



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

3 April 2006

CRUISE RESULTS

NOAA FRV ALBATROSS IV
Cruise No. AL 05-08 (Parts I-V)
Autumn Bottom Trawl Survey

CRUISE PERIOD AND AREA

The cruise period was from 6 September to 4 November 2005. The survey was conducted in four parts: Part I was from 6-15 September; Part II, 20-30 September; Part III, 3-13 October; Part IV, 17-25, 27-28 October; and Part V, 31 October – 4 November. The area of operation 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 survey 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-V conformed with the Cruise Instructions for the Autumn Bottom Trawl Survey dated 16 May 2005 and Addendum 1 dated 6 September; Addendum 2 dated 19 September; Addendum 3 dated 3 October; Addendum 4 dated 17 October and Addendum 5 dated 31 October. Exceptions to the Cruise Instructions are as follows: Part 2 left one day late due to SCS problems and Parts 1, 3, & 4 experienced weather related delays.

A 30-minute tow was made at each survey station using a Northeast Fisheries Science Center (NEFSC) standard number 36 Yankee otter trawl rigged with 41 centimeter (cm) diameter rubber rollers, 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; 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 each 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 (kg) and further sampled for age and growth and feeding ecology studies. Bony fish were measured to the nearest cm to the end of the central caudal ray (fork length); biological samples were collected concurrently with measuring operations (Table 1). Sharks and skates were measured to the end of the caudal fin (total length). Disk width was measured for rays. Lobsters were measured in millimeters (mm) 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 (cm). Shell height was measured in (cm) for selected bivalves. Additional collections were obtained for various scientists (Table 2). The remainder of the catch (miscellaneous invertebrates, shells, substrate, et cetera) 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 made using a conductivity, temperature, and depth (CTD) system at every 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 flowmeters 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 332 stations with 68, 90, 84, 57, and 33 stations completed on parts I-V, respectively.

Standard plankton tows were made at 115 stations. Bottom temperatures were collected at all stations using the CTD system. Bottom water samples for CTD calibration were taken at 29 stations.

Tables 1 and 2 list the major samples collected for various studies.

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 loaded into the NEFSC trawl survey database.

SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFSC, Woods Hole, MA

John Galbraith, Chief Scientist ¹	Jonathan Duquette ^{1,4,**}	Sarah Pregracke ⁵
Linda Despres, Chief Scientist ²	Robert Johnston ¹	Yvonna Rowinski ^{2,5}
Stacy Rowe, Chief Scientist ³	Charles Keith ⁴	Nina Shepherd ^{2,4,5}
Peter Chase ¹ , Chief Scientist ⁴	Stacy Kubis ⁴	Brian Smith ³
Larry Brady ^{2,4} , Chief Scientist ⁵	Chris Legault ³	Sandy Sutherland ³
Robert Alexander ²	Alicia Long ^{1,2,4,**,5}	Tiffany Vidal ²
John Brodziak ⁵	Sean Lucey ^{2,5}	Susan Wigley ³
Jay Burnett ³	Kevin McIntosh ^{1,4}	
William Duffy ^{3,5}	Michael Palmer ⁴	

National Marine Fisheries Service, NEFSC, Highlands, NJ

John Subunka¹

National Marine Fisheries Service, NEFSC, Narragansett, RI

Jonathan Hare³
Jerome Prezioso²

National Marine Fisheries Service, NEFSC, Milford, CT

Lisa Milke²

NOAA Marine and Aviation Operations, NMAO, Woods Hole, MA

Apryl Corey¹

National Marine Fisheries Service, NSL, Washington, DC

La'Shaun Willis⁴

South Carolina Division of Natural Resources, Charleston, SC

Erin Levesque¹

University of Massachusetts, Amherst, MA

Katie Anderson^{4*}
Joseph Kunkel^{4*}

Environmental Protection Agency, EPA, Narragansett, RI

Tracy Jamula^{2,4}

Contractors

Tim Bertrand⁴

Lisa Bonacci⁵

Laurel Col³

Jakub Kircun^{1,3,5}

Jessica Megley¹

Hassan Moustahfid⁵

Geoffrey Shook²

ITS, Woods Hole, MA

ETI, Woods Hole, MA

ETI, Woods Hole, MA

ETI, Woods Hole, MA

ITS, Woods Hole, MA

ITS, Woods Hole, MA

Antrim, NH

Volunteers

Shane Bergman⁵

Michael Robert Bjornholm⁵

Walter Blogoslawski III³

William Gardner²

John Kehoe¹

Kathy Mills⁴

Linda Morgan³

Jaelyn O'Riley¹

Carrie Reidel³

Mellissia Richards²

Melanie-Jane Underwood¹

Luke Whitman⁴

Lisa Williams⁵

Denver, CO

Dennis, MA

New Britain, CT

Princess Anne, MD

Burr Ridge, IL

Ithaca, NY

Havre de Grace, MD

Stoughton, MA

Falmouth, MA

Bangor, ME

Yokine, WA, Australia

Old Town, ME

Woods Hole, MA

¹6-15 September

²20-30 September

³3-13 October

⁴17-25, 27-28 October; *(17-25 October) **(27-28 October)

⁵31 October – 4 November

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) 495-2258; 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](http://www.nefsc.noaa.gov/esb/Resource%20Survey%20Reports.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 FRV ALBATROSS IV, Autumn Bottom Trawl Survey, during 6 September to 4 November 2005.

