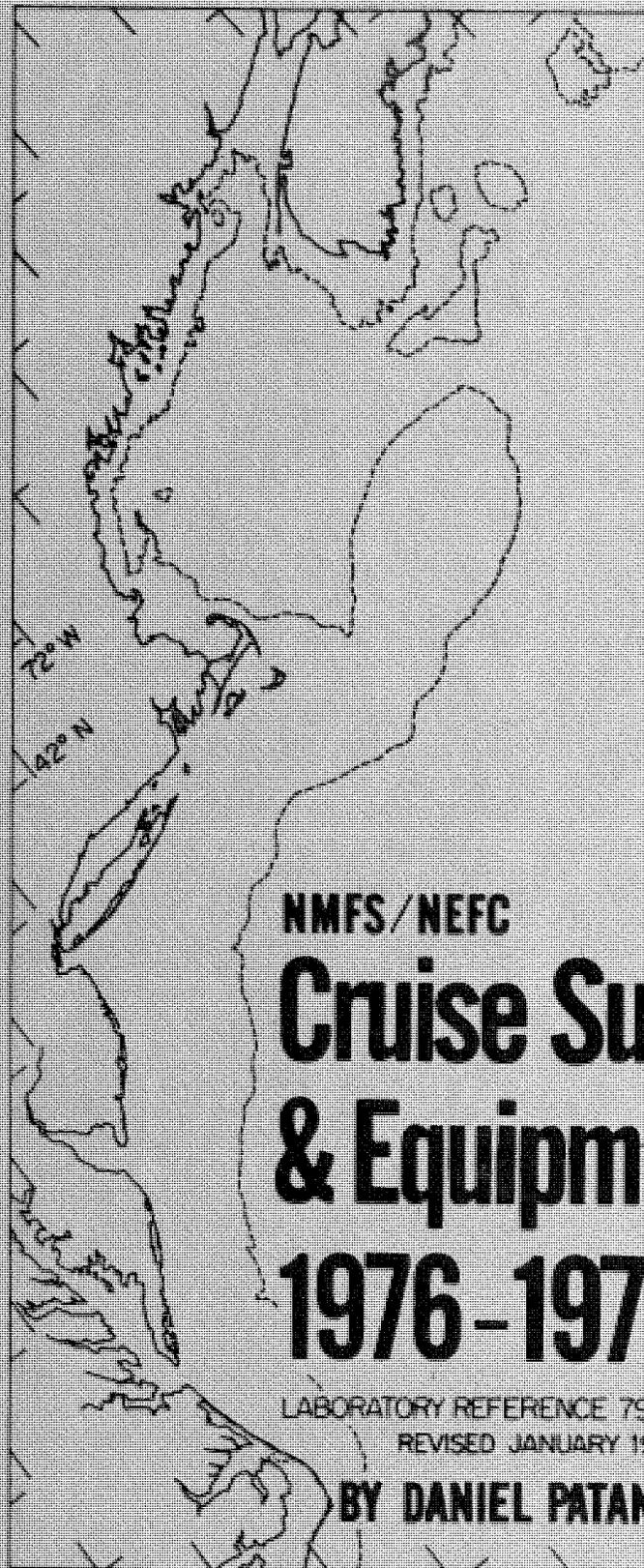


WHLRD 79-14



USA · USSR
FRANCE
SPAIN
JAPAN
POLAND
E. GERMANY
W. GERMANY

NMFS/NEFC

Cruise Summaries & Equipment List 1976-1979

LABORATORY REFERENCE 79-14
REVISED JANUARY 1980

BY DANIEL PATANJO

NATIONAL MARINE FISHERIES SERVICE · NORTHEAST FISHERIES CENTER · WOODS HOLE LABORATORY
WOODS HOLE, MA 02543

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ALBATROSS IV

1976

A

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76-02 II.	A3
76-02 III	A5
76-03	A7
76-04	Cancelled
76-05 I	A9
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1977

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78-14 I	A84
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1976

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78-06 I	D57
78-06 II.	D59
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79-09 I	D91
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77-02	A033
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78-03	A068
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76-02 I, II, III.	A074
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BELOGORSK

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76-03	A082
76-04	A083
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CANSO CONDOR

78-03	A0108
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CRYOS

76-01	A0109
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DIANE MARIE

77-01	A0113
-----------------	-------

DOLPHIN

78-01	A0115
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EISBAR

79-01	A0117
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77-01 I, II A0121

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77-02 A0140

77-11 A0141

79-02 A0143

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77-01 I, II A0145

77-02 A0148

PESCAPUERTA SEGUNDO

78-01 I, II A0150

RESEARCHER

76-11 A0151

78-04 & 05. A0152

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77-01 A0155

79-01 I, II, III. A0156

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76-01 A0158

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76-01 A0159

77-01 A0160

77-02 A0162

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77-01 I, II A0166

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77-01 A0169

WHITING

79-01 A0171

WIECZNO

76-01 A0172

76-02 I, II A0174

76-03 A0176

76-04 A0178

76-05 A0181

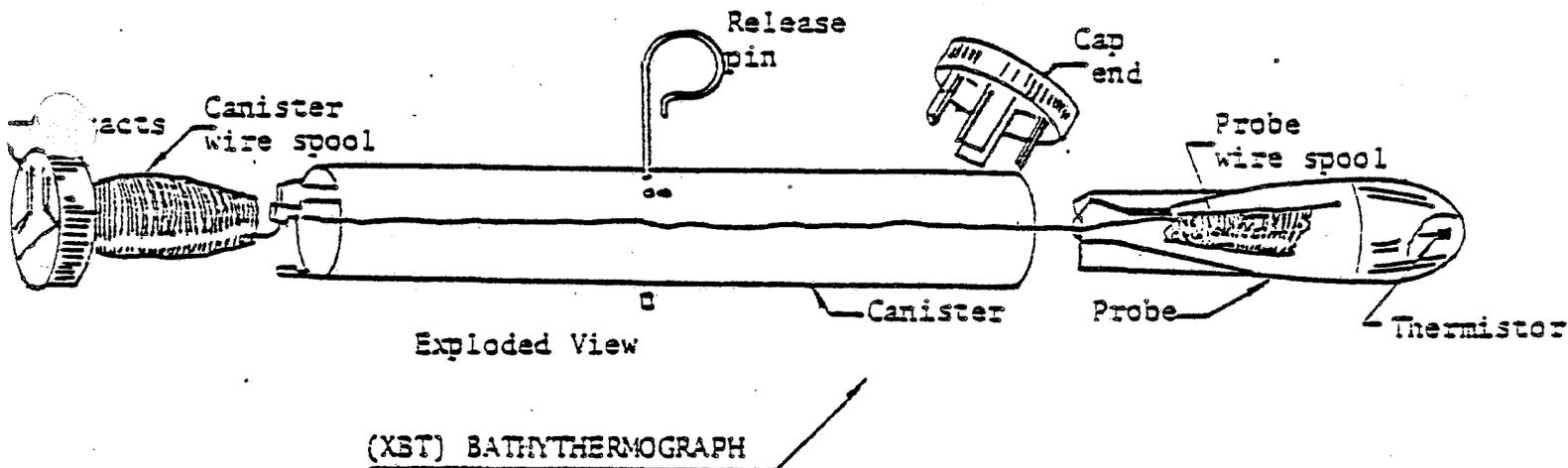
77-01 A0184

WIECZNO (Cont' d)

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77-05	A0193
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78-02	A0199
78-03	A0200
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79-02	A0206
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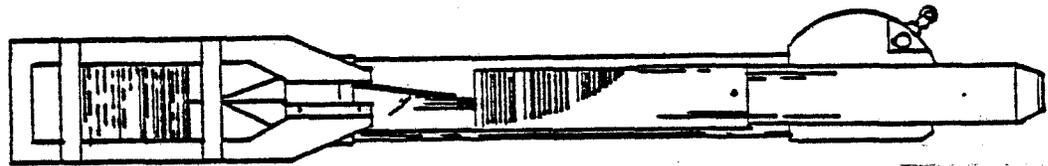


BATHYTHERMOGRAPH (PROBE)-T4

The Expendable Bathythermograph, commonly referred to as the XBT consists of a ballistically shaped probe, a canister, a canister wire spool, a release pin and protective end cap. The release pin retains the probe within the canister. The probe contains a temperature-sensitive thermistor connected to a fine wire wound on a spool. The other end of the wire is wound on the spool within the canister. When the end cap is removed from the canister, canister installed in Launcher and the release pin withdrawn, the probe separates from the canister and descends through the water, dereeling the wire from the probe spool. The canister remains on the ship, with the wire also dereeling from its spool. The dual spooling technique allows the wire to lie free in the water from the point of entry without being affected by the moving ship or the descending probe. The nose of the probe is weighted and the entire unit is spin-stabilized to assure a known velocity profile.

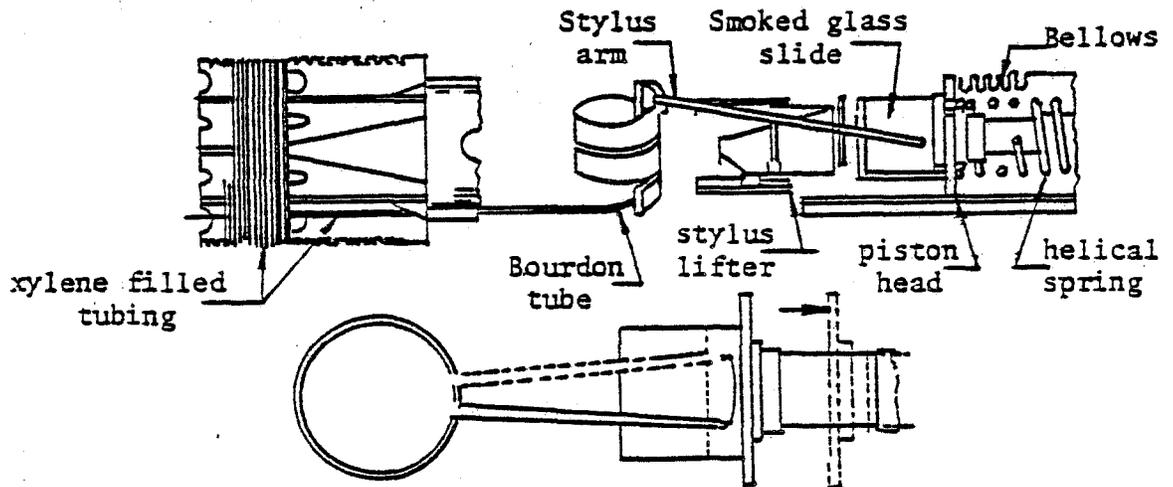
Electrical connection from the Launcher to the XBT is made through three contacts sealed in potting compound in the end of the canister. Resistance of the thermistor, corresponding to temperature of the water, is transmitted through the dereeling wire to the canister, the Launcher and thence to the shipboard Recorder. The Recorder plots temperature on the horizontal scale of chart paper moving vertically. Since the rate of descent of the probe is known, depth can be read directly from the vertical scale on the Recorder. After the probe passes its rated depth its full scope of wire is exhausted and the probe sinks to the bottom of the sea. The standard probe depth is 1500 feet. With the addition of multicycle option to the Recorder the system may be used with probes of 2500 and 6000 foot ratings. With the addition of a KOR-12 Kit to the Recorder, the system may be used with probes of 660-foot rating.

View of bathythermograph thermal and depth elements.



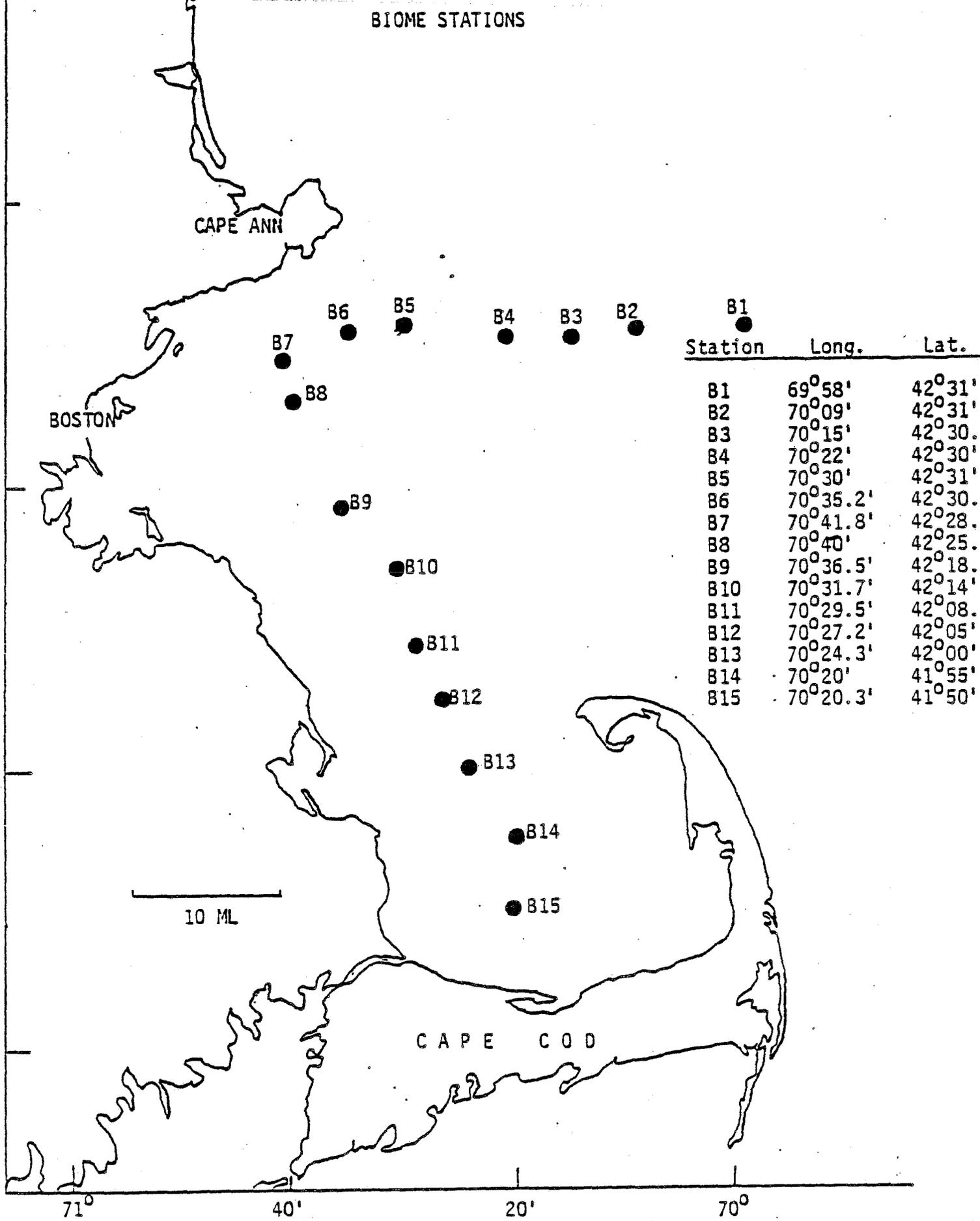
TEMPERATURE ELEMENT

PRESSURE ELEMENT



OPERATING THE BATHYTHERMOGRAPH.--The bathythermograph, or BT, is an instrument for obtaining a permanent, graphical record of water temperature ($^{\circ}\text{F.}$) against depth (feet) as it is lowered and raised in the ocean. A depth element in the instrument drives a smoked-glass slide at right angles to a stylus which in turn is driven by a thermal element. The BT is lowered into the sea and retrieved by means of a wire rope, boom, and winch. A smoked-glass slide is inserted before lowering and removed after each submersion. The trace, or record scribed by the stylus, is read by comparing with a grid individually calibrated for each instrument, using a magnifying grid viewer. The slide is preserved by dipping in lacquer, properly draining, drying, and storing.

