Technical Report

Massachusetts Division of Marine Fisheries
Technical Report TR-52

Buzzards Bay Disposal Site Fisheries Trawl Survey Report March 2001—March 2002

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Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
Department of Fish and Game
Massachusetts Division of Marine Fisheries

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Massachusetts Division of Marine Fisheries
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Introduction

The Massachusetts Office of Coastal Zone Management (CZM) initiated the formal designation of the Buzzards Bay Disposal Site (BBDS) as an open ocean dredged material disposal site as part of the Dredged Material Management Plan (DMMP). The new designation would allow for disposal of fine-grained and coarse-grained sediments (previously coarse-grained only). In partial fulfillment of the BBDS designation process, the Massachusetts Division of Marine Fisheries (DMF) and CZM conducted a 13-month fisheries trawl survey (March 2001-March 2002) to characterize nekton occurrence, distribution, and relative abundance in the historical BBDS. DMF biologists and CZM ecologists and volunteers conducted the fisheries trawl survey aboard a contracted commercial trawler (F/V Lady Jane).

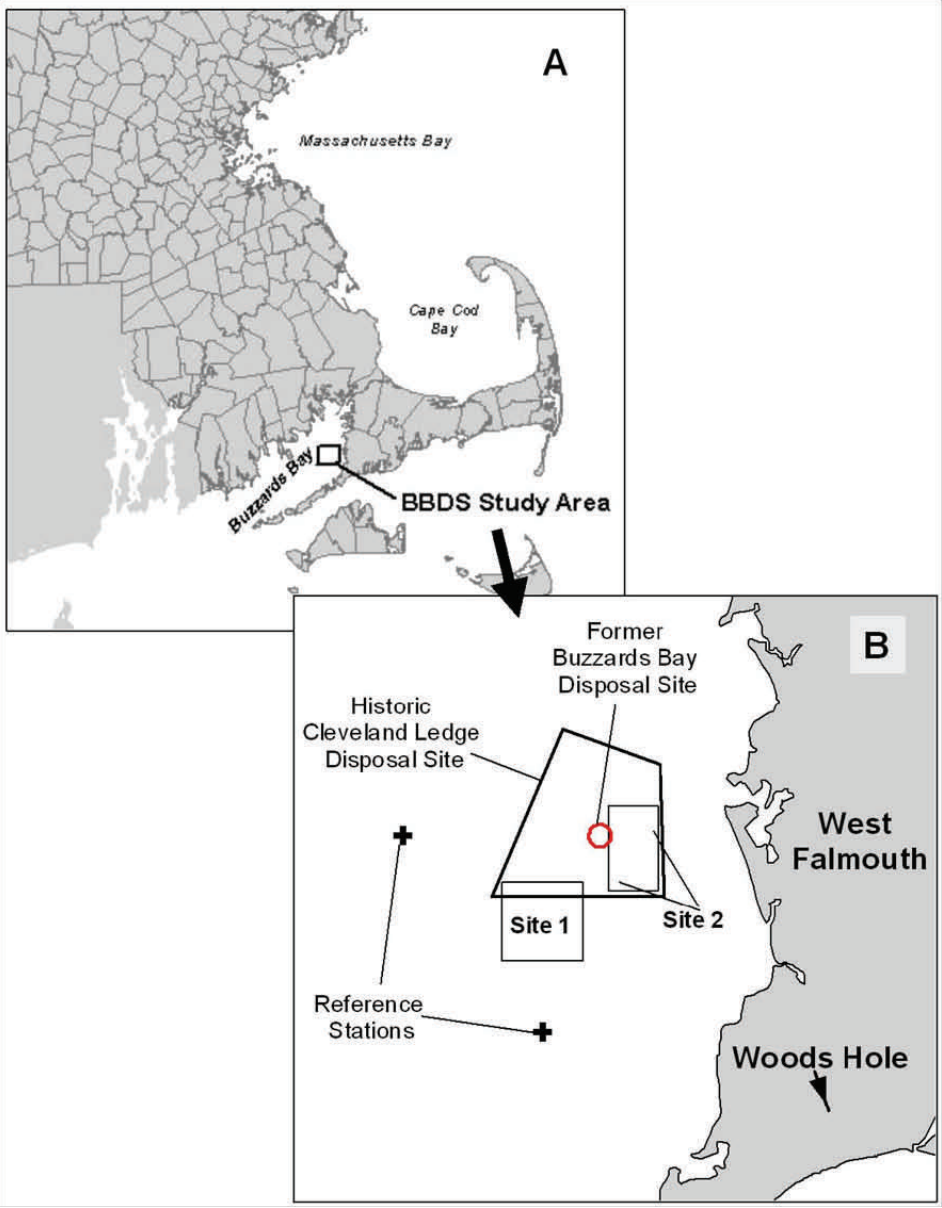

Figure 1. A) Location of Buzzards Bay Disposal Site study area; B) Candidate dredged material disposal Site 1 and 2 boundaries, historic Cleveland Ledge Disposal Site, and former Buzzards Bay Disposal Site.

Two candidate disposal sites were identified by the Science Application International Corporation (SAIC) through two bathymetry surveys conducted in May 1998 and October 2000 (SAIC 2001A). Site 1 is a 1600m x 1600m basin south of the Cleveland Ledge Disposal Site (CLDS). Site 2 is a 1000m x 1700m basin east of the CLDS. Both sites are in environments that appear depositional and were selected for their potential to contain disposed material. Results from the BBDS fisheries trawl survey will assist in determining the most suitable disposal site that will have the least environmental impact on the existing benthic habitat and associated marine resources.

The primary objective of the fisheries trawl survey was to characterize nekton occurrence, distribution, and relative abundance in the environs of the historical Buzzards Bay Disposal Site. The secondary objective was to collect geographic and hydrographic data for each tow.

Methods and Materials

Study Area

The study area was in eastern Buzzards Bay, surrounding the historic Cleveland Ledge (CLDS) and Buzzards Bay Disposal Site (BBDS) (Figure 1). Buzzards Bay is a coastal embayment located in southeastern Massachusetts, approximately 48km long and 11km wide, covering a total surface area of 550km^2. The bay is semi-enclosed; open to the continental shelf to the south and lined with a diverse shoreline and estuarine bays. It is a broad marine basin that is vertically mixed and represents a transition between the Acadian and Virginian zoogeographic zones (Howes and Goehringer 1996). The Cape Cod Canal, constructed in 1914, connects Buzzards Bay and Cape Cod Bay.

CLDS and BBDS were historically used (until 1989) for open-water dredged material disposal. Past disposal activities were evident

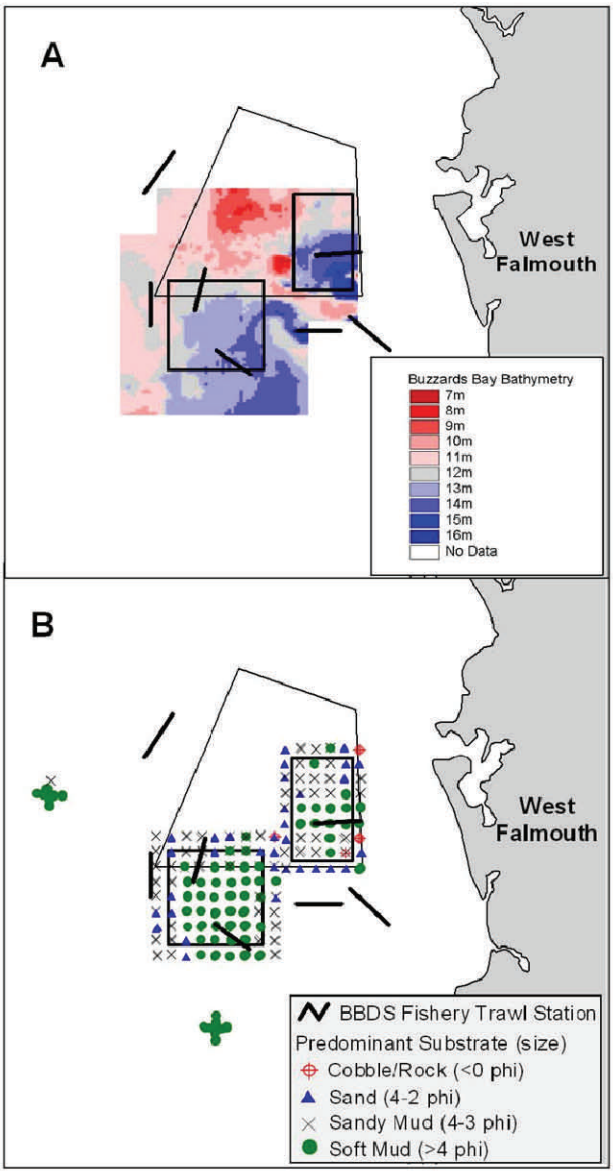

Figure 2. (A) Bathymetry (SAIC 2001a) and (B) surficial seafloor substrate (SAIC 2001b) in BBDS study area.

in the study area (e.g., SAIC 1991), located west of Chappaquoit Point, West Falmouth, Massachusetts. A boundary encompassing the CLDS, BBDS, and candidate disposal sites (i.e., Site 1 and Site 2) was identified to guide the location of trawl stations (Figure 1A and B).

Seafloor Habitat Characteristics

Seafloor conditions of the candidate sites 1 and 2 and reference stations were investigated

prior to the trawl survey (Figure 1B). The seafloor habitat surveys facilitated the development of the fisheries trawl study. Sediment profile imagery (SPI) (SAIC 2001b), bathymetric (SAIC 2001a) benthic macroinvertebrate community (SAIC 2001c), grain size, total organic carbon (TOC) and sediment chemistry (SAIC 2001d), and side scan sonar (CR Environmental 2002) surveys described bottom topography, benthic habitat type and quality.

The bathymetric survey (SAIC 2001b) described water depth and topographic features (Figure 2A). Soundings were standardized to mean lower low water (MLLW). SPI are presented as averages to describe predominant grain size (phi), camera penetration (cm) and habitat condition (Figure 2B). Camera penetration is a measure of substrate rigidity.

Site 1 consisted of a broad topographic depression, generally deepening from the northwest to the southeast, and contains shallower waters to the north and west. Site 2 presented more complex topography, with centrally located depression, beginning at the historic BBDS and progressing shoreward. Depth is variable to the north and west of the Site 2 depression, illustrated by shallower water to the north, west, and south. Fine-grained sediments were found in the deeper, central regions of the bay, generally below the 12m contour, while shoal areas were

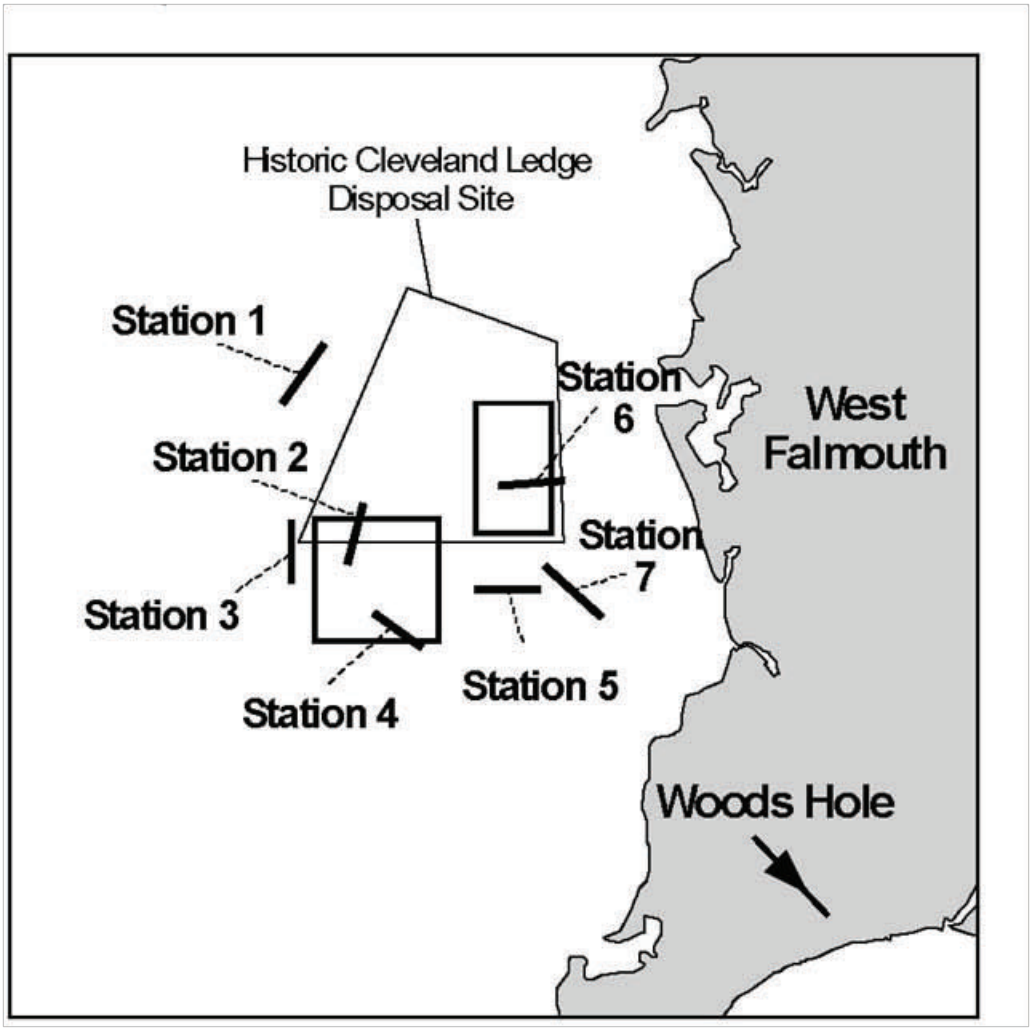

Figure 3. Fisheries trawl stations for March 2001 to March 2002 survey.

Table 1. General description of fisheries trawl stations in Buzzards Bay.

	1	2	3	4	5	6	7
Average Latitude and Longitude (start/end)	41.6061°N, 70.7110°W 41.6125°N, 70.7050°W	41.5871°N, 70.7012°W 41.5936°N, 70.6988°W	41.5849°N, 70.7100°W 41.5916°N, 70.7099°W	41.5769°N, 70.6900°W 41.5806°N, 70.6968°W	41.5836°N, 70.6806°W 41.5836°N, 70.6716°W	41.5962°N, 70.6676°W 41.5957°N, 70.6767°W	41.5859°N, 70.6698°W 41.5805°N, 70.6620°W
Water Depth (m)	~13	10-13	11-12	13-16	13-16	14-16	14-16
Predominant Substrate (phi)	soft mud (>4) sandy mud (4-3)	soft mud (>4) sandy mud (4-3) sand (2)	sandy mud (4-3)	soft mud (>4)	soft mud (>4)	soft mud (>4)	soft mud (>4)
Topography	smooth	variable	smooth	broad depression	submerged valley	submerged valley	broad depression
Direct Observation						frequent snags	drift algae seasonally abundant
Location Description	NW of CLDS	N Site 1	W Site 1	SE Site 1	S of CLDS	Mid-Site 2	SE of CLDS

characterized by coarser sediments (e.g., sand) due to erosive properties (Howes and Goehringer 1996). The depth-seafloor sediment association was apparent as soft mud and deep camera penetration were consistently found within deep areas (i.e., >12m) of the study area. Shallower waters (i.e., <12m) presented a range of sandier sediments and sand-mud mix.

Buzzards Bay marine sediments are relatively stable (Moore 1963 referenced in Howes and Goehringer 1996), and grain size is the primary factor dictating the type and composition of macrofauna, resulting in well-defined benthic communities associated with substrate type and condition. Bottom grab samples were distributed throughout Sites 1 and 2 and reference areas. These samples were temporally limited, but data were used to describe general community characteristics. Trawl stations located within and adjacent to the sample area were assumed to have similar benthic habitat function.

Benthic macroinvertebrate communities among Sites 1 and 2 and reference areas were comprised of similar proportions (range of total sample percent composition) of annelids (54-62%), mollusks (13-30%), crustaceans (6-12%), nematodes (4-7%), and nemerteans (2-12%) (SAIC 2001c). Sites 1 and 2 demonstrated relatively normal seafloor communities (i.e., indicative of unpolluted areas), but small-scale variability in species occurrence and apparent redox-potential discontinuity (RPD) (SAIC 2001a) were observed throughout the study area.

Site 2 had the highest average abundance, number of taxa, species richness, and diversity. Sand and mud substrate was found within Site 2, potentially resulting in increased habitat variability and species diversity and richness. Multivariate statistical tests demonstrated differences in community structure, including sub-dominants (SAIC 2001c).

RPD can indicate the quality of seafloor habitats (e.g., Nilsson and Rosenberg 1997). RPD is a measure of oxidation in surficial sediments and is influenced by grain size, overlying water quality, water movement (tides and currents), pollutant loading (specifically organics), and biotic assemblages. Fine-grained sediments in heavily polluted areas

with minimal biological activity, for example, will show depressed RPD. Given the stability of the seafloor and potential organic inputs to the bay, we assumed the major factors of RPD were macroinvertebrate assemblage and potential organic loading. RPD was variable throughout Sites 1 and 2 and appeared to be related to grain size, with exceptions. The majority of soft mud samples presented RPD greater than 2.0cm, indicative of normal conditions; however samples also presented low RPD. RPD ranged from 0 to 5cm in sandier regions – typical of coarser grained substrate.

TOC was comparable among Sites 1 and 2 (range 1.1% to 2.2% of total sample). Average TOC for Site 1 (1.57%) was slightly higher than Site 2 (1.10%). Higher TOC corresponded to finer grain size sampled in Site 1. Sites 1

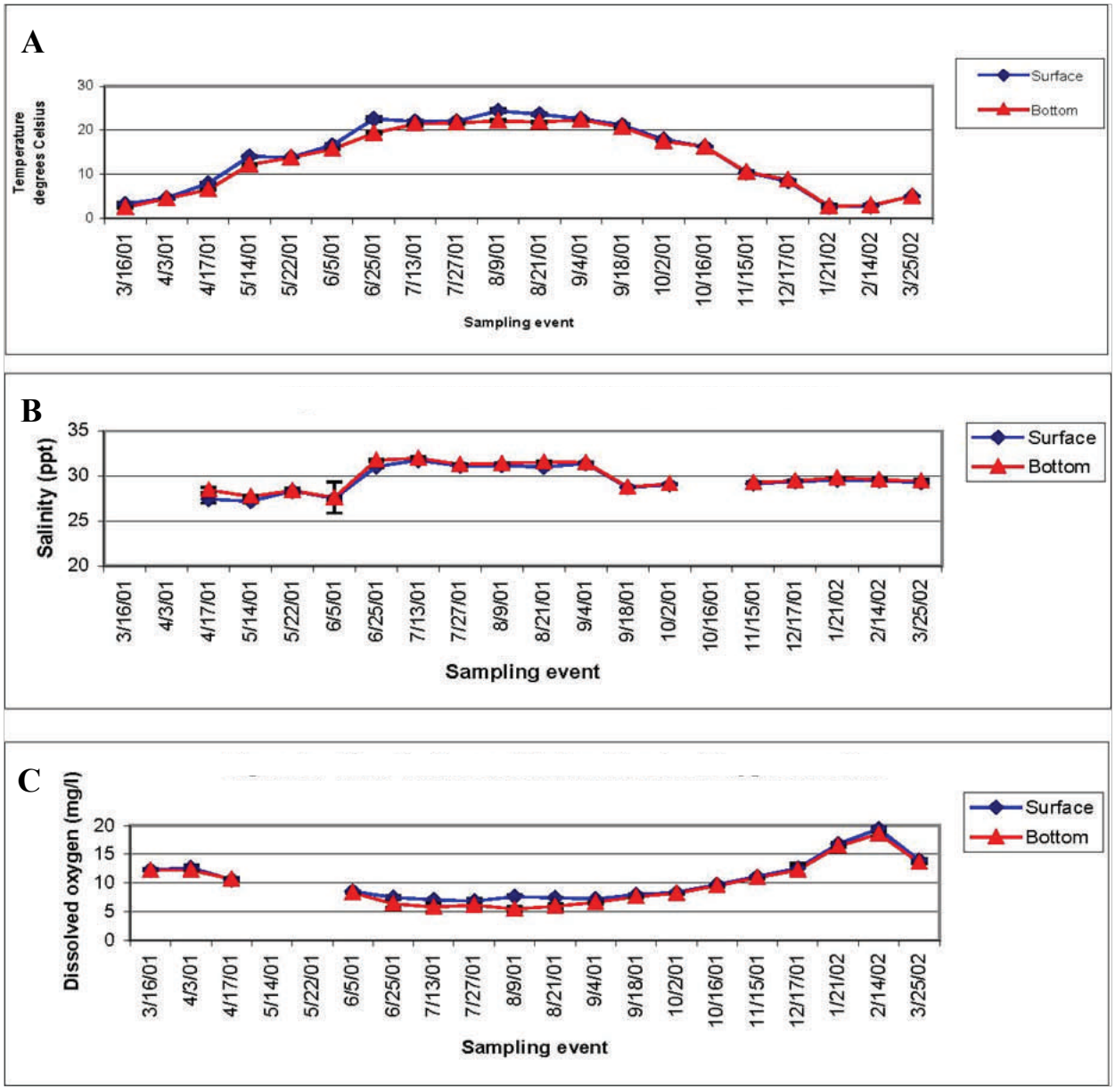

Figure 4a-c. (A) Mean surface and bottom temperature over time, (B) Mean surface and bottom salinities over time, (C) Mean surface and bottom dissolved oxygen over time.

Table 2*: BBDS fisheries trawl survey, March 2001 to March 2002, species list.