Species	Feeding Ecology Observations	Age and Growth Samples
Acadian redfish	224	799
American plaice	322	516
American shad	21	1
Armored searobin	1	-
Atlantic cod	153	381
Atlantic croaker	129	609
Atlantic halibut	11	14
Atlantic herring	197	1075
Atlantic mackerel	33	57
Atlantic wolffish	10	10
Barndoor skate	4	-
Black sea bass	26	106
Blackbelly rosefish	60	-
Blueback herring	19	-
Bluefish	141	312
Buckler dory	5	-
Butterfish	33	782
Clearnose skate	4	-
Conger Eel	1	-
Cunner	11	-
Cusk	12	12
Fawn cusk-eel	36	-
Fourspot flounder	269	279
Goosefish	94	119
Gulf Stream flounder	106	-
Haddock	365	961
Hickory shad	1	-
Lanternfish	20	-
Little skate	218	7
Longhorn sculpin	152	-
Northern searobin	85	-
Northern shortfin squid	1	-
Ocean Pout	59	58
Offshore hake	13	13
Pollock	92	212
Red hake	283	398
Rosette skate	10	-
Scup	134	390
Sea raven	131	-
Silver hake	315	952
Smooth dogfish	206	-
Smooth skate	31	-
Spiny dogfish	362	-
Spiny searobin	2	-
Spot	90	-
Spotted hake	222	225

Species	Feeding Ecology Observations	Age and Growth Samples
Striped sea bass	12	13
Striped searobin	51	2
Summer flounder	210	408
Tautog	1	-
Thorny skate	24	-
Weakfish	136	688
White hake	128	248
Windowpane	215	337
Winter flounder	372	536
Winter skate	135	-
Witch flounder	93	114
Yellowtail flounder	184	263
TOTALS	6,275	10,897

Table 2. Miscellaneous scientific collections made on FRV ALBATROSS IV, Autumn Bottom Trawl Survey, during 6 September to 4 November 2005.

Investigator and Affiliation	Samples Saved	Approximate Number
Aquarium, NMFS, NEFSC, Woods Hole, MA	Loligo squid	9 bags
	Shrimp	1 bag
	Misc. live species	4 indiv.
Peter Chase, NMFS, NEFSC, Woods Hole, MA	Various species	211 indiv.
	Various species, maturity workshop	111 indiv.
Bruce Collette, NMFS, NSL, Washington, DC	Various species	23 indiv.
John Galbraith, NMFS, NEFSC, Woods Hole, MA	Various species	645 indiv.
Heather Haas, NMFS, NMFS, Woods Hole, MA	Turtles	1 tagged
Josef Idoine, NMFS, NEFSC, Woods Hole, MA	Shrimp	84 bags
Francis Juanes, UMASS, Amherst, MA	Offshore hake	11 preserved
	Silver hake	99 preserved
Charles Keith, NMFS, NEFSC, Woods Hole, MA	Atlantic hagfish	39 indiv.
Nancy Kohler, NMFS, NEFSC, Narragansett, RI	Sharks	2 tagged
William Macy, URI, Narragansett, RI	Loligo squid	207 indiv.
	Spanish sardine	1 indiv.
Nancy McHugh, NMFS, NEFSC, Woods Hole, MA	Various species	88 exam.
New England Aquarium, Boston, MA	Various species	126 indiv.
Paul Nitschke, NMFS, NEFSC, Woods Hole, MA	Cunner	14 indiv.
Martha Nizinski, NMFS, NSL, Washington, DC	Various crustaceans	38 indiv.
Loretta O'Brien, NMFS, NEFSC, Woods Hole, MA	Atlantic cod	116 exam.
Adela Roa-Varon, Univ of Nebraska, Lincoln, NE	Various species	12 indiv.
Jason Link/Brian Smith, NMFS, NEFSC, Woods Hole, MA	Various species	265 preserved
Katherine Sosebee, NMFS, NEFSC, Woods Hole, MA	Various skate species examined	551 indiv.
	Whole skates frozen	6 indiv.
	Vaiious rays species	428 exam.
	Female dogfish	224 exam.
Michael Vecchione, NMFS, NSL, Washington, DC	Horseshoe crab	3 indiv.
Tiffany Vidal, NMFS, NEFSC, Woods Hole, MA	Various species	435 indiv.
Jon Brodziak, NMFS, Woods Hole, MA	Haddock	127 indiv.
Jay Burnett, NMFS, Woods Hole, MA	Various Species	100 indiv.
Regina Campbell-Malone, WHOI, Woods Hole, MA	Various species	19 indiv.
Donald Cobb, EPA, Narragansett, RI	Various Flounder	39 indiv.
Jim Craddock, WHOI, Woods Hole, MA	Various Octopi	31 indiv.
Johnathan Hare, NMFS, EPD, Narragansett, RI	Various Species	102 indiv.
Joseph Kunkel, UMASS, Amherst	American Lobster	2 indiv.
Karina Mrakovich, US Coast Guard Academy, New London, CT	Banded Drum	7 indiv.
Kim Damon-Randall, NMFS RO, Gloucester, MA	Atlantic Wolfish-preserve fin clip	7 preserved
Will Gardner, Univ. of Maryland, Eastern Shore	Striped bass	5 indiv.
George Sedberry, SCDNR, Charleston, SC	Scup-preserve tissue	30 preserved
Lisa Williams, Woods Hole, MA	Atlantic Cod-preserve tissue	26 preserved