BIOME STATIONS



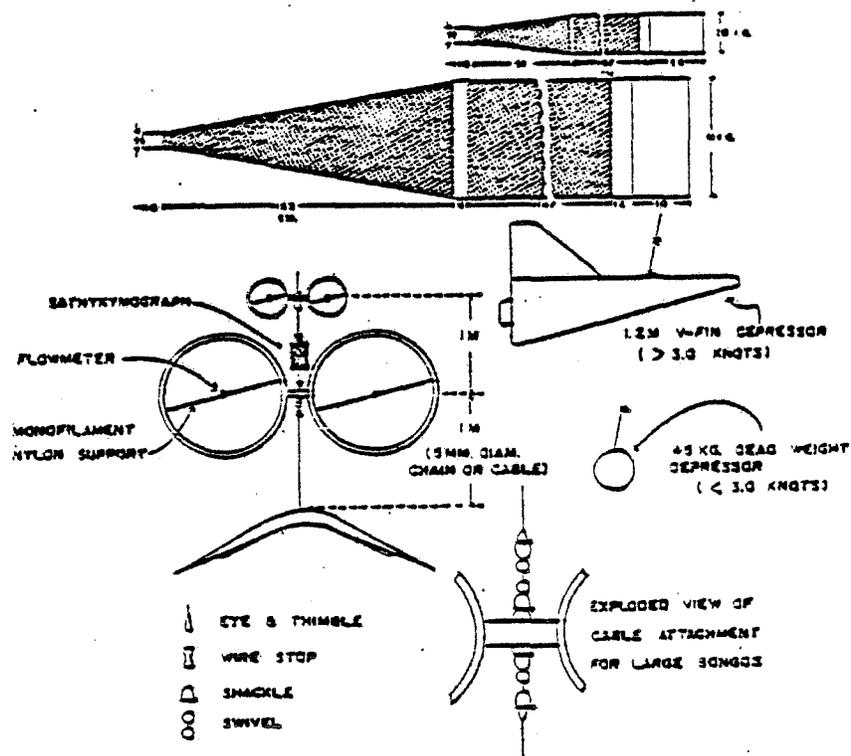
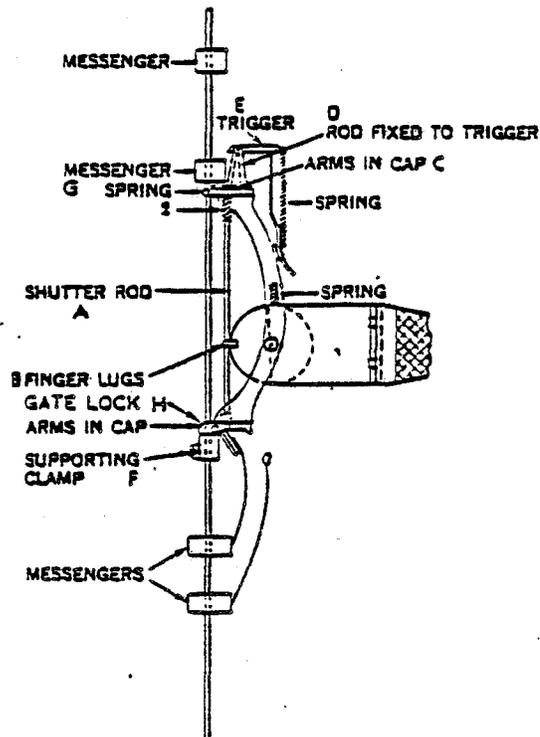


Figure 2.13. Paired Bongo net array with four mesh sizes: 0.505 mm, 0.333 mm, 0.250 mm, and 0.150 mm.

Paired Bongo nets 20cm in diameter at the mouth. One net with netting of 0.250mm mesh and the other with 0.150mm mesh. These nets can be fastened above the 60cm bongo. The zooplankton in the smaller nets & the photosynthetic pigment data will provide standard base for comparing the relative productivity of overseas investigated. The 60cm bongo with one net mesh size 0.505mm and the other 0.333mm.



THE FIRST MESSENGER TRIPPED THE TRIGGER FOR THE FIRST TIME. THE FIRST MESSENGER OF THE SECOND SET BELOW THE INSTRUMENT HAS BEEN CAST OFF.

THIS SAMPLER IS ESSENTIALLY AN OPENING AND CLOSING PLANKTON NET EQUIPPED WITH A FLOWMETER. "...IT CONSISTS OF A BRASS TUBE, FIVE INCHES IN DIAMETER AND ABOUT SIX INCHES LONG, TO THE REAR END OF WHICH ANY ONE OF A SET OF INTERCHANGEABLE NETS (ABOUT 2' LONG) OF ANY DESIRED MESH MAY BE SECURED..." .THIS TUBE IS ATTACHED TO A RECTANGULAR FRAME WITH PIVOTS WHICH ALLOW THE TUBE TO ROTATE IN THE VERTICAL PLANE. TWO WINGS ATTACHED TO THE REAR END OF THE TUBE, ALONG WITH THIS VERTICAL PIVOTING, HELP KEEP THE NET HORIZONTAL.

THE FRAME IS ATTACHED TO THE WIRE WITH SPRING PINS AT THE TOP AND A GATE LOCK AROUND THE WIRE STOP ON THE BOTTOM. THIS ALLOWS FOR ROTATION IN THE HORIZONTAL PLANE AND ASSURES THE NET OPENING WILL FACE FORWARD. A SHUTTER IS ATTACHED TO THE FRONT END OF THE TUBE AND SECURED WITH VERTICAL PINS. THUS "...TAKING THE FORM OF A DAMPER IN A STOVE PIPE...".

BEFORE LOWERING THE SAMPLER THE SHUTTER IS ROTATED AGAINST A SPRING MECHANISM AND LOCKED IN POSITION BY A FINGER LUG. IN THIS POSITION THE SHUTTER IS CONSIDERED CLOSED AND NO WATER CAN FLOW THROUGH THE NET. AT THE DESIRED DEPTH A MESSENGER IS SENT DOWN THE WIRE RELEASING THE FINGER LUG WHICH ALLOWS THE SHUTTER TO ROTATE THROUGH 90° WHERE IT IS KEPT IN THE OPEN POSITION BY ANOTHER FINGER LUG. WATER MAY NOW FLOW THROUGH THE TUBE SPINNING A PROPELLER GEARED TO A CYCLOMETER TYPE COUNTER "...WHICH INDICATES THE NUMBER OF REVOLUTIONS AND HENCE THE VOLUME OF WATER WHICH HAS PASSED THROUGH THE TUBE AND NET...".

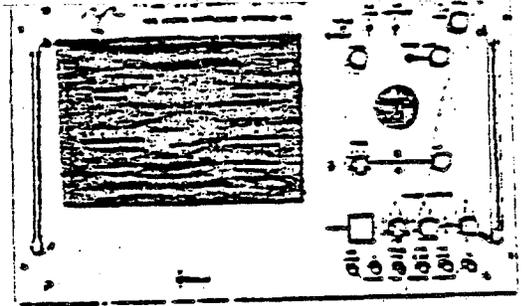
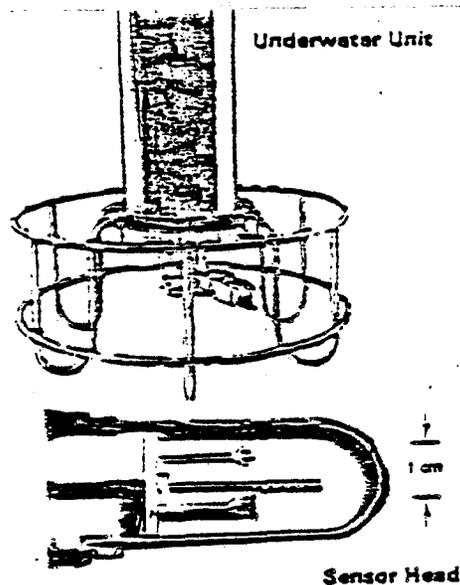
AT THE COMPLETION OF THE SAMPLING INTERVAL A SECOND MESSENGER IS SENT DOWN THE WIRE, RELEASING THE SECOND FINGER LUG, AND ALLOWING THE SHUTTER TO ROTATE THROUGH A SECOND 90° AND THUS CLOSE THE TUBE.

THESE SAMPLERS HAVE BEEN SO DESIGNED THAT TWO OR MORE CAN BE USED ON THE SAME WIRE. THIS COUPLED WITH THE OPENING AND CLOSING FEATURE ALLOWS SAMPLING AT MANY DISCRETE DEPTHS SIMULTANEOUSLY.

CHLOROPHYLL SAMPLING

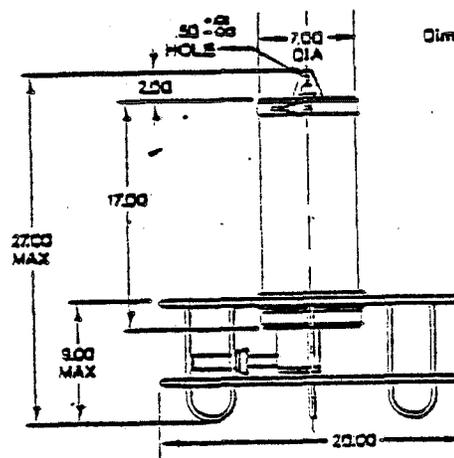
Our methods for chlorophyll a measurements are basically those described in Strickland and Parsons "A Manual for Seawater Analysis, 1972." Filtration, extraction and measurements of fluorescence are done at sea, shortly after collection of seawater. Samples are usually collected from the surface, 5, 10, 15, 20, 25, 30, 35, 50, and 75 meters, using PVC Niskin bottles. At stations where primary productivity is measured, depths sampled correspond to 100%, 69%, 46%, 10%, 3%, 1% light penetration as determined with a photometer. At least 6-7 depths throughout the euphotic layer are sampled. After collection, seawater is put through a 300 micron nylon filter. This removes the larger zooplankton. The phytoplankton in a measured subsample (100-500 ml) are filtered onto a 2.5. cm diameter Whatman GF/F glass fiber filter.

The filter is removed and submerged in 2-3 ml of 90% acetone in a glass tissue grinding vessel. The filter and plankton are pulverized using a teflon-tip grinding rod attached to an electric hand-drill. The volume of extract in the grinding vessel is brought to 10 ml using 90% acetone. The vessels are stoppered and shaken. Particulates and glass fibers separated from the chlorophyll extract by centrifugation or by filtration through Whatman GF/A glass fiber filters. Approximately 6 ml of this extract is placed in a fluorometer cuvette and the fluorescence measured on a Turner Designs fluorometer. Two drops of 5% HCL is added to the extract and its fluorescence is reread on the fluorometer. The two fluorescence reading and appropriate equations are used to generate "corrected" estimates of chlorophyll a, phaeopigments and the sample acidification ratio (F_0/F_a).

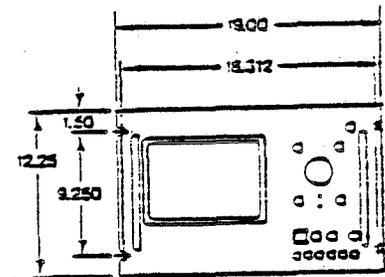


Underwater Unit

Shipboard Unit



Dimensions in inches



(depth 3.25 inches)

The Mark III CTD system was developed by Neil Brown at the Woods Hole Oceanographic Institution under the sponsorship of the U.S. Navy Office of Naval Research. Since its first evaluation cruise in 1971, the system has gained international acclaim for its accuracy and reliability.

Used by the major oceanographic institutions of the United States, it has made major contributions to the program. The system has been used for horizontal profiling while mounted in an undulating fish and on the hydro winch for vertical profiling.

The accuracy and resolution are due to the unique A.C. feed-back amplifiers and A.C. analog-digital converters (digitizer) developed specially for this system. The extremely high feed-back factor of the A.C. amplifiers and the precision and stability of the ratio transformers. The A.C. technique eliminates the zero drift and dramatically reduces the noise inevitably associated with other methods. Small closely

spaced sensors sampled every 32 mS ensure fine scale resolution from the surface to depths of 6,500 meters.

