atlantic bonito ₁
MOLLUSCA	[29.7]	-	-	-	-	-	-	-	[19.3]
Cephalopoda	-	-	-	-	-	-	-	-	(19.3)
<i>Loligo</i> sp.	-	-	-	-	-	-	-	-	19.3
Mollusca unid. (shell)	(29.7)	-	-	-	-	-	-	-	-
POLYCHAETA	-	-	-	[2.3]	-	-	-	-	-
CRUSTACEA	[30.6]	66.7	[100.0]	[5.4]	[100.0]	-	[30.0]	[0.6]	-
Copepoda	-	-	(100.0)	-	-	-	-	-	-
Amphipoda	-	-	-	(5.4)	-	-	-	(0.6)	-
<i>Leptocheirus plumulosus</i>	-	-	-	0.8	-	-	-	-	-
<i>Metopella angusta</i>	-	-	-	2.3	-	-	-	-	-
<i>Bathymedon saussurei</i>	-	-	-	1.5	-	-	-	-	-
<i>Gammarus lawrencianus</i>	-	-	-	-	-	-	-	0.6	-
Gammaridea	-	-	-	0.8	-	-	-	-	-
Mysidacea	-	-	-	-	-	-	(0.1)	-	-
Decapoda	(0.9)	66.7	-	-	(100.0)	-	(21.9)	-	-
<i>Acetes americanus</i>	-	-	-	-	-	-	20.4	-	-
Pandalidae	-	-	-	-	100.0	-	-	-	-
<i>Stenocionops furcata</i>	0.9	-	-	-	-	-	-	-	-
<i>Callinassa setimanus</i>	-	-	-	-	-	-	1.5	-	-
Decapoda unid.	-	66.7	-	-	-	-	-	-	-
Crustacea unid.	(29.7)	-	-	-	-	-	(8.0)	-	-
OSTEICHTHYES	-	-	-	-	-	[100.0]	[69.2]	[99.3]	[80.7]
<i>Etrumeus teres</i>	-	-	-	-	-	-	-	66.3	-
Osteichthyes unid.	-	-	-	-	-	100.0	69.2	33.0	80.7
ANIMAL REMAINS AND MISC.	[39.7]	-	-	[92.3]	-	-	[0.8]	[0.1]	-
Number sampled	1	3	3	6	1	1	11	1	3
Number empty	0	1	2	1	0	0	0	0	0
Mean stomach content (g)	5.7	NA	<0.1	<0.1	0.6	2.1	0.1	31.7	8.5
Mean fish length (cm)	55	31	11	12	23	22	48	65	52
Fish length range (cm)	-	24-40	11	11-15	-	-	44-53	-	50-54

Table A-13. Diet composition and sampling data for chub mackerel, king mackerel, Spanish mackerel, swordfish, harvestfish, dusky flounder, and planehead filefish. (Subscripts indicate data source: 1 = 1977-80 trawl survey, and 2 = Apex Predators Investigation studies. Superscripts indicate data type: * = percentage by volume, and none = percentage by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Predator						
	Chub mackerel ₁	King mackerel ₁	Spanish mackerel ₁	Swordfish ₂ *	Harvest-fish ₁	Dusky flounder ₁	Planehead filefish ₁
MOLLUSCA	-	[0.1]	[16.5]	[67.4]	-	-	[5.8]
Bivalvia	-	-	-	-	-	-	(<0.1)
Cephalopoda	-	(0.1)	(16.5)	(67.4)	-	-	(5.8)
<i>Illex illecebrosus</i>	-	-	-	25.5	-	-	-
<i>Loligo</i> sp.	-	-	-	0.1	-	-	-
Cephalopoda unid.	-	0.1	16.5	41.8	-	-	5.8
POLYCHAETA	-	-	-	-	-	-	[66.7]
CRUSTACEA	[12.6]	-	[0.4]	-	-	[91.3]	-
Copepoda	(12.6)	-	-	-	-	-	-
Decapoda	-	-	(0.4)	-	-	(25.5)	-
Pandalidae	-	-	0.4	-	-	-	-
Crab unid.	-	-	-	-	-	25.5	-
Crustacea unid.	-	-	(<0.1)	-	-	(65.8)	-
ECHINODERMATA	-	-	-	-	-	-	[1.7]
Ophiuroidea	-	-	-	-	-	-	1.7
LARVACEA	[3.7]	-	-	-	-	-	-
OSTEICHTHYES	[0.8]	[99.9]	[82.5]	[32.5]	-	[8.7]	-
<i>Brevoortia tryannus</i>	-	-	-	0.5	-	-	-
<i>Clupea harengus</i>	-	-	-	0.2	-	-	-
<i>Etrumeus teres</i>	-	33.8	60.3	-	-	-	-
<i>Anchoa hepsetus</i>	-	-	6.3	-	-	-	-
<i>Paralepis atlantica</i>	-	-	-	0.3	-	-	-
Alepisauridae	-	-	-	0.5	-	-	-
<i>Merluccius bilinearis</i>	-	-	-	9.4	-	-	-
Gadidae	-	-	-	2.6	-	-	-
<i>Pomatomus saltatrix</i>	-	-	-	4.0	-	-	-
<i>Ammodytes dubius</i>	-	-	-	0.2	-	-	-
Gempylidae	-	-	-	0.2	-	-	-
<i>Scomber scombrus</i>	-	-	-	5.4+	-	-	-
Scombridae	-	50.3	-	-	-	-	-
<i>Cubiceps athenae</i>	-	-	-	0.6	-	-	-
<i>Peprilus triacanthus</i>	-	-	-	1.5	-	-	-
<i>Sebastes fasciatus</i>	-	-	-	2.4	-	-	-
Osteichthyes unid.	0.8	15.8	15.9	4.7	-	8.7	-
ANIMAL REMAINS AND MISC.	[82.9]	-	[0.6]	[0.1]	[100.0]	-	[25.8]
Number sampled	25	5	12	168	2	1	8
Number empty	1	1	0	17	0	0	4
Mean stomach content (g or m ³)	0.1	12.2	3.0	702.3	0.2	0.2	<0.1
Mean fish length (cm)	18	65	37	153	12	23	8
Fish length range (cm)	14-21	56-75	30-62	78-283	10-14	-	5-19

+ Atlantic mackerel was used as bait.

APPENDIX B

Overall Prey of 60 Predators Which Were Fully Sampled and Well Represented in Collections during the NEFSC's 1977-80 Bottom Trawl Surveys

Stomach content data for 60 predator species sampled during the 1977-80 NEFSC bottom trawl surveys are presented in Tables B-1 through B-60. These tables represent predator species for which 25 or more individuals each were sampled.

For 44 of these 60 species, stomach content data are given according both to predator length categories and to geographic areas of collection. Those 44 species were selected based on the greatest number of individuals (at least 25) and areas (at least two) represented by the samples. For the remaining 16 of these 60 species, stomach content data are given according only to predator length categories.

The tables for the 44 predators listed by both predator length and geographic area have two subtable numbers

(*e.g.*, Tables B-1a and B-1b, respectively). The tables for the 16 predators listed by only predator length have one main table number (*e.g.*, Table B-3).

Stomach content data have been summarized, when necessary, to fit on one page to aid in making comparisons among predator species. Whenever the list of prey species had to be so summarized, fish prey, in almost every instance, were left intact at the expense of those other prey which had contributed the least percentage by weight to the predator's diet, and which were then condensed into higher taxonomic groups. In instances when the list of fish prey had to be summarized, only species which made up <1% of the total stomach contents by weight and which were not commercially important were then lumped into higher taxonomic groups.

Table B-1a. Diet composition and sampling data for northern shortfin squid by squid length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)								Total
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	>35	
PLATYHELMINTHES	[0.2]	<0.1	[0.1]	[0.7]	[0.5]	[0.4]	<0.1	[8.9]	[0.5]
Cestoda	0.2	<0.1	0.1	0.4	0.3	0.2	<0.1	-	0.3
Trematoda	-	-	-	0.3	0.2	0.2	-	8.9	0.2
RHYNCHOCOELA	-	-	-	<0.1	-	<0.1	-	[0.5]	<0.1
NEMATODA	-	<0.1	<0.1	<0.1	<0.1	<0.1	-	[0.2]	<0.1
CHAETOGNATHA	-	[0.1]	[1.8]	<0.1	<0.1	<0.1	-	-	[0.1]
<i>Sagitta elegans</i>	-	-	-	<0.1	-	-	-	-	<0.1
Chaetognatha unid.	-	0.1	1.8	-	<0.1	<0.1	-	-	0.1
CEPHALOPODA	-	[2.0]	[16.2]	[8.4]	[20.8]	[61.6]	[96.0]	[83.9]	[34.6]
<i>Loligo</i> sp.	-	-	-	-	<0.1	-	-	-	<0.1
Cephalopoda unid.	-	2.0	16.2	8.4	20.8	61.6	96.0	83.9	34.6
POLYCHAETA	-	-	[0.7]	-	<0.1	<0.1	-	-	<0.1
CRUSTACEA	[0.5]	[14.6]	[7.3]	[36.4]	[19.4]	[7.8]	-	-	[16.6]
Copepoda	-	-	-	<0.1	<0.1	-	-	-	<0.1
Cumacea	-	-	-	-	<0.1	-	-	-	<0.1
Amphipoda	-	-	-	<0.1	<0.1	-	-	-	<0.1
Hyperiididae	-	-	-	<0.1	<0.1	-	-	-	<0.1
Ampeliscaidae	-	-	-	-	<0.1	-	-	-	<0.1
<i>Unciola irrorata</i>	-	-	-	-	<0.1	-	-	-	<0.1
<i>Unciola</i> sp.	-	-	-	-	<0.1	-	-	-	<0.1
Caprellidae	-	-	-	<0.1	<0.1	-	-	-	<0.1
Amphipoda unid.	-	-	-	-	<0.1	-	-	-	<0.1
Mysidacea	-	-	-	-	<0.1	-	-	-	<0.1
Euphausiacea	-	-	-	(12.5)	(3.1)	(1.4)	-	-	(3.3)
<i>Meganyctiphanes norvegica</i>	-	-	-	<0.1	0.3	0.1	-	-	0.2
Euphausiacea unid.	-	-	-	12.5	2.8	1.3	-	-	3.1
Decapoda	-	-	(0.5)	(1.5)	(0.3)	<0.1	-	-	(0.4)
<i>Dichelopandalus leptocerus</i>	-	-	-	-	0.2	-	-	-	0.1
Pandalidae	-	-	-	-	<0.1	-	-	-	<0.1
<i>Crangon septemspinosa</i>	-	-	-	-	<0.1	-	-	-	<0.1
Crab unid.	-	-	<0.1	0.2	0.1	-	-	-	0.1
Shrimp unid.	-	-	-	<0.1	<0.1	<0.1	-	-	<0.1
Decapoda larvae	-	-	-	<0.1	<0.1	-	-	-	<0.1
Decapoda unid.	-	-	0.5	1.3	<0.1	-	-	-	0.2
Crustacea unid.	(0.5)	(14.6)	(6.8)	(22.4)	(16.0)	(6.4)	-	-	(12.9)
SALPIDAE	-	-	-	-	<0.1	[0.1]	-	-	<0.1
CHONDRICHTHYES	-	-	-	-	[0.2]	-	-	-	[0.1]
Rajidae	-	-	-	-	0.2	-	-	-	0.1
OSTEICHTHYES	[96.1]	[6.0]	[20.7]	[9.9]	[27.5]	[8.5]	-	[6.5]	[18.9]
Gadidae	-	-	-	-	<0.1	0.5	-	-	0.2
Osteichthyes eggs	-	-	-	-	<0.1	-	-	-	<0.1
Osteichthyes unid.	96.1	6.0	20.7	9.9	27.5	8.0	-	6.5	18.7
ANIMAL REMAINS AND MISC.	[3.2]	[77.3]	[53.2]	[44.6]	[31.6]	[21.6]	[4.0]	-	[29.2]
Number sampled	11	145	357	599	1064	257	10	4	2447
Number empty	0	48	116	164	226	69	4	1	628
Mean stomach content (g)	0.173	0.068	0.246	0.525	1.638	3.912	11.523	0.516	1.340
Mean squid length (cm)	4	8	13	18	22	27	31	39	19

Table B-1b. Diet composition and sampling data for northern shortfin squid by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area					
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras
PLATYHELMINTHES	[1.0]	[0.4]	[0.6]	[0.3]	[0.3]	[<0.1]
Cestoda	1.0	0.4	0.3	0.1	<0.1	<0.1
Trematoda	<0.1	<0.1	0.3	0.2	0.3	-
RHYNCHOCOELA	-	[<0.1]	-	-	[<0.1]	-
NEMATODA	[<0.1]	[<0.1]	[<0.1]	[<0.1]	[<0.1]	[<0.1]
CHAETOGNATHA	[<0.1]	[<0.1]	[0.3]	-	-	-
<i>Sagitta elegans</i>	-	-	<0.1	-	-	-
Chaetognatha unid.	<0.1	<0.1	0.3	-	-	-
CEPHALOPODA	[36.1]	[30.3]	[40.8]	[22.7]	[70.0]	[3.2]
<i>Loligo</i> sp.	-	-	-	-	<0.1	-
Cephalopoda unid.	36.1	30.3	40.8	22.7	70.0	3.2
POLYCHAETA	-	-	-	-	[<0.1]	[0.1]
CRUSTACEA	[9.7]	[19.8]	[22.0]	[26.4]	[4.8]	[3.9]
Copepoda	-	(<0.1)	(<0.1)	-	-	(<0.1)
Cumacea	(<0.1)	-	-	-	-	-
Amphipoda	(<0.1)	(<0.1)	(<0.1)	-	(<0.1)	-
Hyperiididae	<0.1	-	-	-	<0.1	-
Ampeliscidae	-	<0.1	-	-	-	-
<i>Unciola irrorata</i>	<0.1	-	-	-	-	-
<i>Unciola</i> sp.	-	-	<0.1	-	-	-
Caprellidae	-	<0.1	<0.1	-	-	-
Amphipoda unid.	<0.1	<0.1	<0.1	-	-	-
Mysidacea	-	-	(<0.1)	-	(<0.1)	-
Euphausiacea	-	(12.9)	(1.8)	(4.6)	(0.2)	(0.3)
<i>Meganyctiphanes norvegica</i>	-	<0.1	<0.1	0.8	-	-
Euphausiacea unid.	-	12.9	1.8	3.8	0.2	0.3
Decapoda	(1.2)	(1.2)	(<0.1)	(<0.1)	(<0.1)	(<0.1)
<i>Dichelopandalus leptocerus</i>	-	0.6	<0.1	-	-	-
Pandalidae	-	<0.1	-	-	-	-
<i>Crangon septemspinosa</i>	-	<0.1	<0.1	-	-	-
Crab unid.	-	0.6	<0.1	-	-	<0.1
Shrimp unid.	-	<0.1	<0.1	<0.1	<0.1	-
Decapoda larvae	<0.1	-	<0.1	-	-	-
Decapoda unid.	1.2	<0.1	<0.1	<0.1	-	-
Crustacea unid.	(8.5)	(5.7)	(20.2)	(21.8)	(4.6)	(3.6)
SALPIDAE	-	-	[0.2]	-	-	-
CHONDRICHTHYES	-	-	[0.4]	-	-	-
Rajidae	-	-	0.4	-	-	-
OSTEICHTHYES	[23.0]	[12.3]	[5.2]	[13.1]	[7.1]	[73.3]
Gadidae	1.5	-	-	-	-	-
Osteichthyes eggs	-	-	<0.1	-	-	-
Osteichthyes unid.	21.5	12.3	5.2	13.1	7.1	73.3
ANIMAL REMAINS AND MISC.	[30.2]	[37.2]	[30.5]	[37.5]	[17.8]	[19.5]
Number sampled	423	518	792	318	202	195
Number empty	116	134	201	73	67	37
Mean stomach content (g)	0.783	0.820	1.056	2.341	2.564	2.180
Mean squid length (cm)	19	18	19	22	23	19

Table B-2a. Diet composition and sampling data for longfin inshore squid by squid length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)							Total
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	
CESTODA	-	<0.1]	<0.1]	<0.1]	<0.1]	[0.1]	-	<0.1]
CHAETOGNATHA	[0.6]	[0.1]	[0.1]	<0.1]	-	-	-	[0.1]
<i>Sagitta elegans</i>	-	<0.1]	<0.1]	-	-	-	-	<0.1]
Chaetognatha unid.	0.6	0.1	0.1	<0.1]	-	-	-	0.1
MOLLUSCA	-	[2.8]	[5.1]	[8.4]	[2.3]	[10.9]	[9.5]	[5.6]
Gastropoda	-	-	-	<0.1]	-	-	-	<0.1]
Bivalvia	-	-	-	-	<0.1]	-	-	<0.1]
Cephalopoda	-	2.8	5.1	8.4	2.3	10.9	9.5	5.6
POLYCHAETA	-	[0.3]	<0.1]	-	<0.1]	-	-	<0.1]
Opheliidae	-	-	-	-	<0.1]	-	-	<0.1]
<i>Nereis zonata</i>	-	-	-	-	<0.1]	-	-	<0.1]
Polychaeta unid.	-	0.3	<0.1]	-	-	-	-	<0.1]
CRUSTACEA	[1.8]	[4.2]	[7.0]	[3.8]	[5.8]	[0.7]	-	[4.7]
Copepoda	-	(0.6)	(<0.1)	-	(<0.1)	-	-	(0.1)
<i>Candacia</i> sp.	-	0.6	-	-	-	-	-	0.1
Calanoida	-	-	<0.1]	-	<0.1]	-	-	<0.1]
Copepoda unid.	-	<0.1]	<0.1]	-	-	-	-	<0.1]
Amphipoda	(0.2)	(0.4)	(0.3)	(<0.1)	(<0.1)	(<0.1)	-	(0.2)
Hyperiididae	-	0.2	<0.1]	<0.1]	<0.1]	-	-	0.1
Ampeliscidae	-	-	-	-	-	<0.1]	-	<0.1]
Gammaridea	0.2	0.2	0.3	-	-	-	-	0.1
Amphipoda unid.	-	<0.1]	-	-	-	-	-	<0.1]
Mysidacea	-	(<0.1)	(<0.1)	(<0.1)	(<0.1)	-	-	(<0.1)
Euphausiacea	-	(0.8)	(3.5)	(2.1)	(3.7)	-	-	(2.1)
<i>Meganyctiphanes norvegica</i>	-	-	0.5	<0.1]	-	-	-	0.2
Euphausiacea unid.	-	0.8	3.0	2.1	3.7	-	-	1.9
Decapoda	-	(<0.1)	(0.4)	(<0.1)	(<0.1)	(0.7)	-	(0.2)
<i>Crangon septemspinosa</i>	-	-	<0.1]	<0.1]	-	-	-	<0.1]
<i>Munida iris</i>	-	-	<0.1]	-	-	0.7	-	0.1
Lithodidae	-	-	-	<0.1]	-	-	-	<0.1]
Crab unid.	-	-	-	<0.1]	-	<0.1]	-	<0.1]
Shrimp unid.	-	<0.1]	-	-	-	-	-	<0.1]
Decapoda unid.	-	<0.1]	0.4	<0.1]	<0.1]	-	-	0.1
Crustacea unid.	(1.6)	(2.4)	(2.8)	(1.7)	(2.1)	(<0.1)	-	(2.1)
OSTEICHTHYES	[3.1]	[5.6]	[11.4]	[12.3]	[23.7]	[17.0]	[3.4]	[13.7]
Gadidae	-	-	<0.1]	0.2	-	<0.1]	-	0.1
<i>Ammodytes dubius</i>	-	-	-	-	1.0	-	-	0.2
Osteichthyes larvae	-	0.1	-	-	-	-	-	<0.1]
Osteichthyes unid.	3.1	5.5	11.4	12.1	22.7	17.0	3.4	13.4
ANIMAL REMAINS AND MISC.	[94.5]	[87.0]	[76.4]	[75.5]	[68.2]	[71.3]	[87.1]	[75.9]
Number sampled	165	810	822	444	189	59	9	2498
Number empty	78	178	214	132	49	15	3	669
Mean stomach content (g)	0.028	0.231	0.449	0.976	1.503	1.055	1.568	0.542
Mean squid length (cm)	4	8	12	17	22	27	32	12

Table B-2b. Diet composition and sampling data for longfin squid by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area							
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Offshore South of Cape Hatteras	Inshore South of Cape Hatteras	Inshore North of Cape Hatteras
CESTODA	<0.1]	<0.1]	<0.1]	[2.3]	-	-	-	<0.1]
CHAETOGNATHA	[0.2]	[0.1]	<0.1]	-	-	-	-	<0.1]
<i>Sagitta elegans</i>	-	<0.1]	-	-	-	-	-	-
Chaetognatha unid.	0.2	0.1	<0.1]	-	-	-	-	<0.1]
MOLLUSCA	[10.1]	[8.0]	[0.3]	-	-	[8.0]	[0.5]	[8.0]
Gastropoda	-	<0.1]	-	-	-	-	-	-
Bivalvia	-	<0.1]	-	-	-	-	-	-
Cephalopoda	10.1	8.0	0.3	-	-	8.0	0.5	8.0
POLYCHAETA	<0.1]	<0.1]	<0.1]	-	-	-	-	[0.4]
Opheliidae	<0.1]	-	-	-	-	-	-	-
<i>Nereis zonata</i>	<0.1]	-	-	-	-	-	-	-
Polychaeta unid.	-	<0.1]	<0.1]	-	-	-	-	0.4
CRUSTACEA	[3.6]	[7.5]	[3.1]	[70.1]	-	[1.8]	[0.9]	[4.9]
Copepoda	(0.4)	<0.1]	-	-	-	-	-	<0.1]
<i>Candacia</i> sp.	0.4	-	-	-	-	-	-	-
Calanoida	-	-	-	-	-	-	-	<0.1]
Copepoda unid.	<0.1]	<0.1]	-	-	-	-	-	-
Amphipoda	(0.2)	<0.1]	<0.1]	-	-	<0.1]	-	(0.8)
Hyperiididae	0.2	<0.1]	<0.1]	-	-	-	-	-
Ampeliscidae	<0.1]	-	-	-	-	-	-	-
Gammaridea	-	-	<0.1]	-	-	<0.1]	-	0.8
Amphipoda unid.	-	<0.1]	-	-	-	-	-	-
Mysidacea	<0.1]	<0.1]	-	-	-	-	-	<0.1]
Euphausiacea	(0.5)	(6.6)	(1.0)	-	-	-	-	-
<i>Meganyctiphanes norvegica</i>	<0.1]	-	0.4	-	-	-	-	-
Euphausiacea unid.	0.5	6.6	0.6	-	-	-	-	-
Decapoda	(0.2)	<0.1]	<0.1]	-	-	-	-	(1.3)
<i>Crangon septemspinosa</i>	<0.1]	-	-	-	-	-	-	0.3
<i>Munida iris</i>	0.2	-	-	-	-	-	-	-
Lithodidae	<0.1]	-	-	-	-	-	-	-
Crab unid.	<0.1]	-	-	-	-	-	-	<0.1]
Shrimp unid.	-	-	<0.1]	-	-	-	-	-
Decapoda unid.	<0.1]	<0.1]	-	-	-	-	-	1.0
Crustacea unid.	(2.3)	(0.9)	(2.1)	(70.1)	-	(1.8)	(0.9)	(2.8)
OSTEICHTHYES	[17.0]	[15.3]	[7.6]	-	-	[26.6]	[7.0]	[21.4]
Gadidae	0.4	-	-	-	-	-	-	-
<i>Ammodytes dubius</i>	0.9	-	-	-	-	-	-	-
Osteichthyes larvae	<0.1]	-	-	-	-	-	-	-
Osteichthyes unid.	15.7	15.3	7.6	-	-	26.6	7.0	21.4
ANIMAL REMAINS AND MISC.	[69.1]	[69.1]	[89.0]	[27.6]	[100.0]	[63.6]	[91.6]	[65.3]
Number sampled	773	503	468	6	1	99	95	555
Number empty	213	122	126	0	0	28	28	154
Mean stomach content (g)	0.428	0.630	1.046	0.658	3.576	0.340	0.291	0.269
Mean squid length (cm)	13	12	13	24	20	12	14	11

Table B-3. Diet composition and sampling data for chain dogfish by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)							Total
	11-15	16-20	21-25	26-30	31-35	36-40	41-45	
NEMATODA	-	-	-	-	-	[1.0]	-	[0.1]
CEPHALOPODA	-	[4.9]	[15.9]	[57.3]	[0.2]	[13.8]	[30.3]	[20.7]
POLYCHAETA	[100.0]	[38.0]	[14.5]	[1.7]	[0.2]	-	[2.4]	[6.3]
<i>Eunice</i> sp.	-	15.5	9.7	1.3	-	-	-	2.3
Eunicidae	-	0.3	3.0	-	-	-	-	0.2
Glyceridae	-	-	0.3	-	-	-	-	<0.1
<i>Nereis</i> sp.	-	-	0.2	0.4	-	-	-	<0.1
Polychaeta unid.	100.0	22.2	1.3	-	0.2	-	2.4	3.8
CRUSTACEA	-	[54.1]	[60.7]	[41.0]	[20.3]	[3.4]	[13.3]	[22.4]
Stomatopoda	-	-	-	-	(12.7)	-	-	(2.6)
<i>Heterosquilla armata</i>	-	-	-	-	12.7	-	-	2.6
Amphipoda	-	(<0.1)	(0.8)	-	-	-	-	(<0.1)
<i>Ampelisca</i> sp.	-	<0.1	-	-	-	-	-	<0.1
<i>Byblis serrata</i>	-	<0.1	-	-	-	-	-	<0.1
<i>Unciola</i> sp.	-	-	0.8	-	-	-	-	<0.1
Mysidacea	-	-	-	-	-	(<0.1)	-	(<0.1)
<i>Mysidopsis bigelowi</i>	-	-	-	-	-	<0.1	-	<0.1
Euphausiacea	-	(14.2)	(22.1)	(11.5)	-	(2.0)	-	(3.7)
<i>Meganyctiphanes norvegica</i>	-	5.2	12.1	11.5	-	2.0	-	2.2
Euphausiacea unid.	-	9.0	10.0	-	-	-	-	1.5
Decapoda	-	(28.9)	(17.8)	(3.9)	-	-	(12.5)	(10.0)
<i>Cancer irroratus</i>	-	19.8	-	-	-	-	9.6	6.6
<i>Munida irrasa</i>	-	0.4	17.8	0.5	-	-	-	0.8
Sergestidae	-	-	-	-	-	-	2.9	1.3
Shrimp unid.	-	0.6	-	-	-	-	-	0.1
Decapoda unid.	-	8.1	-	3.4	-	-	-	1.2
Crustacea unid.	-	(11.0)	(20.0)	(25.6)	(7.6)	(1.4)	(0.8)	(6.1)
OSTEICHTHYES	-	-	[3.0]	-	[79.2]	[78.2]	[54.0]	[49.5]
Osteichthyes unid.	-	-	3.0	-	79.2	78.2	54.0	49.5
ANIMAL REMAINS AND MISC.	-	[3.0]	[5.9]	-	[0.1]	[3.6]	-	[1.0]
Number sampled	1	11	6	2	7	3	5	35
Number empty	0	0	0	0	1	0	1	2
Mean stomach content (g)	0.005	0.290	0.192	0.995	0.793	1.058	2.468	0.783
Mean fish length (cm)	15	18	22	28	32	37	42	27

Table B-4a. Diet composition and sampling data for dusky shark by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)							Total
	<61	61-70	71-80	81-90	91-100	101-110	>110	
NEMATODA	-	-	-	-	[<0.1]	-	-	[<0.1]
MOLLUSCA	-	[49.3]	-	[25.0]	[25.1]	[7.2]	[1.1]	[14.4]
Cephalopoda	-	(49.3)	-	(25.0)	(25.1)	(7.2)	(1.1)	(14.4)
<i>Loligo pealeii</i>	-	-	-	-	24.7	-	-	6.8
<i>Loligo</i> sp.	-	11.0	-	8.3	-	7.2	-	4.0
Cephalopoda unid.	-	38.3	-	16.7	0.4	<0.1	1.1	3.6
Mollusca unid.	-	-	-	-	-	(<0.1)	-	(<0.1)
CRUSTACEA	-	[0.1]	[0.2]	[2.3]	[22.2]	[29.7]	-	[17.6]
Copepoda	-	(0.1)	-	-	-	-	-	(<0.1)
Stomatopoda	-	-	-	-	-	(0.3)	-	(5.5)
<i>Squilla empusa</i>	-	-	-	-	8.3	8.0	-	5.4
Stomatopoda unid.	-	-	-	-	-	0.3	-	0.1
Amphipoda	-	-	-	(<0.1)	-	-	-	(<0.1)
Hyperiididae	-	-	-	<0.1	-	-	-	<0.1
Euphausiacea	-	(<0.1)	(0.2)	-	(<0.1)	-	-	(<0.1)
<i>Meganyctiphanes norvegica</i>	-	-	0.2	-	<0.1	-	-	<0.1
Euphausiacea unid.	-	<0.1	-	-	-	-	-	<0.1
Decapoda	-	-	-	(2.3)	(12.1)	(21.2)	-	(11.5)
<i>Cancer irroratus</i>	-	-	-	-	4.0	<0.1	-	1.1
<i>Pinnixa cylindrica</i>	-	-	-	-	0.2	-	-	<0.1
<i>Ovalipes ocellatus</i>	-	-	-	-	6.5	21.2	-	9.9
Crabs unid.	-	-	-	2.3	1.0	-	-	0.4
Decapoda unid.	-	-	-	-	0.4	-	-	0.1
Crustacea unid.	-	-	-	-	(1.8)	(0.2)	-	(0.6)
ECHINODERMATA	-	-	-	-	-	[0.8]	-	[0.3]
<i>Echinarachnius parma</i>	-	-	-	-	-	0.8	-	0.3
OSTEICHTHYES	[100.0]	[50.5]	[99.7]	[72.7]	[50.8]	[61.9]	[40.8]	[58.1]
Clupeidae	-	-	-	-	1.5	-	-	0.4
<i>Anchoa hepsetus</i>	-	-	-	2.3	-	-	-	0.2
Batrachoididae	-	-	-	22.7	-	-	-	1.6
<i>Urophycis regia</i>	-	7.0	-	-	-	-	-	0.4
<i>Centropristis striata</i>	-	-	-	7.2	-	-	-	0.5
<i>Stenotomus chrysops</i>	-	14.9	-	-	12.8	-	-	4.4
Sciaenidae	-	-	-	-	-	29.1	-	11.2
<i>Cynoscion regalis</i>	-	-	-	-	-	9.8	-	3.8
<i>Leiostomus xanthurus</i>	-	-	-	11.2	7.0	19.5	-	10.2
<i>Ammodytes dubius</i>	-	-	-	-	-	0.6	-	0.2
Scombridae	-	-	-	-	22.3	-	-	6.2
Pleuronectiformes	-	-	-	-	-	-	18.1	2.9
Osteichthyes unid.	100.0	28.6	99.7	29.3	7.2	2.9	22.7	16.1
ANIMAL REMAINS AND MISC.	-	[0.1]	[0.1]	[<0.1]	[1.6]	[0.4]	[58.1]	[9.5]
SAND	-	-	-	-	[0.3]	[<0.1]	-	[0.1]
Number sampled	2	6	2	13	18	7	5	53
Number empty	1	1	0	4	2	1	1	10
Mean stomach content (g)	0.060	15.210	46.768	8.477	24.705	88.173	50.676	30.385
Mean fish length (cm)	51	67	75	84	94	103	160	94

Table B-4b. Diet composition and sampling data for dusky shark by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area			
	Middle Atlantic	Offshore South of Cape Hatteras	Inshore South of Cape Hatteras	Inshore North of Cape Hatteras
NEMATODA	-	-	-	[<0.1]
MOLLUSCA	[0.1]	[60.5]	[7.2]	[12.2]
Cephalopoda	-	(60.5)	(7.2)	(12.2)
<i>Loligo pealeii</i>	-	-	-	12.0
<i>Loligo</i> sp.	-	39.9	-	-
Cephalopoda unid.	-	20.6	7.2	0.2
Mollusca unid.	(0.1)	-	-	-
CRUSTACEA	[79.0]	[1.2]	[33.5]	[1.3]
Copepoda	-	-	(<0.1)	-
Stomatopoda	-	-	(24.8)	(0.8)
<i>Squilla empusa</i>	-	-	24.2	0.8
Stomatopoda unid.	-	-	0.6	-
Amphipoda	-	-	-	(<0.1)
Hyperiididae	-	-	-	<0.1
Euphausiacea	-	(0.1)	(<0.1)	-
<i>Meganyctiphanes norvegica</i>	-	0.1	-	-
Euphausiacea unid.	-	-	<0.1	-
Decapoda	(79.0)	(0.9)	(6.7)	(0.2)
<i>Cancer irroratus</i>	<0.1	-	5.5	-
<i>Pinnixa cylindrica</i>	-	-	0.2	-
<i>Ovalipes ocellatus</i>	78.0	-	-	-
Crabs unid.	-	0.9	1.0	0.2
Decapoda unid.	1.0	-	-	-
Crustacea unid.	-	(0.2)	(2.0)	(0.3)
ECHINODERMATA	[2.4]	-	-	-
<i>Echinarachnius parma</i>	2.4	-	-	-
OSTEICHTHYES	[17.9]	[33.5]	[15.7]	[86.2]
Clupeidae	3.3	-	-	-
<i>Anchoa hepsetus</i>	-	-	0.8	-
Batrachoididae	-	15.7	-	-
<i>Urophycis regia</i>	-	4.0	-	-
<i>Centropristis striata</i>	-	-	-	0.9
<i>Stenotomus chrysops</i>	-	8.5	-	6.2
Sciaenidae	-	-	-	19.6
<i>Cynoscion regalis</i>	-	-	-	6.6
<i>Leiostomus xanthurus</i>	6.3	-	-	16.4
<i>Ammodytes dubius</i>	1.8	-	-	-
Scombridae	-	-	-	10.8
Pleuronectiformes	-	-	-	5.0
Osteichthyes unid.	6.5	5.3	14.9	20.7
ANIMAL REMAINS AND MISC.	[<0.1]	[4.8]	[43.6]	[0.3]
SAND	[0.6]	-	-	[<0.1]
Number sampled	8	19	13	13
Number empty	2	6	1	1
Mean stomach content (g)	25.608	8.393	25.243	70.608
Mean fish length (cm)	99	92	89	97

Table B-5a. Diet composition and sampling data for smooth dogfish by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	<41	41-50	51-60	61-70	71-80	81-90	91-100	101-110	>110	
MOLLUSCA	[62.1]	[5.8]	[5.8]	[14.6]	[3.3]	[9.7]	[17.2]	[9.3]	[16.1]	[13.2]
Bivalvia	(0.2)	(4.1)	(5.0)	(0.4)	(0.8)	(0.8)	(1.5)	(5.3)	(15.6)	(4.4)
Cephalopoda	-	(1.7)	(0.3)	(13.2)	(2.5)	(8.7)	(15.3)	(2.8)	(0.5)	(8.2)
<i>Loligo pealeii</i>	-	-	-	-	0.1	5.6	6.7	0.7	-	3.5
<i>Loligo</i> sp.	-	-	-	-	0.3	2.1	6.5	0.7	<0.1	3.0
Cephalopoda unid.	-	1.7	0.3	13.2	2.1	1.0	2.1	1.4	0.5	1.7
Mollusca unid.	(61.9)	-	(0.5)	(1.0)	(<0.1)	(0.2)	(0.4)	(1.2)	(<0.1)	(0.6)
POLYCHAETA	[8.7]	[3.8]	[7.9]	[3.0]	[1.6]	[1.4]	[0.7]	[0.1]	[0.3]	[0.8]
SIPUNCULA	-	-	-	[3.0]	-	-	[0.2]	[0.1]	-	[0.2]
MEROSTOMATA	-	-	-	[<0.1]	-	-	[0.2]	[4.6]	[2.9]	[1.6]
<i>Limulus</i> sp.	-	-	-	<0.1	-	-	0.2	4.6	2.9	1.6
CRUSTACEA	[24.2]	[81.9]	[53.3]	[64.6]	[83.1]	[78.8]	[73.1]	[74.2]	[74.6]	[74.7]
Stomatopoda	-	(0.5)	(1.0)	-	-	(1.1)	(<0.1)	(<0.1)	(<0.1)	(0.2)
Decapoda	(15.8)	(67.4)	(34.2)	(58.6)	(75.8)	(75.4)	(71.4)	(72.8)	(69.8)	(72.1)
<i>Pagurus pollicaris</i>	-	9.1	5.6	0.6	1.0	-	0.4	<0.1	0.3	0.4
<i>Pagurus</i> sp.	15.6	10.4	2.9	1.0	0.5	0.4	0.9	0.5	0.1	0.7
Paguridae	-	11.8	1.4	-	0.5	-	0.2	<0.1	-	0.3
<i>Libinia</i> sp.	-	-	-	<0.1	-	0.3	0.9	0.3	2.1	0.8
Majidae	-	2.9	0.1	-	1.5	0.2	<0.1	0.2	<0.1	<0.1
<i>Cancer irroratus</i>	-	17.5	12.6	13.9	37.9	43.8	39.7	45.7	31.2	40.0
<i>Cancer borealis</i>	-	4.1	-	-	-	-	4.2	0.3	1.1	1.9
Canceridae	-	-	0.5	0.7	1.4	<0.1	2.4	1.7	0.9	1.7
<i>Ovalipes ocellatus</i>	-	3.4	4.4	17.9	20.4	11.0	8.9	13.9	24.5	13.1
<i>Ovalipes stephensoni</i>	-	-	-	1.5	5.2	8.1	3.7	1.7	0.2	3.1
<i>Albunea</i> sp.	-	-	3.3	10.0	0.4	3.5	1.3	0.2	<0.1	1.2
Decapoda unid.	0.2	8.2	3.4	13.0	7.0	8.1	8.8	8.3	9.4	8.9
Crustacea unid.	(8.4)	(14.0)	(18.1)	(6.0)	(7.3)	(2.3)	(1.4)	(1.4)	(4.8)	(2.4)
HOLOTHUROIDEA	-	-	[4.6]	-	-	-	[0.7]	[<0.1]	-	[0.3]
OSTEICHTHYES	-	[3.5]	[27.0]	[12.2]	[5.4]	[7.2]	[5.7]	[10.1]	[4.0]	[7.4]
<i>Ophichthus cruentifer</i>	-	-	-	0.2	-	-	-	-	-	<0.1
<i>Etrumeus teres</i>	-	-	-	-	-	-	<0.1	3.1	<0.1	1.0
Clupeidae	-	-	-	-	-	-	-	0.3	-	0.1
<i>Anchoa</i> sp.	-	-	-	0.7	<0.1	-	0.1	0.8	0.1	0.4
<i>Urophycis regia</i>	-	-	-	0.4	-	-	-	-	-	<0.1
Gadidae	-	-	-	-	0.1	-	0.2	-	-	0.1
<i>Trachurus lathami</i>	-	-	-	-	-	0.2	-	-	-	<0.1
<i>Stenotomus chrysops</i>	-	-	15.5	8.2	-	-	0.5	-	-	0.4
<i>Leiostomus xanthurus</i>	-	-	-	-	-	1.1	-	-	-	0.1
<i>Ammodytes dubius</i>	-	-	-	-	-	0.2	0.3	0.1	0.2	0.2
<i>Peprilus triacanthus</i>	-	-	-	-	-	<0.1	0.5	1.4	<0.1	0.6
<i>Prionotus</i> sp.	-	-	-	0.9	<0.1	2.0	-	-	-	0.3
Osteichthyes unid.	-	2.3	11.5	1.8	5.3	3.7	4.1	4.4	3.7	4.2
ANIMAL REMAINS AND MISC.	[5.0]	[5.0]	[1.4]	[2.6]	[6.6]	[2.9]	[2.2]	[1.6]	[2.1]	[1.8]
Number sampled	7	52	41	35	56	111	237	102	47	688
Number empty	2	0	2	0	1	6	5	4	1	21
Mean stomach content (g)	1.827	4.252	3.845	10.120	15.664	24.148	37.699	66.009	62.196	32.228
Mean fish length (cm)	32	46	55	65	76	86	95	104	115	86

Table B-5b. Diet composition and sampling data for smooth dogfish by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area			
	Middle Atlantic	Southern New England	Inshore South of Cape Hatteras	Inshore North of Cape Hatteras
MOLLUSCA	[7.4]	[0.7]	[<0.1]	[16.0]
Bivalvia	(2.9)	(<0.1)	(<0.1)	(5.2)
Cephalopoda	(3.7)	(0.7)	(<0.1)	(10.1)
<i>Loligo</i> sp.	2.1	0.2	-	8.3
Cephalopoda unid.	1.6	0.5	<0.1	1.8
Mollusca unid.	(0.8)	(<0.1)	(<0.1)	(0.7)
POLYCHAETA	[0.3]	[0.8]	[0.6]	[0.6]
SIPUNCULA	-	-	[3.3]	[<0.1]
MEROSTOMATA	[3.4]	-	[0.2]	[1.4]
<i>Limulus</i> sp.	3.4	-	0.2	1.4
CRUSTACEA	[76.5]	[89.6]	[69.8]	[72.5]
Stomatopoda	(<0.1)	(<0.1)	(4.6)	(<0.1)
Decapoda	(74.2)	(89.2)	(59.9)	(70.0)
<i>Pagurus pollicaris</i>	0.2	-	0.1	0.5
<i>Pagurus</i> sp.	-	1.4	0.4	0.8
Paguridae	-	-	-	0.3
<i>Libinia</i> sp.	1.5	-	-	0.7
Majidae	-	-	0.3	0.2
<i>Cancer irroratus</i>	54.3	68.8	3.2	35.8
<i>Cancer borealis</i>	0.9	4.7	1.3	1.9
Cancridae	0.5	-	0.6	2.1
<i>Ovalipes ocellatus</i>	5.3	-	10.5	16.1
<i>Ovalipes stephensoni</i>	-	9.5	-	3.3
<i>Albunea</i> sp.	0.5	-	8.7	1.1
Decapoda unid.	11.0	4.8	34.8	7.2
Crustacea unid.	(2.3)	(0.4)	(5.3)	(2.5)
HOLOTHUROIDEA	-	-	-	[0.4]
OSTEICHTHYES	[10.1]	[7.8]	[24.6]	[5.8]
<i>Ophichthus cruentifer</i>	-	-	-	<0.1
<i>Etrumeus teres</i>	-	-	-	1.3
Clupeidae	-	-	-	0.1
<i>Anchoa</i> sp.	-	-	-	0.5
<i>Urophycis regia</i>	-	-	-	<0.1
Gadidae	<0.1	-	-	<0.1
<i>Trachurus lathami</i>	-	-	-	<0.1
<i>Stenotomus chrysops</i>	2.8	-	-	-
<i>Leiostomus xanthurus</i>	-	-	-	0.2
<i>Ammodytes dubius</i>	0.2	1.0	-	0.1
<i>Peprilus triacanthus</i>	-	-	4.6	0.7
<i>Prionotus</i> sp.	1.5	-	0.5	-
Osteichthyes unid.	5.6	6.8	19.5	2.9
ANIMAL REMAINS AND MISC.	[2.3]	[1.1]	[1.5]	[3.3]
Number sampled	121	41	55	471
Number empty	3	3	3	12
Mean stomach content (g)	29.839	38.394	12.151	36.180
Mean fish length (cm)	86	86	83	87

Table B-6a. Diet composition and sampling data for Atlantic sharpnose shark by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)								Total
	<40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	
CESTODA	-	-	-	-	-	[<0.1]	-	-	[<0.1]
RHYNCHOCOELA	-	[<0.1]	-	-	-	-	-	-	[<0.1]
NEMATODA	-	[<0.1]	-	-	-	-	-	-	[<0.1]
MOLLUSCA	[34.7]	[41.7]	[39.1]	-	[4.1]	[1.9]	[0.7]	[51.1]	[6.1]
Gastropoda	-	-	-	-	-	-	-	(51.1)	(0.7)
Cephalopoda	(34.7)	(41.7)	(39.1)	-	-	(1.9)	(0.6)	-	(5.2)
<i>Illex</i> sp.	0.4	-	-	-	-	-	-	-	<0.1
<i>Loligo</i> sp.	34.3	-	8.2	-	-	1.9	0.6	-	1.8
Cephalopoda unid.	-	41.7	30.9	-	-	<0.1	<0.1	-	3.4
Mollusca unid.	-	-	-	-	(4.1)	-	(0.1)	-	(0.2)
CRUSTACEA	[18.0]	[10.2]	[12.6]	-	[24.6]	[57.8]	[7.5]	-	[9.7]
Cirripedia	-	(<0.1)	-	-	-	-	-	-	(<0.1)
Stomatopoda	-	-	-	-	-	-	(1.6)	-	(1.2)
<i>Squilla empusa</i>	-	-	-	-	-	-	1.6	-	1.2
Decapoda	(15.7)	(8.2)	(12.6)	-	(24.6)	(57.8)	(5.9)	-	(8.3)
<i>Libinia emarginata</i>	-	-	-	-	-	-	0.8	-	0.6
Penaeidae	-	-	-	-	-	17.9	-	-	0.6
Pandalidae	-	0.5	-	-	-	-	-	-	<0.1
<i>Pagurus</i> sp.	-	-	-	-	-	-	1.8	-	1.5
Paguridae	-	-	-	-	-	-	<0.1	-	<0.1
<i>Sicyonia</i> sp.	-	-	-	-	-	4.2	-	-	0.1
<i>Ovalipes ocellatus</i>	15.7	7.5	-	-	-	35.7	3.1	-	4.6
<i>Portunus gibbesii</i>	-	-	-	-	24.6	-	0.2	-	0.5
Crab unid.	-	-	-	-	-	-	<0.1	-	0.1
Shrimp unid.	-	0.2	-	-	-	-	<0.1	-	<0.1
Decapoda unid.	-	-	12.6	-	-	-	-	-	0.3
Crustacea unid.	(2.3)	(2.0)	-	-	-	-	(<0.1)	-	(0.2)
OSTEICHTHYES	[46.6]	[48.1]	[48.3]	[100.0]	[71.3]	[35.9]	[87.3]	-	[80.0]
<i>Etrumeus teres</i>	-	-	-	-	-	-	1.9	-	1.5
Clupeidae	9.6	-	-	-	-	-	-	-	0.3
<i>Anchoa hepsetus</i>	-	16.0	-	-	-	27.8	0.4	-	2.3
Engraulidae	-	-	-	-	-	-	0.4	-	0.3
Syngnathidae	-	-	-	-	-	-	0.6	-	0.4
Sciaenidae	-	-	-	-	-	-	9.8	-	7.8
<i>Astroscopus guttatus</i>	-	-	-	-	-	-	13.5	-	10.7
<i>Citharichthys arctifrons</i>	-	-	-	-	63.5	-	-	-	1.0
Pleuronectiformes	15.3	-	-	-	-	-	-	-	0.5
<i>Monacanthus hispidus</i>	-	-	-	-	-	-	6.1	-	4.8
<i>Sphoeroides maculatus</i>	-	-	-	-	-	-	8.0	-	6.3
Osteichthyes unid.	21.7	32.1	48.3	100.0	7.8	8.1	46.6	-	44.1
ANIMAL REMAINS	[0.7]	-	-	-	-	[4.4]	[4.4]	[48.9]	[4.1]
SAND	-	-	-	-	-	-	[0.1]	-	[0.1]
Number sampled	20	12	4	2	3	11	31	2	85
Number empty	7	2	0	1	1	3	8	0	22
Mean stomach content (g)	1.166	3.967	3.452	10.571	3.638	2.066	17.951	4.491	9.918
Mean fish length (cm)	36	46	52	68	76	86	94	104	70

Table B-6b. Diet composition and sampling data for Atlantic sharpnose shark by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area		
	Offshore South of Cape Hatteras	Inshore South of Cape Hatteras	Inshore North of Cape Hatteras
CESTODA	[<0.1]	-	-
RHYNCHOCOELA	-	[<0.1]	-
NEMATODA	-	[<0.1]	-
MOLLUSCA	[0.2]	[16.0]	[0.3]
Gastropoda	-	(1.7)	-
Cephalopoda	(0.2)	(14.0)	-
<i>Illex</i> sp.	-	<0.1	-
<i>Loligo</i> sp.	0.2	4.8	-
Cephalopoda unid.	<0.1	9.2	-
Mollusca unid.	-	(0.3)	(0.3)
CRUSTACEA	[4.8]	[6.3]	[22.1]
Cirripedia	-	(<0.1)	-
Stomatopoda	(3.3)	-	-
<i>Squilla empusa</i>	3.3	-	-
Decapoda	(1.5)	(5.7)	(22.1)
<i>Libinia emarginata</i>	-	1.7	-
Penaeidae	1.5	-	-
Pandalidae	-	<0.1	-
<i>Pagurus</i> sp.	-	-	5.8
Paguridae	-	<0.1	-
<i>Sicyonia</i> sp.	-	0.4	-
<i>Ovalipes ocellatus</i>	-	2.7	14.3
<i>Portunus gibbesii</i>	-	-	2.0
Crab unid.	-	0.2	-
Shrimp unid.	-	<0.1	<0.1
Decapoda unid.	-	0.7	-
Crustacea unid.	-	(0.6)	(<0.1)
OSTEICHTHYES	[86.0]	[76.0]	[77.1]
<i>Etrumeus teres</i>	-	-	6.0
Clupeidae	-	0.9	-
<i>Anchoa hepsetus</i>	-	6.2	-
Engraulidae	-	-	1.2
Syngnathidae	1.2	-	-
Sciaenidae	-	-	30.8
<i>Astroscopus guttatus</i>	28.5	-	-
<i>Citharichthys arctifrons</i>	-	-	3.9
Pleuronectiformes	-	1.4	-
<i>Monacanthus hispidus</i>	12.9	-	-
<i>Sphoeroides maculatus</i>	16.8	-	-
Osteichthyes unid.	26.6	67.5	35.2
ANIMAL REMAINS	[9.0]	[1.7]	[0.1]
SAND	-	-	[0.4]
Number sampled	9	60	16
Number empty	0	18	4
Mean stomach content (g)	29.374	4.387	11.087
Mean fish length (cm)	89	63	83