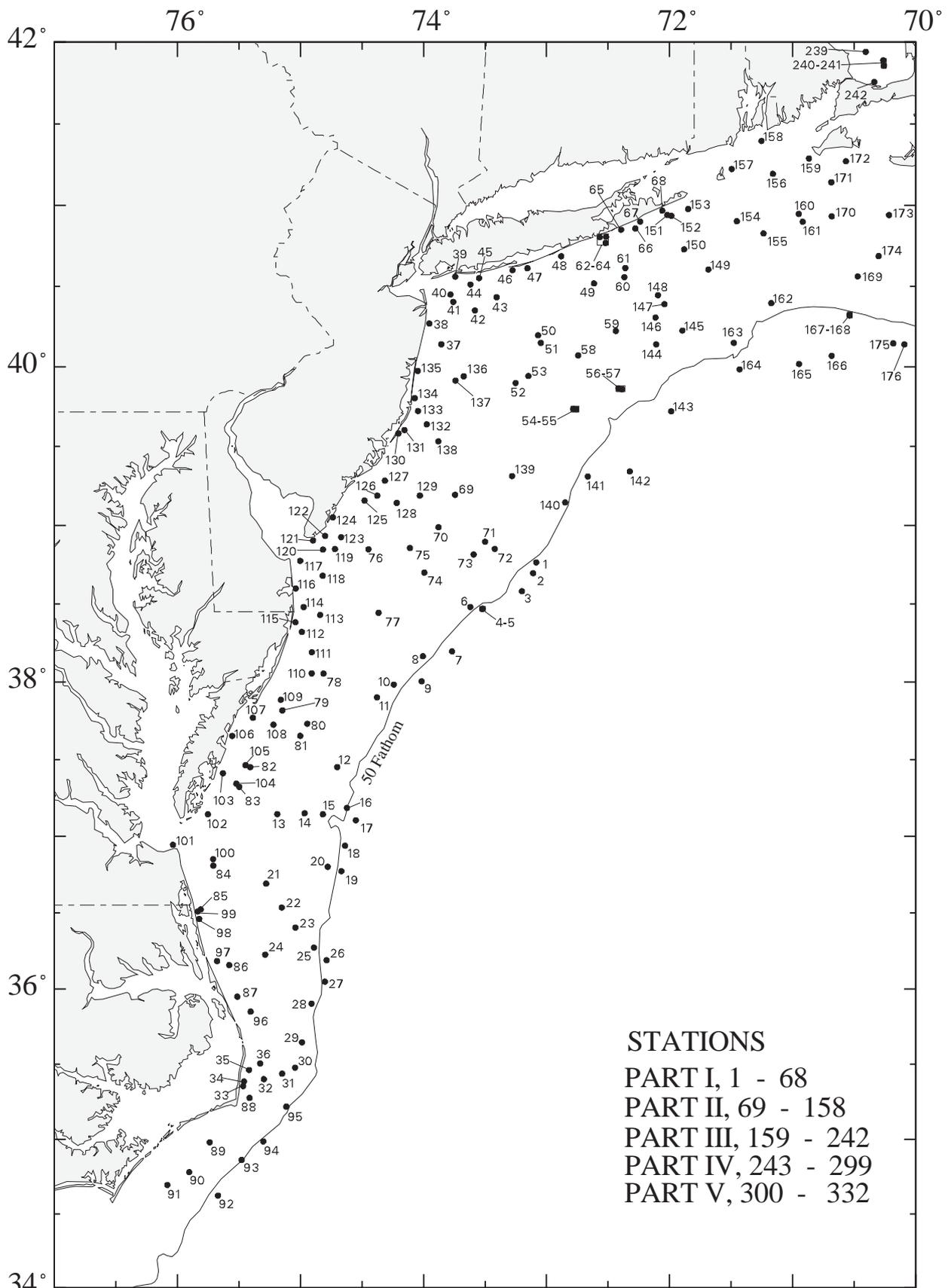


Figure 1. Trawl hauls made from R/V ALBATROSS IV (05 - 08), during NOAA Fisheries Service, Northeast Fisheries Science