Power Requirements: 105 to 125 VAC, 50 to 400 Hz. 200 watts.

Mechanical characteristics:

Underwater Unit:

Weight in air: 95 pounds

Weight in water: 72 pounds

Material: 17-4 PH stainless steel

Maximum safe working pressure: 7,500 decibars.

Shock protection: rugged impact absorbing stainless steel guard frame

Shipboard Unit:

Weight: 25 pounds

Material: anodised aluminum alloy

Cable Requirements:

Single conductor armored cable, e.g., Rochester type 1-H-255.

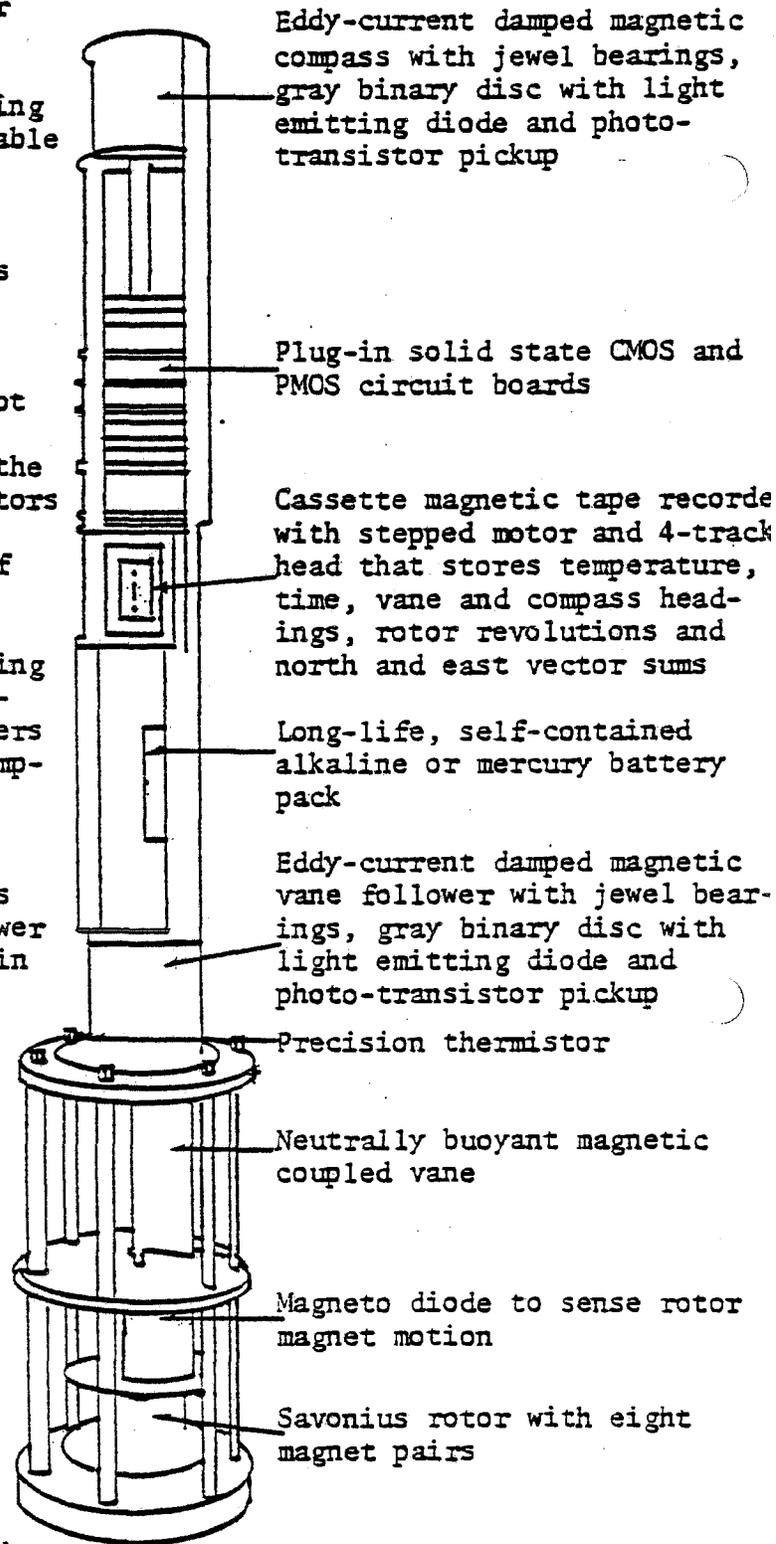
The AMF Sea-Link Vector Averaging Current Meter (VACM), designed by Woods Hole Oceanographic Institution, opens the door to new facets of prolonged deep ocean current studies by providing more detailed and accurate data in a highly usable form.

Unattended, the VACM gathers data on current speed, direction and temperature for as long as a year and stores periodic information in a cassette magnetic tape recorder. It is unique in that samples are gathered every eighth of a turn of its Savonius rotor so that in a one-knot current more than 38,000 samples an hour are taken. Continuous digital processing reduces the data samples by computing actual Cartesian vectors and summing them. Since vector sums are taped at preselected regular intervals, the amount of useful data stored on the tape is greatly increased. Greater accuracy is achieved because the continuous sampling averages out both mooring motion and frequencies below the recording frequency. Further, the VACM continuously registers times of day and averages surrounding water temperatures to round out the picture of current activity in depths as great as 20,000 feet.

Powered by self-contained batteries, the VACM's reliable performance is strengthened by low power CMOS and switched power PMOS circuits on plug-in boards.

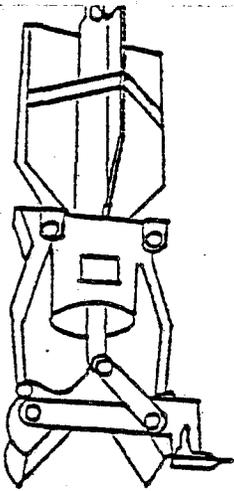
SPECIFICATIONS:

- Cassette Magnetic Tape Recorder: Records 3200 bits/inch at 400 bits/second, 11.5 x 10⁶ bits total capacity
- Sampling Rate: 8 per rotor turn
- Current Speed: .05 to 6 knots
- Current Direction: Compass 0° to 360°, vane 0° to 360°
- Compass and Vane Direction Resolution: 2.8°
- Operating Temperature Range: -2°C to 70°C
- Thermistor Accuracy: +0.10°C standard, +0.01°C special
- Timing Accuracy: +10 ppm/day (i.e., ± 6 minutes/year)
- Battery Life at Average 3-Knot Current Speed: Alkaline 6 months, mercury 1 year
- Tensile Load Capacity: 10,000 lbs. through pressure housing
- Weight: 160 lbs. in air, 77 lbs. in water
- Outside Diameter: 10 15/16 in. rotor-vane cage, 7 1/2 in. pressure housing
- Length: 77 1/2 in.



CURRENT METER

AMF
 Sea-Link Systems
 Electrical Products Development Division
 1025 North Royal Street, Alexandria, Virginia 22314



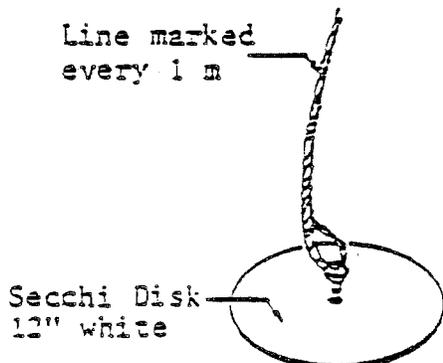
DIETZ LaFOND BOTTOM SAMPLER

This has hinged buckets mounted on a frame with a powerful spring to assist penetration into the sediment. A trigger - plate on the side of the frame ensures that this is resting flat on the bottom before the spring is released. Closing of the grab is automatic.

The DIETZ LaFond Sampler 0.01 m² and is of moderate weight (50 lbs), so that it is suitable for use from a small ship or boat.

Secchi disk

The secchi disk is a white disk twelve inches in diameter and is lowered below the surface of the water until it can no longer be seen. This will provide an index as to the transparency of the water. The depth to which it can be seen will depend upon the amount of suspended material in the water, altitude of the sun, cloud cover, and extraneous reflections off the sea surface.



Dissolved Oxygen

Determination of dissolved oxygen in sea water by the Winkler Method.

Sampling was done with PVC niskin bottles. Transfer of the water from niskin bottle to brown B.O.D. bottle was done with a tube extending to the bottom of the B.O.D. bottle, stopper was replaced in such a way that no air bubbles were trapped.

Immediately after obtaining samples the following reagents were added by placing the tip of the automatic dispenser just into the surface. Shaken thoroughly and allowed precipitate has settled to bottom for second time (approximately one hour) 1 ml of 23% sulfuric acid was added to each bottle then shaken, just before it was ready to be titrated.

Titration: using a 10 ml butette with standardized thiosulfate until the yellow has almost disappeared. Then added 4 drops of starch which produced a purple color. This was titrated till solution is just colorless. This was done at least 2 times. Reproducible of titration to within + 0.03 ml.

Calculations:

1. Normality of the sodium thiosulfate solution:
$$N = \frac{V_1 \times N_1}{V_2 - V_b}$$

where V_1 = ml of standard solution,

N_1 = normality of standard solution,

V_2 = ml of sodium thiosulfate, and

V_b = correction for KI obtained from reagent blank.

2. Concentration of oxygen in water sample:

$$\text{oxygen (ml/2)} = N \times V \times \left(\frac{b}{b-2}\right) \times 5.6 \times \frac{1000}{s}$$

Where N = normality of $\text{Na}_2\text{S}_2\text{O}_3$,

V = ml of $\text{Na}_2\text{S}_2\text{O}_3$

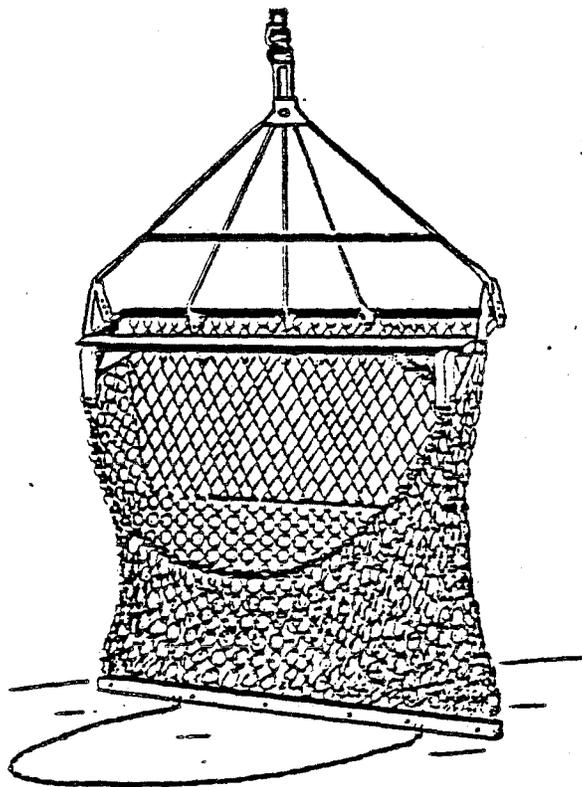
B = volume of sample bottle,

S = volume of sample titrated and

b = blank titer.

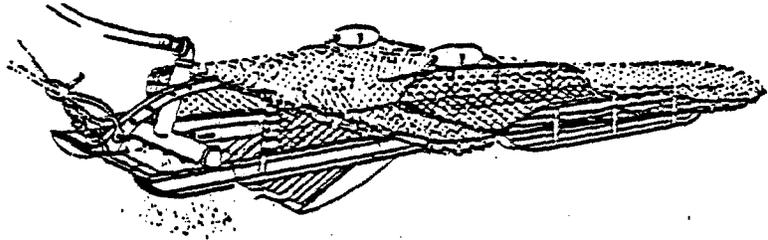
COMMON DREDGES

The common dredge consists of a metal triangular or oblong frame which is attached a bag net made of iron rings, S-hooks, and/or cotton cording. The frame is equipped with a raking bar generally with teeth on the lower edge. The implement is used for gathering shellfish (oysters, crabs, and scallops). There is really no standard design for a dredge; each fisherman has his own ideas on what makes an efficient gear and modifies or alters the basic design to suit himself. Dredges are of various sizes and dimensions.

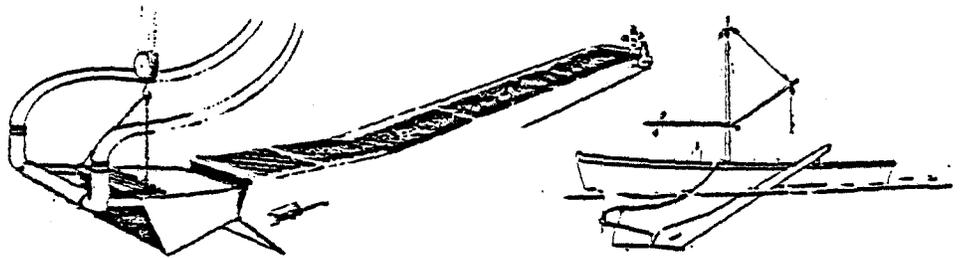


Scallop dredge

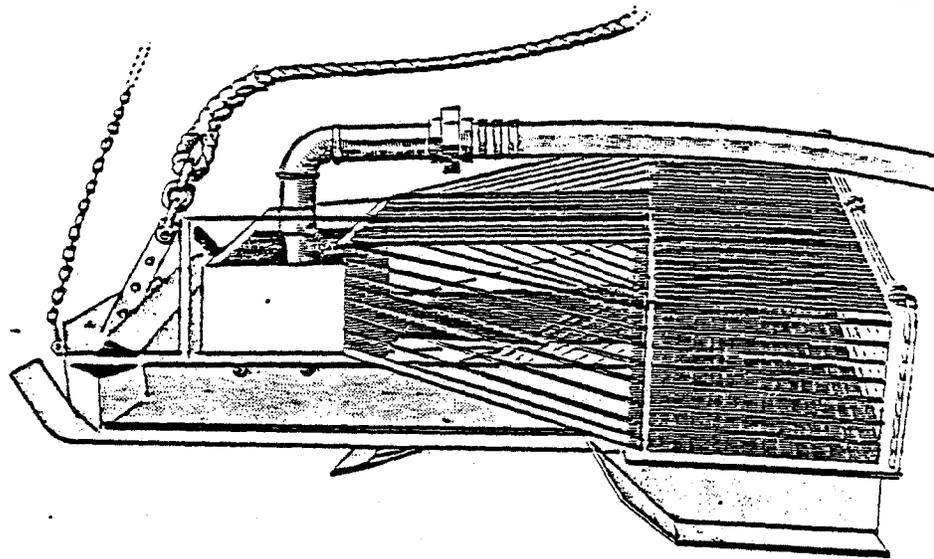
With this type of equipment, surf, soft, or hard clams are washed of the bottom by action of jets of water from a pipe attached in front of the tooth bar. Pressured water is supplied by a high powered pump on the fishing vessel. The shellfish then either washed on to, or collected by the tooth bar of the dredge. The Maryland type hydraulic dredge utilizes a conveyer which brings the soft clams up to the vessel.



