

3 January 2003

NOAA FRV ALBATROSS IV
Cruise No. AL 02-03 (Parts I-II)
Winter Bottom Trawl Survey

CRUISE PERIOD AND AREA

The cruise period was from 5 February-2 March 2002. The cruise was conducted in two parts: Part I was during 5-15 February. Part II was during 19 February-2 March. The area of operations was from Cape Hatteras to Georges Bank. Station locations and cruise track are shown in Figure 1.

OBJECTIVES

The objectives of the cruise were to: (1) determine the winter distribution and relative abundance of fish and selected invertebrate species; (2) collect biological samples for studies of age and growth relationships, fecundity, maturity and feeding ecology studies; (3) collect hydrographic and meteorological data; (4) collect samples of ichthyoplankton and zooplankton; and (5) make data and sample collections for cooperative researchers and programs; (6) conduct a hydroacoustic survey between survey stations; and (7) fully implement the Fisheries Scientific Computer System (FSCS) throughout the entire cruise.

METHODS

Operations and gear conformed with the Cruise Instructions for the winter bottom trawl survey dated 7 December 2001, ADDENDUM NUMBER 1 dated 1 February and ADDENDUM NUMBER 2 dated 19 February with the following exception: Part I left one day later than scheduled due to inclement weather. The vessel made a port call to Norfolk, Virginia on 7 February and left the next morning on 8 February; during Part II on 25 February, a coast guard vessel met the ALBATROSS IV to remove a sick scientist.

A 30-minute tow was made at each station with a Northeast Fisheries Science Center (NEFSC) standard 36 Yankee net that was rigged with a rubber disc covered chain sweep, 13 floats and 55 meter ground cables ("flatfish" net). Standard NEFSC polyvalent trawl doors were used. The trawl was fished at a scope of 4:1 in

water depths between 18 and 27 meters (m), 3.1 in depths between 28 and 183 m, and 2.5:1 in depths of 184 m and greater. Towing speed was primarily determined using DGPS instrumentation. Direction of the tow was generally toward the next station.

A digital data acquisition system (FSCS) was used to record the data. This system uses digital scales, electronic measuring boards, touch screen displays and bar code scanners to record data on deck and archive the data on the ship's computer network.

Sampled fish were assigned individual identification numbers, measured, weighed to the nearest 0.1 kilogram (kg) and further sampled for age and growth and feeding ecology studies. Bony fish were measured to the nearest centimeter (cm) 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). 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 centimeters for selected bivalves. Additional collections were obtained for various scientists. 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 three meters. Temperature and conductivity profiles were made using a conductivity, temperature, depth instrument (CTD) system. 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. The net was towed at 2.8-3.7 kilometers/hour (1.5-2.0 knots). A CTD was deployed at each plankton station.

Throughout the cruise, eastern standard time was maintained.

RESULTS

During the survey, one hundred fifty-nine stations were occupied with 64 and 95 stations completed on parts one and two, respectively. Standard NEFSC plankton tows were made at 70 stations. Bottom temperatures were collected at 158 stations

using the CTD system. Bottom water samples for CTD calibration were taken on 25 stations.

DISPOSITION OF SAMPLES AND DATA

Age and growth samples, feeding ecology data, maturity data, trawl catch data, and hydrographic data will be analyzed at the NEFSC Laboratory at Woods Hole, Massachusetts. Various special sample 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

John Galbraith, Chief Scientist, Part I, 5-15 February
 Wendy Gabriel, Chief Scientist, Part II, 19 February-2 March
 Lawrence Brady, II
 John Burnett, II
 Peter Chase, I, II
 Josef Iodine, II
 Nancy McHugh, I
 David Mountain, II
 Stacy Rowe, I
 Nina Shepherd, I, II
 Terry Smith, I
 Katherine Sosebee, I
 Mark Terceiro, I