Table B-7a. Diet composition and sampling data for spiny dogfish by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									
	<31	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	Total
CTENOPHORA	[2.6]	[2.3]	[1.7]	[0.8]	[0.7]	[0.6]	[0.9]	[<0.1]	-	[0.5]
MOLLUSCA	[20.2]	[51.5]	[36.5]	[58.3]	[16.6]	[28.4]	[27.3]	[23.1]	[25.1]	[26.6]
Bivalvia	(<0.1)	(27.0)	(8.4)	(1.7)	(0.9)	(1.9)	(7.4)	(11.3)	(12.4)	(7.7)
Pectinidae	-	27.0	8.4	1.7	-	-	3.7	6.1	12.4	4.2
Bivalvia unid.	<0.1	-	-	-	0.9	1.9	3.7	5.2	-	3.5
Cephalopoda	(20.2)	(24.5)	(24.0)	(56.6)	(15.7)	(23.1)	(19.9)	(10.9)	(12.7)	(17.8)
<i>Illex</i> sp.	-	-	-	4.9	3.0	7.3	6.5	4.2	-	5.2
<i>Loligo</i> sp.	-	-	-	5.3	5.2	3.4	2.6	3.3	8.9	3.4
Cephalopoda unid.	20.2	24.5	24.0	46.4	7.5	12.4	10.8	3.4	3.8	9.2
Mollusca unid.	-	-	(4.1)	(<0.1)	-	(3.4)	-	(0.9)	-	(1.1)
CRUSTACEA	[4.1]	[1.8]	[9.5]	[8.5]	[7.6]	[2.9]	[2.8]	[5.0]	[0.8]	[4.3]
Euphausiacea	(0.7)	(1.2)	(1.4)	(4.4)	(6.6)	(2.1)	(<0.1)	(<0.1)	-	(0.8)
Decapoda	(1.6)	-	(7.6)	(3.4)	(0.7)	(0.8)	(2.6)	(5.0)	(0.6)	(3.3)
<i>Cancer</i> spp.	0.6	-	6.8	0.2	0.3	0.2	1.9	4.5	0.6	2.5
Decapoda unid.	1.0	-	0.8	3.2	0.4	0.6	0.7	0.5	<0.1	0.8
Crustacea unid.	(1.8)	(0.6)	(0.5)	(0.7)	(0.3)	(<0.1)	(0.2)	(<0.1)	(0.2)	(0.2)
OSTEICHTHYES	[13.6]	[22.6]	[44.2]	[22.3]	[49.9]	[36.1]	[62.0]	[58.4]	[66.0]	[53.7]
Ophichthidae	-	-	-	-	-	-	-	1.2	-	0.5
<i>Alosa aestivalis</i>	-	-	-	-	-	-	3.3	-	-	0.9
<i>Alosa pseudoharengus</i>	-	-	-	-	-	1.7	-	4.3	-	2.1
<i>Brevoortia tyrannus</i>	-	-	-	-	-	0.4	-	-	-	0.1
<i>Clupea harengus</i>	-	-	-	-	-	2.9	-	1.3	-	1.1
<i>Etrumeus teres</i>	-	-	-	-	-	-	-	0.6	-	0.2
Clupeidae	-	-	-	2.5	1.6	5.4	0.3	-	-	1.3
<i>Melanogrammus aeglefinus</i>	-	-	-	-	-	-	1.9	-	-	0.5
<i>Merluccius bilinearis</i>	-	-	-	-	-	-	0.3	1.5	-	0.7
<i>Urophycis chesteri</i>	-	-	-	-	-	-	-	1.0	-	0.4
<i>Urophycis chuss</i>	-	-	-	-	-	-	4.3	1.5	-	1.8
<i>Urophycis</i> sp.	-	-	-	-	-	-	5.3	-	-	1.5
Gadidae	-	<0.1	-	<0.1	<0.1	3.8	2.0	-	<0.1	1.4
Belonidae	-	-	-	-	8.1	-	-	-	-	0.3
Carangidae	-	-	-	-	-	-	-	1.4	-	0.5
<i>Stenotomus chrysops</i>	-	-	-	-	-	-	0.7	-	-	0.2
<i>Astroscopus</i> sp.	-	-	-	-	-	-	-	0.9	-	0.4
<i>Anarhichas</i> sp.	-	-	-	-	-	-	-	2.2	-	0.9
<i>Ammodytes dubius</i>	-	-	-	0.1	2.6	2.4	0.6	6.5	2.0	3.4
<i>Scomber scombrus</i>	-	-	-	-	-	-	6.3	-	-	1.8
<i>Paralichthys dentatus</i>	-	-	-	-	-	0.1	-	1.0	-	0.4
<i>Scophthalmus aquosus</i>	-	-	-	-	-	-	0.3	0.6	-	0.3
<i>Symphurus</i> sp.	-	-	-	-	-	1.4	11.4	4.6	8.4	5.6
<i>Hippoglossus hippoglossus</i>	-	-	3.6	-	-	-	-	-	-	<0.1
<i>Pleuronectes ferruginus</i>	-	-	-	<0.1	-	-	-	0.4	-	0.2
Osteichthyes unid.	13.6	22.6	40.6	19.7	37.6	18.0	25.3	29.4	55.6	27.2
ANIMAL REMAINS AND MISC.	[59.5]	[21.8]	[8.1]	[10.1]	[25.2]	[32.0]	[7.0]	[13.5]	[8.1]	[14.9]
Number sampled	226	307	164	235	207	697	368	423	35	2662
Number empty	124	187	104	125	101	357	152	114	8	1272
Mean stomach content (g)	0.261	0.393	1.252	2.705	3.901	6.421	16.711	20.553	24.003	9.720
Mean fish length (cm)	27	34	45	55	66	75	85	94	103	78

Table B-7b. Diet composition and sampling data for spiny dogfish by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area						
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore South of Cape Hatteras	Inshore North of Cape Hatteras
CTENOPHORA	[0.1]	[0.4]	[0.1]	[0.3]	[<0.1]	-	[2.6]
MOLLUSCA	[22.6]	[36.7]	[25.8]	[27.9]	[26.3]	[5.3]	[12.1]
Bivalvia	(17.3)	(13.6)	(7.3)	-	-	(1.9)	(2.8)
Pectinidae	3.6	9.4	4.6	-	-	-	2.1
Bivalvia unid.	13.7	4.2	2.7	-	-	1.9	0.7
Cephalopoda	(5.0)	(22.4)	(17.2)	(24.7)	(26.3)	(3.4)	(9.1)
<i>Illex</i> sp.	-	7.3	1.7	13.9	-	-	4.2
<i>Loligo</i> sp.	-	6.6	5.3	-	-	1.3	4.1
Cephalopoda unid.	5.0	8.5	10.2	10.8	26.3	2.1	0.8
Mollusca unid.	(0.3)	(0.7)	(1.3)	(3.2)	(<0.1)	-	(0.2)
CRUSTACEA	[1.3]	[1.3]	[5.7]	[3.5]	[0.4]	[1.6]	[14.5]
Euphausiacea	(<0.1)	(<0.1)	(<0.1)	(3.4)	(0.2)	-	(1.8)
Decapoda	(1.3)	(1.1)	(5.7)	(0.1)	(0.1)	(1.6)	(11.9)
<i>Cancer</i> spp.	1.0	1.1	4.5	-	<0.1	-	9.5
Decapoda unid.	0.3	<0.1	1.2	0.1	0.1	1.6	2.4
Crustacea unid.	(<0.1)	(0.2)	(<0.1)	(<0.1)	(0.1)	-	(0.8)
OSTEICHTHYES	[72.7]	[55.8]	[49.9]	[40.9]	[30.6]	[92.4]	[60.4]
Ophichthidae	-	-	-	-	-	14.3	-
<i>Alosa aestivalis</i>	-	-	3.9	-	-	-	-
<i>Alosa pseudoharengus</i>	-	6.6	0.9	0.7	-	-	-
<i>Brevoortia tyrannus</i>	-	-	-	-	1.1	-	-
<i>Clupea harengus</i>	-	1.9	-	-	-	-	6.0
<i>Etrumeus teres</i>	2.0	-	-	-	-	-	-
Clupeidae	-	1.0	<0.1	1.0	-	-	8.7
<i>Melanogrammus aeglefinus</i>	-	2.1	-	-	-	-	-
<i>Merluccius bilinearis</i>	-	1.2	1.4	-	-	-	-
<i>Urophycis chesteri</i>	-	1.6	-	-	-	-	-
<i>Urophycis chuss</i>	-	2.3	5.0	-	-	-	-
<i>Urophycis</i> sp.	0.1	5.6	-	-	-	-	-
Gadidae	-	5.2	<0.1	-	-	-	-
Belonidae	-	-	-	1.7	-	-	-
Carangidae	-	-	-	-	-	-	5.5
<i>Stenotomus chrysops</i>	-	0.7	-	-	-	-	-
<i>Astroscopus</i> sp.	-	-	-	-	-	10.7	-
<i>Anarhichas</i> sp.	-	-	-	4.9	-	-	-
<i>Ammodytes dubius</i>	3.6	2.1	0.5	12.2	-	0.1	1.0
<i>Scomber scombrus</i>	-	-	-	-	25.8	-	-
<i>Paralichthys dentatus</i>	-	1.5	0.1	-	-	-	-
<i>Scophthalmus aquosus</i>	-	0.9	-	-	-	2.2	-
<i>Symphurus</i> sp.	47.4	-	-	-	-	-	-
<i>Hippoglossus hippoglossus</i>	-	-	0.1	-	-	-	-
<i>Pleuronectes ferruginus</i>	-	-	-	0.9	-	-	<0.1
Osteichthyes unid.	19.6	23.1	38.0	19.5	3.7	65.1	39.2
ANIMAL REMAINS AND MISC.	[3.3]	[5.8]	[18.5]	[27.4]	[42.7]	[0.7]	[10.4]
Number sampled	276	735	783	417	238	17	196
Number empty	150	407	353	190	112	0	60
Mean stomach content (g)	9.464	7.787	6.783	9.395	6.351	43.469	11.083
Mean fish length (cm)	62	58	65	76	74	93	84

Table B-8. Diet composition and sampling data for Atlantic angel shark by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)					Total
	31-50	51-70	71-90	91-110	111-130	
NEMATODA	[0.1]	-	-	-	-	[<0.1]
CEPHALOPODA	[8.1]	[27.7]	[<0.1]	[<0.1]	[<0.1]	[7.7]
Ommastrephidae	0.4	-	-	-	-	<0.1
<i>Loligo pealeii</i>	6.6	-	-	-	-	0.7
<i>Loligo</i> sp.	-	27.5	-	-	-	6.8
Cephalopoda	1.1	0.2	<0.1	<0.1	<0.1	0.2
POLYCHAETA	[<0.1]	-	-	-	-	[<0.1]
<i>Ninoe nigripes</i>	<0.1	-	-	-	-	<0.1
CRUSTACEA	[0.6]	[<0.1]	[<0.1]	[0.2]	[0.8]	[0.2]
Isopoda	(<0.1)	-	-	-	-	(<0.1)
<i>Cirolana</i> sp.	<0.1	-	-	-	-	<0.1
Amphipoda	(<0.1)	-	-	-	-	(<0.1)
<i>Unciola irrorata</i>	<0.1	-	-	-	-	<0.1
Decapoda	(0.6)	(<0.1)	(<0.1)	-	(0.8)	(0.2)
Crangonidae	0.1	-	-	-	-	<0.1
Paguridae	0.3	<0.1	-	-	-	<0.1
<i>Cancer irroratus</i>	-	<0.1	-	-	-	<0.1
<i>Ovalipes ocellatus</i>	-	-	-	-	0.8	0.2
Decapoda unid.	0.2	-	<0.1	-	-	<0.1
Crustacea unid.	(<0.1)	(<0.1)	-	(0.2)	-	(<0.1)
OSTEICHTHYES	[71.1]	[62.8]	[96.3]	[89.2]	[90.9]	[83.3]
<i>Anchoa hepsetus</i>	-	0.3	-	-	-	0.1
<i>Merluccius bilinearis</i>	-	3.3	-	-	-	0.8
<i>Pomatomus saltatrix</i>	-	-	-	-	57.8	17.6
<i>Leiostomus xanthurus</i>	-	6.6	18.0	-	-	6.4
Sciaenidae	-	-	51.5	-	-	13.7
<i>Peprilus triacanthus</i>	-	15.5	-	-	0.9	4.1
<i>Prionotus carolinus</i>	-	-	-	-	20.5	6.3
Osteichthyes unid.	71.1	37.1	26.8	89.2	11.7	34.3
ANIMAL REMAINS	[20.0]	[8.6]	[2.1]	[5.8]	[8.3]	[7.7]
PLANT	[0.1]	-	[0.6]	-	-	[0.2]
ROCK AND SAND	-	[0.9]	[1.0]	[4.8]	-	[0.9]
Number sampled	18	24	6	4	6	58
Number empty	1	3	0	2	0	6
Mean stomach content (g)	6.169	11.561	49.841	18.741	57.076	19.051
Mean fish length (cm)	42	58	79	103	119	65

Table B-9. Diet composition and sampling data for clearnose skate by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)							Total
	31-35	36-40	41-45	46-50	51-55	56-60	61-65	
MOLLUSCA	-	-	[6.9]	-	[1.4]	[2.4]	[0.2]	[0.9]
Bivalvia	-	-	(6.9)	-	(0.6)	(<0.1)	(0.2)	(0.3)
<i>Ensis directus</i>	-	-	-	-	0.6	<0.1	-	0.1
Solenidae	-	-	6.9	-	-	-	-	0.1
Cephalopoda	-	-	-	-	(0.8)	(2.4)	-	(0.6)
Mollusca unid.	-	-	-	-	-	(<0.1)	0.2	(0.1)
POLYCHAETA	-	-	-	[6.5]	[<0.1]	-	[<0.1]	[0.4]
<i>Diopatra cuprea</i>	-	-	-	3.9	-	-	-	0.2
<i>Ophelia</i> sp.	-	-	-	2.6	-	-	-	0.2
Polychaeta unid.	-	-	-	<0.1	<0.1	-	<0.1	<0.1
CRUSTACEA	-	[100.0]	[90.4]	[72.8]	[16.8]	[83.8]	[24.0]	[39.4]
Stomatopoda	-	-	-	-	(1.6)	-	-	(0.3)
Amphipoda	-	-	(3.2)	(0.4)	(<0.1)	-	-	(0.1)
<i>Ampelisca verrilli</i>	-	-	3.2	-	-	-	-	0.1
<i>Byblis serrata</i>	-	-	-	-	<0.1	-	-	<0.1
<i>Acanthohaustorius millsii</i>	-	-	-	0.1	-	-	-	<0.1
<i>Rhepoxynius epistomus</i>	-	-	-	0.3	-	-	-	<0.1
Mysidacea	-	(1.1)	-	-	-	-	-	(<0.1)
Decapoda	-	(98.9)	(82.2)	(72.4)	(15.2)	(83.6)	(23.5)	(38.6)
<i>Penaeus aztecus</i>	-	-	-	-	-	-	5.9	3.3
Penaeidae	-	-	0.6	-	-	-	-	<0.1
<i>Crangon septemspinosa</i>	-	-	1.6	0.6	<0.1	0.2	-	0.1
Shrimp unid.	-	-	5.4	-	-	-	-	0.1
<i>Pagurus pollicaris</i>	-	-	-	-	-	0.4	-	0.1
<i>Sicyonia</i> sp.	-	-	-	-	1.9	1.5	-	0.6
<i>Cancer irroratus</i>	-	-	54.5	71.5	10.8	39.8	17.6	24.9
<i>Cancer</i> sp.	-	-	-	-	-	0.7	-	0.1
Cancridae	-	-	-	0.3	0.8	-	-	0.2
<i>Ovalipes ocellatus</i>	-	98.9	10.5	-	0.5	0.8	-	0.6
Portunidae	-	-	-	-	-	27.6	-	5.6
Scyllaridae	-	-	-	-	-	2.3	-	0.5
Crab unid.	-	-	-	-	0.1	10.3	-	2.1
Decapoda unid.	-	-	9.6	-	1.1	-	-	0.4
Crustacea unid.	-	-	(5.0)	-	-	(0.2)	(0.5)	(0.4)
OSTEICHTHYES	-	-	-	[19.7]	[78.6]	[13.4]	[74.3]	[57.8]
<i>Branchiostoma</i> sp.	-	-	-	8.2	-	-	-	0.5
<i>Myoxocephalus scorpius</i>	-	-	-	-	-	0.6	-	0.1
<i>Cynoscion regalis</i>	-	-	-	-	-	-	41.9	23.1
<i>Peprilus triacanthus</i>	-	-	-	-	7.1	-	-	1.2
Soleidae	-	-	-	-	65.7	-	-	10.8
Osteichthyes unid.	-	-	-	11.5	5.8	12.8	32.4	22.1
ANIMAL REMAINS AND MISC.	[100.0]	-	[2.7]	[1.0]	[3.2]	[0.4]	[1.5]	[1.5]
Number sampled	1	1	6	7	12	12	11	50
Number empty	0	0	0	1	0	1	4	6
Mean stomach content (g)	0.033	0.377	0.800	2.303	3.608	4.465	13.273	5.284
Mean fish length (cm)	33	38	42	48	53	58	62	53

Table B-10a. Diet composition and sampling data for little skate by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	<15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	>51	
MOLLUSCA	-	-	-	[0.2]	[0.8]	[4.7]	[4.9]	[2.7]	[5.8]	[3.8]
Bivalvia	-	-	-	(0.2)	-	(1.7)	(3.1)	(1.4)	(5.8)	(2.4)
Mollusca unid.	-	-	-	-	(0.8)	(3.0)	(1.8)	(1.3)	-	(1.4)
POLYCHAETA	[0.3]	[7.1]	[2.2]	[11.8]	[17.9]	[6.6]	[11.1]	[15.2]	[6.2]	[12.9]
Maldanidae	-	-	-	4.3	0.4	1.3	0.4	1.2	0.6	0.9
Aphroditidae	-	-	-	-	-	0.6	-	3.4	1.9	1.7
<i>Nephtys</i> spp.	-	-	-	1.4	14.7	<0.1	1.8	1.0	-	1.9
Polychaeta unid.	0.3	7.1	2.2	6.2	2.8	4.7	8.9	9.6	3.7	8.4
CRUSTACEA	[86.1]	[85.9]	[96.6]	[83.5]	[38.7]	[62.3]	[64.4]	[66.3]	[69.5]	[65.5]
Stomatopoda	-	-	-	-	-	-	(1.4)	(<0.1)	(8.8)	(1.3)
Cumacea	(12.3)	(5.4)	(2.0)	(7.8)	(0.7)	(0.1)	(<0.1)	(<0.1)	(<0.1)	(0.3)
<i>Pseudoleptocuma minor</i>	3.8	3.8	-	-	-	-	<0.1	-	-	0.1
Cumacea unid.	8.5	1.6	2.0	7.8	0.7	0.1	<0.1	<0.1	<0.1	0.2
Isopoda	-	-	-	(6.9)	(0.6)	(5.3)	(3.3)	(2.2)	(<0.1)	(2.4)
<i>Cirolana</i> sp.	-	-	-	6.9	0.6	5.3	3.3	2.2	<0.1	2.4
Amphipoda	(35.1)	(44.8)	(62.1)	(48.3)	(15.9)	(22.3)	(13.2)	(13.9)	(15.4)	(15.7)
<i>Byblis serrata</i>	4.8	3.6	5.1	3.2	0.3	1.6	0.2	0.2	-	0.4
Ampeliscidae	1.3	5.1	3.5	0.7	0.2	0.3	<0.1	<0.1	<0.1	0.2
<i>Unciola</i> spp.	3.7	6.3	16.2	6.1	1.7	7.5	3.7	2.3	<0.1	2.9
<i>Gammarus annulatus</i>	-	-	0.7	11.0	-	0.7	0.5	<0.1	0.2	0.4
Oedicerotidae	10.9	13.2	8.4	0.5	2.8	1.1	0.8	1.3	<0.1	1.2
<i>Leptocheirus pinguis</i>	4.5	9.6	8.8	5.0	10.7	3.2	5.4	6.9	15.1	7.2
Amphipoda unid.	9.9	7.0	19.4	21.8	0.2	7.9	2.6	3.2	0.1	3.4
Decapoda	(21.9)	(22.7)	(21.6)	(13.1)	(19.7)	(32.2)	(40.0)	(46.2)	(37.2)	(40.5)
<i>Crangon septemspinosa</i>	15.5	18.9	18.7	8.8	4.1	7.3	5.7	4.4	5.8	5.4
<i>Axius serratus</i>	-	-	-	-	-	-	2.1	1.1	-	1.2
<i>Cancer borealis</i>	-	-	-	-	-	8.3	3.4	2.6	5.4	3.2
<i>Cancer irroratus</i>	-	0.2	2.2	3.1	7.4	13.1	22.0	27.1	9.9	21.2
<i>Pagurus acadianus</i>	-	-	-	-	-	0.4	0.2	3.0	7.7	2.2
Decapoda unid.	6.4	3.6	0.7	1.2	8.2	3.1	6.6	8.0	8.4	7.3
Crustacea unid.	(16.8)	(13.0)	(10.9)	(7.4)	(1.8)	(2.4)	(6.5)	(4.0)	(8.1)	(5.3)
OSTEICHTHYES	-	-	-	[2.4]	[37.2]	[5.3]	[10.8]	[5.4]	[10.7]	[9.5]
<i>Anchoa mitchilli</i>	-	-	-	-	-	-	1.7	-	-	0.6
Gadidae	-	-	-	-	-	-	1.1	<0.1	-	0.4
<i>Ammodytes dubius</i>	-	-	-	-	35.7	0.8	5.7	1.7	0.3	4.7
<i>Myoxocephalus octodecemspinus</i>	-	-	-	-	-	-	-	-	8.4	0.8
<i>Lepophidium profundorum</i>	-	-	-	-	-	-	0.2	-	-	0.1
Bothidae	-	-	-	-	0.5	-	-	<0.1	-	0.1
<i>Pleuronectes americanus</i>	-	-	-	-	0.2	-	-	-	-	<0.1
Pleuronectiformes	-	-	-	1.3	-	-	0.1	<0.1	0.7	0.1
Osteichthyes eggs or larvae	-	-	-	-	-	0.3	<0.1	<0.1	-	<0.1
Osteichthyes unid.	-	-	-	1.1	0.8	4.2	2.0	3.7	1.3	2.7
ANIMAL REMAINS AND MISC.	[13.6]	[7.0]	[1.2]	[2.1]	[5.4]	[21.1]	[8.8]	[10.4]	[7.8]	[8.3]
Number sampled	58	14	11	25	25	45	130	175	21	504
Number empty	2	0	1	3	3	6	14	17	1	47
Mean stomach content (g)	0.075	0.222	0.222	0.319	1.416	0.758	1.625	1.580	2.936	1.263
Mean fish length (cm)	10	18	22	28	33	38	43	47	52	38

Table B-10b. Diet composition and sampling data for little skate by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area			
	Middle Atlantic	Southern New England	Georges Bank	Inshore North of Cape Hatteras
MOLLUSCA	[12.8]	[3.4]	[1.5]	[0.9]
Bivalvia	6.3	2.3	1.5	0.9
Mollusca unid.	6.5	1.1	<0.1	<0.1
POLYCHAETA	[3.2]	[21.7]	[15.0]	[3.3]
Maldanidae	0.7	3.8	1.1	0.4
Aphroditidae	-	2.9	2.7	-
<i>Nephtys</i> spp.	-	2.1	4.2	-
Polychaeta unid.	2.5	12.9	7.0	2.9
CRUSTACEA	[53.5]	[61.7]	[67.4]	[73.0]
Stomatopoda	(<0.1)	(<0.1)	-	(5.4)
Cumacea	(<0.1)	(0.4)	(<0.1)	(0.3)
<i>Pseudoleptocuma minor</i>	-	-	<0.1	0.2
Cumacea unid.	<0.1	0.4	<0.1	0.1
Isopoda	(0.8)	(3.1)	(3.3)	(1.5)
<i>Cirolana</i> sp.	0.8	3.1	3.3	1.5
Amphipoda	(1.3)	(26.6)	(11.5)	(14.6)
<i>Byblis serrata</i>	<0.1	0.4	0.2	0.7
<i>Unciola</i> spp.	0.5	4.6	0.5	5.1
<i>Gammarus annulatus</i>	-	0.5	-	1.0
Oedicerotidae	<0.1	1.0	2.6	0.8
<i>Leptocheirus pinguis</i>	0.4	16.7	3.4	3.5
Amphipoda unid.	0.4	3.4	4.8	3.5
Decapoda	(42.8)	(25.7)	(47.1)	(49.4)
<i>Crangon septemspinosa</i>	3.0	6.2	4.8	6.5
<i>Axius serratus</i>	0.5	0.3	3.5	-
<i>Cancer borealis</i>	3.0	3.5	0.9	5.7
<i>Cancer irroratus</i>	26.1	9.7	24.1	29.7
<i>Pagurus acadianus</i>	-	0.9	6.0	0.7
Decapoda unid.	10.2	5.1	7.8	6.8
Crustacea unid.	(8.6)	(5.9)	(5.5)	(1.8)
OSTEICHTHYES	[24.2]	[1.7]	[2.9]	[17.5]
<i>Anchoa mitchilli</i>	-	-	-	2.3
Gadidae	2.3	-	-	0.2
<i>Ammodytes dubius</i>	19.5	0.3	-	6.4
<i>Myoxocephalus octodecemspinosus</i>	-	-	1.7	1.3
<i>Lepophidium profundorum</i>	-	-	-	0.3
Bothidae	0.3	-	-	<0.1
<i>Pleuronectes americanus</i>	-	<0.1	-	-
Pleuronectiformes	0.2	<0.1	0.4	<0.1
Osteichthyes eggs or larvae	-	<0.1	<0.1	0.2
Osteichthyes unid.	1.9	1.4	0.8	6.8
ANIMAL REMAINS AND MISC.	[6.3]	[11.5]	[13.2]	[5.3]
Number sampled	63	202	105	134
Number empty	1	31	8	7
Mean stomach content (g)	1.581	1.000	1.727	1.148
Mean fish length (cm)	35	41	42	33

Table B-11a. Diet composition and sampling data for winter skate by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	<31	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-110	
MOLLUSCA	[0.4]	[4.6]	[4.8]	[10.7]	[12.3]	[24.8]	[23.8]	[1.9]	-	[15.8]
Bivalvia	(0.4)	(4.6)	(4.6)	(10.7)	(10.4)	(16.6)	(9.4)	(0.8)	-	(8.8)
Solenidae	-	-	-	-	6.5	3.2	4.0	-	-	2.7
Bivalvia unid.	0.4	4.6	4.6	10.7	3.9	13.4	5.4	0.8	-	6.1
Cephalopoda	-	(<0.1)	(0.2)	-	(1.9)	(8.2)	(13.4)	(1.1)	-	(7.0)
<i>Illex</i> sp.	-	-	-	-	1.9	7.2	12.2	1.1	-	6.3
Cephalopoda unid.	-	<0.1	0.2	-	-	1.0	1.2	-	-	0.7
POLYCHAETA	[12.9]	[8.2]	[15.9]	[21.9]	[13.1]	[14.0]	[6.1]	[1.3]	[2.4]	[8.5]
<i>Lumbrineris fragilis</i>	-	0.9	3.3	1.6	0.4	1.4	<0.1	<0.1	-	0.5
<i>Ophelia</i> sp.	-	1.0	0.1	5.5	3.1	2.1	1.4	0.3	2.4	1.6
<i>Nephtys bucera</i>	-	<0.1	0.5	1.7	4.7	3.1	0.7	0.5	-	1.7
Nephtyidae	4.2	0.2	4.8	4.7	2.6	4.9	2.8	0.2	-	2.8
Polychaeta unid.	8.7	6.1	7.2	8.4	2.3	2.5	1.2	0.3	-	1.9
CRUSTACEA	[85.7]	[78.3]	[65.2]	[30.5]	[6.7]	[6.1]	[2.3]	[0.8]	[<0.1]	[7.4]
Isopoda	(4.9)	(3.2)	(4.3)	(4.3)	(1.5)	(1.2)	(0.1)	(<0.1)	-	(0.8)
<i>Cirolana</i> sp.	4.9	3.2	4.3	4.3	1.5	1.2	0.1	<0.1	-	0.8
Amphipoda	(51.9)	(31.6)	(11.6)	(8.6)	(0.7)	(0.4)	(<0.1)	(<0.1)	(<0.1)	(1.4)
<i>Byblis serrata</i>	7.4	1.9	0.6	0.1	<0.1	<0.1	<0.1	<0.1	-	0.1
<i>Unciola irrorata</i>	7.8	4.9	0.5	0.1	<0.1	<0.1	<0.1	-	-	0.1
Haustoriidae	7.1	5.9	0.2	2.4	0.4	0.4	<0.1	-	-	0.4
<i>Leptocheirus pinguis</i>	23.7	2.1	4.8	<0.1	<0.1	<0.1	<0.1	-	<0.1	0.2
Amphipoda unid.	5.9	16.8	5.5	6.0	0.3	<0.1	<0.1	<0.1	-	0.6
Decapoda	(27.6)	(39.8)	(45.1)	(16.5)	(4.4)	(4.4)	(1.9)	(0.8)	-	(4.8)
<i>Dichelopandalus leptocerus</i>	-	0.3	2.2	0.3	<0.1	0.3	<0.1	0.4	-	0.3
<i>Crangon septemspinosa</i>	7.0	6.7	29.5	6.9	0.8	0.5	0.2	<0.1	-	1.3
<i>Pagurus</i> spp.	-	5.6	0.1	4.4	0.1	0.7	<0.1	-	-	0.4
<i>Cancer irroratus</i>	20.1	24.0	7.1	1.2	2.0	1.0	1.7	0.3	-	1.7
<i>Ovalipes ocellatus</i>	-	0.9	4.0	3.6	0.5	1.2	<0.1	-	-	0.5
Decapoda unid.	0.5	2.3	2.2	0.1	1.0	0.7	<0.1	0.1	-	0.6
Crustacea unid.	(1.3)	(3.7)	(4.2)	(1.1)	(0.1)	(0.1)	(0.3)	(<0.1)	-	(0.4)
CHONDRICHTHYES	-	-	-	-	[0.5]	[0.2]	[1.1]	-	-	[0.5]
Rajidae	-	-	-	-	0.5	0.2	1.1	-	-	0.5
OSTEICHTHYES	[0.4]	[4.9]	[9.6]	[32.6]	[64.7]	[49.2]	[65.5]	[95.2]	[96.4]	[66.2]
<i>Ophichthus cruentifer</i>	-	-	-	0.2	-	-	-	-	-	<0.1
<i>Gadus morhua</i>	-	-	0.4	-	-	-	-	-	-	<0.1
<i>Merluccius bilinearis</i>	-	-	-	-	<0.1	0.2	-	11.7	-	2.7
Gadidae	-	-	-	-	-	<0.1	3.2	8.0	-	2.9
<i>Ammodytes dubius</i>	-	3.8	5.2	30.9	60.4	35.4	55.4	68.0	64.0	51.9
Cottidae	-	-	-	-	-	4.3	-	-	-	1.0
<i>Pleuronectes ferruginus</i>	-	-	0.2	-	-	-	-	-	-	<0.1
Osteichthyes larvae	-	-	-	<0.1	-	-	-	-	-	<0.1
Osteichthyes unid.	0.4	1.1	3.8	1.5	4.3	9.3	6.9	7.5	32.4	7.7
ANIMAL REMAINS AND MISC.	[0.6]	[4.0]	[4.5]	[4.3]	[2.7]	[5.7]	[1.2]	[0.8]	[1.2]	[1.6]
Number sampled	12	52	72	37	85	173	199	102	13	745
Number empty	0	4	4	7	16	36	39	38	6	150
Mean stomach content (g)	0.687	1.264	1.822	2.869	7.030	7.174	8.910	11.630	11.103	6.588
Mean fish length (cm)	24	36	45	55	66	76	84	94	103	72

Table B-11b. Diet composition and sampling data for winter skate by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area			
	Southern New England	Georges Bank	Gulf of Maine	Inshore North of Cape Hatteras
MOLLUSCA	[10.9]	[16.4]	[11.7]	[0.3]
Bivalvia	(0.7)	(9.5)	-	(0.3)
Solenidae	-	3.0	-	-
Bivalvia unid.	0.7	6.5	-	0.3
Cephalopoda	(10.2)	(6.9)	(11.7)	-
<i>Illex</i> sp.	-	6.9	-	-
Cephalopoda unid.	10.2	<0.1	11.7	-
POLYCHAETA	[9.0]	[8.4]	[<0.1]	[2.7]
<i>Lumbrineris fragilis</i>	-	0.6	-	-
<i>Ophelia</i> sp.	-	1.6	-	1.6
<i>Nephtys buccera</i>	4.7	1.7	-	-
Nephtyidae	0.9	2.9	<0.1	0.8
Polychaeta unid.	3.4	1.6	-	0.3
CRUSTACEA	[8.2]	[6.2]	[0.1]	[8.1]
Isopoda	(2.1)	(0.8)	-	(0.3)
<i>Cirolana</i> sp.	2.1	0.8	-	0.3
Amphipoda	(4.1)	(0.5)	-	(1.3)
<i>Byblis serrata</i>	0.2	<0.1	-	0.2
<i>Unciola irrorata</i>	1.0	<0.1	-	0.6
<i>Leptocheirus pinguis</i>	1.6	0.2	-	-
Amphipoda unid.	1.3	0.3	-	0.5
Decapoda	(1.5)	(4.5)	-	(6.5)
<i>Dichelopandalus leptocerus</i>	<0.1	0.3	-	-
<i>Crangon septemspinosa</i>	0.5	1.3	-	0.3
<i>Pagurus</i> spp.	<0.1	0.3	-	-
<i>Cancer irroratus</i>	1.0	1.8	-	0.3
<i>Ovalipes ocellatus</i>	-	0.4	-	5.9
Decapoda unid.	<0.1	0.4	-	-
Crustacea unid.	(0.5)	(0.4)	(0.1)	(<0.1)
CHONDRICHTHYES	-	[0.5]	-	-
Rajidae	-	0.5	-	-
OSTEICHTHYES	[66.6]	[64.7]	[88.1]	[88.2]
<i>Ophichthus cruentifer</i>	-	<0.1	-	-
<i>Gadus morhua</i>	-	<0.1	-	-
<i>Merluccius bilinearis</i>	-	2.9	-	-
Gadidae	-	3.1	-	-
<i>Ammodytes dubius</i>	64.1	50.3	88.1	48.2
Cottidae	-	1.1	-	-
<i>Pleuronectes ferruginus</i>	-	<0.1	-	-
Osteichthyes larvae	-	<0.1	-	-
Osteichthyes unid.	2.5	7.3	-	40.0
ANIMAL REMAINS AND MISC.	[5.3]	[3.8]	[0.1]	[0.7]
Number sampled	34	661	12	36
Number empty	8	122	2	16
Mean stomach content (g)	3.658	7.291	15.204	3.542
Mean fish length (cm)	62	72	87	83

Table B-12a. Diet composition and sampling data for thorny skate by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	<21	21-30	31-40	41-50	51-60	61-70	71-80	81-90	>90	
CEPHALOPODA	-	[4.2]	[0.4]	[7.5]	[12.3]	[12.1]	[6.4]	[5.2]	[45.9]	[22.9]
<i>Illex</i> sp.	-	-	-	-	-	2.8	-	-	17.5	7.3
<i>Loligo</i> sp.	-	-	-	-	-	-	-	-	26.3	10.5
Octopoda	-	-	0.4	-	-	-	-	3.6	-	0.6
Cephalopoda unid.	-	4.2	<0.1	7.5	12.3	9.3	6.4	1.6	2.1	4.5
ANNELIDA	[34.7]	[37.5]	[25.1]	[30.7]	[39.2]	[11.7]	[15.3]	[16.0]	[0.9]	[10.7]
Aphroditidae	21.0	0.1	1.4	0.4	17.4	2.7	3.0	-	-	2.0
<i>Nephtys</i> spp.	7.8	6.2	5.2	1.3	5.1	5.0	3.0	1.9	<0.1	2.0
Nephtyidae	2.3	-	0.7	0.5	3.4	1.4	1.4	0.8	<0.1	0.8
<i>Nereis</i> sp.	-	-	-	-	2.4	-	3.6	2.8	-	1.4
Annelida unid.	3.6	31.2	17.8	28.5	10.9	2.6	4.3	10.5	0.9	4.5
CRUSTACEA	[48.7]	[30.4]	[70.3]	[32.1]	[18.7]	[19.0]	[10.6]	[25.7]	[3.3]	[13.0]
Isopoda	(0.2)	(3.6)	(0.4)	(0.3)	(0.4)	(<0.1)	(<0.1)	(0.1)	-	(0.1)
Amphipoda	(33.8)	(9.6)	(9.7)	(5.2)	(0.3)	(<0.1)	(<0.1)	-	-	(0.3)
Euphausiacea	(1.1)	(0.5)	(33.9)	(3.9)	(0.8)	(0.4)	(6.0)	(0.9)	(<0.1)	(2.3)
<i>Meganyctiphanes norvegica</i>	1.1	0.5	33.9	3.9	0.8	0.4	6.0	0.9	<0.1	2.3
Decapoda	(8.5)	(11.3)	(19.9)	(12.7)	(15.2)	(17.2)	(4.6)	(23.5)	(2.0)	(9.1)
<i>Dichelopandalus leptocerus</i>	-	-	-	-	1.4	1.4	0.1	3.0	0.5	1.0
Pandalidae	-	-	-	-	<0.1	2.0	<0.1	3.4	<0.1	0.9
<i>Crangon septemspinosa</i>	7.0	6.0	0.3	1.4	<0.1	0.5	-	-	-	0.1
Axiidae	-	-	-	9.1	1.8	0.3	-	0.3	1.5	0.8
Paguridae	0.7	4.9	13.5	-	-	2.6	0.6	0.3	-	0.5
<i>Hyas</i> sp.	-	-	3.8	0.5	-	9.9	3.6	8.2	-	3.5
<i>Cancer</i> spp.	0.3	0.2	-	-	8.0	-	-	4.6	-	1.1
Decapoda unid.	0.5	0.2	2.3	1.7	4.0	0.5	0.3	3.7	<0.1	1.2
Crustacea unid.	(5.1)	(5.4)	(6.4)	(10.0)	(2.0)	(1.4)	(<0.1)	(1.2)	(1.3)	(1.2)
AGNATHA	-	-	-	-	-	-	[1.3]	-	-	[0.3]
CHONDRICHTHYES	-	-	-	-	-	-	-	[15.1]	-	[2.3]
OSTEICHTHYES	[3.1]	[3.7]	[0.1]	-	[22.8]	[51.1]	[60.9]	[29.5]	[45.1]	[45.3]
<i>Clupea harengus</i>	-	-	-	-	-	36.5	-	-	20.8	12.9
<i>Clupea</i> sp.	-	-	-	-	-	-	25.5	-	-	6.5
<i>Ammodytes dubius</i>	-	-	-	-	-	8.2	13.2	2.0	-	4.7
Scombridae	-	-	-	-	-	-	-	-	1.9	0.7
Anarhichadidae	-	-	-	-	4.2	-	-	-	-	0.2
Cottidae	-	-	-	-	-	4.6	0.3	-	-	0.7
<i>Cryptacanthodes maculatus</i>	-	-	-	-	-	-	1.3	15.5	-	2.7
<i>Lumpenus maculatus</i>	-	-	-	-	-	-	7.7	-	-	1.9
<i>Scophthalmus</i> sp.	-	-	-	-	-	-	-	-	7.3	2.9
Pleuronectidae	3.1	3.1	-	-	-	-	-	-	-	<0.1
Osteichthyes eggs	-	-	-	-	-	-	6.1	-	-	1.5
Osteichthyes unid.	-	0.6	0.1	-	18.6	1.8	6.8	12.0	15.1	10.6
ANIMAL REMAINS AND MISC.	[13.5]	[24.2]	[4.1]	[29.7]	[7.0]	[6.1]	[5.5]	[8.5]	[4.8]	[5.5]
Number sampled	31	16	30	29	36	36	42	31	18	269
Number empty	2	0	6	3	3	4	6	0	2	26
Mean stomach content (g)	0.241	0.434	1.170	0.670	3.098	9.065	15.467	12.595	56.514	9.532
Mean fish length (cm)	16	26	34	45	55	65	75	85	95	56

Table B-12b. Diet composition and sampling data for thorny skate by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area			
	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras
CEPHALOPODA	[6.4]	[32.6]	[16.3]	[<0.1]
<i>Illex</i> sp.	1.4	10.9	-	-
<i>Loligo</i> sp.	-	16.4	-	-
Octopoda	-	0.9	-	-
Cephalopoda unid.	5.0	4.4	16.3	<0.1
ANNELIDA	[5.6]	[8.5]	[45.5]	[29.6]
Aphroditidae	1.7	1.1	12.9	5.9
<i>Nephtys</i> spp.	1.6	1.3	20.6	3.1
Nephtyidae	<0.1	1.3	-	<0.1
<i>Nereis</i> sp.	-	-	-	18.0
Annelida unid.	2.3	4.8	12.0	2.6
CRUSTACEA	[17.5]	[10.7]	[20.7]	[4.0]
Isopoda	(<0.1)	(<0.1)	-	(<0.1)
Amphipoda	(0.2)	(<0.1)	(4.5)	(0.3)
Euphausiacea	(<0.1)	(3.5)	(0.2)	(<0.1)
<i>Meganyctiphanes norvegica</i>	<0.1	3.5	0.2	<0.1
Decapoda	(17.1)	(5.8)	(10.9)	(3.5)
<i>Dichelopandalus leptocerus</i>	0.2	1.2	4.9	0.1
Pandalidae	-	1.3	-	0.2
<i>Crangon septemspinosa</i>	0.2	<0.1	-	0.9
Axiidae	-	0.9	3.3	0.9
Paguridae	2.1	<0.1	-	<0.1
<i>Hyas</i> sp.	13.3	-	1.0	0.7
<i>Cancer</i> spp.	<0.1	1.6	-	-
Decapoda unid.	1.3	0.8	1.7	0.7
Crustacea unid.	(0.2)	(1.4)	(5.1)	(0.2)
AGNATHA	-	[0.5]	-	-
CHONDRICHTHYES	[8.9]	-	-	-
OSTEICHTHYES	[59.2]	[38.3]	[15.4]	[64.8]
<i>Clupea harengus</i>	-	13.0	-	57.8
<i>Clupea</i> sp.	25.0	-	-	-
<i>Ammodytes dubius</i>	18.2	-	-	-
Scombridae	-	1.2	-	-
Anarhichadidae	-	-	7.8	-
Cottidae	0.2	0.9	-	-
<i>Cryptacanthodes maculatus</i>	<0.1	4.2	-	-
<i>Lumpenus maculatus</i>	-	3.0	-	-
<i>Scophthalmus</i> sp.	-	4.5	-	-
Pleuronectidae	<0.1	-	-	-
Osteichthyes eggs	6.0	-	-	-
Osteichthyes unid.	9.8	11.5	7.6	7.0
ANIMAL REMAINS AND MISC.	[2.4]	[9.4]	[2.1]	[1.6]
Number sampled	67	156	16	30
Number empty	5	18	1	2
Mean stomach content (g)	9.861	10.491	3.794	6.871
Mean fish length (cm)	50	59	56	52

Table B-13. Diet composition and sampling data for smooth skate by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	<26	26-30	31-35	36-40	41-45	46-50	51-55	56-60	>60	
NEMATODA	-	-	-	-	[0.7]	-	-	[0.1]	-	[0.1]
CRUSTACEA	[56.7]	[72.2]	[100.0]	[93.2]	[99.3]	[100.0]	[99.5]	[98.2]	[100.0]	[96.6]
Isopoda	-	-	-	-	-	-	(23.2)	-	-	(1.5)
Amphipoda	-	(0.8)	-	-	-	-	-	-	-	[<0.1]
Mysidacea	-	(5.3)	-	-	-	(0.1)	-	-	-	(<0.1)
<i>Erythrops erythrophthalma</i>	-	1.1	-	-	-	0.1	-	-	-	<0.1
<i>Pseudomma affine</i>	-	4.2	-	-	-	-	-	-	-	<0.1
Euphausiacea	(56.7)	(51.2)	-	-	-	-	-	(66.0)	-	(23.1)
<i>Meganyctiphanes norvegica</i>	56.7	51.2	-	-	-	-	-	66.0	-	23.1
Decapoda	-	-	(55.8)	(93.2)	(97.9)	(97.5)	(51.3)	(29.5)	(100.0)	(69.2)
<i>Dichelopandalus leptocerus</i>	-	-	-	41.6	97.9	5.5	-	-	-	15.7
<i>Pandalus borealis</i>	-	-	-	51.1	-	-	-	22.8	-	14.4
<i>Pandalus montagui</i>	-	-	-	0.5	-	7.4	-	-	-	2.0
Pandalidae	-	-	-	-	-	43.5	-	<0.1	-	11.5
<i>Crangon septemspinosa</i>	-	-	-	-	-	10.9	-	-	-	2.9
Paguridae	-	-	-	-	-	-	51.3	-	-	3.3
<i>Cancer borealis</i>	-	-	-	-	-	-	-	4.0	-	1.4
<i>Cancer irroratus</i>	-	-	-	-	-	4.5	-	-	-	1.2
Shrimp unid.	-	-	-	-	-	-	-	2.7	100.0	8.9
Decapoda unid.	-	-	55.8	-	-	25.7	-	-	-	7.9
Crustacea unid.	-	(14.9)	(44.2)	-	(1.4)	(2.4)	(25.0)	(2.7)	-	(4.3)
OSTEICHTHYES	-	-	-	-	-	-	[0.3]	-	-	[<0.1]
ANIMAL REMAINS	[43.3]	[27.8]	-	[6.8]	-	-	[0.2]	[1.7]	-	[3.3]
Number sampled	1	6	2	3	3	5	4	4	1	29
Number empty	0	3	1	1	1	1	1	0	0	8
Mean stomach content (g)	0.171	0.088	0.641	2.900	2.028	3.545	1.089	5.734	5.383	2.316
Mean fish length (cm)	17	27	33	37	42	49	53	58	66	43

Table B-14. Diet composition and sampling data for bluntnose stingray by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)				Total
	21-40	41-60	61-80	>80	
CESTODA	-	[<0.1]	-	-	[<0.1]
MOLLUSCA	-	[91.4]	[19.3]	[0.1]	[19.7]
<i>Spisula solidissima</i>	-	-	0.4	0.1	<0.1
Bivalvia	-	91.4	18.9	-	19.7
POLYCHAETA	[1.1]	[0.1]	[11.6]	[0.2]	[10.2]
<i>Nereis</i> sp.	-	-	-	0.2	<0.1
Polychaeta unid.	1.1	0.1	11.6	-	10.2
SIPUNCULA	-	-	[2.2]	-	[2.0]
<i>Golfingia</i> sp.	-	-	2.2	-	2.0
CRUSTACEA	[85.2]	[0.7]	[19.0]	[97.1]	[24.2]
Amphipoda	(77.4)	(0.4)	-	-	(0.4)
<i>Ampelisca macrocephala</i>	49.5	-	-	-	0.1
<i>Ampelisca verrilli</i>	15.2	-	-	-	0.2
<i>Unciola</i> sp.	-	<0.1	-	-	<0.1
Gammaridea	9.6	-	-	-	0.1
Amphipoda unid.	3.1	0.4	-	-	<0.1
Euphausiacea	-	-	-	(1.8)	(0.1)
<i>Meganyctiphanes norvegica</i>	-	-	-	1.7	0.1
Euphausiacea unid.	-	-	-	0.1	<0.1
Decapoda	(2.3)	(0.3)	(18.5)	(95.3)	(23.2)
Hippolytidae	-	-	-	<0.1	<0.1
<i>Crangon septemspinosa</i>	2.3	0.3	-	20.0	1.5
<i>Callinassa setimanus</i>	-	-	14.2	-	12.5
<i>Callinassa</i> sp.	-	-	0.2	-	0.1
Callinassidae	-	-	3.6	-	3.2
<i>Cancer irroratus</i>	-	-	-	9.3	0.7
<i>Munida iris</i>	-	-	-	0.2	<0.1
<i>Munida valida</i>	-	-	-	2.0	0.1
<i>Ranilia muricata</i>	-	-	-	49.0	3.6
Decapoda unid.	-	-	0.5	14.8	1.5
Crustacea unid.	(5.5)	-	(0.5)	-	(0.5)
OSTEICHTHYES	[<0.1]	-	[46.2]	[0.2]	[40.9]
<i>Anchoa mitchilli</i>	-	-	0.5	-	0.4
<i>Osmerus mordax</i>	-	-	-	0.2	<0.1
<i>Leiostomus xanthurus</i>	-	-	39.4	-	34.9
<i>Stenotomus chrysops</i>	-	-	6.2	-	5.5
Osteichthyes eggs	<0.1	-	-	-	<0.1
Osteichthyes unid.	-	-	0.1	-	0.1
ANIMAL REMAINS	[12.3]	[7.8]	[1.7]	[2.4]	[3.0]
SAND	[1.4]	-	-	-	[<0.1]
Number sampled	8	7	8	3	26
Number empty	3	1	0	0	4
Mean stomach content (g)	0.572	2.068	48.777	10.689	16.974
Mean fish length (cm)	26	51	72	119	58

Table B-15a. Diet composition and sampling data for alewife by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)						Total
	6-10	11-15	16-20	21-25	26-30	31-35	
CNIDARIA	-	-	-	[0.9]	[2.1]	-	[1.5]
CHAETOGNATHA	-	-	[0.3]	[1.3]	[0.8]	-	[0.9]
MOLLUSCA	-	-	-	<0.1]	[0.4]	[0.3]	[0.3]
Opisthobranchia	-	-	-	-	0.2	<0.1	0.1
Gastropoda	-	-	-	<0.1	0.1	0.3	0.1
Cephalopoda	-	-	-	-	0.1	-	0.1
CRUSTACEA	[98.5]	[99.8]	[79.2]	[89.1]	[90.2]	[37.7]	[88.7]
Copepoda	(67.5)	(29.6)	(17.2)	(27.2)	(17.7)	(10.5)	(21.3)
<i>Candacia armata</i>	-	-	-	-	<0.1	0.6	<0.1
Calanoida	5.6	14.4	4.4	3.1	8.6	1.6	6.3
Copepoda unid.	61.9	15.2	12.8	24.1	9.1	8.3	15.0
Amphipoda	(0.8)	(0.5)	(0.4)	(3.4)	(6.5)	(8.3)	(5.2)
<i>Hyperia glaba</i>	-	-	-	-	-	0.4	<0.1
<i>Parathemisto</i> sp.	-	-	<0.1	1.9	5.2	7.9	3.7
Hyperiidæ	0.8	0.5	0.4	<0.1	<0.1	<0.1	0.1
<i>Unciola</i> sp.	-	-	-	-	<0.1	-	<0.1
<i>Rhachotropis oculata</i>	-	-	-	<0.1	<0.1	-	<0.1
<i>Gammarus</i> sp.	-	-	-	0.2	0.2	-	0.2
<i>Protohaustorius wigleyi</i>	-	<0.1	-	-	-	-	<0.1
<i>Monoculodes</i> sp.	-	-	-	0.4	<0.1	-	0.2
<i>Leptocheirus pinguis</i>	-	-	-	-	<0.1	-	<0.1
<i>Pontogeneia inermis</i>	-	-	-	<0.1	<0.1	-	<0.1
Amphipoda unid.	-	-	-	0.9	1.1	-	1.0
Mysidacea	-	-	-	(6.1)	(2.9)	-	(3.8)
<i>Neomysis americana</i>	-	-	-	5.8	2.9	-	3.7
Mysidacea unid.	-	-	-	0.3	-	-	0.1
Euphausiacea	-	(27.1)	(19.7)	(45.1)	(53.9)	(2.3)	(47.1)
<i>Meganyctiphanes norvegica</i>	-	10.1	19.7	39.6	51.8	2.1	43.7
Euphausiacea unid.	-	17.0	-	5.5	2.1	0.2	3.4
Decapoda	-	(0.4)	(1.8)	(3.9)	(1.7)	(<0.1)	(2.5)
<i>Dichelopandalus leptocerus</i>	-	-	-	-	0.2	-	0.1
<i>Crangon septemspinosa</i>	-	-	-	<0.1	-	-	<0.1
Paguroidea	-	-	0.1	<0.1	<0.1	-	<0.1
Decapoda larvae	-	0.4	1.7	3.9	1.5	<0.1	2.4
Crustacea unid.	(30.2)	(42.2)	(40.1)	(3.4)	(7.5)	(16.6)	(8.8)
THALIACEA	-	-	-	[0.4]	[1.4]	[6.1]	[1.0]
Salpidae	-	-	-	0.2	<0.1	6.1	0.2
Thaliacea unid.	-	-	-	0.2	1.4	-	0.8
LARVACEA	-	-	-	-	[0.2]	[4.4]	[0.2]
OSTEICHTHYES	-	-	[17.6]	[0.8]	[0.4]	-	[1.7]
<i>Ammodytes dubius</i>	-	-	15.0	-	-	-	1.0
Osteichthyes unid.	-	-	2.6	0.8	0.4	-	0.7
ANIMAL REMAINS AND MISC.	[1.5]	[0.2]	[2.9]	[7.5]	[4.5]	[51.5]	[5.7]
Number sampled	11	25	40	70	87	7	240
Number empty	0	5	8	5	9	1	28
Mean stomach content (g)	0.011	0.100	0.276	0.905	1.056	0.484	0.718
Mean fish length (cm)	8	13	18	23	27	32	22