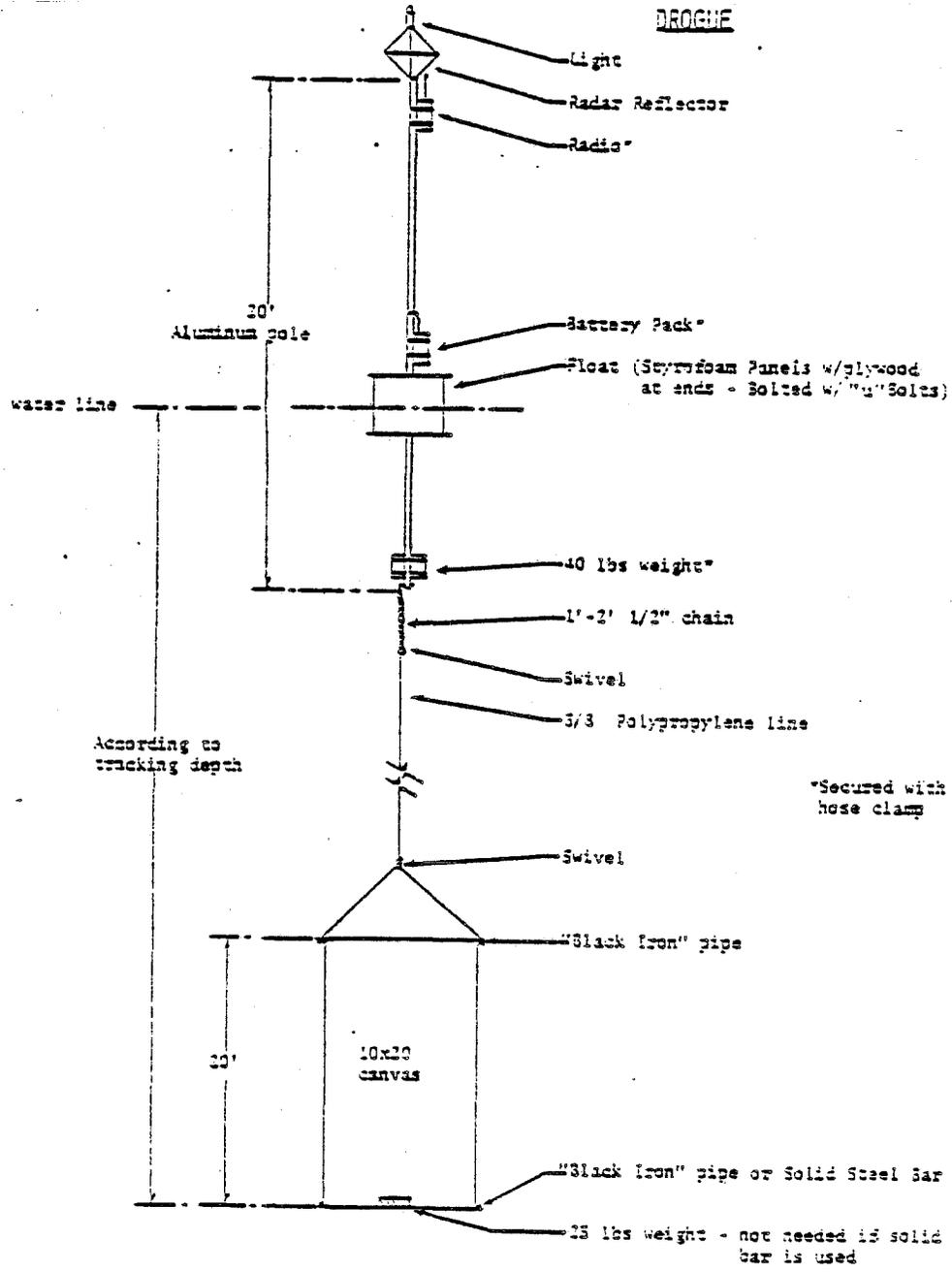
Hydraulic or jet dredge, surf clam



Hydraulic or jet dredge, soft clam



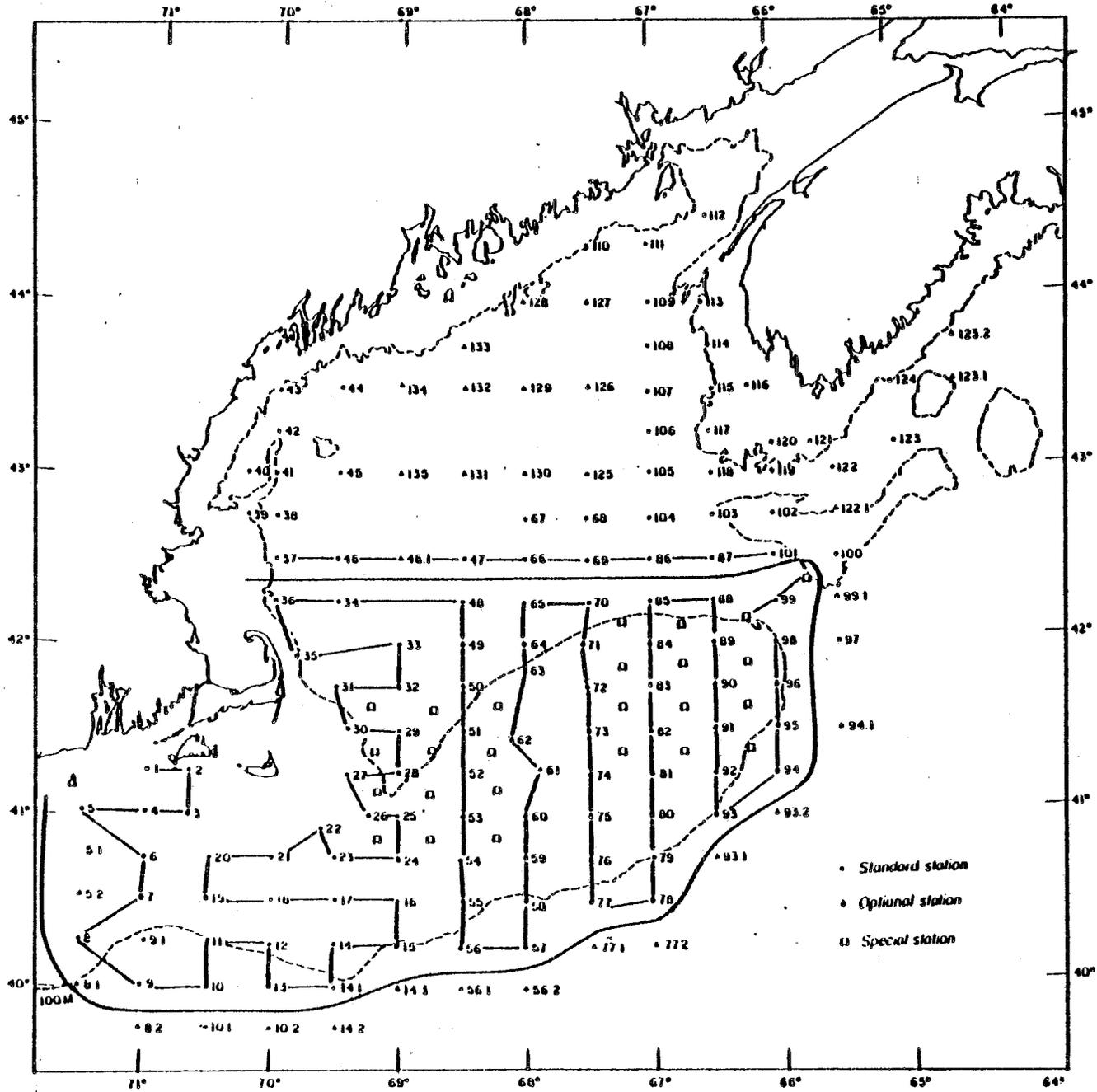
Hydraulic or jet dredge, hard clam



Drogue design used at NEFC for the measurement of subsurface ocean currents. By tracing a series of drogues set at various depths, a current profile may be obtained.

The design of the drogue varied some what, with equipment that was available. Different types of radar reflectors; floats and counterbalance were used. Radios were used only on drogues for special experiments.

