UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Fisheries Science Center
166 Water Street
Woods Hole, MA 02543-1026

25 July 2007

CRUISE RESULTS

NOAA Ship ALBATROSS IV
Cruise No. AL 07-03 Parts (I-IV)
Spring Bottom Trawl Survey

CRUISE PERIOD AND AREA

The cruise period was from 7 March to 28 April 2007. The cruise was conducted in four parts: Part I was from 7 – 23 March; Part II, 26 March – 6 April; Part III, 9 – 20 April; Part IV, 23 April – 28 April. The area of operations was from Cape Hatteras to the western Scotian Shelf, including the Gulf of Maine. Station locations are shown in Figures 1 and 2.

OBJECTIVES

The objectives of the cruise were to: (1) determine the seasonal distribution, relative abundance, and biodiversity of fish and invertebrate species found on the continental shelf; (2) collect biological samples for age determinations and growth studies, fecundity, maturity and feeding ecology; (3) collect hydrographic and meteorological data; (4) collect samples of ichthyoplankton and zooplankton for relative abundance and distribution studies; (5) collect data and samples for cooperative researchers and programs; and (6) conduct a hydroacoustic survey between stations.

METHODS

Operations and gear used during Parts I-IV conformed with the Cruise Instructions for the Spring Bottom Trawl Survey dated 5 January 2007 and Addendum 1 dated 1 March; Addendum 2 dated 16 March; Addendum 3 dated 3 April; Addendum 4 dated 23 April.

A 30-minute tow was made at each station with a Northeast Fisheries Science Center (NEFSC) standardized number 36 Yankee otter trawl rigged with 41 centimeter (cm) diameter rubber rollers, 36 floats, and 9 meter (m) bridles. NEFSC standardized 450 kilogram (kg) polyvalent trawl doors rigged with chain backstraps were used. The trawl was fished at a scope of 4:1 in depths between 18 and 27 m, 3:1 in depths between 28 and 183 m deep, and 2.5:1 in depths of 184 m and greater. Towing speed was maintained at approximately 3.8 knots using DGPS instrumentation. Direction of the tow was generally toward the next station. Throughout the

cruise, a hydroacoustic survey was conducted during transit between bottom trawl stations using the Simrad EK-500 system.

After each tow, the catch was sorted by species and weighed using motion-compensated digital scales. Representative length frequencies were collected for all species caught. All catch and biological data were recorded using shipboard automated data entry systems. The Fisheries Scientific Computing System (FSCS) was used to record all biological data. This system uses digital scales, electronic measuring boards, touch screen displays and barcode scanners to record data on deck and archives the data on the ship's computer network.

Sampled fish were assigned individual identification numbers, measured, weighed to the nearest 0.001 kilogram, and further sampled for age and growth and feeding ecology studies. Bony fish were measured to the nearest centimeter to the end of the central caudal ray; biological samples were collected concurrently with measuring operations. Sharks and skates were measured to the end of the caudal fin (total length). Rays were measured for disk width. Lobsters were measured in millimeters from the posterior edge of the eye socket to the end of the carapace; the presence or absence of a V-notch was also noted. Crabs were measured across the carapace width in centimeters. Shell height was measured in centimeters for selected bivalves. The remainder of the catch (miscellaneous invertebrates, shells, substrate, etc) was described by volume.

Surface temperatures were measured using the hull-mounted temperature sensor at a depth of 3 meters. Temperature and conductivity profiles were recorded using a conductivity, temperature, and depth (CTD) instrument at each station. A bottom salinity sample was obtained twice each day to calibrate the CTD. Water samples were also taken for fluorometer calibrations.

Samples of fish eggs and larvae were collected at selected stations. Plankton sampling gear consisted of a 61 cm bongo frame fitted with 0.333 mm mesh nets. Digital flow meters were suspended within the mouths of the bongo frame to estimate water volume filtered. The net was towed at 2.8-3.8 kilometers/hour (1.5-2.0 knots). A CTD was deployed at each plankton station.

RESULTS

The survey sampled at 363 stations with 153, 104, 62, and 44 stations completed on Parts I-IV, respectively.

Standard plankton tows were made at 117 stations. Bottom temperatures were collected at all stations using the CTD system. Bottom water samples for CTD calibration were taken at 60 stations.

