



10 April 2006

CRUISE RESULTS

NOAA Ship ALBATROSS IV
Cruise No. AL 06-02 (Parts I-II)
Winter Bottom Trawl Survey

CRUISE PERIOD AND AREA

The cruise period was from 7 February – 2 March 2006. The cruise was conducted in two parts: Part I was from 7 – 17 February and Part II was from 22 February – 2 March. The area of operations was from Cape Hatteras to the eastern portion of Georges Bank. Station locations are shown in Figure 1.

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-II conformed with the Cruise Instructions for the Winter Bottom Trawl Survey dated 19 December 2005, Addendum 1 dated 6 February 2006; and Addendum 2 dated 16 February 2006 with the following exceptions: Part I left one day late due to poor weather conditions; Part II left 2 days late and returned one day early due to mechanical problems with the trawl winch.

A 30-minute tow was made at each station with a Northeast Fisheries Science Center (NEFSC) standard 36 Yankee “flatfish” net rigged with a rubber disc covered chain sweep, 11 floats, and 55 meter ground cables. 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 to the nearest 0.001 kg 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. Additional collections were obtained for various scientists (Table 2). 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 at each station using a conductivity, temperature, and depth (CTD) instrument. 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 132 stations with 84 and 48 stations completed on Parts I and II respectively.

Standard plankton tows were made at 57 stations. Bottom temperatures were collected at all stations using the CTD system. Bottom water samples for CTD calibration were taken at 26 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

Wendy Gabriel, Chief Scientist²

Stacy Rowe, Chief Scientist¹

Larry Brady²

William Duffy¹

Charles Keith¹

Alicia Long^{1,2}

Sean Lucey²

Kevin McIntosh¹

David Mountain¹

Sarah Pregracke¹

Yvonna Rowinski^{1,2}

Katherine Sosebee¹

Mark Terceiro¹

National Marine Fisheries Service, Narragansett, RI

Jonathan Hare²

Contractors

Lisa Bonacci¹

Integrated Statistics, Woods Hole, MA

Brandy Hutnak¹

Integrated Statistics, Woods Hole, MA

Jakub Kircun²

Integrated Statistics, Woods Hole, MA

Nikolai Klibanski²

Independent contractor, Georgetown, MA

Katey Marancik²

Integrated Statistics, Woods Hole, MA

Catherine O'Keefe²

Integrated Statistics, Woods Hole, MA

Melissa Patrician¹

Integrated Statistics, Woods Hole, MA

Volunteers

Heath Cook^{1,2}

Kingsford, Australia

Robert Kennedy²

Nantucket, MA

Benjamin Tradd²

Merrimac, MA

Luke Whitman²

Annapolis, MD

¹7 - 17 February

²22 February – 2 March

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 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 06-02 (I-II), Winter Bottom Trawl Survey, during 7 February – 2 March 2006.

Species	Feeding Ecology Observations	Age and Growth Samples
American Shad	15	-
Atlantic Cod	2	-
Atlantic Herring	73	368
Atlantic Mackerel	105	279
Atriped Searobin	21	-
Barndoor Skate	86	-
Black Sea Bass	58	167
Blackbelly Rosefish	37	-
Blueback Herring	18	-
Bluefish	11	-
Buckler Dory	16	-
Butterfish	133	-
Clearnose Skate	170	-
Fawn Cusk-eel	62	-
Fluke	261	988
Fourbeard Rockling	12	-
Fourspot Flounder	201	-
Goosefish	168	508
Gulf Stream Flounder	151	-
Haddock	9	-
Little Skate	194	-
Longhorn Sculpin	36	-
Northern Searobin	81	-
Ocean Pout	118	-
Offshore Hake	80	83
Red Hake	139	-
Rosette Skate	62	-
Scorpionfish and Rockfish	1	-
Scup	59	131
Sea Raven	16	-
Silver Hake	207	-
Smooth Dogfish	81	-
Smooth Skate	3	-
Spiny Dogfish	321	795
Spotted Hake	182	-
Striped Bass	6	6
Tilefish	4	-
Weakfish	8	9
White Hake	23	-
Windowpane	160	-
Winter Flounder	49	-
Winter Skate	97	-
Witch Flounder	165	-
Yellowtail Flounder	127	570
Total	3828	3904

Table 2. Miscellaneous scientific collections made on the NOAA SHIP ALBATROSS IV, Cruise 06-02 (I-II), Winter Bottom Trawl Survey, during 7 February – 2 March 2006.