Table B-15b. Diet composition and sampling data for alewife by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area					Inshore North of Cape Hatteras
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	
CNIDARIA	-	-	-	-	-	[9.6]
CHAETOGNATHA	[36.4]	-	-	[<0.1]	-	[0.1]
MOLLUSCA	[2.5]	[0.3]	-	[0.2]	-	-
Opisthobranchia	-	-	-	0.2	-	-
Gastropoda	-	0.3	-	<0.1	-	-
Cephalopoda	2.5	-	-	-	-	-
CRUSTACEA	[56.5]	[92.4]	[82.1]	[93.1]	[99.9]	[68.3]
Copepoda	(28.6)	(46.6)	-	(8.6)	-	(42.2)
<i>Candacia armata</i>	-	-	-	<0.1	-	-
Calanoida	28.6	2.6	-	1.7	-	26.3
Copepoda unid.	-	44.0	-	6.9	-	15.9
Amphipoda	(8.4)	(15.2)	(79.3)	(1.3)	-	(<0.1)
<i>Hyperia glaba</i>	-	-	-	<0.1	-	-
<i>Parathemisto</i> sp.	7.6	13.8	-	1.3	-	<0.1
Hyperiididae	0.8	-	-	<0.1	-	<0.1
<i>Unciola</i> sp.	-	-	<0.1	-	-	-
<i>Rhachotropis oculata</i>	-	-	1.3	-	-	-
<i>Gammarus</i> sp.	-	1.1	-	-	-	-
<i>Monoculodes</i> sp.	-	-	12.1	-	-	-
<i>Leptocheirus pinguis</i>	-	-	<0.1	-	-	-
<i>Pontogeneia inermis</i>	-	-	0.6	-	-	-
Amphipoda unid.	-	0.3	65.3	-	-	-
Mysidacea	-	(19.0)	-	-	-	-
<i>Neomysis americana</i>	-	18.4	-	-	-	-
Mysidacea unid.	-	0.6	-	-	-	-
Euphausiacea	-	(5.9)	-	(70.9)	(99.9)	(7.1)
<i>Meganyctiphanes norvegica</i>	-	5.7	-	64.8	99.9	7.1
Euphausiacea unid.	-	0.2	-	6.1	-	<0.1
Decapoda	-	(0.7)	(0.3)	(<0.1)	-	(15.4)
<i>Dichelopandalus leptocerus</i>	-	0.7	-	-	-	-
<i>Crangon septemspinosa</i>	-	<0.1	0.3	-	-	-
Paguroidea	-	-	-	-	-	0.2
Decapoda larvae	-	-	-	<0.1	-	15.2
Crustacea unid.	(19.5)	(5.0)	(2.5)	(12.3)	-	(3.6)
THALIACEA	-	-	-	[0.4]	-	[5.2]
Salpidae	-	-	-	0.4	-	-
Thaliacea unid.	-	-	-	-	-	5.2
LARVACEA	-	-	-	[0.3]	-	-
OSTEICHTHYES	[1.9]	[2.0]	[0.4]	[0.1]	-	[7.3]
<i>Ammodytes dubius</i>	-	-	-	-	-	6.2
Osteichthyes unid.	1.9	2.0	0.4	0.1	-	1.1
ANIMAL REMAINS AND MISC.	[2.7]	[5.3]	[17.5]	[5.9]	[0.1]	[9.5]
Number sampled	10	26	10	126	5	64
Number empty	0	7	1	15	1	5
Mean stomach content (g)	0.431	1.317	0.238	0.749	2.059	0.417
Mean fish length (cm)	25	25	26	20	29	23

Table B-16. Diet composition and sampling data for Atlantic menhaden by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)			Total
	16-20	21-25	26-30	
FORAMINIFERA	[2.3]	-	-	[0.2]
CRUSTACEA	[14.4]	[57.5]	[19.5]	[49.8]
Copepoda	(12.5)	(45.2)	(19.5)	(39.6)
Calanoida	12.5	44.7	19.5	39.2
Copepoda unid.	-	0.5	-	0.4
Mysidacea	-	(12.0)	-	(9.7)
<i>Neomysis americana</i>	-	12.0	-	9.7
Decapoda	(1.9)	(0.3)	-	(0.5)
<i>Pagurus</i> sp.	-	<0.1	-	0.1
<i>Pagurus</i> larvae	1.5	-	-	0.1
Decapoda larvae	0.4	0.3	-	0.3
Crustacea larvae	-	(<0.1)	-	(<0.1)
ANIMAL REMAINS	[29.1]	[9.4]	[80.5]	[18.1]
SAND	[54.2]	[33.1]	-	[31.9]
Number sampled	11	15	6	32
Number empty	3	0	0	3
Mean stomach content (g)	0.024	0.151	0.045	0.087
Mean fish length (cm)	17	22	26	21

Table B-17a. Diet composition and sampling data for Atlantic herring by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)					Total
	11-15	16-20	21-25	26-30	31-35	
TREMATODA	-	-	[<0.1]	-	-	[<0.1]
CHAETOGNATHA	-	-	[15.1]	[4.0]	-	[7.5]
GASTROPODA	-	-	[<0.1]	-	-	[<0.1]
CRUSTACEA	[98.9]	[95.9]	[68.6]	[93.4]	[98.4]	[85.2]
Copepoda	(0.6)	-	(2.6)	(4.2)	(98.4)	(3.8)
<i>Calanus</i> sp.	-	-	-	<0.1	-	<0.1
Calanoida	0.6	-	1.1	0.1	16.1	0.5
Copepoda unid.	-	-	1.5	4.1	82.3	3.3
Cirripedia	-	-	(<0.1)	-	-	(<0.1)
Cumacea	-	-	(0.3)	-	-	(0.1)
Diastylidae	-	-	0.3	-	-	0.1
Amphipoda	(1.2)	(8.5)	(1.2)	(5.1)	-	(3.7)
<i>Parathemisto gaudichaudii</i>	-	-	0.4	4.8	-	3.0
<i>Parathemisto</i> sp.	-	0.1	0.8	0.3	-	0.4
Hyperiididae	1.2	8.4	<0.1	-	-	0.3
<i>Calliopius laeviusculus</i>	-	-	<0.1	<0.1	-	<0.1
Gammaridea	-	-	<0.1	-	-	<0.1
Mysidacea	-	-	(<0.1)	-	-	(<0.1)
<i>Erythrops erythrophthalma</i>	-	-	<0.1	-	-	<0.1
<i>Mysidopsis bigelowi</i>	-	-	<0.1	-	-	<0.1
Euphausiacea	(83.6)	(43.2)	(62.9)	(83.8)	-	(75.1)
<i>Euphausia</i> sp.	-	-	1.1	-	-	0.4
<i>Meganyctiphanes norvegica</i>	1.5	10.3	37.0	82.0	-	61.8
<i>Thysanoessa raschii</i>	81.9	-	10.4	1.8	-	7.0
Euphausiacea unid.	0.2	32.9	14.4	-	-	5.9
Decapoda	(0.3)	-	(<0.1)	(<0.1)	-	(<0.1)
Decapoda larvae	0.3	-	<0.1	<0.1	-	<0.1
Decapoda unid.	-	-	-	<0.1	-	<0.1
Crustacea larvae	-	-	(<0.1)	-	-	(<0.1)
Crustacea unid.	(13.2)	(44.2)	(1.6)	(0.3)	-	(2.5)
OSTEICHTHYES	-	-	-	[<0.1]	-	[<0.1]
<i>Pholis gunnellus</i>	-	-	-	<0.1	-	<0.1
ANIMAL REMAINS	[0.7]	[4.1]	[16.3]	[2.6]	[1.6]	[7.3]
ROCK	[0.4]	-	-	-	-	[<0.1]
Number sampled	21	18	51	45	4	139
Number empty	4	2	12	11	2	31
Mean stomach content (g)	0.101	0.126	0.472	0.946	0.076	0.513
Mean fish length (cm)	13	17	23	27	31	22

Table B-17b. Diet composition and sampling data for Atlantic herring by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area				
	Georges Bank	Gulf of Maine	Scotian Shelf	Offshore South of Cape Hatteras	Inshore North of Cape Hatteras
TREMATODA	[<0.1]	-	-	-	-
CHAETOGNATHA	[58.0]	-	-	-	-
GASTROPODA	-	[<0.1]	-	-	-
CRUSTACEA	[4.3]	[97.6]	[97.2]	-	[2.3]
Copepoda	(2.8)	(4.5)	(0.3)	-	(2.3)
<i>Calanus</i> sp.	-	<0.1	-	-	-
Calanoida	2.8	0.2	0.3	-	2.3
Copepoda unid.	-	4.3	-	-	-
Cirripedia	-	(<0.1)	-	-	-
Cumacea	-	(0.1)	-	-	-
Diastylidae	-	0.1	-	-	-
Amphipoda	(1.3)	(4.7)	(0.1)	-	-
<i>Parathemisto gaudichaudii</i>	1.1	3.7	0.1	-	-
<i>Parathemisto</i> sp.	-	0.6	-	-	-
Hyperiididae	<0.1	0.4	-	-	-
<i>Calliopius laeviusculus</i>	0.2	-	-	-	-
Gammaridea	-	<0.1	-	-	-
Mysidacea	(<0.1)	(<0.1)	-	-	-
<i>Erythrops erythrophthalma</i>	-	<0.1	-	-	-
<i>Mysidopsis bigelowi</i>	<0.1	-	-	-	-
Euphausiacea	(0.2)	(85.7)	(92.1)	-	-
<i>Euphausia</i> sp.	-	-	3.6	-	-
<i>Meganyctiphanes norvegica</i>	-	80.4	-	-	-
<i>Thysanoessa raschii</i>	0.2	4.6	34.8	-	-
Euphausiacea unid.	-	0.7	53.7	-	-
Decapoda	-	(<0.1)	-	-	-
Decapoda larvae	-	<0.1	-	-	-
Decapoda unid.	-	<0.1	-	-	-
Crustacea larvae	(<0.1)	-	-	-	-
Crustacea unid.	(<0.1)	(2.6)	(4.7)	-	-
OSTEICHTHYES	-	[<0.1]	-	-	-
<i>Pholis gunnellus</i>	-	<0.1	-	-	-
ANIMAL REMAINS	[37.7]	[2.4]	[2.8]	[100.0]	[97.7]
ROCK	-	[<0.1]	-	-	-
Number sampled	10	91	22	6	10
Number empty	0	19	2	3	8
Mean stomach content (g)	0.923	0.603	0.326	0.001	0.009
Mean fish length (cm)	24	23	19	15	27

Table B-18. Diet composition and sampling data for round herring by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)			Total
	6-10	11-15	16-20	
GASTROPODA	-	[<0.1]	-	[<0.1]
CRUSTACEA	[80.6]	[65.0]	[57.7]	[62.6]
Copepoda	(26.4)	(41.7)	(1.6)	(27.7)
<i>Candacia armata</i>	-	0.3	-	0.2
Calanoida	26.4	10.4	-	6.9
Copepoda unid.	-	31.0	1.6	20.6
Cirripedia larvae (cypris)	-	(<0.1)	-	(<0.1)
Stomatopoda	-	(0.5)	-	(0.4)
Amphipoda	-	(0.6)	(2.7)	(1.3)
Hyperiididae	-	<0.1	-	<0.1
<i>Ampelisca</i> sp.	-	-	0.1	<0.1
<i>Byblis serrata</i>	-	<0.1	0.2	0.1
<i>Gammarus lawrencianus</i>	-	0.6	2.4	1.2
Mysidacea	-	(3.7)	(15.6)	(7.8)
<i>Neomysis americana</i>	-	3.7	15.6	7.8
Mysidacea unid.	-	<0.1	-	<0.1
Decapoda	-	(16.2)	(31.0)	(21.3)
<i>Lucifer faxoni</i>	-	0.2	0.1	0.2
Decapoda larvae	-	16.0	29.4	20.6
Shrimp	-	<0.1	-	<0.1
Decapoda unid.	-	-	1.5	0.5
Crustacea larvae	-	(0.2)	(4.4)	(1.6)
Crustacea unid.	(54.2)	(2.1)	(2.4)	(2.5)
OSTEICHTHYES	-	[27.9]	[42.3]	[32.8]
Pleuronectiformes	-	0.8	-	0.5
Osteichthyes larvae	-	11.8	-	7.7
Osteichthyes unid.	-	15.3	42.3	24.6
ANIMAL REMAINS	[19.4]	[7.1]	-	[4.6]
Number sampled	12	81	5	98
Number empty	1	14	0	15
Mean stomach content (g)	0.006	0.113	0.978	0.144
Mean fish length (cm)	9	11	17	11

Table B-19. Diet composition and sampling data for Atlantic argentine by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)						Total
	16-20	21-25	26-30	31-35	36-40	41-45	
HYDROZOA	-	-	-	[3.5]	[2.7]	-	[1.2]
Siphonophora	-	-	-	3.5	2.7	-	1.2
CTENOPHORA	-	[9.2]	[0.9]	-	-	-	[1.8]
TREMATODA	-	-	[<0.1]	-	-	-	[<0.1]
NEMATODA	-	[<0.1]	[<0.1]	[<0.1]	-	-	[<0.1]
CHAETOGNATHA	-	[7.3]	[0.6]	-	-	-	[1.4]
CEPHALOPODA	-	-	-	[1.4]	-	-	[0.5]
POLYCHAETA	[52.8]	-	[0.1]	-	-	-	[1.0]
<i>Trochochaeta</i> sp.	-	-	0.1	-	-	-	0.1
Polychaeta unid.	52.8	-	-	-	-	-	0.9
CRUSTACEA	[40.5]	[9.0]	[86.3]	[79.9]	[85.0]	[100.0]	[72.4]
Copepoda	-	-	-	(1.1)	(37.2)	-	(0.9)
Isopoda	-	-	(0.2)	-	-	-	(0.1)
Amphipoda	-	(2.3)	(2.3)	(0.5)	-	-	(1.8)
<i>Hyperia glaba</i>	-	0.2	0.8	-	-	-	0.4
<i>Hyperia</i> sp.	-	-	-	0.4	-	-	0.1
<i>Parathemisto gaudichaudii</i>	-	-	0.4	-	-	-	0.2
<i>Parathemisto</i> sp.	-	1.3	0.4	0.1	-	-	0.5
Hyperiididae	-	0.1	0.7	<0.1	-	-	0.4
Gammaridea	-	0.4	-	-	-	-	0.1
Amphipoda unid.	-	0.3	-	-	-	-	0.1
Euphausacea	(40.5)	(4.8)	(77.9)	(76.5)	(47.8)	(100.0)	(65.8)
<i>Meganyctiphanes norvegica</i>	40.5	4.8	77.9	75.6	47.8	100.0	65.5
Euphausacea unid.	-	-	-	0.9	-	-	0.3
Decapoda	-	(0.4)	(2.6)	(0.7)	-	-	(1.6)
Shrimp unid.	-	-	2.6	-	-	-	1.3
Decapoda larvae	-	0.4	<0.1	-	-	-	0.1
Decapoda unid.	-	-	-	0.7	-	-	0.2
Crustacea unid.	-	(1.5)	(3.3)	(1.1)	-	-	(2.2)
THALIACEA	-	-	-	[2.6]	-	-	[0.8]
Salpidae	-	-	-	2.6	-	-	0.8
OSTEICHTHYES	-	[41.2]	[4.8]	[5.6]	-	-	[10.3]
<i>Maurolucus muelleri</i>	-	-	-	4.2	-	-	1.4
Osteichthyes unid.	-	41.2	4.8	1.4	-	-	8.9
ANIMAL REMAINS	-	[33.3]	[7.3]	[7.0]	[12.3]	-	[10.5]
ROCK	[6.7]	-	-	-	-	-	[0.1]
Number sampled	4	24	54	69	27	6	184
Number empty	2	6	24	49	22	5	108
Mean stomach content (g)	0.126	0.178	0.266	0.137	0.015	0.027	0.158
Mean fish length (cm)	18	23	28	33	38	41	31

Table B-20. Diet composition and sampling data for cusk by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)						Total
	<51	51-60	61-70	71-80	81-90	91-100	
TREMATODA	-	-	[<0.1]	[<0.1]	-	-	[<0.1]
MOLLUSCA	-	-	[0.1]	[1.0]	-	-	[0.1]
Cephalopoda	-	-	-	1.0	-	-	0.1
Mollusca unid.	-	-	0.1	-	-	-	<0.1
ANNELIDA	[14.9]	-	[<0.1]	-	-	-	[2.2]
Onuphidae	0.3	-	-	-	-	-	<0.1
Polychaeta	-	-	<0.1	-	-	-	<0.1
Annelida unid.	14.6	-	-	-	-	-	2.2
CRUSTACEA	[85.1]	[100.0]	[3.9]	[46.1]	[40.7]	[89.4]	[51.4]
Isopoda	-	-	-	-	(6.1)	-	(0.4)
<i>Cirolana</i> sp.	-	-	-	-	6.1	-	0.4
Amphipoda	(2.1)	-	-	-	-	-	(0.3)
Caprellidae	2.0	-	-	-	-	-	0.3
Gammaridea	0.1	-	-	-	-	-	<0.1
Euphausiacea	(1.9)	(100.0)	(0.9)	(9.4)	-	-	(1.8)
<i>Meganyctiphanes norvegica</i>	1.9	-	-	9.4	-	-	1.0
Euphausiacea unid.	-	100.0	0.9	-	-	-	0.8
Decapoda	(77.1)	-	(3.0)	(36.7)	(27.0)	(89.4)	(47.7)
<i>Spirontocaris liljeborgii</i>	-	-	3.0	-	-	-	1.1
Hippolytidae	-	-	-	36.7	-	-	2.7
<i>Dichelopandalus leptocerus</i>	-	-	-	-	-	25.2	8.6
Pandalidae	-	-	-	-	27.0	-	1.9
<i>Crangon septemspinosa</i>	31.9	-	-	-	-	-	4.8
Paguridae	45.2	-	-	-	-	-	6.8
Majidae	-	-	-	-	-	64.2	21.8
Crustacea unid.	(4.0)	-	-	-	(7.6)	-	(1.2)
ECHINODERMATA	-	-	[37.5]	-	[20.1]	-	[15.0]
<i>Ophiura sarsi</i>	-	-	37.5	-	-	-	13.6
<i>Ophiura</i> sp.	-	-	-	-	20.1	-	1.4
OSTEICHTHYES	[<0.1]	-	[42.6]	[<0.1]	-	-	[15.5]
<i>Artediellus uncinatus</i>	-	-	26.7	-	-	-	9.7
Osteichthyes scales	<0.1	-	-	<0.1	-	-	<0.1
Osteichthyes unid.	-	-	15.9	-	-	-	5.8
ANIMAL REMAINS	-	-	[8.2]	[25.8]	[39.2]	[10.6]	[11.0]
ROCK	-	-	[7.7]	[27.1]	-	-	[4.8]
Number sampled	9	6	9	8	11	6	49
Number empty	5	5	4	5	5	3	27
Mean stomach content (g)	0.385	0.016	0.925	0.210	0.148	1.307	0.470
Mean fish length (cm)	43	58	63	72	85	96	69

Table B-21a. Diet composition and sampling data for Atlantic cod by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	>80	
CNIDARIA	-	-	-	[2.4]	[<0.1]	[1.7]	[0.2]	[0.3]	-	[0.2]
MOLLUSCA	-	[18.4]	[<0.1]	[2.8]	[5.6]	[9.5]	[23.3]	[40.2]	[10.7]	[14.9]
Pectinidae	-	(17.9)	-	-	(1.1)	(<0.1)	(0.5)	(3.2)	-	(0.6)
Cephalopoda	-	-	-	-	-	(4.6)	(19.7)	(32.7)	(9.8)	(12.5)
<i>Illex illecebrosus</i>	-	-	-	-	-	-	7.1	14.5	8.8	2.4
<i>Loligo</i> sp.	-	-	-	-	-	-	-	11.1	0.9	1.9
Cephalopoda unid.	-	-	-	-	-	4.6	12.6	7.1	0.1	8.2
Mollusca unid.	-	(0.5)	(<0.1)	(2.8)	(4.5)	(4.9)	(3.1)	(4.3)	(0.9)	(1.8)
POLYCHAETA	[0.5]	[0.7]	[10.4]	[2.4]	[2.7]	[0.8]	[1.3]	[0.3]	[2.3]	[2.5]
CRUSTACEA	[92.9]	[80.6]	[43.2]	[45.1]	[49.3]	[41.8]	[30.3]	[35.2]	[12.8]	[21.1]
Amphipoda	(6.4)	(26.2)	(20.6)	(4.8)	(3.3)	(2.7)	(1.5)	(1.0)	(0.4)	(1.2)
<i>Aeginina longicornis</i>	-	-	5.3	0.1	-	<0.1	<0.1	-	-	0.1
<i>Unciola irrorata</i>	-	8.0	3.9	1.1	0.9	<0.1	<0.1	0.7	<0.1	0.2
<i>Leptocheirus pinguis</i>	0.3	15.4	5.4	1.2	1.1	0.2	<0.1	<0.1	-	0.1
Amphipoda unid.	6.1	2.8	6.0	2.4	1.3	2.5	1.5	0.3	0.4	0.8
Mysidacea	(79.6)	-	(0.6)	-	(<0.1)	(<0.1)	-	-	-	(0.1)
Euphausiacea	(0.4)	(4.3)	(<0.1)	(2.4)	(6.3)	(6.4)	(2.1)	(<0.1)	(<0.1)	(0.9)
<i>Meganyctiphanes norvegica</i>	0.4	4.3	<0.1	2.4	6.3	6.4	2.1	<0.1	<0.1	0.9
Decapoda	(2.7)	(34.5)	(19.4)	(34.3)	(32.9)	(30.2)	(23.8)	(32.2)	(12.2)	(17.8)
<i>Dichelopandalus leptocerus</i>	0.6	-	1.2	1.8	4.8	0.7	0.4	0.7	0.2	0.5
<i>Pandalus borealis</i>	-	-	-	0.3	1.3	2.1	2.9	0.6	<0.1	0.5
<i>Crangon septemspinosa</i>	0.1	7.3	10.6	6.0	1.0	0.6	0.1	<0.1	<0.1	0.3
<i>Pagurus</i> spp.	-	-	0.6	2.9	2.8	2.8	2.3	1.2	0.2	0.8
<i>Hyas</i> spp.	-	25.1	2.8	2.8	6.1	2.8	3.1	6.1	0.2	1.6
<i>Cancer borealis</i>	-	-	-	1.3	3.6	8.4	5.1	6.9	3.5	4.3
<i>Cancer irroratus</i>	-	-	2.0	7.2	9.2	9.2	7.0	6.7	5.6	6.2
Decapoda unid.	2.0	2.1	2.2	12.0	4.1	3.6	2.9	10.0	2.5	3.6
Crustacea unid.	(3.8)	(15.6)	(2.6)	(3.6)	(6.8)	(2.5)	(2.9)	(2.0)	(0.2)	(1.1)
ECHINODERMATA	-	-	[1.9]	[0.6]	[5.5]	[4.4]	[1.7]	[2.2]	[0.3]	[1.1]
CHORDATA	-	-	[40.2]	[39.3]	[24.8]	[36.4]	[38.8]	[20.1]	[70.3]	[56.8]
<i>Squalus acanthias</i>	-	-	-	-	-	-	-	-	6.9	4.6
Clupeidae	-	-	-	-	-	-	4.4	9.7	6.5	5.9
<i>Gadus morhua</i>	-	-	-	-	-	-	-	-	6.2	4.1
<i>Merluccius bilinearis</i>	-	-	-	17.2	-	4.1	-	-	6.2	4.7
Gadidae	-	-	-	-	0.8	15.0	0.3	-	-	1.2
<i>Ammodytes dubius</i>	-	-	-	10.8	11.1	7.2	16.9	4.4	13.0	11.5
<i>Macrozoarces americanus</i>	-	-	-	-	-	-	-	-	3.9	2.6
<i>Scophthalmus aquosus</i>	-	-	-	-	-	-	3.7	1.0	2.4	2.0
<i>Pleuronectes ferruginus</i>	-	-	0.4	-	-	-	-	-	-	<0.1
<i>Pleuronectes americanus</i>	-	-	-	0.2	-	-	-	-	1.7	1.1
Fish eggs and larvae	-	-	<0.1	<0.1	0.8	<0.1	-	-	0.2	0.2
Chordata unid.	-	-	39.8	11.1	12.1	10.1	13.5	5.0	23.3	18.9
ANIMAL REMAINS AND MISC.	[6.6]	[0.3]	[4.3]	[7.4]	[12.1]	[5.4]	[4.4]	[1.7]	[3.6]	[3.4]
Number sampled	134	14	81	73	78	109	86	52	91	718
Number empty	8	1	4	1	2	5	4	4	4	33
Mean stomach content (g)	0.096	0.781	2.406	3.302	5.888	12.096	15.733	39.021	120.157	23.056
Mean fish length (cm)	5	18	25	35	45	55	65	75	95	46

Table B-21b. Diet composition and sampling data for Atlantic cod by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area					Inshore North of Cape Hatteras
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	
CNIDARIA	-	<[0.1]	[1.1]	-	-	[0.2]
MOLLUSCA	-	[0.2]	[11.0]	[43.6]	-	[3.7]
Pectinidae	-	<(0.1)	(3.7)	-	-	(0.5)
Cephalopoda	-	<(0.1)	(1.6)	(43.6)	-	<(0.1)
<i>Illex</i> sp.	-	-	-	29.2	-	-
<i>Loligo</i> sp.	-	-	-	6.9	-	-
Cephalopoda unid.	-	<0.1	1.6	7.5	-	<0.1
Mollusca unid.	-	(0.2)	(5.7)	<(0.1)	-	(3.2)
POLYCHAETA	[1.1]	[5.4]	[2.4]	[0.1]	<[0.1]	[1.9]
CRUSTACEA	[24.3]	[19.2]	[39.5]	[9.3]	[31.1]	[24.7]
Amphipoda	<(0.1)	(0.5)	(2.3)	(0.5)	<(0.1)	(1.6)
<i>Unciola irrorata</i>	-	0.4	0.1	0.2	-	<0.1
<i>Leptocheirus pinguis</i>	-	<0.1	<0.1	0.3	-	0.1
Amphipoda unid.	<0.1	0.1	2.2	<0.1	<0.1	1.5
Mysidacea	-	(0.2)	<(0.1)	-	-	<(0.1)
Euphausiacea	-	<(0.1)	<(0.1)	(3.1)	(2.2)	(0.2)
<i>Meganyctiphanes norvegica</i>	-	<0.1	<0.1	3.1	2.2	0.2
Decapoda	(24.3)	(17.9)	(34.1)	(5.5)	(10.0)	(21.6)
<i>Dichelopandalus leptocerus</i>	-	0.3	2.3	<0.1	1.6	0.3
<i>Pandalus borealis</i>	-	-	-	1.2	3.1	0.7
<i>Crangon septemspinosa</i>	-	0.2	0.1	<0.1	-	0.9
<i>Pagurus</i> spp.	-	0.5	3.1	<0.1	-	0.2
<i>Hyas</i> spp.	-	<0.1	8.2	<0.1	-	1.7
<i>Cancer borealis</i>	-	9.6	2.8	-	-	4.0
<i>Cancer irroratus</i>	17.4	5.5	14.7	<0.1	-	9.0
Decapoda unid.	6.9	1.8	2.9	4.3	5.3	4.8
Crustacea unid.	<(0.1)	(0.6)	(3.1)	(0.2)	(18.9)	(1.3)
ECHINODERMATA	-	[0.5]	[1.5]	[0.4]	[49.7]	[2.0]
CHORDATA	[74.2]	[71.9]	[40.3]	[43.8]	[4.0]	[61.4]
<i>Squalus acanthias</i>	-	15.8	-	-	-	-
Clupeidae	-	-	-	15.3	-	5.4
<i>Gadus morhua</i>	-	14.1	-	-	-	-
<i>Merluccius bilinearis</i>	-	-	-	16.8	-	-
Gadidae	-	-	0.2	-	-	4.2
<i>Ammodytes dubius</i>	-	17.8	7.4	-	-	18.4
<i>Macrozoarces americanus</i>	-	7.1	-	-	-	1.7
<i>Scophthalmus aquosus</i>	-	1.5	-	-	-	5.4
<i>Pleuronectes ferruginus</i>	-	-	-	-	-	<0.1
<i>Pleuronectes americanus</i>	-	-	-	-	-	3.9
Fish eggs and larvae	-	-	<0.1	0.5	-	<0.1
Chordata unid.	74.2	15.6	32.7	11.2	4.0	22.4
ANIMAL REMAINS AND MISC.	[0.4]	[2.8]	[4.2]	[2.8]	[15.2]	[6.1]
Number sampled	6	142	179	130	12	250
Number empty	1	5	7	10	0	11
Mean stomach content (g)	15.969	33.870	11.999	35.706	1.767	19.350
Mean fish length (cm)	21	45	40	59	26	46

Table B-22a. Diet composition and sampling data for haddock by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	
CNIDARIA	[2.9]	-	[<0.1]	[<0.1]	-	[0.2]	[<0.1]	-	-	[0.7]
MOLLUSCA	-	[3.4]	[0.7]	[8.1]	[4.4]	[5.9]	[1.5]	[5.0]	[<0.1]	[4.3]
Gastropoda	-	-	-	(2.7)	(0.4)	(<0.1)	-	-	-	(0.4)
Bivalvia	-	(3.1)	(0.7)	(5.3)	(2.4)	(4.6)	(1.0)	(0.3)	(<0.1)	(2.4)
Cephalopoda	-	-	-	(<0.1)	(1.5)	(0.3)	-	(4.7)	-	(1.1)
Mollusca unid.	-	(0.3)	-	(0.1)	(0.1)	(1.0)	(0.5)	(<0.1)	-	(0.4)
POLYCHAETA	[0.9]	[20.2]	[7.1]	[14.1]	[17.0]	[24.5]	[4.7]	[8.0]	[<0.1]	[14.1]
Nephtyidae	-	2.7	<0.1	<0.1	2.1	0.3	0.4	0.6	<0.1	0.6
Spionidae	-	0.5	0.3	1.4	1.2	2.0	<0.1	0.3	-	0.8
Polychaeta unid.	0.9	17.0	6.8	12.7	13.7	22.2	4.3	7.1	<0.1	12.7
CRUSTACEA	[56.3]	[47.1]	[11.3]	[31.4]	[27.4]	[14.3]	[13.7]	[3.0]	[61.3]	[18.3]
Cumacea	(4.0)	(3.2)	(0.4)	(0.2)	(<0.1)	(<0.1)	-	(<0.1)	-	(0.1)
Amphipoda	(31.6)	(16.9)	(6.0)	(17.6)	(8.8)	(9.6)	(6.0)	(0.4)	(<0.1)	(6.7)
<i>Parathemisto</i> sp.	2.3	0.4	<0.1	<0.1	0.3	2.2	2.8	<0.1	<0.1	1.4
Hyperiididae	6.0	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1
<i>Erichthonius rubricornis</i>	14.3	0.2	0.3	0.2	<0.1	<0.1	<0.1	-	-	<0.1
<i>Unciola irrorata</i>	0.3	5.5	2.0	8.9	3.1	3.3	1.4	0.4	-	2.2
<i>Leptocheirus pinguis</i>	-	5.2	1.2	0.6	0.4	2.3	0.5	<0.1	-	1.0
Amphipoda unid.	8.7	5.6	2.5	7.9	5.0	1.8	1.3	<0.1	<0.1	2.1
Mysidacea	-	(14.7)	-	-	-	-	-	-	-	(0.1)
Euphausacea	-	-	(0.6)	(6.3)	(13.4)	(0.8)	(6.1)	(0.1)	(61.3)	(8.0)
<i>Meganyctiphanes norvegica</i>	-	-	0.6	6.3	13.4	0.8	6.1	0.1	61.3	8.0
Decapoda	(0.9)	(4.2)	(3.4)	(6.4)	(3.7)	(3.6)	(1.4)	(2.1)	-	(2.9)
<i>Dichelopandalus leptocerus</i>	-	0.5	2.5	0.5	0.7	0.3	<0.1	-	-	0.3
<i>Crangon septemspinosa</i>	-	2.3	0.9	0.9	0.6	<0.1	-	<0.1	-	0.2
Decapoda unid.	0.9	1.4	<0.1	5.0	2.4	3.3	1.4	2.1	-	2.4
Crustacea unid.	(19.8)	(8.1)	(0.9)	(0.9)	(1.5)	(0.3)	(0.2)	(0.4)	-	(0.5)
ECHINODERMATA	-	[0.7]	[4.4]	[18.4]	[28.5]	[32.5]	[57.4]	[71.5]	[34.2]	[43.7]
Crinoidea	-	-	-	-	(2.3)	-	(3.1)	-	-	(1.0)
Holothuroidea	-	-	-	-	(0.7)	(1.0)	(2.4)	(0.6)	-	(1.1)
Echinoidea	-	(0.4)	(<0.1)	(2.7)	(1.0)	(2.0)	(1.2)	(2.6)	-	(1.5)
Ophiuroidea	-	(0.1)	(2.6)	(12.5)	(22.0)	(26.8)	(47.1)	(65.4)	(33.7)	(37.3)
<i>Amphiura</i> sp.	-	-	-	-	-	1.8	-	10.0	-	2.4
<i>Ophiopholis aculeata</i>	-	-	<0.1	5.9	6.9	6.5	19.5	2.5	-	8.3
<i>Ophiura sarsi</i>	-	-	1.0	3.5	8.8	8.5	14.5	27.0	33.4	14.7
<i>Ophiura</i> sp.	-	-	0.5	0.4	0.1	1.3	4.2	16.1	-	4.4
Ophiuroidea unid.	-	0.1	1.1	2.7	6.2	8.7	8.9	9.8	0.3	7.5
Echinodermata unid.	-	(0.2)	(1.8)	(3.2)	(2.5)	(2.7)	(3.6)	(2.9)	(0.5)	(2.8)
OSTEICHTHYES	-	[0.6]	[68.3]	[<0.1]	[<0.1]	[<0.1]	[<0.1]	[<0.1]	-	[3.0]
<i>Ammodytes dubius</i>	-	-	61.6	-	-	-	-	-	-	2.6
Osteichthyes unid.	-	0.6	6.7	<0.1	<0.1	<0.1	<0.1	<0.1	-	0.4
ANIMAL REMAINS AND MISC.	[27.3]	[26.5]	[7.3]	[21.9]	[17.9]	[16.9]	[20.8]	[11.7]	[4.4]	[12.8]
SAND AND ROCK	[12.6]	[1.5]	[0.9]	[6.1]	[4.8]	[5.7]	[1.9]	[0.8]	[0.1]	[3.1]
Number sampled	11	124	77	117	157	251	144	60	9	950
Number empty	0	5	0	5	4	5	3	0	0	22
Mean stomach content (g)	0.032	0.128	2.023	1.473	2.254	4.382	6.582	11.203	30.498	3.887
Mean fish length (cm)	9	16	25	36	45	55	64	75	83	46

Table B-22b. Diet composition and sampling data for haddock by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area					
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras
CNIDARIA	-	-	[<0.1]	[0.8]	[0.7]	[0.3]
MOLLUSCA	-	[0.2]	[1.5]	[3.3]	[15.3]	[3.8]
Gastropoda	-	-	(<0.1)	(0.2)	(2.7)	(0.3)
Bivalvia	-	(0.2)	(1.3)	(1.5)	(10.0)	(3.2)
Cephalopoda	-	-	-	(1.3)	(1.9)	-
Mollusca unid.	-	-	(0.2)	(0.3)	(0.7)	(0.3)
POLYCHAETA	-	[47.1]	[18.6]	[7.8]	[29.4]	[42.2]
Nephtyidae	-	0.4	0.1	0.2	0.2	7.5
Spionidae	-	-	4.7	<0.1	0.9	0.7
Polychaeta unid.	-	46.7	13.8	7.6	28.3	34.0
CRUSTACEA	[100.0]	[14.2]	[22.3]	[16.6]	[12.7]	[20.6]
Cumacea	-	(0.1)	(<0.1)	(<0.1)	(0.3)	(0.8)
Amphipoda	(100.0)	(5.6)	(19.0)	(3.9)	(3.5)	(8.5)
<i>Parathemisto</i> sp.	27.8	-	-	1.9	0.7	<0.1
<i>Erichthonius rubricornis</i>	-	<0.1	<0.1	<0.1	<0.1	0.4
<i>Unciola irrorata</i>	-	1.4	11.9	0.1	1.7	3.8
<i>Leptocheirus pinguis</i>	-	<0.1	1.6	0.9	<0.1	0.9
Amphipoda unid.	72.2	4.2	5.5	1.0	1.1	3.4
Mysidacea	-	(<0.1)	(0.4)	(<0.1)	(<0.1)	(<0.1)
Euphausacea	-	-	-	(10.8)	(0.5)	-
<i>Meganctiphanes norvegica</i>	-	-	-	10.8	0.5	-
Decapoda	-	(8.1)	(2.2)	(1.7)	(7.0)	(8.9)
<i>Dichelopandalus leptocerus</i>	-	-	0.4	0.3	0.3	-
<i>Crangon septemspinosa</i>	-	0.8	0.7	<0.1	0.3	0.9
Decapoda unid.	-	7.3	1.1	1.4	6.4	8.0
Crustacea unid.	-	(0.4)	(0.7)	(0.2)	(1.4)	(2.4)
ECHINODERMATA	-	[13.3]	[31.0]	[50.1]	[17.7]	[17.1]
Crinoidea	-	-	-	(1.4)	-	-
Holothuroidea	-	-	(<0.1)	(1.3)	(1.3)	-
Echinoidea	-	-	(0.6)	(1.3)	(5.7)	(0.5)
Ophiuroidea	-	-	(30.2)	(42.6)	(7.9)	(10.4)
<i>Amphiura</i> sp.	-	-	-	3.2	-	-
<i>Ophiopholis aculeata</i>	-	-	4.3	10.0	3.8	2.4
<i>Ophiura sarsi</i>	-	-	<0.1	19.6	1.2	8.0
<i>Ophiura</i> sp.	-	-	25.9	0.3	<0.1	-
Ophiuroidea unid.	-	-	<0.1	9.5	2.9	<0.1
Echinodermata unid.	-	(13.3)	(0.2)	(3.5)	(2.8)	(6.2)
OSTEICHTHYES	-	[<0.1]	[<0.1]	[3.9]	[<0.1]	-
<i>Ammodytes dubius</i>	-	-	-	3.5	-	-
Osteichthyes unid.	-	<0.1	<0.1	0.4	<0.1	-
ANIMAL REMAINS AND MISC.	-	[17.9]	[14.6]	[16.5]	[18.2]	[14.3]
SAND AND ROCK	-	[7.3]	[12.0]	[1.0]	[6.0]	[1.7]
Number sampled	1	12	139	578	157	63
Number empty	0	2	2	15	3	0
Mean stomach content (g)	0.018	1.681	4.222	4.699	1.728	1.559
Mean fish length (cm)	10	54	44	51	34	30

Table B-23a. Diet composition and sampling data for silver hake by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	<10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	>45	
CEPHALOPODA	-	-	-	-	[3.4]	-	[0.1]	[2.1]	[14.4]	[7.7]
<i>Loligo</i> sp.	-	-	-	-	-	-	-	1.6	13.1	6.8
Cephalopoda unid.	-	-	-	-	3.4	-	0.1	0.5	1.3	0.9
CRUSTACEA	[95.2]	[92.2]	[96.5]	[63.2]	[66.3]	[66.6]	[57.8]	[26.0]	[4.8]	[28.6]
Cumacea	(1.6)	(0.8)	(0.1)	(<0.1)	(<0.1)	(<0.1)	(<0.1)	(<0.1)	-	(<0.1)
Amphipoda	(5.9)	(9.0)	(8.2)	(0.6)	(1.9)	(2.2)	(0.4)	(0.4)	(<0.1)	(0.7)
<i>Parathemisto gaudichaudii</i>	2.4	5.3	5.1	<0.1	0.5	<0.1	<0.1	-	-	0.1
<i>Parathemisto</i> spp.	2.7	1.5	1.6	0.4	0.7	0.2	<0.1	<0.1	<0.1	0.1
<i>Gammarus annulatus</i>	-	<0.1	-	-	-	1.0	0.4	0.4	<0.1	0.2
Amphipoda unid.	0.8	2.2	1.5	0.2	0.7	1.0	<0.1	<0.1	<0.1	0.3
Mysidacea	(9.9)	(4.0)	(2.0)	(0.3)	(0.9)	(1.4)	(<0.1)	(<0.1)	(<0.1)	(0.2)
<i>Mysis mixta</i>	5.3	0.8	1.2	<0.1	-	<0.1	-	-	-	<0.1
<i>Neomysis americana</i>	3.7	2.7	0.7	<0.1	0.9	1.4	<0.1	<0.1	<0.1	0.2
Mysidacea unid.	0.9	0.5	0.1	0.3	<0.1	<0.1	<0.1	-	-	<0.1
Euphausiacea	(66.9)	(60.2)	(67.9)	(39.0)	(48.2)	(51.8)	(46.0)	(20.8)	(3.7)	(21.9)
<i>Meganyciphanes norvegica</i>	45.2	45.0	61.9	37.5	44.5	51.7	44.3	20.8	3.7	21.2
<i>Nyctiphanes couchii</i>	1.6	-	-	-	-	-	1.5	-	-	0.2
<i>Thysanoessa inermis</i>	2.4	-	0.7	-	-	-	-	-	-	<0.1
<i>Thysanoessa raschii</i>	9.4	0.9	0.4	-	-	-	-	-	-	<0.1
Euphausiacea unid.	8.3	14.3	4.9	1.5	3.7	0.1	0.2	-	-	0.5
Decapoda	(4.9)	(9.0)	(15.3)	(20.3)	(13.4)	(10.0)	(11.0)	(4.5)	(0.9)	(5.2)
<i>Pasiphaea multidentata</i>	-	-	-	-	1.2	1.3	3.8	-	-	0.7
Penaeidae	-	-	-	1.7	-	-	-	-	-	<0.1
<i>Dichelopandalus leptocerus</i>	-	2.2	13.5	11.0	4.1	2.5	3.8	1.4	<0.1	1.7
<i>Pandalus borealis</i>	-	-	0.1	1.2	1.1	2.9	<0.1	0.3	0.2	0.5
<i>Pandalus montagui</i>	-	-	-	2.8	0.7	<0.1	0.6	0.8	-	0.3
Pandalidae	<0.1	1.2	1.3	0.9	0.8	0.3	<0.1	1.2	-	0.3
<i>Crangon septemspinosa</i>	4.6	4.1	0.3	1.9	2.8	2.0	2.6	0.8	0.8	1.4
Decapoda unid.	0.3	1.5	0.1	0.8	2.7	1.0	0.2	<0.1	-	0.3
Crustacea unid.	(6.0)	(9.2)	(3.0)	(3.0)	(1.9)	(1.2)	(0.4)	(0.3)	(0.2)	(0.6)
OSTEICHTHYES	[2.5]	[6.1]	[2.6]	[35.8]	[29.6]	[32.4]	[41.6]	[70.9]	[80.6]	[63.0]
<i>Clupea harengus</i>	-	-	-	-	-	11.1	-	12.6	3.2	4.7
<i>Etrumeus teres</i>	-	-	-	6.4	-	-	-	-	-	0.2
Clupeidae	-	-	-	-	4.0	-	-	7.9	20.1	11.5
<i>Anchoa hepsetus</i>	-	-	-	-	-	-	-	-	0.3	0.1
<i>Merluccius bilinearis</i>	-	-	0.3	0.9	5.8	2.1	3.1	9.4	10.2	7.5
<i>Urophycis</i> sp.	-	-	-	-	-	-	0.5	-	<0.1	0.1
<i>Ammodytes dubius</i>	-	0.7	-	24.5	18.6	4.3	11.8	22.7	7.0	10.5
<i>Scomber scombrus</i>	-	-	-	-	-	-	5.0	-	-	0.7
Bothidae	-	-	-	-	-	-	3.4	-	-	0.5
Osteichthyes eggs	-	-	-	-	<0.1	-	-	-	-	<0.1
Osteichthyes unid.	2.5	5.4	2.3	4.0	1.2	14.9	17.8	18.3	39.8	27.2
ANIMAL REMAINS AND MISC.	[2.3]	[1.7]	[0.9]	[1.0]	[0.7]	[1.0]	[0.5]	[1.0]	[0.2]	[0.7]
Number sampled	196	425	280	266	323	373	253	72	75	2263
Number empty	29	87	68	95	107	133	83	20	20	642
Mean stomach content (g)	0.045	0.109	0.251	0.495	0.819	1.574	3.048	11.004	36.325	2.385
Mean fish length (cm)	6	13	17	23	28	33	37	42	52	24

Table B-23b. Diet composition and sampling data for silver hake by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area					
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras
CEPHALOPODA	[17.0]	[3.2]	-	-	[3.5]	[32.7]
<i>Loligo</i> sp.	-	2.4	-	-	3.3	29.7
Cephalopoda unid.	17.0	0.8	-	-	0.2	3.0
CRUSTACEA	[8.2]	[6.8]	[37.3]	[48.7]	[10.3]	[15.2]
Cumacea	(<0.1)	(<0.1)	(<0.1)	(<0.1)	(<0.1)	(<0.1)
Amphipoda	(0.9)	(1.3)	(0.8)	(0.5)	(0.1)	(1.1)
<i>Parathemisto gaudichaudii</i>	<0.1	<0.1	-	0.3	<0.1	-
<i>Parathemisto</i> spp.	<0.1	-	-	<0.1	<0.1	-
<i>Gammarus annulatus</i>	-	0.7	-	-	-	0.8
Amphipoda unid.	0.9	0.6	0.8	0.2	0.1	0.3
Mysidacea	(<0.1)	(0.5)	(<0.1)	(<0.1)	(<0.1)	(0.9)
<i>Mysis mixta</i>	-	-	-	<0.1	-	<0.1
<i>Neomysis americana</i>	<0.1	0.5	-	<0.1	<0.1	0.9
Mysidacea unid.	-	<0.1	<0.1	<0.1	<0.1	<0.1
Euphausiacea	(4.4)	(0.1)	(30.3)	(40.7)	(8.1)	(6.7)
<i>Meganyctiphanes norvegica</i>	0.8	0.1	30.1	39.5	7.7	6.7
<i>Nyctiphanes couchii</i>	-	-	-	0.5	-	-
<i>Thysanoessa inermis</i>	-	-	<0.1	<0.1	-	-
Euphausiacea unid.	3.6	<0.1	0.2	0.7	0.4	<0.1
Decapoda	(2.8)	(4.5)	(5.6)	(6.8)	(1.9)	(5.5)
<i>Pasiphaea multidentata</i>	0.3	-	-	1.8	-	-
Penaeidae	-	-	-	-	0.2	-
<i>Dichelopandalus leptocerus</i>	-	2.0	3.8	2.2	1.1	0.5
<i>Pandalus borealis</i>	-	-	<0.1	1.2	<0.1	-
<i>Pandalus montagui</i>	-	<0.1	-	0.6	0.2	-
Pandalidae	-	<0.1	<0.1	0.6	0.2	<0.1
<i>Crangon septemspinosa</i>	2.5	2.2	0.9	<0.1	<0.1	5.0
Decapoda unid.	<0.1	0.3	0.9	0.4	0.2	<0.1
Crustacea unid.	(0.1)	(0.4)	(0.6)	(0.7)	(0.2)	(1.0)
OSTEICHTHYES	[74.1]	[88.9]	[62.2]	[50.2]	[85.7]	[51.6]
<i>Clupea harengus</i>	-	-	-	-	21.9	-
<i>Etrumeus teres</i>	-	-	-	-	-	0.8
Clupeidae	-	-	62.2	17.9	-	-
<i>Anchoa hepsetus</i>	-	-	-	-	-	0.7
<i>Merluccius bilinearis</i>	6.6	15.5	-	8.2	7.3	5.0
<i>Urophycis</i> sp.	-	0.1	-	-	-	0.3
<i>Ammodytes dubius</i>	56.3	3.3	-	9.4	-	28.7
<i>Scomber scombrus</i>	-	-	-	-	3.4	-
Bothidae	-	-	-	-	-	2.4
Osteichthyes eggs	-	<0.1	-	-	-	-
Osteichthyes unid.	11.2	70.0	<0.1	14.7	53.1	13.7
ANIMAL REMAINS AND MISC.	[0.7]	[1.1]	[0.5]	[1.1]	[0.5]	[0.5]
Number sampled	76	176	196	1209	413	193
Number empty	32	74	57	293	129	57
Mean stomach content (g)	0.784	3.036	1.841	1.833	2.782	5.575
Mean fish length (cm)	24	28	29	23	23	27

