16 January 2001

CRUISE RESULTS

NOAA FRV ALBATROSS IV
Cruise No. AL 00-02 (Parts I-IV)
Spring Bottom Trawl Survey

CRUISE PERIOD AND AREA

The cruise period was from 15 March to 4 May 2000. The cruise was conducted in four parts: Part I was from 15-31 March; Part II, from 3-14 April; Part III, from 17-28 April; Part IV, from 1-4 May. The area of operations was from Cape Hatteras to the Gulf of Maine. Station locations are shown in Figures 1 and 2.

OBJECTIVES

The objectives of the cruise were to: (1) determine the spring distribution and relative abundance of fish and 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) make collections of data and samples for cooperative researchers and programs; and (5) collect hydroacoustic data during survey stations.

METHODS

Operations and gear used during Parts I-IV conformed with the Cruise Instructions for the spring bottom trawl survey dated 10 March 2000, with the following exceptions: Part I scheduled to leave 13 March was delayed two days due to mechanical problems. Arrangements were made to make a port call to Boston, where a damaged net was replaced, and four visiting officials were let off.

A 30-minute tow was made at each station with a Northeast Fisheries Science Center (NEFSC) standardized number 36 Yankee otter trawl that was rigged with 41 centimeter (cm) diameter rubber rollers, 36 floats, and 9 meter (m) bridles. NEFSC standardized 450 kilogram (kg) polyvalent trawl doors with chain backstraps were used. The trawl was fished at a scope of 4:1 in waters between 18 and 27 m deep, 3:1 in waters between 27 and 184 m deep, and 2.5:1 in depths greater than 184 m. During the survey, speed was determined primarily 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 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. Elasmobranchs (except rays) were measured to the end of the caudal fin (total length). Disk width was measured for rays. Crabs were measured across the carapace width (cm). Lobsters were measured in millimeters (mm) from the posterior edge of the eye socket to the end of the carapace. V-notch lobster condition was also noted. 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 3 meters and displayed by the Scientific Computer System (SCS) at all stations. 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 2.8-3.8 kilometers/hour (1.5-2.0 knots). A CTD (conductivity/temperature/depth) was deployed at each station during plankton tows.

Eastern standard time was maintained during Part I. Daylight savings time was maintained during Parts II, III, and IV.

RESULTS

Three hundred thirty-three stations were occupied during the survey with 158, 77, 84, and 14 stations completed on parts one, two, three, and four respectively. Standard plankton tows were made at 117 stations. There were six special double-dip Bongo stations performed. Bottom temperatures were collected at 333 stations using the CTD system. Bottom water samples for CTD calibration were taken on 38 stations. There was also a special water cast performed. The 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 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 data base.

SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFSC, Woods Hole, MA
John Galbraith, Chief Scientist, Part I*, II**, Participant, III
Holly McBride, Chief Scientist, Part III***
Nancy McHugh, Chief Scientist, Part IV****
John Burnett, II
Roger Clifford, I
John Fearing, IV
Josef Idoine, II
Lawrence Jacobsen, III
Charles Keith, I
William Kramer, IV
Henry Milliken, IV
Paul Nitschke, II
Elizabeth O'Neill, IV
Nina Shepherd, I, III, IV
Vaughn Silva, I
Michael Sissenwine, III (4/17-18)
Mark Terceiro, I

NOAA, OMAO, Woods Hole, MA
Apryl Corey, IV

NOAA, Deputy Under Secretary, Washington, DC
Scott Gudes, III (4/17-18)

NOAA, Spec.Asst. to Under Secretary, Washington, DC
Dana Palmer, III (4/17-18)

National Marine Fisheries Service, Washington, DC
Rebecca Allee, III (4/17-18)

National Marine Fisheries Service, NEFSC, Narragansett, RI
Jacquelyn Anderson, I
Stephen Brownell, II
Carolyn Griswold, IV
Joseph Kane, IV
Sharon MacLean, II
Jerry Prezioso, I