A total of 6303 feeding ecology and 9756 age and growth samples were collected from 54 species (Table 1). A total of 3820 requested samples were collected to support 27 internal and external investigations (Table 2).

DISPOSITION OF SAMPLES AND DATA

Age and growth samples, feeding ecology data and samples, maturity data, trawl catch data, and hydrographic data will be analyzed at the NEFSC Woods Hole, Massachusetts Laboratory. The various collections were forwarded to the individuals listed in Table 2. Resulting data will be audited, edited, and entered into the NEFSC trawl survey database.

SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFSC, Woods Hole, MA

Larry Brady[2], Chief Scientist[3]
Linda Despres, Chief Scientist[2]
John Galbraith, Chief Scientist[1]
Kevin McIntosh[2], Chief Scientist[4]

Peter Chase[1]	Sean Lucey[2]	Stacy Rowe[1]
David Chevrier[1]	Paul Nitschke[2]	Yvonna Rowinski[1,2,4]
William Duffy[2]	Michael Palmer[3]	Brian Smith[3]
Jonathan Duquette[1,3]	Sarah Pierce[3]	Kathy Sosebee[2]
Charles Keith[4]	Phil Politis[2]	Sandy Sutherland[2]
Nathan Keith[2,4]	Sarah Pregracke[3]	Grace Thornton[3]

National Marine Fisheries Service, NEFSC, Washington, DC

Ruth Gibbons[3]

National Marine Fisheries Service, NEFSC, Gloucester, MA

Caleb Gilbert[3]

National Marine Fisheries Service, Management & Budget, Silver Spring, MD

Miguel Lugo[4]

Contractors

Heath Cook[1,3,4]	Integrated Statistics, Woods Hole, MA
Lara Jarvis[1,4]	Integrated Statistics, Woods Hole, MA
Jakub Kircun[1,2,3]	Integrated Statistics, Woods Hole, MA
Nikolai Klibansky[2,4]	Integrated Statistics, Woods Hole, MA
Elda Varela-Acevedo[4]	Environ. Careers Org., Gloucester, MA
Peter Plantamura[1,4]	End to End Tech. Services, Sandy Hook, NJ
Melanie Underwood[2,4]	Integrated Statistics, Woods Hole, MA

Volunteers

Sheri Bluestein[3]	Hope, AK
Walter Bubley[4]	Dover, NH
Michiel Gitzels[3]	Hope, AK
Tamarind Harman[1]	Brighton, MI
Paul Ketchum[4]	Falmouth, MA
Emily Lindsey[1]	Portland, OR
Meghan Massaua[3]	China Village, ME
Neven Popovic[1]	Rockville, MD
Erika Wilbur[1]	Odenton, MD

[1]7 – 23 March
[2]26 March – 6 April
[3]9 – 20 April
[4]23 – 28 April

For further information contact: Russell Brown, National Marine Fisheries Service, Northeast Fisheries Science Center, Woods Hole, Massachusetts 02543-1097. Phone (508) 495-2380; FAX (508) 495-2115; Russell.Brown@noaa.gov. The Resource Survey Report for this survey can be viewed at http://www.nefsc.noaa.gov/esb/Resource_Survey_Reports.htm and the cruise results can be viewed at http://www.nefsc.noaa.gov/esb/survey.htm.

Table 1. Field observations and samples collected for feeding ecology, and age and growth studies on the NOAA Ship ALBATROSS IV, Cruise 07-03 (I-IV), Spring Bottom Trawl Survey, during 7 March to 28 April 2007.

Species	Feeding Ecology Observations	Age and Growth Samples
Acadian Redfish	124	371
American Plaice	263	668
American Shad	41	-
Atlantic Cod	225	693
Atlantic Croaker	10	39
Atlantic Halibut	17	18
Atlantic Herring	313	1087
Atlantic Mackerel	165	407
Atlantic Menhaden	11	-
Atlantic Wolffish	2	2
Barndoor Skate	41	-
Black Sea Bass	40	72
Blackbelly Rosefish	51	-
Blueback Herring	127	-
Bluefish	7	7
Buckler Dory	12	-
Butterfish	140	342
Clearnose Skate	32	-
Cunner	6	-
Cusk	9	9
Fawn Cusk-eel	41	-
Fourbeard Rockling	33	-
Fourspot Flounder	166	241
Goosefish	72	116
Gulf Stream Flounder	74	-
Haddock	282	678
Little Skate	337	-
Longhorn Sculpin	265	-
Northern Kingfish	6	-
Northern Searobin	61	2
Ocean Pout	98	99
Offshore Hake	59	59
Pollock	74	215
Red Hake	344	382
Rosette Skate	11	-
Scup	31	67
Sea Raven	187	-
Silver Hake	434	1147
Smooth Dogfish	41	-
Smooth Skate	39	-
Spiny Dogfish	473	775
Spot	9	-
Spotted Hake	160	204
Striped Bass	70	70
Striped Searobin	15	-
Summer Flounder	147	277