Common Name	Scientific Name	Common Name	Scientific Name
Alewife	*Alosa pseudoharengus*	Northern kingfish	*Menticirrhus saxatilis*
American lobster	*Homarus americanus*	Northern pipefish	*Syngnathus fuscus*
American shad	*Alosa sapidissima*	Northern puffer	*Sphoeroides maculatus*
Atlantic cod	*Gadus morhua*	Northern quahog	*Mercenaria mercenaria*
Atlantic herring	*Clupea harengus*	Northern sand lance	*Ammodytes dubius*
Atlantic mackerel	*Scomber scombrus*	Northern searobin	*Prionotus carolinus*
Atlantic menhaden	*Brevoortia tyrannus*	Northern sennet	*Sphyraene borealis*
Atlantic moonfish	*Selene setapinnis*	Ocean pout	*Macrozoarces americanus*
Atlantic rock crab	*Cancer irroratus*	Oyster toadfish	*Opsanus tau*
Atlantic silverside	*Menidia menidia*	Pollock	*Pollachius virens*
Bay anchovy	*Anchoa mitchilli*	Rainbow smelt	*Osmerus mordax*
Bay scallop	*Argopecten irradians*	Red hake	*Urophycis chuss*
Bigeye	*Priacanthus arenatus*	Rock gunnel	*Pholis gunnellus*
Bigeye scad	*Selar crumenophthalmus*	Rough scad	*Trachurus lathami*
Black sea bass	*Centropristis striata*	Round herring	*Etrumeus teres*
Blue crab	*Callinectes sapidus*	Round scad	*Decapterus punctatus*
Blue mussel	*Mytilus edulis*	Scup	*Stenotomus chrysops*
Blue runner	*Caranx crysos*	Sea raven	*Hemitripterus americanus*
Blueback herring	*Alosa aestivalis*	Sea star, brittle star	*Stelleroidea*
Bluefish	*Pomatomus saltatrix*	Short browed mud shr.	*Callianassa atlantica*
Butterfish	*Peprilus triacanthus*	Silver hake	*Merluccius bilinearis*
Channeled whelk	*Busycotypus canaliculatus*	Smallmouth flounder	*Etropus microstomus*
Crevalle jack	*Caranx hippos*	Smooth dogfish	*Mustelus canis*
Cunner	*Tautogolabrus adspersus*	Spider crab uncl.	*Majidae*
Fourbeard rockling	*Enchelyopus cimbrius*	Spiny dogfish	*Squalus acanthias*
Fourspot flounder	*Paralichthys oblongus*	Spot	*Leiostomus xanthurus*
Grubby	*Myoxocephalus aenaeus*	Spotted hake	*Urophycis regia*
Hermit crab uncl	*Paguroidea*	Striped anchovy	*Anchoa hepsetus*
Hogchoker	*Trinectes maculatus*	Striped searobin	*Prionotus evolans*
Horseshoe crab	*Limulus polyphemus*	Summer flounder	*Paralichthys dentatus*
Inshore lizardfish	*Synodus foetens*	Tautog	*Tautoga onitis*
Knobbed whelk	*Busycon carica*	Threespine stickleback	*Gasterosteus aculeatus*
Little skate	*Leucoraja erinacea*	Weakfish	*Cynoscion regalis*
Longfin squid	*Loligo pealeii*	White hake	*Urophycis tenuis*
Longfin squid eggs	*Loligo pealeii egg mops*	Windowpane	*Scophthalmus aquosus*
Longhorn sculpin	*Myoxocephalus octodecemspinosus*	Winter flounder	*Pseudopleuronectes americanus*
Mantis shrimp uncl	*Stomatopoda*		

***** *All common and scientific names taken from AFS Special Publication 20 (1991).*

and 2 metal concentrations, including arsenic, cadmium, chromium, mercury, lead, copper, nickel and zinc, were generally low and comparable to unpolluted areas of Buzzards Bay. Organic chemicals (polycyclic aromatic hydrocarbons [PAHs], pesticides and polychlorinated biphenyls [PCBs] were not elevated compared to unpolluted areas.

Total PAH concentrations were slightly higher at Site 1 (average [standard deviation] total PAH = 421[414]µg/kg) compared to Site 2 (173[57]µg/kg). The higher average and variation of total PAH at Site 1 was influenced by one sample with higher PAH content. Total pesticide concentrations averaged 26.2(5.5)µg/kg at Site 1 and 20.9(4.1)µg/kg at Site 2. Pesticide concentration was largely influenced by toxaphene (averaging 13.3[2.8]µg/kg at Site 1 and 10.7[2.0]µg/kg) at Site 2. The average concentration of PCBs was 13.0(2.9)µg/kg at Site 1 and 11.2(4.8)µg/kg at Site 2.

Table 3: Number, weight and % of total for all species collected from March 2001 through March 2002.

Common Name	Num.	%	Common Name	WT. (kg)	%
Scup	129896	65.99%	Scup	1834.2	41.39%
Butterfish	42913	21.80%	Butterfish	634.4	14.32%
Longfin squid	14898	7.57%	Little skate	555.3	12.53%
Bay anchovy	2571	1.31%	Summer flounder	477.6	10.78%
Black sea bass	1010	0.51%	Tautog	213.9	4.83%
Little skate	955	0.49%	Smooth dogfish	158.6	3.58%
Weakfish	706	0.36%	Longfin squid	126.5	2.85%
Alewife	541	0.27%	Black sea bass	79.7	1.80%
Summer flounder	534	0.27%	Striped searobin	53.2	1.20%
Winter flounder	350	0.18%	Winter flounder	51.6	1.16%
Blueback herring	326	0.17%	Spiny dogfish	51.5	1.16%
Atlantic herring	306	0.16%	Horseshoe crab	36.1	0.81%
Spider crab uncl.	200	0.10%	Weakfish	30.4	0.69%
Atlantic moonfish	189	0.10%	Spider crab uncl.	28.3	0.64%
Bluefish	143	0.07%	Fourspot flounder	22.1	0.50%
Striped searobin	133	0.07%	Bluefish	12.7	0.29%
Tautog	127	0.06%	Longfin squid egg mops	9.7	0.22%
Fourspot flounder	121	0.06%	Windopane	8.6	0.19%
Round scale	111	0.06%	Alewife	7.3	0.16%
Atlantic silverside	102	0.05%	Knobbed whelk	6.7	0.15%
Rough scad	82	0.04%	Channeled whelk	4.3	0.10%
Smooth dogfish	55	0.03%	Longhorn sculpin	4.3	0.10%
Spotted hake	54	0.03%	Bay anchovy	4.1	0.09%
Smallmouth flounder	51	0.03%	Northern searobin	2.6	0.06%
Atlantic cod	42	0.02%	Oyster toadfish	1.8	0.04%
Windowpane	37	0.02%	Blueback herring	1.6	0.04%
Northern searobin	33	0.02%	Spotted hake	1.3	0.03%
Atlantic rock crab	28	0.01%	Sea star, brittle star	1.3	0.03%
Spiny dogfish	24	0.01%	Blue crab	1.2	0.03%

Table 3: continued.

Common Name	Num.	%	Common Name	WT. (kg)	%
Knobbed whelk	24	0.01%	Northern quahog	1.2	0.03%
Longfin squid egg mops	23	0.01%	Fourbeard rockling	1.1	0.02%
Fourbeard rockling	22	0.01%	Hogchoker	1.1	0.02%
Sea star, brittle star	22	0.01%	Ocean pout	1.1	0.02%
Red hake	21	0.01%	Round scad	1	0.02%
Mantis shrimp uncl.	19	0.01%	Northern kingfish	0.8	0.02%
Channeled whelk	18	0.01%	Atlantic moonfish	0.7	0.02%
Rainbow smelt	17	0.01%	Rough scad	0.5	0.01%
Horseshoe crab	16	0.01%	Mantis shrimp uncl.	0.4	0.01%
Cunner	12	0.01%	Sea raven	0.4	0.01%
Hermit crab uncl.	11	0.01%	Atlantic silverside	0.3	0.01%
Longhorn sculpin	10	0.01%	Atlantic rock crab	0.3	0.01%
Grubby	10	0.01%	Inshore lizardfish	0.3	0.01%
Rock gunnel	9	0.00%	Atlantic herring	0.2	0.00%
Hogchoker	8	0.00%	Grubby	0.2	0.00%
Northern pipefish	6	0.00%	American lobster	0.2	0.00%
Short browed mud shr.	6	0.00%	Red hake	0.1	0.00%
Blue crab	6	0.00%	Rainbow smelt	0.1	0.00%
Silver hake	5	0.00%	Cunner	0.1	0.00%
White hake	5	0.00%	Rock gunnel	0.1	0.00%
Northern sennet	4	0.00%	Silver hake	0.1	0.00%
Striped anchovy	3	0.00%	Spot	0.1	0.00%
Bigeye	3	0.00%	Smallmouth flounder	0	0.00%
Oyster toadfish	3	0.00%	Atlantic cod	0	0.00%
Northern quahog	3	0.00%	Hermit crab uncl.	0	0.00%
Atlantic menhaden	2	0.00%	Northern pipefish	0	0.00%
Threespine stickleback	2	0.00%	Short browed mud shr.	0	0.00%
Atlantic mackerel	2	0.00%	White hake	0	0.00%
Blue runner	2	0.00%	Northern sennet	0	0.00%
Northern kingfish	2	0.00%	Striped anchovy	0	0.00%
Sea raven	2	0.00%	Bigeye	0	0.00%
Northern puffer	2	0.00%	Atlantic menhaden	0	0.00%
Bigeye scad	2	0.00%	Threespine stickleback	0	0.00%
American lobster	2	0.00%	Atlantic mackerel	0	0.00%
Inshore lizardfish	2	0.00%	Blue runner	0	0.00%
Crevalle jack	2	0.00%	Northern puffer	0	0.00%
Round herring	1	0.00%	Bigeye scad	0	0.00%
American shad	1	0.00%	Crevalle jack	0	0.00%
Pollock	1	0.00%	Round herring	0	0.00%
Spot	1	0.00%	American shad	0	0.00%
Northern sand lance	1	0.00%	Pollock	0	0.00%
Ocean pout	1	0.00%	Northern sand lance	0	0.00%
Blue mussel	1	0.00%	Blue mussel	0	0.00%
Bay scallop	1	0.00%	Bay scallop	0	0.00%
Total Number	**196854**		**Total Weight (kg)**	**4431.3**	

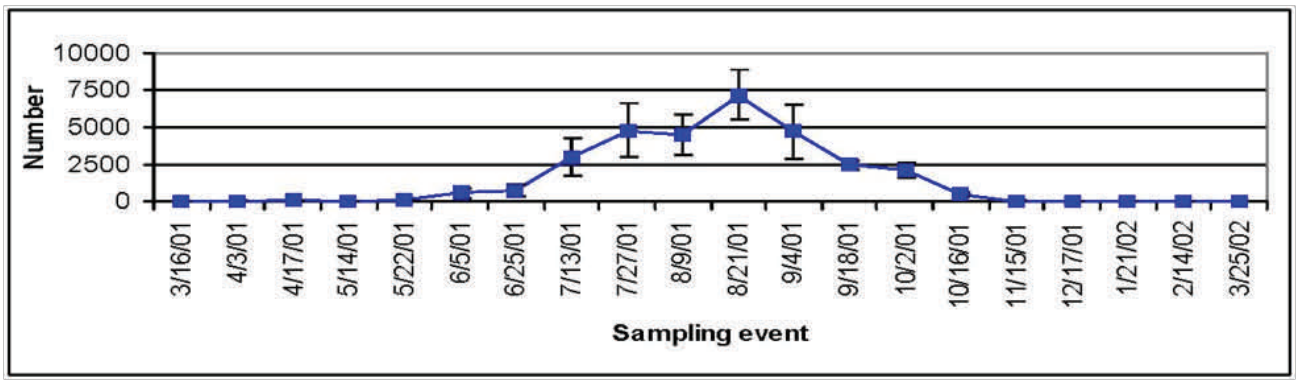

Figure 5. Mean number per tow for all species and all stations combined over time (95%CI).

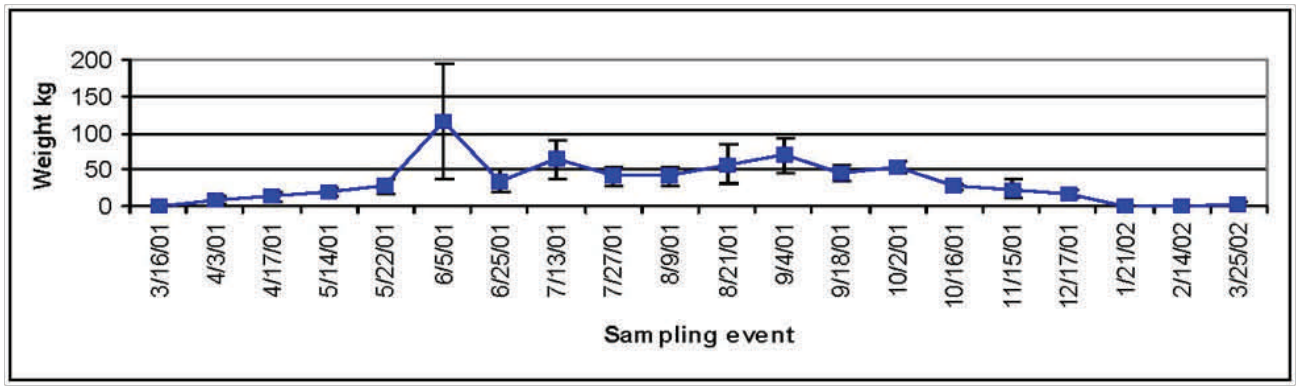

Figure 6. Mean weight per tow for all species and all stations combined over time (95%CI).

Otter Trawl Station Description

Seven trawl stations were established to include variation in seafloor features found within the study area (Figure 3). SPI and bathymetric data directed the identification of trawl stations, based on topography and predominant surficial sediments. Macroinvertebrate, sediment chemistry, direct observation (SCUBA and trawl samples), side scan sonar (CR Environmental 2002) and existing information (e.g., Howes and Goehringer 1996) improved seafloor habitat descriptions (Table 1). Initial field investigations, during February and March 2001, established suitable (i.e., capable of trawl sampling – no snags), fixed trawl stations.

Three trawl stations (Station 2, 3, and 4) were located directly within the Site 1 survey area and one station (Station 6) within Site 2. Stations 1, 5, and 7 were described by side scan sonar, direct observation, fish survey fathometer readings, similar characteristics of surveyed areas (i.e., depth and substrate) and information from NOAA Nautical Chart #13230. SPI and bathymetry was not collected at Stations 1, 5, and 7, so substrate rigidity and RPD were not identified and water depth was estimated. Side scan sonar and direct observation was completed at all trawl stations and described landscape and substrate features (CR Environmental 2002).

Station 1 was outside of Site 1 and 2. Side scan, direct observation, water depth (approximately 13m), and sediments that were surveyed surrounding Station 1 showed substrate was predominantly soft mud (>4 phi) with little topography. Station 2 was largely found within the 12m contour (crossing 10-13m), traversing variable bottom of soft mud

(>4 phi), sandy mud (4 to 3 phi), and sand (2 phi). Substrate rigidity ranged 0-20cm. Station 3 was located in the 11-12m contour and characterized by predominantly sandy mud (4 to 3 phi), with substrate rigidity ranging 5-15cm. Station 4 was located in the basin (i.e., deepest portion, 13-16m) of Site 1, and was found in soft mud (>4 phi) with substrate rigidity ranging 15 to 20cm.

Station 5 ran east to west and was located in a submerged valley connecting the Site 1 depression and deeper water (approximately 13 -16m) found between two shallower areas. SCUBA observation and side scan found substrate was predominantly soft mud (>4 phi). Station 6 was in soft mud (>4 phi; substrate rigidity ranged 15-20cm) within the deep area (14-16m) between the western, northern, and southern shallow areas of Site 2. Station 7 was in a topographic depression, forming a valley within approximately 14-16m of water, and the SCUBA and side scan survey described the area as soft mud. Dense drift algae seasonally collected in the area of Station 7 (observation based on trawl collections).

The combination of seafloor surveys and direct observation described general features of the trawl stations (Table 1). The fisheries trawl stations were located in smooth areas (i.e., no snags or boulders) – although, the net snagged several times throughout the survey. Stations were characteristic of soft mud and sandy mud habitats in Buzzards Bay.

Sampling Regime & Gear Specifications

Seven fixed trawl stations were identified in February and March of 2001. Each station

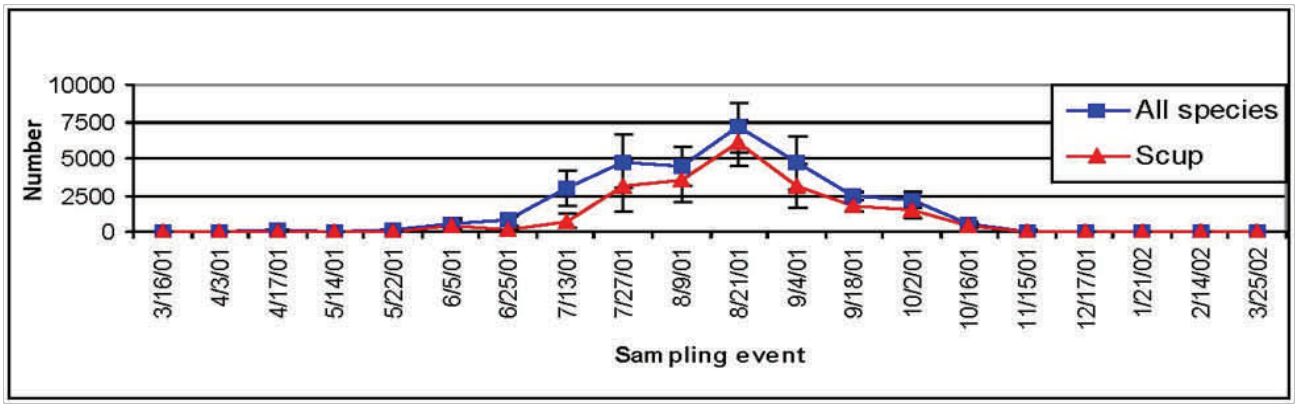

Figure 7. Mean number per tow for scup vs. all species, stations combined (95%CI).

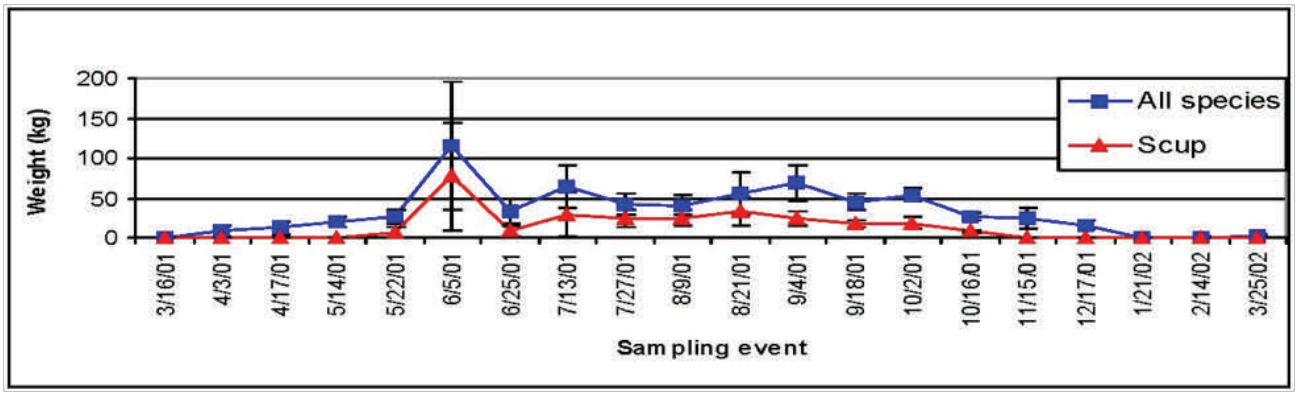

Figure 8. Mean weight per tow scup vs. all species, stations combined (95%CI).

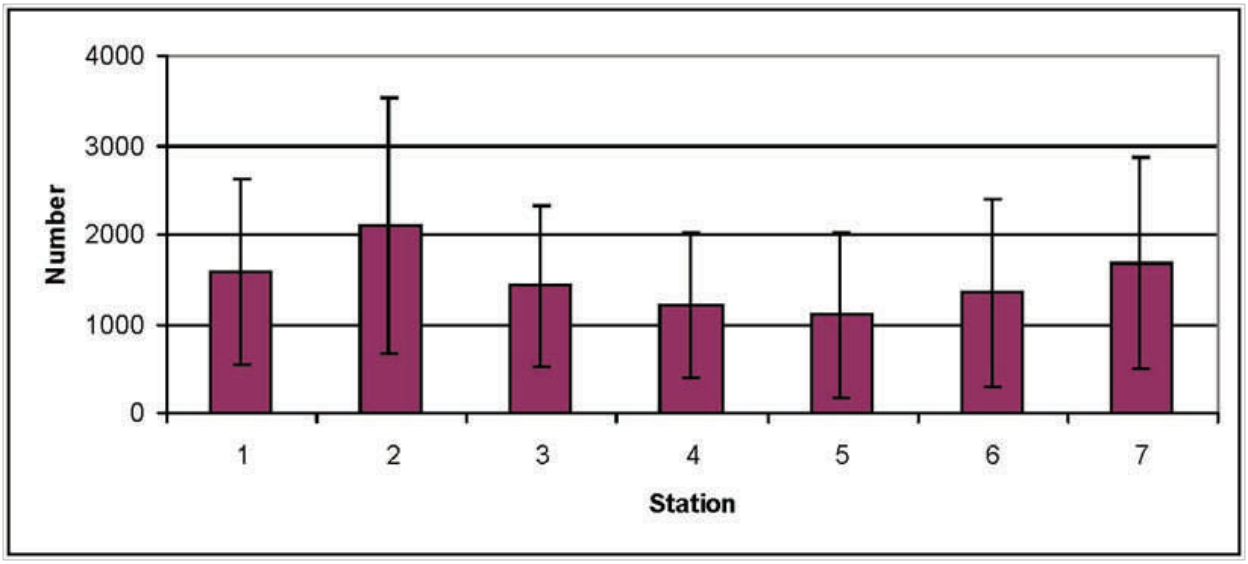

Figure 9. Mean number per tow by station all species combined (95%CI).

was towed monthly in March 2001 and from November 2001 through March 2002, and twice per month from April 2001 through October 2001 (20 sample periods). Each tow was 0.5 nautical miles with a tow speed of 2.5 knots (roughly 12 minutes).