National Marine Fisheries Service, NEFSC, Milford, CT
Jose Pereira, III

National Marine Fisheries Service, NEFSC, Highlands, NJ
John Sibunka, III, IV

National Marine Fisheries Service, NEFSC, Silver Spring, MD
Rosanne Greene, II
Allen Shimada, IV

National Marine Fisheries Service, NERO, Gloucester, MA
Jennifer Anderson, IV
Pasquale Scida, III

National Marine Fisheries Service, NERO, Newport, RI
Margaret Toner, I

University of Massachusetts, Amherst, MA
Joseph Kunkel, III

University of New Hampshire, Durham, NH
Gabriela Martinez, III

Contractors, PTSI, Woods Hole, MA
Christina Bascunan, I
Lance Garrison, IV
Heather Sagar, I, II
Catherine Wielandt, III

Teacher-at-Sea Program

Karen Schonauer, I	Minerva, OH

Contractors, PTSI

Allison Bonner, II	Ocean City, NJ
Robert Coughlin, II	Ocean Pine, MD
Michelle Gaither, II	Portsmouth, RI
Paul O'Donnel, II	Wareham, MA
William Shaw, III	Gloucester, NC
Travis Stovall, III	Avon, NC

Volunteers

Ross Ferguson, I	Hampton Beach, NH
John Harrington, I	Yarmouth, MA

* Part I, 15-31 March
** Part II, 3-14 April
*** Part III, 17-28 April
**** Part IV, 1-4 May

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Table 1. Field observations and samples collected for feeding ecology, and age and growth studies on FRV ALBATROSS IV, Cruise 00-02 (I-IV), Spring Bottom Trawl Survey, during 15 March - 4 May 2000.

Species	Feeding Ecology Observations	Age & Growth Samples
Acadian redfish	88	370
Alewife	3	-
American plaice	253	557
American shad	32	-
Atlantic cod	229	568
Atlantic croaker	12	62
Atlantic halibut	1	-
Atlantic herring	396	575
Atlantic mackerel	203	246
Atl. sharpnose shark	12	-
Atlantic wolffish	-	6
Barndoor skate	22	-
Blackbelly rosefish	4	-
Black sea bass	21	129
Blueback herring	62	-
Bluefish	9	13
Butterfish	137	262
Clearnose skate	40	-
Cunner	10	-
Cusk	3	8
Dusky flounder	1	-
Fawn cusk-eel	4	-
Fourspot flounder	192	217
Goosefish	113	113
Haddock	169	532
Hickory shad	1	-
Little skate	412	-
Longhorn sculpin	191	-
Ocean pout	171	238
Offshore hake	11	16
Pollock	81	120
Red hake	172	893
Rosette skate	8	-
Scup	16	31
Sea raven	121	-
Silver hake	469	1401
Smooth dogfish	69	-
Smooth skate	19	
Spiny dogfish	698	-
Spot	62	-
Spotted hake	121	519
Striped bass	74	7
Summer flounder	190	228

Table 1. (continued)

Species	Feeding Ecology Observations	Age & Growth Samples	
Tautog	1	-	
Thorny skate	44	-	
Weakfish	49	97	
White hake	143	289	
Windowpane	197	433	
Winter flounder	367	809	
Winter skate	243	-	
Witch flounder	118	170	
Yellowtail flounder	112	298	
	6176	9207	TOTALS

Table 2. Miscellaneous scientific collections made on FRV ALBATROSS IV, Cruise 00-02 (I-IV), Spring Bottom Trawl Survey, during 15 March - 4 May 2000.