Species	Feeding Ecology Observations	Age and Growth Samples
Thorny Skate	44	-
Weakfish	15	56
White Hake	110	207
Windowpane	184	232
Winter Flounder	244	483
Witch Flounder	157	181
Winter Skate	151	-
Yellowtail Flounder	233	550
Total	6303	9756

Table 2. Miscellaneous scientific collections made on NOAA Ship ALBATROSS IV, Cruise 07-03 (I-IV), Spring Bottom Trawl Survey, during 7 March to 28 April 2007.

Investigator and Affiliation	Samples Saved	Approximate Number
Aquarium, NMFS, NEFSC, Woods Hole, MA	Atlantic herring	3 bags
	Longhorn sculpin	10 indiv.
Jella Atema, Boston University, Boston, MA	American lobster	45 indiv.
Walter Bubley, University of New Hampshire, Durham, NH	Spiny dogfish	177 indiv.
Steven Cadrin, NMFS, NEFSC, Woods Hole, MA	Alewife	165 indiv.
	Blueback herring	4 indiv.
Peter Chase, NMFS, NEFSC, Woods Hole, MA	Various species, maturity workshop	131 indiv.
	Various species, fish ID project	55 indiv.
	Various species, maturity photos	30 indiv.
Stephen Clifford, Dalhousie University, Nova Scotia	Various species	29 indiv.
Bruce Collette, NMFS, NEFSC, Nat. Systematics Lab, Washington, DC	Various species	18 indiv.
Buck Denton, NMFS, NEFSC, Woods Hole, MA	Various species	675 indiv.
Sheila Eyler, U.S. Fish and Wildlife Serv., Maryland Fishery Res., Annapolis, MD	Atlantic sturgeon, tagging	1 indiv.
Sarah Fitzpatrick, Cornell University, Ithaca, NY	Various hake	29 indiv.
John Galbraith, NMFS, NEFSC, Woods Hole, MA	Misc. species	1111 indiv.
Lei Harris, Fisheries and Oceans, New Brunswick, Canada	Various skates	47 indiv.
	Cusk	9 indiv.
Joe Idoine, NMFS, NEFSC, Woods Hole, MA	Various shrimp	95 bags
Frances Juanes, Univ. of Massachusetts, Amherst, MA	Silver hake	8 indiv.
Charles Keith, NMFS, NEFSC, Woods Hole, MA	Atlantic hagfish	29 indiv.
	Sea raven	8 indiv.
Nancy Kohler, NMFS, NEFSC, Narragansett, RI	Various sharks, tagging	2 indiv.
Jason Link & Brian Smith, NMFS, NEFSC, Woods Hole, MA	Preserved stomachs	279 samples
Alicia Long, NMFS, NEFSC, Woods Hole, MA	American lobster	9 indiv.
Sean Lucey, NMFS, NEFSC, Woods Hole, MA	Various species	32 samples
Richard McBride, NMFS, NEFSC, Woods Hole, MA	Various species, histology and maturity	125 samples
Nancy McHugh, NMFS, NEFSC, Woods Hole, MA	Various species, Bigelow fish sampling	134 indiv.
	Various species, length/weight study	94 indiv.
Paul Nitschke, NMFS, NEFSC, Woods Hole, MA	Winter flounder	51 indiv.
Martha Nizinski, NMFS, NEFSC, Nat. Systematics Lab, Washington, DC	Various decapods	240 indiv.
Loretta O'Brien, NMFS, NEFSC, Woods Hole, MA	Atlantic cod	245 indiv.
Anne Richards, NMFS, NEFSC, Woods Hole, MA	Goosefish illicium	109 samples
	Goosefish gonads	98 samples
Katherine Sosebee, NMFS, NEFSC, Woods Hole, MA	Various skates	673 exam.
	Various rays	79 exam.
	Spiny dogfish	320 exam.
Susan Wigley, NMFS, NEFSC, Woods Hole, MA	Witch flounder	1 indiv.