The survey was conducted aboard the F/V Lady Jane, a contracted commercial trawler out of Marshfield, MA. The Lady Jane is a 36' Cape Dory Trawler with a 200hp GM v671 diesel engine and a 3:1 reduction gear. A ¾ size North Atlantic type, two-seam otter trawl was constructed with poly meshes by the owner/operator of the Lady Jane. The trawl net had an 11.9m headrope and a 15.5m footrope with five 20.3cm plastic floats across the headrope and a 7.6cm rubber disc sweep attached to the footrope. The top legs were 18.3m of 3/8-inch wire cable and the bottom legs were 18.3m of 3/8 inch Trawlex chain. The cod end contained a 6.4mm knotless liner to capture small fish. The doors were Icelandic oval doors weighing 200 kg each.

Data Collection & Description

For all species caught, sex (when necessary), total weight (nearest 0.1 kg), and length (total or fork length; nearest ½ centimeter) were recorded. Standard subsample procedures were employed when catch size and time constraints dictated their use. Biological "trash" was recorded for each tow including weed, ctenophores, and tunicates. The tow start time, start and end coordinates, and average depth were recorded from the vessels DGPS unit and sounder. Surface and bottom water temperature, salinity, and dissolved oxygen were recorded for each tow with a YSI 650 Multiparameter Display System and a YSI 6-series sonde.

Gear Problems

The standard tow length was based on distance, 0.5nm. A minimum tow length of 0.3nm was required to count a tow if it was hauled back early due to a hang. Eight tows were aborted due to hangs or net/gear damage, and there were seven short tows that met the 0.3nm minimum and required expansion. Five of the aborted tows were due to hangs, two were due to net/gear damage that could not be repaired in the field, and one weed tow was aborted because it was too heavy to be hauled on deck.

Data Analysis

Catch-per-unit-effort was calculated by number and weight for all species and all stations combined to look at seasonal relative abundance of fishes, and for each station all species combined to look at catch differences between stations. Descriptive statistics (means and 95% confidence limits) were applied to summarize hydrographic and catch data. A length-frequency analysis was applied to scup, butterfish, and squid - the top three numerically dominant species - to show seasonal size distribution.

Results

Hydrographic Data

Figures 4a, 4b, and 4c illustrate surface and bottom water temperatures, surface and bottom salinities, and surface and bottom dissolved oxygen levels with 95% confidence intervals. Surface water temperatures in the study area ranged from 2.3°C in January 2002 to 25.1°C in August 2001 and bottom water temperatures ranged from 2.0°C in January 2002 to 22.6°C in September 2001. Surface salinities ranged from 26.6ppt in April 2001 to 31.9ppt in July 2001 and bottom salinities ranged from 23.3ppt in June 2001 to 32.2ppt in July 2001. Surface dissolved oxygen levels ranged from 6.1mg/l in July 2001 to 19.8mg/l in February 2002 and bottom dissolved oxygen levels ranged from 4.7mg/l in August 2001 to 19.1mg/l in February 2002. Little stratification was observed due to the relatively shallow depths of our sampling stations (12.5-18.3meters).

Community Characteristics

A total of seventy-two species (fifty-seven finfish and fifteen invertebrate) were collected in one hundred thirty-two trawls completed over twenty sampling days from March 2001 to March 2002 (table 2). 196,854 fish and invertebrates were collected having a total weight of 4431.3kg. The three most abundant species collected were scup (*Stenotomus chrysops*) 65.99%, butterfish (*Peprilus triacanthus*) 21.80%, and longfin squid (*Loligo pealeii*) 7.57%. These three species comprised 95.36% of the total number of fish caught and 58.56% of the total weight (table 3).

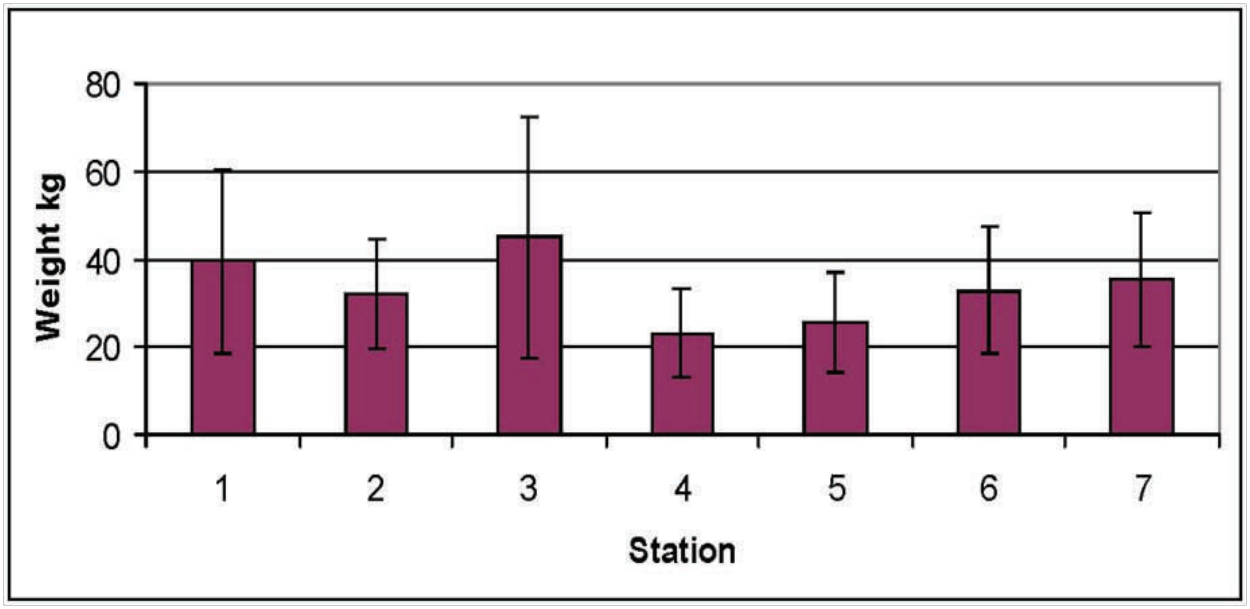

Figure 10 . Mean weight per tow by station all species combined (95%CI).

Table 4 . Species richness by station and sampling event.

Station	1	2	3	4	5	6	7	Pooled
3/16/2001	3		3	2	5		7	14
4/3/2001	6	5	9	5	5	5	12	18
4/17/2001	8	8	8	6	6	7		15
5/14/2001	11	11	11	6	11	12	12	22
5/22/2001	12	10	14	9	17	12	18	31
6/5/2001	19	17	18	14	13	18	16	27
6/25/2001	16	13	13	10	18	14	20	28
7/13/2001	13	11	14	13	11	17	17	29
7/27/2001	15	7	12	12		11	16	27
8/9/2001	16	9	17	12	16	15	15	32
8/21/2001	14	12	14	13		8		24
9/4/2001	10	14	13	7	10	13	13	20
9/18/2001	15	14	11	14	16	17	16	25
10/2/2001	14	14	13	10	10	9	9	25
10/16/2001	10	12	10	9	7	9	7	20
11/15/2001	6	7	8	7	8	8	6	20
12/17/2001	8		7	8	7	7	7	20
1/21/2002	3	4	4	2	6	7	6	14
2/14/2002	8	7	5	3	8	5	12	19
3/25/2002	5	7	8		7	3	6	22
Total	50	42	47	37	46	51	53	72
Tows	20	18	20	19	18	19	18	20
Mean	11	10.1	11	8.5	10.1	10.4	11.9	22.6
Std Error	1	0.84	0.9	0.9	1.01	1.01	1.1	1.2

Several less common mid-Atlantic finfish species were encountered including spot (*Leiostomus xanthurus*), round herring (*Etrumeus teres*), inshore lizardfish (*Synodus foetens*), bigeye scad (*Selar crumenopthalmus*), northern kingfish (*Menticirrhus saxatilis*), northern sennet (*Sphyraene borealis*) and hogchoker (*Trinectes maculatus*). Tropical species encountered during the survey included bigeye (*Priacanthus arenatus*), blue runner (*Caranx crysos*) and crevalle jack (*Caranx hippos*).

Relative Abundance and Distribution

Mean number per tow for all species and all stations combined peaked in August 2001 at 7,138 (figure 5) and mean weight per tow for all species and all stations combined peaked in June 2001 at 115.8kg (figure 6). Young-of-the-year (YOY) scup dominate the August peak in mean number and adult scup dominate the June peak in mean weight representing the inshore migration of adult fish. Figures 7 and 8 depict mean number per tow and mean weight per tow for scup vs. all species combined showing that the total catch numbers and weights were largely driven by scup.

Additional species contributing notable YOY numbers included atlantic herring (*Clupea harengus*), atlantic moonfish (*Selene*

setapinnis), bay anchovy (*Anchoa mitchilli*), black sea bass (*Centropristis striata*), blueback herring (*Alosa aestivalis*), bluefish (*Pomatomus saltatrix*), butterfish (*Peprilus triacanthus*), longfin squid (*Loligo pealeii*), and weakfish (*Cynoscion regalis*). The large numbers of YOY fishes encountered during the survey demonstrate the importance of Buzzards Bay as a nursery ground for juveniles.

Mean number per tow by station for all species combined ranged from 2,106 at station 2 to 1,099 at station 5 (figure 9) and mean weight per tow by station for all species combined ranged from 45kg at station 3 to 23kg at station 4 (figure 10). As expected, there appears to be nominal differences in mean number or weight per tow between stations due to the relatively small study area with short distances between stations, similar mean depths at each station ranging from 12.5 to 18.3 meters and similar substrate types (silt & silt/sand mix).

Station description

Table 4 describes species richness (total number of species per tow) by station and stations pooled for each sampling event. Species richness peaked from the middle of May to the middle of August. Station 7 had the highest mean number of species per tow at 11.94 (53 species total) and station 4 had the lowest mean number of species per tow at 8.53 (37 species total). Figures 11a through 11g describe the total catch (species pooled) in number and weight (kg) over time by station. Total number and weight trends varied little between stations excluding a spike in total weight at stations 1 and 3 in June consisting primarily of adult scup. YOY scup, butterfish, and longfin squid drive an increase in total number of fish between July and September at all stations. Tables 5a,b – 12a,b show mean number and weight (kg) per tow by species for all stations combined and for individual stations.

See appendix A for species composition tables for Stations 1 through 7, tables1-7 respectively. See Appendix B for detailed catch number and weight (kg) information of finfish and invertebrates, tables 1-32.

Length Frequency

Buzzards Bay provides important spawning and nursery habitat for numerous species including scup, butterfish, and longfin squid. Figure 12 illustrates scup length-frequencies by month for all fish sampled, n=10,692. Scup catches began in May with the inshore spawning migration of larger fish (probably 3+) followed by 1 and 2 year old fish in June. YOY scup were present in the study area from July through October. All year classes appear to have migrated out of the study area by the end of October.

Figure 13 depicts butterfish length-frequencies for all fish sampled from May through December, n=5548. Unlike scup, butterfish spawn offshore and then migrate inshore. Butterfish catches started in May with 1+ year old fish. YOY butterfish were present in the study area from June through December. Additional butterfish year classes could not be discriminated from the length-frequency data.

Longfin squid length-frequencies by month can be seen in figure 14 (n=2766). Squid were caught from May through December. Catches in May and June consisted mainly of adults and individuals that were spawned offshore over the previous winter. YOY were present from May through November with a peak in July. Additional longfin squid cohorts could not be discriminated from the length-frequency data due to their two extended spawning periods, an offshore winter spawning event and an inshore summer spawning event.

*Note: Length-frequency numbers for scup, butterfish and longfin squid were not expanded to account for subsamples and reflect only those fish that were actually measured.

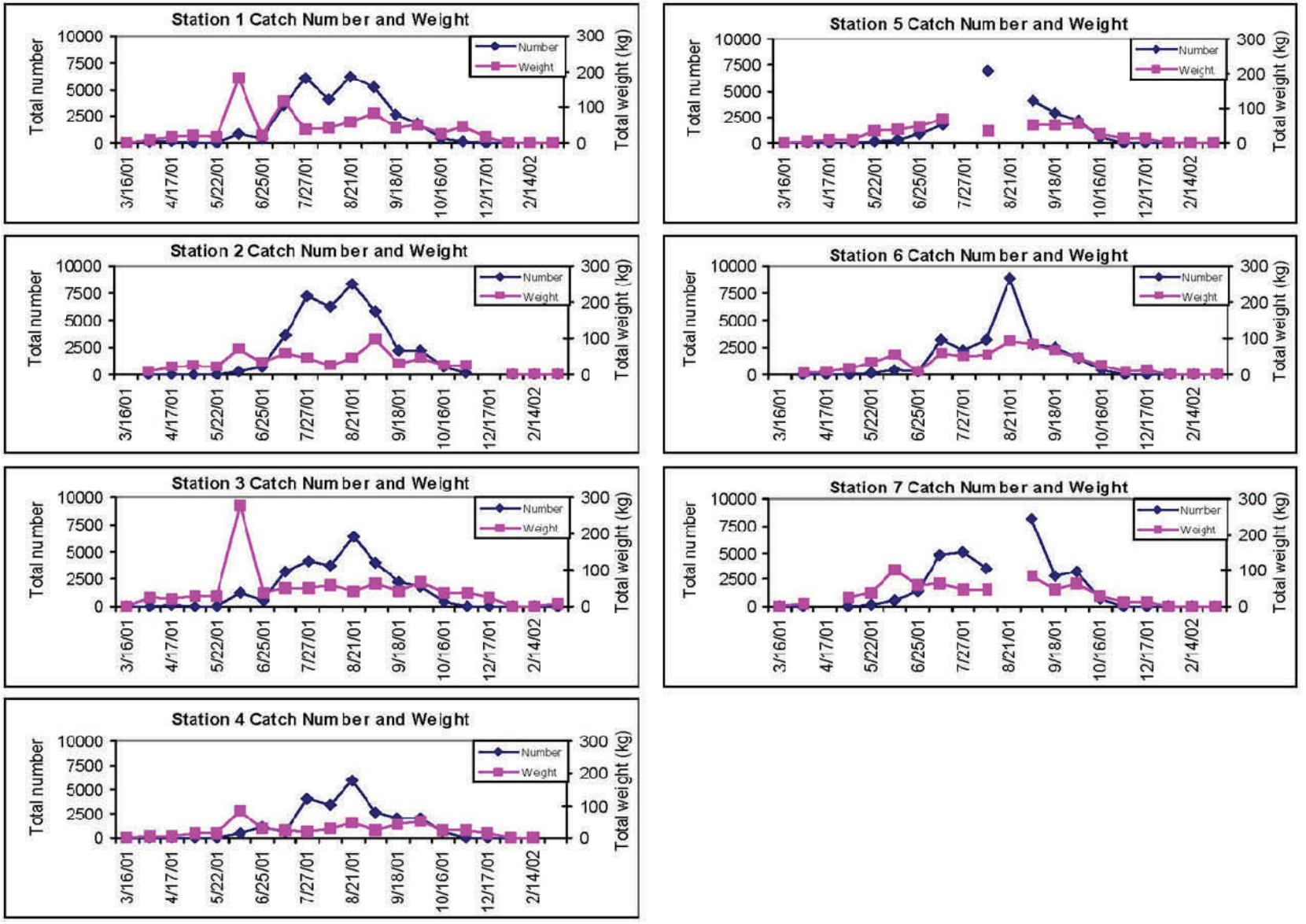

Figure 11a-11g. Total catch (all species pooled) in number and weight (kg) by station over time.

Table 5a. Total number per tow by species for Stations 1-7 combined.

Species	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup				5	140	3052	820	5113	18480	24858	30095	21885	12245	10115	3088						129896
Butterfish				1	13	248	3569	12909	3924	3325	3369	9446	2001	3570	362	125	51				42913
Longfin squid				58	166	221	252	2484	5966	2026	1934	782	538	311	155	4	1				14898
Bay anchovy							42	1	5	196	82		1501	744							2571
Black sea bass				13	13	52	55	6	160	352	77	66	118	65	28	5					1010
Little skate	1	85	84	42	29	59	5	1				1	53	139	136	183	114	1	4	18	955
Weakfish									1	6	43	465	191								706
Alewife									33	174	13	85	205	11			20				541
Summer flounder			1	27	30	50	55	79	54	60	37	57	37	26	19	1				1	534
Winter flounder	23	58	26	20	35	42	35	20	9	13	8	5	4	1	2	15	6	6	11	11	350
Blueback herring					10	16	247	43		1	1	2	3				1			2	326
Atlantic herring	1	74	200														1	9	20	1	306
Remaining speices	17	45	124	76	89	239	178	150	148	102	32	52	273	44	28	47	33	81	58	32	1848
Total	42	262	435	242	525	3979	5258	20806	28780	31113	35691	32846	17169	15026	3818	380	227	97	93	65	196854
Number of tows	5	7	6	7	7	7	7	7	6	7	5	7	7	7	7	7	6	7	7	6	132
Mean	8.4	37.43	72.5	34.57	75	568.43	751.14	2972.29	4796.67	4444.71	7138.2	4692.29	2452.71	2146.57	545.43	54.29	37.83	13.86	13.29	10.83	1491.32
+/-95% Confidence limits	7.83	29.06	68.17	12.71	25.27	341.01	366.72	1253.37	1794.57	1377.6	1687.8	1801.92	299.75	501.14	136.84	34.21	7.75	8.48	5.94	6.52	

Table 5b. Total weights (kg) per tow by species for stations 1-7 combined.

Species	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup				1.3	48	539.7	67.1	209.4	144.3	175.4	165.3	174.7	122	132	55						1834
Butterfish				0.1	1	12.5	13.6	70.9	26	33.1	50.8	208.3	76.5	112.3	14.7	9.3	5.3				634.4
Little skate	0.6	49.1	50.5	26	17.8	36.2	3.2	0.6				0.5	29.3	78.2	76.2	107.6	66.4	0.5	2.1	10.5	555.3
Summer flounder			1.4	37	36.3	56.3	55.8	83.3	38.4	42.4	28.7	43.4	26.1	15.3	10.9	0.7				1.6	477.6
Tautog		0.2		44.2	30.7	34.3	27.5	25	4	9.4	6.2	5.8		17.8	8.7	0.1		0	0		213.9
Smooth dogfish					15.8	46.1	6	26.8	7.3	4.3	11.8	11.8	24	2.9	1.8						158.6
Longfin squid				6.1	11	7.9	5.3	7.8	19.5	8.3	15.1	14.2	12.7	11.3	7.1	0.1	0.1				126.5
Black sea bass				7.6	9.4	25.1	26.4	3.3	0.5	1.3	0.2	0.8	0.6	0.5	4	0					79.7
Striped searobin				2.2	7.4	23.7	4.1	6.2	1.4	1.3	1.3	2.2	0.4	1.9	1.1						53.2
Winter flounder	1.2	9.3	10.5	1.9	1.6	1.6	2.5	1.3	0.5	0.6	0.3	0	0	1.1	0.4	12.9	3.1	0.1	1	1.7	51.6
Spiny dogfish															7.4	31.6	12.5				51.5
Remaining species	0.9	4	15.4	11.7	10	27.2	27.9	9.7	5.1	11.5	2.9	23	22.8	5.3	2.2	4.3	6.9	1	1.8	1.2	194.8
Total	2.7	62.6	77.8	138.1	189	810.6	239.4	444.3	247	287.6	282.6	484.7	314.4	378.6	189.5	166.6	94.3	1.6	4.9	15	4431
Number of tows	5	7	6	7	7	7	7	7	6	7	5	7	7	7	7	7	6	7	7	6	132
Mean	0.54	8.94	12.97	19.73	27	115.8	34.2	63.47	41.17	41.09	56.52	69.24	44.91	54.09	27.07	23.8	15.72	0.23	0.7	2.5	33.57
+/-95% Confidence limits	0.36	6.53	7.63	6.7	8.97	79.69	15.75	26.58	13.38	12.4	26.72	22.89	10.44	8.08	4.68	13.51	5.42	0.36	0.57	2.76	

Table 6a. Station 1 total number per tow by species over time.

Species	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup						619	9	993	5232	2963	5221	3451	1688	1440	228						21844
Butterfish					1	105	282	2145	244	692	560	1539	322	241	79	74	6				6290
Longfin squid				1	12	18	25	348	493	115	286	255	48	83	19						1703
Bay anchovy							39		5	193	2		535								774
Black sea bass				1	5	14	5	2		1			10	6	6						50
Little skate	1	15	14	9	5	8							5	31	20	35	25		1	3	172
Weakfish									1	5	40	8	4								58
Alewife									5	27	5						1				38
Summer flounder						4	5	11	16	7	6	9	2	6	2						68
Winter flounder	7	2	5	6	5	16	2	9	1	4	4					2	2	1	1	4	71
Blueback herring					10	6	10	41			1										68
Atlantic herring			70	98															1		169
Remaining Species	1	3	70	13	10	68	17	21	13	25	12	6	8	10	4	13	4	8	10	3	319
Total	9	90	187	30	48	858	394	3570	6010	4032	6137	5268	2622	1817	358	124	38	9	13	10	31624

Table 6b. Station 1 total weight (kg) per tow by species over time.