Investigator and Affiliation	Samples Saved	Approximate Number
Aquarium, NMFS, NEFSC, Woods Hole, MA	Barndoor Skate	2 indiv.
Peter Chase, NMFS, NEFSC, Woods Hole, MA	Various species, maturity workshop	6 indiv.
Stephen Clifford, Dalhousie University, Nova Scotia	Various species	33 indiv.
John Galbraith, NMFS, NEFSC, Woods Hole, MA	Misc. species	538 indiv.
Jonathan Hare, NMFS, NEFSC, Narragansett, RI	Alewife	51 indiv.
	American shad	20 indiv.
Charles Keith, NMFS, NEFSC, Woods Hole, MA	Atlantic hagfish	17 indiv.
Nancy Kohler, NMFS, NEFSC, Narragansett, RI	Sandbar shark	1 indiv.
Jason Link & Brian Smith, NMFS, NEFSC, Woods Hole, MA	Preserved stomachs	150 samples
Sean Lucey, NMFS, NEFSC, Woods Hole, MA	Ripe ovary samples	3 samples
Paul Nitschke, NMFS, NEFSC, Woods Hole, MA	Winter flounder	148 indiv.
Anne Richards, NMFS, NEFSC, Woods Hole, MA	Goosefish	9 indiv.
Katherine Sosebee, NMFS, NEFSC, Woods Hole, MA	Various skates	759 exam
	Various skates	109 samples
	Various rays	37 exam
	Spiny dogfish	282 exam
	Spiny dogfish fork lengths	652 exam

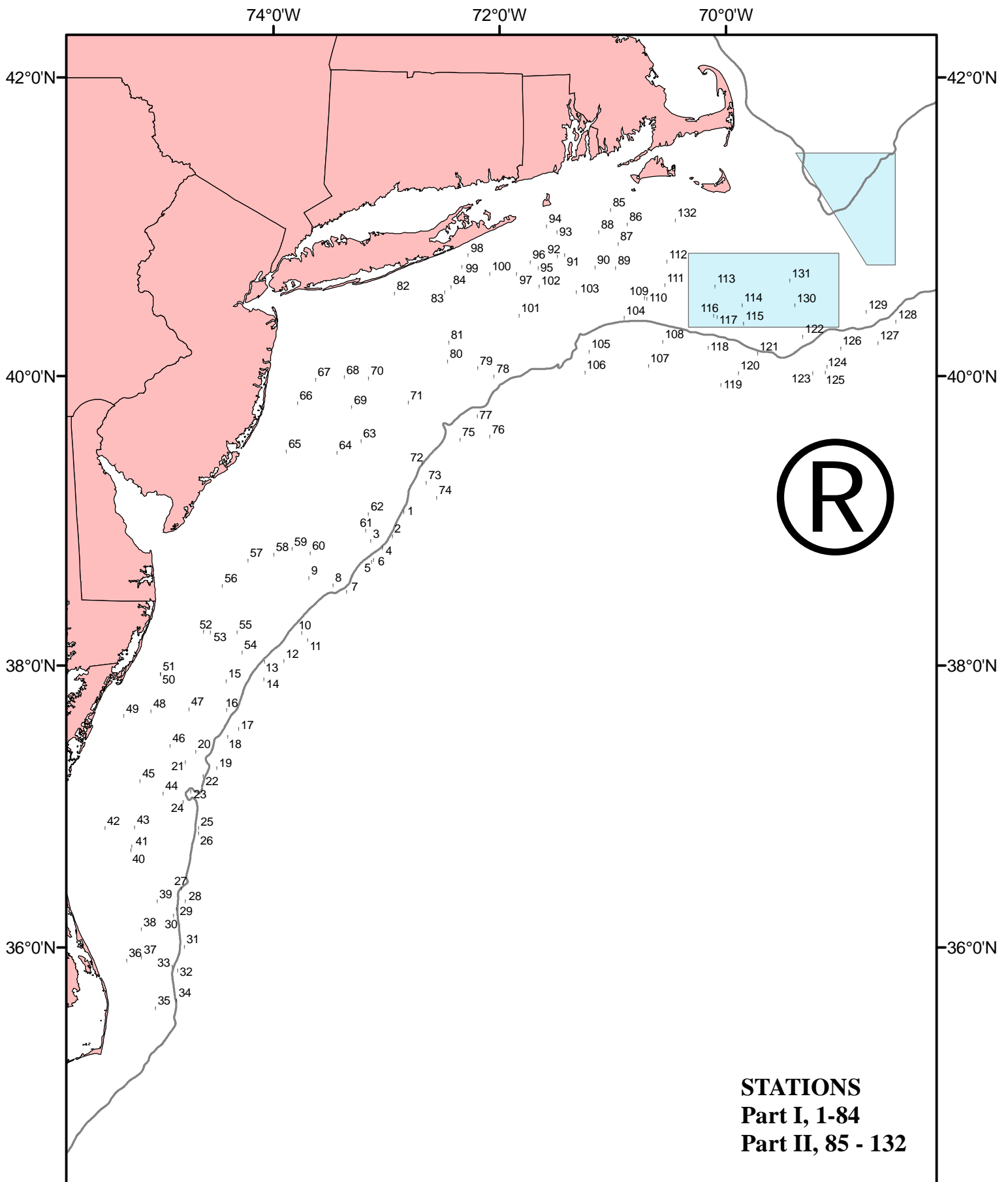


Figure 1. Trawl hauls made from NOAA Ship ALBATROSS IV (06 - 02), during NOAA Fisheries Service, Northeast Fisheries Science Center spring bottom trawl survey, 7 February - 2 March, 2006.