NOAA, OMAO, MOC, Woods Hole, MA

John Cross, II
 Sean Suk, I

National Marine Fisheries Service, NEFSC, Washington, DC

Ruth Gibbons, I

National Marine Fisheries Service, SEFSC, Beaufort, NC

David Gloeckner, I

Chesapeake Biological Laboratory, Solomons, MD

Michael Frisk, II

New England Aquarium, Boston, MA

Marianne Farrington, I
 John Mandelman, I

Contractors

Thomas Azarovitz, II
 Kevin McIntosh, II

West Falmouth, MA
 Woods Hole, MA

Volunteers

William Duffy, I
 Paul Ketcham, II
 James McCann, II

Waltham, MA
 Falmouth, MA
 Walden, NY

 For further information contact: Russell Brown, National Marine
 Fisheries Service, Northeast Fisheries Science Center, Woods
 Hole, Massachusetts 02543-1097. Telephone (508) 495-2380; FAX
 (508) 495-2258; Internet Russell.Brown@noaa.gov. These cruise
 results and a Fishermen's Report for this survey can be viewed
 at: <http://www.nefsc.nmfs.gov/femad/ecosurvey/mainpage/survey.htm>

Table 1. Observations and samples collected for feeding ecology,
 and age and growth studies on FRV ALBATROSS IV Cruise
 02-03 (I-II), Winter Bottom Trawl Survey, during 5
 February-2 March, 2002.

Species	Feeding Ecology Observations	Age & Growth Samples
Acadian redfish	3	-
American plaice	3	-
American shad	16	1
Atlantic cod	4	2
Atlantic herring	65	274
Atlantic mackerel	102	202
Barndoor skate	1	-
Blackbelly rosefish	13	-
Black sea bass	156	454
Blueback herring	7	-
Bluefish	7	9

Table 1. (continued).

Species	Feeding Ecology Observations	Age & Growth Samples
Butterfish	149	150
Cunner	1	-
Fawn cuskeel	45	-
Fourspot flounder	380	131
Goosefish	328	546
Haddock	15	-
Little skate	317	-
Longhorn sculpin	39	-
Ocean pout	122	11
Offshore hake	70	96
Red hake	109	56
Rosette skate	74	-
Sea raven	32	-
Scup	108	226
Silver hake	221	105
Smooth dogfish	179	-
Smooth skate	2	-
Spiny dogfish	508	-
Spotted hake	222	96
Summer flounder	642	1,490
Tautog	1	-
Thorny skate	1	-
Weakfish	6	2
White hake	11	2
Windowpane	161	150
Winter flounder	80	80
Winter skate	152	-
Witch flounder	145	101
Yellowtail flounder	146	326
TOTALS	4,643	4,510

Table 2. Miscellaneous scientific collections made on FRV ALBATROSS IV Cruise 02-03 (I-II), Winter Bottom Trawl Survey, during 5 February-2 March 2002.

Investigator & Affiliation	Samples Saved	Approximate Number
Aquarium, NMFS, NEFSC Woods Hole, MA	Atl. herring	2 bags
	<u>Loligo</u>	9 bags
	Live ocean pout	1 indiv.
William Bemis, Univ. of MASS, Amherst, MA	Various species	16 indiv.
Jon Brodziak, NMFS, NEFSC, Woods Hole, MA	<i>Loligo pealeii</i>	11 indiv.
Peter Clarke, Rutgers Univ., Tuckerton, NJ	Goosefish	4 indiv.
Bruce Collette, NMFS Nat'l Systematics Lab Washington, DC	Various species	4 indiv.
Michael Frisk, Chesapeake Biological Lab Solomons, MD	Various skates, hearts & ovaries	511 samples
	Skate vertebrae	586 samples
John Galbraith, NMFS, NEFSC, Woods Hole, MA	Unidentified species	98 indiv.
Dvora Hart, NMFS, NEFSC, Woods Hole, MA	<i>Astropecten</i>	1 box
Nancy McHugh, NMFS, NEFSC, Woods Hole, MA	Various species	76 indiv.
Paul Nitschke, NMFS NEFSC, Woods Hole, MA	Cunner	1 indiv.
Loretta O'Brien, NMFS NEFSC, Woods Hole, MA	Atlantic cod	4 indiv.
Rodney Rountree, Univ. of MASS, Amherst, MA	Fawn cusk-eel	4 indiv.
Cheryl Ryder, NMFS, NEFSC, Woods Hole, MA	Turtles	1 indiv.

Table 2. (continued):

Investigator & Affiliation	Samples Saved	Approximate Number
Katherine Sosebee, NMFS NEFSC, Woods Hole, MA	Rays	2 indiv.
	Female spiny dogfish	334 exam.
	Various skates	864 exam.
	vertebrae	303 samples
Michael Tork, NMFS NEFSC, Woods Hole, MA	Various species	27 indiv.

