CRUISE RESULTS
Fisheries Research Vessel Albatross IV
Cruise No. AL 01-06
Ecosystems Monitoring Survey Leg I

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CRUISE PERIOD AND AREA

The cruise period was from 19 to 25 May 2001. The research vessel Albatross IV covered the Mid-Atlantic Bight and Southern New England regions (Figure 1) as the first part of the Late Spring Survey Period.

OBJECTIVES

The objective of the cruise was to assess the impact of changing biological and physical properties of the Mid-Atlantic Bight and Southern New England portions of the Northeast Continental Shelf ecosystem which influence the sustainable productivity of the living marine resources. A secondary objective of this cruise was the analysis of phytoplankton samples for nitrogen stable isotope ratios by filtering the discharge water of the flow-through instrumentation at 9 stations.

METHODS

The survey consisted of 55 randomly distributed stations at which the vessel stopped to lower instruments over the side.

Key parameters which were measured included water column temperature and salinity, ichthyo and zooplankton composition, abundance and distribution; along-track temperature, salinity, chlorophyll-a fluorescence and standard weather observations.

A double oblique tow using the 61-centimeter Bongo sampler and a CTD was made at all stations. The tow was made to approximately 5 meters above the bottom, or to a maximum depth of 200 meters, at a ship speed of 1.5 knots. Plankton sampling gear consisted of a 61-centimeter mouth diameter aluminum bongo frame with two 333-micron nylon mesh nets. A 45-kilogram lead ball was attached by an 80 centimeter length of 3/8-inch diameter chain below the aluminum Bongo frame to depress the sampler. A digital flowmeter was suspended within the mouth of

each sampler to determine the amount of water filtered by each net. The plankton sampling gear was deployed over the port stern quarter of the vessel by means of a conducting-cable winch and a boom. Plankton samples were preserved in a 5 percent solution of formalin in seawater. Tow depth was monitored in real time with a Seabird CTD profiler, which was hard-wired to the conductive towing cable, providing simultaneous depth, temperature and salinity data for each plankton tow.

Continuous monitoring of the seawater temperature, salinity, and chlorophyll-a level, at a depth of 2 meters was done along all of the cruise track by means of a thermosalinograph, and a flow-through fluorometer.

The thermosalinograph and flow-through fluorometer were connected to the Scientific Computing System installed in the laboratory area of the vessel by Atlantic Marine Center personnel. This system recorded output from the thermosalinograph, and the fluorometer every ten seconds, and gave the data records a time-date stamp from the GPS unit.

Samples for Seabird salinity data calibration were obtained on the 12-6 watch by taking a water sample from 30 or more meters depth using a 1.7 liter Niskin bottle at every fifth or sixth station. Calibration of the thermosalinograph and fluorometer from the surface flow-through system was undertaken on the 6-12 watch following the protocol outlined in the Ecosystem Monitoring Program Operations Manual, in review, pp 58 to 68.

Phytoplankton samples for nitrogen stable isotope ratio analysis were collected from the discharge water of the near-surface flow-through system. Six hundred to one thousand milliliters of seawater were pre-filtered through 300 micron mesh nitex gauze to remove most zooplankton, then filtered through a Whatman GFF glass-fiber filter and immediately frozen, for analysis ashore.

RESULTS

A summary of routine survey activities is presented in Table 1. Figure 1 shows the areal coverage achieved during the cruise. After sailing from the Office of Marine and Aviation Operations dock in Norfolk, Virginia on May 19 at 1400 EDT the vessel commenced sampling operations later that same day off the coast of Virginia. The Albatross IV proceeded northward towards Woods Hole, sampling along the continental shelf in a zag-pattern between inshore and offshore stations. Since winds remained calm for the entire cruise period, the shortest route between stations was chosen, without regard for the weather. Due to the absence of any adverse weather or mechanical problems, the vessel was able to completely sample the Mid-Atlantic Bight area, and most of the Southern New England area, within the allotted cruise time. Five stations along the far eastern edge of the

Southern New England area were not sampled due to time constraints, but these were picked up on the second part of the Ecosystems Monitoring Survey aboard the Delaware II DE 01-05 cruise, May 29 - June 6. Sampling operations were completed aboard the Albatross IV on Thursday, May 24 and the vessel tied up at the NMFS dock in Woods Hole at 0800 May 25.

DISPOSITION OF SAMPLES AND DATA

All samples and data, except for the nitrogen isotope samples and the CTD data, were delivered to the Ecosystems Monitoring Group of the NEFSC, Narragansett, RI, for quality control processing and further analysis. The nitrogen isotope samples were kept frozen and delivered to Rick McKinney at the US EPA Lab in Narragansett, RI and the CTD data was delivered to the Oceanography Branch of the NEFSC, Woods Hole, MA.