Species	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup						123	0.5	92.7	20.1	22	38.3	18.8	17.8	18	6.1						357.3
Butterfish					0.1	4.5	0.9	10.9	1.8	10.5	7	47.7	7	6.5	4	6.8	0.3				108
Little skate	0.6	8.5	8.6	5.3	3	5							2.5	18.4	11.1	21.6	14.4		0.6	1.7	101.3
Summer flounder						3.2	4.5	8.5	9.5	4.7	3.5	10.1	2.5	3.1	1.1						50.7
Tautog				13.5	5.9	3.2	3.3														25.9
Smooth dogfish						21.5		1.4	2.7	0.2	5.5	0.2	8								39.5
Longfin squid				0	0.9	0.8	0.5	0.8	2.8	0.9	1.7	5.5	1.2	2.7	0.9						18.7
Black sea ball				1	2.7	7	2.8	0.6		0			0	0	2.6						16.7
Striped searobin				0.3	0.5	11	1.5	1.7				0.3	0.4	0.5							16.2
Winter flounder	0	0.5	1.2	0.2	0.3	0.2	0	0.3	0	0.1	0.1					1.5	1.1	0	1	0.1	6.6
Spiny dogfish																15.8					15.8
Remaining species	0	0	5.5	0.3	4.3	3.3	5.9	1.6	1.4	2.7	1.4	0.4	0.8	0.7	1.1	2.3	1.1	0	0.1	0.2	33.1
Total	0.6	9	15.3	20.6	17.7	182.7	19.9	118.5	38.3	41.1	57.5	83	40.2	49.9	26.9	48	16.9	0	1.7	2	789.8

Table 7a. Station 2 total number per tow by species over time.

Species	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup				1	138	200	641	5087	5638	7364	3118	2107	1223	631					26148
Butterfish				5	36	465	2288	928	199	509	2655	67	402	30	41				7625
Longfin squid			7	24	33	35	722	1078	388	395	1	44	60	23	2				2812
Bay anchovy									2	79		23	552						656
Black sea bass				2	4	4		106	2	4	6	9	18	3					158
Little skate	15	28	6		15						1	7	11	16	27		2	2	130
Weakfish										1	15	6							22
Alewife									7	4	61	2	2						76
Summer flounder			5	5	8	4	14	10	4	4	8	7	3	1					73
Winter flounder	3	5	3	2	6	4	1	1	1	1	1	1	1	1	1		2	1	35
Blueback herring												1						2	3
Atlantic herring	3																		3
Remaining species	4	15	14	9	31	13	14	1	2	3	7	4	10	6	5	11	5	6	160
Total	25	48	35	48	271	725	3680	7211	6243	8364	5873	2278	2282	711	76	11	9	11	37901

Table 7b. Station 2 total weight (kg) per tow by species over time.

Species	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup				0.3	29	17	8.4	30.2	17.2	33.1	32	16.6	14.7	9.8					208.3
Butterfish				0.3	0.3	1.4	9.7	5.4	1.1	5.7	48.3	2.1	11.6	1.3	2.2				89.4
Little skate	8.5	17.7	3.5		9.2						0.5	4	6.1	8.8	15.7		1.1	1.2	76.3
Summer flounder			7.3	9.1	9.6	5	18	8.7	2.8	2.8	5.7	5	1.4	0.6					76
Tautog			10.4	5.1	12	5.5	8.5		2.2		5.2		8.7	2.1					59.7
Smooth dogfish					2.7		10.5	0.6			2.3								16.1
Longfin squid			1.6	1.5	1.3	0.6	1.8	2.7	1.3	2.3	0	0.8	1.8	1.5	0.1				17.3
Black sea bass				2.3	1.3	3.5		0.1	0.2	0.1	0	0	0.1	0					7.6
Striped searobin			0.2	1.5	4	0.6	1.5						0.5						8.3
Winter flounder	1	2.2	0.3	0	0.2	0.2	0.1	0	0.1	0	0	0	1.1	0.4	0.9		0	0	6.5
Spiny dogfish															5.4				5.4
Remaining species	0	1.5	2.2	0.2	2.2	0.8	0	0	0	0.1	1.6	0.4	0.7	0.3	0	0	0	0.2	10.2
Total	9.5	21.4	25.5	20.3	71.8	34.6	58.5	47.7	24.9	44.1	95.6	28.9	46.7	24.8	24.3	0	1.1	1.4	581.1

Table 8a. Station 3 total number per tow by species over time.

Species	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup				1		1101	163	1237	2817	3284	5720	2739	1843	1454	349						20708
Butterfish					2	47	413	1715	848	205	342	1203	120	66	9	2	7				4979
Longfin squid				13	15	21	15	265	440	120	278	53	60	64	7		1				1352
Bay anchovy										1	1		99	192							293
Black sea bass				1	3	19	11		4	110	72	10	60	17	17	4					328
Little skate		36	31	14	15	20	1	1					15	39	40	52	34			11	309
Weakfish											1	1	1								3
Alewife									1	60	2	6	2				3				74
Summer flounder				2	6	7	3	14	7	15	11	14	6	3	4	1					93
Winter flounder	2	2	5	1	2	2	4	1	1	2		2				2	1	2	5	4	38
Blueback herring						10															10
Atlantic herring		1	58																2		61
Remaining species	3	7	17	15	12	35	11	17	11	12	7	9	3	10	6	5	3	6	5	8	202
Total	5	46	111	47	55	1262	621	3250	4129	3809	6434	4037	2209	1845	432	66	49	8	12	23	28450

Table 8b. Station 3 total tow by species over time.

Species	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup				0.3		224	13.5	20.6	34	42.1	24.7	29.3	22.9	33.6	8.2						453.2
Butterfish					0.2	3.7	3.7	5	3.2	0.5	3.2	16.4	3.9	1.6	0.4	0	0.4				42.2
Little skate		22.5	18	8.6	9.4	11.7	0.6	0.6					7.6	21.5	22.5	30.6	19.9			6.6	180.1
Summer flounder				4.5	7.7	8.1	4.2	13.3	5	9.2	9.4	7.6	3.6	3.2	2.3	0.7					78.8
Tautog				10.5	8.2	8.5	5.7	7	4		2.6	0.6		3.1							50.2
Smooth dogfish						0.9						8.1									9
Longfin squid				1.5	0.8	1	0.4	1.1	2.4	1	1.6	0.9	1.6	2.5	0		0.1				14.9
Black sea bass				0.6	3.1	10	6.5		0	0.1	0.1	0.8	0.1	0.4	1.4	0					23.1
Striped searobin					1	5.3	0.3	1.4	1	0.8		0.3		0.5							10.6
Winter flounder	0.3	0.9	0.7	0.1	0.4	0.2	0.4	0	0.1	0.1		0				2.1	0.1	0	0	0.8	6.2
Spiny dogfish															2.1	4.9	4.6				11.6
Remaining species	0	0.6	2.1	1.7	0.4	6.5	1.2	0.6	0.7	4.7	0.9	0.1	0.2	0.4	0.3	0.3	0.5	0.2	0	0.3	21.7
Total	0.3	24	20.8	27.8	31.2	279.9	36.5	49.6	50.4	58.5	42.5	64.1	39.9	66.8	37.2	38.6	25.6	0.2	0	7.7	901.6

Table 9a. Station 4 total number per tow by species over time.

Species	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	Total
Scup						3	261	186	74	1798	2643	4488	2027	971	1462	458				14371
Butterfish							37	811	462	412	324	910	408	724	563	92	1	22		4766
Longfin squid				4	60	52	31	60	1854	394	501	166	29	38	52	1				3242
Bay anchovy																				
Black sea bass				3		8	6	1		5	1	4	2	7	1					38
Little skate		3	3	4	2	5							4	15	19	25	7			87
Weakfish													19							19
Alewife										16	2		117	3			3			141
Summer flounder				6	2	9	5	9	4	9	6	5	2	2	1					60
Winter flounder		1	3	1	2	4	4	1	1	1	1		1		1	6	1			28
Blueback herring													1				1			2
Atlantic herring	1		9														1		2	13
Remaining species	2	4	6	2	5	26	12	54	27	5	7	2	87	3	2	3	5	3	2	257
Total	3	8	21	20	74	402	1055	661	4096	3397	5916	2612	1957	2093	626	36	40	3	4	23024

Table 9b. Station 4 total number per tow by species over time.

Species	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	Total
Scup						1.5	40.5	15	1.8	6.1	9.6	15.4	10.9	7.4	17.6	5.5				131.3
Butterfish							2.9	2.6	2.2	1.4	1.7	7.3	3.3	26	18.6	2.5	0	2.8		71.3
Little skate		1.2	1.7	3.2	1.2	3.2								2.1	8.1	11	14	4.1		49.8
Summer flounder				10.3	2.2	10	5.5	10.5	3.2	10	7	5.8	2	1.5	0.6					68.6
Tautog					1.5	6.6		2.5		3.1	3.6						0.1			17.4
Smooth dogfish						5.5		2.7			6.3		0.3	2.9						17.7
Longfish squid				0.4	4.3	2.1	0.7	0.2	5	1.3	4.1	3.3	0.8	1.6	2.6	0				26.4
Black sea bass				0.8		4.7	2.5	1.4		0.9	0	0	0	0	0					10.3
Striped searobin						2.6		0.7	0.4	0.2	0.8	0.5								5.2
Winter flounder		0.7	2	0	0	0.8	0.3	0.1	0.1	0	0		0		0	4.9	0.1			9
Spiny dogfish																1.9	5.8			7.7
Remaining species	0.3	1	0.9	0	2.4	4.2	3.3	0.7	0.4	0.3	0.5	0	5.7	0	0	0.5	1.3	0	0.1	21.6
Total	0.3	2.9	4.6	14.7	13.1	83.1	29.9	22.8	16.6	27.1	45	23.8	44.3	50.3	22.2	21.4	14.1	0	0.1	436.3

Table 10a. Station 5 total number per tow by species over time.

Species	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	8/9/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup						48	181	151	508	6031	2685	1584	1056	536					12780
Butterfish						3	5	426	987	407	1208	270	1128	80	2	15			4531
Longfin squid					6	30	22	28	204	388	139	81	9	11					918
Bay anchovy												769							769
Black sea bass					1		2	6		49	1	4	2	1					66
Little skate			6	7	1	1	4	1				13	10	15	16	18		1	1	94
Weakfish											6	14							20
Alewife																			
Summer flounder					2	9	7	25	16	7	5	8	2	5				1	87
Winter flounder	2	3	6	4	11	3	7	1	1	1					1		1	1	42
Blueback herring							156					1							157
Atlantic herring																	3		3
Remaining species	4	4	9	7	20	18	46	9	21	4	117	5	1	6	5	23	10	5	314
Total	6	13	22	21	122	242	846	1725	6904	4049	2861	2212	649	25	38	27	12	7	19781

Table 10b. Station 5 total weight (kg) per tow by species over time.

Species	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	8/9/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup						17	23	15	43.8	20.8	23	14.5	12	8.5					177.6
Butterfish						0.3	0.2	1.1	3.7	2.7	21.2	11.5	37.5	3.6	0	1.8			83.6
Little skate		3.1	4	0.5	0.5	2.2	0.5					7.5	5.3	8.6	9.4	10		0.4	0.4	52.4
Summer flounder				2.4	10	8	21	16.5	4	4.7	4	1.1	2.8					1.6	76.1
Tautog		0.2		2.5	1.7		1		2.9								0	0	8.3
Smooth dogfish						2		3.7		0.5	6								12.2
Longfin squid				0.3	1.8	0.6	0.8	0.6	1.5	2.1	1.9	0.2	0.1						9.9
Black sea bass				0.7		0.4	2.5		0	0	0	0	0						3.6
Striped searobin				0.5	1.8	0.8	0.3	0.4	0.3			0.4							4.5
Winter flounder	0.8	1.3	4.1	0.6	0.5	0	0.3	0.1	0	0				0.9			0	0	8.6
Spiny dogfish														3.6					3.6
Remaining species	0.2	0.4	1.2	0.5	1.3	0.8	5.8	1	0.8	0.2	4.8	0	0.5	0.2	1.7	0.1	0	0	19.5
Total	1	5	9.3	8	34.9	38	48.3	69.8	33	51.7	50.2	56.5	24.1	14.1	13.5	0.1	0.4	2	459.9

Table 11a. Station 6 total number per tow by species over time.

Species	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup			4	57	283	8	299	1362	2382	7302	1504	1626	956	319						16102
Butterfish			1		15	102	2622	470	716	1048	753	468	537	21	2	1				6756
Longfin squid			8	10	61	76	224	431	133	474	78	93	28	25						1641
Bay anchovy						3	1					27								31
Black sea bass			4	2	1	8	1	2	1		1	2			1					23
Little skate	4	1	2	1	4							2	12	11	14	13	1			65
Weakfish										1	432	130								563
Alewife											14	65	3			13				95
Summer flounder		1	3	2	8	2	5	9	3	10	5	7	5	2						62
Winter flounder	6	2	2	7	4	1	3	2	3	2		1					1			34
Blueback herring						3	1				1									5
Atlantic herring		35															3	14	1	53
Remaining species	3	7	7	13	27	18	18	7	20	3	17	54	5	6	11	9	21	9	6	261
Total	13	46	31	92	403	221	3174	2283	3258	8840	2805	2475	1546	384	28	36	26	23	7	25691

Table 11b. Station 6 total weight (kg) per tow by species over time.

Species	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup			1	17	31.2	0.6	29.3	33.6	37.9	53.8	21.8	21	11.5	7.1						265.8
Butterfish			0.1		0.8	0.1	17.3	4	12.6	27.6	34.1	25	18.5	1	0.1	0				141.2
Little skate	2.3	0.5	1.1	0.6	2.4							1.1	6.8	6.1	8.3	7.8	0.5			37.5
Summer flounder		1.4	4.8	1.2	10.6	1.8	8	7.5	2.2	6	4.5	4.5	2.5	1.1						56.1
Tautog	0		4.5	5					1.2					3.6						14.3
Smooth dogfish				8.9	3.5		2.5				0.7	5.2		1.8						22.6
Longfin squid			0.7	0.6	1.5	1.4	0.8	2.9	0.7	5.4	1.6	2.1	1.3	1.1						20.1
Black sea bass			2.4	1	0.3	3.6	0.3	0.2	0		0	0			0					7.8
Striped sea robin				0.3						0.5				1.1						1.9
Winter flounder	2	0.3	0	0.3	0.1	0.1	0.5	0.1	0.2	0.2		0					0			3.8
Spiny dogfish														1.7		2.1				3.8
Remaining species	0.4	4.2	1.1	0.3	3.1	1.9	1.3	0.2	0.9	0	20.6	6.8	3.5	0	1	1.6	0.6	1.1	0.2	48.8
Total	4.7	6.4	15.7	35.2	53.5	9.5	60	48.5	55.7	93.5	83.3	65.7	44.1	24.6	9.4	11.5	1.1	1.1	0.2	623.7

Table 12a. Station 7 total number per tow by species over time.

Species	3/16/2001	4/3/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup				31	469	103	1361	2184	1917	6361	2426	2524	567						17943
Butterfish				2	3	1070	2690	1022	782	1680	30	633	51	3					7966
Longfin squid			19	15	14	42	661	1670	488	90	183	29	18	1					3230
Bay anchovy											48								48
Black sea bass			3	1	4	15	2	48	184	44	31	15							347
Little skate		6	6	5	3	3					7	21	15	14	17			1	98
Weakfish									1	3	17								21
Alewife								27	64	4	3	1							99
Summer flounder			9	6	7	11	10	8	15	11	5	5	4						91
Winter flounder	12	41	3	6	7	13	4	3	1	1	1			3	2	1	2	2	102
Blueback herring						78	1		1	1									81
Atlantic herring																3	1		4
Remaining species	7	20	18	20	34	61	17	89	17	7	16	3	3	4	7	9	17	4	353
Total	19	67	58	86	541	1396	4746	5051	3470	8202	2767	3231	658	25	26	13	20	7	30383

Table 12b. Station 7 total weight (kg) per tow by species over time.

Species	3/16/2001	4/3/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup				12.2	69	5.5	12.8	20.3	25.8	38.9	21.8	24.6	9.8						240.7
Butterfish				0.1	0.1	3.8	22.1	10.2	4	37.3	1	18	1.9	0.2					98.7
Little skate		3	3.8	3.1	2.5	2.1					4.5	12	8.1	8	10.2			0.6	57.9
Summer flounder			7.7	6.1	6.8	13.8	8.5	4.5	9.5	5	4.5	2.5	2.4						71.3
Tautog		0	2.8	3.3	4	12	7					6	3				0		38.1
Smooth dogfish				6.9	10	6	6	4	4.1		4.5								41.5
Longfin squid			1.6	1.1	0.6	0.9	2.5	3.7	1.6	0.8	4.3	1.2	0.9	0					19.2
Black sea bass			2.1	0.3	1.4	5	1	0.2	0.1	0	0.5	0							10.6
Striped searobin			1.2	2.3		1.4	0.5			1.1									6.5
Winter flounder	0.1	2.9	0.7	0.1	0.1	1.2	0.2	0.2	0.1	0	0			2.6	1.8	0.1	0	0.8	10.9
Spiny dogfish													3.6						3.6
Remaining species	0.4	1.6	5.9	1.1	7.1	9	4.5	2.4	2.1	0.1	4.1	0	0	0	0.7	0.1	0.5	0.3	39.9
Total	0.5	7.5	25.8	36.6	101.6	60.7	65.1	45.5	47.3	83.2	45.2	64.3	29.7	10.8	12.7	0.2	0.5	1.7	638.9

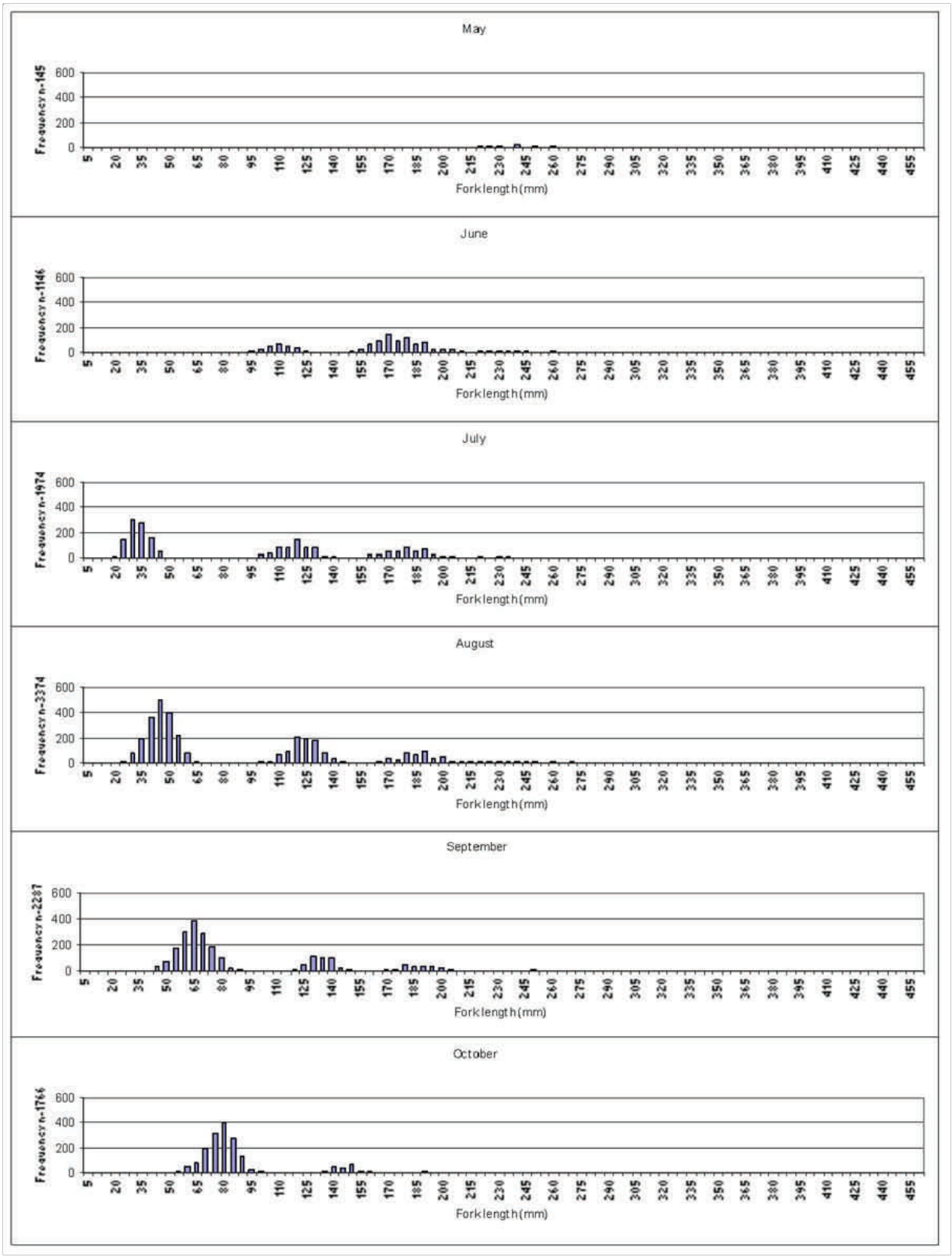

Figure 12. Scup length-frequency for all fish sampled, May-October. Fork length in mm. n=10,692