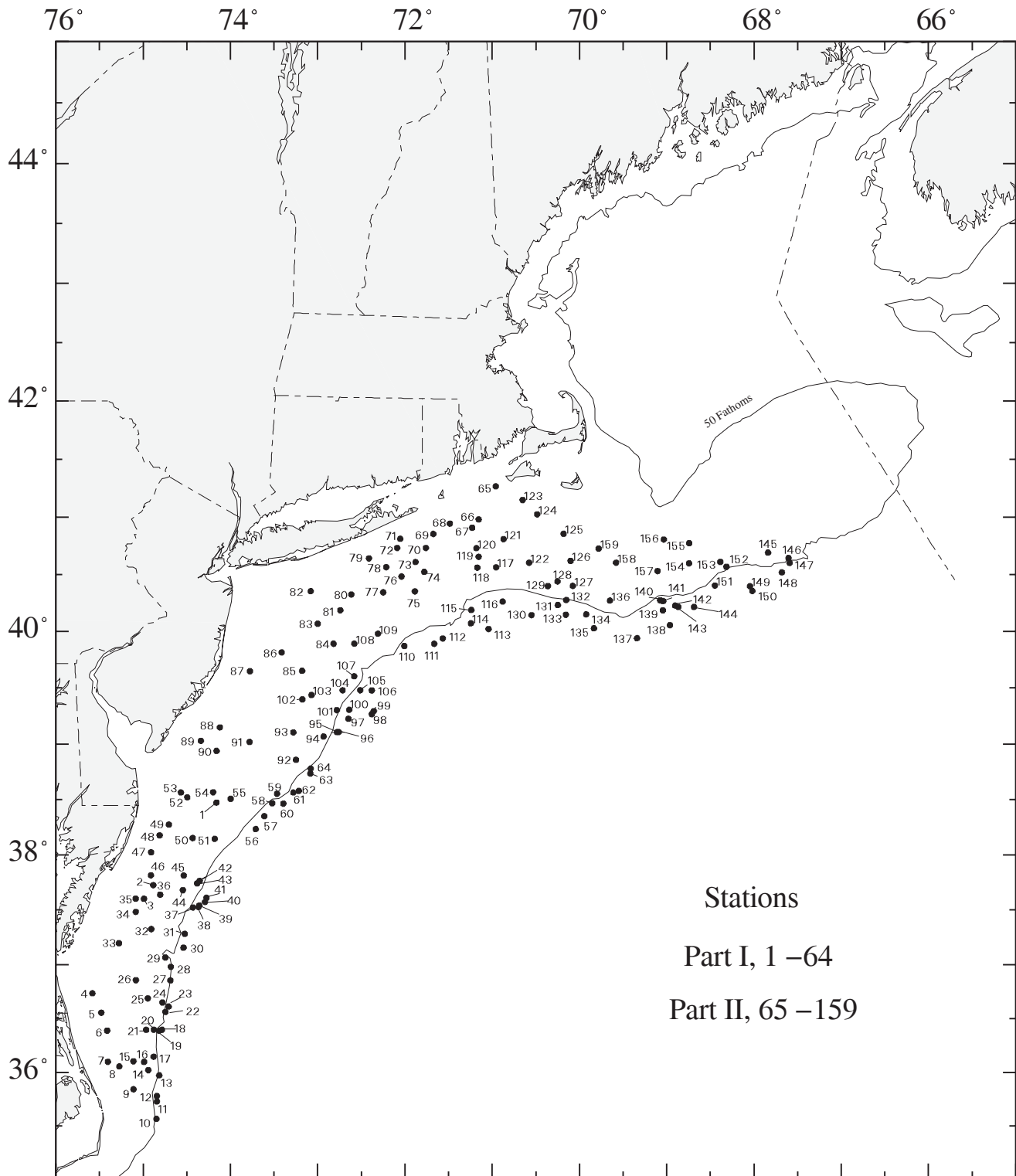


Figure 1. Trawl hauls made from the FRV Albatross IV, during National Marine Fisheries Service, Northeast Fisheries Science Center winter bottom trawl survey (2002 –01), February 5 –March 2, 2002.