Center fall bottom trawl survey, 6 September - 4 November, 2005.

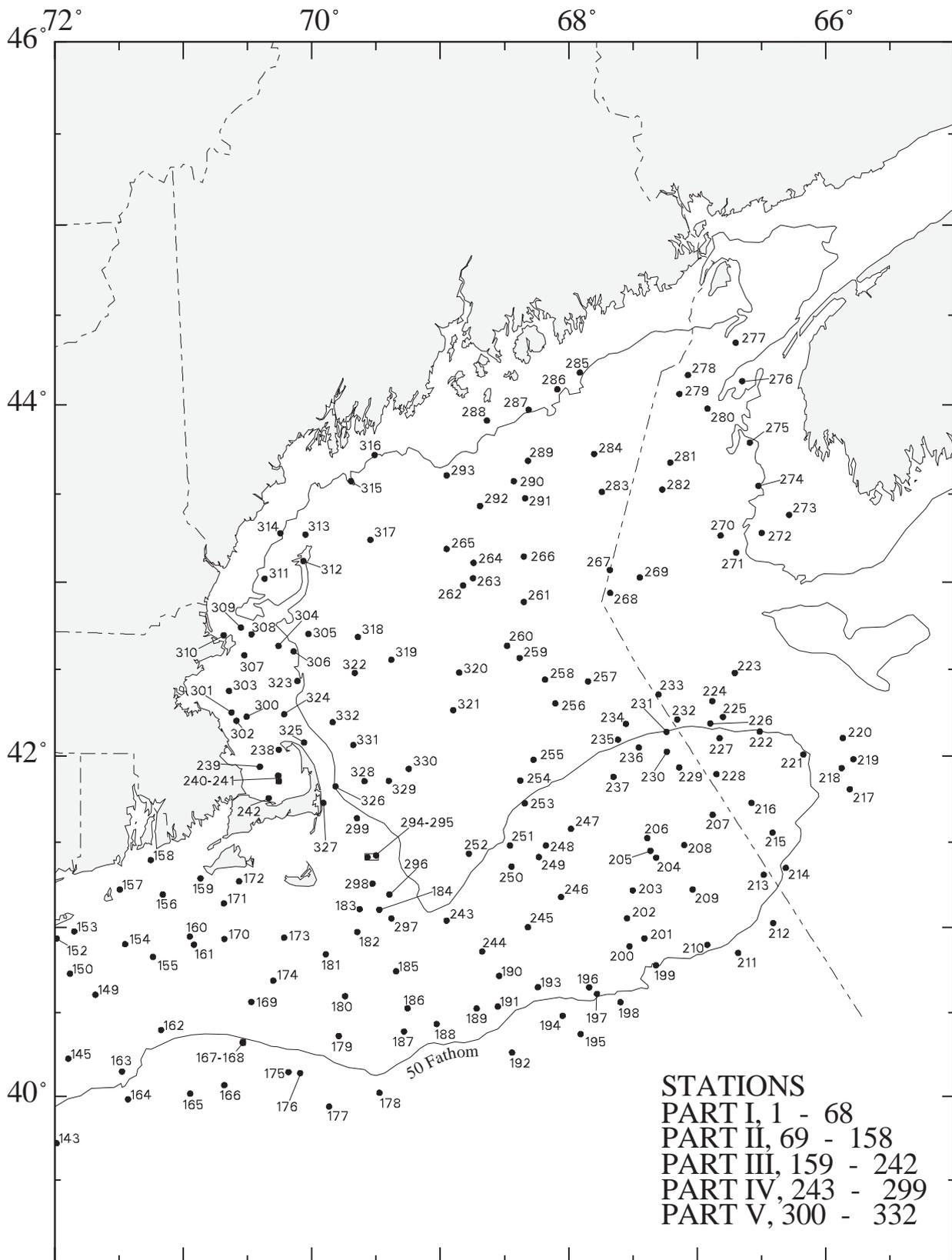


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