E-15



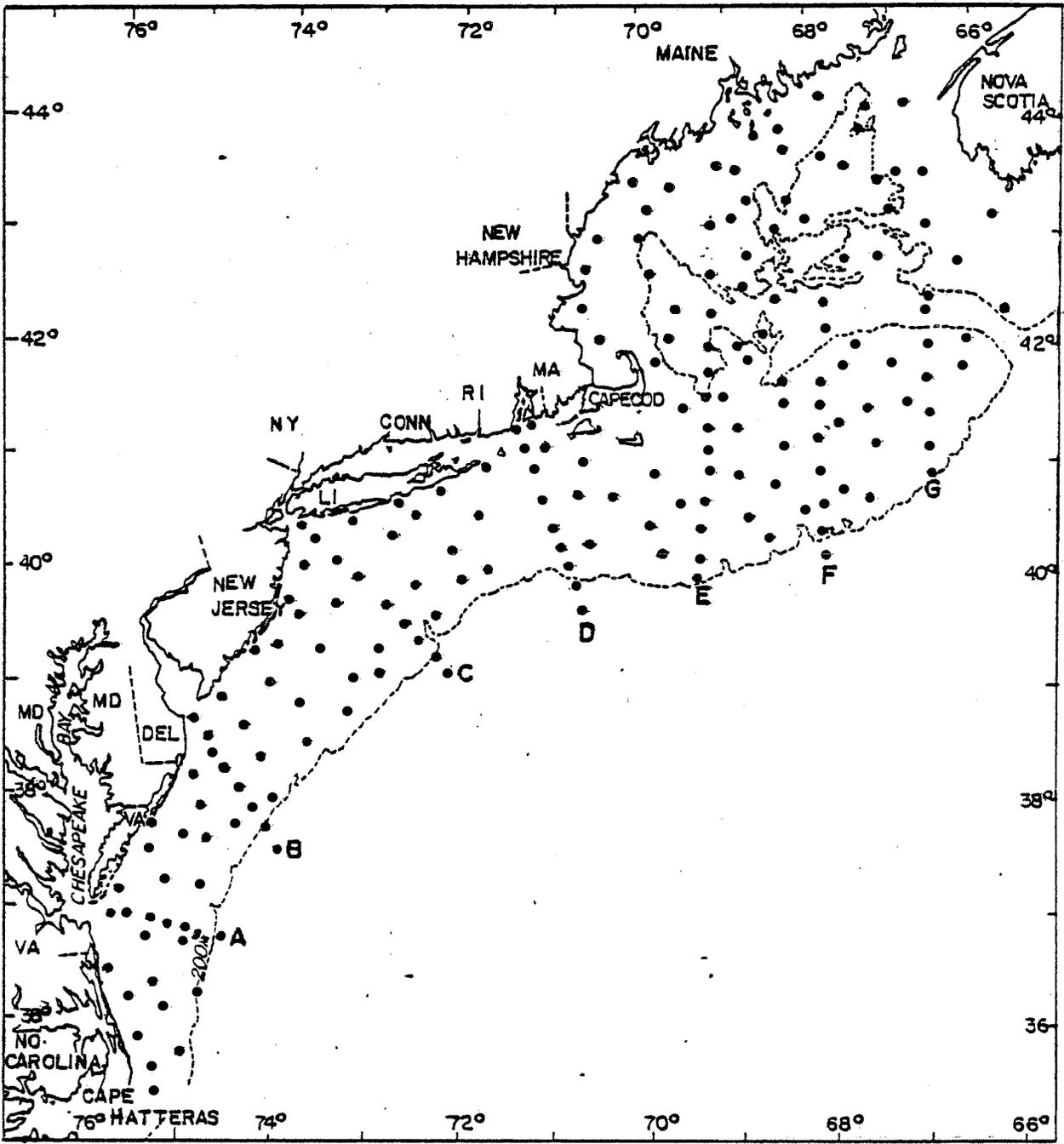
ICNAF STATIONS

ICNAF Larval Herring Survey

Sta.	Lat.	Long.	Depth M	Sta.	Lat.	Long.	Depth M
1	41.12	71.00	36	45	43.00	69.30	143
2	41.10	70.40	36	46	42.30	69.30	256
3	41.00	70.40	48	47	42.30	68.30	210
4	41.00	71.00	48	48	42.15	68.30	170
5	41.00	71.25	48	48	42.00	68.30	179
6	40.45	71.00	59	50	41.45	68.30	172
7	40.30	71.00	77	51	41.30	68.30	88
8	40.15	71.30	88	52	41.15	68.30	51
9	40.00	71.00	311	53	41.00	68.30	45
10	40.00	70.30	439	54	40.45	68.30	55
11	40.15	70.00	108	55	40.30	68.30	86
12	40.15	70.00	93	56	40.15	68.00	155
13	40.00	70.00	155	57	40.15	68.00	1097
14	40.15	69.30	79	58	40.30	68.00	119
15	40.15	69.00	110	59	40.45	68.00	73
16	40.30	69.00	73	60	41.00	68.00	49
17	40.30	69.30	60	61	41.16	67.54	40
18	40.30	70.00	60	62	41.26	68.06	33
19	40.30	70.30	66	63	41.50	68.00	64
20	40.45	70.30	55	64	42.00	68.00	190
21	40.40	70.00	46	65	42.15	68.00	201
22	40.55	69.38	37	66	42.30	68.00	192
23	40.45	69.30	44	67	42.45	68.00	172
24	40.45	69.00	70	68	42.45	67.30	177
25	41.00	69.00	79	69	42.30	67.30	274
26	41.00	69.16	49	70	42.15	67.30	247
27	41.15	69.25	49	71	42.00	67.33	40
28	41.15	69.00	134	72	41.45	67.30	48
29	41.30	69.00	148	73	41.30	67.30	46
30	41.30	69.25	64	74	41.15	67.30	42
31	41.45	69.30	121	75	41.00	67.30	66
32	41.45	69.00	165	76	40.45	67.30	88
33	42.00	69.00	155	77	40.30	67.30	137
34	42.15	69.30	210	78	40.30	67.00	1097
35	41.55	69.50	91	79	40.45	67.00	106
36	42.18	70.00	100	80	41.00	67.00	73
37	42.30	70.00	146	81	41.15	67.00	66
38	42.45	70.00	177	82	41.30	67.00	64
39	42.45	70.15	117	83	41.45	67.00	59
40	43.00	70.15	154	84	42.00	67.00	60
41	43.00	70.00	146	85	42.15	67.00	230
42	43.15	70.00	101	86	42.30	67.00	318
43	43.30	70.00	80	87	42.30	66.30	258
44	43.30	69.30	128	88	42.15	66.30	230

ICNAF Larval Herring Survey

Sta	Lat.	Long.	Depth M	ICNAF/MIS Sta. #	Lat.	Long.	Depth M
89	42.00	66.30	82	5.1/305	40.45	71.30	62
90	41.45	66.30	73	4.2/405	40.30	71.30	71
91	41.30	66.30	88	8.1/308	40.00	71.30	101
92	41.15	66.30	90	8.2/408	37.45	71.00	1860
93	41.00	66.30	144	9.1/309	40.15	71.00	117
94	41.15	66.00	1554	10.1/310	39.45	70.30	1920
95	41.30	66.00	146	10.2/410	39.45	70.00	1830
96	41.45	66.00	97	14.1/314	40.00	69.30	115
97	42.00	65.30	914	14.2/414	39.45	69.30	1960
98	42.00	66.00	110	14.3/514	40.00	69.00	1280
99	42.15	66.00	238	46.1/346	42.30	69.00	220
100	42.30	65.30	93	56.1/356	40.00	68.30	1920
101	42.30	66.00	183	56.2/456	40.00	68.00	2010
102	42.45	66.00	97	77.1/377	40.15	67.30	1460
103	42.45	66.30	138	77.2/477	40.15	67.00	2230
104	42.45	67.00	183	93.1/393	40.45	66.30	2010
105	43.00	67.00	183	93.2/493	41.00	66.00	2200
106	43.15	67.00	146	94.1/394	41.30	65.30	2200
107	43.30	67.00	199	99.1/399	42.15	65.30	110
108	43.45	67.00	137	122.1/722	42.45	65.30	75
109	44.00	67.00	146	123.1/723	43.30	64.30	110
110	44.20	67.30	100	123.2/823	43.45	64.30	119
111	44.20	67.00	119	125	43.00	67.30	201
112	44.30	66.30	174	126	43.30	67.30	220
113	44.00	66.33	77	127	44.00	67.30	201
114	43.45	66.30	73	128	44.00	68.00	146
115	43.30	66.30	95	129	43.30	68.00	216
116	43.30	66.10	44	130	43.00	68.00	146
117	43.15	66.30	60	131	43.00	68.30	183
118	43.00	66.30	118	132	43.30	68.30	128
119	43.00	66.00	111	133	43.45	68.30	146
120	43.10	66.00	137	134	43.30	69.00	110
121	43.10	65.42	59	135	43.00	69.00	128
122	43.00	65.30	110				
123	43.10	65.00	128				
124	43.30	65.00	100				



MARMAP

MARMAP SURVEY FY 78

Plankton/Hydro Stations New England

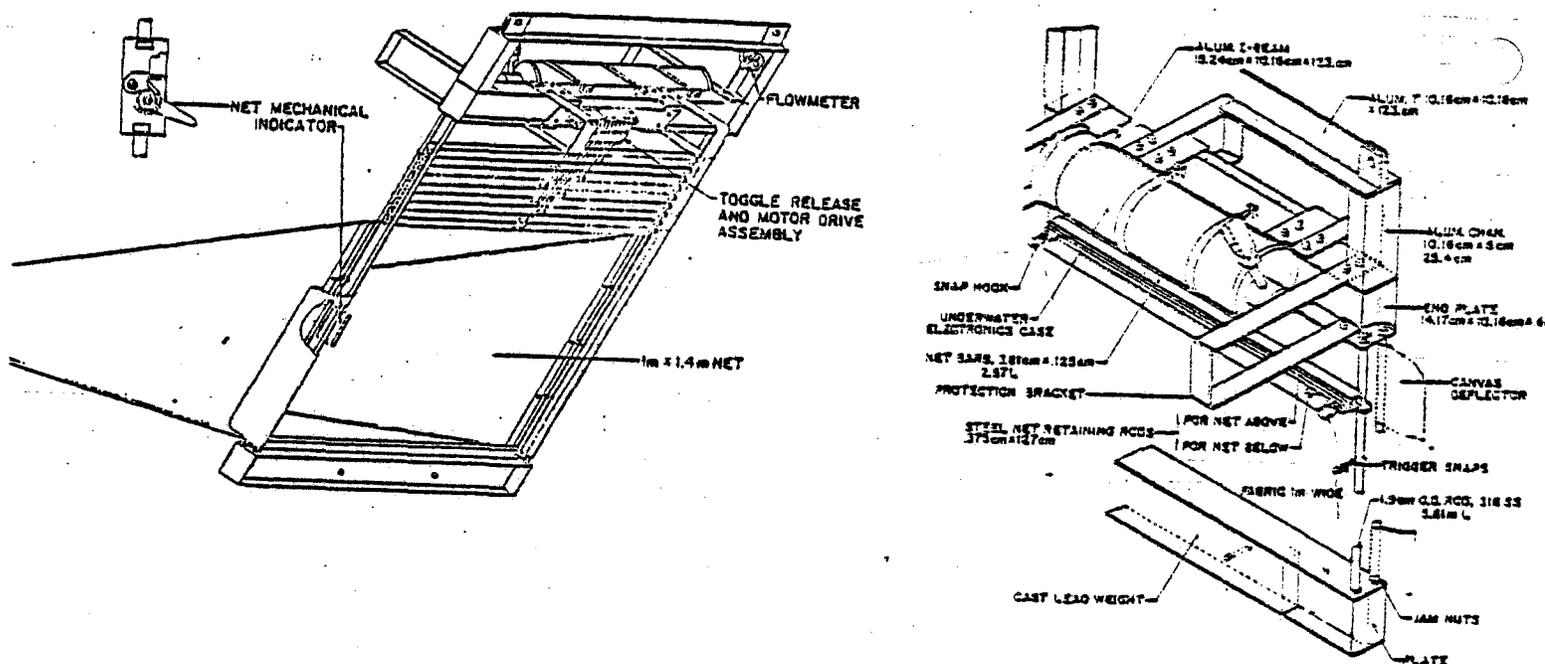
Sta. #	Lat. N	Long. W	Depth (m)	Sta. #	Lat. N	Long. W	Depth (m)
89	40°41'	70°11'	48	133	43°12'	67°59'	194
90	40°24'	69°42'	69	134	43°23'	68°08'	198
91	40°08'	69°34'	63	135	43°22'	68°41'	132
92	40°37'	69°14'	57	136	43°08'	69°01'	163
93	40°53'	69°34'	40	137	43°37'	68°56'	110
				138	43°58'	68°35'	66
94	41°32'	69°26'	64	139	44°01'	68°17'	91
95	41°58'	69°50'	84	140	43°58'	68°11'	110
96	42°15'	69°43'	236				
97	42°06'	70°20'	62	Trans. F 141	44°20'	67°43'	83
98	42°26'	70°38'	77	142	43°49'	67°43'	225
99	42°48'	70°32'	100	143	42°59'	67°42'	185
100	42°50'	70°00'	179	144	42°36'	67°42'	201
101	43°08'	69°58'	155	145	42°18'	67°42'	229
102	43°24'	70°12'	110	146	41°48'	67°42'	33
103	43°20'	69°41'	192	147	41°30'	67°41'	35
				148	41°16'	67°41'	40
Trans. E 104	43°40'	69°22'	88	149	40°56'	67°41'	68
105	43°06'	69°18'	174	150	40°37'	67°41'	78
106	42°35'	69°14'	219	151	40°22'	67°40'	800
107	42°11'	69°12'	192	152	40°05'	67°40'	2560
108	41°54'	69°10'	216				
109	41°39'	69°09'	170	153	40°46'	67°19'	93
110	41°20'	69°07'	160	154	40°40'	67°05'	125
111	41°04'	69°06'	86	155	41°13'	66°56'	70
112	40°55'	69°06'	73	156	41°18'	67°33'	35
113	40°39'	69°05'	71	157	41°33'	67°01'	60
114	40°25'	69°03'	84	158	41°36'	66°31'	79
115	40°05'	69°01'	329	159	42°02'	66°50'	65
116	39°52'	69°00'	1829	160	41°59'	67°24'	27
				161	42°11'	67°15'	183
117	40°29'	68°37'	88	162	42°43'	67°28'	210
118	40°20'	68°21'	120	163	42°46'	66°58'	158
119	40°31'	67°56'	89	164	43°12'	66°48'	132
120	40°48'	68°17'	37	165	43°35'	66°44'	110
121	40°51'	68°44'	64	166	43°30'	67°00'	195
122	41°20'	68°42'	73	167	43°42'	67°26'	210
123	41°11'	68°08'	30	168	44°02'	67°10'	135
124	41°36'	68°09'	22	169	44°16'	67°07'	155
125	41°52'	68°11'	168	170	44°16'	66°36'	201
126	41°37'	68°53'	119				
127	41°59'	68°39'	168	Trans. G 171	43°32'	66°20'	64
128	42°10'	68°48'	183	172	43°01'	66°20'	102
129	42°19'	68°27'	195	173	42°39'	66°20'	110
130	42°40'	68°19'	207	174	42°28'	66°20'	243
131	42°45'	68°46'	196	175	42°17'	66°20'	234
132	42°55'	68°22'	155	176	42°09'	66°20'	188

MARMAP SURVEY FY 78
Plankton/Hydro Stations Mid-Atlantic

Sta. #	Lat. N	Long. W	Depth (m)	Sta. #	Lat. N	Long. W	Depth (m)		
1	35°16'	75°14'	28	45	38°45'	73°45'	49		
2	35°28'	75°15'	27	46	38°39'	73°09'	174		
3	35°41'	74°58'	52	47	38°59'	73°08'	82		
4	35°51'	75°29'	18	48	38°58'	72°48'	439		
5	36°15'	75°32'	24	49	39°17'	72°51'	78		
6	36°23'	75°15'	34	50	39°12'	73°39'	43		
7	36°09'	75°06'	36	51	39°39'	73°23'	33		
8	36°16'	74°46'	355	52	39°34'	73°49'	20		
9	36°39'	74°52'	47	53	39°43'	74°03'	13		
10	36°43'	75°22'	20	54	40°07'	73°48'	27		
11	36°33'	75°47'	18						
				Trans. C	55	40°26'	73°50'	24	
Trans. A	12	36°57'	75°48'	11	56	40°16'	73°36'	24	
	13	36°55'	75°33'	20	57	40°06'	73°23'	38	
	14	36°53'	75°19'	29	58	39°52'	73°05'	67	
	15	36°51'	75°04'	36	59	39°39'	72°46'	70	
	16	36°49'	74°50'	49	60	39°28'	72°33'	102	
	17	36°46'	74°35'	1207	61	39°18'	72°19'	223	
	18	36°44'	74°20'	1972	62	39°10'	72°08'	1280	
					63	39°02'	71°57'	1273	
	19	37°13'	74°45'	67					
	20	37°18'	75°09'	26	64	39°33'	72°07'	21	
	21	37°15'	75°40'	12	65	39°51'	72°27'	70	
	22	37°37'	75°19'	18	66	40°19'	72°43'	49	
	23	37°48'	75°17'	18	67	40°28'	73°13'	28	
	24	37°31'	74°57'	33	68	40°44'	72°40'	24	
	25	37°31'	74°39'	60	69	40°34'	72°28'	41	
	26	37°38'	74°21'	97	70	40°14'	71°57'	66	
	27	37°48'	74°46'	40	71	39°52'	71°49'	168	
	28	38°10'	74°54'	18	72	40°04'	71°30'	91	
					73	40°31'	71°36'	75	
					74	40°49'	72°08'	38	
Trans. B	29	38°45'	74°57'	18	75	41°04'	71°42'	47	
	30	38°35'	74°48'	26					
	31	38°25'	74°39'	29	Trans. D	76	41°20'	71°21'	29
	32	38°14'	74°31'	42		77	41°09'	71°15'	37
	33	38°04'	74°22'	47		78	40°58'	71°10'	49
	34	37°51'	74°11'	126		79	40°41'	71°02'	62
	35	37°41'	74°03'	1170		80	40°21'	70°51'	98
	36	37°26'	73°50'	1884		81	40°10'	70°46'	132
						82	39°59'	70°40'	322
	37	37°59'	73°58'	135		83	39°48'	70°35'	1298
	38	38°21'	73°39'	122		84	39°37'	70°30'	2304
	39	38°25'	74°07'	53					
	40	38°40'	74°19'	42		85	40°13'	70°25'	108
	41	38°55'	74°37'	17		86	40°42'	70°35'	58
	42	39°14'	74°26'	15		87	41°10'	71°00'	35
	43	39°21'	74°06'	22		88	41°03'	70°33'	44
	44	38°57'	74°07'	40					