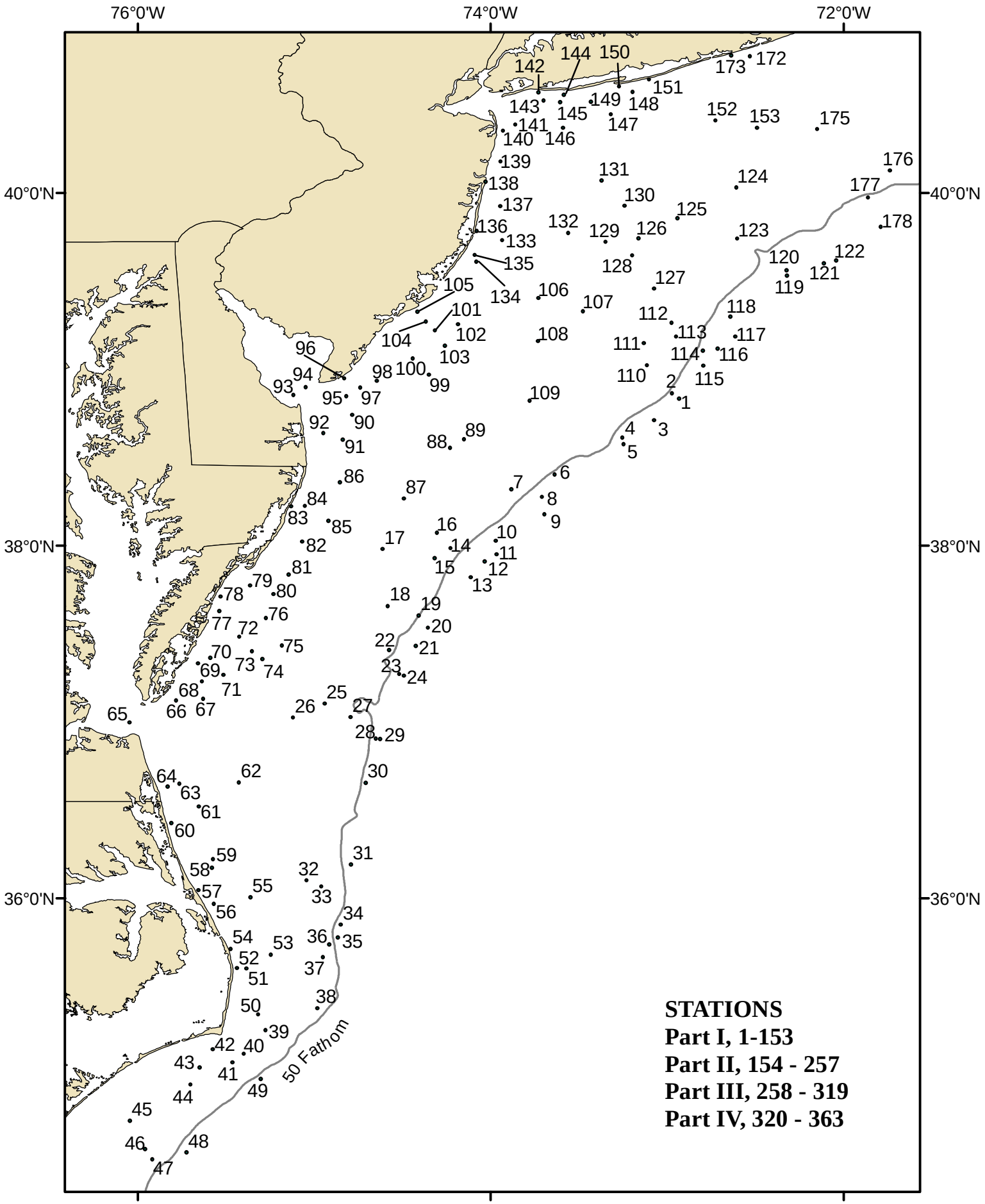

Figure 1. Trawl hauls made from NOAA Ship ALBATROSS IV (07 - 03), during NOAA Fisheries Service, Northeast Fisheries Science Center spring bottom trawl survey, March 7 - April 28, 2007.