SCIENTIFIC PERSONNEL

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Table 1. STATION OPERATION REPORT FOR CRUISE AL0106

CAST	STA	Date (GMT)			TIME (GMT)		LAT	LONG	DEPTH	OPERATION
		dd	mm	yy	hr	min			meters	
1	1	20	5	01	1	27	3614.0	7532.9	26	b, N#1
2	2	20	5	01	3	45	3628.1	7513.2	34	w
3	2	20	5	01	3	52	3628.1	7513.2	33	b
4	3	20	5	01	5	52	3644.6	7526.8	23	b, N #2
5	4	20	5	01	8	55	3647.4	7450.8	52	b
6	5	20	5	01	10	39	3701.8	7444.8	86	b
7	6	20	5	01	13	1	3702.8	7512.4	38	b
8	7	20	5	01	14	40	3717.3	7515.0	28	b
9	8	20	5	01	16	1	3724.9	7503.3	30	w

CAST	STA	Date (GMT)			TIME (GMT)		LAT	LONG	DEPTH	OPERATION
10	8	20	5	01	16	7	3724.8	7503.3	30	b
11	9	20	5	01	17	37	3735.8	7453.0	37	b
12	10	20	5	01	20	1	3734.7	7424.8	90	b, N #3
13	11	20	5	01	23	26	3757.0	7458.1	26	b
14	12	21	5	01	2	0	3800.4	7429.0	49	b
15	13	21	5	01	4	17	3809.5	7408.4	66	w
16	13	21	5	01	4	25	3809.3	7408.5	67	b
17	14	21	5	01	6	23	3816.3	7349.0	106	b
18	15	21	5	01	8	29	3831.6	7400.7	49	b,
19	16	21	5	01	10	10	3820.9	7420.5	43	b
20	17	21	5	01	12	6	3816.6	7438.7	34	b
21	18	21	5	01	14	21	3834.4	7450.9	24	b, N #4
22	19	21	5	01	16	0	3841.5	7435.4	32	w
23	19	21	5	01	16	10	3841.2	7435.4	32	b
24	20	21	5	01	17	53	3850.5	7419.5	34	b
25	21	21	5	01	20	46	3848.4	7345.7	50	b
26	22	22	5	01	0	9	3853.6	7310.0	81	b
27	23	22	5	01	2	42	3912.5	7252.3	84	b
28	24	22	5	01	4	31	3922.9	7237.5	110	w, N #5
29	24	22	5	01	4	39	3922.7	7237.7	111	b
30	25	22	5	01	6	44	3934.4	7222.0	107	b
31	26	22	5	01	9	46	3931.8	7301.5	68	b
32	27	22	5	01	12	43	3907.6	7323.0	56	b
33	28	22	5	01	15	3	3908.1	7349.8	32	b
34	29	22	5	01	16	27	3918.2	7357.4	32	w
35	29	22	5	01	16	35	3918.3	7357.5	31	b
36	30	22	5	01	18	43	3922.5	7332.3	46	b
37	31	22	5	01	20	13	3928.5	7349.3	33	b
38	32	22	5	01	21	35	3936.6	7356.5	26	b
39	33	22	5	01	22	51	3945.8	7348.4	25	b
40	34	23	5	01	1	14	3955.6	7323.0	49	b
41	35	23	5	01	3	34	4009.2	7307.4	45	b, N #6
42	36	23	5	01	5	16	4000.2	7251.6	53	w
43	36	23	5	01	5	24	4000.1	7251.6	54	b
44	37	23	5	01	9	6	4002.2	7220.5	74	b
45	38	23	5	01	10	57	4011.0	7237.9	59	b
46	39	23	5	01	13	15	4026.3	7255.5	41	b, N #7
47	40	23	5	01	15	28	4030.6	7235.4	44	b
48	41	23	5	01	17	51	4044.1	7219.6	40	w
49	41	23	5	01	17	58	4044.1	7219.8	40	b
50	42	23	5	01	20	46	4025.5	7205.8	61	b
51	43	24	5	01	0	38	4005.3	7134.7	88	b, N #8
52	44	24	5	01	4	45	4014.9	7049.5	121	w

CAST	STA	Date (GMT)			TIME (GMT)		LAT	LONG	DEPTH	OPERATION
53	44	24	5	01	4	52	4014.8	7049.6	121	b
54	45	24	5	01	10	36	4006.2	6949.2	109	b
55	46	24	5	01	12	31	4014.1	6932.3	81	b
56	47	24	5	01	14	40	4029.7	6945.5	71	b
57	48	24	5	01	17	16	4053.6	6937.0	40	w
58	48	24	5	01	17	23	4053.5	6937.0	40	b
59	49	24	5	01	18	55	4042.2	6948.8	49	b
60	50	24	5	01	20	16	4037.8	7003.5	51	b
61	51	24	5	01	22	5	4028.7	7024.6	69	b
62	52	25	5	01	0	25	4034.4	7052.3	70	b
63	53	25	5	01	2	47	4043.8	7116.0	58	b
64	54	25	5	01	4	28	4057.9	7113.0	52	w
65	54	25	5	01	4	36	4057.7	7112.9	53	b, N #9
66	55	25	5	01	6	11	4056.3	7055.0	54	b