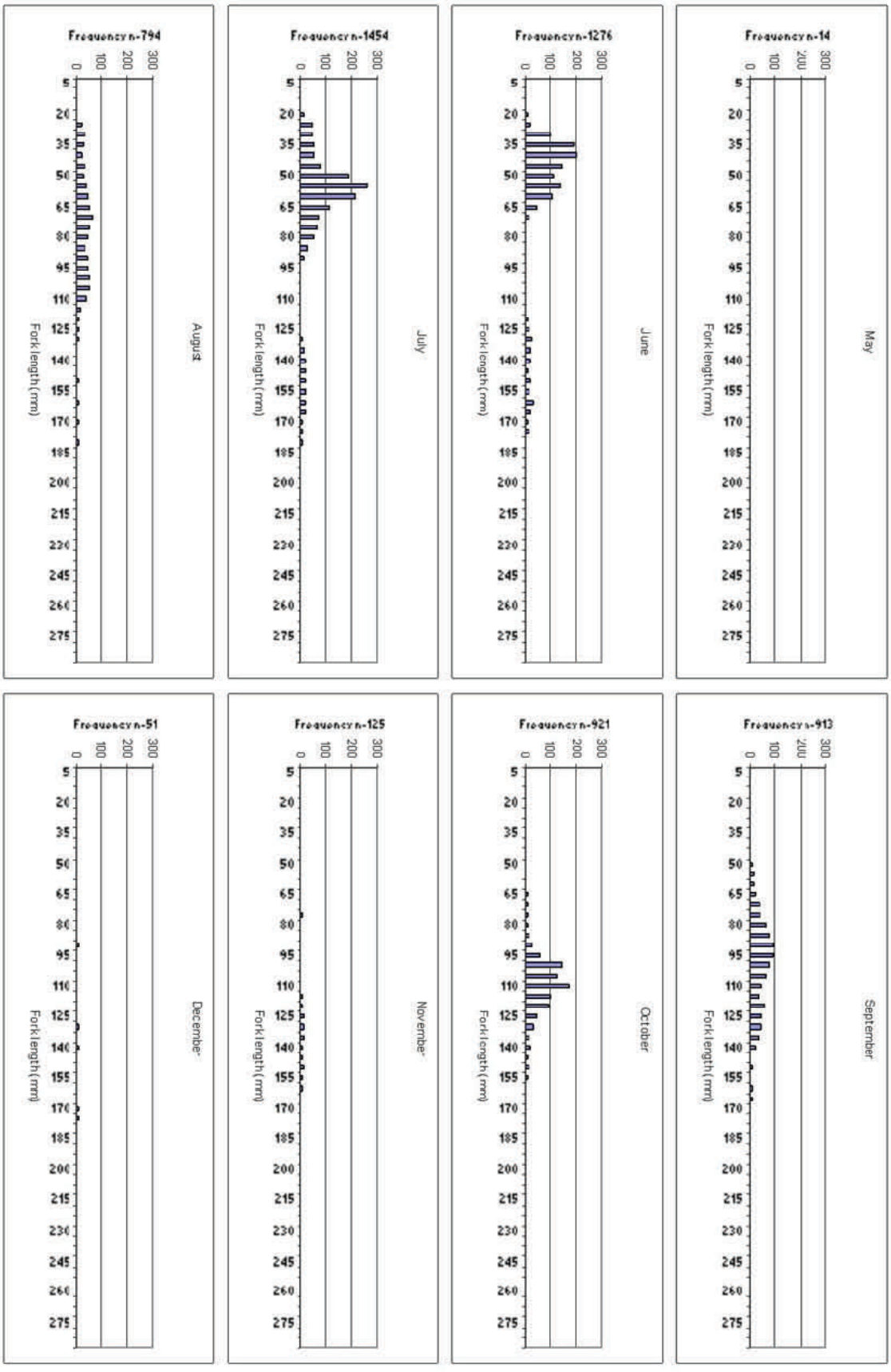

Figure 13. Butterfish length-frequency for all fish sampled, May - December. Fork length in mm. n=5548.

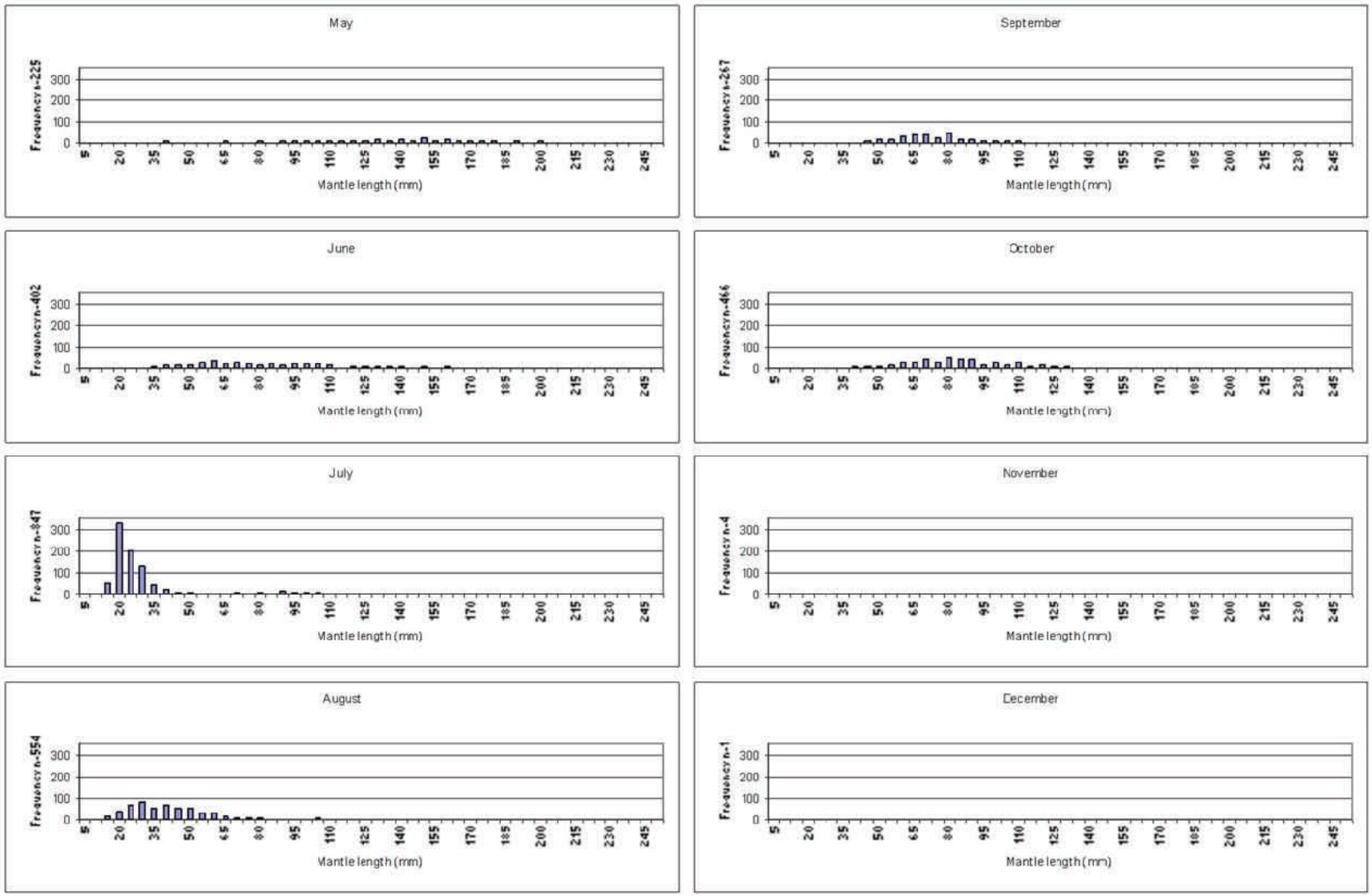

Figure 14. Longfin squid length-frequency, May - December. Mantle length in mm. n=2766.

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Appendix A

Table 13. Station 1 species composition. Total number, total weight, and % of total.

Common Name	Number	%	Common Name	Weight (kg)	%
Scup	21844	69.07%	Scup	357.3	45.24%
Butterfish	6290	19.89%	Butterfish	108	13.67%
Longfin squid	1703	5.39%	Little skate	101.3	12.83%
Bay anchovy	774	2.45%	Summer flounder	50.7	6.42%
Little skate	172	0.54%	Smooth dogfish	39.5	5.00%
Atlantic herring	169	0.53%	Tautog	25.9	3.28%
Spider crab uncl.	84	0.27%	Longfin squid	18.7	2.37%
Winter flounder	71	0.22%	Black sea bass	16.7	2.11%
Blueback herring	68	0.22%	Striped searobin	16.2	2.05%
Summer flounder	68	0.22%	Spiny dogfish	15.8	2.00%
Weakfish	58	0.18%	Spider crab uncl.	11.8	1.49%
Black sea bass	50	0.16%	Winter flounder	6.6	0.84%
Striped searobin	43	0.14%	Longfin squid egg mops	4.4	0.56%
Alewife	38	0.12%	Fourspot flounder	3.2	0.41%
Atlantic silverside	19	0.06%	Horseshoe crab	3	0.38%
Fourspot flounder	16	0.05%	Knobbed whelk	2	0.25%
Smooth dogfish	14	0.04%	Weakfish	1.7	0.22%
Bluefish	14	0.04%	Bay anchovy	1.6	0.20%
Atlantic moonfish	13	0.04%	Oyster toadfish	1.1	0.14%
Tautog	10	0.03%	Longhorn sculpin	1	0.13%
Atlantic rock crab	9	0.03%	Hogchoker	0.8	0.10%
Knobbed whelk	9	0.03%	Bluefish	0.6	0.08%
Atlantic cod	8	0.03%	Windowpane	0.5	0.06%
Red hake	8	0.03%	Channeled whelk	0.4	0.05%
Spotted hake	8	0.03%	Blueback herring	0.3	0.04%
Mantis shrimp uncl.	8	0.03%	Mantis shrimp uncl.	0.3	0.04%
Spiny dogfish	7	0.02%	Alewife	0.2	0.03%
Hogchoker	6	0.02%	Spotted hake	0.1	0.01%
Rainbow smelt	5	0.02%	Fourbeard rockling	0.1	0.01%
Longfin squid egg mops	5	0.02%	Atlantic herring	0	0.00%
Smallmouth flounder	4	0.01%	American shad	0	0.00%
Windowpane	3	0.01%	Atlantic menhaden	0	0.00%
Rough scad	3	0.01%	Striped anchovy	0	0.00%
White hake	2	0.01%	Railbow smelt	0	0.00%
Fourbeard rockling	2	0.01%	Silver hake	0	0.00%
Longhorn sculpin	2	0.01%	Atlantic cod	0	0.00%
Northern searobin	2	0.01%	White hake	0	0.00%
Hermit crab uncl.	2	0.01%	Red hake	0	0.00%
Channeled whelk	2	0.01%	Atlantic silverside	0	0.00%
American shad	1	0.00%	Northern pipefish	0	0.00%
Atlantic menhaden	1	0.00%	Smallmouth flounder	0	0.00%
Striped anchovy	1	0.00%	Atlantic mackerel	0	0.00%
Silver hake	1	0.00%	Blue runner	0	0.00%
Northern pipefish	1	0.00%	Atlantic moonfish	0	0.00%
Atlantic mackerel	1	0.00%	Northern searobin	0	0.00%
Blue runner	1	0.00%	Northern puffer	0	0.00%
Oyster toadfish	1	0.00%	Bigeye scad	0	0.00%
Northern puffer	1	0.00%	Rough scad	0	0.00%
Bigeye scad	1	0.00%	Atlantic rock crab	0	0.00%
Horseshoe crab	1	0.00%	Hermit crab uncl.	0	0.00%
Total - 50 Species	**31624**			**789.8**	

Table 14. Station 2 species composition. Total number, total weight, and % of total.

Common Name	Number	%	Common Name	Weight (kg)	%
Scup	26148	68.99%	Scup	208.3	35.85%
Butterfish	7625	20.12%	Butterfish	89.4	15.38%
Longfin squid	2812	7.42%	Little skate	76.3	13.13%
Bay anchovy	656	1.73%	Summer flounder	76	13.08%
Black sea bass	158	0.42%	Tautog	59.7	10.27%
Little skate	130	0.34%	Longfin squid	17.3	2.98%
Alewife	76	0.20%	Smooth dogfish	16.1	2.77%
Summer flounder	73	0.19%	Striped searobin	8.3	1.43%
Winter flounder	35	0.09%	Black sea bass	7.6	1.31%
Tautog	32	0.08%	Winter flounder	6.5	1.12%
Weakfish	22	0.06%	Spiny dogfish	5.4	0.93%
Striped searobin	20	0.05%	Windowpane	1.6	0.28%
Spider crab uncl.	13	0.03%	Spide crab uncl.	1.6	0.28%
Atlantic silverside	11	0.03%	Longfin squid egg mops	1.1	0.19%
Atlantic cod	9	0.02%	Knobbed whelk	1	0.17%
Northern searobin	8	0.02%	Alewife	0.9	0.15%
Windowpane	7	0.02%	Weakfish	0.8	0.14%
Fourspot flounder	6	0.02%	Bay anchovy	0.7	0.12%
Smallmouth flounder	6	0.02%	Fourspot flounder	0.7	0.12%
Smooth dogfish	5	0.01%	Channel whelk	0.5	0.09%
Atlantic moonfish	5	0.01%	Northern searobin	0.4	0.07%
Bluefish	4	0.01%	Oyster toadfish	0.3	0.05%
Rough scad	4	0.01%	Bluefish	0.2	0.03%
Knobbed whelk	4	0.01%	American lobster	0.2	0.03%
Spiny dogfish	3	0.01%	Northern kingfish	0.1	0.02%
Atlantic herring	3	0.01%	Blue crab	0.1	0.02%
Blueback herring	3	0.01%	Atlantic herring	0	0.00%
Spotted hake	3	0.01%	Blueback herring	0	0.00%
Atlantic rock crab	3	0.01%	Atlantic cod	0	0.00%
Longfin squid egg mops	3	0.01%	Spotted hake	0	0.00%
Northern pipefish	2	0.01%	Fourbeard rockling	0	0.00%
Channeled whelk	2	0.01%	Atlantic silverside	0	0.00%
Fourbeard rockling	1	0.00%	Northern pipefish	0	0.00%
Northern kingfish	1	0.00%	Smallmouth flounder	0	0.00%
Longhorn sculpin	1	0.00%	Atlantic moonfish	0	0.00%
Cunner	1	0.00%	Longhorn sculpin	0	0.00%
Oyster toadfish	1	0.00%	Cunner	0	0.00%
Round scad	1	0.00%	Round scad	0	0.00%
American lobster	1	0.00%	Rough scad	0	0.00%
Blue crab	1	0.00%	Atlantic rock crab	0	0.00%
Hermit crab uncl.	1	0.00%	Hermit crab uncl.	0	0.00%
Blue mussel	1	0.00%	Blue mussel	0	0.00%
Total - 42 Species	**37901**			**581.1**	

Table 15. Station 3 species composition. Total number, total weight, and % of total.

Common Name	Number	%	Common Name	Weight (kg)	%
Scup	20708	72.79%	Scup	453.2	50.27%
Butterfish	4979	17.50%	Little skate	180.1	19.98%
Longfin squid	1352	4.75%	Summer flounder	78.8	8.74%
Black sea bass	328	1.15%	Tautog	50.2	5.57%
Little skate	309	1.09%	Butterfish	42.2	4.68%
Bay anchovy	293	1.03%	Black sea bass	23.1	2.56%
Summer flounder	93	0.33%	Longfin squid	14.9	1.65%
Alewife	74	0.26%	Spiny dogfish	11.6	1.29%
Atlantic herring	61	0.21%	Striped searobin	10.6	1.18%
Winter flounder	38	0.13%	Smooth dogfish	9	1.00%
Tautog	33	0.12%	Horseshoe crab	6.5	0.72%
Striped searobin	27	0.09%	Winter flounder	6.2	0.69%
Spider crab uncl.	16	0.06%	Windowpane	3.4	0.38%
Atlantic silverside	15	0.05%	Spider crab uncl.	3.1	0.34%
Windowpane	14	0.05%	Fourspot flounder	1.8	0.20%
Smallmouth flounder	14	0.05%	Knobbed whelk	1.6	0.18%
Fourspot flounder	11	0.04%	Alewife	1.2	0.13%
Blueback herring	10	0.04%	Ocean pout	1.1	0.12%
Northern searobin	8	0.03%	Northern quahog	0.8	0.09%
Atlantic cod	6	0.02%	Northern searobin	0.4	0.04%
Knobbed whelk	6	0.02%	Bay anchovy	0.3	0.03%
Spiny dogfish	5	0.02%	Atlantic rock crab	0.3	0.03%
Atlantic moonfish	5	0.02%	Inshore lizardfish	0.3	0.03%
Atlantic rock crab	5	0.02%	Longhorn sculpin	0.2	0.02%
Bluefish	4	0.01%	Channeled whelk	0.2	0.02%
Smooth dogfish	3	0.01%	Hogchoker	0.1	0.01%
Weakfish	3	0.01%	Bluefish	0.1	0.01%
Cunner	3	0.01%	Sea raven	0.1	0.01%
Longfin squid egg mops	3	0.01%	Cunner	0.1	0.01%
Rough scad	2	0.01%	Longfin squid egg mops	0.1	0.01%
Horseshoe crab	2	0.01%	Atlantic herring	0	0.00%
Mantis shrimp uncl.	2	0.01%	Blueback herring	0	0.00%
Channeled whelk	2	0.01%	Striped anchovy	0	0.00%
Northern quahog	2	0.01%	Atlantic cod	0	0.00%
Inshore lizardfish	2	0.01%	Pollock	0	0.00%
Striped anchovy	1	0.00%	Fourbeard rockling	0	0.00%
Pollock	1	0.00%	Atlantic silverside	0	0.00%
Fourbeard rockling	1	0.00%	Northern pipefish	0	0.00%
Northern pipefish	1	0.00%	Smallmouth flounder	0	0.00%
Hogchoker	1	0.00%	Atlantic moonfish	0	0.00%
Longhorn sculpin	1	0.00%	Weakfish	0	0.00%
Sea raven	1	0.00%	Grubby	0	0.00%
Grubby	1	0.00%	Rock gunnel	0	0.00%
Rock gunnel	1	0.00%	Round scad	0	0.00%
Ocean pout	1	0.00%	Rough scad	0	0.00%
Round scad	1	0.00%	Mantis shrimp uncl.	0	0.00%
Hermit crab uncl.	1	0.00%	Hermit crab uncl.	0	0.00%
Total - 47 Species	**28450**			**901.6**	

Table 16. Station 4 species composition. Total number, total weight, and % of total.

Common Name	Number	%	Common Name	Weight (kg)	%
Scup	14371	62.42%	Scup	131.3	30.09%
Butterfish	4766	20.70%	Butterfish	71.3	16.34%
Longfin squid	3242	14.08%	Summer flounder	68.6	15.72%
Alewife	141	0.61%	Little skate	49.8	11.41%
Little skate	87	0.38%	Longfin squid	26.4	6.05%
Bluefish	82	0.36%	Smooth dogfish	17.7	4.06%
Summer flounder	60	0.26%	Tautog	17.4	3.99%
Rough scad	52	0.23%	Black sea bass	10.3	2.36%
Black sea bass	38	0.17%	Winter flounder	9	2.06%
Winter flounder	28	0.12%	Spiny dogfish	7.7	1.76%
Round scad	20	0.09%	Striped searobin	5.2	1.19%
Weakfish	19	0.08%	Bluefish	4.4	1.01%
Fourspot flounder	16	0.07%	Longfin squid egg mops	3.2	0.73%
Atlantic herring	13	0.06%	Fourspot flounder	3.1	0.71%
Striped searobin	13	0.06%	Alewife	2.3	0.53%
Tautog	9	0.04%	Windowpane	1.9	0.44%
Spider crab uncl.	9	0.04%	Spider crab uncl.	1.5	0.34%
Smooth dogfish	6	0.03%	Weakfish	1.2	0.28%
Windowpane	6	0.03%	Longhorn sculpin	1.1	0.25%
Atlantic moonfish	6	0.03%	Blue crab	0.7	0.16%
Longfin squid egg mops	5	0.02%	Knobbed whelk	0.7	0.16%
Spiny dogfish	4	0.02%	Rough scad	0.5	0.11%
Spotted hake	4	0.02%	Channeled whelk	0.4	0.09%
Atlantic silverside	4	0.02%	Atlantic herring	0.2	0.05%
Atlantic cod	3	0.01%	Rainbow smelt	0.1	0.02%
Fourbeard rockling	3	0.01%	Spotted hake	0.1	0.02%
Blue crab	3	0.01%	Fourbeard rockling	0.1	0.02%
Blueback herring	2	0.01%	Round scad	0.1	0.02%
Longhorn sculpin	2	0.01%	Blueback herring	0	0.00%
Channeled whelk	2	0.01%	Atlantic cod	0	0.00%
Knobbed whelk	2	0.01%	White hake	0	0.00%
Rainbow smelt	1	0.00%	Atlantic silverside	0	0.00%
White hake	1	0.00%	Atlantic moonfish	0	0.00%
Northern searobin	1	0.00%	Northern searobin	0	0.00%
Northern puffer	1	0.00%	Northern puffer	0	0.00%
Bigeye scad	1	0.00%	Bigeye scad	0	0.00%
Mantis shrimp uncl.	1	0.00%	Mantis shrimp uncl.	0	0.00%
TOTAL - 37 Species	**23024**			**436.3**	

Table 17. Station 5 species composition. Total number, total weight, and % of total.