Table B-24a. Diet composition and sampling data for pollock by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)								Total
	<31	31-40	41-50	51-60	61-70	71-80	81-90	>90	
NEMATODA	[0.3]	-	[2.8]	[12.4]	[0.1]	[0.1]	[0.1]	[0.3]	[0.3]
CHAETOGNATHA	[42.8]	-	-	-	[<0.1]	-	-	-	[<0.1]
<i>Sagitta elegans</i>	21.2	-	-	-	-	-	-	-	<0.1
Chaetognatha unid.	21.6	-	-	-	<0.1	-	-	-	<0.1
CEPHALOPODA	-	[5.1]	-	-	[44.5]	[21.8]	[1.2]	[22.9]	[23.5]
<i>Illex</i> sp.	-	-	-	-	-	20.7	-	-	0.9
<i>Loligo</i> sp.	-	-	-	-	43.8	-	-	14.3	16.7
Octopoda	-	-	-	-	-	1.1	-	-	0.1
Cephalopoda unid.	-	5.1	-	-	0.7	-	1.2	8.6	5.8
CRUSTACEA	[53.4]	[84.8]	[63.3]	[20.9]	[32.3]	[17.9]	[58.1]	[8.3]	[20.9]
Isopoda	-	-	-	-	(<0.1)	(0.6)	-	(<0.1)	(<0.1)
<i>Cirolana</i> sp.	-	-	-	-	<0.1	0.6	-	<0.1	<0.1
Amphipoda	(11.6)	(0.1)	(6.0)	(1.5)	(<0.1)	(0.2)	(0.5)	(0.4)	(0.3)
<i>Hyperia</i> sp.	-	-	-	-	-	-	0.3	-	<0.1
<i>Parathemisto</i> sp.	-	-	-	-	<0.1	<0.1	0.1	0.4	0.3
Hyperiididae	-	-	3.6	-	<0.1	-	0.1	-	<0.1
<i>Calliopius laeviusculus</i>	-	-	-	-	<0.1	0.2	-	-	<0.1
<i>Erichthonius rubricornis</i>	9.9	-	-	-	-	-	-	-	<0.1
Lysianassidae	-	-	-	1.5	-	-	-	-	<0.1
<i>Monoculodes intermedius</i>	-	-	1.4	-	-	-	-	-	<0.1
<i>Leptocheirus pinguis</i>	-	0.1	0.9	-	-	-	-	-	<0.1
<i>Photis</i> sp.	0.2	-	-	-	-	-	-	-	<0.1
Caprellidae	0.5	-	-	-	-	-	-	-	<0.1
Amphipoda unid.	1.0	-	0.1	-	<0.1	<0.1	-	<0.1	<0.1
Euphausacea	(21.2)	(83.4)	(51.3)	(10.4)	(32.3)	(3.8)	(44.8)	(7.6)	(17.8)
<i>Meganyctiphanes norvegica</i>	17.5	83.4	51.3	10.4	32.3	3.8	44.8	7.6	17.8
Euphausiacea unid.	3.7	-	-	-	-	-	<0.1	-	<0.1
Decapoda	-	-	(6.0)	(9.0)	(<0.1)	(12.1)	(12.5)	(0.3)	(2.6)
Pasiphaeidae	-	-	-	-	-	4.7	-	-	0.2
<i>Dichelopandalus leptocerus</i>	-	-	-	-	-	6.7	0.7	0.3	0.6
<i>Pandalus borealis</i>	-	-	-	-	-	-	11.4	-	1.6
<i>Crangon septemspinosa</i>	-	-	-	9.0	<0.1	0.7	-	-	0.1
Decapoda unid.	-	-	6.0	-	<0.1	-	0.4	-	0.1
Crustacea unid.	(20.6)	(1.3)	-	-	-	(1.2)	(0.3)	(<0.1)	(0.2)
UROCHORDATA	-	-	-	-	[0.6]	[8.5]	-	-	[0.5]
OSTEICHTHYES	-	-	-	-	[22.0]	[46.9]	[38.3]	[68.2]	[54.1]
Myctophidae	-	-	-	-	-	11.0	-	-	0.5
<i>Merluccius bilinearis</i>	-	-	-	-	0.2	2.0	-	-	0.1
<i>Ammodytes dubius</i>	-	-	-	-	18.4	27.5	-	66.0	46.1
Anarhichadidae	-	-	-	-	-	-	9.0	-	1.2
<i>Pholis gunnellus</i>	-	-	-	-	0.7	-	<0.1	-	0.1
Osteichthyes unid.	-	-	-	-	2.7	6.4	29.3	2.2	6.1
ANIMAL REMAINS AND MISC.	[3.5]	[10.1]	[33.9]	[66.7]	[0.5]	[4.8]	[2.3]	[0.3]	[0.7]
Number sampled	5	11	7	10	11	14	13	11	82
Number empty	0	2	0	3	3	1	0	1	10
Mean stomach content (g)	0.551	1.497	0.497	0.115	23.071	4.281	15.212	83.988	17.795
Mean fish length (cm)	23	34	48	56	65	74	85	98	65

Table B-24b. Diet composition and sampling data for pollock by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area			
	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras
NEMATODA	[0.5]	[0.5]	[<0.1]	-
CHAETOGNATHA	-	[<0.1]	[0.8]	-
<i>Sagitta elegans</i>	-	-	0.4	-
Chaetognatha unid.	-	<0.1	0.4	-
CEPHALOPODA	[5.9]	[46.8]	[80.9]	-
<i>Illex</i> sp.	4.6	-	-	-
<i>Loligo</i> sp.	-	28.9	80.9	-
Octopoda	0.3	-	-	-
Cephalopoda unid.	1.0	17.9	-	-
CRUSTACEA	[35.8]	[44.5]	[2.6]	-
Isopoda	(0.2)	-	-	-
<i>Cirolana</i> sp.	0.2	-	-	-
Amphipoda	(1.7)	(0.1)	(0.2)	-
<i>Hyperia</i> sp.	0.2	-	-	-
<i>Parathemisto</i> sp.	1.5	<0.1	-	-
Hyperiididae	-	0.1	-	-
<i>Erichthonius rubricornis</i>	-	-	0.2	-
Lysianassidae	<0.1	-	-	-
<i>Monoculodes intermedius</i>	<0.1	-	-	-
<i>Leptocheirus pinguis</i>	<0.1	-	-	-
<i>Photis</i> sp.	-	-	<0.1	-
<i>Calliopius laeviusculus</i>	<0.1	-	-	-
Amphipoda unid.	<0.1	-	<0.1	-
Euphausacea	(30.2)	(38.9)	(0.3)	-
<i>Meganyctiphanes norvegica</i>	30.2	38.9	0.3	-
Euphausiacea unid.	-	<0.1	<0.1	-
Decapoda	(3.4)	(5.2)	(2.1)	-
Pasiphaeidae	-	-	2.1	-
<i>Dichelopandalus leptocerus</i>	3.1	-	-	-
<i>Pandalus borealis</i>	-	5.0	-	-
<i>Crangon septemspinosa</i>	0.3	-	-	-
Decapoda unid.	<0.1	0.2	-	-
Crustacea unid.	(0.3)	(0.3)	(<0.1)	-
UROCHORDATA	-	[1.5]	-	-
OSTEICHTHYES	[56.1]	[4.9]	[15.4]	[100.0]
Myctophidae	-	-	4.8	-
<i>Merluccius bilinearis</i>	-	0.4	-	-
<i>Ammodytes dubius</i>	28.5	-	-	100.0
Anarhichadidae	<0.1	3.9	-	-
<i>Pholis gunnellus</i>	-	0.4	-	-
Osteichthyes unid.	27.6	0.2	10.6	-
ANIMAL REMAINS AND MISC.	[1.7]	[1.8]	[0.3]	-
Number sampled	46	28	7	1
Number empty	6	4	0	0
Mean stomach content (g)	5.838	16.310	19.654	596.400
Mean fish length (cm)	62	72	48	106

Table B-25a. Diet composition and sampling data for red hake by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	1-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	>45	
MOLLUSCA	-	-	[1.6]	<0.1]	[0.9]	[5.9]	[16.5]	[4.6]	[8.4]	[8.7]
Bivalvia	-	-	1.6	<0.1	0.8	0.3	5.3	0.3	2.6	2.1
Cephalopoda	-	-	-	-	<0.1	5.6	10.8	1.3	5.8	5.7
Mollusca unid.	-	-	-	-	0.1	<0.1	0.4	3.0	<0.1	0.9
POLYCHAETA	[0.3]	[5.3]	[0.7]	[1.5]	[3.6]	[2.3]	[2.3]	[1.4]	[3.0]	[2.6]
CRUSTACEA	[88.1]	[81.6]	[58.6]	[74.6]	[84.8]	[69.7]	[64.4]	[66.1]	[44.4]	[63.3]
Amphipoda	(55.6)	(44.6)	(35.4)	(10.1)	(15.3)	(3.8)	(2.4)	(0.8)	(0.4)	(3.9)
<i>Parathemisto</i> sp.	4.0	-	3.1	1.6	0.9	<0.1	<0.1	0.1	-	0.3
<i>Aeginina longicornis</i>	-	2.4	-	0.5	0.9	0.2	<0.1	<0.1	<0.1	0.2
<i>Unciola inermis</i>	1.6	0.5	-	0.6	0.8	0.1	0.3	<0.1	<0.1	0.2
<i>Unciola irrorata</i>	0.8	1.2	2.5	1.9	1.2	0.4	0.3	<0.1	<0.1	0.3
<i>Leptocheirus pinguis</i>	3.8	11.5	0.3	2.1	10.4	2.0	1.3	0.4	0.1	1.6
<i>Pontogeneia inermis</i>	35.0	21.9	25.4	0.7	<0.1	<0.1	<0.1	-	-	0.4
Amphipoda unid.	10.4	7.1	4.1	2.7	1.1	1.1	0.5	0.3	0.3	0.9
Mysidacea	(2.5)	(3.4)	(0.1)	(0.6)	(0.7)	(<0.1)	(0.1)	(0.1)	(<0.1)	(0.2)
<i>Neomysis americana</i>	1.0	3.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mysidacea unid.	1.5	0.3	0.1	0.6	0.7	<0.1	0.1	0.1	<0.1	0.2
Euphausiacea	(4.3)	(1.1)	(9.3)	(15.4)	(34.6)	(32.2)	(34.2)	(40.0)	(18.8)	(30.4)
<i>Meganyctiphanes norvegica</i>	2.8	0.4	9.3	13.7	32.9	31.2	33.4	36.5	18.4	29.0
Euphausiacea unid.	1.5	0.7	-	1.7	1.7	1.0	0.8	3.5	0.4	1.4
Decapoda	(15.8)	(29.1)	(8.8)	(45.5)	(29.7)	(29.8)	(24.9)	(23.6)	(22.8)	(25.9)
<i>Dichelopandalus leptocerus</i>	-	-	2.2	15.5	13.9	12.6	6.5	9.7	3.1	8.2
<i>Pandalus borealis</i>	-	-	0.2	1.6	-	-	0.6	0.4	7.1	2.0
Pandalidae	-	-	1.1	0.7	2.0	2.5	1.3	2.9	0.8	1.8
<i>Crangon septemspinosa</i>	2.1	8.8	3.3	23.4	3.4	2.5	1.6	2.6	1.4	2.7
Crangonidae	1.7	<0.1	-	0.5	1.9	0.6	0.2	<0.1	0.1	0.3
Axiidae	-	-	-	-	3.9	<0.1	0.9	1.0	0.4	0.9
Paguridae	<0.1	19.4	0.2	<0.1	0.5	4.2	1.8	1.5	2.2	2.1
<i>Cancer irroratus</i>	-	-	-	1.7	1.5	4.9	6.0	5.0	4.9	4.8
Canceridae	0.3	-	-	1.3	<0.1	0.1	2.6	0.1	1.6	1.1
Decapoda unid.	11.7	0.9	1.8	0.8	2.6	2.4	3.4	0.4	1.2	2.0
Crustacea unid.	(9.9)	(3.4)	(5.0)	(3.0)	(4.5)	(3.9)	(2.8)	(1.6)	(2.4)	(2.9)
CHONDRICHTHYES	-	-	-	-	-	-	-	-	[1.1]	[0.3]
OSTEICHTHYES	[<0.1]	[9.7]	[37.6]	[21.5]	[7.2]	[17.2]	[11.1]	[24.3]	[34.9]	[21.4]
<i>Melanogrammus aeglefinus</i>	-	-	-	-	-	-	-	0.3	4.3	1.1
<i>Merluccius bilinearis</i>	-	-	30.7	19.7	1.0	4.7	-	-	16.7	5.9
Gadidae	-	-	-	-	-	1.4	4.7	2.9	-	2.0
<i>Ammodytes dubius</i>	-	-	1.8	-	6.0	6.2	2.0	1.2	2.4	2.9
<i>Scomber scombrus</i>	-	-	-	-	-	-	0.6	-	0.6	0.3
Triglidae	-	8.3	-	-	-	-	-	-	-	<0.1
Osteichthyes larvae	-	-	2.6	-	-	<0.1	-	-	-	<0.1
Osteichthyes unid.	<0.1	1.4	2.5	1.8	0.2	4.9	3.8	19.9	10.9	9.2
ANIMAL REMAINS AND MISC.	[11.6]	[3.4]	[1.5]	[2.4]	[3.5]	[4.9]	[5.7]	[3.6]	[8.2]	[3.7]
Number sampled	103	48	55	88	216	346	344	173	109	1482
Number empty	11	13	16	15	39	92	79	50	18	333
Mean stomach content (g)	0.035	0.214	0.555	0.954	0.865	1.596	2.060	3.881	5.505	1.921
Mean fish length (cm)	6	12	18	23	28	33	37	42	49	32

Table B-25b. Diet composition and sampling data for red hake by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area					
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras
MOLLUSCA	[3.4]	[30.1]	[11.2]	[3.8]	[23.6]	[0.5]
Bivalvia	3.4	<0.1	2.6	2.4	<0.1	<0.1
Cephalopoda	-	30.1	6.2	1.4	23.6	0.5
Mollusca unid.	-	<0.1	2.4	<0.1	-	<0.1
POLYCHAETA	[0.6]	[1.8]	[0.6]	[2.4]	[1.2]	[9.4]
CRUSTACEA	[42.6]	[32.4]	[71.9]	[66.0]	[42.0]	[33.3]
Amphipoda	(0.4)	(3.8)	(6.8)	(1.5)	(2.3)	(1.1)
<i>Parathemisto</i> sp.	-	-	<0.1	0.6	-	-
<i>Aeginina longicornis</i>	-	1.5	<0.1	<0.1	0.3	0.2
<i>Unciola inermis</i>	-	-	0.5	<0.1	<0.1	-
<i>Unciola irrorata</i>	<0.1	0.2	0.9	<0.1	0.2	<0.1
<i>Leptocheirus pinguis</i>	-	0.4	4.4	0.1	1.4	0.2
<i>Pontogeneia inermis</i>	-	-	0.3	0.6	-	-
Amphipoda unid.	0.4	1.7	0.7	0.2	0.4	0.7
Mysidacea	(<0.1)	(<0.1)	(<0.1)	(0.3)	(<0.1)	(0.5)
<i>Neomysis americana</i>	<0.1	<0.1	<0.1	<0.1	-	0.2
Mysidacea unid.	-	<0.1	<0.1	0.3	<0.1	0.3
Euphausiacea	-	-	(27.7)	(42.8)	(7.6)	(<0.1)
<i>Meganyctiphanes norvegica</i>	-	-	27.6	40.0	7.6	-
Euphausiacea unid.	-	-	0.1	2.8	<0.1	<0.1
Decapoda	(41.0)	(25.5)	(33.3)	(19.3)	(30.3)	(29.0)
<i>Dichelopandalus leptocerus</i>	1.6	3.8	9.4	7.8	8.0	11.8
<i>Pandalus borealis</i>	-	-	-	4.0	1.4	-
Pandalidae	-	<0.1	0.6	2.6	4.4	0.2
<i>Crangon septemspinosa</i>	4.3	0.9	3.9	0.8	4.4	11.7
Crangonidae	-	<0.1	0.3	0.4	-	0.2
Axiidae	-	3.1	1.1	0.5	1.9	0.1
Paguridae	-	<0.1	5.7	0.5	2.4	<0.1
<i>Cancer irroratus</i>	33.5	2.3	10.1	0.7	5.6	3.7
Cancridae	-	15.3	0.8	0.2	-	-
Decapoda unid.	1.6	0.1	1.4	1.8	2.2	1.3
Crustacea unid.	(1.2)	(3.1)	(4.1)	(2.1)	(1.8)	(2.7)
CHONDRICHTHYES	-	-	[0.8]	-	-	-
OSTEICHTHYES	[51.9]	[31.5]	[8.9]	[22.6]	[30.9]	[51.3]
<i>Melanogrammus aeglefinus</i>	-	-	-	2.1	0.9	-
<i>Merluccius bilinearis</i>	-	-	-	10.1	1.0	16.0
Gadidae	-	21.9	2.9	-	-	-
<i>Ammodytes dubius</i>	33.5	-	3.6	1.4	7.0	-
<i>Scomber scombrus</i>	-	-	-	-	-	5.1
Triglidae	-	-	-	<0.1	-	-
Osteichthyes larvae	-	-	-	<0.1	0.2	-
Osteichthyes unid.	18.4	9.6	2.4	9.0	21.8	30.2
ANIMAL REMAINS AND MISC.	[1.5]	[4.2]	[6.6]	[5.2]	[2.3]	[5.5]
Number sampled	5	97	521	681	87	94
Number empty	2	23	69	192	25	23
Mean stomach content (g)	10.429	1.553	1.818	2.164	2.226	1.735
Mean fish length (cm)	34	31	29	34	32	32

Table B-26. Diet composition and sampling data for spotted hake by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)					Total
	6-10	11-15	16-20	21-25	>25	
MOLLUSCA	-	[14.7]	[15.6]	[2.6]	[43.2]	[30.9]
Bivalvia	-	(14.7)	(15.5)	-	-	(5.7)
<i>Ensis directus</i>	-	-	0.2	-	-	0.1
Solenidae	-	-	1.1	-	-	0.4
Bivalvia unid.	-	14.7	14.2	-	-	5.2
Cephalopoda	-	-	-	-	(43.2)	(25.0)
Mollusca unid.	-	-	(0.1)	(2.6)	-	(0.2)
POLYCHAETA	-	[3.2]	[2.1]	-	-	[0.9]
Maldanidae	-	-	0.6	-	-	0.2
<i>Pherusa affinis</i>	-	-	1.5	-	-	0.5
Polychaeta unid.	-	3.2	<0.1	-	-	0.2
CRUSTACEA	[100.0]	[65.2]	[63.7]	[83.4]	[0.2]	[28.3]
Cumacea	-	(<0.1)	(<0.1)	-	-	(<0.1)
<i>Pseudoleptocuma minor</i>	-	<0.1	<0.1	-	-	<0.1
Isopoda	-	(<0.1)	-	-	-	(<0.1)
<i>Edotea</i> sp.	-	<0.1	-	-	-	<0.1
Amphipoda	-	(1.2)	(45.5)	(24.4)	-	(16.0)
<i>Parathemisto</i> sp.	-	-	-	<0.1	-	<0.1
<i>Ampelisca verrilli</i>	-	-	40.5	23.0	-	14.2
<i>Ampelisca declivitatiss</i>	-	-	<0.1	-	-	<0.1
<i>Byblis serrata</i>	-	-	-	<0.1	-	<0.1
<i>Unciola irrorata</i>	-	0.1	5.0	-	-	1.6
<i>Synchelidium americanum</i>	-	-	<0.1	-	-	<0.1
<i>Rhepoxynius epistomus</i>	-	1.1	-	-	-	0.1
<i>Aeginina longicornis</i>	-	-	<0.1	-	-	<0.1
Gammaridea	-	-	-	1.4	-	0.1
Mysidacea	-	-	(<0.1)	-	-	(<0.1)
<i>Mysidopsis bigelowi</i>	-	-	<0.1	-	-	<0.1
Decapoda	(100.0)	(64.0)	(17.6)	(57.5)	-	(11.9)
<i>Crangon septemspinosa</i>	16.1	1.3	0.8	0.9	-	0.4
<i>Cancer irroratus</i>	-	0.3	14.2	56.0	-	7.9
<i>Cancer</i> sp.	83.9	11.2	-	-	-	0.5
Canceridae	-	0.5	-	-	-	<0.1
Crab unid.	-	-	-	0.6	-	<0.1
Decapoda larvae	-	-	-	<0.1	-	<0.1
Decapoda unid.	-	50.7	2.6	-	-	3.1
Crustacea unid.	-	-	(0.6)	(1.5)	(0.2)	(0.4)
OSTEICHTHYES	-	-	[18.1]	[14.0]	[56.6]	[39.1]
Ophidiidae	-	-	-	-	56.6	32.6
<i>Ammodytes dubius</i>	-	-	13.9	-	-	4.4
Pleuronectiformes	-	-	0.4	-	-	0.1
Osteichthyes unid.	-	-	3.8	14.0	-	2.0
ANIMAL REMAINS AND MISC.	-	[16.9]	[0.5]	-	-	[0.8]
Number sampled	1	22	16	5	3	47
Number empty	0	4	1	1	0	6
Mean stomach content (g)	0.031	0.190	1.805	1.111	17.573	1.944
Mean fish length (cm)	9	13	18	22	32	17

Table B-27a. Diet composition and sampling data for white hake by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	<11	11-20	21-30	31-40	41-50	51-60	61-70	71-80	>80	
CEPHALOPODA	-	-	-	[0.8]	[15.4]	[2.0]	[25.0]	[63.7]	[1.3]	[21.4]
<i>Illex</i> sp.	-	-	-	-	-	-	20.5	63.1	-	16.5
<i>Loligo pealeii</i>	-	-	-	-	6.3	-	-	-	-	1.0
Cephalopoda unid.	-	-	-	0.8	9.1	2.0	4.5	0.6	1.3	3.9
POLYCHAETA	-	[5.2]	[1.1]	[1.1]	[<0.1]	-	-	-	-	[0.1]
CRUSTACEA	[100.0]	[81.9]	[93.7]	[64.8]	[27.8]	[45.8]	[2.8]	[25.8]	[5.5]	[20.6]
Calanoida	(16.4)	(0.8)	-	-	-	-	-	-	-	(<0.1)
Isopoda	-	(1.7)	(0.2)	(<0.1)	-	-	-	-	-	(<0.1)
Amphipoda	(0.3)	(28.1)	(4.5)	(0.2)	(<0.1)	(<0.1)	(<0.1)	-	-	(0.1)
<i>Unciola irrorata</i>	-	0.6	1.3	0.1	-	-	-	-	-	<0.1
<i>Anonyx sarsi</i>	-	5.5	-	-	-	-	-	-	-	<0.1
<i>Hippomedon serratus</i>	-	2.0	-	<0.1	-	-	-	-	-	<0.1
<i>Leptocheirus pinguis</i>	-	-	2.4	0.1	-	<0.1	-	-	-	0.1
Amphipoda unid.	0.3	20.0	0.8	<0.1	<0.1	-	<0.1	-	-	<0.1
Mysidacea	(1.0)	(<0.1)	-	(1.9)	(<0.1)	-	-	(2.5)	-	(0.4)
<i>Mysidopsis bigelowi</i>	1.0	<0.1	-	-	-	-	-	-	-	<0.1
Mysidacea unid.	-	-	-	1.9	<0.1	-	-	2.5	-	0.4
Euphausiacea	-	-	(13.8)	(36.9)	(19.9)	(26.4)	(1.4)	(17.8)	(5.5)	(12.2)
<i>Meganyctiphanes norvegica</i>	-	-	7.6	35.7	18.0	23.8	1.4	17.8	3.8	11.3
Euphausiacea unid.	-	-	6.2	1.2	1.9	2.6	<0.1	-	1.7	0.9
Decapoda	(82.3)	(40.9)	(73.4)	(22.4)	(7.5)	(16.2)	(1.3)	(4.9)	-	(7.1)
Pasiphaeidae	-	-	-	-	0.4	-	-	4.4	-	0.5
<i>Dichelopandalus leptocerus</i>	-	-	53.0	10.8	4.9	9.9	0.6	-	-	3.9
<i>Pandalus borealis</i>	-	-	8.0	-	-	4.1	0.3	-	-	0.7
<i>Pandalus montagui</i>	-	-	-	1.2	-	-	-	-	-	0.1
<i>Pandalus</i> sp.	-	-	-	0.8	0.1	0.9	<0.1	-	-	0.2
Pandalidae	-	-	0.7	-	0.6	1.1	-	-	-	0.2
<i>Crangon septemspinosa</i>	82.3	36.2	8.9	4.1	0.9	0.2	-	-	-	0.7
<i>Axius serratus</i>	-	-	-	1.7	-	-	-	-	-	0.1
Paguridae	-	-	2.7	<0.1	0.3	-	-	<0.1	-	<0.1
<i>Cancer irroratus</i>	-	-	-	3.8	-	-	0.4	-	-	0.5
Cancridae	-	1.9	-	-	-	-	-	-	-	<0.1
Decapoda unid.	-	2.8	0.1	<0.1	0.3	<0.1	-	0.5	-	0.2
Crustacea unid.	-	(10.4)	(1.8)	(3.4)	(0.4)	(3.2)	(0.1)	(0.6)	(<0.1)	(0.8)
OSTEICHTHYES	-	[4.8]	[1.9]	[30.8]	[55.8]	[50.9]	[72.1]	[9.1]	[92.6]	[57.1]
<i>Merluccius bilinearis</i>	-	-	-	1.3	14.7	-	-	-	76.8	7.4
<i>Urophycis chuss</i>	-	-	-	-	-	-	19.5	-	-	9.0
<i>Urophycis tenuis</i>	-	-	-	-	17.0	-	-	-	-	2.6
Gadidae	-	-	-	11.9	-	8.9	9.2	-	-	6.2
<i>Ammodytes dubius</i>	-	-	-	-	0.5	3.0	-	-	-	0.4
Pleuronectiformes	-	-	-	1.9	-	-	2.4	-	-	1.3
Osteichthyes unid.	-	4.8	1.9	15.7	23.6	39.0	41.0	9.1	15.8	30.2
ANIMAL REMAINS AND MISC.	-	[8.1]	[3.3]	[2.5]	[1.0]	[1.3]	[0.1]	[1.4]	[0.6]	[0.8]
Number sampled	9	14	42	79	69	28	21	12	9	283
Number empty	0	0	12	21	17	2	1	1	1	55
Mean stomach content (g)	0.035	0.208	1.416	3.670	7.844	13.439	77.570	32.290	25.716	12.431
Mean fish length (cm)	7	15	27	36	44	54	64	75	87	39

Table B-27b. Diet composition and sampling data for white hake by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area				
	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras
CEPHALOPODA	-	-	[29.5]	[40.1]	-
<i>Illex</i> sp.	-	-	21.8	40.1	-
<i>Loligo pealeii</i>	-	-	1.5	-	-
Cephalopoda unid.	-	-	6.2	-	-
POLYCHAETA	-	[0.2]	[<0.1]	-	[0.3]
CRUSTACEA	[1.9]	[42.8]	[26.5]	[7.7]	[5.2]
Calanoida	-	(<0.1)	-	-	-
Isopoda	-	(<0.1)	-	-	(<0.1)
Amphipoda	(0.3)	(1.1)	(<0.1)	-	(0.1)
<i>Unciola irrorata</i>	-	0.2	-	-	0.1
<i>Leptocheirus pinguis</i>	<0.1	0.8	-	-	<0.1
Amphipoda unid.	0.3	0.1	<0.1	-	<0.1
Mysidacea	-	(<0.1)	(0.7)	-	(<0.1)
<i>Mysidopsis bigelowi</i>	-	<0.1	-	-	-
Mysidacea unid.	-	-	0.7	-	<0.1
Euphausiacea	-	(0.5)	(19.2)	-	(<0.1)
<i>Meganyctiphanes norvegica</i>	-	0.5	17.8	-	<0.1
Euphausiacea unid.	-	<0.1	1.4	-	-
Decapoda	(1.6)	(39.3)	(5.4)	(7.7)	(5.1)
Pasiphaeidae	-	-	<0.1	7.1	-
<i>Dichelopandalus leptocerus</i>	1.1	26.7	3.0	-	3.2
<i>Pandalus borealis</i>	-	-	1.1	-	-
<i>Pandalus montagui</i>	-	-	<0.1	-	0.4
<i>Pandalus</i> sp.	-	-	0.3	-	-
Pandalidae	-	-	0.3	-	<0.1
<i>Crangon septemspinosa</i>	0.5	9.6	<0.1	-	0.6
<i>Axius serratus</i>	-	-	0.2	-	-
Paguridae	-	0.1	0.2	-	-
<i>Cancer irroratus</i>	-	2.9	0.3	-	0.9
Cancridae	-	<0.1	-	-	-
Decapoda unid.	<0.1	<0.1	<0.1	0.6	<0.1
Crustacea unid.	(<0.1)	(1.9)	(1.2)	-	(<0.1)
OSTEICHTHYES	[97.8]	[55.2]	[42.9]	[51.0]	[93.5]
<i>Merluccius bilinearis</i>	-	-	6.3	51.0	-
<i>Urophycis chuss</i>	-	-	14.4	-	-
<i>Urophycis tenuis</i>	-	51.9	-	-	-
Gadidae	13.9	-	1.6	-	23.1
<i>Ammodytes dubius</i>	-	-	0.6	-	-
Pleuronectidae	-	-	-	-	0.9
Pleuronectiformes	-	-	1.8	-	-
Osteichthyes unid.	83.9	3.3	18.2	-	69.5
ANIMAL REMAINS AND MISC.	[0.3]	[1.8]	[1.1]	[1.2]	[1.0]
Number sampled	18	43	191	4	27
Number empty	6	2	45	1	1
Mean stomach content (g)	13.406	4.125	11.591	59.595	23.970
Mean fish length (cm)	44	24	46	63	39

Table B-28a. Diet composition and sampling data for fawn cusk-eel by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)				Total
	11-15	16-20	21-25	26-30	
POLYCHAETA	[18.8]	[30.8]	[24.1]	[24.0]	[25.7]
<i>Ninoe nigripes</i>	-	8.8	-	-	2.1
<i>Nothria conchylega</i>	-	11.6	-	1.7	3.3
<i>Aglaophamus</i> sp.	-	1.2	<0.1	14.0	4.3
<i>Nephtys incisa</i>	-	-	-	6.4	1.8
Nephtyidae	-	0.5	6.6	<0.1	3.3
<i>Syllides</i> sp.	18.8	-	0.2	-	0.1
Polychaeta unid.	-	8.7	17.3	1.9	10.8
CRUSTACEA	[6.3]	[48.5]	[54.4]	[47.3]	[51.2]
Stomatopoda	-	(4.8)	-	-	(1.1)
Isopoda	-	-	(3.1)	(2.2)	(2.1)
<i>Cirolana</i> sp.	-	-	3.1	2.2	2.1
Amphipoda	(6.3)	(26.2)	(19.7)	(24.6)	(22.9)
<i>Ampelisca agassizi</i>	-	0.3	3.3	4.4	2.9
Ampeliscidae	-	1.6	<0.1	3.3	1.4
<i>Unciola irrorata</i>	-	19.8	11.5	7.6	12.4
<i>Unciola</i> sp.	6.3	-	0.3	-	0.2
<i>Casco bigelowi</i>	-	-	0.2	3.3	1.0
<i>Leptocheirus pinguis</i>	-	0.7	3.9	3.8	3.1
Amphipoda unid.	-	3.8	0.5	2.2	1.9
Decapoda	-	(17.0)	(30.5)	(19.1)	(23.9)
<i>Dichelopandalus leptocerus</i>	-	-	2.2	-	1.0
<i>Crangon septemspinosa</i>	-	6.6	10.9	14.5	10.9
<i>Pontophilus brevisrostris</i>	-	-	2.6	-	1.2
<i>Pontophilus norvegicus</i>	-	-	5.7	-	2.7
Crangonidae	-	-	1.5	-	0.7
<i>Munida iris</i>	-	4.3	-	0.7	1.2
<i>Munida</i> sp.	-	2.9	1.7	-	1.5
<i>Caridion gordonii</i>	-	-	3.1	-	1.5
<i>Pagurus</i> sp.	-	-	-	2.5	0.7
Cancridae	-	1.4	2.1	0.5	1.5
Decapoda unid.	-	1.8	0.7	0.9	1.0
Crustacea unid.	-	(0.5)	(1.1)	(1.4)	(1.2)
ECHINODERMATA	[74.9]	[18.3]	[7.3]	[3.8]	[9.2]
Echinoidea	-	-	(0.3)	(3.8)	(1.2)
Ophiuroidea	(74.9)	(18.3)	(7.0)	-	(8.0)
<i>Axiognathus squamatus</i>	-	8.1	-	-	2.0
Ophiuroidea unid.	74.9	10.2	7.0	-	6.0
OSTEICHTHYES	-	[0.6]	[7.1]	[22.3]	[9.8]
<i>Brosme brosme</i>	-	-	4.3	-	2.0
Pleuronectiformes	-	-	2.8	14.7	5.5
Osteichthyes unid.	-	0.6	-	7.6	2.3
ANIMAL REMAINS AND MISC.	-	[1.8]	[7.1]	[2.6]	[4.1]
Number sampled	4	65	69	27	165
Number empty	2	22	22	10	56
Mean stomach content (g)	0.004	0.018	0.034	0.052	0.030
Mean fish length (cm)	14	18	23	27	21

Table B-28b. Diet composition and sampling data for fawn cusk-eel by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area			
	Middle Atlantic	Southern New England	Georges Bank	Inshore North of Cape Hatteras
POLYCHAETA	[46.4]	[13.6]	[26.3]	[22.1]
<i>Ninoe nigripes</i>	7.6	-	-	-
<i>Nothria conchylega</i>	10.0	-	2.4	-
<i>Aglaophamus</i> sp.	1.0	8.1	-	-
<i>Nephtys incisa</i>	-	-	9.1	-
Nephtyidae	10.6	0.5	-	-
Polychaeta unid.	17.2	5.0	14.8	22.1
CRUSTACEA	[48.5]	[44.6]	[65.0]	[77.9]
Stomatopoda	-	-	-	(38.3)
Isopoda	-	-	(10.4)	-
<i>Cirolana</i> sp.	-	-	10.4	-
Amphipoda	(29.0)	(13.3)	(35.4)	(28.2)
<i>Ampelisca agassizi</i>	0.2	<0.1	14.1	-
Ampeliscidae	-	0.3	4.0	12.8
<i>Unciola irrorata</i>	27.0	2.9	15.2	13.4
<i>Unciola</i> sp.	0.1	0.2	-	-
<i>Casco bigelowi</i>	-	2.1	-	-
<i>Leptocheirus pinguis</i>	0.6	5.6	0.9	-
Amphipoda unid.	1.1	2.2	1.2	2.0
Decapoda	(19.0)	(30.1)	(17.4)	(11.4)
<i>Dichelopandalus leptocerus</i>	-	-	5.3	-
<i>Crangon septemspinosa</i>	17.9	8.9	7.5	-
<i>Pontophilus brevisrostris</i>	-	2.5	-	-
<i>Pontophilus norvegicus</i>	-	5.5	-	-
Crangonidae	-	1.4	-	-
<i>Munida iris</i>	-	2.1	1.0	-
<i>Munida</i> sp.	0.9	2.5	-	-
<i>Caridion gordonii</i>	-	3.0	-	-
<i>Pagurus</i> sp.	-	-	3.6	-
Cancridae	-	2.3	-	11.4
Decapoda unid.	0.2	1.9	-	-
Crustacea unid.	(0.5)	(1.2)	(1.8)	-
ECHINODERMATA	[2.7]	[17.0]	-	-
Echinoidea	-	(2.4)	-	-
Ophiuroidea	(2.7)	(14.6)	-	-
<i>Axiognathus squamatus</i>	-	4.0	-	-
Ophiuroidea unid.	2.7	10.6	-	-
OSTEICHTHYES	-	[19.9]	-	-
<i>Brosme brosme</i>	-	4.1	-	-
Pleuronectiformes	-	11.2	-	-
Osteichthyes unid.	-	4.6	-	-
ANIMAL REMAINS AND MISC.	[2.4]	[4.9]	[8.7]	-
Number sampled	41	96	23	5
Number empty	11	33	11	1
Mean stomach content (g)	0.034	0.026	0.043	0.030
Mean fish length (cm)	19	21	25	18

Table B-29a. Diet composition and sampling data for goosefish by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	1-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	>90	
CEPHALOPODA	[0.3]	[3.3]	[8.8]	[27.3]	[27.6]	[40.5]	[28.5]	[28.2]	[17.9]	[24.9]
<i>Illex</i> sp.	-	-	-	8.7	22.3	16.1	14.6	15.5	16.6	15.3
<i>Loligo</i> sp.	-	-	-	3.6	1.0	5.5	-	-	0.9	1.3
Cephalopoda unid.	0.3	3.3	8.8	15.0	4.3	18.9	13.9	12.7	0.4	8.3
CHONDRICHTHYES	-	-	-	[0.7]	[3.7]	[15.8]	[8.7]	[5.4]	[10.3]	[8.8]
Rajiformes	-	-	-	-	3.7	15.3	6.0	5.4	10.3	8.2
<i>Squalus acanthias</i>	-	-	-	0.7	-	0.5	2.7	-	-	0.6
OSTEICHTHYES	[98.2]	[96.2]	[89.6]	[71.9]	[67.0]	[42.6]	[62.5]	[62.5]	[70.3]	[65.1]
<i>Alosa pseudoharengus</i>	-	-	-	-	5.6	-	-	-	1.0	0.7
<i>Clupea harengus</i>	-	-	-	-	-	-	-	-	0.8	0.3
Clupeidae	-	-	-	-	1.9	-	-	1.2	14.2	5.6
<i>Enchelyopus cimbrius</i>	-	5.1	4.5	-	2.7	-	-	-	-	0.4
<i>Melanogrammus aeglefinus</i>	-	-	-	-	-	-	-	5.1	0.5	0.9
<i>Merluccius bilinearis</i>	15.0	34.6	-	14.7	14.3	7.8	3.4	4.0	2.5	5.4
<i>Pollachius virens</i>	-	-	-	-	3.5	-	-	-	-	0.2
<i>Urophycis chesteri</i>	-	-	-	-	2.3	-	0.4	0.6	-	0.3
<i>Urophycis chuss</i>	-	-	-	-	0.2	<0.1	-	-	4.8	1.9
<i>Urophycis tenuis</i>	-	-	0.3	-	-	-	-	-	-	<0.1
<i>Urophycis</i> sp.	-	2.5	-	-	-	-	-	-	-	0.1
Gadidae	-	3.7	1.6	2.5	<0.1	-	15.1	-	7.8	6.2
Macrouridae	-	-	-	-	1.2	-	-	-	-	0.1
Lophiidae	-	-	-	-	-	-	-	-	4.0	1.6
<i>Ammodytes dubius</i>	24.2	-	-	0.8	-	0.6	0.2	<0.1	-	0.2
<i>Peprilus triacanthus</i>	-	-	-	-	1.8	1.7	0.9	2.0	-	0.8
<i>Sebastes fasciatus</i>	-	-	-	-	-	3.0	-	-	-	0.4
<i>Helicolenus dactylopterus</i>	-	-	-	-	-	-	-	-	0.4	0.1
<i>Lopholatilus chamaeleonticeps</i>	-	-	-	-	-	-	-	-	0.7	0.3
<i>Hemitripterus americanus</i>	-	-	-	-	-	-	-	-	0.3	0.1
<i>Myoxocephalus octodecemspinosus</i>	-	-	-	-	7.7	1.7	2.4	-	0.9	1.5
<i>Lumpenus lumpretaeformis</i>	-	-	-	1.2	-	-	-	-	-	0.1
Triglidae	-	-	-	-	-	-	0.9	3.6	-	0.7
<i>Etropus microstomus</i>	-	-	-	-	-	-	-	-	0.9	0.4
<i>Paralichthys oblongus</i>	-	-	-	-	-	-	-	2.1	-	0.3
<i>Scophthalmus aquosus</i>	-	-	-	-	-	-	-	-	0.7	0.3
Bothidae	-	1.2	-	-	0.3	-	0.1	-	-	0.1
<i>Glyptocephalus cynoglossus</i>	-	4.9	-	-	-	-	0.7	-	0.8	0.6
<i>Hippoglossoides platessoides</i>	-	-	-	-	-	-	-	0.2	4.6	1.8
<i>Pleuronectes ferruginus</i>	0.4	-	-	-	-	-	1.1	-	-	0.2
<i>Pleuronectes americanus</i>	-	1.7	-	0.4	-	-	-	-	1.3	0.5
Pleuronectiformes	-	0.5	-	5.1	8.0	-	-	10.8	-	2.2
Osteichthyes eggs	-	-	-	-	-	-	-	-	<0.1	<0.1
Osteichthyes unid.	58.6	42.0	83.2	47.2	17.5	27.8	37.3	32.9	24.1	30.8
ANIMAL REMAINS AND MISC.	[1.5]	[0.5]	[1.6]	[0.1]	[1.7]	[1.1]	[0.3]	[3.9]	[1.5]	[1.2]
Number sampled	51	78	102	107	104	122	119	86	103	872
Number empty	23	37	50	73	59	78	53	42	52	467
Mean stomach content (g)	3.530	14.086	13.209	19.862	32.999	60.421	92.943	90.873	209.566	66.524
Mean fish length (cm)	15	25	35	45	55	65	75	85	98	59

Table B-29b. Diet composition and sampling data for goosefish by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area					
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras
CEPHALOPODA	-	[22.7]	[49.6]	[14.6]	[3.5]	[53.3]
<i>Illex</i> sp.	-	3.9	40.8	8.0	-	46.0
<i>Loligo</i> sp.	-	0.9	3.3	-	-	7.3
Cephalopoda unid.	-	17.9	5.5	6.6	3.5	<0.1
CHONDRICHTHYES	[3.0]	[12.9]	[21.2]	[1.9]	[5.3]	-
Rajiformes	-	10.2	21.2	1.9	5.3	-
<i>Squalus acanthias</i>	3.0	2.7	-	-	-	-
OSTEICHTHYES	[96.0]	[63.2]	[28.5]	[81.1]	[91.2]	[46.6]
<i>Alosa pseudoharengus</i>	-	-	-	1.8	-	-
<i>Clupea harengus</i>	-	1.3	-	-	-	-
Clupeidae	-	0.5	-	13.0	-	3.6
<i>Enchelyopus cimbrius</i>	-	-	-	0.9	-	-
<i>Melanogrammus aeglefinus</i>	-	-	1.0	0.4	5.9	-
<i>Merluccius bilinearis</i>	-	14.4	0.5	4.9	-	-
<i>Pollachius virens</i>	-	-	1.0	-	-	-
<i>Urophycis chesteri</i>	-	1.4	-	-	-	-
<i>Urophycis chuss</i>	-	-	-	4.5	-	0.2
<i>Urophycis tenuis</i>	-	<0.1	-	-	-	-
Gadidae	-	0.4	5.0	2.8	42.7	7.3
Macrouridae	-	0.3	-	-	-	-
Lophiidae	-	-	-	-	18.7	-
<i>Ammodytes dubius</i>	-	0.9	0.2	-	-	-
<i>Peprilus triacanthus</i>	-	2.2	-	0.7	-	-
<i>Sebastes fasciatus</i>	-	<0.1	-	0.9	-	-
<i>Helicolenus dactylopterus</i>	-	0.6	-	-	-	-
<i>Lopholatilus chamaeleonticeps</i>	-	1.3	-	-	-	-
<i>Hemitripterus americanus</i>	-	0.5	-	-	-	-
<i>Myoxocephalus octodecemspinosus</i>	-	1.0	3.8	-	5.7	-
<i>Lumpenus lumpretaeformis</i>	-	-	-	0.1	-	-
Triglidae	-	3.1	-	-	-	-
<i>Etropus microstomus</i>	-	1.6	-	-	-	-
<i>Paralichthys oblongus</i>	-	-	0.8	0.3	-	-
<i>Scophthalmus aquosus</i>	-	1.1	-	-	-	-
Bothidae	2.4	<0.1	-	-	-	0.6
<i>Glyptocephalus cynoglossus</i>	-	1.9	-	0.3	-	-
<i>Hippoglossoides platessoides</i>	-	-	-	4.3	-	-
<i>Pleuronectes ferruginus</i>	-	-	<0.1	0.5	-	-
<i>Pleuronectes americanus</i>	-	-	-	1.2	0.6	-
Pleuronectiformes	-	8.4	-	0.3	2.3	-
Osteichthyes eggs	-	<0.1	-	-	-	-
Osteichthyes unid.	93.6	22.3	16.2	44.2	15.3	34.9
ANIMAL REMAINS AND MISC.	[1.0]	[1.2]	[0.7]	[2.4]	[<0.1]	[0.1]
Number sampled	26	362	91	316	51	25
Number empty	13	208	52	164	22	7
Mean stomach content (g)	18.339	34.587	133.825	74.414	91.418	106.507
Mean fish length (cm)	43	52	69	63	63	68

Table B-30. Diet composition and sampling data for northern pipefish by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)			Total
	11-15	16-20	21-25	
CRUSTACEA	[100.0]	[100.0]	[100.0]	[100.0]
Amphipoda	-	-	(27.3)	(19.6)
<i>Gammarus annulatus</i>	-	-	12.1	8.7
Gammaridea	-	-	15.2	10.9
Mysidacea	(100.0)	(100.0)	(72.7)	(80.4)
<i>Neomysis americana</i>	100.0	100.0	72.7	80.4
Number sampled	8	17	13	38
Number empty	7	12	6	25
Mean stomach content (g)	<0.001	0.001	0.003	0.001
Mean fish length (cm)	14	18	22	19

Table B-31a. Diet composition and sampling data for blackbelly rosefish by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)					Total
	6-10	11-15	16-20	21-25	26-30	
NEMATODA	-	-	[<0.1]	[0.8]	-	[0.1]
MOLLUSCA	-	[1.4]	[5.4]	-	-	[3.3]
Bivalvia	-	1.4	-	-	-	0.3
Cephalopoda	-	-	5.4	-	-	3.0
POLYCHAETA	-	[1.8]	[3.1]	[8.7]	-	[3.3]
Maldanidae	-	-	1.1	-	-	0.6
<i>Eunice</i> sp.	-	-	-	4.3	-	0.6
<i>Onuphis</i> sp.	-	1.0	-	-	-	0.2
<i>Ampharete arctica</i>	-	0.2	-	-	-	0.1
Terebellidae	-	-	1.8	-	-	1.0
Polychaeta unid.	-	0.6	0.2	4.4	-	0.8
CRUSTACEA	[28.9]	[87.2]	[48.8]	[23.7]	-	[52.1]
Cumacea	-	(<0.1)	(0.1)	-	-	(<0.1)
Amphipoda	(6.5)	(5.2)	(0.3)	(<0.1)	-	(1.6)
<i>Unciola inermis</i>	-	0.8	-	-	-	0.2
<i>Unciola irrorata</i>	5.0	0.6	0.3	-	-	0.4
<i>Unciola dissimilis</i>	-	1.6	<0.1	-	-	0.4
<i>Unciola</i> sp.	-	2.2	<0.1	-	-	0.6
Amphipoda unid.	1.5	<0.1	-	<0.1	-	<0.1
Mysidacea	-	-	(<0.1)	(<0.1)	-	(0.1)
Euphausiacea	-	(2.3)	(3.0)	(0.9)	-	(2.3)
<i>Meganyctiphanes norvegica</i>	-	2.3	0.3	0.9	-	0.8
Euphausiacea unid.	-	-	2.7	-	-	1.5
Decapoda	(7.5)	(76.2)	(44.7)	(22.8)	-	(46.7)
<i>Spirontocaris</i> sp.	-	-	0.3	-	-	0.2
<i>Eualus pusiolus</i>	7.5	-	-	-	-	0.1
<i>Dichelopandalus leptocerus</i>	-	38.5	28.8	-	-	25.5
<i>Pagurus</i> sp.	-	0.9	-	-	-	0.2
<i>Munida</i> sp.	-	-	1.4	-	-	0.8
<i>Caridion gordonii</i>	-	0.4	0.7	-	-	0.5
<i>Cancer irroratus</i>	-	-	4.4	-	-	2.5
<i>Cancer</i> sp.	-	1.1	8.8	-	-	5.2
Crab unid.	-	12.0	0.3	-	-	3.1
Shrimp unid.	-	23.3	-	22.8	-	8.6
Crustacea unid.	(14.9)	(3.5)	(0.7)	-	-	(1.4)
ECHINODERMATA	-	-	[1.3]	-	[13.7]	[1.5]
Holothuroidea	-	-	-	-	13.7	0.8
Ophiuroidea	-	-	1.3	-	-	0.7
SALPIDAE	-	[0.8]	[30.1]	[66.6]	[86.3]	[30.7]
<i>Salpa fusiformis</i>	-	-	2.8	57.0	86.3	13.9
Salpidae unid.	-	0.8	27.3	9.6	-	16.8
OSTEICHTHYES	[71.1]	[5.6]	[<0.1]	[0.2]	-	[2.1]
ANIMAL REMAINS AND MISC.	-	[3.2]	[11.3]	-	-	[6.9]
Number sampled	8	26	33	10	3	80
Number empty	4	10	6	4	1	25
Mean stomach content (g)	0.025	0.181	0.333	0.251	0.375	0.244
Mean fish length (cm)	8	13	17	22	28	16

Table B-31b. Diet composition and sampling data for blackbelly rosefish by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area			
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine
NEMATODA	-	-	[0.2]	-
MOLLUSCA	-	[2.7]	[4.5]	-
Bivalvia	-	2.7	-	-
Cephalopoda	-	-	4.5	-
POLYCHAETA	-	[11.2]	[1.8]	[15.8]
Maldanidae	-	-	0.9	-
<i>Eunice</i> sp.	-	-	-	15.8
<i>Onuphis</i> sp.	-	1.9	-	-
Terebellidae	-	8.1	-	-
Polychaeta unid.	-	1.2	0.9	-
CRUSTACEA	[82.8]	[53.0]	[41.7]	[84.2]
Cumacea	(0.1)	-	(<0.1)	-
Amphipoda	(6.7)	(0.3)	(0.4)	-
<i>Unciola inermis</i>	1.1	-	-	-
<i>Unciola irrorata</i>	0.4	-	0.4	-
<i>Unciola dissimilis</i>	2.2	0.2	-	-
<i>Unciola</i> sp.	3.0	-	<0.1	-
Amphipoda unid.	<0.1	0.1	<0.1	-
Mysidacea	-	(0.1)	(<0.1)	-
Euphausiacea	(2.8)	(9.4)	(1.0)	-
<i>Meganyctiphanes norvegica</i>	2.8	-	0.5	-
Euphausiacea unid.	-	9.4	0.5	-
Decapoda	(72.3)	(39.1)	(39.2)	(84.2)
<i>Spirontocaris</i> sp.	-	-	0.3	-
<i>Eualus pusiolus</i>	-	-	0.1	-
<i>Dichelopandalus leptocerus</i>	-	-	38.1	-
<i>Pagurus</i> sp.	-	1.8	-	-
<i>Munida</i> sp.	4.5	-	-	-
<i>Caridion gordonii</i>	-	-	0.7	-
<i>Cancer irroratus</i>	5.9	11.7	-	-
<i>Cancer</i> sp.	28.5	2.1	-	-
Crab unid.	0.9	23.5	-	-
Shrimp unid.	32.5	-	-	84.2
Crustacea unid.	(0.9)	(4.1)	(1.1)	-
ECHINODERMATA	[4.6]	-	[1.1]	-
Holothuroidea	4.6	-	-	-
Ophiuroidea	-	-	1.1	-
SALPIDAE	-	-	[45.7]	-
<i>Salpa fusiformis</i>	-	-	20.7	-
Salpidae unid.	-	-	25.0	-
OSTEICHTHYES	[10.1]	[2.9]	[0.6]	-
ANIMAL REMAINS AND MISC.	[2.5]	[30.2]	[4.4]	-
Number sampled	28	16	36	1
Number empty	12	4	10	0
Mean stomach content (g)	0.121	0.150	0.363	0.679
Mean fish length (cm)	15	15	17	21