MARMAP SURVEY FY 78
Plankton/Hydro Stations New England

	<u>Sta.</u> <u>#</u>	<u>Lat. N</u>	<u>Long. W</u>	<u>Depth</u> <u>(m)</u>
Trans. G	177	41°52'	66°20'	80
	178	41°30'	66°20'	86
	179	41°10'	66°19'	155
	180	40°54'	66°19'	2004
	181	41°39'	65°55'	117
	182	41°54'	65°49'	152
	183	42°14'	65°23'	128
	184	42°39'	65°51'	90
	185	43°06'	65°26'	88

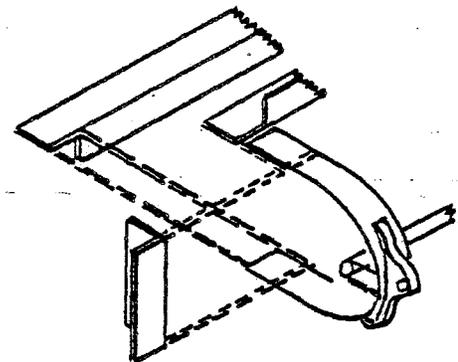
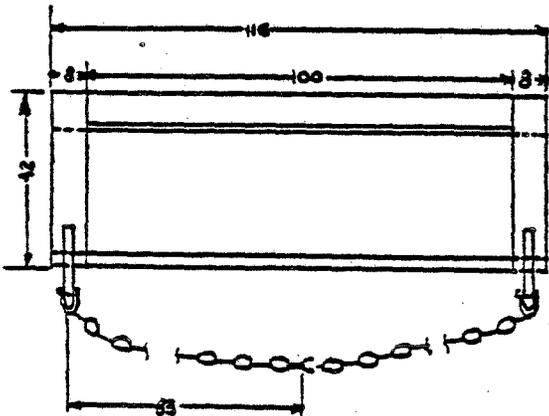


A multiple opening/closing net and environmental sensing system (MOCNESS) for sampling zooplankton

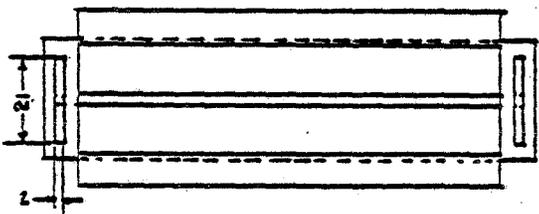
The MOCNESS is based on the Tucker Trawl principle and has nine rectangular nets (1 m x 1.4 m) which are opened and closed sequentially by commands through conducting cable from the surface. Environmental sensors to measure conductivity, temperature, and depth are attached to the net support frame. In addition, sensors to monitor flow past the net and the angle of the net assembly from the vertical, and indicators to record the electrical and mechanical function of the opening/closing mechanism are present. All data are transmitted to the surface via the cable for recording on magnetic tape and digital display. The data may also be fed into a computer for real time processing and plotting. A field performance study has demonstrated that MOCNESS can provide either eight stratified oblique samples or eight serial horizontal samples per tow at a substantial savings in time over other opening/closing systems while also obtaining environmental data.

NATURALIST DREDGE

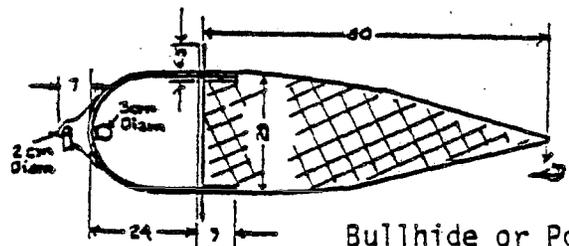
Top View w/o Covering



LEFT SECTION



FRONT VIEW



SIDE VIEW

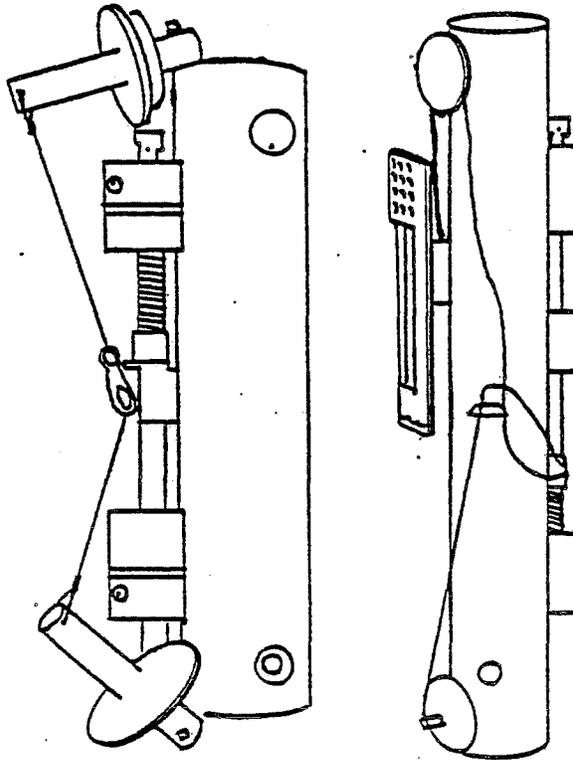
Bullhide or Polypropylene covering

ALL DIMENSIONS IN CENTIMETERS

The naturalist of rectangular dredge, used for sampling on rocks and for exploratory purposes where the nature of the bottom is not known. The dredge scrapes off animals attached to rock or brings up stones with attached animals, but on sediments it only samples a selection of the epifauna and it scarcely digs into the bottom unless this is of soft mud. The dredge has two hinged towing arms which come together at the towing point. One arm is shackled to the tow-rope, the other being joined by a weak link consisting of several turns of twine. If the dredge comes fast on the sea bed the weak link is intended to break, allowing the arms to open out and free the dredge.

The net bag is usually about half as deep as wide, the mesh varying according to circumstances. If made up by hand from trawl twine the mesh will be about 25 mm knot to knot, but machine-made netting of about half this mesh may be more suitable. In general, synthetic materials such as ulstron, or polyethylene, are best for such nets.

NISKIN BOTTLES



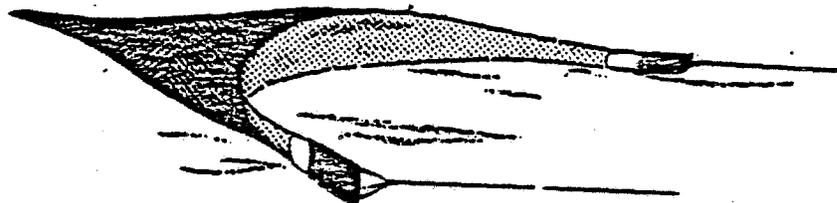
MODEL 1010 (Non metallic)

General purpose surface and subsurface water sampler design.

- Direct wire attachment or Rosette Multi-Bottle Array mounting.
- Messenger actuated (individually or in series).
- O-Ring seals.
- Optional factory mounted Reversing Thermometer Assemblies MODELS M1000-3 and M1000-4.
- Optional TEFLON coating.
- Rigid non-metallic PVC construction.
- Sizes available (liters): 1.2, 1.7, 2.5, 5, 8, 10, 12, 20, 30.

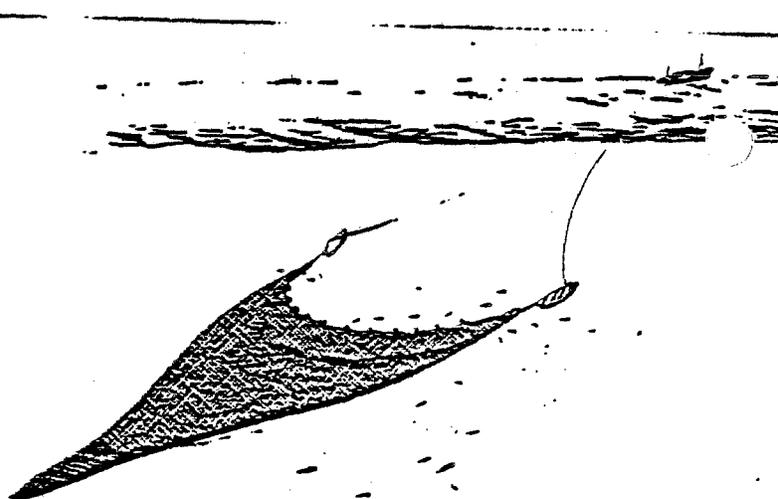
OTTER TRAWL

The otter trawl is a device for catching bottom fish. It is constructed of twine webbing so that when fully assembled and rigged it will take the shape of a huge funnel while towed along the bottom of the ocean. Floats and weights are utilized in keeping the mouth of the net open. To spread the mouth so that it will cover the largest possible area, each wing is fastened to an "otter" board or trawl "door." Each door is fitted with chains for attaching to a towing cable from the trawling vessel. The resistance of the water to the forward motion of the boards, as they are towed at different angles, forces them to pull in opposite directions and thus keep the mouth of the net opened. When the Vigneron-Dahl (V-D) version of this gear is used, the "otter" boards are attached at some distance from the tips of the wings. In the shrimp fishery of the South Atlantic and Gulf States, many vessels operate two otter trawls towed one behind the other.

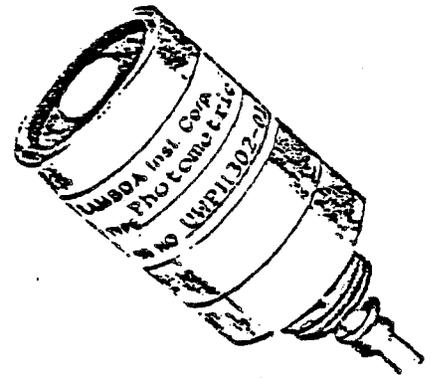
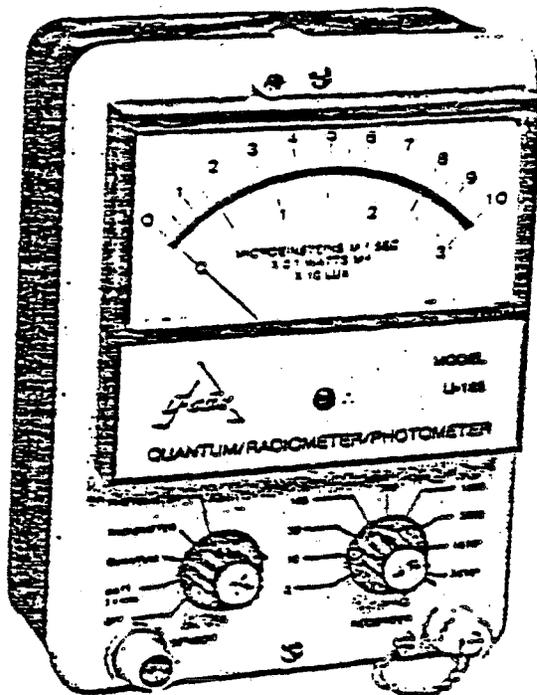


Shrimp otter trawl

9



Fish otter trawl



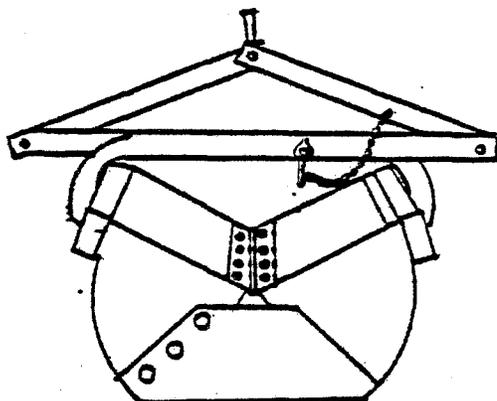
LI-185 Quantum/Radiometer/Photometer

The LI-185 Quantum/Radiometer/Photometer is used by limnologists, oceanographers, and biological scientists for a broad range of light measuring applications. Photosynthetically active radiation (PAR) and illumination can be measured with the appropriate underwater LI-COR sensor. External power can be used for applications which do not require battery powered portability. The LI-185 is a precision instrument designed with a wide dynamic range to allow measurement over the vastly varied light conditions found in environmental and biological research.

The instrument features a chopper stabilized amplifier for automatic zeroing. This high gain amplifier gives an extremely low impedance load to the sensors resulting in excellent linearity. The LI-185 has a taut-band mirrored scale meter. An isolated recorder output jack and an external power terminal is provided in each instrument.

LI-192S Underwater Quantum Sensor

Underwater PAR can be an essential measurement for limnologists and oceanographers conducting primary productivity studies. When the LI-192S is coupled with the LI-185 Quantum/Radiometer/Photometer PAR can be precisely measured from levels less than .05% of maximum surface radiation. The sensor can be used in both air and water. Immersion effect and calibration data are furnished. An LI-190S Quantum Sensor is frequently used to sense surface PAR for rapid comparison with a submerged LI-192S. These rapid comparisons, which are often needed in changing light conditions, can be facilitated by placing a custom ordered "deck-to-sea" switch on the LI-185 meter. The 2190S Millivolt Adapter can be used with the sensor for direct hookup to a millivolt recorder. Most recorders lack adequate sensitivity for this direct measurement at the PAR levels often present in aquatic conditions.