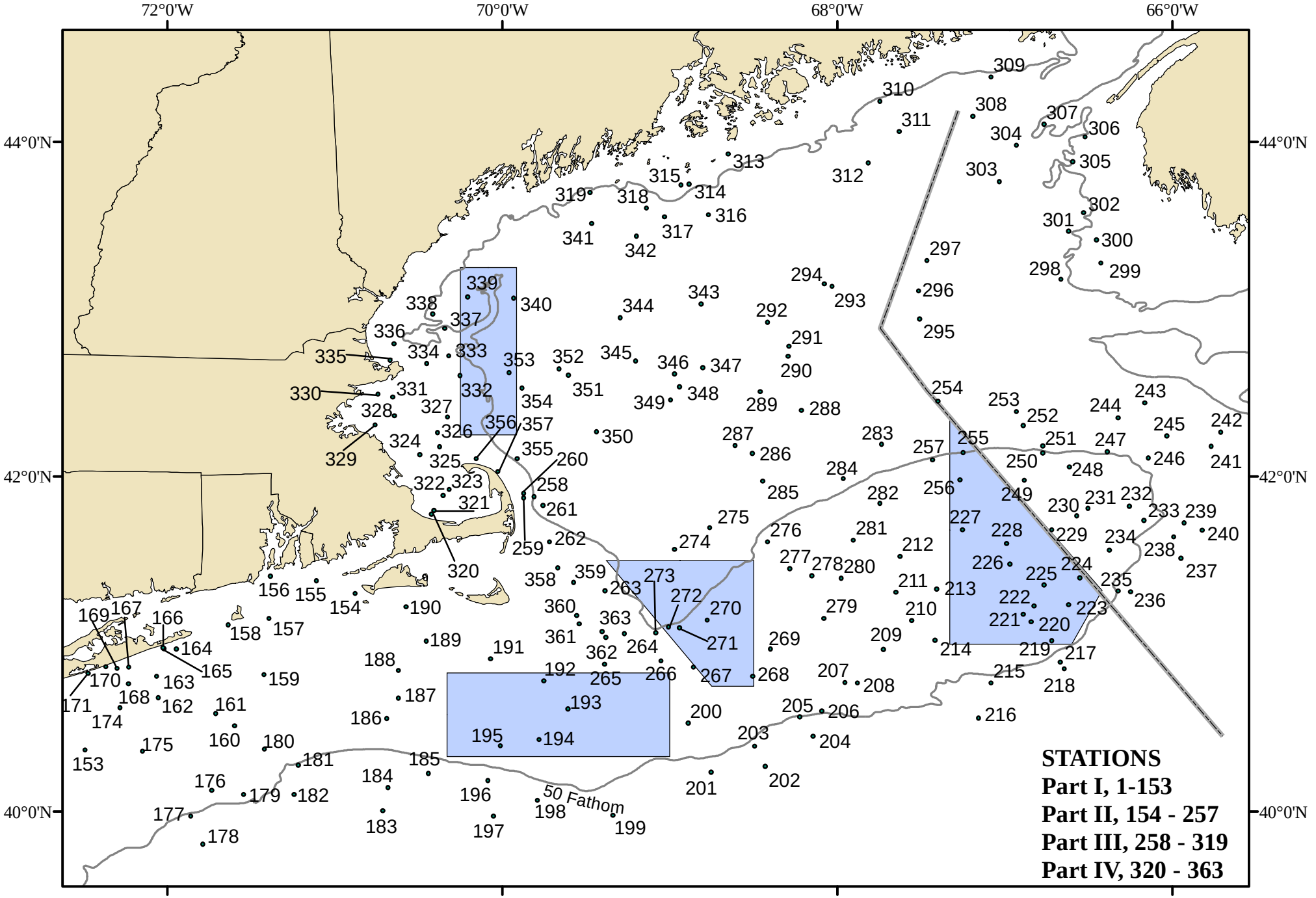

Figure 2. Trawl hauls made from NOAA Ship ALBATROSS IV (07 - 03), during NOAA Fisheries Service, Northeast Fisheries Science Center spring bottom trawl survey, March 7 - April 28, 2007.