Table B-32a. Diet composition and sampling data for Acadian redfish by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)							Total
	11-15	16-20	21-25	26-30	31-35	36-40	41-45	
SIPHONOPHORA	-	-	-	-	-	[0.3]	-	[0.1]
NEMATODA	-	-	[<0.1]	-	-	[<0.1]	-	[<0.1]
CHAETOGNATHA	-	-	[<0.1]	-	-	[<0.1]	-	[<0.1]
MOLLUSCA	-	-	-	[6.2]	[<0.1]	-	-	[0.7]
POLYCHAETA	-	-	[0.5]	-	-	-	-	[0.1]
CRUSTACEA	[100.0]	[100.0]	[98.7]	[92.4]	[80.0]	[99.5]	[100.0]	[91.3]
Copepoda	-	(62.7)	(29.3)	(10.0)	(0.3)	(1.0)	-	(5.9)
<i>Calanus</i> sp.	-	62.7	29.3	10.0	0.3	1.0	-	5.9
Cumacea	-	-	-	-	-	(<0.1)	-	(<0.1)
<i>Diastylis</i> sp.	-	-	-	-	-	<0.1	-	<0.1
Amphipoda	-	(0.4)	(0.8)	(0.1)	(1.4)	(0.5)	(42.9)	(1.0)
<i>Parathemisto gaudichaudii</i>	-	0.4	0.7	-	1.3	0.2	-	0.6
<i>Parathemisto</i> sp.	-	-	0.1	<0.1	<0.1	0.2	38.9	0.2
<i>Vibilia</i> sp.	-	-	-	-	-	0.1	-	0.1
Hyperiididae	-	<0.1	<0.1	<0.1	0.1	<0.1	-	0.1
Oedicerotidae	-	-	-	-	-	<0.1	4.0	<0.1
Amphipoda unid.	-	-	-	0.1	-	-	-	<0.1
Euphausiacea	-	(32.3)	(65.4)	(81.0)	(77.5)	(90.8)	(57.1)	(80.7)
<i>Meganyctiphanes norvegica</i>	-	32.3	64.0	78.3	76.9	90.3	57.1	79.9
Euphausiacea unid.	-	-	1.4	2.7	0.6	0.5	-	0.8
Decapoda	-	(4.1)	(3.0)	-	(0.3)	(6.6)	-	(3.1)
<i>Spirontocaris liljeborgii</i>	-	4.1	-	-	-	-	-	0.1
<i>Dichelopandalus leptocerus</i>	-	-	3.0	-	-	0.5	-	0.5
Pandalidae	-	-	-	-	-	0.8	-	0.3
<i>Crangon septemspinosa</i>	-	-	-	-	-	4.8	-	1.9
Shrimp unid.	-	-	-	-	-	0.2	-	0.1
Decapoda larvae	-	-	<0.1	<0.1	-	-	-	<0.1
Decapoda unid.	-	-	-	-	0.3	0.3	-	0.2
Crustacea unid.	(100.0)	(0.5)	(0.2)	(1.3)	(0.5)	(0.6)	-	(0.6)
OSTEICHTHYES	-	-	-	[1.3]	[19.5]	[0.2]	-	[7.5]
<i>Merluccius bilinearis</i>	-	-	-	-	19.5	-	-	7.3
<i>Cryptacanthodes maculatus</i>	-	-	-	-	-	0.2	-	0.1
<i>Sebastes fasciatus</i>	-	-	-	1.3	-	-	-	0.1
Osteichthyes larvae	-	-	-	-	-	<0.1	-	<0.1
ANIMAL REMAINS	-	-	[0.8]	[0.1]	[0.5]	[<0.1]	-	[0.3]
Number sampled	4	14	45	55	77	63	8	266
Number empty	1	8	29	35	45	29	5	152
Mean stomach content (g)	0.038	0.306	0.439	0.374	0.939	1.216	0.062	0.730
Mean fish length (cm)	14	19	23	28	32	37	41	30

Table B-32b. Diet composition and sampling data for Acadian redfish by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area		
	Georges Bank	Gulf of Maine	Scotian Shelf
SIPHONOPHORA	-	[0.2]	-
NEMATODA	-	-	[<0.1]
CHAETOGNATHA	-	[<0.1]	[<0.1]
MOLLUSCA	-	[1.4]	[<0.1]
POLYCHAETA	-	-	[<0.1]
CRUSTACEA	[100.0]	[82.6]	[99.4]
Copepoda	(63.5)	(0.8)	(10.6)
<i>Calanus</i> sp.	63.5	0.8	10.6
Cumacea	-	-	(<0.1)
<i>Diastylis</i> sp.	-	-	<0.1
Amphipoda	(18.6)	(0.1)	(1.6)
<i>Parathemisto gaudichaudii</i>	18.6	0.1	1.1
<i>Parathemisto</i> sp.	-	-	0.4
<i>Vibilia</i> sp.	-	-	<0.1
Hyperiididae	-	<0.1	0.1
Oedicerotidae	-	-	<0.1
Amphipoda unid.	-	<0.1	-
Euphausiacea	(12.8)	(81.0)	(80.6)
<i>Meganyctiphanes norvegica</i>	12.8	80.7	79.2
Euphausiacea unid.	-	0.3	1.4
Decapoda	-	(0.5)	(5.6)
<i>Spirontocaris liljeborgii</i>	-	-	0.2
<i>Dichelopandalus leptocerus</i>	-	-	1.0
Pandalidae	-	-	0.6
<i>Crangon septemspinosa</i>	-	-	3.6
Shrimp unid.	-	-	0.2
Decapoda larvae	-	-	<0.1
Decapoda unid.	-	0.5	-
Crustacea unid.	(5.1)	(0.2)	(1.0)
OSTEICHTHYES	-	[15.6]	[<0.1]
<i>Merluccius bilinearis</i>	-	15.1	-
<i>Cryptacanthodes maculatus</i>	-	0.2	-
<i>Sebastes fasciatus</i>	-	0.3	-
Osteichthyes larvae	-	<0.1	<0.1
ANIMAL REMAINS	-	[0.2]	[0.6]
Number sampled	3	86	177
Number empty	1	42	109
Mean stomach content (g)	0.052	1.088	0.567
Mean fish length (cm)	22	31	30

Table B-33. Diet composition and sampling data for northern searobin by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)				Total
	11-15	16-20	21-25	26-30	
MOLLUSCA	-	[1.9]	[2.5]	[10.4]	[3.9]
Bivalvia	-	(1.9)	(2.5)	(8.4)	(3.4)
Solenidae	-	-	-	6.0	1.2
<i>Tellina agilis</i>	-	1.8	2.0	2.4	1.9
Bivalvia unid.	-	0.1	0.5	-	0.3
Mollusca unid.	-	-	(<0.1)	(2.0)	(0.5)
POLYCHAETA	-	[1.5]	[26.7]	[1.2]	[15.2]
Nephtyidae	-	0.6	0.3	0.4	0.4
Spionidae	-	-	22.1	-	12.1
Polychaeta unid.	-	0.9	4.3	0.8	2.7
CRUSTACEA	[87.8]	[90.2]	[45.8]	[20.1]	[51.5]
Cumacea	-	(10.8)	(1.1)	(0.2)	(3.0)
<i>Pseudoleptocuma minor</i>	-	0.5	-	-	0.1
<i>Oxyurostylis smithi</i>	-	10.3	0.9	-	2.6
Cumacea unid.	-	-	0.2	0.2	0.3
Isopoda	-	(1.0)	(<0.1)	-	(0.3)
<i>Edotea</i> sp.	-	1.0	<0.1	-	0.3
Amphipoda	(3.7)	(2.9)	(8.3)	(2.5)	(5.9)
<i>Ampelisca agassizi</i>	-	-	0.2	-	0.1
Ampeliscidae	3.7	-	0.3	-	0.3
<i>Erichthonius rubricornis</i>	-	-	0.9	-	0.5
<i>Unciola irrorata</i>	-	1.1	4.9	0.4	3.0
<i>Protohaustorius wigleyi</i>	-	-	0.2	0.6	0.2
<i>Leptocheirus pinguis</i>	-	-	0.7	-	0.4
<i>Rhepoxynius epistomus</i>	-	-	-	1.3	0.3
Caprellidae	-	0.5	0.9	-	0.6
Gammaridea	-	1.3	0.2	0.2	0.5
Decapoda	(16.9)	(71.0)	(33.8)	(17.4)	(37.3)
<i>Dichelopandalus leptocerus</i>	-	-	4.6	-	2.5
<i>Crangon septemspinosa</i>	5.8	38.6	8.7	-	12.9
<i>Cancer borealis</i>	-	-	0.4	-	0.2
<i>Cancer irroratus</i>	7.8	27.9	16.1	17.4	18.5
Cancridae	-	1.0	-	-	0.2
Crab unid.	3.3	-	1.7	-	1.0
Decapoda larvae	-	1.0	2.0	-	1.3
Decapoda unid.	-	2.5	0.3	-	0.7
Crustacea unid.	(67.2)	(4.5)	(2.6)	-	(5.0)
OSTEICHTHYES	-	[0.9]	[2.1]	[64.3]	[14.7]
<i>Paralichthys dentatus</i>	-	-	0.8	-	0.4
Pleuronectiformes	-	0.9	-	-	0.2
Osteichthyes unid.	-	-	1.3	64.3	14.1
ANIMAL REMAINS	-	[5.0]	[9.5]	[2.3]	[6.4]
SAND AND ROCK	[12.2]	[0.5]	[13.4]	[1.7]	[8.3]
Number sampled	7	11	19	4	41
Number empty	1	2	4	1	8
Mean stomach content (g)	0.057	0.192	0.299	0.537	0.252
Mean fish length (cm)	14	18	22	28	20

Table B-34a. Diet composition and sampling data for sea raven by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	>45	
RHYNCHOCOELA	-	-	-	-	-	-	-	[0.1]	-	[<0.1]
MOLLUSCA	[0.3]	-	-	-	[2.6]	[9.2]	-	[<0.1]	[<0.1]	[1.6]
Bivalvia	-	-	-	-	(2.6)	(0.3)	-	-	(<0.1)	(0.2)
<i>Anadara transversa</i>	-	-	-	-	-	<0.1	-	-	-	<0.1
<i>Clinocardium ciliatum</i>	-	-	-	-	-	0.3	-	-	-	0.1
Bivalvia unid.	-	-	-	-	2.6	-	-	-	<0.1	0.1
Cephalopoda	-	-	-	-	-	(8.9)	-	(<0.1)	-	(1.4)
<i>Illex</i> sp.	-	-	-	-	-	-	-	<0.1	-	<0.1
Cephalopoda unid.	-	-	-	-	-	8.9	-	-	-	1.4
Mollusca unid.	(0.3)	-	-	-	-	-	-	-	-	(<0.1)
CRUSTACEA	[99.7]	[100.0]	[11.7]	[24.5]	[28.5]	[22.7]	[23.6]	[30.5]	[22.9]	[24.0]
Amphipoda	(3.1)	-	(<0.1)	-	-	-	-	-	-	(<0.1)
Euphausiacea	-	(43.2)	-	-	-	-	-	-	-	(<0.1)
<i>Euphausia krohnii</i>	-	22.9	-	-	-	-	-	-	-	<0.1
<i>Meganctiphanes norvegica</i>	-	20.3	-	-	-	-	-	-	-	<0.1
Decapoda	(96.6)	(45.0)	(10.3)	(24.5)	(28.5)	(22.7)	(23.6)	(30.5)	(22.9)	(24.0)
Hippolytidae	-	-	0.7	-	-	-	-	-	-	<0.1
<i>Dichelopandalus leptocerus</i>	-	-	4.7	1.2	7.2	<0.1	0.6	-	-	0.4
<i>Pandalus borealis</i>	-	-	-	-	-	-	-	-	<0.1	0.1
<i>Pandalus montagui</i>	-	-	-	2.1	-	-	-	-	-	0.1
Pandalidae	-	-	-	-	1.0	-	-	-	-	<0.1
<i>Crangon septemspinosa</i>	63.0	45.0	-	0.2	-	-	-	-	-	<0.1
<i>Pagurus</i> sp.	-	-	-	-	-	-	-	-	0.1	<0.1
<i>Hyas coarctatus</i>	-	-	-	-	-	-	-	-	0.4	0.2
<i>Cancer borealis</i>	-	-	-	17.2	-	-	8.8	30.5	22.4	17.4
<i>Cancer irroratus</i>	-	-	-	3.8	20.3	22.7	14.2	-	-	5.8
Shrimp unid.	33.6	-	-	-	-	<0.1	-	-	-	<0.1
Decapoda unid.	-	-	4.9	-	-	<0.1	-	-	-	<0.1
Crustacea unid.	-	(11.8)	(1.4)	-	-	(<0.1)	(<0.1)	-	-	(<0.1)
OSTEICHTHYES	-	-	[87.4]	[75.5]	[56.9]	[67.4]	[76.4]	[69.4]	[77.0]	[73.8]
<i>Merluccius bilinearis</i>	-	-	-	-	-	4.4	-	-	-	0.7
Gadidae	-	-	-	11.4	-	-	-	-	-	0.4
Anarhichadidae	-	-	-	-	-	-	-	-	71.7	38.6
<i>Liparis atlanticus</i>	-	-	4.8	-	-	0.6	-	-	-	0.1
<i>Liparis liparis</i>	-	-	-	-	0.6	-	-	-	-	<0.1
Ophiidiidae	-	-	-	-	-	7.5	13.6	-	-	2.6
<i>Pholis gunnellus</i>	-	-	18.8	-	-	-	-	-	-	0.2
<i>Lumpenus lumpretaeformis</i>	-	-	-	33.0	-	-	-	-	-	1.1
<i>Macrozoarces americanus</i>	-	-	-	3.3	-	17.1	-	-	-	2.8
Osteichthyes unid.	-	-	63.8	27.8	56.3	37.8	62.8	69.4	5.3	27.3
ANIMAL REMAINS	-	-	[0.7]	-	[0.1]	[<0.1]	-	[<0.1]	[<0.1]	[0.1]
ROCK AND SAND	-	-	[0.2]	[<0.1]	[11.9]	[0.7]	[<0.1]	-	[0.1]	[0.5]
Number sampled	4	7	18	22	17	34	20	8	16	146
Number empty	0	3	7	10	9	16	11	3	7	66
Mean stomach content (g)	0.080	0.077	0.867	2.899	3.433	9.030	10.564	31.104	65.994	13.436
Mean fish length (cm)	9	13	18	22	28	33	37	42	51	30

Table B-34b. Diet composition and sampling data for sea raven by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area				
	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras
RHYNCHOCOELA	-	[<0.1]	-	-	-
MOLLUSCA	-	[3.6]	[0.8]	-	[<0.1]
Bivalvia	-	-	(0.8)	-	(<0.1)
<i>Anadara transversa</i>	-	-	<0.1	-	-
<i>Clinocardium ciliatum</i>	-	-	0.3	-	-
Bivalvia unid.	-	-	0.5	-	<0.1
Cephalopoda	-	(3.6)	-	-	(<0.1)
<i>Illex</i> sp.	-	-	-	-	<0.1
Cephalopoda unid.	-	3.6	-	-	-
Mollusca unid.	-	(<0.1)	-	-	-
CRUSTACEA	[64.8]	[51.5]	[1.5]	[63.5]	[8.4]
Amphipoda	-	(<0.1)	-	-	(<0.1)
Euphausiacea	-	(<0.1)	-	-	-
<i>Euphausia krohnii</i>	-	<0.1	-	-	-
<i>Meganctiphanes norvegica</i>	-	<0.1	-	-	-
Decapoda	(64.8)	(51.5)	(1.5)	(63.5)	(8.4)
Hippolytidae	-	-	-	-	<0.1
<i>Dichelopandalus leptocerus</i>	-	0.4	1.1	63.5	-
<i>Pandalus borealis</i>	-	-	-	-	0.1
<i>Pandalus montagui</i>	-	-	-	-	0.1
Pandalidae	-	-	0.2	-	-
<i>Crangon septemspinosa</i>	-	<0.1	-	-	-
<i>Pagurus</i> sp.	-	-	-	-	<0.1
<i>Hyas coarctatus</i>	-	-	-	-	0.5
<i>Cancer borealis</i>	-	45.2	-	-	-
<i>Cancer irroratus</i>	-	5.9	-	-	7.7
Shrimp unid.	64.8	-	<0.1	-	-
Decapoda unid.	-	-	0.2	-	<0.1
Crustacea unid.	-	(<0.1)	-	-	-
OSTEICHTHYES	-	[44.2]	[97.6]	[36.5]	[90.6]
<i>Merluccius bilinearis</i>	-	-	4.4	-	-
Gadidae	-	1.0	-	-	-
Anarhichadidae	-	-	-	-	84.5
<i>Liparis atlanticus</i>	-	0.3	-	-	-
<i>Liparis liparis</i>	-	-	-	36.5	-
Ophidiidae	-	6.9	-	-	-
<i>Pholis gunnellus</i>	-	-	-	-	0.3
<i>Lumpenus lumpretaeformis</i>	-	-	6.8	-	-
<i>Macrozoarces americanus</i>	-	0.3	17.0	-	-
Osteichthyes unid.	-	35.7	69.4	-	5.8
ANIMAL REMAINS	[19.4]	[0.3]	[0.1]	-	[0.2]
ROCK AND SAND	[15.8]	[0.4]	[<0.1]	-	[0.8]
Number sampled	14	73	31	6	22
Number empty	12	27	13	4	10
Mean stomach content (g)	0.012	10.337	10.007	0.161	40.712
Mean fish length (cm)	26	29	33	25	34

Table B-35a. Diet composition and sampling data for longhorn sculpin by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)							Total
	6-10	11-15	16-20	21-25	26-30	31-35	36-40	
MOLLUSCA	-	-	-	[1.6]	[0.4]	[<0.1]	-	[0.5]
Gastropoda	-	-	-	0.7	0.1	-	-	0.2
Mollusca unid.	-	-	-	0.9	0.3	<0.1	-	0.3
POLYCHAETA	[11.7]	[23.4]	[1.5]	[1.0]	[1.8]	[3.3]	-	[2.1]
Aphroditidae	-	-	-	-	0.5	3.3	-	1.0
Polychaeta unid.	11.7	23.4	1.5	1.0	1.3	-	-	1.1
CRUSTACEA	[81.6]	[68.8]	[96.2]	[93.2]	[85.2]	[63.9]	[89.5]	[82.4]
Isopoda	-	-	-	(0.3)	(0.3)	-	-	(0.2)
<i>Cirolana polita</i>	-	-	-	0.3	0.3	-	-	0.2
Amphipoda	(53.3)	(18.8)	-	(1.1)	(2.0)	(0.6)	-	(1.9)
<i>Calliopius laeviusculus</i>	-	-	-	-	1.1	-	-	0.7
<i>Erichthonius rubricornis</i>	3.3	-	-	<0.1	<0.1	-	-	<0.1
<i>Unciola irrorata</i>	8.3	-	-	0.4	0.5	0.4	-	0.5
Lysianassidae	-	-	-	-	-	0.2	-	0.1
Oedicerotidae	-	-	-	0.1	<0.1	-	-	<0.1
<i>Leptocheirus pinguis</i>	-	17.2	-	0.2	<0.1	<0.1	-	0.1
Podoceridae	16.7	-	-	-	-	-	-	<0.1
<i>Aeginina longicornis</i>	-	-	-	-	0.3	-	-	0.2
Caprellidae	-	-	-	<0.1	0.1	-	-	0.1
Amphipoda unid.	25.0	1.6	-	0.4	<0.1	<0.1	-	0.2
Decapoda	-	(14.1)	(96.2)	(84.5)	(80.2)	(62.3)	(89.5)	(77.2)
<i>Dichelopandalus leptocerus</i>	-	-	54.9	29.6	3.5	26.8	89.5	12.2
<i>Crangon septemspinosa</i>	-	-	11.0	5.3	3.6	6.5	-	4.5
<i>Axius serratus</i>	-	-	-	5.5	-	1.2	-	0.9
<i>Pagurus acadianus</i>	-	-	6.1	1.6	10.9	1.3	-	7.7
<i>Pagurus annulipes</i>	-	-	-	-	<0.1	3.0	-	0.7
Paguridae	-	-	-	-	4.0	-	-	2.6
<i>Hyas coarctatus</i>	-	-	-	0.4	1.9	5.5	-	2.4
<i>Hyas</i> sp.	-	-	-	-	1.1	0.3	-	0.8
<i>Cancer irroratus</i>	-	-	16.5	36.6	53.2	2.6	-	40.2
Cancridae	-	-	-	-	0.2	-	-	0.2
<i>Ovalipes ocellatus</i>	-	-	-	0.2	-	-	-	<0.1
Crab unid.	-	-	7.7	1.4	0.2	4.0	-	1.2
Shrimp unid.	-	14.1	-	3.9	1.6	10.2	-	3.6
Decapoda unid.	-	-	-	<0.1	<0.1	0.9	-	0.2
Crustacea unid.	(28.3)	(35.9)	-	(7.3)	(2.7)	(1.0)	-	(3.1)
OSTEICHTHYES	-	-	-	-	[7.3]	[27.6]	-	[10.5]
Gadidae	-	-	-	-	0.2	-	-	0.1
<i>Ammodytes dubius</i>	-	-	-	-	-	19.5	-	4.0
<i>Myoxocephalus octodecemspinus</i>	-	-	-	-	0.2	-	-	0.2
Osteichthyes unid.	-	-	-	-	6.9	8.1	-	6.2
ANIMAL REMAINS AND MISC.	[5.0]	[7.8]	[2.3]	[4.2]	[3.9]	[1.1]	-	[2.7]
SAND AND ROCK	[1.7]	-	-	[<0.1]	[1.4]	[4.1]	[10.5]	[1.8]
Number sampled	11	2	6	32	75	22	1	149
Number empty	3	0	2	3	13	4	0	25
Mean stomach content (g)	0.005	0.032	0.560	1.008	2.234	2.362	0.086	1.714
Mean fish length (cm)	8	11	20	24	28	32	37	26

Table B-35b. Diet composition and sampling data for longhorn sculpin by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area			
	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf
MOLLUSCA	[<0.1]	[0.4]	-	[2.2]
Gastropoda	-	0.1	-	2.2
Mollusca unid.	<0.1	0.3	-	-
POLYCHAETA	[5.0]	[1.1]	[17.9]	[2.5]
Aphroditidae	4.2	-	17.9	1.9
Polychaeta unid.	0.8	1.1	-	0.6
CRUSTACEA	[91.4]	[79.2]	[79.4]	[94.2]
Isopoda	(0.1)	(0.2)	-	-
<i>Cirolana polita</i>	0.1	0.2	-	-
Amphipoda	(1.9)	(1.4)	-	-
<i>Calliopius laeviusculus</i>	-	0.9	-	-
<i>Erichthonius rubricornis</i>	<0.1	<0.1	-	-
<i>Unciola irrorata</i>	0.7	0.4	-	-
Lysianassidae	0.1	<0.1	-	-
<i>Leptocheirus pinguis</i>	<0.1	<0.1	-	-
Podoceridae	-	<0.1	-	-
<i>Aeginina longicornis</i>	1.1	-	-	-
Caprellidae	<0.1	<0.1	-	-
Amphipoda unid.	<0.1	0.1	-	-
Decapoda	(85.5)	(74.9)	(72.4)	(94.2)
<i>Dichelopandalus leptocerus</i>	41.3	5.9	-	28.0
<i>Crangon septemspinosa</i>	10.2	3.3	-	6.3
<i>Axius serratus</i>	-	0.3	-	18.4
<i>Pagurus acadianus</i>	1.8	9.4	-	0.2
<i>Pagurus annulipes</i>	-	0.8	-	-
Paguridae	2.5	2.8	-	-
<i>Hyas coarctatus</i>	4.0	2.3	-	-
<i>Hyas</i> sp.	0.4	-	47.3	-
<i>Cancer irroratus</i>	5.9	47.9	-	39.8
Cancridae	1.0	-	-	-
<i>Ovalipes ocellatus</i>	-	<0.1	-	-
Crab unid.	1.2	1.3	-	1.5
Shrimp unid.	17.2	0.7	25.1	-
Decapoda unid.	<0.1	0.2	-	-
Crustacea unid.	(3.9)	(2.7)	(7.0)	(<0.1)
OSTEICHTHYES	[1.0]	[12.9]	-	-
Gadidae	-	0.1	-	-
<i>Ammodytes dubius</i>	-	5.0	-	-
<i>Myoxocephalus octodecemspinus</i>	1.0	-	-	-
Osteichthyes unid.	-	7.8	-	-
ANIMAL REMAINS AND MISC.	[2.1]	[4.4]	[2.7]	[0.3]
SAND AND ROCK	[0.5]	[2.0]	-	[0.8]
Number sampled	33	99	10	7
Number empty	7	11	5	2
Mean stomach content (g)	1.224	2.035	0.383	1.373
Mean fish length (cm)	28	25	28	22

Table B-36. Diet composition and sampling data for moustache sculpin by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)		
	6-10	11-15	Total
POLYCHAETA	[31.9]	[5.2]	[16.1]
<i>Rhodine</i> sp.	1.5	-	0.6
<i>Nothria conchylega</i>	-	1.2	0.7
Polychaeta unid.	30.4	4.0	14.8
CRUSTACEA	[68.1]	[93.8]	[83.5]
Copepoda	(0.1)	-	(0.1)
<i>Calanus</i> sp.	0.1	-	0.1
Cumacea	(5.5)	-	(2.3)
<i>Diastylis quadrispinosa</i>	5.5	-	2.3
Amphipoda	(14.7)	(5.1)	(9.1)
<i>Haploops</i> sp.	5.1	-	2.1
Ampeliscidae	2.4	-	1.0
Caprellidae	-	0.3	0.2
<i>Erichthonius</i> sp.	0.9	0.7	0.8
<i>Unciola irrorata</i>	1.2	-	0.5
Corophiidae	0.5	-	0.2
<i>Leptocheirus pinguis</i>	1.8	3.4	2.7
<i>Podoceroopsis nitida</i>	-	0.4	0.2
<i>Dulichia</i> sp.	0.1	-	0.1
Tironidae	1.9	-	0.8
Gammaridea	0.8	0.3	0.5
Decapoda	(41.5)	(86.1)	(67.9)
<i>Eualus pusiolus</i>	4.9	-	2.0
<i>Dichelopandalus leptocerus</i>	24.0	-	9.9
<i>Pandalus borealis</i>	12.6	-	5.2
Pandalidae	-	57.5	33.9
<i>Crangon septemspinosa</i>	-	1.2	0.7
Crangonidae	-	2.8	1.7
Shrimp unid.	-	24.6	14.5
Crustacea unid.	(6.3)	(2.6)	(4.1)
ROCK	-	[1.0]	[0.4]
Number sampled	12	16	28
Number empty	1	1	2
Mean stomach content (g)	0.071	0.076	0.074
Mean fish length (cm)	8	12	10

Table B-37a. Diet composition and sampling data for black sea bass by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
MOLLUSCA	-	[0.5]	[2.4]	[6.7]	[20.4]	[9.2]	[2.5]	[10.5]	[6.7]	[10.2]
Bivalvia	-	(0.5)	(1.8)	(4.2)	(7.4)	(8.0)	(1.1)	(6.9)	(1.3)	(5.2)
<i>Laevicardium</i> sp.	-	-	-	1.7	2.2	6.6	-	-	-	2.6
<i>Ensis directus</i>	-	-	-	-	0.3	-	-	6.9	1.3	0.5
Bivalvia unid.	-	0.5	1.8	2.5	4.9	1.4	1.1	-	-	2.1
Cephalopoda	-	-	-	(1.0)	(12.1)	(0.6)	(0.5)	(3.3)	(2.3)	(3.8)
<i>Loligo</i> sp.	-	-	-	-	4.1	-	-	-	2.2	1.3
Cephalopoda unid.	-	-	-	1.0	8.0	0.6	0.5	3.3	0.1	2.5
Mollusca unid.	-	-	(0.6)	(1.5)	(0.9)	(0.6)	(0.9)	(0.3)	(3.1)	(1.2)
POLYCHAETA	-	[5.8]	[8.3]	[0.2]	[0.7]	[0.2]	[0.4]	[<0.1]	[9.6]	[1.9]
CRUSTACEA	[85.5]	[91.5]	[82.4]	[76.3]	[45.7]	[57.8]	[78.8]	[45.7]	[17.3]	[54.5]
Amphipoda	(43.6)	(19.9)	(0.3)	(<0.1)	(<0.1)	(<0.1)	(7.5)	-	-	(1.2)
Mysidacea	(3.2)	(4.2)	-	(1.1)	(<0.1)	(2.5)	(<0.1)	-	-	(0.9)
Euphausiacea	-	-	(33.8)	(34.2)	(7.3)	-	-	-	-	(6.3)
<i>Meganctiphanes norvegica</i>	-	-	33.8	34.2	7.3	-	-	-	-	6.3
Decapoda	(35.5)	(44.2)	(46.9)	(40.3)	(38.2)	(54.9)	(70.2)	(45.7)	(17.3)	(45.6)
<i>Dichelopandalus leptocerus</i>	-	7.2	-	<0.1	-	-	-	-	-	<0.1
<i>Crangon septemspinosa</i>	14.5	19.4	0.1	<0.1	0.3	0.3	<0.1	-	0.1	0.2
Paguridae	-	1.9	6.4	2.4	5.8	3.8	0.9	-	2.0	3.4
<i>Munida</i> sp.	-	1.7	-	2.3	0.4	4.5	1.7	-	-	1.9
<i>Cancer borealis</i>	-	-	1.8	-	-	<0.1	7.6	-	-	1.2
<i>Cancer irroratus</i>	-	10.2	23.8	19.6	17.5	40.4	37.2	45.7	7.6	27.0
<i>Ovalipes</i> sp.	-	-	-	-	-	-	15.2	-	4.8	3.0
Decapoda unid.	21.0	3.8	14.8	16.0	14.2	5.9	7.6	-	2.8	8.9
Crustacea unid.	(3.2)	(23.2)	(1.4)	(0.7)	(0.2)	(0.4)	(1.1)	-	-	(0.5)
OSTEICHTHYES	-	[1.8]	[2.6]	[8.4]	[27.8]	[25.0]	[14.7]	[43.5]	[62.9]	[28.5]
<i>Ophichthus cruentifer</i>	-	-	-	-	-	-	-	-	0.3	0.1
Alepocephalidae	-	-	-	-	-	2.0	-	-	-	0.6
<i>Clupea harengus</i>	-	-	-	-	2.3	-	-	-	-	0.6
<i>Anchoa hepsetus</i>	-	-	-	6.8	17.2	-	-	-	9.5	6.4
<i>Anchoa mitchilli</i>	-	-	-	-	-	-	9.6	-	-	1.5
Engraulidae	-	-	-	-	3.7	-	-	-	-	0.9
<i>Cyprinodon variegatus</i>	-	-	-	-	-	-	-	30.4	-	1.3
<i>Hippocampus</i> sp.	-	-	-	-	-	-	1.9	-	-	0.3
<i>Syngnathus fuscus</i>	-	-	-	-	-	-	3.0	-	-	0.5
Myctophidae	-	-	-	-	-	12.8	-	-	-	3.6
Ophidiidae	-	-	-	-	-	2.1	-	-	-	0.6
<i>Ammodytes dubius</i>	-	-	-	-	-	-	-	-	20.6	3.0
<i>Stenotomus chrysops</i>	-	-	-	-	-	3.7	-	-	25.3	4.8
<i>Scophthalmus aquosus</i>	-	-	-	-	-	-	-	-	4.4	0.7
Osteichthyes larvae	-	-	-	-	<0.1	<0.1	-	-	-	<0.1
Osteichthyes unid.	-	1.8	2.6	1.6	4.6	4.4	0.2	13.1	2.8	3.6
ANIMAL REMAINS AND MISC.	[14.5]	[0.4]	[4.3]	[8.4]	[5.4]	[7.8]	[3.6]	[0.3]	[3.5]	[4.9]
Number sampled	9	82	69	142	188	103	49	16	22	680
Number empty	1	11	19	36	64	30	18	11	5	195
Mean stomach content (g)	0.007	0.023	0.223	0.581	0.975	2.033	2.314	1.912	4.983	1.097
Mean fish length (cm)	5	7	13	18	22	27	32	38	45	21

Table B-37b. Diet composition and sampling data for black sea bass by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area					
	Middle Atlantic	Southern New England	Georges Bank	Offshore South of Cape Hatteras	Inshore South of Cape Hatteras	Inshore North of Cape Hatteras
MOLLUSCA	[5.4]	-	-	[12.0]	[19.6]	[7.5]
Bivalvia	(1.8)	-	-	(10.8)	(12.6)	(2.2)
<i>Laevicardium</i> sp.	-	-	-	-	9.0	-
Bivalvia unid.	1.8	-	-	10.8	3.6	2.2
Cephalopoda	(1.6)	-	-	-	(5.9)	(5.3)
<i>Loligo</i> sp.	0.4	-	-	-	-	4.2
Cephalopoda unid.	1.2	-	-	-	5.9	1.1
Mollusca unid.	(2.0)	-	-	(1.2)	(1.1)	(<0.1)
POLYCHAETA	[3.7]	[0.3]	-	[3.4]	[<0.1]	[0.9]
CRUSTACEA	[63.1]	[96.7]	[97.4]	[22.8]	[33.5]	[64.1]
Amphipoda	(<0.1)	(17.2)	-	-	(<0.1)	(4.2)
Mysidacea	(<0.1)	(3.4)	(18.4)	-	-	(3.2)
Euphausiacea	(14.8)	-	-	-	-	-
<i>Meganyctiphanes norvegica</i>	14.8	-	-	-	-	-
Decapoda	(48.1)	(52.4)	(21.1)	(22.7)	(33.0)	(55.9)
<i>Dichelopandalus leptocerus</i>	<0.1	11.9	-	-	-	-
<i>Crangon septemspinosa</i>	<0.1	31.8	-	-	-	0.6
Paguridae	1.3	3.2	-	0.1	3.9	6.1
<i>Munida</i> sp.	4.5	-	-	-	-	-
<i>Cancer borealis</i>	2.9	-	-	-	-	-
<i>Cancer irroratus</i>	34.6	1.9	-	-	2.2	43.0
<i>Ovalipes</i> sp.	1.7	-	-	-	5.5	2.7
Decapoda unid.	3.1	3.6	21.1	22.6	21.4	3.5
Crustacea unid.	(0.2)	(23.7)	(57.9)	(0.1)	(0.5)	(0.8)
OSTEICHTHYES	[23.6]	[3.0]	-	[61.1]	[43.7]	[18.4]
<i>Ophichthus cruentifer</i>	0.1	-	-	-	-	-
Alepocephalidae	-	-	-	-	1.9	-
<i>Clupea harengus</i>	-	-	-	-	2.0	-
<i>Anchoa hepsetus</i>	-	-	-	-	22.3	-
<i>Anchoa mitchilli</i>	-	-	-	-	-	5.4
Engraulidae	-	-	-	-	3.2	-
<i>Cyprinodon variegatus</i>	-	-	-	-	4.4	-
<i>Hippocampus</i> sp.	-	-	-	15.7	-	-
<i>Syngnathus fuscus</i>	-	-	-	-	-	1.7
Myctophidae	8.5	-	-	-	-	-
Ophidiidae	1.4	-	-	-	-	-
<i>Ammodytes dubius</i>	0.2	-	-	-	-	10.8
<i>Stenotomus chrysops</i>	8.8	-	-	-	3.7	-
<i>Scophthalmus aquosus</i>	1.5	-	-	-	-	-
Osteichthyes larvae	-	-	-	-	<0.1	<0.1
Osteichthyes unid.	3.1	3.0	-	45.4	6.2	0.5
ANIMAL REMAINS AND MISC.	[4.2]	-	[2.6]	[0.7]	[3.2]	[9.1]
Number sampled	288	39	9	28	185	131
Number empty	105	4	4	6	52	24
Mean stomach content (g)	1.096	0.029	0.004	0.493	1.150	1.546
Mean fish length (cm)	23	7	7	20	22	20

Table B-38a. Diet composition and sampling data for bluefish by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	>80	
MOLLUSCA	-	[6.3]	[7.4]	[8.5]	[19.3]	[15.0]	[57.7]	[61.7]	[21.2]	[40.1]
Cephalopoda	-	(6.3)	(7.4)	(8.5)	(19.3)	(15.0)	(57.7)	(61.4)	(21.2)	(40.0)
<i>Illex</i> sp.	-	-	1.7	-	-	-	17.5	46.8	0.7	22.8
<i>Loligo pealeii</i>	-	-	-	-	-	2.8	1.4	7.1	-	3.9
<i>Loligo</i> sp.	-	<0.1	1.6	1.5	18.4	10.5	28.4	6.9	20.5	10.6
Cephalopoda unid.	-	6.3	4.1	7.0	0.9	1.7	10.4	0.6	-	2.7
Mollusca unid.	-	-	(<0.1)	-	-	-	-	(0.3)	-	(0.1)
POLYCHAETA	-	[2.2]	[3.7]	[<0.1]	-	[0.7]	-	-	-	[0.4]
Glyceridae	-	-	<0.1	-	-	0.7	-	-	-	0.1
<i>Ophioglycera gigantea</i>	-	-	3.7	-	-	-	-	-	-	0.3
Polychaeta unid.	-	2.2	<0.1	<0.1	-	-	-	-	-	<0.1
CRUSTACEA	-	[0.4]	[1.8]	[1.6]	-	[0.8]	[0.7]	[<0.1]	-	[0.6]
Amphipoda	-	(0.1)	(1.3)	(1.3)	-	-	-	-	-	(0.2)
Decapoda	-	-	(0.4)	(0.3)	-	(0.8)	(0.7)	(<0.1)	-	(0.4)
<i>Palaemonetes pugio</i>	-	-	-	0.3	-	-	-	-	-	<0.1
<i>Ovalipes ocellatus</i>	-	-	-	-	-	0.8	-	-	-	0.2
Decapoda unid.	-	-	0.4	<0.1	-	<0.1	0.7	<0.1	-	0.2
Crustacea unid.	-	(0.3)	(0.1)	(<0.1)	-	-	-	-	-	(<0.1)
OSTEICHTHYES	[100.0]	[90.6]	[86.7]	[89.9]	[80.7]	[83.3]	[39.9]	[38.2]	[78.8]	[58.8]
Batrachoidiformes	-	-	0.6	13.7	2.9	-	-	-	-	1.0
<i>Brevoortia tyrannus</i>	-	-	-	-	-	11.1	-	-	-	2.3
<i>Clupea harengus</i>	-	-	-	2.3	-	-	-	-	-	0.1
<i>Etrumeus teres</i>	-	-	15.9	11.7	14.8	34.4	0.9	2.0	-	11.3
Clupeidae	-	<0.1	2.7	-	-	-	-	-	-	0.2
<i>Anchoa hepsetus</i>	-	23.1	10.3	1.1	4.3	2.5	-	-	-	2.0
<i>Anchoa mitchilli</i>	-	-	2.0	1.8	-	0.2	-	-	-	0.3
Engraulidae	-	11.3	11.0	4.3	0.2	1.7	-	0.3	-	1.7
Myctophidae	-	-	3.5	-	-	-	-	-	-	0.3
<i>Merluccius bilinearis</i>	-	-	-	4.0	5.7	-	-	-	-	0.7
Gadidae	-	-	-	0.6	-	-	-	0.7	-	0.3
<i>Stenotomus chrysops</i>	-	-	1.3	-	3.4	-	2.3	-	-	0.7
<i>Ammodytes dubius</i>	-	-	<0.1	-	-	0.4	5.8	<0.1	-	0.8
<i>Scomber scombrus</i>	-	-	-	-	-	0.4	-	-	-	0.1
<i>Thunnus thynnus</i>	-	-	-	1.8	-	-	-	-	-	0.1
<i>Peprilus triacanthus</i>	-	-	15.6	14.2	6.8	6.2	9.3	3.1	22.5	6.5
<i>Sebastes fasciatus</i>	-	-	-	4.7	-	-	-	-	-	0.2
<i>Myoxocephalus octodecemsp.</i>	-	-	-	-	-	-	-	3.7	-	1.6
<i>Cynoscion regalis</i>	-	-	-	-	-	-	-	0.2	-	0.1
<i>Leiostomus xanthurus</i>	-	-	-	0.7	-	-	-	-	-	<0.1
<i>Prionotus</i> sp.	-	-	-	-	-	1.7	-	-	-	0.4
Pleuronectiformes	-	-	-	-	6.6	-	17.2	-	-	2.7
Osteichthyes unid.	100.0	56.2	23.8	29.0	36.0	24.7	4.4	28.2	56.3	25.4
ANIMAL REMAINS AND MISC.	-	[0.5]	[0.4]	-	[<0.1]	[0.2]	[1.7]	[0.1]	-	[0.1]
Number sampled	9	81	239	71	26	49	39	50	4	568
Number empty	7	28	76	22	1	5	9	6	1	155
Mean stomach content (g)	0.144	0.824	3.572	7.025	35.455	42.650	31.381	89.488	13.811	17.933
Mean fish length (cm)	10	16	25	34	45	54	65	74	84	35

Table B-38b. Diet composition and sampling data for bluefish by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area					
	Middle Atlantic	Southern New England	Georges Bank	Offshore South of Cape Hatteras	Inshore South of Cape Hatteras	Inshore North of Cape Hatteras
MOLLUSCA	[1.3]	[95.3]	[66.1]	-	[4.5]	[22.2]
Cephalopoda	(1.3)	(95.3)	(65.8)	-	(4.5)	(22.2)
<i>Illex</i> sp.	-	72.9	54.8	-	-	0.3
<i>Loligo pealeii</i>	-	-	-	-	-	7.0
<i>Loligo</i> sp.	-	11.2	8.1	-	3.3	12.9
Cephalopoda unid.	1.3	11.2	2.9	-	1.2	2.0
Mollusca unid.	-	-	(0.3)	-	(<0.1)	(<0.1)
POLYCHAETA	-	-	-	-	[0.5]	[0.8]
<i>Ophioglycera gigantea</i>	-	-	-	-	-	0.6
Polychaeta unid.	-	-	-	-	0.5	0.2
CRUSTACEA	-	-	[<0.1]	-	[1.8]	[0.7]
Amphipoda	-	-	-	-	-	(0.3)
Decapoda	-	-	(<0.1)	-	(1.6)	(0.4)
<i>Palaemonetes pugio</i>	-	-	-	-	0.4	-
<i>Ovalipes ocellatus</i>	-	-	-	-	-	0.3
Decapoda unid.	-	-	<0.1	-	1.2	0.1
Crustacea unid.	-	-	-	-	(0.2)	(<0.1)
OSTEICHTHYES	[98.1]	[4.6]	[33.9]	[100.0]	[92.3]	[75.5]
Batrachoidiformes	-	-	-	-	1.2	1.7
<i>Brevoortia tyrannus</i>	-	-	-	-	-	4.1
<i>Clupea harengus</i>	-	-	-	-	-	0.2
<i>Etrumeus teres</i>	89.9	-	0.9	-	-	19.3
Clupeidae	3.8	-	-	-	3.0	0.1
<i>Anchoa hepsetus</i>	-	-	-	-	19.5	2.2
<i>Anchoa mitchilli</i>	-	-	-	-	4.0	0.3
Engraulidae	-	-	-	-	11.6	2.2
Myctophidae	-	-	-	-	-	0.5
<i>Merluccius bilinearis</i>	-	-	-	-	-	1.3
Gadidae	-	-	0.9	-	-	<0.1
<i>Stenotomus chrysops</i>	-	-	-	-	-	1.3
<i>Ammodytes dubius</i>	-	-	2.1	-	0.2	0.1
<i>Scomber scombrus</i>	-	-	-	-	-	0.2
<i>Thunnus thynnus</i>	-	-	-	-	-	0.2
<i>Peprilus triacanthus</i>	-	-	-	-	5.8	11.4
<i>Sebastes fasciatus</i>	-	-	-	-	-	0.4
<i>Myoxocephalus octodecemspinosus</i>	-	-	4.7	-	-	-
<i>Cynoscion regalis</i>	-	-	-	-	-	0.2
<i>Leiostomus xanthurus</i>	-	-	-	-	-	<0.1
<i>Prionotus</i> sp.	-	-	-	-	-	0.7
Pleuronectiformes	-	-	0.4	-	-	4.6
Osteichthyes unid.	4.4	4.6	24.9	100.0	47.0	24.5
ANIMAL REMAINS AND MISC.	[0.6]	[0.1]	[<0.1]	-	[0.9]	[0.8]
Number sampled	3	5	58	1	136	365
Number empty	0	0	9	0	49	97
Mean stomach content (g)	12.782	103.849	60.804	117.095	2.853	15.333
Mean fish length (cm)	40	60	70	77	26	33

Table B-39. Diet composition and sampling data for longspine porgy by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)			Total
	6-10	11-15	16-20	
HYDROZOA	-	[0.7]	-	[0.4]
PLATYHELMINTHES	-	-	[0.4]	[0.1]
NEMATODA	[0.1]	[0.2]	-	[0.1]
CHAETOGNATHA	-	[0.4]	-	[0.3]
MOLLUSCA	-	-	[5.7]	[1.0]
Bivalvia	-	-	1.3	0.2
Cephalopoda	-	-	4.4	0.8
POLYCHAETA	[3.0]	[10.5]	[25.9]	[11.3]
Maldanidae	-	1.6	6.3	2.0
<i>Lumbrineris tenuis</i>	-	-	0.9	0.2
<i>Glycera capitata</i>	-	-	0.7	0.1
Glyceridae	-	2.4	0.1	1.4
Nephtyidae	2.6	0.4	-	0.9
Nereidae	0.2	0.3	-	0.2
<i>Sthenelais</i> sp.	-	0.5	-	0.3
Polychaeta unid.	0.2	5.3	17.9	6.2
CRUSTACEA	[42.1]	[30.8]	[1.9]	[28.8]
Copepoda	-	(5.8)	(0.1)	(3.4)
Amphipoda	-	(1.4)	(0.5)	(1.0)
<i>Ampelisca</i> sp.	-	0.6	-	0.3
<i>Unciola</i> sp.	-	<0.1	-	0.1
<i>Melita dentata</i>	-	-	0.1	<0.1
Gammaridea	-	-	0.4	0.1
Amphipoda unid.	-	0.8	-	0.5
Mysidacea	(0.2)	(0.1)	(1.2)	(0.5)
<i>Heteromysis formosa</i>	-	0.1	1.2	0.3
<i>Mysis mixta</i>	0.2	-	-	0.1
Mysidacea unid.	-	<0.1	-	0.1
Euphausiacea	-	(3.7)	-	(2.2)
Decapoda	(41.9)	(19.7)	(0.1)	(21.6)
<i>Lucifer faxoni</i>	8.1	3.0	-	3.7
Sergestidae	-	1.3	-	0.7
<i>Pagurus</i> sp.	-	1.5	-	0.9
Shrimp unid.	2.6	1.3	-	1.4
Decapoda larvae	10.8	2.9	0.1	4.3
Decapoda unid.	20.4	9.7	-	10.6
Crustacea unid.	-	(0.1)	-	(0.1)
OSTEICHTHYES	[8.2]	[0.8]	[2.2]	[2.9]
ANIMAL REMAINS	[45.4]	[55.7]	[47.9]	[51.5]
SAND	[1.2]	[0.9]	[16.0]	[3.6]
Number sampled	5	46	21	72
Number empty	0	25	8	33
Mean stomach content (g)	0.194	0.050	0.033	0.055
Mean fish length (cm)	10	13	16	14

Table B-40a. Diet composition and sampling data for scup by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)						Total
	6-10	11-15	16-20	21-25	26-30	31-35	
CNIDARIA	[<0.1]	-	[24.9]	[11.0]	[3.5]	-	[8.2]
Anthozoa	<0.1	-	-	0.9	3.5	-	1.2
Ceriantharia	-	-	24.9	10.1	-	-	7.0
RHYNCHOCOELA	-	-	-	[4.8]	[2.8]	-	[2.0]
CEPHALOPODA	-	-	[0.2]	[6.6]	[25.6]	[16.9]	[11.8]
<i>Illex</i> sp.	-	-	-	-	25.3	13.2	9.3
<i>Loligo pealeii</i>	-	-	-	-	-	3.7	0.7
Cephalopoda unid.	-	-	0.2	6.6	0.3	-	1.8
POLYCHAETA	[40.9]	[61.3]	[26.5]	[26.9]	[9.3]	[4.4]	[21.0]
<i>Lumbrineris fragilis</i>	-	3.9	0.6	-	1.4	-	0.7
Lumbrineridae	16.6	8.7	0.9	1.4	0.3	<0.1	2.0
<i>Pherusa affinis</i>	-	5.9	0.3	0.2	-	-	0.5
<i>Pherusa</i> sp.	-	-	1.4	2.7	0.2	-	1.0
Flabelligeridae	1.0	-	1.8	1.8	0.3	-	0.9
<i>Ophioglycera gigantea</i>	-	-	2.8	4.6	-	-	1.7
Nephtyidae	2.5	0.1	7.3	8.3	1.0	-	3.8
Sabellidae	1.6	0.2	1.3	0.8	<0.1	-	0.6
Ampharetidae	3.8	0.3	0.6	1.8	1.1	-	1.1
Terebellidae	3.2	10.6	<0.1	0.2	<0.1	-	0.5
Polychaeta unid.	12.2	31.6	9.5	5.1	5.0	4.4	8.2
CRUSTACEA	[41.7]	[13.4]	[20.3]	[30.4]	[19.0]	[2.7]	[20.4]
Amphipoda	(8.5)	(1.9)	(5.5)	(21.3)	(2.6)	(1.2)	(8.2)
<i>Gammarus annulatus</i>	-	0.2	-	16.3	-	-	4.3
<i>Leptocheirus pinguis</i>	3.4	0.1	1.9	0.8	0.3	-	0.8
<i>Aeginina longicornis</i>	1.7	-	1.3	0.4	-	-	0.4
Amphipoda unid.	3.4	1.6	2.3	3.8	2.3	1.2	2.7
Mysidacea	(29.4)	(5.7)	(<0.1)	-	-	-	(1.8)
<i>Neomysis americana</i>	29.4	5.7	<0.1	-	-	-	1.8
Decapoda	(1.9)	(4.4)	(13.1)	(6.9)	(9.2)	(1.5)	(7.3)
<i>Crangon septemspinosa</i>	1.9	-	1.0	0.1	-	-	0.3
<i>Munida</i> sp.	-	-	-	-	2.1	1.5	0.9
Paguridae	-	2.1	0.2	0.4	-	-	0.2
<i>Cancer irroratus</i>	-	-	10.2	6.2	5.6	-	4.9
Cancridae	-	-	1.6	0.1	-	-	0.3
Decapoda unid.	<0.1	2.3	0.1	0.1	1.5	<0.1	0.7
Crustacea unid.	(1.9)	(1.4)	(1.7)	(2.2)	(7.2)	(<0.1)	(3.1)
UROCHORDATA	-	-	[6.7]	[0.6]	-	-	[1.3]
<i>Oikopleura</i> sp.	-	-	6.7	0.6	-	-	1.3
OSTEICHTHYES	[0.3]	[0.3]	[8.6]	[<0.1]	[30.4]	[74.3]	[23.5]
<i>Ammodytes dubius</i>	-	-	3.1	-	29.9	68.4	21.2
<i>Peprilus triacanthus</i>	-	-	-	-	-	5.8	1.1
Osteichthyes larvae	-	-	4.9	<0.1	-	<0.1	0.9
Osteichthyes unid.	0.3	0.3	0.6	-	0.5	0.1	0.3
ANIMAL REMAINS AND MISC.	[17.1]	[25.0]	[12.8]	[19.7]	[9.4]	[1.7]	[11.8]
Number sampled	114	91	122	63	40	8	438
Number empty	36	19	53	26	16	2	152
Mean stomach content (g)	0.056	0.083	0.185	0.531	0.881	2.930	0.294
Mean fish length (cm)	8	12	17	22	27	32	16