Common Name	Number	%	Common Name	Weight (kg)	%
Scup	12780	64.61%	Scup	177.6	38.62%
Butterfish	4531	22.91%	Butterfish	83.6	18.18%
Longfin squid	918	4.64%	Summer flounder	76.1	16.55%
Bay anchovy	769	3.89%	Little skate	52.4	11.39%
Blueback herring	157	0.79%	Smooth dogfish	12.2	2.65%
Atlantic moonfish	95	0.48%	Longfin squid	9.9	2.15%
Little skate	94	0.48%	Winter flounder	8.6	1.87%
Summer flounder	87	0.44%	Tautog	8.3	1.80%
Black sea bass	66	0.33%	Striped searobin	4.5	0.98%
Winter flounder	42	0.21%	Fourbeard Rockling	4.4	0.96%
Spider crab uncl.	25	0.13%	Spiny dogfish	3.6	0.78%
Fourspot flounder	24	0.12%	Black sea bass	3.6	0.78%
Atlantic silverside	23	0.12%	Spider crab uncl.	3.5	0.76%
Spotted hake	21	0.11%	Horseshoe crab	1.7	0.37%
Weakfish	20	0.10%	Knobbed whelk	1.4	0.30%
Alewife	18	0.09%	Bay anchovy	1.3	0.28%
Smallmouth flounder	15	0.08%	Blueback herring	1	0.22%
Striped searobin	11	0.06%	Longhorn sculpin	1	0.22%
Fourbeard rockling	8	0.04%	Weakfish	0.9	0.20%
Tautog	8	0.04%	Channeled whelk	0.7	0.15%
Round scad	6	0.03%	Spotted hake	0.6	0.13%
Atlantic rock crab	6	0.03%	Atlantic moonfish	0.6	0.13%
Sea star, brittle star	5	0.03%	Windowpane	0.5	0.11%
Smooth dogfish	4	0.02%	Fourbeard rockling	0.4	0.09%
Windowpane	4	0.02%	Northern quahog	0.4	0.09%
Cunner	4	0.02%	Alewife	0.3	0.07%
Rough scad	4	0.02%	Sea star, brittle star	0.3	0.07%
Atlantic herring	3	0.02%	Atlantic silverside	0.2	0.04%
Atlantic cod	3	0.02%	Bluefish	0.2	0.04%
Bluefish	3	0.02%	Northern searobin	0.1	0.02%
Rock gunnel	3	0.02%	Round herring	0	0.00%
Channeled whelk	3	0.02%	Atlantic herring	0	0.00%
Knobbed whelk	3	0.02%	Atlantic menhaden	0	0.00%
Silver hake	2	0.01%	Silver hake	0	0.00%
Red hake	2	0.01%	Atlantic cod	0	0.00%
Longhorn sculpin	2	0.01%	Red hake	0	0.00%
Northern searobin	2	0.01%	Threespine stickleback	0	0.00%
Longfin squid egg mops	2	0.01%	Smallmouth flounder	0	0.00%
Spiny dogfish	1	0.01%	Cunner	0	0.00%
Round herring	1	0.01%	Rock gunnel	0	0.00%
Atlantic menhaden	1	0.01%	Round scad	0	0.00%
Threespine stickleback	1	0.01%	Rouch scad	0	0.00%
American lobster	1	0.01%	American lobster	0	0.00%
Short browed mud shrimp	1	0.01%	Short browed mud shrimp	0	0.00%
Horseshoe crab	1	0.01%	Atlantic rock crab	0	0.00%
Northern quahog	1	0.01%	Longfin squid egg mops	0	0.00%
TOTAL - 46 Species	**19781**			**459.9**	

Table 18. Station 6 species composition. Total number, total weight, and % of total.

Common Name	Number	%	Common Name	Weight (kg)	%
Scup	16102	62.68%	Scup	265.8	42.62%
Butterfish	6756	26.30%	Butterfish	141.2	22.64%
Longfin squid	1641	6.39%	Summer flounder	56.1	8.99%
Weakfish	563	2.19%	Little skate	37.5	6.01%
Alewife	95	0.37%	Weakfish	24.8	3.98%
Little skate	65	0.25%	Smooth dogfish	22.6	3.62%
Summer flounder	62	0.24%	Longfin squid	20.1	3.22%
Atlantic moonfish	56	0.22%	Tautog	14.3	2.29%
Atlantic herring	53	0.21%	Black sea bass	7.8	1.25%
Winter flounder	34	0.13%	Horseshoe crab	5.3	0.85%
Bay anchovy	31	0.12%	Bluefish	4.3	0.69%
Spider crab uncl.	26	0.10%	Spiny dogfish	3.8	0.61%
Bluefish	23	0.09%	Fourspot flounder	3.8	0.61%
Black sea bass	23	0.09%	Winter flounder	3.8	0.61%
Fourspot flounder	22	0.09%	Spider crab uncl.	3.2	0.51%
Atlantic silverside	19	0.07%	Alewife	2.2	0.35%
Sea star, brittle star	12	0.05%	Striped searobin	1.9	0.30%
Smooth dogfish	10	0.04%	Channeled whelk	1	0.16%
Tautog	10	0.04%	Sea star, brittle star	0.8	0.13%
Rainbow smelt	8	0.03%	Northern kingfish	0.7	0.11%
Spotted hake	7	0.03%	Longhorn sculpin	0.5	0.08%
Atlantic cod	6	0.02%	Oyster toadfish	0.4	0.06%
Red hake	6	0.02%	Fourbeard rockling	0.3	0.05%
Hermit crab uncl.	6	0.02%	Windowpane	0.3	0.05%
Blueback herring	5	0.02%	Spotted hake	0.2	0.03%
Mantis shrimp uncl.	5	0.02%	Hogchoker	0.2	0.03%
Channeled whelk	5	0.02%	Northern searobin	0.2	0.03%
Fourbeard rockling	4	0.02%	Bay anchovy	0.1	0.02%
Rough scad	4	0.02%	Silver hake	0.1	0.02%
Striped searobin	3	0.01%	Atlantic silverside	0.1	0.02%
Round scad	3	0.01%	Atlantic moonfish	0.1	0.02%
Horseshoe crab	3	0.01%	Spot	0.1	0.02%
Spiny dogfish	2	0.01%	Mantis shrimp uncl.	0.1	0.02%
Smallmouth flounder	2	0.01%	Atlantic herring	0	0.00%
Short browed mud shrimp	2	0.01%	Blueback herring	0	0.00%
Crevalle jack	2	0.01%	Striped anchovy	0	0.00%
Striped anchovy	1	0.00%	Rainbow smelt	0	0.00%
Silver hake	1	0.00%	Atlantic cod	0	0.00%
Windowpane	1	0.00%	Red hake	0	0.00%
Threespine stickleback	1	0.00%	Threespine stickleback	0	0.00%
Hogchoker	1	0.00%	Smallmouth flounder	0	0.00%
Blue runner	1	0.00%	Blue runner	0	0.00%
Bigeye	1	0.00%	Bigeye	0	0.00%
Northern kingfish	1	0.00%	Cunner	0	0.00%
Spot	1	0.00%	Round scad	0	0.00%
Longhorn sculpin	1	0.00%	Rough scad	0	0.00%
Northern searobin	1	0.00%	Short browed mud shrimp	0	0.00%
Cunner	1	0.00%	Hermit crab uncl.	0	0.00%
Oyster toadfish	1	0.00%	Longfin squid egg mops	0	0.00%
Longfin squid egg mops	1	0.00%	Crevalle jack	0	0.00%
Northern sennet	1	0.00%	Norther sennet	0	0.00%
TOTAL - 51 Species	**25691**			**623.7**	

Table 19. Station 7 species composition. Total number, total weight, and % of total.

Common name	Number	%	Common name	Weight (kg)	%
Scup	17943	56.06%	Scup	240.7	37.67%
Butterfish	7966	26.22%	Butterfish	98.7	15.45%
Longfin squid	3230	10.63%	Summer flounder	71.3	11.16%
Black sea bass	347	1.14%	Little skate	57.9	9.06%
Winter flounder	102	0.34%	Smooth dogfish	41.5	6.50%
Alewife	99	0.33%	Tautog	38.1	5.96%
Little skate	98	0.32%	Horseshoe crab	19.6	3.07%
Summer flounder	91	0.30%	Longfin squid	19.2	3.01%
Blueback herring	81	0.27%	Winter flounder	10.9	1.71%
Round scad	80	0.26%	Black sea bass	10.6	1.66%
Bay anchovy	48	0.16%	Striped searobin	6.5	1.02%
Spider crab uncl.	27	0.09%	Fourspot flounder	5.1	0.80%
Fourspot flounder	26	0.09%	Spiny dogfish	3.6	0.56%
Tautog	25	0.08%	Spider crab uncl.	3.6	0.56%
Weakfish	21	0.07%	Bluefish	2.9	0.45%
Striped searobin	16	0.05%	Northern searobin	1.5	0.23%
Smooth dogfish	13	0.04%	Channeled whelk	1.1	0.17%
Bluefish	13	0.04%	Weakfish	1	0.16%
Rough scad	13	0.04%	Round scad	0.9	0.14%
Spotted hake	11	0.04%	Longfin squid egg mops	0.9	0.14%
Atlantic silverside	11	0.04%	Longhorn sculpin	0.5	0.08%
Northern searobin	11	0.04%	Windowpane	0.4	0.06%
Smallmouth flounder	10	0.03%	Blue crab	0.4	0.06%
Atlantic moonfish	9	0.03%	Blueback herring	0.3	0.05%
Grubby	9	0.03%	Spotted hake	0.3	0.05%
Horseshoe crab	9	0.03%	Sea raven	0.3	0.05%
Atlantic cod	7	0.02%	Alewife	0.2	0.03%
Red hake	5	0.02%	Fourbeard rockling	0.2	0.03%
Rock gunnel	5	0.02%	Grubby	0.2	0.03%
Atlantic rock crab	5	0.02%	Sea star, brittle star	0.2	0.03%
Sea star, brittle star	5	0.02%	Bay anchovy	0.1	0.02%
Atlantic herring	4	0.01%	Red hake	0.1	0.02%
Longfin squid egg mops	4	0.01%	Rock gunnel	0.1	0.02%
Rainbow smelt	3	0.01%	Atlantic herring	0	0.00%
Fourbeard rockling	3	0.01%	Rainbow smelt	0	0.00%
Cunner	3	0.01%	Silver hake	0	0.00%
Short browed mud shrimp	3	0.01%	Atlantic cod	0	0.00%
Mantis shrimp uncl.	3	0.01%	White hake	0	0.00%
Northern sennet	3	0.01%	Atlantic silverside	0	0.00%
Spiny dogfish	2	0.01%	Northern pipefish	0	0.00%
White hake	2	0.01%	Smallmouth flounder	0	0.00%
Windowpane	2	0.01%	Atlantic mackerel	0	0.00%
Northern pipefish	2	0.01%	Atlantic moonfish	0	0.00%
Bigeye	2	0.01%	Bigeye	0	0.00%
Blue crab	2	0.01%	Cunner	0	0.00%
Channeled whelk	2	0.01%	Northern sand lance	0	0.00%
Silver hake	1	0.00%	Rough scad	0	0.00%
Atlantic mackerel	1	0.00%	Short browed mud shrimp	0	0.00%
Longhorn sculpin	1	0.00%	Atlantic rock crab	0	0.00%
Sea raven	1	0.00%	Mantis shrimp uncl.	0	0.00%
Northern sand lance	1	0.00%	Hermit crab uncl.	0	0.00%
Hermit crab uncl.	1	0.00%	Bay scallop	0	0.00%
Bay scallop	1	0.00%	Northern sennet	0	0.00%
Total - 53 Species	**30383**			**638.9**	

Appendix B

Table 20. Total invertebrate numbers for all stations combined over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Longfin squid				58	166	221	252	2484	5966	2026	1934	782	538	311	155	4	1				14898
Spider crab uncl.	2	6	81	6	4	7	22	19	7	16	1	1		1		13	9	1	2	2	200
Atlantic rock crab	1	6	11	3	2											1			3	1	28
Knobbed whelk				3	6	4	2	1	2	1	2			1	1		1				24
Longfin squid egg mops				1	2	1	3	1	2	1				1				6	5		23
Sea star, brittle star							12									1	2	1	2	4	22
Mantis shrimp uncl.						1		8	3	1					1	2		1	2		19
Channeled whelk				4	1		1		2	6			2			1	1				18
Horseshoe crab		1	2	2	1	2	1	2		1			3						1		16
Hermit crab uncl.								1								2			4	4	11
Short browed mud shrimp																5				1	6
Blue crab	3	1	1																	1	6
Northern quahog					1			1			1										3
American lobster	1																			1	2
Blue mussel																				1	1
Bay scallop																	1				1
Total	**7**	**14**	**95**	**77**	**183**	**236**	**293**	**2517**	**5982**	**2052**	**1938**	**783**	**543**	**314**	**157**	**29**	**15**	**9**	**19**	**15**	**15278**

Table 21. Station 1 total invertebrate numbers over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Longfin squid				1	12	18	25	348	493	115	286	255	48	83	19						1703
Spider crab uncl.			51	1		3	1	5	5	8	1	1		1		5	1			1	84
Atlantic rock crab			8		1																9
Knobbed whelk				1	4	1	1			1				1							9
Mantis shrimp uncl.						1		6											1		8
Longfin squid egg mops							1		1					1				1	1		5
Hermit crab uncl.																			2		2
Channeled whelk				1						1											2
Horseshoe crab					1																1
Total			**59**	**4**	**18**	**23**	**28**	**359**	**499**	**125**	**287**	**256**	**48**	**86**	**19**	**5**	**1**	**1**	**4**	**1**	**1823**

Table 22. Station 2 total invertebrate numbers over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Longfin squid				7	24	33	35	722	1078	388	395	1	44	60	23	2					2812
Spider crab uncl.		2	9				1											1			13
Knobbed whelk				1	1	2															4
Atlantic rock crab		2	1																		3
Longfin squid egg mops				1														1	1		3
Channeled whelk				1									1								2
American lobster																				1	1
Blue crab			1																		1
Hermit crab uncl.																			1		1
Blue mussel																				1	1
Total		4	11	10	25	35	36	722	1078	388	395	1	45	60	23	2		2	2	2	2841

Table 23. Station 3 total invertebrate numbers over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Longfin squid				13	15	21	15	265	440	120	278	53	60	64	7		1				1352
Spider crab uncl.		1	11			1	1	1		1											16
Knobbed whelk					1	1	1		2		1										6
Atlantic rock crab	1	2	1		1																5
Longfin squid egg mops										1								1	1		3
Horseshoe crab						1				1											2
Mantis shrimp uncl.										1					1						2
Channeled whelk										2											2
Northern quahog					1						1										2
Hermit crab uncl.																			1		1
Total	**1**	**3**	**12**	**13**	**18**	**24**	**17**	**266**	**442**	**126**	**280**	**53**	**60**	**64**	**8**		**1**	**1**	**2**		**1391**

Table 24. Station 4 total invertebrate numbers over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Longfin squid				4	60	52	31	60	1854	394	501	166	29	38	52	1					3242
Spider crab uncl.			4		1		3		1												9
Longfin squid egg mops						1	1	1										1	1		5
Blue crab	2	1																			3
Channeled whelk									1				1								2
Knobbed whelk								1			1										2
Mantis shrimp uncl.									1												1
Total	**2**	**1**	**4**	**4**	**61**	**53**	**35**	**62**	**1857**	**394**	**502**	**166**	**30**	**38**	**52**	**1**		**1**	**1**		**3264**

Table 25. Station 5 total invertebrate numbers over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Longfin squid				6	30	22	28	204		388		139	81	9	11						918
Spider crab uncl.	1	2	6	1	3		7			2						2				1	25
Atlantic rock crab			1	1												1			2	1	6
Sea star, brittle star							3									1	1				5
Channeled whelk							1			2											3
Knobbed whelk				1											1		1				3
Longfin squid egg mops					1													1			2
American lobster	1																				1
Short browed mud shrimp																1					1
Horseshoe crab													1								1
Northern quahog								1													1
Grand total	**2**	**2**	**7**	**9**	**34**	**22**	**39**	**205**		**392**		**139**	**82**	**9**	**12**	**5**	**2**	**1**	**2**	**2**	**966**

Table 26. Station 6 total invertebrate numbers over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Longfin squid				8	10	61	76	224	431	133	474	78	93	28	25						1641
Spider crab uncl.		1		1		1	1	9		3						4	6				26
Sea star, brittle star							9													3	12
Hermit crab uncl.								1								2				3	6
Mantis shrimp uncl.								1	2							2					5
Channeled whelk				2						1						1	1				5
Horseshoe crab			2																1		3
Short browed mud shrimp																2					2
Longfin squid egg mops																			1		1
Total		**1**	**2**	**11**	**10**	**62**	**86**	**235**	**433**	**137**	**474**	**78**	**93**	**28**	**25**	**11**	**7**		**2**	**6**	**1701**

Table 27. Station 7 total invertebrate numbers over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Longfin squid				19	15	14	42	661	1670	488		90	183	29	18	1					3230
Spider crab uncl.	1			3		2	8	4	1	2						2	2		2		27
Atlantic rock crab		1		2		1	1	2					2								9
Atlantic rock crab		2		2															1		5
Sea star, brittle star																	1	1	2	1	5
Longfin squid egg mops					1		1		1									1			4
Short browed mud shrimp																2				1	3
Mantis shrimp uncl.								1										1	1		3
Blue crab	1																			1	2
Channeled whelk					1				1												2
Hermit crab uncl.																				1	1
Bay scallop																	1				1
Total	**2**	**3**		**26**	**17**	**17**	**52**	**668**	**1673**	**490**		**90**	**185**	**29**	**18**	**5**	**4**	**3**	**6**	**4**	**3292**

Table 28. Total invertebrate weights (kg) for all stations combined over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Longfin squid				6.1	11	7.9	5.3	7.8	19.5	8.3	15.1	14.2	12.7	11.3	7.1	0.1	0.1				126.5
Horseshoe crab		1.2	4.2	5.6	3	7	2.5	3.7		3									1.1		31.3
Spider crab uncl.	0.4	0.9	10.7	0.7	0	1.2	4.3	2.9	1.1	2.1	0.2	0		0		2.7	0.8	0	0.1	0.2	28.3
Longfin squid egg mops				1.1	0.5	1.5	6	0.2	0.2	0.1				0				0	0.1		9.7
Knobbed whelk				0.5	1.5	1.2	0.3	0.2	0.5	0.2	0.9			0.3	0.5		0.6				6.7
Channeled whelk				0.8	0.4		0.3		0.7	1.2			0.5			0.3	0.1				4.3
Sea star, brittle star							0.7									0.1	0.1	0.1	0.1	0.2	1.3
Blue crab	0.4	0.4	0.1																	0.3	1.2
Northern quahog					0.3			0.4			0.5										1.2
Mantis shrimp uncl.						0.1		0.2	0.1	0				4.8	0	0		0	0		5.2
Atlantic rock crab	0	0	0.3	0	0											0			0	0	0.3
American lobster	0																			0.2	0.2
Short browed mud shrimp																0				0	0
Hermit crab uncl.								0								0			0	0	0
Blue mussel																				0	0
Bay scallop																	0				0
Total	**0.8**	**2.5**	**15.3**	**14.8**	**16.7**	**18.9**	**19.4**	**15.4**	**22.1**	**14.9**	**16.7**	**14.2**	**18**	**11.6**	**7.6**	**3.2**	**1.7**	**0.1**	**1.4**	**0.9**	**216.2**

Table 29. Station 1 total invertebrate weights (kg) over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Longfin squid				0	0.9	0.8	0.5	0.8	2.8	0.9	1.7	5.5	1.2	2.7	0.9						18.7
Spider crab uncl.			5.5	0.2		0.6	0.2	0.8	1	0.8	0.2	0		0		1.9	0.4			0.2	11.8
Longfin squid egg mops							4.2		0.1					0				0	0.1		4.4
Horseshoe crab					3																3
Knobbed whelk				0	1.2	0.2	0.1			0.2				0.3							2
Channeled whelk				0.1						0.3											0.4
Mantis shrimp uncl.						0.1		0.2											0		0.3
Atlantic rock crab			0		0																0
Hermit cran uncl.																			0		0
Total			**5.5**	**0.3**	**5.1**	**1.7**	**5**	**1.8**	**3.9**	**2.2**	**1.9**	**5.5**	**1.2**	**3**	**0.9**	**1.9**	**0.4**	**0**	**0.1**	**0.2**	**40.6**

Table 30. Station 1 total invertebrate weights (kg) over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Longfin squid				1.6	1.5	1.3	0.6	1.8	2.7	1.3	2.3	0	0.8	1.8	1.5	0.1					17.3
Spider crab uncl.		0	1.4				0.2											0			1.6
Longfin squid egg mops				1.1														0	0		1.1
Knobbed whelk				0.2	0.2	0.6															1
Channeled whelk				0.4									0.1								0.5
American lobster																				0.2	0.2
Blue crab			0.1																		0.1
Atlantic rock crab		0	0																		0
Hermit crab uncl.																			0		0
Blue mussel																				0	0
Total		**0**	**1.5**	**3.3**	**1.7**	**1.9**	**0.8**	**1.8**	**2.7**	**1.3**	**2.3**	**0**	**0.9**	**1.8**	**1.5**	**0.1**		**0**	**0**	**0.2**	**21.8**