PONAR GRAB SAMPLER:

The PONAR GRAB SAMPLER is designed and constructed to take all types of benthos sediments on all varieties of bottoms, except those of the hardest clay, in both fresh and salt water. A unique closing mechanism releases on striking the lake or ocean floor. A locking "Safety Pin", a design feature of the PONAR, prevents accidental closing in handling or during transport. Top surfaces are covered with No. 30 mesh brass screen to reduce shock wave and drift, yet prevents bottom sediments and organisms from escaping. The PONAR should be used with a No. 61 line and a No. 57 winch due to its heavy weight, approximately 23 kg (45 lbs.). For rugged duty and extra long life, the PONAR features all steel construction and painted with special corrosion-resistant paint.

Sampling area of the PONAR is 23 x 23 cm (9" x 9"). One of the PONAR's machine tapered jaws is equipped with an attached underlip for wiping free stones and gravel which would jam open most other types of bottom grabs. Side plates are an additional PONAR design feature which prevent lateral loss of sediments and organisms when jaws close.

MEASUREMENT OF PRIMARY PRODUCTIVITY

The technique and methods presently used are considerably evolved from the initial method developed by Steeman-Nielsen (1952). Basic considerations in the theory of measurements of phytoplankton production using ^{14}C are discussed by Strickland (1960), and Vollenweider (1971). The Section V.3. dealing with ^{14}C -based measurements of primary productivity in Strickland and Parsons (1972) "A Practical Handbook of Sea Water Analyses" is indispensable and constitutes the skeletal structure for much of the method described in this paper. However, since 1972, numerous articles in the scientific literature have demonstrated that refinement of the actual features of the ^{14}C method is necessary for better quantitative measurement and for enriched ecological understanding of planktonic systems.

"The above taken from a manual for the Measurement of Total Daily Primary Productivity using ^{14}C simulated in situ sunlite incubation."

OCEAN PULSE technical manual #1 report No. SHL 79-06 (Feb 1979)

Jay E. O'Reilly
James P. Thomas

Silver Lining	76-01
Nogliki	77-01
Yubileiny	76-02; 77-02; 77-03
Belogorsk	76-02

These vessel were used in support of the International Herring Tagging Program conducted in the Gulf of Maine and the Georges Bank regions. All except the Belogorsk are purse seiners. The Belogorsk was the support vessel during the 1976 tagging on Georges Bank and the Yubileiny was the catch vessel. The Silver Lining is a US commercial seiner that was chartered for one segment of the program.

When a herring school of sufficient size (approximately 1-2 ton) was located, the ship circled it before deploying the seining net. For the soviet vessels, the seine was set using a lighted buoy to mark one end while the vessel circled a second time paying out the net. An underwater flare was fired during the final stages of deployment to discourage fish escapement from the enclosure. The vessel's pursing shiff was not used at any time during the deployment.

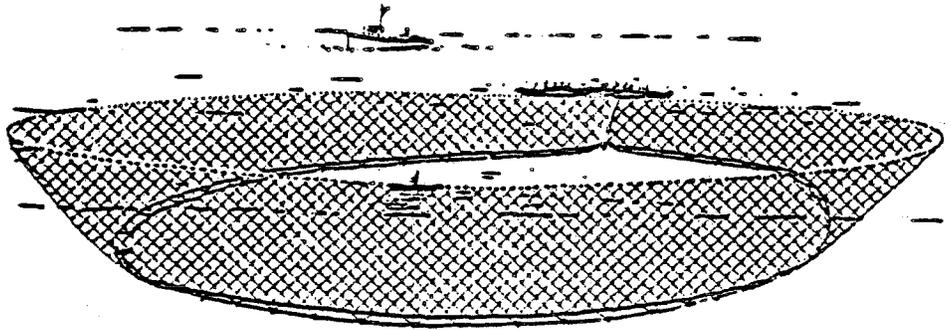
During the haulback, these vessels used two power blocks, one located on a starboard boom and the other on a stern boom. The soviet net was approximately 165-m deep and 760-m long with a large-mesh outer liner around the working area.

For the US purse seiner, the purse shiff was used to shoot the net. The seiner and shiff then formed a circle around the fish. Only one power block, located on the stern, was utilized. The net was approximately 30-m deep and 300-m long. There are no liners on these nets.

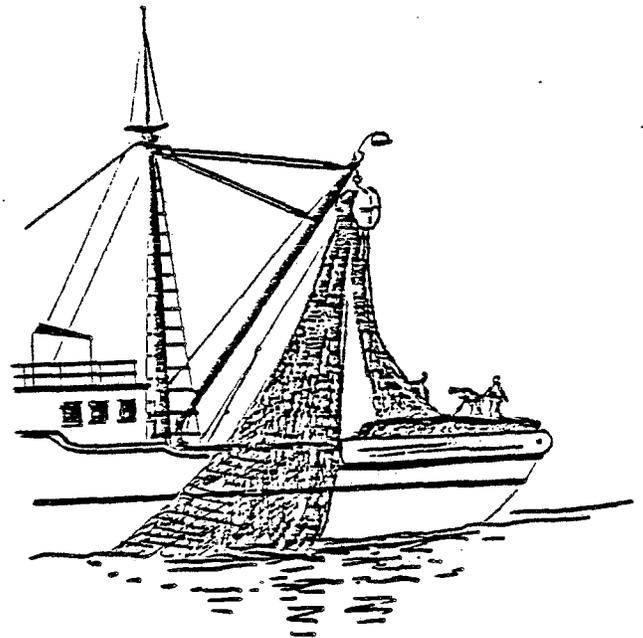
PURSE SEINE

A purse seine is an encircling type of gear designed to catch species that run in schools near the surface of the water such as anchovies, mackerel, menhaden, sardines, and tuna. Nearly 45 percent of the total 1958 domestic catch was taken in purse seines.

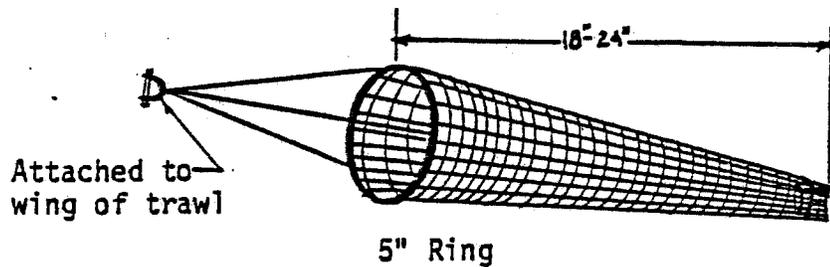
The net is actually a long wall of webbing without a prominent bunt or bag. The top edge is floated by a series of corks (the cork line) and the bottom edge is weighted with a number of leads (the lead line). The essential feature of this net is the pursing by closing the draw string which is threaded through a series of rings along the bottom of the net below the lead line. Capture is effected by surrounding the school, pursing the bottom line so that the lead line is bunched or puckered, and concentrating the catch in the landing piece or small bag. The catch is removed by use of a brailer. Variations of this type gear are found in different fisheries.



Menhaden purse seine

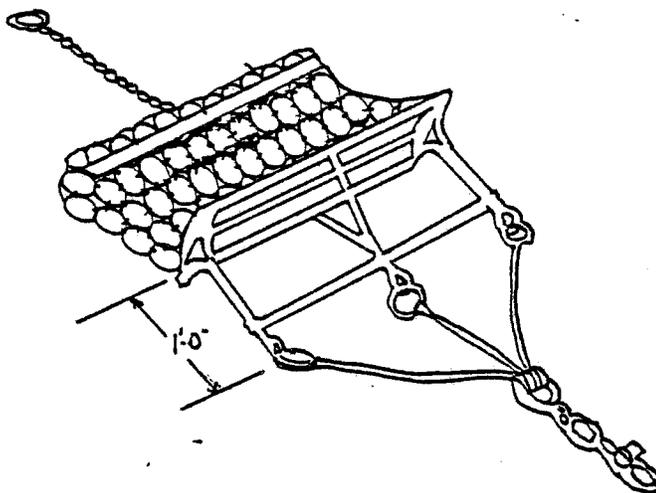


Purse seine power block



RING NET

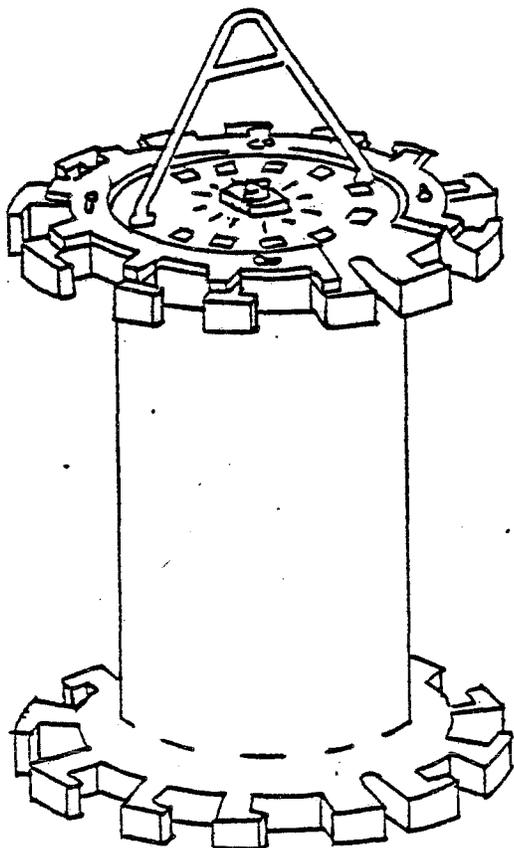
This is a bottom plankton net that was derived by H. Jenson NEFC/NMFS Woods Hole. It is attached to the wing of the trawl and collects the bottom fluff that is disturbed while trawling. The mesh is approximately 1mm; net is 18'-24" in length.



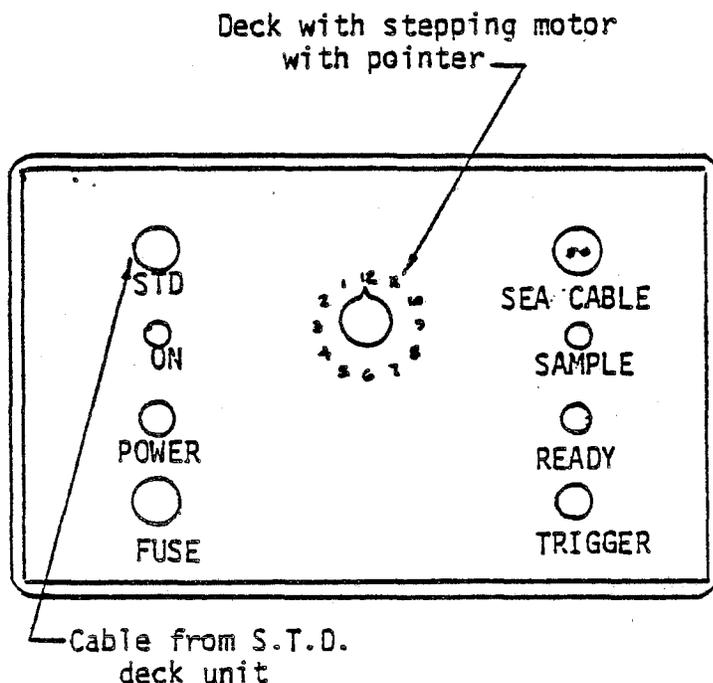
DIGBY SCALLOP DREDGE

Originally a commercial dredge from Digby Nova Scotia, adapted to scientific work by the Fisheries Service. Used mainly for sampling in rocky bottom areas. Sample bag size 24" wide, 30" long and 12" high. A lead pipe is tied into the bottom of the bag to weight it down.

ROSETTE MULTI-BOTTLE ARRAY



Sampler Module

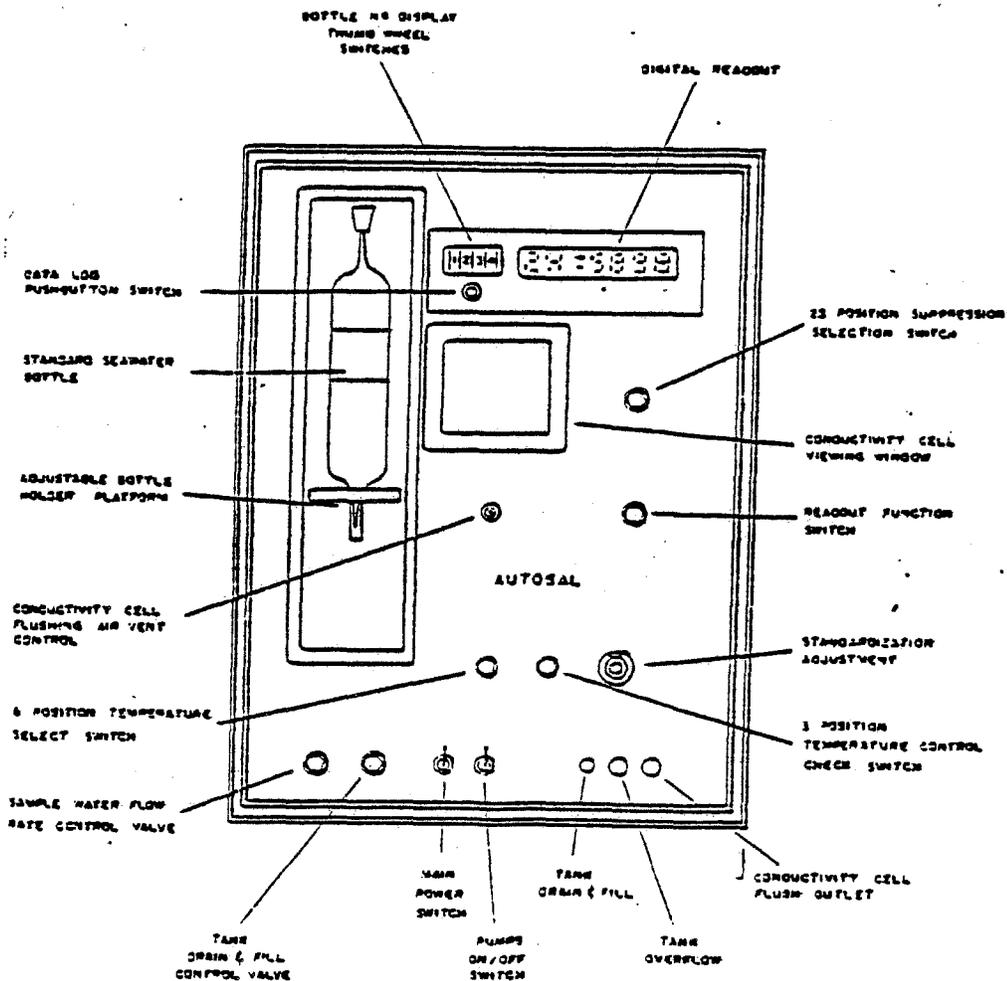


DECK UNIT

The deck command unit provides power and triggering signals to the submersible array. It contains the circuitry for receipt of the confirmation signal from the submersible array indicating that the motor has properly advanced. Receipt of this signal is displayed on the deck command front panel by advance of a rotating pointer which indicates the number of bottles that have been closed. Other front panel controls include an ON-OFF switch, pushbutton trigger, pilot lights, fuseholder, and connectors. It is packaged within a deep drawn aluminum case with a splashproof cover and carrying handle. The deck command and submersible unit are designed to be connected via a single conductor electrical cable (not supplied) with sea water electrical return. The electrical cut-out feature mentioned above with the submersible array allows other instruments such as STD systems to be used on the same sea cable as the Model 1015. The deck command and submersible array will operate properly over cable lengths of up to 13,000 meters (43,000 ft.). Input power requirements to the deck command are 115 or 230 volts AC, 50-60 Hertz.