Table B-40b. Diet composition and sampling data for scup by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area				
	Middle Atlantic	Southern New England	Offshore South of Cape Hatteras	Inshore South of Cape Hatteras	Inshore North of Cape Hatteras
CNIDARIA	-	[6.5]	-	-	[9.4]
Anthozoa	-	6.5	-	-	-
Ceriantharia	-	-	-	-	9.4
RHYNCHOCOELA	-	[10.8]	-	-	-
CEPHALOPODA	-	-	-	-	[15.8]
<i>Illex</i> sp.	-	-	-	-	12.5
<i>Loligo pealeii</i>	-	-	-	-	0.9
Cephalopoda unid.	-	-	-	-	2.4
POLYCHAETA	[52.5]	[34.0]	-	[18.5]	[14.8]
<i>Lumbrineris fragilis</i>	7.5	-	-	-	0.4
Lumbrineridae	1.5	6.9	-	2.6	0.7
<i>Pherusa affinis</i>	-	-	-	-	0.6
<i>Pherusa</i> sp.	-	3.9	-	-	0.3
Flabelligeridae	-	2.1	-	-	0.7
<i>Ophioglycera gigantea</i>	-	-	-	-	2.3
Nephtyidae	0.7	4.0	-	-	4.0
Sabellidae	0.3	2.7	-	1.9	-
Ampharetidae	0.3	5.6	-	-	<0.1
Terebellidae	4.9	0.3	-	-	<0.1
Polychaeta unid.	37.3	8.5	-	14.0	5.8
CRUSTACEA	[17.1]	[12.2]	-	[4.9]	[22.3]
Amphipoda	(0.1)	(7.0)	-	(2.0)	(8.8)
<i>Gammarus annulatus</i>	-	-	-	-	5.7
<i>Leptocheirus pinguis</i>	-	1.9	-	-	0.6
Amphipoda unid.	0.1	5.1	-	2.0	2.5
Mysidacea	-	(0.5)	-	-	(2.3)
<i>Neomysis americana</i>	-	0.5	-	-	2.3
Decapoda	(17.0)	(2.7)	-	(2.0)	(7.7)
<i>Crangon septemspinosa</i>	-	<0.1	-	-	0.4
<i>Munida</i> sp.	17.0	-	-	-	-
Paguridae	-	0.3	-	2.0	0.2
<i>Cancer irroratus</i>	-	-	-	-	6.6
Decapoda unid.	-	2.4	-	-	0.5
Crustacea unid.	(<0.1)	(2.0)	-	(0.9)	(3.5)
UROCHORDATA	[26.1]	-	-	-	-
<i>Oikopleura</i> sp.	26.1	-	-	-	-
OSTEICHTHYES	-	[0.8]	-	[56.9]	[30.0]
<i>Ammodytes dubius</i>	-	-	-	-	28.4
<i>Peprilus triacanthus</i>	-	-	-	-	1.4
Osteichthyes larvae	-	-	-	56.9	<0.1
Osteichthyes unid.	-	0.8	-	-	0.2
ANIMAL REMAINS AND MISC.	[4.3]	[35.7]	[100.0]	[19.7]	[7.7]
Number sampled	55	111	5	29	238
Number empty	10	46	0	3	93
Mean stomach content (g)	0.119	0.217	0.008	0.066	0.403
Mean fish length (cm)	17	16	14	13	16

Table B-41a. Diet composition and sampling data for weakfish by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)								Total
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	>70	
CEPHALOPODA	-	-	[16.2]	[<0.1]	[0.7]	[0.7]	[0.4]	[25.3]	[7.8]
<i>Illex illecebrosus</i>	-	-	15.3	-	-	-	-	-	2.7
<i>Loligo</i> sp.	-	-	-	-	-	-	-	25.3	4.7
Cephalopoda unid.	-	-	0.9	<0.1	0.7	0.7	0.4	-	0.4
POLYCHAETA	-	[1.5]	[0.5]	-	[<0.1]	[3.2]	-	-	[1.0]
CRUSTACEA	[95.8]	[74.3]	[12.3]	[5.9]	[18.0]	[17.4]	[13.4]	[13.9]	[14.9]
Copepoda	(1.7)	-	-	-	-	-	-	-	(<0.1)
Amphipoda	(<0.1)	(0.3)	(<0.1)	(0.6)	(1.6)	(2.6)	(<0.1)	-	(0.9)
Mysidacea	(61.7)	(63.2)	(6.5)	(3.2)	(15.6)	-	(0.5)	-	(3.3)
<i>Mysidopsis bigelowi</i>	9.0	6.8	3.7	<0.1	<0.1	-	-	-	0.8
<i>Neomysis americana</i>	40.2	46.8	2.8	3.2	15.6	-	0.5	-	2.4
Mysidacea unid.	12.5	9.6	<0.1	-	-	-	-	-	0.1
Decapoda	(24.5)	(10.5)	(5.5)	(2.1)	(0.8)	(14.8)	(12.9)	(13.2)	(10.4)
<i>Acetes</i> sp.	3.3	5.5	1.5	0.2	-	-	-	-	0.3
<i>Dichelopandalus leptocerus</i>	-	-	1.4	-	-	11.6	<0.1	0.6	3.4
<i>Crangon septemspinosa</i>	16.2	3.4	0.4	1.1	0.2	2.7	2.5	-	1.5
<i>Ovalipes ocellatus</i>	-	-	<0.1	-	-	0.5	9.8	12.0	4.4
Decapoda unid.	5.0	1.6	2.2	0.8	0.6	-	0.6	0.6	0.8
Crustacea unid.	(7.9)	(0.3)	(0.3)	(<0.1)	(<0.1)	(<0.1)	(<0.1)	(0.7)	(0.3)
OSTEICHTHYES	[3.4]	[23.5]	[70.4]	[94.1]	[81.3]	[78.2]	[85.0]	[60.8]	[76.0]
<i>Etrumeus teres</i>	-	-	2.6	-	-	-	4.9	-	1.5
Clupeidae	-	-	11.2	-	-	-	-	-	2.0
<i>Anchoa hepsetus</i>	-	-	13.6	1.5	-	-	5.1	-	3.6
<i>Anchoa mitchilli</i>	-	-	4.9	12.6	79.9	9.1	6.8	39.6	17.8
<i>Anchoa</i> sp.	-	8.4	2.8	-	-	-	-	-	0.6
Engraulidae	-	-	1.8	2.3	-	-	1.2	-	0.8
Myctophidae	-	-	-	-	-	-	-	3.1	0.6
<i>Gadus morhua</i>	-	-	0.1	-	-	-	-	-	<0.1
<i>Merluccius bilinearis</i>	-	-	<0.1	-	-	-	-	-	<0.1
Gadidae	-	-	-	-	-	-	5.6	-	1.1
<i>Ammodytes dubius</i>	-	-	-	-	-	13.4	0.1	-	3.6
<i>Caranx hippos</i>	-	-	-	20.8	-	-	-	-	2.1
Carangidae	-	-	5.9	-	-	-	-	-	1.0
<i>Cynoscion regalis</i>	-	-	-	9.8	-	-	-	-	1.0
<i>Peprilus triacanthus</i>	-	-	0.2	-	-	-	4.9	2.6	1.5
<i>Macrozoarces americanus</i>	-	-	-	1.1	-	-	-	-	0.1
<i>Citharichthys arctifrons</i>	-	-	-	-	-	2.0	46.5	-	10.0
<i>Scophthalmus aquosus</i>	-	1.0	-	-	-	-	-	-	<0.1
Bothidae	-	-	-	-	-	-	-	7.5	1.4
Pleuronectiformes	-	-	<0.1	-	-	-	-	-	<0.1
Osteichthyes larvae	3.4	4.2	0.3	-	-	-	-	-	0.1
Osteichthyes unid.	-	9.9	27.0	46.0	1.4	53.7	9.9	8.0	27.2
ANIMAL REMAINS AND MISC.	[0.8]	[0.7]	[0.6]	[<0.1]	[<0.1]	[0.5]	[1.2]	-	[0.3]
Number sampled	32	75	196	44	15	15	13	3	393
Number empty	4	9	54	9	0	0	2	0	78
Mean stomach content (g)	0.050	0.218	1.302	3.393	5.509	25.746	22.916	91.206	3.722
Mean fish length (cm)	9	15	25	33	45	54	66	73	26

Table B-41b. Diet composition and sampling data for weakfish by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area			
	Middle Atlantic	Southern New England	Inshore South of Cape Hatteras	Inshore North of Cape Hatteras
CEPHALOPODA	-	-	[19.0]	[5.9]
<i>Illex illecebrosus</i>	-	-	19.0	-
<i>Loligo</i> sp.	-	-	-	5.5
Cephalopoda unid.	-	-	<0.1	0.4
POLYCHAETA	-	-	[0.1]	[1.0]
CRUSTACEA	-	-	[6.2]	[16.0]
Amphipoda	-	-	(<0.1)	(1.0)
Mysidacea	-	-	(<0.1)	(3.7)
<i>Mysidopsis bigelowi</i>	-	-	<0.1	0.9
<i>Neomysis americana</i>	-	-	-	2.7
Mysidacea unid.	-	-	<0.1	0.1
Decapoda	-	-	(6.2)	(11.1)
<i>Acetes</i> sp.	-	-	2.3	<0.1
<i>Dichelopandalus leptocerus</i>	-	-	1.7	3.7
<i>Crangon septemspinosa</i>	-	-	-	1.7
<i>Ovalipes ocellatus</i>	-	-	0.1	5.1
Decapoda unid.	-	-	2.1	0.6
Crustacea unid.	-	-	(<0.1)	(0.2)
OSTEICHTHYES	-	[100.0]	[74.1]	[76.3]
<i>Etrumeus teres</i>	-	-	-	1.7
Clupeidae	-	-	4.6	1.5
<i>Anchoa hepsetus</i>	-	-	15.6	1.6
<i>Anchoa mitchilli</i>	-	-	4.6	20.0
<i>Anchoa</i> sp.	-	-	4.1	-
Engraulidae	-	-	0.2	0.9
Myctophidae	-	-	-	0.7
<i>Gadus morhua</i>	-	-	0.2	-
<i>Merluccius bilinearis</i>	-	-	0.1	-
Gadidae	-	-	-	1.3
<i>Ammodytes dubius</i>	-	-	-	4.1
<i>Caranx hippos</i>	-	-	-	2.5
Carangidae	-	-	7.3	-
<i>Cynoscion regalis</i>	-	-	-	1.2
<i>Peprilus triacanthus</i>	-	-	<0.1	1.8
<i>Macrozoarces americanus</i>	-	-	0.8	-
<i>Citharichthys arctifrons</i>	-	-	-	11.6
<i>Scophthalmus aquosus</i>	-	-	-	<0.1
Bothidae	-	-	-	1.6
Pleuronectiformes	-	-	-	<0.1
Osteichthyes larvae	-	-	0.4	<0.1
Osteichthyes unid.	-	100.0	36.2	25.8
ANIMAL REMAINS AND MISC.	[100.0]	-	[0.6]	[0.8]
Number sampled	1	1	111	280
Number empty	0	0	21	56
Mean stomach content (g)	0.072	0.017	1.855	4.489
Mean fish length (cm)	55	70	26	26

Table B-42a. Diet composition and sampling data for spot by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)					Total
	6-10	11-15	16-20	21-25	26-30	
MOLLUSCA	[59.9]	[13.9]	[10.3]	[15.4]	[12.4]	[11.6]
Bivalvia	(59.9)	(13.0)	(5.5)	(0.6)	-	(5.7)
<i>Tellina</i> sp.	-	-	4.5	-	-	3.4
Bivalvia unid.	59.9	13.0	1.0	0.6	-	2.3
Mollusca unid.	-	(0.9)	(4.8)	(14.8)	(12.4)	(5.9)
POLYCHAETA	[36.7]	[51.6]	[60.3]	[23.9]	-	[53.9]
Archannelida	-	0.4	13.3	-	-	10.1
Maldanidae	-	-	<0.1	1.7	-	0.2
<i>Onuphis</i> sp.	-	-	0.6	-	-	0.4
<i>Aglaophamus circinata</i>	-	-	0.3	1.1	-	0.4
Nephtyidae	-	-	2.0	-	-	1.5
Cirratulidae	-	<0.1	1.2	0.1	-	0.9
<i>Spio</i> sp.	-	-	-	16.5	-	2.2
Spionidae	-	7.7	1.7	<0.1	-	2.2
<i>Asabellides oculata</i>	-	14.8	17.6	-	-	14.5
Ampharetidae	-	3.5	<0.1	-	-	0.3
Polychaeta unid.	36.7	25.2	23.6	4.5	-	21.2
CRUSTACEA	[1.6]	[17.6]	[11.1]	[7.8]	[87.6]	[13.9]
Copepoda	-	(7.7)	(0.3)	(2.2)	-	(1.2)
Stomatopoda	-	-	-	-	(62.3)	(1.6)
Cumacea	-	(2.0)	(3.1)	(0.1)	(24.7)	(3.2)
<i>Oxyurostylis smithi</i>	-	1.9	0.7	-	24.7	1.3
Cumacea unid.	-	0.1	2.4	0.1	-	1.9
Isopoda	(1.6)	(0.4)	(<0.1)	-	-	(<0.1)
Amphipoda	-	(1.6)	(3.6)	(3.4)	-	(3.7)
<i>Ampelisca</i> spp.	-	1.4	1.6	0.1	-	1.5
<i>Unciola irrorata</i>	-	-	0.5	3.1	-	0.8
Amphipoda unid.	-	0.2	1.5	0.2	-	1.4
Mysidacea	-	(0.8)	(0.4)	(0.9)	-	(0.5)
<i>Neomysis americana</i>	-	0.8	0.4	0.9	-	0.5
Decapoda	-	(4.7)	(2.4)	(1.1)	(0.6)	(2.6)
<i>Acetes americanus</i>	-	0.7	0.6	-	-	0.5
<i>Crangon septemspinosa</i>	-	4.0	1.4	<0.1	-	1.4
Decapoda unid.	-	<0.1	0.4	1.1	0.6	0.7
Crustacea unid.	-	(0.4)	(1.3)	(0.1)	-	(1.1)
ECHINODERMATA	-	-	<0.1	[0.5]	-	[0.1]
OSTEICHTHYES	-	[1.3]	[3.1]	[2.7]	-	[2.9]
<i>Anchoa hepsetus</i>	-	-	1.5	-	-	1.1
Engraulidae	-	0.8	0.8	-	-	0.7
<i>Paralichthys dentatus</i>	-	-	<0.1	-	-	<0.1
Osteichthyes larvae	-	0.4	0.2	1.3	-	0.4
Osteichthyes unid.	-	0.1	0.6	1.4	-	0.7
ANIMAL REMAINS AND MISC.	[1.8]	[15.6]	[15.2]	[49.7]	-	[17.6]
Number sampled	9	101	290	39	3	442
Number empty	3	10	47	8	1	69
Mean stomach content (g)	0.049	0.044	0.149	0.190	0.496	0.129
Mean fish length (cm)	10	13	17	21	26	16

Table B-42b. Diet composition and sampling data for spot by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area		
	Middle Atlantic	Inshore South of Cape Hatteras	Inshore North of Cape Hatteras
MOLLUSCA	-	[21.1]	[7.9]
Bivalvia	-	(0.3)	(7.9)
<i>Tellina</i> sp.	-	-	4.8
Bivalvia unid.	-	0.3	3.1
Mollusca unid.	-	(20.8)	-
POLYCHAETA	[1.7]	[3.5]	[73.2]
Archannelida	-	<0.1	14.2
Maldanidae	-	<0.1	0.3
<i>Onuphis</i> sp.	-	0.4	0.4
<i>Aglaophamus circinata</i>	-	-	0.5
Nephtyidae	-	0.3	2.0
Cirratulidae	-	-	1.3
<i>Spio</i> sp.	-	-	3.0
Spionidae	-	<0.1	2.6
<i>Asabellides oculata</i>	-	-	20.3
Ampharetidae	-	-	0.4
Polychaeta unid.	1.7	2.8	28.2
CRUSTACEA	[6.0]	[22.7]	[9.1]
Copepoda	-	(3.1)	(0.3)
Stomatopoda	-	(5.7)	-
Cumacea	-	(10.1)	(0.5)
<i>Oxyurostylis smithi</i>	-	4.7	-
Cumacea unid.	-	5.4	0.5
Amphipoda	-	(1.1)	(4.1)
<i>Ampelisca</i> spp.	-	<0.1	2.0
<i>Unciola irrorata</i>	-	-	1.1
Amphipoda unid.	-	1.1	1.0
Mysidacea	-	-	(0.6)
<i>Neomysis americana</i>	-	-	0.6
Decapoda	(2.6)	(2.5)	(2.3)
<i>Acetes americanus</i>	-	1.7	<0.1
<i>Crangon septemspinosa</i>	-	-	2.0
Decapoda unid.	2.6	0.8	0.3
Crustacea unid.	(3.4)	(0.2)	(1.3)
ECHINODERMATA	-	[0.4]	-
OSTEICHTHYES	-	[9.9]	[0.1]
<i>Anchoa hepsetus</i>	-	4.0	-
Engraulidae	-	2.4	-
<i>Paralichthys dentatus</i>	-	-	<0.1
Osteichthyes larvae	-	1.3	-
Osteichthyes unid.	-	2.2	0.1
ANIMAL REMAINS AND MISC.	[92.3]	[42.4]	[9.7]
Number sampled	4	221	218
Number empty	0	48	21
Mean stomach content (g)	0.029	0.073	0.186
Mean fish length (cm)	16	18	16

Table B-43a. Diet composition and sampling data for southern kingfish by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)					Total
	11-15	16-20	21-25	26-30	31-35	
ANTHOZOA	-	-	[0.8]	-	-	[0.3]
RHYNCHOCOELA	-	[1.6]	[0.3]	-	-	[0.1]
BIVALVIA	-	-	[4.9]	[2.7]	-	[3.2]
Solenidae	-	-	-	0.7	-	0.4
Bivalvia unid.	-	-	4.9	2.0	-	2.8
POLYCHAETA	[26.1]	[33.6]	[13.0]	[9.4]	-	[10.3]
Arabellidae	-	-	1.3	-	-	0.5
<i>Diopatra cuprea</i>	-	-	0.6	-	-	0.2
<i>Glycera americana</i>	-	-	8.9	9.0	-	7.8
Glyceridae	-	-	1.3	-	-	0.6
Phyllodocidae	-	0.7	-	<0.1	-	<0.1
Polychaeta unid.	26.1	32.9	0.9	0.4	-	1.2
CRUSTACEA	[73.9]	[26.6]	[39.0]	[73.2]	[100.0]	[63.5]
Stomatopoda	-	-	(0.6)	(5.0)	-	(2.9)
<i>Squilla neglecta</i>	-	-	-	2.6	-	1.4
Stomatopoda unid.	-	-	0.6	2.4	-	1.5
Cumacea	-	(0.5)	-	-	-	(<0.1)
Amphipoda	-	(1.8)	(0.1)	(<0.1)	-	(0.1)
Decapoda	(69.6)	(18.9)	(10.9)	(63.0)	(100.0)	(48.2)
<i>Acetes americanus</i>	-	-	0.2	1.0	-	0.6
<i>Crangon septemspinosa</i>	-	-	2.7	0.2	-	1.0
<i>Pagurus</i> sp.	-	-	0.8	-	-	0.3
Paguridae	-	0.8	-	-	-	<0.1
<i>Ogyrides</i> sp.	-	5.0	-	-	-	0.1
<i>Parapenaeus</i> sp.	-	-	2.3	-	-	0.8
Pinnotheridae	-	1.5	0.2	-	-	0.1
<i>Ovalipes ocellatus</i>	-	1.5	-	-	-	<0.1
<i>Portunus gibbesii</i>	-	-	-	17.1	-	9.0
<i>Portunus</i> sp.	-	-	1.3	3.0	-	2.0
Portunidae	-	-	-	1.0	-	0.5
<i>Albunea paretii</i>	-	-	-	6.1	-	3.2
<i>Albunea</i> sp.	-	-	-	2.8	100.0	12.5
Crab unid.	69.6	1.4	1.2	-	-	0.5
Shrimp unid.	-	4.6	<0.1	-	-	0.1
Decapoda unid.	-	4.1	2.2	31.8	-	17.5
Crustacea unid.	(4.3)	(5.4)	(27.4)	(5.2)	-	(12.3)
OSTEICHTHYES	-	[25.4]	[27.7]	[10.8]	-	[15.9]
<i>Anchoa hepsetus</i>	-	-	17.1	-	-	5.9
Pleuronectiformes	-	-	-	1.8	-	1.0
Osteichthyes larvae	-	-	0.1	<0.1	-	0.1
Osteichthyes unid.	-	25.4	10.5	9.0	-	8.9
ANIMAL REMAINS AND MISC.	-	[12.8]	[14.3]	[1.8]	-	[5.6]
SAND	-	-	-	[2.1]	-	[1.1]
Number sampled	2	19	36	30	1	88
Number empty	0	4	9	5	0	18
Mean stomach content (g)	0.012	0.052	0.444	0.813	5.123	0.529
Mean fish length (cm)	15	18	23	27	32	23

Table B-43b. Diet composition and sampling data for southern kingfish by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area	
	Inshore South of Cape Hatteras	Inshore North of Cape Hatteras
ANTHOZOA	-	[0.8]
RHYNCHOCOELA	[0.2]	-
BIVALVIA	[1.0]	[6.8]
Solenidae	-	1.0
Bivalvia unid.	1.0	5.8
POLYCHAETA	[2.0]	[24.6]
Arabellidae	-	1.2
<i>Diopatra cuprea</i>	0.3	-
<i>Glycera americana</i>	-	21.5
Glyceridae	-	1.7
Phyllodocidae	-	<0.1
Polychaeta unid.	1.7	0.2
CRUSTACEA	[72.0]	[47.9]
Stomatopoda	(2.1)	(4.1)
<i>Squilla neglecta</i>	2.1	-
Stomatopoda unid.	-	4.1
Cumacea	(<0.1)	-
Amphipoda	(<0.1)	(<0.1)
Decapoda	(51.1)	(43.1)
<i>Acetes americanus</i>	0.6	0.6
<i>Crangon septemspinosa</i>	-	2.9
<i>Pagurus</i> sp.	-	0.8
Paguridae	<0.1	-
<i>Ogyrides</i> sp.	0.2	-
<i>Parapenaeus</i> sp.	1.2	-
Pinnotheridae	0.1	-
<i>Ovalipes ocellatus</i>	<0.1	-
<i>Portunus gibbesii</i>	14.1	-
<i>Portunus</i> sp.	0.7	4.3
<i>Albunea paretii</i>	0.4	0.7
<i>Albunea</i> sp.	18.9	10.0
Crab unid.	0.2	1.0
Shrimp unid.	0.2	<0.1
Decapoda unid.	14.5	22.8
Crustacea unid.	(18.8)	(0.7)
OSTEICHTHYES	[21.0]	[6.4]
<i>Anchoa hepsetus</i>	9.2	-
Pleuronectiformes	1.5	-
Osteichthyes larvae	0.1	-
Osteichthyes unid.	10.2	6.4
ANIMAL REMAINS AND MISC.	[2.1]	[13.5]
SAND	[1.7]	[<0.1]
Number sampled	49	39
Number empty	8	10
Mean stomach content (g)	0.605	0.431
Mean fish length (cm)	22	24

Table B-44a. Diet composition and sampling data for northern kingfish by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)						Total
	6-10	11-15	16-20	21-25	26-30	31-35	
MOLLUSCA	-	-	-	[1.2]	[0.1]	-	[0.3]
POLYCHAETA	-	[3.6]	[17.8]	[10.5]	[1.9]	-	[3.8]
<i>Lumbrineris fragilis</i>	-	-	-	-	0.7	-	0.5
Onuphidae	-	-	-	4.4	1.0	-	1.5
Glyceridae	-	2.4	6.6	-	-	-	0.2
<i>Nephtys bucera</i>	-	-	-	1.1	-	-	0.2
<i>Nephtys</i> sp.	-	-	0.3	2.0	0.2	-	0.5
Nephtyidae	-	1.2	-	0.7	-	-	0.1
Polychaeta unid.	-	-	10.9	2.3	<0.1	-	0.8
CRUSTACEA	[100.0]	[74.9]	[76.3]	[70.8]	[87.4]	[92.3]	[84.8]
Stomatopoda	-	-	-	(5.6)	-	-	(1.0)
<i>Squilla empusa</i>	-	-	-	5.6	-	-	1.0
Amphipoda	-	(0.6)	(10.2)	(3.1)	(<0.1)	-	(0.9)
<i>Ampelisca verrilli</i>	-	-	4.2	0.4	<0.1	-	0.2
<i>Gammarus annulatus</i>	-	-	5.4	2.3	-	-	0.6
Amphipoda unid.	-	0.6	0.6	0.4	-	-	0.1
Mysidacea	-	(1.8)	(0.3)	(<0.1)	-	-	(<0.1)
Decapoda	(100.0)	(72.5)	(62.0)	(61.7)	(87.4)	(92.3)	(82.7)
<i>Acetes americanus</i>	-	-	0.2	2.2	0.1	-	0.5
<i>Acetes</i> sp.	-	-	<0.1	0.7	-	-	0.1
Penaeidae	-	-	-	1.4	-	-	0.3
<i>Callinassa setimanus</i>	26.0	-	-	-	-	-	0.1
Hippolytidae	-	-	-	0.9	1.3	-	1.0
<i>Crangon septemspinosa</i>	24.1	-	27.0	1.8	<0.1	-	1.3
<i>Cancer irroratus</i>	-	-	-	1.9	-	-	0.3
<i>Ovalipes ocellatus</i>	-	-	-	-	16.8	-	10.9
<i>Portunus gibbesii</i>	-	-	-	6.2	-	-	1.1
<i>Portunus spinicarpus</i>	-	-	-	1.4	-	-	0.3
<i>Portunus</i> sp.	-	-	-	0.6	1.2	7.8	1.9
Portunidae	-	-	-	0.5	41.5	53.2	34.0
<i>Ogyrides</i> sp.	-	-	5.9	0.6	-	-	0.3
<i>Pinnixa chaetoptera</i>	49.9	65.9	10.8	-	-	-	0.7
<i>Albunea paretii</i>	-	-	-	18.4	13.4	18.3	14.5
Decapoda unid.	-	6.6	18.1	25.1	13.1	13.0	15.4
Crustacea unid.	-	-	(3.8)	(0.4)	-	-	(0.2)
OSTEICHTHYES	-	-	[1.5]	[16.0]	[8.1]	[7.7]	[9.4]
<i>Ophichthus cruentifer</i>	-	-	-	-	2.1	7.7	2.4
Engraulidae	-	-	-	10.9	5.6	-	5.7
Bothidae	-	-	0.8	<0.1	-	-	<0.1
Osteichthyes larvae	-	-	-	1.0	-	-	0.2
Osteichthyes unid.	-	-	0.7	4.1	0.4	-	1.1
ANIMAL REMAINS AND MISC.	-	[21.5]	[4.4]	[1.5]	[1.5]	-	[1.1]
SAND	-	-	-	-	[1.0]	-	[0.6]
Number sampled	1	2	14	32	27	2	78
Number empty	0	0	1	1	2	1	5
Mean stomach content (g)	0.361	0.083	0.189	0.498	2.104	5.699	1.119
Mean fish length (cm)	10	14	17	23	27	32	23

Table B-44b. Diet composition and sampling data for northern kingfish by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area		
	Offshore South of Cape Hatteras	Inshore South of Cape Hatteras	Inshore North of Cape Hatteras
MOLLUSCA	-	[0.4]	[<0.1]
POLYCHAETA	-	[1.3]	[14.4]
<i>Lumbrineris fragilis</i>	-	-	2.6
Onuphidae	-	1.0	3.7
Glyceridae	-	-	1.1
<i>Nephtys bucera</i>	-	-	1.1
<i>Nephtys</i> sp.	-	<0.1	2.8
Nephtyidae	-	-	0.7
Polychaeta unid.	-	0.3	2.4
CRUSTACEA	-	[92.1]	[51.7]
Stomatopoda	-	(1.3)	-
<i>Squilla empusa</i>	-	1.3	-
Amphipoda	-	(<0.1)	(4.6)
<i>Ampelisca verrilli</i>	-	<0.1	1.1
<i>Gammarus annulatus</i>	-	-	3.2
Amphipoda unid.	-	<0.1	0.3
Mysidacea	-	(<0.1)	(<0.1)
Decapoda	-	(90.8)	(46.2)
<i>Acetes</i> sp.	-	0.7	0.1
Penaeidae	-	0.3	-
<i>Callinassa setimanus</i>	-	-	0.6
Hippolytidae	-	1.3	-
<i>Crangon septemspinosa</i>	-	-	7.1
<i>Cancer irroratus</i>	-	-	1.9
<i>Ovalipes ocellatus</i>	-	13.3	-
<i>Portunus gibbesii</i>	-	1.4	-
<i>Portunus spinicarpus</i>	-	0.3	-
<i>Portunus</i> sp.	-	2.2	0.6
Portunidae	-	41.5	-
<i>Ogyrides</i> sp.	-	0.3	-
<i>Pinnixa chaetoptera</i>	-	-	3.7
<i>Albunea paretii</i>	-	17.7	-
Decapoda unid.	-	11.8	32.2
Crustacea unid.	-	(<0.1)	(0.9)
OSTEICHTHYES	[100.0]	[5.0]	[27.9]
<i>Ophichthus cruentifer</i>	-	2.9	-
Engraulidae	-	1.0	27.0
Bothidae	-	<0.1	<0.1
Osteichthyes larvae	-	0.2	-
Osteichthyes unid.	100.0	0.9	0.9
ANIMAL REMAINS AND MISC.	-	[0.4]	[6.0]
SAND	-	[0.8]	-
Number sampled	1	43	34
Number empty	0	3	2
Mean stomach content (g)	0.118	1.664	0.461
Mean fish length (cm)	29	24	22

Table B-45. Diet composition and sampling data for Atlantic croaker by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)							Total
	11-15	16-20	21-25	26-30	31-35	36-40	41-45	
CERIANTHARIA	-	-	-	[1.9]	[1.4]	-	-	[0.9]
MOLLUSCA	-	[58.6]	[11.2]	[12.6]	[16.3]	[10.9]	-	[15.1]
Bivalvia	-	(58.6)	(4.5)	(11.1)	(7.8)	(10.9)	-	(9.9)
Solenidae	-	-	-	4.1	4.9	-	-	2.6
Bivalvia unid.	-	58.6	4.5	7.0	2.9	10.9	-	7.3
Cephalopoda	-	-	(6.7)	(0.9)	-	-	-	(2.0)
Mollusca unid.	-	-	(<0.1)	(0.6)	(8.5)	(<0.1)	-	(3.2)
POLYCHAETA	-	[8.6]	[34.5]	[55.1]	[27.0]	[50.6]	[68.7]	[37.4]
Eunicidae	-	-	-	2.0	1.7	-	-	1.0
<i>Lumbrineris fragilis</i>	-	-	5.4	2.4	4.8	9.5	-	4.7
Lumbrineridae	-	-	0.1	4.2	1.1	-	-	1.3
<i>Diopatra cuprea</i>	-	-	1.8	2.5	0.5	-	16.5	1.4
<i>Pherusa affinis</i>	-	-	<0.1	0.2	2.7	0.8	-	1.1
<i>Glycera americana</i>	-	-	14.0	19.6	1.7	0.2	-	8.5
<i>Glycera dibranchiata</i>	-	-	-	0.3	1.7	-	-	0.7
<i>Glycera robusta</i>	-	-	-	-	-	8.5	-	0.9
<i>Spio</i> sp.	-	3.7	2.4	3.0	1.0	-	-	1.8
Spionidae	-	<0.1	4.2	3.5	2.7	22.5	-	5.3
Polychaeta unid.	-	4.9	6.6	17.4	9.1	9.1	52.2	10.7
CRUSTACEA	[32.4]	[9.3]	[23.9]	[10.5]	[35.0]	[16.6]	[9.8]	[23.7]
Stomatopoda	-	-	-	(0.6)	(29.0)	-	-	(10.3)
<i>Squilla empusa</i>	-	-	-	-	28.8	-	-	10.1
Stomatopoda unid.	-	-	-	0.6	0.2	-	-	0.2
Mysidacea	-	-	(<0.1)	(2.0)	(0.7)	(0.3)	-	(0.7)
<i>Neomysis americana</i>	-	-	<0.1	2.0	0.7	0.3	-	0.7
Decapoda	-	(8.4)	(23.4)	(7.3)	(4.3)	(2.5)	(3.7)	(10.3)
Hippolytidae	-	0.6	3.6	-	-	-	-	1.0
<i>Crangon septemspinosa</i>	-	<0.1	0.1	2.1	0.5	1.9	-	0.9
Cancridae	-	-	3.4	<0.1	0.2	0.3	-	1.1
<i>Pinnixa chaetoptera</i>	-	1.6	0.5	-	-	-	-	0.2
<i>Ovalipes ocellatus</i>	-	-	5.6	4.2	-	-	-	2.4
<i>Albunea paretii</i>	-	-	2.1	-	-	-	-	0.6
Decapoda unid.	-	6.2	8.1	1.0	3.6	0.3	3.7	4.1
Crustacea unid.	(32.4)	(0.9)	(0.5)	(0.6)	(1.0)	(13.8)	(6.1)	(2.4)
HEMICHORDATA	-	[22.1]	[13.7]	-	-	-	-	[4.7]
OSTEICHTHYES	-	[<0.1]	[6.9]	[15.0]	[16.5]	[14.7]	[0.2]	[12.5]
<i>Anchoa mitchilli</i>	-	-	-	1.3	6.6	12.2	-	3.9
Engraulidae	-	-	-	6.0	4.3	2.5	-	3.0
<i>Peprilus triacanthus</i>	-	-	-	-	0.2	-	-	0.1
Osteichthyes larvae	-	-	0.7	-	<0.1	-	-	0.2
Osteichthyes unid.	-	<0.1	6.2	7.7	5.4	<0.1	0.2	5.3
ANIMAL REMAINS AND MISC.	[43.3]	[1.4]	[9.6]	[4.7]	[3.0]	[5.5]	[21.3]	[5.1]
SAND AND ROCK	[24.3]	-	[0.2]	[0.2]	[0.8]	[1.7]	-	[0.6]
Number sampled	2	33	118	64	36	9	1	263
Number empty	0	5	33	12	5	1	0	56
Mean stomach content (g)	0.019	0.275	0.511	0.707	2.129	2.676	2.876	0.830
Mean fish length (cm)	13	18	23	27	32	37	45	25

Table B-46. Diet composition and sampling data for cunner by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)								Total
	<10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	
MOLLUSCA	-	[1.0]	[49.2]	[28.5]	-	[41.4]	-	-	[6.1]
Polyplacophora	-	-	-	(0.2)	-	-	-	-	(<0.1)
Gastropoda	-	(1.0)	-	-	-	-	-	-	(0.1)
Bivalvia	-	-	-	(<0.1)	-	-	-	-	(<0.1)
<i>Cerastoderma pinnulatum</i>	-	-	-	<0.1	-	-	-	-	<0.1
Mollusca unid.	-	-	(49.2)	(28.3)	-	(41.4)	-	-	(6.0)
ANNELIDA	-	[8.1]	-	[7.6]	-	-	-	-	[1.1]
<i>Lepidonotus squamatus</i>	-	-	-	0.3	-	-	-	-	<0.1
Polychaeta	-	2.6	-	7.3	-	-	-	-	0.8
Annelida unid.	-	5.5	-	-	-	-	-	-	0.3
SIPUNCULA	-	-	-	[0.1]	-	-	-	-	[<0.1]
<i>Phascolion strombi</i>	-	-	-	0.1	-	-	-	-	<0.1
CRUSTACEA	[100.0]	[33.5]	[1.8]	[4.8]	[64.0]	[58.3]	[79.4]	[99.3]	[74.9]
Cumacea	-	-	(0.1)	(0.1)	-	-	-	-	(<0.1)
<i>Diastylis quadrispinosa</i>	-	-	-	0.1	-	-	-	-	<0.1
<i>Diastylis</i> sp.	-	-	0.1	-	-	-	-	-	<0.1
Isopoda	-	-	(0.8)	(<0.1)	-	-	-	-	(<0.1)
Arcturidae	-	-	0.8	<0.1	-	-	-	-	<0.1
Amphipoda	(100.0)	(2.4)	(0.9)	(1.8)	(<0.1)	-	-	-	(0.3)
<i>Erichthonius rubricornis</i>	-	-	<0.1	0.1	-	-	-	-	<0.1
<i>Unciola irrorata</i>	-	-	0.3	-	-	-	-	-	<0.1
<i>Unciola</i> sp.	-	2.4	-	-	-	-	-	-	0.1
<i>Pleusymtes glaber</i>	10.0	-	-	-	-	-	-	-	<0.1
<i>Stenula</i> sp.	90.0	-	-	-	-	-	-	-	<0.1
<i>Aeginina longicornis</i>	-	-	-	0.5	-	-	-	-	0.1
Caprellidae	-	-	-	0.2	-	-	-	-	<0.1
Gammaridea	-	-	0.3	0.2	<0.1	-	-	-	<0.1
Amphipoda unid.	-	-	0.3	0.8	<0.1	-	-	-	0.1
Decapoda	-	(30.3)	-	(1.3)	(52.5)	(58.3)	(75.7)	(99.0)	(72.0)
<i>Pandalus montagui</i>	-	30.3	-	-	-	-	-	-	1.6
<i>Pagurus</i> sp.	-	-	-	-	-	21.3	-	16.7	9.3
<i>Cancer borealis</i>	-	-	-	-	5.5	-	-	-	0.8
<i>Cancer irroratus</i>	-	-	-	-	4.2	25.9	72.7	49.7	37.3
Crab unid.	-	-	-	-	-	-	3.0	-	0.5
Decapoda unid.	-	-	-	1.3	42.8	11.1	-	32.6	22.5
Crustacea unid.	-	(0.8)	-	(1.6)	(11.5)	-	(3.7)	(0.3)	(2.6)
ECHINODERMATA	-	-	-	-	[33.9]	-	-	-	[5.0]
Echinoidea	-	-	-	-	33.9	-	-	-	5.0
UROCHORDATA	-	-	-	[12.4]	-	-	-	-	[1.1]
OSTEICHTHYES	-	-	-	-	-	-	[11.5]	-	[1.8]
Pleuronectiformes	-	-	-	-	-	-	11.5	-	1.8
ANIMAL REMAINS AND MISC.	[<0.1]	[52.1]	[39.2]	[39.4]	-	[0.3]	-	[0.1]	[6.9]
SAND AND ROCK	-	[5.3]	[9.8]	[7.2]	[2.1]	-	[9.1]	[0.6]	[3.1]
Number sampled	8	9	2	5	10	6	10	4	54
Number empty	6	5	1	0	3	3	6	1	25
Mean stomach content (g)	0.001	0.489	0.723	1.469	1.217	0.875	1.324	9.810	1.539
Mean fish length (cm)	6	13	17	23	27	33	38	43	25

Table B-47a. Diet composition and sampling data for ocean pout by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)							Total
	1-10	11-20	21-30	31-40	41-50	51-60	>60	
MOLLUSCA	-	[8.6]	[3.1]	[14.5]	[20.7]	[1.7]	[37.2]	[19.3]
Bivalvia	-	(8.6)	(3.1)	(11.6)	(13.4)	(1.5)	(37.2)	(17.3)
<i>Pecten</i> sp.	-	-	-	-	-	1.1	-	0.4
<i>Placopecten magellanicus</i>	-	-	-	-	-	<0.1	37.2	12.4
Pectinidae	-	8.6	-	-	-	-	-	0.1
<i>Cerastoderma pinnulatum</i>	-	-	3.1	0.2	6.4	-	-	1.5
Bivalvia unid.	-	-	-	11.4	7.0	0.4	-	2.9
Mollusca unid.	-	-	-	(2.9)	(7.3)	(0.2)	-	(2.0)
POLYCHAETA	-	[65.6]	[10.9]	[3.9]	[3.0]	[0.7]	[<0.1]	[2.1]
Aphroditidae	-	-	-	2.4	2.4	-	-	0.8
Cirratulidae	-	56.9	-	-	-	-	-	0.5
Polychaeta unid.	-	8.7	10.9	1.5	0.6	0.7	<0.1	0.8
CRUSTACEA	[100.0]	[17.7]	[25.0]	[33.5]	[29.8]	[39.5]	[4.1]	[24.7]
Isopoda	-	-	(0.2)	(2.3)	(<0.1)	(0.2)	-	(0.4)
<i>Edotea triloba</i>	-	-	-	2.3	<0.1	-	-	0.3
Isopoda unid.	-	-	0.2	-	-	0.2	-	0.1
Amphipoda	(100.0)	(15.8)	(19.9)	(7.0)	(27.3)	(32.0)	(1.8)	(18.1)
<i>Parathemisto</i> sp.	100.0	-	-	-	-	-	-	<0.1
Ampeliscidae	-	-	-	0.1	0.6	0.4	0.2	0.4
<i>Erichthonius rubricornis</i>	-	0.6	1.8	-	-	<0.1	-	<0.1
<i>Unciola irrorata</i>	-	6.7	16.9	0.6	20.0	11.2	1.6	8.9
<i>Leptocheirus pinguis</i>	-	5.9	-	1.8	1.6	19.9	<0.1	6.9
<i>Aeginina longicornis</i>	-	-	-	0.7	-	-	-	0.1
Amphipoda unid.	-	2.6	1.2	3.8	5.1	0.5	<0.1	1.8
Decapoda	-	(1.4)	(3.7)	(22.8)	(2.5)	(5.6)	(2.3)	(5.4)
<i>Dichelopandalus leptocerus</i>	-	-	-	0.9	-	-	-	0.1
Paguridae	-	1.4	3.7	-	-	-	-	<0.1
<i>Hyas coarctatus</i>	-	-	-	-	0.2	5.2	-	1.7
<i>Cancer borealis</i>	-	-	-	21.9	2.3	-	-	2.8
Crab unid.	-	-	-	-	-	0.4	2.3	0.8
Crustacea unid.	-	(0.5)	(1.2)	(1.4)	(<0.1)	(1.7)	-	(0.8)
ECHINODERMATA	-	-	[29.8]	[44.7]	[40.6]	[49.7]	[54.9]	[48.3]
Echinoidea	-	-	-	-	(<0.1)	(8.2)	(52.0)	(20.0)
<i>Echinarachnius parma</i>	-	-	-	-	<0.1	7.3	36.7	14.6
Echinoidea unid.	-	-	-	-	-	0.9	15.3	5.4
Ophiuroidea	-	-	(29.8)	(44.7)	(40.6)	(39.7)	(2.9)	(27.7)
<i>Ophiopholis aculeata</i>	-	-	23.5	4.1	0.9	0.6	1.9	1.7
<i>Ophiura sarsi</i>	-	-	0.5	-	0.4	35.8	0.3	11.5
Ophiuroidea unid.	-	-	5.8	40.6	39.3	3.3	0.7	14.5
Echinodermata unid.	-	-	-	-	-	(1.8)	-	(0.6)
OSTEICHTHYES	-	-	-	[<0.1]	[<0.1]	-	-	[<0.1]
ANIMAL REMAINS AND MISC.	-	[8.1]	[16.4]	[3.3]	[3.4]	[8.4]	[3.1]	[4.6]
SAND AND ROCK	-	-	[14.8]	[0.1]	[2.5]	[<0.1]	[0.7]	[1.0]
Number sampled	1	13	10	20	18	19	13	94
Number empty	0	1	2	5	4	6	3	21
Mean stomach content (g)	0.004	0.105	0.184	0.802	1.979	2.598	4.018	1.665
Mean fish length (cm)	5	16	26	35	45	54	68	41

Table B-47b. Diet composition and sampling data for ocean pout by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area				
	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras
MOLLUSCA	[8.8]	[31.7]	[0.6]	-	[16.7]
Bivalvia	(3.2)	(30.5)	(0.6)	-	(16.6)
<i>Pecten</i> sp.	-	0.8	-	-	-
<i>Placopecten magellanicus</i>	-	27.6	-	-	-
Pectinidae	-	-	0.6	-	-
<i>Cerastoderma pinnulatum</i>	2.2	2.1	-	-	-
Bivalvia unid.	1.0	<0.1	-	-	16.6
Mollusca unid.	(5.6)	(1.2)	-	-	(0.1)
POLYCHAETA	[3.9]	[0.6]	[5.7]	-	[<0.1]
Aphroditidae	2.9	-	-	-	-
Cirratulidae	-	-	4.2	-	-
Polychaeta unid.	1.0	0.6	1.5	-	<0.1
CRUSTACEA	[71.2]	[11.1]	[0.8]	[100.0]	[<0.1]
Isopoda	(0.9)	(0.2)	-	-	(<0.1)
<i>Edotea triloba</i>	0.9	-	-	-	<0.1
Isopoda unid.	-	0.2	-	-	-
Amphipoda	(59.6)	(3.9)	(<0.1)	(100.0)	-
<i>Parathemisto</i> sp.	-	-	-	100.0	-
Ampeliscidae	0.3	0.6	-	-	-
<i>Unciola irrorata</i>	28.2	2.7	-	-	-
<i>Leptocheirus pinguis</i>	25.1	0.2	-	-	-
<i>Aeginina longicornis</i>	0.3	-	-	-	-
Amphipoda unid.	5.7	0.4	<0.1	-	-
Decapoda	(10.2)	(5.8)	(0.8)	-	-
<i>Dichelopandalus leptocerus</i>	-	-	0.8	-	-
Paguridae	<0.1	<0.1	-	-	-
<i>Hyas coarctatus</i>	-	3.8	-	-	-
<i>Cancer borealis</i>	10.2	-	-	-	-
Crab unid.	<0.1	2.0	-	-	-
Crustacea unid.	(0.5)	(1.2)	-	-	-
ECHINODERMATA	[12.8]	[46.2]	[92.9]	-	[81.1]
Echinoidea	(12.8)	(36.6)	-	-	-
<i>Echinarachnius parma</i>	8.5	27.2	-	-	-
Echinoidea unid.	4.3	9.4	-	-	-
Ophiuroidea	-	(8.3)	(92.9)	-	(81.1)
<i>Ophiopholis aculeata</i>	-	3.8	-	-	-
<i>Ophiura sarsi</i>	-	0.9	92.9	-	-
Ophiuroidea unid.	-	3.6	-	-	81.1
Echinodermata unid.	-	(1.3)	-	-	-
OSTEICHTHYES	[<0.1]	-	-	-	[<0.1]
ANIMAL REMAINS AND MISC.	[1.4]	[9.3]	[<0.1]	-	[2.2]
SAND AND ROCK	[1.9]	[1.1]	-	-	-
Number sampled	42	34	12	1	5
Number empty	12	4	5	0	0
Mean stomach content (g)	1.013	2.074	1.553	0.004	4.949
Mean fish length (cm)	39	50	28	5	40