OPERATION (b=bongo, w=water, N=nitrogen)

Totals

Bongo Casts	=	55
Bongo Samples	=	110
Water Samples	=	11
CTD Casts	=	66
Nitrogen Samples	=	9

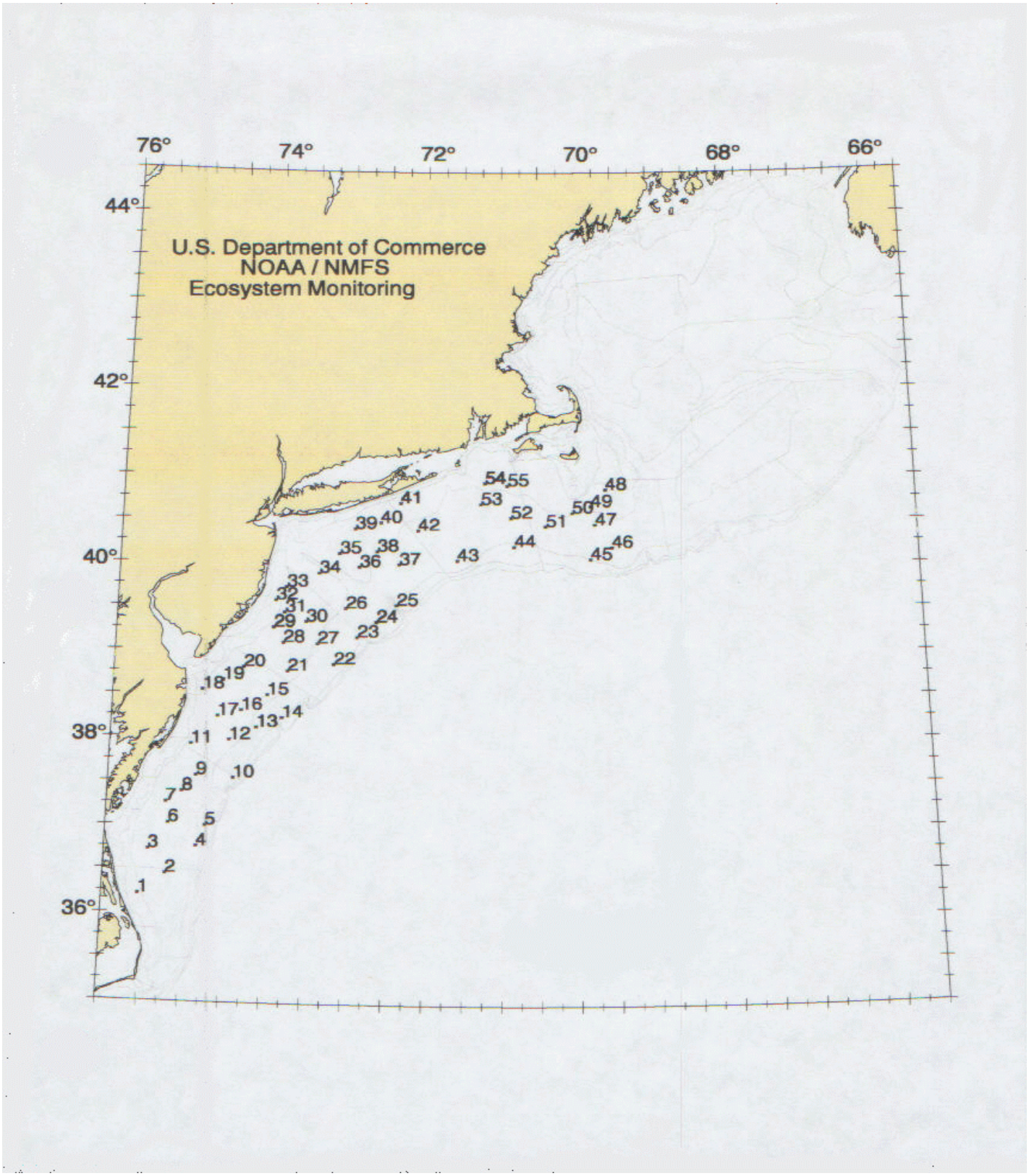

Figure 1. Station locations numbered consecutively for Late Spring Ecosystems Monitoring Cruise Leg I. AL 01-06, 19 - 25 May 2001.