Table 31. Station 3 total invertebrate weights (kg) over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Longfin squid				1.5	0.8	1	0.4	1.1	2.4	1	1.6	0.9	1.6	2.5	0		0.1				14.9
Horseshoe crab						3.5				3											6.5
Spider crab uncl.		0.2	1.8			0.4	0.2	0.3		0.2											3.1
Knobbed whelk					0.1	0.4	0.2		0.5		0.4										1.6
Northern quahog					0.3						0.5										0.8
Atlantic rock crab	0	0	0.3		0																0.3
Channeled whelk										0.2											0.2
Longfin squid egg mops										0.1									0	0	0.1
Mantis shrimp uncl.										0					0						0
Hermit crab uncl.																				0	0
Total	**0**	**0.2**	**2.1**	**1.5**	**1.2**	**5.3**	**0.8**	**1.4**	**2.9**	**4.5**	**2.5**	**0.9**	**1.6**	**2.5**	**0**		**0.1**	**0**	**0**		**27.5**

Table 32. Station 4 total invertebrate weights (kg) over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Longfin squid				0.4	4.3	2.1	0.7	0.2	5	1.3	4.1	3.3	0.8	1.6	2.6	0					26.4
Longfin squid egg mops						1.5	1.5	0.2										0	0		3.2
Spider crab uncl.			0.9		0		0.6		0												1.5
Blue crab	0.3	0.4																			0.7
Knobbed whelk								0.2			0.5										0.7
Channeled whelk									0				0.4								0.4
Mantis shrimp uncl.									0												0
Total	**0.3**	**0.4**	**0.9**	**0.4**	**4.3**	**3.6**	**2.8**	**0.6**	**5**	**1.3**	**4.6**	**3.3**	**1.2**	**1.6**	**2.6**	**0**		**0**	**0**		**32.9**

Table 33. Station 5 total invertebrate weights (kg) over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Longfin squid				0.3	1.8	0.6	0.8	0.6		1.5		2.1	1.9	0.2	0.1						9.9
Spider crab uncl.	0.2	0.3	1.1	0	0		1.4			0.4						0.1				0	3.5
Horseshoe crab													1.7								1.7
Knobbed whelk				0.3											0.5		0.6				1.4
Channeled whelk							0.3			0.4											0.7
Northern quahog								0.4													0.4
Sea star, brittle star							0.1									0.1	0.1				0.3
American lobster	0																				0
Short browed mud shrimp																0					0
Atlantic rock crab			0	0												0			0	0	0
Longfin squid egg mops					0													0			0
Total	**0.2**	**0.3**	**1.1**	**0.6**	**1.8**	**0.6**	**2.6**	**1**		**2.3**		**2.1**	**3.6**	**0.2**	**0.6**	**0.2**	**0.7**	**0**	**0**	**0**	**17.9**

Table 34. Station 6 total invertebrate weights (kg) over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Longfin squid				0.7	0.6	1.5	1.4	0.8	2.9	0.7	5.4	1.6	2.1	1.3	1.1						20.1
Horseshoe crab			4.2																1.1		5.3
Spider crab uncl.		0.4		0.2		0	0.2	1.1		0.4						0.7	0.2				3.2
Channeled whelk				0.3						0.3						0.3	0.1				1
Sea star, brittle star							0.6													0.2	0.8
Mantis shrimp uncl.								0	0.1							0					0.1
Short browed mud shrimp																0					0
Hermit crab uncl.								0								0				0	0
Longfin squid egg mops																			0		0
Total		**0.4**	**4.2**	**1.2**	**0.6**	**1.5**	**2.2**	**1.9**	**3**	**1.4**	**5.4**	**1.6**	**2.1**	**1.3**	**1.1**	**1**	**0.3**		**1.1**	**0.2**	**30.5**

Table 35. Station 7 total invertebrate weights (kg) over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Horseshoe crab		1.2		5.6		3.5	2.5	3.7					3.1								19.6
Longfin squid				1.6	1.1	0.6	0.9	2.5	3.7	1.6		0.8	4.3	1.2	0.9	0					19.2
Spider crab uncl.	0.2			0.3		0.2	1.5	0.7	0.1	0.3						0	0.2		0.1		3.6
Channeled whelk					0.4				0.7												1.1
Longfin squid egg mops					0.5		0.3		0.1									0			0.9
Blue crab	0.1																			0.3	0.4
Sea star, brittle star																	0	0.1	0.1	0	0.2
Short browed mud shrimp																0				0	0
Atlantic rock crab		0		0															0		0
Mantis shrimp uncl.								0										0	0		0
Hermit crab uncl.																				0	0
Bay scallop																	0				0
Total	**0.3**	**1.2**		**7.5**	**2**	**4.3**	**5.2**	**6.9**	**4.6**	**1.9**		**0.8**	**7.4**	**1.2**	**0.9**	**0**	**0.2**	**0.1**	**0.2**	**0.3**	**45**

Table 36. Total finfish numbers for all stations combined over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup				5	140	3052	820	5113	18480	24858	30095	21885	12245	10115	3088						129896
Butterfish				1	13	248	3569	12909	3924	3325	3369	9446	2001	3570	362	125	51				42913
Bay anchovy							42	1	5	196	82		1501	744							2571
Black sea bass				13	13	52	55	6	160	352	77	66	118	65	28	5					1010
Little skate	1	85	84	42	29	59	5	1				1	53	139	136	183	114	1	4	18	955
Weakfish									1	6	43	465	191								706
Alewife									33	174	13	85	205	11			20				541
Summer flounder			1	27	30	50	55	79	54	60	37	57	37	26	19	1				1	534
Winter flounder	23	58	26	20	35	42	35	20	9	13	8	5	4	1	2	15	6	6	11	11	350
Blueback herring					10	16	247	43		1	1	2	3				1			2	326
Atlantic herring	1	74	200														1	9	20	1	306
Atlantic moonfish										9	8	16	154	2							189
Bluefish					1		1	3	11	21	5	8	87	6							143
Striped searobin				7	17	61	11	16	4	4	2	5	1	4	1						133
Tautog		3		23	13	24	19	14	1	6	3	3		8	6	1		1	2		127
Fourspot flounder				1	6	58	49	4		1	1				1						121
Round scad							1	9	88	12				1							111
Atlantic silverside	2	3	9														1	61	21	5	102
Rough scad							19	45	10	2	2	3		1							82
Smooth dogfish					5	15	3	8	4	2	2	7	7	1	1						55
Spotted hake			1	4	8	23	15													3	54
Smallmouth flounder		2	1		3	4		7	2	8	2	5	5	6	4	1				1	51
Atlantic cod	1	1	13	15	8	2	2														42
Windowpane		4	2	4	1	15	1	1	1					1	1	2	1	1		2	37
Northern searobin					1	4	8		3	2	1		2	7	3	2					33
Spiny dogfish															4	14	6				24
Fourbeard rockling					2	2	6	4	4	2	1									1	22
Red hake		1			2	12	2	1		2							1				21
Rainbow smelt	2	2	1															5	6	1	17
Cunner	1	3	2			1				1								1	2	1	12
Longhorn sculpin																1	5	2	2		10
Grubby	2	8																			10
Rock gunnel	1	3																	3	2	9
Hogchoker								4	2	2											8
Northern pipefish		1														1	2		1	1	6
Silver hake					1	2											2				5
White hake					2				1	1	1										5
Northern sennet													4								4
Striped anchovy						1								1	1						3
Bigeye										1		2									3
Oyster toadfish				1											2						3
Atlantic menhaden													2								2
Threespine stickleback	1																	1			2
Atlantic mackerel								1	1												2
Blue runner													2								2
Northern kingfish												2									2
Sea raven				1															1		2
Northern puffer														2							2
Bigeye scad															2						2
Inshore lizardfish													1	1							2
Crevalle jack													2								2
Round herring																	1				1
American shad					1																1
Pollock					1																1
Spotted hake													1								1
Northern sand lance																			1		1
Ocean pout				1																	1
Total	**35**	**248**	**340**	**165**	**342**	**3743**	**4965**	**18289**	**22798**	**29061**	**33753**	**32063**	**16626**	**14712**	**3661**	**351**	**212**	**88**	**74**	**50**	**181576**

Table 37. Station 1 total finfish number over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup						619	9	993	5232	2963	5221	3451	1688	1440	228						21844
Butterfish					1	105	282	2145	244	692	560	1539	322	241	79	74	6				6290
Bay anchovy							39		5	193	2		535								774
Little skate	1	15	14	9	5	8							5	31	20	35	25			1	3	172
Atlantic herring		70	98																	1	169
Winter flounder	7	2	5	6	5	16	2	9	1	4	4					2	2	1	1	4	71
Blueback herring					10	6	10	41			1										68
Summer flounder						4	5	11	16	7	6	9	2	6	2						68
Weakfish									1	5	40	8	4								58
Black sea bass				1	5	14	5	2		1			10	6	6						50
Striped searobin				1	1	29	4	5				1	1	1							43
Alewife									5	27	5						1				38
Atlantic silverside		1	5														1	7	4	1	19
Fourspot flounder						11	5														16
Smooth dogfish						6		1	2	1	1	1	2								14
Bluefish										9	3			2							14
Atlantic moonfish										4	6	2	1								13
Tautog				4	2	2	2														10
Atlantic cod			5	3																	8
Red hake						7											1				8
Spotted hake				2		6															8
Spiny dogfish																7					7
Hogchoker								3	2	1											6
Rainbow smelt	1		1																2	1	5
Smallmouth flounder		1											1	2							4
Windowpane							1		1					1							3
Rough scad							2					1									3
White hake									1		1										2
Fourbeard rockling						1		1													2
Longhorn sculpin																1	1				2
Northern searobin													1		1						2
American shad					1																1
Atlantic menhaden													1								1
Striped anchovy															1					1	1
Silver hake						1															1
Northern pipefish		1																			1
Atlantic mackerel									1												1
Blue runner													1								1
Oyster toadfish															1						1
Northern puffer														1							1
Bigeye scad															1						1
Total	**9**	**90**	**128**	**26**	**30**	**835**	**366**	**3211**	**5511**	**3907**	**5850**	**5012**	**2574**	**1731**	**339**	**119**	**37**	**8**	**9**	**9**	**29801**

Table 38. Station 2 total finfish number over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup						1	138	200	641	5087	5638	7364	3118	2107	1223	631					26148
Butterfish						5	36	465	2288	928	199	509	2655	67	402	30	41				7625
Bay anchovy											2	79		23	552						656
Black sea bass						2	4	4		106	2	4	6	9	18	3					158
Little skate		15	28	6			15						1	7	11	16	27			2	2	130
Alewife											7	4	61	2	2						76
Summer flounder					5	5	8	4	14	10	4	4	8	7	3	1					73
Winter flounder		3	5	3	2	6	4	1	1	1	1	1	1	1	1	1	1			2	1	35
Tautog				5	2	7	3	6		2		2		3	2						32
Weakfish											1	15	6								22
Striped searobin				1	4	9	2	3						1							20
Atlantic silverside																		8	1	2	11
Atlantic cod			2	4	2	1															9
Northern searobin						1	1				1			4	1						8
Windowpane				1		5												1			7
Fourspot flounder						3	2								1						6
Smallmouth flounder			1			1		1						1	1	1					6
Smooth dogfish						1		2	1			1									5
Atlantic moonfish											1	2	2								5
Bluefish								1				1	1	1							4
Rough scad							3				1										4
Spiny dogfish																3					3
Atlantic herring		3																			3
Blueback herring													1							2	3
Spotted hake						1														2	3
Northern pipefish																1			1		2
Fourbeard rockling							1														1
Northern kingfish												1									1
Longhorn sculpin																			1		1
Cunner			1																		1
Oyster toadfish															1						1
Round scad									1												1
Total		**21**	**37**	**25**	**23**	**236**	**689**	**2958**	**6133**	**5855**	**7969**	**5872**	**2233**	**2222**	**688**	**74**		**9**	**7**	**9**	**35060**

Table 39. Station 3 total finfish number over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup				1		1101	163	1237	2817	3284	5720	2739	1843	1454	349						20708
Butterfish					2	47	413	1715	848	205	342	1203	120	66	9	2	7				4979
Black sea bass				1	3	19	11		4	110	72	10	60	17	17	4					328
Little skate		36	31	14	15	20	1	1					15	39	40	52	34			11	309
Bay anchovy										1	1		99	192							293
Summer flounder				2	6	7	3	14	7	15	11	14	6	3	4	1					93
Alewife									1	60	2	6	2				3				74
Atlantic herring		1	58																2		61
Winter flounder	2	2	5	1	2	2	4	1	1	2		2				2	1	2	5	4	38
Tautog				8	4	7	3	5	1		1	1		3							33
Striped searobin					2	13	1	4	3	2		1		1							27
Atlantic silverside	2	1	3															4	3	2	15
Windowpane		1	1	2		4		1							1	1	1			2	14
Smallmouth flounder					1			2		2	2	1	2	1	3						14
Fourspot flounder						5	4	1			1										11
Blueback herring						10															10
Northern searobin						1			1	1				3		2					8
Atlantic cod			1	3	1		1														6
Spiny dogfish															1	2	2				5
Atlantic moonfish											1	4									5
Bluefish									4												4
Smooth dogfish						1						2									3
Weakfish											1	1	1								3
Cunner		1				1														1	3
Rough scad								2													2
Inshore lizardfish													1	1							2
Striped anchovy														1							1
Pollock					1																1
Fourbeard rockling																				1	1
Northern pipefish																				1	1
Hogchoker										1											1
Longhorn sculpin																		1			1
Sea raven				1																	1
Grubby		1																			1
Rock gunnel																				1	1
Ocean pout				1																	1
Round scad								1													1
Total	**4**	**43**	**99**	**34**	**37**	**1238**	**604**	**2984**	**3687**	**3683**	**6154**	**3984**	**2149**	**1781**	**424**	**66**	**48**	**7**	**10**	**23**	**27059**

Table 40. Station 4 total finfish number over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup						3	261	186	74	1798	2643	4488	2027	971	1462	458					14371
Butterfish							37	811	462	412	324	910	408	724	563	92	1	22			4733
Alewife											16	2		117	3			3			141
Little skate		3	3	4	2	5								4	15	19	25	7			87
Bluefish					1									80	1						82
Summer flounder				6	2	9	5	9	4	9	6	5	2	2	1						60
Rough scad								42	8	1	1										52
Black sea bass				3		8	6	1		5	1	4	2	7	1						38
Winter flounder		1	3	1	2	4	4	1	1	1	1		1		1	6	1				28
Round scad							1	6	13												20
Weakfish													19								19
Fourspot flounder						8	7			1											16
Atlantic herring	1		9														1			2	13
Striped searobin						7		2	1	1	1	1									13
Tautog					1	3		1		1	2					1					9
Smooth dogfish						2		1			1		1	1							6
Windowpane		2				3										1					6
Atlantic moonfish												1	5								6
Spiny dogfish																1	3				4
Spotted hake					2	2															4
Atlantic silverside			1															2	1		4
Atlantic cod			1	2																	3
Fourbeard rockling									2		1										3
Blueback herring													1				1				2
Longhorn sculpin																	2				2
Rainbow smelt		1																			1
White hake										1											1
Northern searobin															1						1
Northern puffer														1							1
Bigeye scad															1						1
Total	**1**	**7**	**17**	**16**	**13**	**349**	**1020**	**599**	**2239**	**3003**	**5414**	**2446**	**1927**	**2055**	**574**	**35**	**40**	**2**	**3**		**19760**

Table 41. Station 5 total finfish number over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup						48	181	151	508	6031		2685	1584	1056	536						12780
Butterfish						3	5	426	987	407		1208	270	1128	80	2	15				4531
Bay anchovy													769								769
Blueback herring								156					1								157
Atlantic moonfish													95								95
Little skate			6	7	1	1	4	1					13	10	15	16	18			1	1	94
Summer flounder					2	9	7	25	16	7		5	8	2	5						1	87
Black sea bass					1		2	6		49		1	4	2	1							66
Winter flounder		2	3	6	4	11	3	7	1	1		1				1		1	1		42
Fourspot flounder						4	3	14	3												24
Atlantic silverside			1															20	2		23
Spotted hake						1	7	12												1	21
Weakfish												6	14								20
Alewife													16	2							18
Smallmouth flounder						1	2		2	5		2	1	1						1	15
Striped searobin					1	3	3	1	1	1				1							11
Fourbeard rockling						2		4	1	1											8
Tautog			1		2	1		1		1								1	1		8
Round scad										6											6
Smooth dogfish							1		1			1	1								4
Windowpane				1	1		2														4
Cunner				1														1	2		4
Rough scad								2				1		1							4
Atlantic herring																		3			3
Atlantic cod	1					2															3
Bluefish										1			2								3
Rock gunnel																			2	1	3
Silver hake						1											1				2
Red hake								1		1											2
Longhorn sculpin																	1		1		2
Northern searobin						1				1											2
Spiny dogfish																1					1
Round herring																	1				1
Atlantic menhaden													1								1
Threespine stickleback	1																				1
Total	**4**	**11**	**15**	**12**	**88**	**220**	**807**	**1520**		**6512**		**3910**	**2779**	**2203**	**637**	**20**	**36**	**26**	**10**	**5**	**18815**

Table 42. Station 6 total finfish number over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup				4	57	283	8	299	1362	2382	7302	1504	1626	956	319						16102
Butterfish				1		15	102	2622	470	716	1048	753	468	537	21	2	1				6756
Weakfish											1	432	130								563
Alewife												14	65	3			13				95
Little skate		4	1	2	1	4							2	12	11	14	13	1			65
Summer flounder			1	3	2	8	2	5	9	3	10	5	7	5	2						62
Atlantic moonfish										5		6	43	2							56
Atlantic herring			35															3	14	1	53
Winter flounder		6	2	2	7	4	1	3	2	3	2		1					1			34
Bay anchovy							3	1					27								31
Bluefish								2	1	5	2	7	4	2							23
Black sea bass				4	2	1	8	1	2	1		1	2			1					23
Fourspot flounder				1	2	14	5														22
Atlantic silverside																		14	5		19
Smooth dogfish					3	1		1				2	2		1						10
Tautog		1		2	2					2					3						10
Rainbow smelt		1																5	2		8
Spotted hake			1		4	1	1														7
Atlantic cod			4		1	1															6
Red hake						4	1			1											6
Blueback herring							3	1				1									5
Fourbeard rockling						1	1		1	1											4
Rough scad								1	2			1									4
Striped searobin					1						1				1						3
Round scad								1	1					1							3
Spiny dogfish															1		1				2
Smallmouth flounder						1		1													2
Crevalle jack													2								2
Striped anchovy						1															1
Silver hake																	1				1
Windowpane						1															1
Threespine stickleback																		1			1
Hogchoker								1													1
Blue runner													1								1
Bigeye										1											1
Northern kingfish												1									1
Spot													1								1
Longhorn sculpin																		1			1
Northern searobin						1															1
Cunner										1											1
Oyster toadfish				1																	1
Northern sennet													1								1
Total		**12**	**44**	**20**	**82**	**341**	**135**	**2939**	**1850**	**3121**	**8366**	**2727**	**2382**	**1518**	**359**	**17**	**29**	**26**	**21**	**1**	**23990**

Table 43. Station 7 total finfish number over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup					31	469	103	1361	2184	1917		6361	2426	2524	567						17943
Butterfish					2	3	1070	2690	1022	782		1680	30	633	51	3					7966
Black sea bass				3	1	4	15	2	48	184		44	31	15							347
Winter flounder	12	41		3	6	7	13	4	3	1		1	1			3	2	1	2	2	102
Alewife									27	64		4	3	1							99
Little skate		6		6	5	3	3						7	21	15	14	17			1	98
Summer flounder				9	6	7	11	10	8	15		11	5	5	4						91
Blueback herring							78	1		1		1									81
Round scad									74	6											80
Bay anchovy													48								48
Fourspot flounder						14	12														26
Tautog		1		2	1	5	10	2						2	1				1		25
Weakfish										1		3	17								21
Striped searobin				4	6		3	1				2									16
Smooth dogfish					2	3	3	2	1	1			1								13
Bluefish							1		6	6											13
Rough scad							12			1											13
Spotted hake				2	1	6	2														11
Atlantic silverside																		6	5		11
Northern searobin						1	7		2				1								11
Smallmouth flounder		1			1			1	2	1		2	1	1							10
Atlantic moonfish												1	8								9
Grubby	2	7																			9
Atlantic cod		1		3	2		1														7
Red hake		1			2	1		1													5
Rock gunnel	1	3																	1		5
Atlantic herring																		3	1		4
Rainbow smelt	1																		2		3
Fourbeard rockling								2	1												3
Cunner	1	2																			3
Northern sennet													3								3
Spiny dogfish															2						2
White hake					2																2
Windowpane		1			1																2
Northern pipefish																	2				2
Bigeye												2									2
Silver hake						1															1
Atlantic mackerel								1													1
Longhorn sculpin																	1				1
Sea raven																			1		1
Northern sand lance																			1		1
Total	**17**	**64**		**32**	**69**	**524**	**1344**	**4078**	**3378**	**2980**		**8112**	**2582**	**3202**	**640**	**20**	**22**	**10**	**14**	**3**	**27091**