Table B-48a. Diet composition and sampling data for Atlantic wolffish by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	>80	
MOLLUSCA	[25.4]	[33.7]	[3.3]	[5.0]	[12.1]	[36.3]	[69.6]	[50.4]	[62.3]	[57.6]
Gastropoda	(24.9)	-	(1.1)	-	(3.7)	(0.5)	(17.6)	(1.1)	(12.6)	(10.8)
Bivalvia	-	(33.7)	(2.2)	(5.0)	(1.2)	(28.9)	(32.5)	(29.1)	(48.9)	(40.1)
<i>Pecten</i> sp.	-	-	-	-	-	-	-	-	18.2	10.6
<i>Placopecten</i> sp.	-	-	-	-	-	-	27.1	29.1	9.6	12.9
Pectinidae	-	-	-	-	-	-	-	-	21.1	12.2
Bivalvia unid.	-	33.7	2.2	5.0	1.2	28.9	5.4	-	-	4.4
Mollusca unid.	(0.5)	-	-	-	(7.2)	(6.9)	(19.5)	(20.2)	(0.8)	(6.7)
POLYCHAETA	-	-	[10.9]	-	[0.2]	[0.5]	-	-	-	[0.1]
<i>Aphrodita hastata</i>	-	-	10.9	-	-	-	-	-	-	<0.1
Polychaeta unid.	-	-	-	-	0.2	0.5	-	-	-	0.1
CRUSTACEA	[73.7]	[3.5]	[0.5]	[59.1]	[15.0]	[19.9]	[26.4]	[49.1]	[4.7]	[14.6]
Copepoda	(1.0)	-	-	-	-	-	-	-	-	(<0.1)
Tanaidacea	-	(0.4)	-	-	-	-	-	-	-	(<0.1)
Amphipoda	(28.7)	(3.1)	-	-	-	-	-	-	-	(<0.1)
<i>Parathemisto</i> sp.	28.7	-	-	-	-	-	-	-	-	<0.1
Amphipoda unid.	-	3.1	-	-	-	-	-	-	-	<0.1
Mysidacea	(0.5)	-	-	-	-	-	-	-	-	(<0.1)
Euphausiacea	(37.3)	-	-	-	-	(4.8)	-	(11.9)	-	(1.5)
<i>Meganyctiphanes norvegica</i>	-	-	-	-	-	4.8	-	11.9	-	1.5
Euphausiacea unid.	37.3	-	-	-	-	-	-	-	-	<0.1
Decapoda	(0.5)	-	(0.5)	(59.1)	(15.0)	(15.1)	(26.4)	(37.2)	(4.5)	(13.0)
<i>Dichelopandalus leptocerus</i>	-	-	-	-	-	-	0.6	-	-	0.1
<i>Pandalus borealis</i>	-	-	-	-	-	-	-	37.1	-	3.1
<i>Sclerocrangon boreas</i>	-	-	-	-	10.6	-	-	-	-	0.4
<i>Pagurus longicarpus</i>	-	-	-	-	-	-	-	-	3.1	1.8
<i>Pagurus arcuatus</i>	-	-	-	-	2.7	-	-	-	-	0.1
Paguridae	-	-	-	-	1.6	1.2	4.7	0.1	1.4	1.9
Majidae	-	-	-	59.1	-	-	0.9	-	-	0.3
<i>Cancer irroratus</i>	-	-	-	-	-	12.6	19.8	-	-	5.0
Decapoda unid.	0.5	-	0.5	-	0.1	1.3	0.4	-	<0.1	0.3
Crustacea unid.	(5.7)	-	-	-	-	-	-	-	(0.2)	(0.1)
ECHINODERMATA	-	[62.8]	[83.8]	[35.9]	[68.2]	[36.0]	[1.9]	-	[31.6]	[25.8]
Echinoidea	-	-	-	(35.9)	(52.7)	(0.8)	(1.9)	-	(11.7)	(9.3)
<i>Strongylocentrotus</i> sp.	-	-	-	35.9	52.7	-	1.9	-	7.5	6.7
<i>Echinarachnius parma</i>	-	-	-	-	-	-	-	-	0.1	0.1
Echinoidea unid.	-	-	-	-	-	0.8	-	-	4.1	2.5
Ophiuroidea	-	-	(76.0)	-	(7.3)	(35.2)	-	-	(18.7)	(15.3)
<i>Ophiura sarsi</i>	-	-	-	-	-	2.6	-	-	18.7	11.1
Ophiuroidea unid.	-	-	76.0	-	7.3	32.6	-	-	-	4.2
Echinodermata unid.	-	(62.8)	(7.8)	-	(8.2)	-	-	-	(1.2)	(1.2)
ANIMAL REMAINS AND MISC.	[0.9]	-	[1.5]	-	[2.2]	[6.4]	[1.9]	[0.5]	[0.2]	[1.0]
ROCK	-	-	-	-	[2.3]	[0.9]	[0.2]	-	[1.2]	[0.9]
Number sampled	23	4	7	5	5	8	9	4	10	75
Number empty	3	3	4	2	0	3	2	2	0	19
Mean stomach content (g)	0.009	0.419	0.274	0.339	4.864	9.595	13.583	14.107	39.532	9.074
Mean fish length (cm)	4	16	26	34	46	55	66	76	92	40

Table B-48b. Diet composition and sampling data for Atlantic wolffish by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area				
	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras
MOLLUSCA	-	[88.8]	[47.0]	[32.4]	[38.9]
Gastropoda	-	(30.4)	(0.7)	(2.4)	(0.7)
Bivalvia	-	(56.6)	(38.7)	(8.5)	(35.7)
<i>Pecten</i> sp.	-	31.5	-	1.2	-
<i>Placopecten</i> sp.	-	14.8	6.6	-	33.1
Pectinidae	-	10.3	24.1	-	-
Bivalvia unid.	-	-	8.0	7.3	2.6
Mollusca unid.	-	(1.8)	(7.6)	(21.5)	(2.5)
POLYCHAETA	-	-	[0.2]	-	-
<i>Aphrodita hastata</i>	-	-	<0.1	-	-
Polychaeta unid.	-	-	0.2	-	-
CRUSTACEA	[33.3]	[8.0]	[18.8]	[22.5]	[12.2]
Copepoda	-	-	-	(<0.1)	-
Amphipoda	-	-	(<0.1)	(<0.1)	-
<i>Parathemisto</i> sp.	-	-	-	<0.1	-
Amphipoda unid.	-	-	<0.1	-	-
Mysidacea	(33.3)	-	-	-	-
Euphausiacea	-	-	(4.2)	(<0.1)	-
<i>Meganyctiphanes norvegica</i>	-	-	4.2	-	-
Euphausiacea unid.	-	-	-	<0.1	-
Decapoda	-	(7.9)	(14.6)	(22.0)	(12.2)
<i>Dichelopandalus leptocerus</i>	-	-	-	0.8	-
<i>Pandalus borealis</i>	-	-	8.4	-	-
<i>Sclerocrangon boreas</i>	-	-	1.0	-	-
<i>Pagurus longicarpus</i>	-	5.5	-	-	-
<i>Pagurus arcuatus</i>	-	-	0.3	-	-
Paguridae	-	2.4	0.6	1.4	4.1
Majidae	-	-	-	2.4	-
<i>Cancer irroratus</i>	-	-	3.9	16.4	8.1
Decapoda unid.	-	-	0.4	1.0	<0.1
Crustacea unid.	-	(0.1)	(<0.1)	(0.5)	-
ECHINODERMATA	-	[2.1]	[31.9]	[38.3]	[48.1]
Echinoidea	-	-	(0.2)	(37.2)	(24.6)
<i>Strongylocentrotus</i> sp.	-	-	-	36.6	10.5
<i>Echinarachnius parma</i>	-	-	-	0.6	-
Echinoidea unid.	-	-	0.2	-	14.1
Ophiuroidea	-	-	(30.4)	(1.1)	(23.5)
<i>Ophiura sarsi</i>	-	-	29.1	1.1	1.7
Ophiuroidea unid.	-	-	1.3	-	21.8
Echinodermata unid.	-	(2.1)	(1.3)	-	-
ANIMAL REMAINS AND MISC.	[66.7]	[1.0]	[1.8]	[1.4]	[0.4]
ROCK	-	[0.1]	[0.3]	[5.4]	[0.4]
Number sampled	1	8	28	33	5
Number empty	0	0	11	7	1
Mean stomach content (g)	0.003	28.046	8.943	2.760	22.939
Mean fish length (cm)	3	79	41	27	68

Table B-49a. Diet composition and sampling data for northern sand lance by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)						Total
	1-5	6-10	11-15	16-20	21-25	26-30	
CNIDARIA	-	-	[0.3]	[<0.1]	-	-	[0.1]
CHAETOGNATHA	-	[16.6]	[10.8]	[17.8]	[14.4]	[95.4]	[15.2]
<i>Sagitta elegans</i>	-	-	0.4	0.1	3.9	-	1.0
<i>Sagitta</i> sp.	-	14.9	1.6	9.0	<0.1	-	4.7
Chaetognatha unid.	-	1.7	8.8	8.7	10.5	95.4	9.5
OPISTHOBRANCHIA	-	-	[<0.1]	[0.1]	[2.9]	-	[0.6]
<i>Limacina</i> sp.	-	-	-	0.1	2.3	-	0.5
Opisthobranchia unid.	-	-	<0.1	<0.1	0.6	-	0.1
POLYCHAETA	-	-	[<0.1]	[<0.1]	[<0.1]	[0.2]	[<0.1]
CRUSTACEA	[42.9]	[79.9]	[83.6]	[72.8]	[63.1]	[4.4]	[74.8]
Ostracoda	-	(0.9)	(1.2)	(<0.1)	-	-	(0.4)
Copepoda	(33.8)	(40.5)	(79.7)	(64.4)	(56.0)	(1.2)	(67.3)
<i>Calanus</i> sp.	-	8.8	13.3	34.0	27.1	-	24.7
<i>Centropages</i> sp.	-	-	11.0	<0.1	-	-	3.9
Calanoida	31.2	13.8	37.0	18.7	26.9	1.2	26.5
Copepoda unid.	2.6	17.9	18.4	11.7	2.0	-	12.2
Cirripedia	-	(0.6)	(0.2)	(0.1)	-	-	(0.2)
Cumacea	-	-	(<0.1)	(<0.1)	(<0.1)	-	(<0.1)
Amphipoda	-	(0.1)	(0.7)	(3.9)	(5.9)	(2.7)	(3.2)
<i>Parathemisto gaudichaudii</i>	-	-	0.5	0.7	<0.1	-	0.5
<i>Parathemisto</i> sp.	-	-	<0.1	0.7	1.2	-	0.6
Hyperiididae	-	-	<0.1	0.2	0.2	-	0.1
<i>Monoculodes edwardsi</i>	-	-	-	-	0.7	-	0.1
<i>Calliopius laeviusculus</i>	-	-	0.2	0.2	0.1	2.7	<0.1
<i>Gammarus annulatus</i>	-	-	-	2.1	3.7	-	1.7
Amphipoda unid.	-	0.1	<0.1	<0.1	<0.1	-	0.2
Mysidacea	-	(36.4)	(0.3)	(2.4)	(0.4)	(0.5)	(2.0)
<i>Mysidopsis bigelowi</i>	-	-	<0.1	<0.1	0.3	-	0.1
<i>Mysidopsis</i> sp.	-	-	<0.1	<0.1	-	0.5	<0.1
<i>Neomysis americana</i>	-	36.4	0.3	2.4	0.1	-	1.9
Euphausiacea	-	-	(0.7)	(0.7)	(0.2)	-	(0.6)
<i>Meganctiphanes norvegica</i>	-	-	<0.1	0.1	0.2	-	0.1
Euphausiacea unid.	-	-	0.7	0.6	<0.1	-	0.5
Crustacea unid.	(9.1)	(1.4)	(0.8)	(1.3)	(0.6)	-	(1.1)
UROCHORDATA	[57.1]	[1.3]	[0.2]	[2.8]	[13.7]	-	[4.1]
Larvacea	57.1	1.3	0.1	<0.1	-	-	0.1
Urochordata unid.	-	-	0.1	2.8	13.7	-	4.0
OSTEICHTHYES	-	[0.1]	[0.2]	[1.7]	[<0.1]	-	[0.8]
<i>Ammodytes dubius</i>	-	-	-	<0.1	-	-	<0.1
<i>Pholis gunnellus</i>	-	-	-	<0.1	-	-	<0.1
Osteichthyes eggs	-	-	<0.1	0.1	-	-	0.1
Osteichthyes larvae	-	0.1	<0.1	0.3	-	-	0.1
Osteichthyes unid.	-	-	0.2	1.3	<0.1	-	0.6
ANIMAL REMAINS AND MISC.	-	[2.1]	[4.9]	[4.8]	[5.9]	-	[4.4]
Number sampled	11	93	811	383	54	1	1353
Number empty	1	27	227	130	8	0	393
Mean stomach content (g)	0.007	0.019	0.040	0.103	0.343	0.593	0.069
Mean fish length (cm)	4	9	13	17	21	27	14

Table B-49b. Diet composition and sampling data for northern sand lance by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area				
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Inshore North of Cape Hatteras
CNIDARIA	[2.8]	[0.3]	[<0.1]	-	[0.1]
CHAETOGNATHA	[0.4]	[32.2]	[15.1]	[0.1]	[8.8]
<i>Sagitta elegans</i>	-	3.7	0.2	-	0.2
<i>Sagitta</i> sp.	-	21.1	<0.1	-	<0.1
Chaetognatha unid.	0.4	7.4	14.9	0.1	8.6
OPISTHOBRANCHIA	-	[<0.1]	[<0.1]	[3.7]	-
<i>Limacina</i> sp.	-	-	<0.1	3.0	-
Opisthobranchia unid.	-	<0.1	<0.1	0.7	-
POLYCHAETA	-	[<0.1]	[<0.1]	-	[<0.1]
CRUSTACEA	[61.6]	[57.5]	[79.8]	[70.7]	[87.8]
Ostracoda	-	(<0.1)	(0.2)	(2.1)	(<0.1)
Copepoda	(59.6)	(45.2)	(73.7)	(67.9)	(78.9)
<i>Calanus</i> sp.	-	7.3	52.3	-	2.3
<i>Centropages</i> sp.	-	5.0	-	-	16.8
Calanoida	35.7	28.0	9.4	56.8	37.4
Copepoda unid.	23.9	4.9	12.0	11.1	22.4
Cirripedia	-	(0.1)	(<0.1)	(0.3)	(0.4)
Cumacea	-	(<0.1)	-	-	(0.1)
Amphipoda	(0.8)	(9.9)	(1.9)	(0.4)	(<0.1)
<i>Parathemisto</i> sp.	0.8	2.0	1.3	-	-
Hyperiididae	<0.1	<0.1	0.1	0.4	-
<i>Monoculodes edwardsi</i>	-	0.6	-	-	-
<i>Calliopius laeviusculus</i>	-	-	0.4	-	-
<i>Gammarus annulatus</i>	-	7.3	0.1	-	-
Amphipoda unid.	-	<0.1	<0.1	-	<0.1
Mysidacea	-	(0.2)	(2.2)	-	(5.9)
<i>Mysidopsis bigelowi</i>	-	-	0.3	-	-
<i>Mysidopsis</i> sp.	-	-	<0.1	-	-
<i>Neomysis americana</i>	-	0.2	1.9	-	5.9
Euphausiacea	-	(0.2)	(0.6)	-	(1.9)
<i>Meganyctiphanes norvegica</i>	-	-	0.3	-	-
Euphausiacea unid.	-	0.2	0.3	-	1.9
Crustacea unid.	(1.2)	(1.9)	(1.2)	(<0.1)	(0.6)
UROCHORDATA	[6.5]	[0.3]	[0.7]	[21.5]	[0.1]
Larvacea	0.9	0.3	-	-	0.1
Urochordata unid.	5.6	<0.1	0.7	21.5	-
OSTEICHTHYES	[6.5]	[2.5]	[0.5]	-	[<0.1]
<i>Ammodytes dubius</i>	-	<0.1	-	-	-
<i>Pholis gunnellus</i>	-	<0.1	-	-	-
Osteichthyes eggs	-	-	0.2	-	-
Osteichthyes larvae	-	0.6	<0.1	-	-
Osteichthyes unid.	6.5	1.9	0.3	-	<0.1
ANIMAL REMAINS AND MISC.	[22.2]	[7.2]	[3.9]	[4.0]	[3.2]
Number sampled	148	319	429	61	396
Number empty	40	76	162	4	111
Mean stomach content (g)	0.008	0.064	0.094	0.260	0.039
Mean fish length (cm)	12	15	15	17	12

Table B-50a. Diet composition and sampling data for Atlantic mackerel by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)						Total
	16-20	21-25	26-30	31-35	36-40	41-45	
NEMATODA	[0.7]	[<0.1]	[0.1]	-	[<0.1]	[<0.1]	[0.1]
CHAETOGNATHA	[13.8]	-	[5.0]	[25.4]	[9.3]	[7.2]	[8.6]
<i>Sagitta elegans</i>	3.0	-	4.8	16.2	4.0	5.2	4.8
Chaetognatha unid.	10.8	-	0.2	9.2	5.3	2.0	3.8
MOLLUSCA	[<0.1]	-	-	[<0.1]	[0.5]	-	[0.3]
Bivalvia	-	-	-	-	0.1	-	0.1
Cephalopoda	<0.1	-	-	<0.1	0.4	-	0.2
POLYCHAETA	[<0.1]	-	-	[1.2]	-	-	[<0.1]
CRUSTACEA	[81.9]	[93.9]	[94.7]	[69.0]	[89.0]	[92.3]	[90.2]
Copepoda	(13.3)	(92.7)	(18.4)	-	(3.8)	(1.0)	(7.3)
Calanoida	8.0	-	7.3	-	0.9	<0.1	2.0
<i>Centropages</i> sp.	5.0	92.7	-	-	-	-	2.2
Copepoda unid.	0.3	-	11.1	-	2.9	1.0	3.1
Cumacea	-	-	-	-	(<0.1)	-	(<0.1)
Amphipoda	(0.9)	(1.2)	(13.8)	(21.9)	(83.4)	(90.4)	(66.2)
<i>Hyperia glabra</i>	-	-	0.4	-	-	-	0.1
<i>Parathemisto gaudichaudii</i>	<0.1	1.2	13.4	-	3.5	<0.1	3.3
<i>Parathemisto</i> sp.	0.2	-	-	12.1	2.5	<0.1	1.4
Hyperiididae	0.7	<0.1	-	-	-	-	0.1
<i>Aeginina longicornis</i>	-	-	<0.1	-	<0.1	-	<0.1
<i>Gammarus annulatus</i>	-	-	-	9.8	77.4	90.4	61.3
Amphipoda unid.	<0.1	-	-	-	<0.1	-	<0.1
Mysidacea	(67.6)	-	(38.3)	(<0.1)	(<0.1)	(0.8)	(10.8)
<i>Mysidopsis bigelowi</i>	6.1	-	-	-	-	-	0.4
<i>Neomysis americana</i>	61.5	-	38.3	<0.1	-	0.8	10.4
Mysidacea unid.	<0.1	-	-	<0.1	<0.1	-	<0.1
Euphausiacea	-	-	(20.1)	(45.3)	(0.6)	(<0.1)	(4.8)
<i>Euphausia krohnii</i>	-	-	-	38.0	-	-	1.3
<i>Meganyctiphanes norvegica</i>	-	-	20.1	3.3	0.6	<0.1	3.3
Euphausiacea unid.	-	-	<0.1	4.0	<0.1	<0.1	0.2
Decapoda	(0.1)	-	(1.7)	(0.4)	(1.0)	(0.1)	(0.7)
<i>Crangon septemspinosa</i>	0.1	-	<0.1	-	-	<0.1	<0.1
<i>Pagurus</i> sp.	-	-	<0.1	-	<0.1	<0.1	<0.1
Decapoda larvae	<0.1	-	1.7	0.4	1.0	0.1	0.7
Crustacea unid.	(<0.1)	-	(2.4)	(1.4)	(0.2)	-	(0.4)
UROCHORDATA	[1.5]	-	[0.2]	-	-	-	[0.1]
Ascidiacea	0.6	-	-	-	-	-	<0.1
Urochordata unid.	0.9	-	0.2	-	-	-	0.1
OSTEICHTHYES	[0.1]	-	[<0.1]	-	[0.2]	[<0.1]	[0.1]
Osteichthyes larvae	0.1	-	<0.1	-	<0.1	<0.1	<0.1
Osteichthyes unid.	<0.1	-	<0.1	-	0.2	-	0.1
ANIMAL REMAINS	[2.0]	[6.1]	[<0.1]	[0.6]	[0.9]	[0.5]	[0.4]
SAND	-	-	-	[3.8]	[0.1]	-	[0.2]
Number sampled	32	7	17	26	24	8	114
Number empty	1	1	5	8	5	1	21
Mean stomach content (g)	0.571	0.715	2.226	0.341	3.895	11.594	2.248
Mean fish length (cm)	17	22	28	33	38	41	29

Table B-50b. Diet composition and sampling data for Atlantic mackerel by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area				
	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras
NEMATODA	-	[0.2]	[0.3]	[<0.1]	[<0.1]
CHAETOGNATHA	[3.3]	[21.0]	[1.8]	-	[0.2]
<i>Sagitta elegans</i>	2.2	11.2	-	-	0.2
Chaetognatha unid.	1.1	9.8	1.8	-	-
MOLLUSCA	[<0.1]	[0.5]	[2.0]	-	-
Bivalvia	-	-	(2.0)	-	-
Cephalopoda	(<0.1)	(0.5)	-	-	-
POLYCHAETA	-	[0.1]	-	-	-
CRUSTACEA	[96.2]	[77.0]	[85.2]	[95.9]	[98.4]
Copepoda	(<0.1)	(13.1)	(83.9)	(54.2)	-
Calanoida	-	6.2	2.1	-	-
<i>Centropages</i> sp.	-	-	81.8	11.5	-
Copepoda unid.	<0.1	6.9	-	42.7	-
Cumacea	-	(<0.1)	-	-	-
Amphipoda	(95.5)	(12.2)	(1.3)	(41.7)	(96.2)
<i>Hyperia glaba</i>	-	0.2	-	-	-
<i>Parathemisto gaudichaudii</i>	-	10.4	1.0	<0.1	-
<i>Parathemisto</i> sp.	-	1.4	0.2	41.7	-
Hyperiididae	<0.1	0.2	0.1	-	-
<i>Gammarus annulatus</i>	95.5	-	-	-	96.2
Amphipoda unid.	-	<0.1	-	-	-
Mysidacea	(0.5)	(33.5)	(<0.1)	-	-
<i>Mysidopsis bigelowi</i>	-	1.4	-	-	-
<i>Neomysis americana</i>	0.5	32.1	-	-	-
Mysidacea unid.	-	<0.1	<0.1	-	-
Euphausiacea	(0.2)	(14.7)	(<0.1)	-	(2.2)
<i>Euphausia krohnii</i>	-	4.2	-	-	-
<i>Meganyctiphanes norvegica</i>	0.2	10.0	-	-	2.2
Euphausiacea unid.	-	0.5	<0.1	-	-
Decapoda	-	(2.1)	(<0.1)	-	-
<i>Crangon septemspinosa</i>	-	<0.1	<0.1	-	-
<i>Pagurus</i> sp.	-	<0.1	-	-	-
Decapoda larvae	-	2.1	<0.1	-	-
Crustacea unid.	-	(1.4)	-	-	-
UROCHORDATA	[0.1]	[0.1]	-	-	-
Ascidiacea	-	(0.1)	-	-	-
Urochordata unid.	(0.1)	(<0.1)	-	-	-
OSTEICHTHYES	-	[<0.1]	[0.2]	[2.4]	-
Osteichthyes larvae	-	<0.1	-	-	-
Osteichthyes unid.	-	<0.1	0.2	2.4	-
ANIMAL REMAINS	[0.2]	[1.1]	[10.5]	[1.7]	[0.2]
SAND	[0.2]	-	-	-	[1.2]
Number sampled	24	74	11	4	1
Number empty	11	8	1	1	0
Mean stomach content (g)	6.450	1.083	0.544	1.410	9.628
Mean fish length (cm)	32	27	29	29	39

Table B-51a. Diet composition and sampling data for butterfish by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)					Total
	1-5	6-10	11-15	16-20	21-25	
CNIDARIA	-	[8.7]	[<0.1]	-	-	[1.4]
CTENOPHORA	-	[0.3]	-	-	-	[0.1]
RHYNCHOCOELA	-	-	[0.3]	-	-	[0.2]
CHAETOGNATHA	[0.5]	[0.8]	[<0.1]	[1.0]	-	[0.6]
<i>Sagitta elegans</i>	-	0.5	-	0.3	-	0.2
<i>Sagitta</i> sp.	-	-	<0.1	0.7	-	0.3
Chaetognatha unid.	0.5	0.3	-	-	-	0.1
MOLLUSCA	-	[8.1]	[29.5]	[9.0]	[0.3]	[18.7]
Thecosomata	-	(8.1)	(29.5)	(8.8)	-	(18.6)
<i>Clione</i> sp.	-	7.8	26.6	8.8	-	17.1
Thecosomata unid.	-	0.3	2.9	<0.1	-	1.5
Mollusca unid.	-	-	-	(0.2)	(0.3)	(0.1)
POLYCHAETA	-	[1.9]	[2.4]	[1.0]	[14.7]	[2.3]
Glyceridae	-	-	1.8	-	-	0.9
<i>Tomopteris helgolandica</i>	-	-	-	0.2	-	0.1
<i>Tomopteris</i> sp.	-	-	<0.1	0.7	14.7	0.6
Polychaeta unid.	-	1.9	0.6	0.1	-	0.7
CRUSTACEA	-	[2.3]	[1.1]	[1.9]	[5.1]	[1.8]
Copepoda	-	(1.7)	(<0.1)	(0.2)	(4.8)	(0.4)
<i>Centropages</i> sp.	-	0.1	<0.1	<0.1	-	<0.1
Copepoda unid.	-	1.6	<0.1	0.2	4.8	0.4
Stomatopoda	-	(0.2)	-	-	-	(<0.1)
Amphipoda	-	(<0.1)	(0.9)	(0.5)	(0.3)	(0.7)
<i>Hyperia glaba</i>	-	-	<0.1	0.2	<0.1	0.1
<i>Parathemisto</i> sp.	-	<0.1	0.4	0.3	0.3	0.3
<i>Ampelisca verrilli</i>	-	-	0.5	-	-	0.3
Mysidacea	-	(0.1)	(<0.1)	(<0.1)	-	(<0.1)
<i>Neomysis americana</i>	-	0.1	<0.1	<0.1	-	<0.1
Euphausiacea	-	(<0.1)	(<0.1)	(1.2)	-	(0.4)
<i>Meganyctiphanes norvegica</i>	-	<0.1	<0.1	1.2	-	0.4
Decapoda larvae	-	(<0.1)	(0.2)	(<0.1)	-	(0.1)
Crustacea unid.	-	(0.3)	(<0.1)	(<0.1)	-	(0.2)
UROCHORDATA	-	[17.7]	[38.7]	[20.7]	[20.6]	[29.0]
Ascidiacea	-	-	(11.0)	(11.6)	-	(9.2)
Thaliacea	-	(8.3)	(4.4)	(3.8)	(6.8)	(4.8)
Salpidae	-	8.3	3.1	3.5	6.8	4.1
Thaliacea unid.	-	-	1.3	0.3	-	0.7
Larvacea	-	(2.8)	(<0.1)	(0.7)	(13.8)	(1.0)
Urochordata unid.	-	(6.6)	(23.3)	(4.6)	-	(14.0)
OSTEICHTHYES	-	[0.2]	[<0.1]	-	-	[0.1]
ANIMAL REMAINS AND MISC.	[99.5]	[60.0]	[28.0]	[66.4]	[59.3]	[45.8]
Number sampled	39	327	282	194	10	852
Number empty	11	32	63	63	3	172
Mean stomach content (g)	0.010	0.067	0.241	0.234	0.301	0.163
Mean fish length (cm)	4	8	12	17	21	11

Table B-51b. Diet composition and sampling data for butterfish by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area					
	Middle Atlantic	Southern New England	Georges Bank	Offshore South of Cape Hatteras	Inshore South of Cape Hatteras	Inshore North of Cape Hatteras
CNIDARIA	-	-	-	-	-	[3.1]
CTENOPHORA	-	-	-	-	-	[0.1]
RHYNCHOCOELA	-	-	[14.4]	-	-	<[0.1]
CHAETOGNATHA	-	[2.1]	[13.5]	-	-	-
<i>Sagitta elegans</i>	-	0.6	8.8	-	-	-
<i>Sagitta</i> sp.	-	1.5	-	-	-	-
Chaetognatha unid.	-	-	4.7	-	-	-
MOLLUSCA	[0.7]	[0.5]	-	-	-	[42.1]
Thecosomata	(0.7)	(0.1)	-	-	-	(42.1)
<i>Clione</i> sp.	0.7	-	-	-	-	38.7
Thecosomata unid.	-	0.1	-	-	-	3.4
Mollusca unid.	-	(0.4)	-	-	-	-
POLYCHAETA	-	[3.7]	-	<[0.1]	<[0.1]	[3.3]
Glyceridae	-	-	-	-	-	2.0
<i>Tomopteris helgolandica</i>	-	0.3	-	-	-	-
<i>Tomopteris</i> sp.	-	3.2	-	-	-	<0.1
Polychaeta unid.	-	0.2	-	<0.1	<0.1	1.3
CRUSTACEA	[2.6]	[3.5]	[4.6]	[0.1]	<[0.1]	[1.5]
Copepoda	<(0.1)	(1.1)	(4.0)	-	<(0.1)	(0.5)
<i>Centropages</i> sp.	<0.1	<0.1	-	-	<0.1	<0.1
Copepoda unid.	<0.1	1.1	4.0	-	<0.1	0.5
Stomatopoda	-	-	-	-	-	<(0.1)
Amphipoda	<(0.1)	(2.0)	(0.3)	<(0.1)	<(0.1)	(0.6)
<i>Hyperia glaba</i>	<0.1	0.3	-	-	<0.1	<0.1
<i>Parathemisto</i> sp.	<0.1	1.7	0.3	<0.1	<0.1	-
<i>Ampelisca verrilli</i>	-	-	-	-	-	0.6
Mysidacea	-	-	-	-	-	(0.1)
<i>Neomysis americana</i>	-	-	-	-	-	<0.1
Euphausiacea	(2.6)	<(0.1)	-	(0.1)	-	<(0.1)
<i>Meganyctiphanes norvegica</i>	2.6	<0.1	-	0.1	-	<0.1
Decapoda larvae	-	(0.2)	(0.3)	-	-	(0.2)
Crustacea unid.	<(0.1)	(0.2)	-	<(0.1)	<(0.1)	(0.1)
UROCHORDATA	[20.5]	[46.0]	-	[80.8]	[59.8]	[3.8]
Asciacea	-	(30.8)	-	-	(32.1)	-
Thaliacea	(17.6)	(8.5)	-	(2.1)	(0.3)	(1.3)
Salpidae	13.1	8.0	-	2.1	0.3	1.3
Thaliacea unid.	4.5	0.5	-	-	-	-
Larvacea	-	(3.1)	-	-	-	(1.0)
Urochordata unid.	(2.9)	(3.6)	-	(78.7)	(27.4)	(1.5)
OSTEICHTHYES	<[0.1]	-	-	-	[0.3]	<[0.1]
ANIMAL REMAINS AND MISC.	[76.2]	[44.2]	[67.5]	[19.1]	[39.9]	[46.1]
Number sampled	91	174	56	20	85	426
Number empty	22	57	24	0	25	44
Mean stomach content (g)	0.217	0.137	0.025	0.793	0.197	0.144
Mean fish length (cm)	13	14	11	11	14	10

Table B-52a. Diet composition and sampling data for Gulf Stream flounder by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)				Total
	1-5	6-10	11-15	16-20	
POLYCHAETA	[35.3]	[36.7]	[54.9]	[31.6]	[47.2]
<i>Nicomache lumbricalis</i>	-	-	5.8	-	3.4
Maldanidae	-	5.7	-	-	2.3
Eunicidae	35.3	<0.1	-	-	0.2
<i>Lumbrineris</i> sp.	-	5.4	-	-	2.1
Lumbrineridae	-	8.0	1.1	-	3.8
<i>Ophelina</i> sp.	-	-	2.2	-	1.3
Nephtyidae	-	4.1	22.1	-	14.4
<i>Sthenelais limicola</i>	-	-	3.8	-	2.2
Sabellidae	-	-	1.7	-	1.0
Polychaeta unid.	-	13.5	18.2	31.6	16.5
CRUSTACEA	[64.7]	[55.4]	[31.5]	[35.5]	[41.3]
Stomatopoda	-	(5.5)	-	-	(2.2)
<i>Platysquilla enodis</i>	-	4.6	-	-	1.8
Stomatopoda unid.	-	0.9	-	-	0.4
Cumacea	-	(0.8)	(0.8)	(2.6)	(0.8)
Amphipoda	(64.7)	(36.7)	(13.7)	(14.5)	(23.1)
<i>Ampelisca agassizi</i>	-	3.5	0.3	-	1.6
<i>Ampelisca</i> sp.	-	1.1	1.0	-	1.0
<i>Byblis serrata</i>	-	2.8	0.2	-	1.2
Ampeliscidae	-	2.4	0.3	-	1.1
<i>Erichthonius</i> sp.	-	3.6	<0.1	-	1.5
<i>Unciola</i> sp.	17.6	9.2	6.0	1.3	7.2
<i>Casco bigelowi</i>	-	1.4	-	-	0.5
Oedicerotidae	-	1.2	0.1	-	1.3
<i>Leptocheirus pinguis</i>	-	2.8	3.7	13.2	3.5
Amphipoda unid.	47.1	8.7	2.1	-	4.2
Decapoda	-	(9.8)	(5.1)	(18.4)	(7.2)
<i>Crangon septemspinosa</i>	-	0.3	0.9	-	0.6
<i>Munida</i> sp.	-	2.1	0.5	-	1.1
Majidae	-	-	1.7	-	1.0
<i>Cancer irroratus</i>	-	3.5	0.7	11.8	2.0
Canceridae	-	2.5	0.4	-	1.2
Decapoda larvae	-	<0.1	0.6	6.6	0.5
Decapoda unid.	-	1.4	0.3	-	0.8
Crustacea unid.	-	(2.6)	(11.9)	-	(8.0)
ECHINODERMATA	-	[1.9]	[2.5]	[23.7]	[2.7]
<i>Ophiura</i> sp.	-	1.5	0.2	-	0.7
Ophiuroidea	-	0.4	2.3	23.7	2.0
OSTEICHTHYES	-	-	[7.8]	-	[4.6]
Gadidae	-	-	6.0	-	3.5
Osteichthyes larvae and eggs	-	-	1.8	-	1.1
ANIMAL REMAINS AND MISC.	-	[6.0]	[3.3]	[9.2]	[4.2]
Number sampled	4	124	77	19	224
Number empty	0	26	27	10	63
Mean stomach content (g)	0.004	0.013	0.030	0.004	0.018
Mean fish length (cm)	4	8	12	16	10

Table B-52b. Diet composition and sampling data for Gulf Stream flounder by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area		
	Middle Atlantic	Southern New England	Georges Bank
POLYCHAETA	[61.0]	[43.2]	[46.4]
<i>Nicomache lumbricalis</i>	16.7	-	-
Maldanidae	-	3.4	-
Eunicidae	0.9	-	-
<i>Lumbrineris</i> sp.	2.4	2.4	0.8
Lumbrineridae	0.5	5.6	-
<i>Ophelina</i> sp.	6.2	-	-
Nephtyidae	5.5	17.6	12.2
<i>Sthenelais limicola</i>	-	-	16.7
Polychaeta unid.	28.8	14.2	16.7
CRUSTACEA	[34.2]	[42.1]	[47.9]
Stomatopoda	(3.0)	(2.4)	-
<i>Platysquilla enodis</i>	3.0	1.8	-
Stomatopoda unid.	-	0.6	-
Cumacea	(1.5)	(0.2)	(2.6)
Amphipoda	(26.1)	(19.2)	(38.1)
<i>Ampelisca agassizi</i>	3.0	0.5	4.5
<i>Ampelisca</i> sp.	3.7	-	2.1
<i>Byblis serrata</i>	0.7	1.6	-
Ampeliscidae	-	0.7	5.1
<i>Erichthonius</i> sp.	0.5	0.8	6.2
<i>Unciola</i> sp.	7.5	7.6	4.6
<i>Casco bigelowi</i>	1.5	0.4	-
Oedicerotidae	6.3	-	-
<i>Leptocheirus pinguis</i>	-	5.3	-
Amphipoda unid.	2.9	2.3	15.6
Decapoda	(2.5)	(9.0)	(5.6)
<i>Crangon septemspinosa</i>	-	0.9	-
<i>Munida</i> sp.	-	1.7	-
Majidae	-	1.5	-
<i>Cancer irroratus</i>	-	3.1	-
Cancridae	1.3	1.0	1.7
Decapoda larvae	0.1	0.4	1.9
Decapoda unid.	1.1	0.4	2.0
Crustacea unid.	(1.1)	(11.3)	(1.6)
ECHINODERMATA	-	[4.1]	-
<i>Ophiura</i> sp.	-	1.1	-
Ophiuroidea	-	3.0	-
OSTEICHTHYES	-	[6.8]	-
Gadidae	-	5.2	-
Osteichthyes larvae and eggs	-	1.6	-
ANIMAL REMAINS AND MISC.	[4.8]	[3.8]	[5.7]
Number sampled	66	129	29
Number empty	20	37	6
Mean stomach content (g)	0.012	0.021	0.018
Mean fish length (cm)	8	11	10

Table B-53a. Diet composition and sampling data for summer flounder by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	<21	21-25	26-30	31-35	36-40	41-45	51-55	56-60	>60	
CEPHALOPODA	-	-	[4.9]	[27.1]	[1.5]	[19.1]	[26.2]	[64.5]	[38.3]	[34.2]
<i>Illex</i> sp.	-	-	-	10.2	-	-	-	-	31.5	9.4
<i>Loligo pealeii</i>	-	-	-	3.8	-	12.2	12.7	51.1	-	16.3
<i>Loligo</i> sp.	-	-	-	-	-	2.3	-	3.4	-	1.2
<i>Lolliguncula brevis</i>	-	-	-	2.4	-	-	-	-	-	0.1
Cephalopoda unid.	-	-	4.9	10.7	1.5	4.6	13.5	10.0	6.8	7.2
CRUSTACEA	[43.3]	[41.8]	[18.6]	[22.4]	[6.5]	[8.8]	[1.1]	-	[0.9]	[4.4]
Stomatopoda	-	(5.5)	-	(0.3)	-	-	-	-	-	(<0.1)
Amphipoda	-	-	(1.6)	(0.7)	(1.0)	-	-	-	-	(0.2)
Mysidacea	(0.6)	(24.1)	(12.3)	(12.1)	(2.2)	(0.7)	(0.3)	-	(0.9)	(2.0)
<i>Neomysis americana</i>	0.6	24.1	12.3	12.1	2.2	0.7	0.3	-	0.9	2.0
Euphausiacea	-	-	-	(6.0)	-	-	-	-	-	(0.3)
<i>Meganyctiphanes norvegica</i>	-	-	-	6.0	-	-	-	-	-	0.3
Decapoda	(42.7)	(12.0)	(4.7)	(2.8)	(3.3)	(7.3)	(0.8)	-	-	(1.8)
<i>Dichelopandalus leptocerus</i>	-	-	-	-	-	1.9	-	-	-	0.2
<i>Crangon septemspinosa</i>	9.0	4.3	0.3	0.3	0.2	<0.1	-	-	-	0.1
<i>Cancer irroratus</i>	33.2	2.1	1.8	2.5	1.3	3.0	-	-	-	0.8
Canceridae	-	-	1.7	<0.1	-	-	0.8	-	-	0.1
<i>Ovalipes ocellatus</i>	-	-	-	-	1.8	2.4	-	-	-	0.5
Decapoda unid.	0.5	5.6	0.9	-	-	-	-	-	-	0.1
Crustacea unid.	(<0.1)	(0.2)	-	(0.5)	-	(0.8)	-	-	-	(0.1)
OSTEICHTHYES	[56.6]	[58.2]	[75.7]	[49.8]	[91.9]	[70.9]	[72.7]	[35.5]	[60.6]	[61.1]
Batrachoididae	-	-	-	-	-	-	-	-	5.5	1.6
<i>Etrumeus teres</i>	-	35.1	-	-	12.5	4.0	-	-	-	2.9
Clupeidae	-	-	-	-	-	5.5	-	13.4	-	4.2
<i>Anchoa hepsetus</i>	-	-	7.6	-	-	1.9	-	-	-	0.4
<i>Anchoa mitchilli</i>	-	-	-	-	-	-	-	-	1.3	0.4
<i>Anchoa</i> sp.	-	6.4	-	-	-	-	-	-	-	0.1
Engraulidae	-	-	-	-	-	-	0.3	2.1	-	0.6
<i>Cyprinodon variegatus</i>	-	-	-	-	-	-	2.2	-	-	0.2
<i>Merluccius bilinearis</i>	54.0	-	-	4.6	-	-	-	-	-	0.3
Gadidae	-	-	-	-	-	0.7	-	-	-	0.1
Ophidiidae	-	-	-	-	-	7.6	-	-	-	0.8
<i>Ammodytes dubius</i>	-	-	34.0	12.1	58.2	27.3	43.2	12.8	4.5	22.3
<i>Triglops murrayi</i>	-	-	-	-	1.9	-	-	-	-	0.3
<i>Cynoscion regalis</i>	-	-	-	6.0	-	2.4	-	-	-	0.6
<i>Ulvaria subbifurcata</i>	-	-	-	1.3	-	-	-	-	-	0.1
<i>Macrozoarces americanus</i>	-	2.9	-	-	-	-	-	-	-	<0.1
<i>Paralichthys</i> sp.	-	-	-	3.5	-	-	-	-	-	0.2
<i>Scophthalmus aquosus</i>	-	-	-	4.9	-	-	-	-	-	0.2
Bothidae	-	-	5.4	0.8	-	<0.1	-	-	-	0.2
Osteichthyes unid.	2.6	13.8	28.7	16.6	19.3	21.5	27.0	7.2	49.3	25.6
ANIMAL REMAINS AND MISC.	[0.1]	[<0.1]	[0.8]	[0.7]	[0.1]	[1.2]	-	-	[0.2]	[0.3]
Number sampled	22	76	135	113	111	80	52	44	22	655
Number empty	16	53	84	74	66	44	30	25	10	402
Mean stomach content (g)	0.167	0.363	0.427	0.881	2.828	2.659	3.503	12.155	25.717	3.050
Mean fish length (cm)	18	23	27	32	38	42	47	53	64	35

Table B-53b. Diet composition and sampling data for summer flounder by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area					
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Inshore South of Cape Hatteras	Inshore North of Cape Hatteras
CEPHALOPODA	[1.3]	[55.6]	-	-	-	[31.1]
<i>Illex</i> sp.	-	23.7	-	-	-	1.2
<i>Loligo pealeii</i>	-	24.4	-	-	-	16.9
<i>Loligo</i> sp.	-	2.4	-	-	-	0.6
<i>Lolliguncula brevis</i>	0.8	-	-	-	-	-
Cephalopoda unid.	0.5	5.1	-	-	-	12.4
CRUSTACEA	[3.0]	[0.8]	-	[100.0]	[9.6]	[7.8]
Stomatopoda	-	-	-	-	(4.4)	(<0.1)
Amphipoda	-	-	-	-	-	(0.5)
Mysidacea	(0.6)	-	-	-	(<0.1)	(4.5)
<i>Neomysis americana</i>	0.6	-	-	-	<0.1	4.5
Euphausiacea	-	-	-	(100.0)	-	-
<i>Meganyctiphanes norvegica</i>	-	-	-	100.0	-	-
Decapoda	(2.4)	(0.6)	-	-	(5.2)	(2.8)
<i>Dichelopandalus leptocerus</i>	0.3	0.4	-	-	-	-
<i>Crangon septemspinosa</i>	0.2	<0.1	-	-	3.2	0.2
<i>Cancer irroratus</i>	1.7	-	-	-	0.9	1.2
<i>Ovalipes ocellatus</i>	-	-	-	-	-	1.3
Decapoda unid.	0.2	0.2	-	-	1.1	0.1
Crustacea unid.	-	(0.2)	-	-	(<0.1)	(<0.1)
OSTEICHTHYES	[95.7]	[43.2]	[100.0]	-	[90.2]	[60.3]
Batrachoididae	-	-	44.8	-	-	-
<i>Etrumeus teres</i>	-	-	-	-	-	6.8
Clupeidae	22.6	1.6	-	-	-	-
<i>Anchoa hepsetus</i>	-	-	-	-	24.5	0.7
<i>Anchoa mitchilli</i>	-	-	-	-	-	0.9
<i>Anchoa</i> sp.	-	-	-	-	-	0.2
Engraulidae	-	-	-	-	-	1.4
<i>Cyprinodon variegatus</i>	-	0.5	-	-	-	-
<i>Merluccius bilinearis</i>	-	-	-	-	-	0.8
Gadidae	0.5	-	-	-	-	-
Ophidiidae	-	2.1	-	-	-	-
<i>Ammodytes dubius</i>	60.2	7.6	54.6	-	-	18.9
<i>Triglops murrayi</i>	-	-	-	-	50.6	-
<i>Cynoscion regalis</i>	-	-	-	-	-	1.3
<i>Ulvaria subbifurcata</i>	0.4	-	-	-	-	-
<i>Macrozoarces americanus</i>	-	-	-	-	-	<0.1
<i>Paralichthys</i> sp.	-	-	-	-	-	0.4
<i>Scophthalmus aquosus</i>	-	-	-	-	-	0.6
Bothidae	-	-	-	-	-	0.5
Osteichthyes unid.	12.0	31.4	0.6	-	15.1	27.8
ANIMAL REMAINS AND MISC.	[<0.1]	[0.4]	-	-	[0.2]	[0.8]
Number sampled	139	88	9	1	74	350
Number empty	98	65	5	0	62	177
Mean stomach content (g)	2.274	8.534	7.776	5.995	0.161	2.409
Mean fish length (cm)	36	48	56	34	27	34

Table B-54a. Diet composition and sampling data for fourspot flounder by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)							Total
	11-15	16-20	21-25	26-30	31-35	36-40	41-45	
MOLLUSCA	-	-	-	<0.1]	[20.1]	[89.3]	[100.0]	[54.6]
Bivalvia	-	-	-	-	-	(0.6)	-	(0.3)
Cephalopoda	-	-	-	(<0.1)	(20.1)	(88.7)	(100.0)	(54.3)
<i>Loligo</i> sp.	-	-	-	-	-	17.6	-	7.2
Sepiolidae	-	-	-	-	20.1	-	-	3.0
Octopoda	-	-	-	-	-	-	100.0	15.2
Cephalopoda unid.	-	-	-	<0.1	-	71.1	-	28.9
POLYCHAETA	-	[38.5]	-	[2.7]	[5.9]	-	-	[2.0]
Aphroditidae	-	-	-	1.0	-	-	-	0.2
Sabellidae	-	-	-	0.6	1.3	-	-	0.4
<i>Asabellides oculata</i>	-	38.5	-	-	-	-	-	0.4
Polychaeta unid.	-	-	-	1.1	4.6	-	-	1.0
SIPUNCULA	-	-	-	[1.1]	-	-	-	[0.3]
<i>Golfingia</i> sp.	-	-	-	1.1	-	-	-	0.3
CRUSTACEA	[62.1]	[35.3]	[41.5]	[68.4]	[44.7]	[10.7]	-	[29.8]
Amphipoda	-	-	(4.9)	(2.0)	(0.3)	-	-	(0.8)
Mysidacea	(30.9)	(0.9)	-	-	(1.4)	-	-	(0.3)
<i>Neomysis americana</i>	17.9	-	-	-	1.4	-	-	0.3
Mysidacea unid.	13.0	0.9	-	-	-	-	-	<0.1
Decapoda	(28.8)	(34.4)	(33.0)	(61.2)	(43.0)	(10.7)	-	(27.3)
Hippolytidae	-	-	1.3	-	-	-	-	0.1
<i>Dichelopandalus leptocerus</i>	-	-	19.1	10.4	5.3	1.2	-	4.6
Pandalidae	7.4	-	-	2.3	-	-	-	0.6
<i>Crangon septemspinosa</i>	9.1	12.6	2.2	5.8	9.0	<0.1	-	3.0
<i>Munida iris</i>	-	-	-	8.1	-	-	-	1.9
<i>Munida</i> sp.	-	0.5	1.1	-	-	3.3	-	1.4
<i>Cancer irroratus</i>	-	21.3	8.5	32.0	27.1	2.2	-	13.1
Cancridae	-	-	-	0.7	0.6	-	-	0.3
<i>Albunea</i> sp.	-	-	-	1.0	0.6	2.2	-	1.2
Decapoda unid.	12.3	-	0.8	0.9	0.4	1.8	-	1.1
Crustacea unid.	(2.4)	-	(3.6)	(5.2)	(<0.1)	-	-	(1.4)
OSTEICHTHYES	[37.9]	[26.2]	[55.1]	[21.4]	[26.6]	[<0.1]	-	[11.8]
<i>Gadus morhua</i>	-	26.2	-	10.8	-	-	-	2.8
<i>Merluccius bilinearis</i>	-	-	-	-	23.4	-	-	3.5
Ophidiidae	-	-	-	7.6	-	-	-	1.8
<i>Peprilus triacanthus</i>	-	-	-	-	1.0	-	-	0.1
Bothidae	-	-	43.7	-	-	-	-	1.9
<i>Pleuronectes ferruginus</i>	-	-	-	<0.1	-	-	-	<0.1
Pleuronectidae	-	-	-	0.2	-	-	-	0.1
Osteichthyes larvae	-	-	-	<0.1	-	-	-	<0.1
Osteichthyes unid.	37.9	-	11.4	2.8	2.2	<0.1	-	1.6
ANIMAL REMAINS AND MISC.	-	-	[3.4]	[6.4]	[2.7]	-	-	[1.5]
Number sampled	5	14	24	71	50	13	1	178
Number empty	0	6	8	26	23	5	0	68
Mean stomach content (g)	0.057	0.084	0.210	0.399	0.352	3.721	18.040	0.668
Mean fish length (cm)	14	17	23	28	32	37	42	28

Table B-54b. Diet composition and sampling data for fourspot flounder by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area		
	Middle Atlantic	Southern New England	Georges Bank
MOLLUSCA	[1.4]	[45.3]	[73.1]
Bivalvia	(1.4)	-	-
Cephalopoda	-	(45.3)	(73.1)
<i>Loligo</i> sp.	-	32.0	-
Sepiolidae	-	13.3	-
Octopoda	-	-	25.2
Cephalopoda unid.	-	-	47.9
POLYCHAETA	[6.0]	[4.1]	-
Aphroditidae	-	1.1	-
Sabellidae	-	1.6	-
<i>Asabellides oculata</i>	2.2	-	-
Polychaeta unid.	3.8	1.4	-
SIPUNCULA	-	[1.2]	-
<i>Golfingia</i> sp.	-	1.2	-
CRUSTACEA	[50.2]	[24.7]	[25.2]
Amphipoda	(<0.1)	(2.4)	(0.4)
Mysidacea	(1.4)	(0.2)	-
<i>Neomysis americana</i>	1.4	-	-
Mysidacea unid.	-	0.2	-
Decapoda	(48.8)	(20.9)	(22.9)
Hippolytidae	-	-	<0.1
<i>Dichelopandalus leptocerus</i>	-	4.9	5.7
Pandalidae	0.1	<0.1	0.9
<i>Crangon septemspinosa</i>	7.1	3.8	1.5
<i>Munida iris</i>	11.2	-	-
<i>Munida</i> sp.	7.9	-	<0.1
<i>Cancer irroratus</i>	20.2	11.8	11.5
Cancridae	0.9	0.4	-
<i>Albunea</i> sp.	-	-	2.0
Decapoda unid.	1.4	<0.1	1.3
Crustacea unid.	(<0.1)	(1.2)	(1.9)
OSTEICHTHYES	[41.6]	[19.5]	[0.3]
<i>Gadus morhua</i>	-	12.6	-
<i>Merluccius bilinearis</i>	16.7	2.6	-
Ophidiidae	10.5	-	-
<i>Peprilus triacanthus</i>	-	0.6	-
Bothidae	10.7	-	-
<i>Pleuronectes ferruginus</i>	-	<0.1	-
Pleuronectidae	0.3	-	-
Osteichthyes larvae	-	<0.1	-
Osteichthyes unid.	3.4	3.7	0.3
ANIMAL REMAINS AND MISC.	[0.8]	[5.2]	[1.4]
Number sampled	28	90	60
Number empty	4	44	20
Mean stomach content (g)	0.733	0.296	1.195
Mean fish length (cm)	26	28	28

