

9 April 2001

NOAA FRV ALBATROSS IV
Cruise No. AL 01-02 (Parts I-II)

Winter Bottom Trawl Survey

CRUISE PERIOD AND AREA

The cruise period was from 29 January-23 February 2001. The cruise was conducted in two parts: Part I was during 29 January-9 February, Part II was during 12-23 February. 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 food habits; (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.

METHODS

Operations and gear conformed with the Cruise Instructions for the winter bottom trawl survey dated 11 January 2001, ADDENDUM NUMBER 1 dated 29 January and ADDENDUM NUMBER 2 dated 12 February with the following exception: During Part II, operations were stopped and the vessel jogged for 16 hours due to weather conditions.

A 30-minute tow was made at each station with a Northeast Fisheries Science Center (NEFSC) standardized 36 Yankee flat net that was rigged with a rubber disc covered chain sweep, 13 floats and 55 meter ground cables. NEFSC standardized 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 greater than 184 m. During the survey, speed was primarily determined using DGPS instrumentation. Direction of the tow was generally toward the next station.

For each species, total weight was obtained using motion-compensated electronic scales and recorded to the nearest 0.1 kilogram (kg) on standard trawl logs. On a separate data sheet, sampled fish were assigned individual identification numbers, measured, weighed and further sampled for age and growth and food habits 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 (cm) for selected bivalves. Additional collections were obtained for various scientists. 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 three meters. Temperature and conductivity profiles were made using a conductivity, temperature, depth instrument (CTD). 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.

Eastern standard time was maintained during the cruise.

RESULTS

One hundred seventy-five stations were occupied during the survey with 91 and 84 stations completed on parts one and two respectively. NEFSC standardized plankton tows were made at 73 stations. Bottom temperatures were collected at 174 stations using the CTD system. Bottom water samples for CTD calibration were taken on 33 stations. During Part I, a scientific experiment was conducted for an oceanology class for West Warwick High School in West Warwick, RI. Styrofoam cups were sent to the

ocean bottom to test what effect pressure would have on them. The cups reached a maximum depth of 500 meters and the experiment was a success. All trawl and biological logs were hand processed at sea for immediate entry into the NEFSC data management system. Tables 1 and 2 list the major samples collected for various studies.

DISPOSITION OF SAMPLES AND DATA

Age and growth samples, food habits data and samples, maturity data, trawl catch data, and hydrographic data will be analyzed at the NEFSC Laboratory at Woods Hole, Massachusetts. 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 data base in 2001.

SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFSC, Woods Hole, MA

Victor Nordahl, Chief Scientist, Part I*

Wendy Gabriel, Chief Scientist, Part II**

John Burnett, II

Brenda Figuerido, II

Josef Idoine, II

Charles Keith, I

Ralph Mayo, I

Nancy McHugh, I

David Mountain, II

Nina Shepherd, I

Vaughn Silva, II

Katherine Sosebee, I

Mark Terceiro, I

National Marine Fisheries Service, NEFSC, Narragansett, RI

Stephen Brownell, I

NOAA, OMAO, Woods Hole, MA

Noah Lawrence-Slavas, II

Jeffrey Taylor, I

Virginia Institute of Marine Science, Gloucester Point, VA

Christina Conrath, II

Connecticut Department of Marine Fisheries, Old Lyme, CT

Deborah Shake, II

Contractors, PTISI, Woods Hole, MA

Larry Brady, I, II

Holly Celico, I

Elizabeth Coolidge, I

Contractors (continued):

Edward Emmons, II
Michael Levine, II
Sandra Sutherland, I

Volunteers

Katherine Roberts, II
Christopher Van Beeck, II

- * Part I - 29 January-9 February
- ** Part II - 12 February-23 February

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Table 1. Observations and samples collected for feeding ecology, and age and growth studies on FRV ALBATROSS IV Cruise 01-02 (I-II), Winter Bottom Trawl Survey, during 29 January - 23 February 2001.

Species	<u>Feeding Ecology</u> Observations	<u>Age & Growth Samples</u>
Alewife	1	-
American plaice	48	-
American shad	15	-
Atlantic cod	75	105
Atlantic halibut	10	-
Atlantic herring	55	161
Atlantic mackerel	71	197
Barndoor skate	58	-
Black sea bass	115	474
Blueback herring	7	-
Bluefish	20	-
Butterfish	116	44
Chain dogfish	4	-
Clearnose skate	22	-
Cusk	1	-
Fawn cuskeel	5	-
Fourspot flounder	333	1
Goosefish	358	172
Haddock	69	122
Little skate	296	-
Longhorn sculpin	81	-
Ocean pout	123	2
Offshore hake	76	189
Pollock	2	-
Red hake	98	21
Redfish	-	1
Rosette skate	65	-
Scup	68	171
Sea raven	58	-
Silver hake	199	171
Smooth dogfish	57	-
Smooth skate	8	-
Spiny dogfish	625	-
Spotted hake	207	-
Striped bass	39	-
Summer flounder	538	1,376
Thorny skate	4	-
Weakfish	8	-
White hake	17	11

Table 1. (continued):

Species	<u>Feeding Ecology</u> Observations	<u>Age & Growth Samples</u>
Windowpane	181	538
Winter flounder	74	177
Winter skate	208	-
Witch flounder	149	306
Yellowtail flounder	61	432
TOTALS	4,625	4,671

Table 2. Miscellaneous scientific collections made on FRV ALBATROSS IV Cruise 01-02 (I-II), Winter Bottom Trawl Survey, during 29 January - 23 February 2002.

Investigator & Affiliation	Samples Saved	Approximate Number
Aquarium, NMFS, NEFSC Woods Hole, MA	Shrimp Atl. herring <u>Loligo</u>	1 bag 4 bags 14 bags
Kendra Buresch, MBL Woods Hole, MA	<u>Loligo</u>	159 indiv.
Steve Cadrin, NMFS, NEFSC, Woods Hole, MA	Yellowtail flounder	286 indiv.
Christina Conrath, VIMS Gloucester Point, VA	Smooth dogfish	3 indiv.
John Galbraith, NMFS, NEFSC, Woods Hole, MA	Unidentified species	36 indiv.
Josef Idoine, NMFS, NEFSC, Woods Hole, MJA	Shrimp	1 sample
Eric Parent, FAO Quebec, Canada	Atl. mackerel	100 indiv.

Table 2. (continued):

Investigator & Affiliation	Samples Saved	Approximate Number
Paul Rago, NMFS, NEFSC Woods Hole, MA	Scallops	50 indiv
Anne Richards, NMFS NEFSC, Woods Hole, MA	Goosefish	73 indiv.
Marina Roldan, Univ. of Girona, Girona, Spain	Offshore hake	101 indiv.
Daniel Salerno, NMFS, NEFSC, Woods Hole, MA	Various species	78 indiv.
Katherine Sosebee, NMFS, NEFSC, Woods Hole, MA	Female spiny dogfish/ pups Barndoor skate ovaries/ vertebrae Various other skates	693 exam. 66 samples 1465 exam.
Douglas Stoner, South Carolina DNR Charleston, SC	Barndoor skate fin clips	58 samples
David Wyanski, South Carolina DNR Charleston, SC	Blackbelly rosefish	16 indiv.