Investigator & Affiliation	Samples Saved	Approximate Number
Aquarium, NMFS, NEFSC	Shrimp	36 bags
Woods Hole, MA	Atl. herring	51 bags+ 3 boxes
	Live misc.fish	29 indiv.
	Loligo	29 bags
Elisabeth Broughton, NMFS, NEFSC, Woods Hole, MA	Various species	7 indiv.
John Burnett, NMFS, NEFSC	Goosefish gonad samples	5 indiv.
Woods Hole, MA	American plaice	6 indiv.
	Misc. species for maturity workshop	50+indiv.
Steve Cadrin, NMFS, NEFSC	Yellowtail flounder	254 indiv.+
Woods Hole, MA		4 boxes
Kevin Friedland, CMER	Tagged Atl. sturgeon	1 indiv.
UMASS, Amherst, MA	fin clip	1 sample
John Galbraith, NMFS, NEFSC, Woods Hole, MA	Misc. species	114 indiv.

Table 2. (continued)

Investigator & Affiliation	Samples Saved	Approximate Number
Karsten Hartel, Museum of Comparative Zoology Cambridge, MA	Misc. species	2 indiv.
Lisa Hendrickson, NMFS, NEFSC, Woods Hole, MA	Loligo	6 samples
Jay Hermsen, URI Narragansett, RI	Live sea ravens	11 indiv.
Josef Idoine, NMFS, NEFSC Woods Hole, MA	Shrimp	73 samples
Nancy Kohler, NMFS, NEFSC Narragansett Lab Narragansett, RI	Tagged sharks	6 indiv.
Irving Kornfield, Univ. of Maine, Orono, ME	Atl. cod tissue	100 samples
Joseph Kunkel, UMASS Amherst, MA	Atl. cod blood/ovaries Blood samples various other species	74 samples 42 samples
Gabriela Martinez, Univ. of New Hampshire Durham, NH	Special bongo station Various cephalopods	1 tow 8 indiv.
Don McMillian, Navesink Elementary School Highlands, NJ	Message in a bottle	30 bottles
Cheryl Milliken, NMFS, NEFSC, Woods Hole, MA	Cancer crabs	7 indiv.
Narragansett Aquarium, NMFS, Narragansett, RI	Butterfish	2 bags
Lisa Natanson, NMFS, NEFSC, Narragansett, RI	Female spinydog	3 indiv.
Paul Nitschke, NMFS, NEFSC, Woods Hole, MA	Cunner	15 indiv.

Table 2. (continued)

Investigator & Affiliation	Samples Saved	Approximate Number
Andrea Ott, MBL	Snake blenny	5 indiv.
Woods Hole, MA	Daubed shanny	12 indiv.
Paul Rago, NMFS, NEFSC Woods Hole, MA	Scallops	11 indiv.
Anne Richards, NMFS, NEFSC, Woods Hole, MA	Female goosefish ovary tissue, gutted weight	7 samples
Rodney Rountree, UMASS Amherst, MA	Female smooth dogfish liver/muscle/gonad	3 samples
	Striped bass, Fourspot gonad tissue	2 samples
	Live striped cuskeel	3 indiv.
Daniel Salerno, NMFS, NEFSC, Woods Hole, MA	Misc. species	168 indiv.
Katherine Sosebee, NMFS, NEFSC, Woods Hole, MA	Barndoor skate ovaries, vertebrae	8 samples
	Various other skates	507 indiv.
	Female spiny dogfish	539 indiv.
	Pup lengths/weights	498 samples
Douglas Stoner, South Carolina DNR Charleston, SC	Barndoor skate fin clip	11 indiv.
Michael Vecchione, NMFS, NEFSC, Systematics Lab Washington, DC	Cephalopods	35 indiv.
Sara Wetmore, NMFS, NEFSC Woods Hole, MA	Various species	8 indiv.
Ike Wirgin, NYU Tuxedo, NY	Special bongo station	5 tows
	Atl.cod fin clip	100 samples
John Ziskowski, NMFS, NEFSC, Milford, CT	American plaice	322 indiv.+ 5 bags+ 3 boxes

Figure 1. Station locations on FRV ALBATROSS IV, Cruise 00-02 (I-IV), Spring Bottom Trawl Survey, during 15 March-4 May 2000.

Figure 2. Station locations on FRV ALBATROSS IV, Cruise 00-02 (I-IV), Spring Bottom Trawl Survey, during 15 March-4 May 2000.