Table B-55a. Diet composition and sampling data for windowpane by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	
CHAETOGNATHA	-	-	-	-	[<0.1]	[0.1]	[0.3]	[3.5]	-	[0.2]
POLYCHAETA	-	-	[0.1]	[6.5]	[0.6]	[0.3]	[3.2]	[1.4]	-	[0.9]
<i>Diopatra cuprea</i>	-	-	-	-	-	-	2.0	-	-	0.2
Ampharetidae	-	-	-	1.2	-	0.2	-	-	-	0.1
Polychaeta unid.	-	-	0.1	5.3	0.6	0.1	1.2	1.4	-	0.6
CRUSTACEA	[100.0]	[100.0]	[99.1]	[82.2]	[69.0]	[63.5]	[63.1]	[35.6]	[9.0]	[65.9]
Cumacea	-	(<0.1)	-	(<0.1)	(0.2)	(<0.1)	(<0.1)	(<0.1)	(4.0)	(0.1)
Isopoda	-	-	(<0.1)	(<0.1)	-	-	(<0.1)	(0.2)	-	(<0.1)
Amphipoda	(8.8)	-	(2.5)	(1.4)	(8.4)	(7.4)	(10.7)	(6.3)	-	(7.8)
<i>Gammarus annulatus</i>	-	-	0.7	0.3	4.8	5.4	8.2	0.3	-	5.2
<i>Gammarus lawrencianus</i>	-	-	1.4	-	-	<0.1	-	-	-	<0.1
<i>Gammarus sp.</i>	-	-	-	<0.1	<0.1	0.6	1.2	-	-	0.5
Oedicerotidae	-	-	0.4	-	0.3	0.2	<0.1	0.2	-	0.2
<i>Leptocheirus pinguis</i>	-	-	-	1.1	3.0	0.7	-	-	-	1.2
Amphipoda unid.	8.8	-	-	<0.1	0.3	0.5	1.3	5.8	-	0.7
Mysidacea	(84.8)	(95.0)	(81.3)	(76.1)	(41.8)	(40.4)	(34.6)	(9.2)	-	(41.7)
<i>Mysidopsis bigelowi</i>	-	-	-	11.9	0.6	<0.1	<0.1	0.4	-	0.6
<i>Neomysis americana</i>	84.8	94.6	45.6	60.6	41.2	40.0	34.6	8.8	-	40.3
Mysidacea unid.	-	0.4	35.7	3.6	<0.1	0.4	<0.1	-	-	0.8
Euphausiacea	(4.0)	(0.3)	(5.2)	-	(0.6)	(1.5)	(0.8)	-	-	(1.1)
<i>Meganyctiphanes norvegica</i>	4.0	0.3	5.2	-	0.6	1.5	0.8	-	-	1.1
Decapoda	-	(0.8)	(9.3)	(4.7)	(15.5)	(13.6)	(15.9)	(19.6)	-	(14.3)
<i>Acetes americanus</i>	-	-	0.6	-	-	-	-	-	-	<0.1
<i>Dichelopandalus leptocerus</i>	-	-	-	-	0.4	0.2	1.8	4.3	-	0.5
Pandalidae	-	-	-	-	1.2	0.1	0.2	-	-	0.4
<i>Crangon septemspinosa</i>	-	0.8	1.6	4.7	10.4	11.8	13.6	13.8	-	11.3
Crangonidae	-	-	-	-	0.9	<0.1	<0.1	1.5	-	0.3
Decapoda larvae	-	-	7.1	<0.1	2.1	1.4	-	-	-	1.4
Decapoda unid.	-	-	<0.1	<0.1	0.5	0.1	0.3	-	-	0.4
Crustacea unid.	(2.4)	(3.9)	(0.8)	(<0.1)	(2.5)	(0.6)	(1.1)	(0.3)	(5.0)	(0.9)
SALPIDAE	-	-	-	[1.1]	-	-	-	-	-	[<0.1]
OSTEICHTHYES	-	-	[<0.1]	[9.3]	[28.0]	[34.6]	[31.0]	[59.2]	[31.0]	[31.4]
<i>Ophichthus cruentifer</i>	-	-	-	-	-	<0.1	-	-	-	0.1
Engraulidae	-	-	-	-	3.9	5.6	1.1	-	-	4.3
<i>Brosme brosme</i>	-	-	-	-	-	0.4	-	11.4	-	0.4
<i>Merluccius bilinearis</i>	-	-	-	-	6.6	1.2	0.7	-	-	2.4
Gadidae	-	-	-	-	<0.1	0.6	-	-	-	0.3
Syngnathidae	-	-	-	-	0.2	<0.1	-	-	-	<0.1
<i>Ammodytes dubius</i>	-	-	-	3.4	9.0	20.3	28.0	47.8	-	17.8
Pleuronectiformes	-	-	-	-	<0.1	-	-	-	-	<0.1
Osteichthyes larvae	-	-	-	1.7	0.4	1.9	<0.1	-	-	1.2
Osteichthyes unid.	-	-	<0.1	4.2	7.9	4.6	1.2	-	31.0	4.9
ANIMAL REMAINS AND MISC.	-	-	[0.8]	[0.9]	[2.4]	[1.5]	[2.4]	[0.3]	[60.0]	[1.6]
Number sampled	22	32	43	102	376	401	103	12	1	1092
Number empty	9	5	8	28	153	133	40	3	0	379
Mean stomach content (g)	0.006	0.074	0.187	0.264	0.478	1.007	0.785	0.946	0.100	0.653
Mean fish length (cm)	4	7	13	18	23	27	32	37	41	24

Table B-55b. Diet composition and sampling data for windowpane by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area				
	Middle Atlantic	Southern New England	Georges Bank	Inshore South of Cape Hatteras	Inshore North of Cape Hatteras
CHAETOGNATHA	[0.1]	[<0.1]	[2.5]	-	-
POLYCHAETA	[0.5]	[0.5]	[2.3]	-	[0.9]
<i>Diopatra cuprea</i>	-	-	-	-	0.4
Ampharetidae	-	0.5	-	-	<0.1
Polychaeta unid.	0.5	<0.1	2.3	-	0.5
CRUSTACEA	[42.5]	[73.7]	[18.5]	[100.0]	[75.3]
Cumacea	(<0.1)	(<0.1)	(<0.1)	-	(0.2)
Isopoda	-	(<0.1)	(<0.1)	-	(<0.1)
Amphipoda	(0.3)	(19.0)	(1.7)	-	(7.1)
<i>Gammarus annulatus</i>	-	16.9	-	-	3.6
<i>Gammarus</i> sp.	<0.1	<0.1	-	-	0.9
Oedicerotidae	<0.1	-	0.1	-	0.3
<i>Leptocheirus pinguis</i>	-	1.5	-	-	1.6
Amphipoda unid.	0.3	0.6	1.6	-	0.7
Mysidacea	(27.6)	(21.3)	(0.6)	-	(57.3)
<i>Mysidopsis bigelowi</i>	<0.1	<0.1	0.3	-	1.1
<i>Neomysis americana</i>	27.6	21.3	0.2	-	54.8
Mysidacea unid.	<0.1	<0.1	0.1	-	1.4
Euphausiacea	-	-	-	-	(2.0)
<i>Meganyctiphanes norvegica</i>	-	-	-	-	2.0
Decapoda	(14.6)	(32.7)	(15.3)	(100.0)	(7.5)
<i>Acetes americanus</i>	-	-	-	8.2	-
<i>Dichelopandalus leptocerus</i>	<0.1	2.6	-	-	-
Pandalidae	-	0.2	0.8	-	0.5
<i>Crangon septemspinosa</i>	6.8	29.3	14.3	-	6.5
Crangonidae	<0.1	0.1	0.2	-	0.4
Decapoda larvae	7.1	-	-	91.8	<0.1
Decapoda unid.	0.7	0.5	<0.1	-	0.1
Crustacea unid.	(<0.1)	(0.7)	(0.9)	-	(1.2)
SALPIDAE	-	-	-	-	[<0.1]
OSTEICHTHYES	[55.7]	[23.6]	[71.6]	-	[22.1]
<i>Ophichthus cruentifer</i>	0.3	-	-	-	-
Engraulidae	-	-	-	-	7.6
<i>Brosme brosme</i>	-	-	-	-	0.7
<i>Merluccius bilinearis</i>	0.7	-	-	-	4.0
Gadidae	-	<0.1	-	-	0.6
Syngnathidae	-	-	-	-	<0.1
<i>Ammodytes dubius</i>	45.0	20.2	70.1	-	2.8
Pleuronectiformes	0.1	-	-	-	-
Osteichthyes larvae	0.3	0.2	-	-	2.0
Osteichthyes unid.	9.3	3.2	1.5	-	4.4
ANIMAL REMAINS AND MISC.	[1.2]	[2.2]	[5.1]	-	[1.7]
Number sampled	224	132	88	12	637
Number empty	120	45	38	4	174
Mean stomach content (g)	0.590	1.013	0.473	0.052	0.636
Mean fish length (cm)	25	26	28	12	22

Table B-56a. Diet composition and sampling data for witch flounder by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	<26	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	
MOLLUSCA	[0.1]	-	[0.3]	[12.6]	[2.9]	[0.6]	[2.7]	[0.1]	-	[2.3]
Gastropoda	-	-	-	(1.5)	(<0.1)	-	(<0.1)	(<0.1)	-	(0.1)
Bivalvia	(0.1)	-	(0.3)	(11.1)	(2.9)	(0.6)	(2.7)	(0.1)	-	(2.2)
<i>Yoldia limatula</i>	-	-	-	-	-	-	1.9	-	-	0.7
<i>Yoldia</i> sp.	-	-	-	11.1	-	0.6	<0.1	-	-	0.9
Bivalvia unid.	0.1	-	0.3	-	2.9	<0.1	0.8	0.1	-	0.6
POLYCHAETA	[81.3]	[96.0]	[92.2]	[81.1]	[87.5]	[84.7]	[82.3]	[86.3]	[99.9]	[85.7]
Capitellidae	-	2.6	-	-	0.8	10.3	4.2	0.8	-	3.9
Arabellidae	-	-	-	-	-	4.7	-	-	-	1.2
<i>Eunice pennata</i>	-	-	-	-	-	4.1	-	-	-	0.8
<i>Lumbrineris fragilis</i>	-	8.3	7.5	-	-	1.6	3.8	<0.1	-	2.3
<i>Lumbrineris</i> sp.	-	-	<0.1	-	3.7	-	-	-	-	0.3
<i>Ninoe brevipes</i>	-	-	-	-	-	-	-	11.7	-	1.9
Lumbrineridae	37.4	0.9	8.3	4.9	<0.1	0.7	1.1	<0.1	2.4	1.9
<i>Onuphis nebulosa</i>	-	-	-	-	-	1.3	-	-	-	0.3
<i>Ophelina</i> sp.	-	<0.1	-	-	-	-	-	1.4	-	0.2
<i>Glycera dibranchiata</i>	-	-	-	32.0	-	-	-	-	-	2.3
<i>Goniada maculata</i>	-	1.0	-	1.0	-	-	0.4	-	-	0.2
<i>Goniada norvegica</i>	-	-	-	-	-	-	-	9.5	-	1.6
<i>Goniada</i> sp.	-	-	-	-	5.8	0.3	<0.1	10.5	<0.1	2.3
<i>Ophioglycera gigantea</i>	-	-	-	-	-	18.9	-	-	-	3.8
Goniadidae	-	0.5	-	8.7	-	-	-	-	-	0.6
<i>Nephtys</i> sp.	-	-	42.9	0.9	2.8	-	0.7	0.1	-	2.8
Nephtyidae	-	-	1.4	3.8	1.1	0.8	0.1	0.2	-	0.7
Sabellidae	-	-	1.6	<0.1	-	<0.1	0.8	<0.1	-	0.4
<i>Spio</i> sp.	-	-	-	-	-	-	0.5	-	3.2	0.6
Spionidae	-	-	-	2.8	-	0.7	0.2	4.7	-	1.2
<i>Sternaspis scutata</i>	-	-	-	-	-	0.7	1.5	1.8	5.1	1.2
Sternaspidae	-	5.8	-	3.3	-	-	-	4.4	-	1.1
Terebellidae	-	-	-	-	5.3	-	-	-	-	0.4
Polychaeta unid.	43.9	76.9	30.5	23.7	68.0	40.6	69.0	41.2	89.2	53.7
CRUSTACEA	[6.3]	[0.6]	[2.1]	[4.1]	[1.2]	[2.7]	[4.6]	[1.4]	-	[3.4]
Isopoda	-	-	-	-	-	-	(1.5)	(0.5)	-	(0.6)
Amphipoda	(5.5)	(0.5)	(2.1)	(4.1)	(0.2)	(2.2)	(2.7)	(0.9)	-	(2.4)
<i>Byblis serrata</i>	3.4	-	0.5	-	-	-	1.8	-	-	0.7
<i>Casco bigelowi</i>	1.1	-	0.9	-	-	1.2	<0.1	0.2	-	0.4
Amphipoda unid.	1.0	0.5	0.7	4.1	0.2	1.0	0.9	0.7	-	1.3
Crustacea unid.	(0.8)	(0.1)	-	(<0.1)	(1.0)	(0.5)	(0.4)	-	-	(0.4)
ECHINODERMATA	-	-	-	-	[0.2]	[1.3]	[2.6]	[7.2]	-	[2.4]
Dendrochirotida	-	-	-	-	-	-	2.6	-	-	0.9
Holothuroidea	-	-	-	-	0.2	1.3	-	7.2	-	1.5
ASCIDIACEA	[12.3]	-	[0.3]	-	[<0.1]	[1.2]	[0.1]	-	-	[0.5]
ANIMAL REMAINS AND MISC.	-	[3.4]	[5.1]	[2.2]	[8.2]	[9.5]	[7.7]	[5.0]	[0.1]	[5.7]
Number sampled	6	10	10	9	13	28	39	13	2	130
Number empty	2	1	0	0	1	6	9	1	1	21
Mean stomach content (g)	0.143	0.194	0.463	0.717	0.534	0.641	0.841	1.131	1.817	0.692
Mean fish length (cm)	21	28	32	37	44	47	53	57	62	45

Table B-56b. Diet composition and sampling data for witch flounder by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area			
	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras
MOLLUSCA	[2.1]	[2.2]	[25.2]	[2.1]
Gastropoda	-	(0.2)	-	-
Bivalvia	(2.1)	(2.0)	(25.2)	(2.1)
<i>Yoldia limatula</i>	-	-	-	1.9
<i>Yoldia</i> sp.	0.2	1.8	-	-
Bivalvia unid.	1.9	0.2	25.2	0.2
POLYCHAETA	[76.7]	[82.6]	[74.7]	[90.7]
Capitellidae	0.7	7.2	-	-
Arabellidae	-	1.8	-	-
<i>Eunice pennata</i>	-	1.6	-	-
<i>Lumbrineris fragilis</i>	11.4	1.3	-	1.4
<i>Lumbrineris</i> sp.	3.1	-	-	-
<i>Ninoe brevipes</i>	-	-	-	5.1
Lumbrineridae	0.1	2.7	1.5	1.2
<i>Onuphis nebulosa</i>	-	0.5	-	-
<i>Ophelina</i> sp.	-	<0.1	-	0.6
<i>Glycera dibranchiata</i>	24.1	-	-	-
<i>Goniada maculata</i>	-	0.2	-	0.4
<i>Goniada</i> sp.	22.8	0.1	-	4.2
<i>Ophioglycera gigantea</i>	-	7.2	-	-
Goniadidae	-	1.3	-	-
<i>Nephtys</i> sp.	-	4.5	-	1.0
Nephtyidae	0.5	<0.1	34.5	0.8
Sabellidae	-	0.8	-	-
<i>Spio</i> sp.	-	-	-	0.9
Spionidae	-	0.4	-	2.6
<i>Sternaspis scutata</i>	-	<0.1	-	3.0
Sternaspidae	7.5	0.2	29.8	<0.1
Terebellidae	-	0.8	-	-
Polychaeta unid.	6.5	52.0	8.9	69.5
CRUSTACEA	[11.2]	[1.9]	-	[2.4]
Isopoda	(0.9)	-	-	(1.4)
Amphipoda	(10.3)	(1.4)	-	(0.9)
<i>Byblis serrata</i>	6.6	0.1	-	<0.1
<i>Casco bigelowi</i>	0.4	0.1	-	0.7
Amphipoda unid.	3.3	1.2	-	0.2
Crustacea unid.	-	(0.5)	-	(0.1)
ECHINODERMATA	[6.3]	[3.4]	-	-
Dendrochirotida	-	1.8	-	-
Holothuroidea	6.3	1.6	-	-
ASCIDIACEA	-	[0.8]	-	-
ANIMAL REMAINS AND MISC.	[3.7]	[9.1]	[0.1]	[4.8]
Number sampled	6	87	2	36
Number empty	0	17	0	4
Mean stomach content (g)	1.427	0.541	0.359	0.933
Mean fish length (cm)	39	44	40	48

Table B-57a. Diet composition and sampling data for American plaice by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	<16	16-20	21-25	26-30	31-35	36-40	41-45	46-50	>50	
ANTHOZOA	-	-	-	[1.8]	[4.3]	-	-	-	-	[0.7]
NEMATODA	[1.8]	[2.5]	[11.1]	[<0.1]	[<0.1]	[<0.1]	-	-	-	[0.5]
MOLLUSCA	-	-	[0.2]	[<0.1]	[34.6]	[24.3]	[12.2]	[29.8]	[16.8]	[20.3]
Bivalvia	-	-	(0.2)	(<0.1)	(34.6)	(24.3)	(12.2)	(24.4)	(11.9)	(17.7)
<i>Chlamys islandica</i>	-	-	-	-	-	-	-	-	7.6	2.5
<i>Arctica islandica</i>	-	-	-	-	0.4	-	-	-	4.3	1.4
<i>Cyclocardia borealis</i>	-	-	-	-	-	-	11.2	-	-	1.3
Bivalvia unid.	-	-	0.2	<0.1	34.2	24.3	1.0	24.4	<0.1	12.5
Mollusca unid.	-	-	-	-	-	-	-	(5.4)	(4.9)	(2.6)
POLYCHAETA	[5.2]	[8.1]	[2.5]	[5.0]	[1.4]	[4.3]	[3.3]	-	[5.8]	[2.2]
Lumbrineridae	<0.1	0.9	-	<0.1	-	-	-	-	-	<0.1
<i>Nephtys</i> sp.	-	-	-	0.7	0.4	-	-	-	-	0.1
Nephtyidae	3.4	-	2.4	-	-	-	-	-	-	0.2
Spionidae	0.4	0.8	<0.1	1.7	<0.1	0.9	0.4	-	0.3	0.4
Terebellidae	-	-	-	-	-	0.4	-	-	-	<0.1
Polychaeta unid.	1.4	6.4	0.1	2.6	1.0	3.0	2.9	-	5.5	1.5
CRUSTACEA	[0.4]	[2.1]	[14.7]	[8.3]	[17.1]	[13.0]	[3.0]	[0.7]	[0.2]	[5.2]
Isopoda	-	-	-	(0.1)	-	-	-	-	-	(<0.1)
<i>Chiridotea</i> sp.	-	-	-	0.1	-	-	-	-	-	<0.1
Amphipoda	(0.2)	(0.2)	-	(1.8)	(0.9)	(0.5)	-	(0.7)	-	(0.5)
<i>Unciola irrorata</i>	0.2	-	-	-	-	-	-	-	-	<0.1
<i>Monoculodes intermedius</i>	-	0.2	-	-	-	-	-	-	-	<0.1
<i>Leptocheirus pinguis</i>	-	-	-	1.8	0.9	-	-	0.7	-	0.4
Gammaridea	<0.1	-	-	-	<0.1	0.5	-	<0.1	-	0.1
Euphausiacea	-	-	-	-	-	(7.9)	-	-	-	(0.7)
Decapoda	(0.2)	-	(14.7)	(6.4)	(16.2)	(4.6)	(3.0)	-	(0.2)	(4.0)
<i>Dichelopandalus leptocerus</i>	-	-	-	2.8	-	-	3.0	-	-	0.6
Pandalidae	-	-	-	-	16.2	4.6	-	-	-	2.5
<i>Crangon septemspinosa</i>	-	-	13.6	3.6	-	-	-	-	-	0.8
Crangonidae	0.2	-	-	-	-	-	-	-	-	<0.1
Decapoda unid.	-	-	1.1	-	-	-	-	-	0.2	0.1
Crustacea unid.	-	(1.9)	-	-	(<0.1)	-	(<0.1)	-	-	(<0.1)
ECHINODERMATA	[4.1]	[3.2]	[0.7]	[26.4]	[26.3]	[41.8]	[64.9]	[68.3]	[62.0]	[49.8]
Echinoidea	-	-	-	(1.8)	(3.2)	(1.1)	(0.5)	(17.2)	(1.6)	(4.5)
<i>Echinarachnius parma</i>	-	-	-	-	-	-	-	16.5	-	3.1
Echinoidea unid.	-	-	-	1.8	3.2	1.1	0.5	0.7	1.6	1.4
Ophiuroidea	(4.1)	(2.4)	(0.7)	(24.6)	(23.1)	(40.7)	(64.4)	(20.3)	(60.4)	(39.5)
<i>Ophiura robusta</i>	-	-	-	-	3.8	-	-	-	-	0.5
<i>Ophiura sarsi</i>	-	1.9	-	18.3	3.4	8.7	56.7	17.4	6.4	14.5
Ophiuroidea unid.	4.1	0.5	0.7	6.3	15.9	32.0	7.7	2.9	54.0	24.5
Echinodermata unid.	-	(0.8)	-	-	-	-	-	(30.8)	-	(5.8)
ANIMAL REMAINS AND MISC.	[88.5]	[25.6]	[64.1]	[34.7]	[16.3]	[16.3]	[16.6]	[1.2]	[7.3]	[15.9]
SAND AND ROCK	-	[58.5]	[6.7]	[23.8]	-	[0.3]	-	-	[7.9]	[5.4]
Number sampled	30	22	35	51	53	34	33	19	23	300
Number empty	12	9	19	27	24	18	21	10	7	147
Mean stomach content (g)	0.153	0.077	0.157	0.250	0.366	0.418	0.530	1.546	2.187	0.518
Mean fish length (cm)	12	18	23	28	32	37	42	47	55	32

Table B-57b. Diet composition and sampling data for American plaice by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area			
	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras
ANTHOZOA	[0.8]	-	-	[2.9]
NEMATODA	-	[0.1]	-	[2.3]
MOLLUSCA	[0.4]	[26.4]	[61.2]	[<0.1]
Bivalvia	(0.4)	(24.6)	(37.3)	(<0.1)
<i>Chlamys islandica</i>	-	-	37.3	-
<i>Arctica islandica</i>	0.3	2.5	-	-
<i>Cyclocardia borealis</i>	-	2.2	-	-
Bivalvia unid.	0.1	19.9	-	<0.1
Mollusca unid.	-	(1.8)	(23.9)	-
POLYCHAETA	[0.5]	[1.0]	-	[7.9]
Lumbrineridae	-	<0.1	-	<0.1
<i>Nephtys</i> sp.	-	<0.1	-	0.3
Nephtyidae	-	-	-	1.0
Spionidae	-	<0.1	-	1.9
Terebellidae	-	-	-	0.2
Polychaeta unid.	0.5	1.0	-	4.5
CRUSTACEA	[2.3]	[2.3]	-	[17.6]
Isopoda	<(0.1)	-	-	-
<i>Chiridotea</i> sp.	<0.1	-	-	-
Amphipoda	(2.2)	(<0.1)	-	(0.2)
<i>Unciola irrorata</i>	<0.1	-	-	-
<i>Monoculodes intermedius</i>	-	-	-	<0.1
<i>Leptocheirus pinguis</i>	2.2	-	-	-
Gammaridea	<0.1	<0.1	-	0.2
Euphausiacea	-	(1.3)	-	-
Decapoda	(0.1)	(1.0)	-	(17.4)
<i>Dichelopandalus leptocerus</i>	-	1.0	-	-
Pandalidae	-	-	-	13.2
<i>Crangon septemspinosa</i>	0.1	-	-	4.0
Decapoda unid.	-	<0.1	-	0.2
Crustacea unid.	-	(<0.1)	-	-
ECHINODERMATA	[92.3]	[42.4]	-	[47.5]
Echinoidea	(16.9)	(2.4)	-	-
<i>Echinarachnius parma</i>	16.9	-	-	-
Echinoidea unid.	-	2.4	-	-
Ophiuroidea	(75.4)	(40.0)	-	(16.0)
<i>Ophiura robusta</i>	-	-	-	2.5
<i>Ophiura sarsi</i>	-	24.2	-	4.6
Ophiuroidea unid.	75.4	15.8	-	8.9
Echinodermata unid.	-	(<0.1)	-	(31.5)
ANIMAL REMAINS AND MISC.	[3.6]	[25.3]	-	[14.3]
SAND AND ROCK	[0.1]	[2.5]	[38.8]	[7.5]
Number sampled	17	186	6	91
Number empty	4	92	5	46
Mean stomach content (g)	1.689	0.471	1.717	0.315
Mean fish length (cm)	27	33	40	30

Table B-58a. Diet composition and sampling data for Atlantic halibut by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)						Total
	<31	31-40	41-50	51-60	61-70	>70	
CEPHALOPODA	-	-	-	[0.6]	[42.7]	[14.8]	[18.5]
<i>Illex illecebrosus</i>	-	-	-	-	-	6.5	4.4
<i>Illex</i> sp.	-	-	-	-	19.5	7.7	9.0
Octopoda	-	-	-	-	4.2	-	0.9
Cephalopoda unid.	-	-	-	0.6	19.0	0.6	4.2
CRUSTACEA	[23.4]	[83.0]	[79.0]	[79.1]	[7.4]	[5.9]	[15.4]
Amphipoda	(0.1)	(<0.1)	-	-	(<0.1)	(<0.1)	(<0.1)
Mysidacea	-	-	(<0.1)	-	(<0.1)	-	(<0.1)
Euphausiacea	-	-	-	(<0.1)	-	-	(<0.1)
Decapoda	(21.6)	(83.0)	(79.0)	(79.1)	(7.4)	(5.9)	(15.4)
<i>Spirontocaris liljeborgii</i>	-	-	0.2	<0.1	-	-	<0.1
<i>Dichelopandalus leptocerus</i>	-	52.5	42.4	46.7	7.4	-	7.2
<i>Pandalus borealis</i>	-	-	3.4	-	-	0.1	0.2
<i>Pandalus montagui</i>	-	-	4.8	16.9	-	-	1.4
Pandalidae	-	1.1	11.2	4.1	-	-	0.7
<i>Crangon septemspinosa</i>	20.1	4.5	-	-	-	-	0.1
<i>Pagurus acadianus</i>	0.6	15.8	3.8	7.4	-	-	0.9
<i>Pagurus pollicaris</i>	-	0.6	-	-	-	-	<0.1
<i>Pagurus pubescens</i>	-	-	0.9	-	-	-	<0.1
<i>Pagurus arcuatus</i>	-	-	2.1	0.7	-	-	0.1
<i>Pagurus</i> sp.	0.4	-	0.9	-	<0.1	-	0.1
Paguridae	-	5.5	0.8	-	-	-	0.1
<i>Cancer borealis</i>	-	-	-	-	-	5.3	3.6
<i>Cancer irroratus</i>	-	1.2	3.3	3.3	-	-	0.4
Crab unid.	-	1.5	0.4	-	-	0.5	0.4
Shrimp unid.	0.5	0.3	4.8	-	-	<0.1	0.2
Crustacea unid.	(1.7)	-	-	-	-	-	(<0.1)
OSTEICHTHYES	[76.6]	[13.8]	[20.9]	[19.3]	[49.6]	[78.7]	[65.7]
<i>Alosa aestivalis</i>	-	-	-	-	-	1.0	0.7
Clupeidae	-	-	11.1	-	<0.1	0.2	0.6
<i>Gadus morhua</i>	-	-	-	-	-	2.5	1.7
<i>Merluccius bilinearis</i>	-	-	1.6	-	16.4	12.2	11.6
Gadidae	-	-	-	-	7.4	-	1.5
<i>Aspidophoroides monopterygius</i>	-	2.0	-	-	-	-	<0.1
<i>Ammodytes dubius</i>	-	-	0.4	-	8.5	0.4	2.0
<i>Myoxocephalus octodecemspinosus</i>	-	-	-	-	0.1	48.1	32.5
<i>Pholis gunnellus</i>	-	9.5	-	-	-	-	0.1
<i>Macrozoarces americanus</i>	-	-	-	-	8.2	9.5	8.0
<i>Hippoglossoides platessoides</i>	-	-	-	-	4.5	-	0.9
<i>Pleuronectes ferruginus</i>	-	-	-	6.2	-	-	0.5
Osteichthyes larvae	-	0.3	-	-	-	-	<0.1
Osteichthyes unid.	76.6	2.0	7.8	13.1	4.5	4.8	5.6
ANIMAL REMAINS AND MISC.	-	[3.2]	[0.1]	[1.0]	[0.3]	[0.6]	[0.4]
Number sampled	7	19	26	25	21	27	125
Number empty	3	4	4	9	5	9	34
Mean stomach content (g)	1.128	2.553	6.943	13.716	43.532	115.604	36.922
Mean fish length (cm)	22	35	45	55	66	99	59

Table B-58b. Diet composition and sampling data for Atlantic halibut by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area			
	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras
CEPHALOPODA	[15.4]	[25.4]	[22.9]	[1.1]
<i>Illex illecebrosus</i>	8.2	-	-	-
<i>Illex</i> sp.	7.2	24.1	-	-
Octopoda	-	-	4.2	-
Cephalopoda unid.	-	1.3	18.7	1.1
CRUSTACEA	[0.1]	[22.0]	[49.6]	[1.5]
Amphipoda	(<0.1)	(<0.1)	-	(<0.1)
Mysidacea	(<0.1)	(<0.1)	-	-
Euphausiacea	-	-	(<0.1)	-
Decapoda	(0.1)	(22.0)	(49.6)	(1.5)
<i>Spirontocaris liljeborgii</i>	-	<0.1	<0.1	-
<i>Dichelopandalus leptocerus</i>	<0.1	1.8	32.5	-
<i>Pandalus borealis</i>	-	0.3	0.6	-
<i>Pandalus montagui</i>	-	-	7.0	-
Pandalidae	<0.1	1.9	1.6	-
<i>Crangon septemspinosa</i>	0.1	<0.1	<0.1	-
<i>Pagurus acadianus</i>	<0.1	-	3.9	1.2
<i>Pagurus pollicaris</i>	<0.1	-	-	-
<i>Pagurus pubescens</i>	-	-	0.2	-
<i>Pagurus arcuatus</i>	<0.1	-	0.4	-
Paguridae	<0.1	0.3	<0.1	0.3
<i>Cancer borealis</i>	-	16.8	-	-
<i>Cancer irroratus</i>	<0.1	<0.1	1.6	-
Crab unid.	<0.1	<0.1	1.8	-
Shrimp unid.	<0.1	0.9	<0.1	-
Crustacea unid.	-	(<0.1)	(<0.1)	-
OSTEICHTHYES	[84.0]	[51.8]	[25.7]	[97.3]
<i>Alosa aestivalis</i>	-	3.3	-	-
Clupeidae	-	0.8	-	10.8
<i>Gadus morhua</i>	3.1	-	-	-
<i>Merluccius bilinearis</i>	6.9	23.7	0.3	67.3
Gadidae	-	-	7.0	-
<i>Aspidophoroides monopterygius</i>	-	-	0.1	-
<i>Ammodytes dubius</i>	-	9.0	-	-
<i>Myoxocephalus octodecemspinus</i>	60.6	-	-	-
<i>Pholis gunnellus</i>	-	-	0.3	1.0
<i>Macrozoarces americanus</i>	11.9	7.4	-	-
<i>Hippoglossoides platessoides</i>	-	-	4.2	-
<i>Pleuronectes ferruginus</i>	-	-	2.2	-
Osteichthyes larvae	-	-	-	<0.1
Osteichthyes unid.	1.5	7.6	11.6	18.2
ANIMAL REMAINS AND MISC.	[0.5]	[0.8]	[1.8]	[0.1]
Number sampled	19	36	64	6
Number empty	6	11	17	0
Mean stomach content (g)	130.410	27.629	14.941	31.102
Mean fish length (cm)	64	64	55	45

Table B-59a. Diet composition and sampling data for winter flounder by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	<16	16-20	21-25	26-30	31-35	36-40	41-45	46-50	>50	
CNIDARIA	[1.9]	[17.6]	[19.5]	[29.4]	[27.0]	[18.2]	[45.6]	[49.5]	[70.7]	[39.0]
Hydrozoa	(<0.1)	(2.4)	(2.4)	(3.7)	(2.0)	(3.3)	(8.6)	(9.7)	(6.7)	(5.6)
Anthozoa	(1.9)	(15.2)	(17.1)	(25.7)	(25.0)	(14.9)	(37.0)	(39.8)	(64.0)	(33.4)
Actiniaria	-	-	0.7	0.9	-	2.4	3.5	-	1.4	1.4
Ceriantharia	-	9.5	9.1	16.7	18.2	8.1	23.5	16.5	39.2	19.6
Anthozoa unid.	1.9	5.7	7.3	8.1	6.8	4.4	10.0	23.3	23.4	12.4
RHYNCHOCOELA	[0.1]	[0.2]	[0.6]	[0.7]	[0.9]	[1.2]	[2.9]	[1.9]	[2.2]	[1.8]
MOLLUSCA	[<0.1]	[0.6]	[1.2]	[0.7]	[1.5]	[0.6]	[5.1]	[5.4]	[0.6]	[2.5]
POLYCHAETA	[81.0]	[51.9]	[40.9]	[45.8]	[48.6]	[43.4]	[25.2]	[28.3]	[12.8]	[35.6]
Maldanidae	1.2	4.8	1.2	1.0	0.8	0.4	0.3	0.1	0.3	0.7
<i>Lumbrineris fragilis</i>	0.4	0.3	3.7	2.8	2.0	1.0	1.7	2.3	2.4	2.0
Lumbrineridae	0.5	1.5	2.4	1.8	4.4	0.4	0.7	0.5	0.6	1.5
<i>Diopatra</i> sp.	-	-	-	3.7	0.8	4.0	-	-	-	1.2
<i>Pherusa affinis</i>	<0.1	-	1.8	3.1	3.1	1.5	3.1	0.1	0.2	1.8
Flabelligeridae	0.4	15.4	7.0	1.9	1.9	0.4	<0.1	0.1	0.4	1.1
<i>Nephtys</i> spp.	-	2.1	0.4	2.6	0.5	0.7	0.6	<0.1	0.8	0.8
<i>Nereis</i> spp.	<0.1	3.6	<0.1	0.1	0.5	<0.1	0.4	0.3	<0.1	0.5
<i>Chone infundibuliformis</i>	-	-	4.7	3.1	2.9	0.9	2.0	<0.1	-	1.6
Sabellidae	2.8	<0.1	1.6	2.2	7.6	0.2	<0.1	<0.1	<0.1	1.6
<i>Spiophanes bombyx</i>	<0.1	0.3	<0.1	0.8	0.3	5.0	6.8	5.7	5.5	4.0
Spionidae	4.7	<0.1	<0.1	1.2	0.7	0.9	0.6	1.5	-	0.8
<i>Ampharete</i> spp.	9.2	2.8	2.9	4.6	2.0	1.1	0.2	0.4	<0.1	1.5
<i>Asabellides oculata</i>	46.2	0.1	<0.1	2.6	13.1	12.5	0.4	<0.1	-	5.0
Polychaeta unid.	15.6	21.0	15.2	14.3	8.0	14.4	8.4	17.3	2.6	11.5
CRUSTACEA	[11.3]	[19.2]	[23.0]	[10.7]	[11.4]	[7.5]	[6.5]	[2.3]	[0.7]	[7.9]
Amphipoda	(9.3)	(14.9)	(19.0)	(10.0)	(9.5)	(7.4)	(5.8)	(1.5)	(0.6)	(6.7)
<i>Unciola irrorata</i>	5.1	4.9	3.0	2.6	0.6	0.5	0.4	0.3	0.2	0.9
<i>Gammarus annulatus</i>	1.3	3.2	0.4	1.0	3.0	1.2	0.5	-	-	0.9
<i>Leptocheirus pinguis</i>	0.7	1.7	3.0	0.9	1.1	0.5	0.1	<0.1	<0.1	0.6
<i>Pontogeneia inermis</i>	0.2	0.2	1.0	1.3	1.0	3.4	1.8	0.3	0.1	1.3
Amphipoda unid.	2.0	4.9	11.6	4.2	3.8	1.8	3.0	0.9	0.3	3.0
Decapoda	(1.6)	(3.4)	(3.0)	(0.7)	(0.9)	(0.1)	(0.6)	(0.8)	(<0.1)	(0.8)
Crustacea unid.	(0.4)	(0.9)	(1.0)	(<0.1)	(1.0)	(<0.1)	(0.1)	(<0.1)	(0.1)	(0.4)
OSTEICHTHYES	[<0.1]	-	[2.3]	[0.1]	[0.3]	[19.6]	[<0.1]	[<0.1]	[<0.1]	[3.5]
Engraulidae	-	-	-	-	-	2.5	-	-	-	0.4
<i>Ammodytes dubius</i>	-	-	-	-	-	1.3	-	-	-	0.2
<i>Paralichthys dentatus</i>	-	-	-	-	-	-	-	<0.1	-	<0.1
Bothidae	-	-	-	-	-	15.8	-	-	-	2.7
Osteichthyes eggs and larvae	-	-	-	-	<0.1	-	-	-	-	<0.1
Osteichthyes unid.	<0.1	-	2.3	0.1	0.3	<0.1	<0.1	<0.1	<0.1	0.2
ANIMAL REMAINS AND MISC.	[5.3]	[8.1]	[12.2]	[10.7]	[8.0]	[7.6]	[10.8]	[7.1]	[10.7]	[6.8]
SAND AND ROCK	[0.4]	[2.4]	[0.3]	[1.9]	[2.3]	[1.9]	[3.9]	[5.5]	[2.3]	[2.9]
Number sampled	61	117	285	388	326	214	169	116	70	1746
Number empty	5	35	78	125	111	77	44	38	25	538
Mean stomach content (g)	0.369	0.291	0.426	0.907	1.495	2.410	3.161	4.380	6.446	1.733
Mean fish length (cm)	13	18	23	28	32	37	42	47	56	32

Table B-59b. Diet composition and sampling data for winter flounder by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area					
	Middle Atlantic	Southern New England	Georges Bank	Gulf of Maine	Scotian Shelf	Inshore North of Cape Hatteras
CNIDARIA	[8.2]	[32.7]	[48.5]	[35.6]	[90.4]	[22.3]
Hydrozoa	-	(4.4)	(7.1)	(0.2)	-	(3.4)
Anthozoa	(8.2)	(28.3)	(41.4)	(35.4)	(90.4)	(18.9)
Actiniaria	-	<0.1	2.3	0.2	-	0.6
Ceriantharia	8.2	22.2	21.4	33.0	90.4	13.7
Anthozoa unid.	-	6.1	17.7	2.2	-	4.6
RHYNCHOCOELA	[1.1]	[0.6]	[1.7]	[<0.1]	-	[1.9]
MOLLUSCA	-	[0.1]	[3.4]	[2.5]	[8.3]	[1.1]
POLYCHAETA	[74.2]	[43.8]	[24.2]	[37.1]	[<0.1]	[48.5]
Maldanidae	-	1.4	<0.1	0.1	-	0.6
<i>Lumbrineris fragilis</i>	15.6	<0.1	2.1	-	-	2.8
Lumbrineridae	1.0	1.0	0.7	0.7	-	2.9
<i>Diopatra</i> sp.	23.5	-	-	-	-	4.0
<i>Pherusa affinis</i>	-	3.4	1.4	-	-	1.8
Flabelligeridae	0.7	2.9	0.2	-	-	2.2
<i>Nephtys</i> spp.	-	0.6	<0.1	-	<0.1	2.3
<i>Chone infundibuliformis</i>	-	8.1	0.7	2.0	-	<0.1
Sabellidae	-	10.8	<0.1	8.9	<0.1	0.2
<i>Spiophanes bombyx</i>	-	0.1	7.1	-	-	<0.1
Spionidae	8.7	<0.1	0.8	-	-	1.1
<i>Ampharete</i> spp.	-	5.4	0.4	0.7	-	1.5
<i>Asabellides oculata</i>	-	<0.1	<0.1	-	-	17.4
Polychaeta unid.	24.7	10.1	10.8	24.7	-	11.7
CRUSTACEA	[3.8]	[11.5]	[3.2]	[3.6]	-	[12.2]
Amphipoda	(1.3)	(10.3)	(2.8)	(0.7)	-	(11.1)
<i>Unciola irrorata</i>	0.9	2.8	0.3	-	-	1.0
<i>Gammarus annulatus</i>	-	2.6	-	-	-	2.0
<i>Leptocheirus pinguis</i>	-	1.8	0.2	<0.1	-	0.6
<i>Pontogeneia inermis</i>	-	<0.1	1.6	-	-	1.5
<i>Aeginina longicornis</i>	-	1.2	<0.1	-	-	0.4
Amphipoda unid.	0.4	1.9	0.7	0.7	-	5.6
Decapoda	(2.5)	(1.2)	(0.4)	(2.8)	-	(0.4)
Crustacea unid.	(<0.1)	(<0.1)	(<0.1)	(0.1)	-	(0.7)
OSTEICHTHYES	-	[<0.1]	[5.2]	-	-	[2.1]
Engraulidae	-	-	-	-	-	1.5
<i>Ammodytes dubius</i>	-	-	0.4	-	-	-
<i>Paralichthys dentatus</i>	-	-	<0.1	-	-	-
Bothidae	-	-	4.8	-	-	-
Osteichthyes eggs and larvae	-	-	-	-	-	<0.1
Osteichthyes unid.	-	<0.1	<0.1	-	-	0.6
ANIMAL REMAINS AND MISC.	[6.5]	[10.5]	[9.6]	[18.7]	[1.3]	[10.5]
SAND AND ROCK	[6.2]	[0.8]	[4.2]	[2.5]	-	[1.4]
Number sampled	17	463	569	57	2	638
Number empty	7	172	170	31	0	158
Mean stomach content (g)	0.657	0.911	2.980	0.371	5.880	1.355
Mean fish length (cm)	29	28	39	31	34	27

Table B-60a. Diet composition and sampling data for yellowtail flounder by fish length category. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Length Category (cm)									Total
	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	
CNIDARIA	-	-	-	-	[4.9]	[1.0]	[8.3]	-	[0.5]	[4.8]
Ceriantharia	-	-	-	-	2.7	1.0	8.0	-	0.5	4.4
Anthozoa	-	-	-	-	2.2	<0.1	0.3	-	-	0.4
RHYNCHOCOELA	-	-	-	-	[5.4]	[0.8]	[0.2]	[0.3]	-	[0.9]
MOLLUSCA	[3.1]	-	-	[<0.1]	[2.4]	[4.0]	[0.6]	[3.1]	[<0.1]	[1.5]
POLYCHAETA	[14.8]	[18.1]	[49.1]	[40.7]	[31.9]	[53.3]	[22.4]	[71.6]	[76.1]	[38.5]
Maldanidae	6.2	-	-	<0.1	1.6	0.8	0.5	<0.1	<0.1	0.6
<i>Drilonereis</i> sp.	-	-	-	-	0.1	-	0.2	9.0	-	1.3
Lumbrineridae	-	-	-	2.5	2.7	<0.1	0.3	0.7	2.5	1.2
<i>Pherusa</i> sp.	-	-	-	2.1	0.3	-	1.0	-	-	0.7
<i>Ophelia</i> sp.	-	-	-	13.4	-	-	-	-	-	1.0
<i>Ophelina</i> sp.	-	-	-	1.2	2.0	2.1	2.3	-	-	1.9
Nephtyidae	-	-	-	1.2	6.8	<0.1	1.1	0.2	-	1.5
Sigalionidae	-	15.6	-	-	-	<0.1	0.2	-	-	0.2
<i>Chone infundibuliformis</i>	-	-	-	0.9	0.4	6.7	1.8	-	-	1.8
Sabellidae	-	-	-	-	2.0	<0.1	1.5	0.3	-	1.0
Cirratulidae	-	-	-	1.6	4.9	<0.1	1.3	-	<0.1	1.4
<i>Spiophanes bombyx</i>	-	-	-	<0.1	6.4	11.7	5.9	40.3	31.2	12.0
<i>Ampharete arctica</i>	-	-	29.8	0.2	0.1	-	-	-	-	0.2
Polychaeta unid.	8.6	2.5	19.3	17.6	4.6	32.0	6.3	21.1	42.4	13.7
CRUSTACEA	[77.4]	[79.0]	[49.2]	[56.4]	[43.2]	[34.3]	[63.2]	[13.4]	[23.0]	[48.9]
Cumacea	(0.6)	-	(0.5)	(2.0)	(0.7)	(0.1)	(<0.1)	(<0.1)	(0.1)	(0.4)
Isopoda	(1.9)	-	-	(0.3)	(0.3)	(0.2)	(<0.1)	(<0.1)	-	(0.2)
Amphipoda	(19.3)	(19.4)	(10.6)	(22.3)	(35.0)	(29.4)	(58.6)	(13.4)	(22.9)	(41.5)
<i>Ampelisca</i> sp.	-	-	2.1	3.9	1.8	3.3	3.0	<0.1	3.8	2.6
<i>Byblis serrata</i>	-	-	-	2.0	2.7	<0.1	1.1	0.1	<0.1	1.0
<i>Erichthonius rubricornis</i>	-	-	-	0.5	0.9	0.3	40.6	<0.1	<0.1	19.9
<i>Unciola irrorata</i>	9.3	-	0.2	9.1	11.2	3.0	1.7	0.2	2.3	3.4
<i>Gammarus annulatus</i>	-	-	-	-	3.6	3.8	5.2	-	-	3.4
<i>Gammarus</i> sp.	-	-	-	-	0.1	0.1	<0.1	12.5	0.4	1.7
Lysianassidae	1.9	5.9	-	<0.1	<0.1	<0.1	-	-	-	0.4
Oedicerotidae	6.2	13.5	2.8	<0.1	0.2	0.1	<0.1	<0.1	-	0.2
<i>Leptocheirus pinguis</i>	-	-	3.1	3.8	3.1	8.2	4.4	0.4	13.2	4.5
<i>Dulichia</i> sp.	-	-	-	-	8.7	2.5	1.0	<0.1	-	1.9
Amphipoda unid.	1.9	-	2.4	3.0	2.7	8.1	1.6	0.2	3.2	2.5
Mysidacea	-	(1.7)	-	-	(0.5)	-	(<0.1)	-	-	(0.1)
Decapoda	(46.3)	(57.9)	(35.8)	(31.0)	(6.5)	(3.6)	(4.5)	(<0.1)	-	(6.4)
<i>Crangon septemspinosa</i>	46.3	50.5	35.8	29.9	5.0	<0.1	4.4	-	-	5.5
Decapoda unid.	-	7.4	-	1.1	1.5	3.6	0.1	<0.1	-	0.9
Crustacea unid.	(9.3)	-	(2.3)	(0.8)	(0.2)	(1.0)	(0.1)	-	-	(0.3)
OSTEICHTHYES	-	-	-	-	[4.6]	-	[0.2]	-	-	[0.7]
<i>Ammodytes dubius</i>	-	-	-	-	4.6	-	0.2	-	-	0.7
ANIMAL REMAINS AND MISC.	[4.7]	[2.9]	[1.7]	[2.9]	[7.6]	[6.6]	[5.1]	[11.6]	[0.4]	[4.7]
Number sampled	8	10	2	38	54	47	52	10	4	225
Number empty	0	3	0	19	19	20	15	1	1	78
Mean stomach content (g)	0.020	0.114	0.548	0.400	0.474	0.522	1.902	2.718	2.406	0.904
Mean fish length (cm)	7	12	18	23	28	33	37	43	49	30

Table B-60b. Diet composition and sampling data for yellowtail flounder by geographic area. (Samples gathered during 1977-80. Data expressed as percentage of stomach content by weight. Squared brackets indicate major taxon subtotal; parentheses indicate minor taxon subtotal.)

Stomach Contents	Geographic Area		
	Southern New England	Georges Bank	Inshore North of Cape Hatteras
CNIDARIA	[6.2]	[1.6]	[3.2]
Ceriantharia	6.1	0.4	2.7
Anthozoa	0.1	1.2	0.5
RHYNCHOCOELA	[0.1]	[1.2]	[4.7]
MOLLUSCA	[0.8]	[4.0]	[0.2]
POLYCHAETA	[28.9]	[71.9]	[25.6]
Maldanidae	<0.1	2.0	0.5
<i>Drilonereis</i> sp.	2.1	-	-
Lumbrineridae	1.0	1.0	1.3
<i>Pherusa</i> sp.	0.7	-	2.0
<i>Ophelia</i> sp.	1.5	-	-
<i>Ophelina</i> sp.	2.8	-	-
Nephtyidae	0.1	2.2	7.3
Sigalionidae	0.1	1.3	<0.1
<i>Chone infundibuliformis</i>	2.8	-	-
Sabellidae	1.5	0.1	-
Cirratulidae	1.0	<0.1	5.9
<i>Spiophanes bombyx</i>	<0.1	53.7	-
Polychaeta unid.	15.3	11.6	8.6
CRUSTACEA	[56.4]	[15.2]	[62.5]
Cumacea	(0.3)	(<0.1)	(<0.1)
Isopoda	(<0.1)	(0.2)	(0.3)
Amphipoda	(54.1)	(14.4)	(22.1)
<i>Ampelisca</i> sp.	3.8	-	0.6
<i>Byblis serrata</i>	0.2	3.7	0.2
<i>Erichthonius rubricornis</i>	30.6	<0.1	<0.1
<i>Unciola irrorata</i>	2.2	7.6	2.0
<i>Gammarus annulatus</i>	1.8	-	17.8
<i>Gammarus</i> sp.	2.6	-	-
Lysianassidae	<0.1	1.5	<0.1
Oedicerotidae	<0.1	0.2	0.8
<i>Leptocheirus pinguis</i>	6.8	0.1	0.5
<i>Dulichia</i> sp.	2.9	-	-
Amphipoda unid.	3.2	1.3	0.2
Mysidacea	-	-	(0.6)
Decapoda	(1.6)	(0.6)	(39.5)
<i>Crangon septemspinosa</i>	0.8	<0.1	39.2
Decapoda unid.	0.8	0.6	0.3
Crustacea unid.	(0.4)	(<0.1)	(<0.1)
OSTEICHTHYES	[0.9]	-	[0.9]
<i>Ammodytes dubius</i>	0.9	-	0.9
ANIMAL REMAINS AND MISC.	[6.7]	[6.1]	[2.9]
Number sampled	129	51	46
Number empty	59	5	15
Mean stomach content (g)	1.026	0.890	0.558
Mean fish length (cm)	31	30	27