Table 44. Total finfish weights (kg) for all stations combined over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup				1.3	48	539.7	67.1	209.4	144.3	175.4	165.3	174.7	122	132	55						1834.2
Butterfish				0.1	1	12.5	13.6	70.9	26	33.1	50.8	208.3	76.5	112.3	14.7	9.3	5.3				634.4
Little skate	0.6	49.1	50.5	26	17.8	36.2	3.2	0.6				0.5	29.3	78.2	76.2	107.6	66.4	0.5	2.1	10.5	555.3
Summer flounder			1.4	37	36.3	56.3	55.8	83.3	38.4	42.4	28.7	43.4	26.1	15.3	10.9	0.7				1.6	477.6
Tautog		0.2		44.2	30.7	34.3	27.5	25	4	9.4	6.2	5.8		17.8	8.7	0.1		0	0		213.9
Smooth dogfish					15.8	46.1	6	26.8	7.3	4.3	11.8	11.8	24	2.9	1.8						158.6
Black sea bass				7.6	9.4	25.1	26.4	3.3	0.5	1.3	0.2	0.8	0.6	0.5	4	0					79.7
Striped searobin				2.2	7.4	23.7	4.1	6.2	1.4	1.3	1.3	2.2	0.4	1.9	1.1						53.2
Winter flounder	1.2	9.3	10.5	1.9	1.6	1.6	2.5	1.3	0.5	0.6	0.3	0	0	1.1	0.4	12.9	3.1	0.1	1	1.7	51.6
Spiny dogfish															7.4	31.6	12.5				51.5
Weakfish									0	0	1.1	20.4	8.9								30.4
Fourspot flounder				0.2	1.4	11	8.6	0.7		0.2	0				0						22.1
Bluefish					2.4		1.1	0	0.2	2.2	0.1	0.6	2.4	3.7							12.7
Windowpane		1.1	0.1	1.2	0.2	3.6	0.3	0.1	0					0.2	0.3	0.8	0.4	0		0.3	8.6
Alewife									0.1	1.3	0	1.2	3.1	0.1			1.5				7.3
Longhorn sculpin																0.4	3.2	0.7	0		4.3
Bay anchovy							0.1	0	0	0.9	0.1		2.2	0.8							4.1
Northern searobin					0.1	0.6	1.4		0.4	0.1	0		0	0	0	0					2.6
Oyster toadfish				0.4											1.4						1.8
Blueback herring					0.1	0	1.3	0.2		0	0	0	0				0			0	1.6
Spotted hake			0	0	0	0.6	0.7													0	1.3
Fourbeard rockling					0.1	0.2	0.3	0.2	0.3	0	0									0	1.1
Hogchoker								0.6	0.3	0.2											1.1
Ocean pout				1.1																	1.1
Round scad							0	0	1	0				0							1
Northern kingfish												0.8									0.8
Atlantic moonfish										0	0	0	0.7	0							0.7
Rough scad							0	0.3	0.2	0	0	0		0							0.5
Sea raven				0.1															0.3		0.4
Atlantic silverside	0	0.1	0														0	0.2	0	0	0.3
Inshore lizardfish													0.1	0.2							0.3
Atlantic herring	0	0	0														0.1	0	0.1	0	0.2
Grubby	0.1	0.1																			0.2
Rainbow smelt	0	0.1	0															0	0	0	0.1
Silver hake					0	0											0.1				0.1
Red hake		0			0	0.1	0	0		0							0				0.1
Spot													0.1								0.1
Cunner	0	0	0			0.1				0								0	0	0	0.1
Rock gunnel	0	0.1																	0	0	0.1
Round herring																	0				0
American shad					0																0
Atlantic menhaden													0								0
Striped anchovy						0								0	0						0
Atlantic cod	0	0	0	0	0	0	0														0
Pollock					0																0
White hake					0				0	0	0										0
Threespine stickleback	0																	0			0
Northern pipefish		0														0	0		0	0	0
Smallmouth flounder		0	0		0	0		0	0	0	0	0	0	0	0	0				0	0
Atlantic mackerel								0	0												0
Blue runner													0								0
Bigeye										0		0									0
Northern sand lance																			0		0
Northern puffer														0							0
Bigeye scad															0						0
Crevalle jack													0								0
Northern sennet													0								0
Total	**1.9**	**60.1**	**62.5**	**123.3**	**172.3**	**791.7**	**220**	**428.9**	**224.9**	**272.7**	**265.9**	**470.5**	**296.4**	**367**	**181.9**	**163.4**	**92.6**	**1.5**	**3.5**	**14.1**	**4215.1**

Table 45. Station 1 total finfish weights (kg) over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup						123	0.5	92.7	20.1	22	38.3	18.8	17.8	18	6.1						357.3
Butterfish					0.1	4.5	0.9	10.9	1.8	10.5	7	47.7	7	6.5	4	6.8	0.3				108
Little skate	0.6	8.5	8.6	5.3	3	5							2.5	18.4	11.1	21.6	14.4		0.6	1.7	101.3
Summer flounder						3.2	4.5	8.5	9.5	4.7	3.5	10.1	2.5	3.1	1.1						50.7
Smooth dogfish						21.5		1.4	2.7	0.2	5.5	0.2	8								39.5
Tautog				13.5	5.9	3.2	3.3														25.9
Black sea bass				1	2.7	7	2.8	0.6		0			0	0	2.6						16.7
Striped searobin				0.3	0.5	11	1.5	1.7				0.3	0.4	0.5							16.2
Spiny dogfish																15.8					15.8
Winter flounder	0	0.5	1.2	0.2	0.3	0.2	0	0.3	0	0.1	0.1					1.5	1.1	0	1	0.1	6.6
Fourspot flounder						2.2	1														3.2
Weakfish									0	0	1.1	0.4	0.2								1.7
Bay anchovy							0.1		0	0.9	0		0.6								1.6
Oyster toadfish															1.1						1.1
Longhorn sculpin																0.4	0.6				1
Hogchoker								0.4	0.3	0.1											0.8
Bluefish										0.3	0.1			0.2							0.6
Windowpane							0.3		0					0.2							0.5
Blueback herring					0.1	0	0	0.2			0										0.3
Alewife									0	0.1	0						0.1				0.2
Spotted hake				0		0.1															0.1
Fourbeard rockling						0.1		0													0.1
Atlantic herring		0	0																0		0
American shad					0																0
Atlantic menhaden													0								0
Striped anchovy															0						0
Rainbow smelt	0		0																0	0	0
Silver hake						0															0
Atlantic cod			0	0																	0
White hake									0		0										0
Red hake						0											0				0
Atlantic silverside		0	0														0	0	0	0	0
Northern pipefish		0																			0
Smallmouth flounder		0											0	0							0
Atlantic mackerel									0												0
Blue runner													0								0
Atlantic moonfish										0	0	0	0								0
Northern searobin													0		0						0
Northern puffer														0							0
Bigeye scad															0						0
Rough scad							0					0									0
Total	**0.6**	**9**	**9.8**	**20.3**	**12.6**	**181**	**14.9**	**116.7**	**34.4**	**38.9**	**55.6**	**77.5**	**39**	**46.9**	**26**	**46.1**	**16.5**	**0**	**1.6**	**1.8**	**749.2**

Table 46. Station 2 total finfish weights (kg) over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup					0.3	29	17	8.4	30.2	17.2	33.1	32	16.6	14.7	9.8						208.3
Butterfish					0.3	0.3	1.4	9.7	5.4	1.1	5.7	48.3	2.1	11.6	1.3	2.2					89.4
Little skate		8.5	17.7	3.5		9.2						0.5	4	6.1	8.8	15.7			1.1	1.2	76.3
Summer flounder				7.3	9.1	9.6	5	18	8.7	2.8	2.8	5.7	5	1.4	0.6						76
Tautog				10.4	5.1	12	5.5	8.5		2.2		5.2		8.7	2.1						59.7
Smooth dogfish						2.7		10.5	0.6			2.3									16.1
Striped searobin				0.2	1.5	4	0.6	1.5						0.5							8.3
Black sea bass					2.3	1.3	3.5		0.1	0.2	0.1	0	0	0.1	0						7.6
Winter flounder		1	2.2	0.3	0	0.2	0.2	0.1	0	0.1	0	0	0	1.1	0.4	0.9			0	0	6.5
Spiny dogfish																5.4					5.4
Windowpane				0.5		1.1												0			1.6
Alewife										0	0	0.9	0	0							0.9
Weakfish											0	0.5	0.3								0.8
Bay anchovy										0	0.1		0	0.6							0.7
Fourspot flounder						0.4	0.3								0						0.7
Northern searobin						0.1	0.3				0			0	0						0.4
Oyster toadfish															0.3						0.3
Bluefish								0				0.1	0	0.1							0.2
Northern kingfish												0.1									0.1
Atlantic herring		0																			0
Blueback herring													0							0	0
Atlantic cod			0	0	0	0															0
Spotted hake						0														0	0
Fourbeard rockling							0														0
Atlantic silverside																		0	0	0	0
Northern pipefish																0			0		0
Smallmouth flounder			0			0		0						0	0	0					0
Atlantic moonfish											0	0	0								0
Longhorn sculpin																			0		0
Cunner			0																		0
Round scad								0													0
Rough scad							0				0										0
Total		**9.5**	**19.9**	**22.2**	**18.6**	**69.9**	**33.8**	**56.7**	**45**	**23.6**	**41.8**	**95.6**	**28**	**44.9**	**23.3**	**24.2**		**0**	**1.1**	**1.2**	**559.3**

Table 47. Station 3 total finfish weights (kg) over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup				0.3		224	13.5	20.6	34	42.1	24.7	29.3	22.9	33.6	8.2						453.2
Little skate		22.5	18	8.6	9.4	11.7	0.6	0.6					7.6	21.5	22.5	30.6	19.9			6.6	180.1
Summer flounder				4.5	7.7	8.1	4.2	13.3	5	9.2	9.4	7.6	3.6	3.2	2.3	0.7					78.8
Tautog				10.5	8.2	8.5	5.7	7	4		2.6	0.6		3.1							50.2
Butterfish					0.2	3.7	3.7	5	3.2	0.5	3.2	16.4	3.9	1.6	0.4	0	0.4				42.2
Black sea bass				0.6	3.1	10	6.5		0	0.1	0.1	0.8	0.1	0.4	1.4	0					23.1
Spiny dogfish															2.1	4.9	4.6				11.6
Striped searobin					1	5.3	0.3	1.4	1	0.8		0.3		0.5							10.6
Smooth dogfish						0.9						8.1									9
Winter flounder	0.3	0.9	0.7	0.1	0.4	0.2	0.4	0	0.1	0.1		0				2.1	0.1	0	0	0.8	6.2
Windowpane		0.4	0	0.5		1.1		0.1							0.3	0.3	0.4			0.3	3.4
Fourspot flounder						0.8	0.8	0.2			0										1.8
Alewife									0	1	0	0.1	0				0.1				1.2
Ocean pout				1.1																	1.1
Northern searobin						0.2			0.1	0.1				0		0					0.4
Bay anchovy										0	0		0.1	0.2							0.3
Inshore lizardfish													0.1	0.2							0.3
Longhorn sculpin																		0.2			0.2
Hogchoker										0.1											0.1
Bluefish									0.1												0.1
Sea raven				0.1																	0.1
Cunner		0				0.1														0	0.1
Atlantic herring		0	0																0		0
Blueback herring						0															0
Striped anchovy														0							0
Atlantic cod			0	0	0		0														0
Pollock					0																0
Fourbeard rockling																				0	0
Atlantic silverside	0	0	0															0	0	0	0
Northern pipefish																				0	0
Smallmouth flounder					0			0		0	0	0	0	0	0						0
Atlantic moonfish											0	0									0
Weakfish											0	0	0								0
Grubby		0																			0
Rock gunnel																				0	0
Round scad								0													0
Rough scad								0													0
Total	**0.3**	**23.8**	**18.7**	**26.3**	**30**	**274.6**	**35.7**	**48.2**	**47.5**	**54**	**40**	**63.2**	**38.3**	**64.3**	**37.2**	**38.6**	**25.5**	**0.2**	**0**	**7.7**	**874.1**

Table 48. Station 4 total finfish weights (kg) over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup						1.5	40.5	15	1.8	6.1	9.6	15.4	10.9	7.4	17.6	5.5					131.3
Butterfish							2.9	2.6	2.2	1.4	1.7	7.3	3.3	26	18.6	2.5	0	2.8			71.3
Summer flounder					10.3	2.2	10	5.5	10.5	3.2	10	7	5.8	2	1.5	0.6					68.6
Little skate		1.2	1.7	3.2	1.2	3.2								2.1	8.1	11	14	4.1			49.8
Smooth dogfish						5.5		2.7				6.3		0.3	2.9						17.7
Tautog					1.5	6.6		2.5		3.1	3.6						0.1				17.4
Black sea bass				0.8		4.7	2.5	1.4		0.9	0	0	0	0	0	0					10.3
Winter flounder		0.7	2	0	0	0.8	0.3	0.1	0.1	0	0		0		0	4.9	0.1				9
Spiny dogfish																1.9	5.8				7.7
Striped searobin						2.6		0.7	0.4	0.2	0.8	0.5									5.2
Bluefish					2.4									2	0						4.4
Fourspot flounder						1.7	1.2			0.2											3.1
Alewife										0.1	0		2.1	0			0.1				2.3
Windowpane		0.5				0.9										0.5					1.9
Weakfish													1.2								1.2
Longhorn sculpin																	1.1				1.1
Rough scad								0.3	0.2	0	0										0.5
Atlantic herring	0		0														0.1			0.1	0.2
Rainbow smelt		0.1																			0.1
Spotted hake					0	0.1															0.1
Fourbeard rockling									0.1		0										0.1
Round scad							0	0	0.1												0.1
Blueback herring													0				0				0
Atlantic cod			0	0																	0
White hake										0											0
Atlantic silverside			0																0	0	0
Atlantic moonfish												0	0								0
Northern searobin																0					0
Northern puffer															0						0
Bigeye scad																0					0
Total	**0**	**2.5**	**3.7**	**14.3**	**8.8**	**79.5**	**27.1**	**22.2**	**11.6**	**25.8**	**40.4**	**20.5**	**43.1**	**48.7**	**19.6**	**21.4**	**14.1**	**0**		**0.1**	**403.4**

Table 49. Station 5 total finfish weights (kg) over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup						17	23	15	43.8		20.8	23	14.5	12	8.5						177.6
Butterfish						0.3	0.2	1.1	3.7		2.7	21.2	11.5	37.5	3.6	0	1.8				83.6
Summer flounder					2.4	10	8	21	16.5		4	4.7	4	1.1	2.8					1.6	76.1
Little skate			3.1	4	0.5	0.5	2.2	0.5					7.5	5.3	8.6	9.4	10		0.4	0.4	52.4
Smooth dogfish							2		3.7			0.5	6								12.2
Winter flounder	0.8	1.3	4.1	0.6	0.5	0	0.3	0.1		0		0				0.9		0	0		8.6
Tautog		0.2		2.5	1.7		1			2.9								0	0		8.3
Striped searobin					0.5	1.8	0.8	0.3	0.4		0.3			0.4							4.5
Fourspot flounder						1.1	0.5	2.3	0.5												4.4
Spiny dogfish																3.6					3.6
Black sea bass					0.7		0.4	2.5			0	0	0	0	0						3.6
Bay anchovy													1.3								1.3
Blueback herring								1					0								1
Longhorn sculpin																	1		0		1
Weakfish												0.2	0.7								0.9
Spotted hake						0	0.1	0.5												0	0.6
Atlantic moonfish													0.6								0.6
Windowpane				0.1	0.2		0.2														0.5
Fourbeard rockling						0.1		0.2	0.1		0										0.4
Alewife													0.3	0							0.3
Atlantic silverside			0.1															0.1	0		0.2
Bluefish											0		0.2								0.2
Northern searobin						0.1					0										0.1
Round herring																	0				0
Atlantic herring																		0			0
Atlantic menhaden													0								0
Silver hake						0											0				0
Atlantic cod	0					0															0
Red hake								0			0										0
Threespine stickleback	0																				0
Smallmouth flounder						0	0		0		0	0	0	0						0	0
Cunner				0														0	0		0
Rock gunnel																			0	0	0
Round scad											0										0
Rough scad								0				0		0							0
Total	**0.8**	**4.7**	**8.2**	**7.4**	**33.1**	**37.4**	**45.7**	**68.8**		**30.7**		**49.6**	**46.6**	**56.3**	**23.5**	**13.9**	**12.8**	**0.1**	**0.4**	**2**	**442**

Table 50. Station 6 total finfish weights (kg) over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup				1	17	31.2	0.6	29.3	33.6	37.9	53.8	21.8	21	11.5	7.1						265.8
Butterfish				0.1		0.8	0.1	17.3	4	12.6	27.6	34.1	25	18.5	1	0.1	0				141.2
Summer flounder			1.4	4.8	1.2	10.6	1.8	8	7.5	2.2	6	4.5	4.5	2.5	1.1						56.1
Little skate		2.3	0.5	1.1	0.6	2.4							1.1	6.8	6.1	8.3	7.8	0.5			37.5
Weakfish											0	19.2	5.6								24.8
Smooth dogfish					8.9	3.5		2.5				0.7	5.2		1.8						22.6
Tautog		0		4.5	5					1.2					3.6						14.3
Black sea bass				2.4	1	0.3	3.6	0.3	0.2	0		0	0			0					7.8
Bluefish								0	0	0.2	0	0.5	0.2	3.4							4.3
Spiny dogfish															1.7		2.1				3.8
Fourspot flounder				0.2	0.3	2.4	0.9														3.8
Winter flounder		2	0.3	0	0.3	0.1	0.1	0.5	0.1	0.2	0.2		0					0			3.8
Alewife												0.2	0.7	0.1			1.2				2.2
Striped searobin					0.3						0.5				1.1						1.9
Northern kingfish												0.7									0.7
Longhorn sculpin																		0.5			0.5
Oyster toadfish				0.4																	0.4
Fourbeard rockling						0.1	0.1		0.1	0											0.3
Windowpane						0.3															0.3
Spotted hake			0		0	0.1	0.1														0.2
Hogchoker								0.2													0.2
Northern searobin						0.2															0.2
Bay anchovy							0	0					0.1								0.1
Silver hake																	0.1				0.1
Atlantic silverside																		0.1	0		0.1
Atlantic moonfish										0		0	0.1	0							0.1
Spot													0.1								0.1
Atlantic herring			0															0	0	0	0
Blueback herring							0	0				0									0
Striped anchovy						0															0
Rainbow smelt		0																0	0		0
Atlantic cod			0		0	0															0
Red hake						0	0			0											0
Threespine stickleback																		0			0
Smallmouth flounder						0		0													0
Blue runner													0								0
Bigeye										0											0
Cunner										0											0
Round scad								0	0					0							0
Rough scad								0	0			0									0
Crevalle jack													0								0
Northern sennet													0								0
Total		**4.3**	**2.2**	**14.5**	**34.6**	**52**	**7.3**	**58.1**	**45.5**	**54.3**	**88.1**	**81.7**	**63.6**	**42.8**	**23.5**	**8.4**	**11.2**	**1.1**	**0**	**0**	**593.2**

Table 51. Station 7 total finfish weights (kg) over time.

Common Name	3/16/2001	4/3/2001	4/17/2001	5/14/2001	5/22/2001	6/5/2001	6/25/2001	7/13/2001	7/27/2001	8/9/2001	8/21/2001	9/4/2001	9/18/2001	10/2/2001	10/16/2001	11/15/2001	12/17/2001	1/21/2002	2/14/2002	3/25/2002	Total
Scup					12.2	69	5.5	12.8	20.3	25.8		38.9	21.8	24.6	9.8						240.7
Butterfish					0.1	0.1	3.8	22.1	10.2	4		37.3	1	18	1.9	0.2					98.7
Summer flounder				7.7	6.1	6.8	13.8	8.5	4.5	9.5		5	4.5	2.5	2.4						71.3
Little skate		3		3.8	3.1	2.5	2.1						4.5	12	8.1	8	10.2			0.6	57.9
Smooth dogfish					6.9	10	6	6	4	4.1			4.5								41.5
Tautog		0		2.8	3.3	4	12	7						6	3				0		38.1
Winter flounder	0.1	2.9		0.7	0.1	0.1	1.2	0.2	0.2	0.1		0	0			2.6	1.8	0.1	0	0.8	10.9
Black sea bass				2.1	0.3	1.4	5	1	0.2	0.1		0	0.5	0							10.6
Striped searobin				1.2	2.3		1.4	0.5				1.1									6.5
Fourspot flounder						3	2.1														5.1
Spiny dogfish															3.6						3.6
Bluefish							1.1		0.1	1.7											2.9
Northern searobin						0.1	1.1		0.3				0								1.5
Weakfish										0		0.1	0.9								1
Round scad									0.9	0											0.9
Longhorn sculpin																	0.5				0.5
Windowpane		0.2			0.2																0.4
Blueback herring							0.3	0		0		0									0.3
Spotted hake				0	0	0.2	0.1														0.3
Sea raven																			0.3		0.3
Alewife									0.1	0.1		0	0	0							0.2
Fourbeard rockling								0.1	0.1												0.2
Grubby	0.1	0.1																			0.2
Bay anchovy													0.1								0.1
Red hake		0			0	0.1		0													0.1
Rock gunnel	0	0.1																	0		0.1
Atlantic herring																		0	0		0
Rainbow smelt	0																		0		0
Silver hake						0															0
Atlantic cod		0		0	0		0														0
White hake					0																0
Atlantic silverside																		0	0		0
Northern pipefish																	0				0
Smallmouth flounder		0			0			0	0	0		0	0	0							0
Atlantic mackerel								0													0
Atlantic moonfish												0	0								0
Bigeye												0									0
Cunner	0	0																			0
Northern sand lance																			0		0
Rough scad							0			0											0
Northern sennet													0								0
Total	**0.2**	**6.3**		**18.3**	**34.6**	**97.3**	**55.5**	**58.2**	**40.9**	**45.4**		**82.4**	**37.8**	**63.1**	**28.8**	**10.8**	**12.5**	**0.1**	**0.3**	**1.4**	**593.9**