In operation, empty sampling bottles are attached to mounting points around the submersible array and cocked open prior to lowering. The bottles flush freely while the array is being lowered to the desired depth, at which point operation of the deck command allows closure of one or more of the bottles as required. Upon completion of the cast, the array is raised back on board where it can be easily removed from the wire and used as a convenient stand for the bottles as they are individually drained for laboratory analysis. Alternately, the bottles can be removed from the array and another set of empty bottles loaded for start of the next lowering within a matter of minutes.

GUILDLINE SALINOMETER
 'AUTOSAL'
 MODEL 8400



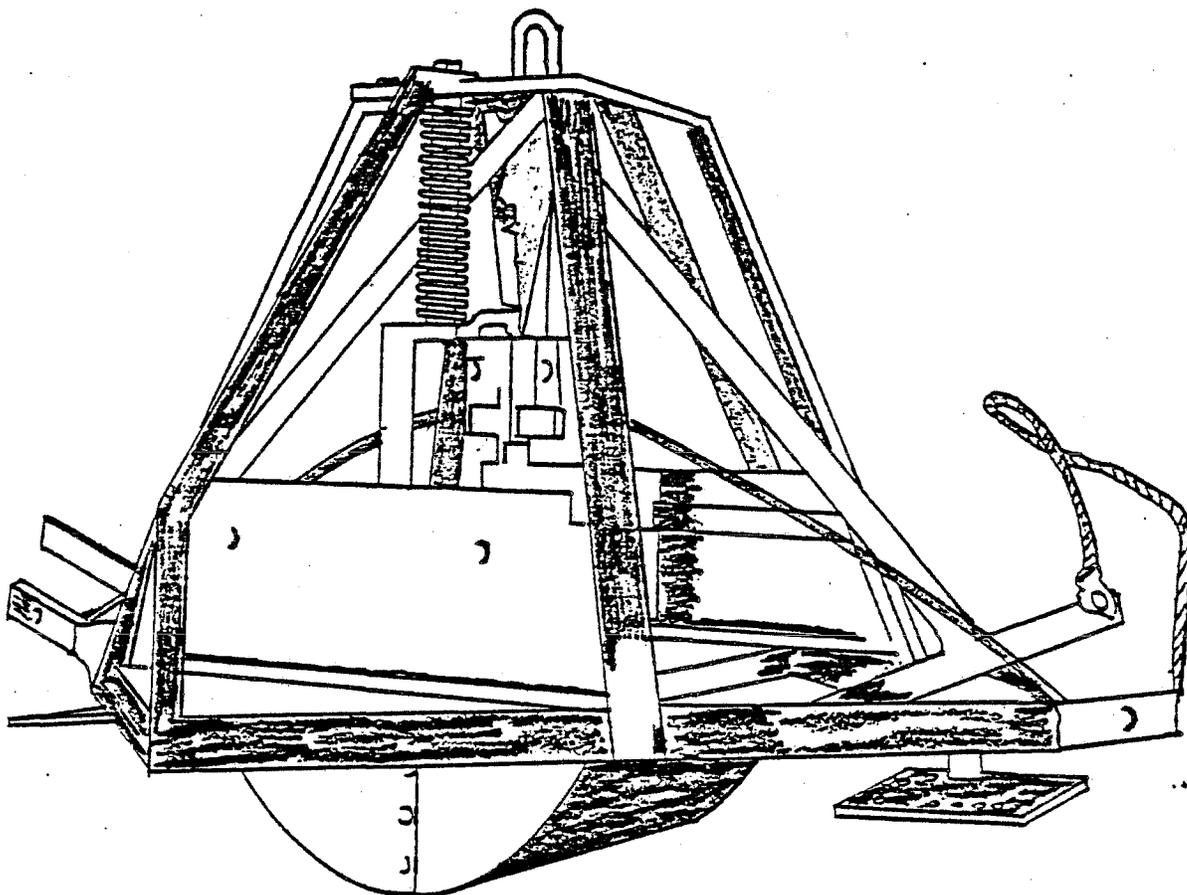
SECTION 1

GENERAL DESCRIPTION

The Model 8400 utilizes a square wave potential comparator technique with accuracy, speed, simplicity, and long term stability. The instrument will measure, in less than one minute, the conductivity ratio between a sample of seawater and 35 ppt water by continuously comparing the seawater sample conductance with an integral reference conductance with an accuracy of ± 0.003 ppt equivalent salinity.

The measurement of the ratio of conductivity of the sample to that of standard Copenhagen water is indicated by a digital display of six figures. The first two figures are set manually and indicate either the suppression step or the selected temperature setting of the internal water bath.

SMITH McINTYRE GRAB



Side view of the Smith-McIntyre spring-loaded bottom sampler in the closed position. Lead weights on each side are set vertically to impede rotation of the sampler during descent and ascent.

Smith-McIntyre grab. (Smith and McIntyre, 1954). This has hinged buckets mounted within a framework (Fig. 6.13), with powerful springs to assist penetration into the sediment. Two trigger-plates, one on each side of the frame ensure that this is resting flat on the bottom before the springs are released. Closing of the grab is completed as hauling commences by cables linked to arms attached to each bucket. The top of each bucket is covered with fine wire mesh to reduce the resistance and downwash on descent. In recent models each mesh top is in the form of a flap hinged along its outer edge to allow convenient access to the sample.

The Smith-McIntyre grab samples 0.1 m^2 and is of moderate weight (45 kg) so that it is suitable for use from a small ship. Provision is made for the addition of extra weights when required. On firm sands it penetrates to about the same depth as the 0.1 m^2 van Veen grab, but the greater reliability of its release makes it preferable to that grab for open sea conditions.

ABBREVIATIONS AND NOTES

BIOMES	MASSACHUSETTS BAY BIOME PROGRAM
CTD	CONDUCTIVITY-TEMPERATURE-DEPTH RECORDER
ICNAF	INTERNATIONAL COMMISSION FOR THE NORTHWEST ATLANTIC FISHERIES
MARMAP	MARINE MONITORING ASSESSMENT AND PREDICTION
MBT	MECHANICAL BATHYTHERMOGRAPH
MOCNESS	MULTI OPENING/CLOSING NET ENVIRONMENTAL SENSING SYSTEM
NEFC	NORTHEAST FISHERIES CENTER
NMFS	NATIONAL MARINE FISHERIES SERVICE
O ₂	DISSOLVED OXYGEN
S ‰	SALINITY
STD	SALINITY-TEMPERATURE-DEPTH RECORDER
WHOI	WOODS HOLE OCEANOGRAPHIC INSTITUTION
XBT	EXPENDABLE BATHYTHERMOGRAPH

NOTES

(1) WHEN AN XBT IS TAKEN A LOG INCLUDING LATITUDE-LONGITUDE AND WEATHER CONDITIONS IS COMPLETED. YOU MAY OBTAIN THESE BY CONTACTING NMFS/NEFC WOODS HOLE

(2) HYDRO CAST INFORMATION IS RECORDED MUCH LIKE XBT DATA. FOR DATA CONTACT NMFS/NEFC WOODS HOLE

(3) FOR ALL FISH AND CLAM SURVEYS COMPLETE COMPUTER PRINTOUTS ARE AVAILABLE WITH WEIGHT, SIZE, YEAR CLASS, SPECIES, TIME, STATION, AND SHIP. CONTACT NMFS/NEFC WOODS HOLE.

TO ATTAIN FINAL RESULTS FOR:

XBT
CTD/STD
SALINITY
CURRENT METERS

DISSOLVED OXYGEN
DROGUE
BOTTLE CASTS
ROSETTE

WRITE OR CALL: NORTHEAST FISHERIES CENTER, NMFS, WOODS HOLE
DR. REDWOOD WRIGHT
(617) 548-5123
FTS - 840-1271

ICNAF STATIONS
MOCNESS STATIONS
BONGO HAULS
NEUSTON HAULS

NORTHEAST FISHERIES CENTER, NMFS, WOODS HOLE, MA 02543
DR. MARVIN GROSSLEIN
(617) 548-5123
FTS 840-1252

CHLOROPHYLL
NUTRIENTS
PRIMARY PRODUCTIVITY

NORTHEAST FISHERIES CENTER, NMFS, SANDY HOOK, NJ 07732
JAY O'REILLY
(206) 442-4760
FTS 342-8200

TRAWL EQUIPMENT
TRAWL DATA

NORTHEAST FISHERIES CENTER NMFS WOODS HOLE, MA 02543
THOMAS AZAROVITZ
(617) 548-5123
FTS 840-1283

BOTTOM GRABS
BENTHIC STUDYS

NORTHEAST FISHERIES CENTER NMFS, WOODS HOLE, MA 02543
DR. ROLAND WIGLEY
(617) 548-5123
FTS 840-1253

ALL OTHER RESULTS PLEASE CONTACT CHIEF SCIENTIST OF THAT CRUISE.

ADVANCE II

LAUNCHED 1963

COMMISSIONED

CALL LETTERS

HOME PORT *Cape Fear, N.C.*

LENGTH (LOA) 190' - 0"

BREADTH 33' - 0"

DRAFT 9' - 0" MAX MEAN

CRUISING SPEED 15K

RANGE 5,500

ENDURANCE

SCIENTIFIC CAPABILITY *Oceanographic, plankton and trawling*
3 Labs
4 Wet Labs

HABITABILITY

COMMISSIONED OFFICERS

SCIENTISTS 50

BERTHING

ELECTRICAL SYSTEM

MAIN PROPULSION

REMARKS

HULL

SHAFT HP

FUEL CAPACITY

FUEL CONSUMPTION

OFFICERS CREW. 20

MEDICAL FACILITIES

LAUNCHES / SMALL BOATS

WINCHES - CRANES / BOOMS

2 "A" Frams
Cargo boom

ALBATROSS IV

LAUNCHED 1962

COMMISSIONED *May* 1962

CALL LETTERS *WMVF*

HOME PORT *Woods Hole, MA*

LENGTH (LOA) 187'

HULL *Steel*

BREADTH 33'

DRAFT 16' MAX 13'-9" MEAN

CRUISING SPEED 12 K

SHAFT HP 1300

RANGE 9000 NM

FUEL CAPACITY 45,500 gals

ENDURANCE 15 days

FUEL CONSUMPTION 63 per hr

SCIENTIFIC CAPABILITY 1306 sq. ft. of lab space

HABITABILITY

COMMISSIONED OFFICERS

OFFICERS CREW 22

SCIENTISTS 15

BERTHING 38

MEDICAL FACILITIES

ELECTRICAL SYSTEM

DC 120/1240

AC 120 v 1Ø

AC 440 v 3Ø

LAUNCHES / SMALL BOATS

(1) Launch inboard

MAIN PROPULSION

(2) Diesel

(1) Propeller

(1) Bow thruster

WINCHES - CRANES / BOOMS

(1) Dredge winch

(1) Trawl winch

(1) Hydro winch

(1) Neuston winch

(1) Utility Boom

REMARKS

LAUNCHED

COMMISSIONED 1962

CALL LETTERS VEMO/VLQD/EOQL

HOME PORT

LENGTH (LOA) 178'

HULL Steel

BREADTH 30'

DRAFT 10' MAX MEAN

CRUISING SPEED 11.6 knots

SHAFT HP 800

RANGE

FUEL CAPACITY unknown

ENDURANCE 33 days

FUEL CONSUMPTION

SCIENTIFIC CAPABILITY Starboard side trawler; 6 ton freeze per day, distill
3 tons fresh water per day.HABITABILITY

COMMISSIONED OFFICERS

OFFICERS CREW 30

SCIENTISTS

BERTHING

MEDICAL FACILITIES

ELECTRICAL SYSTEM

LAUNCHES / SMALL BOATS

*Electric trawl winch 2 drums 12,000/1
pulling force, hauling speed 197 /min
drum capacity 1870 of 20mm cable.*

MAIN PROPULSION

WINCHES - CRANES / BOOMS

REMARKS

ALVIN/LULU

LAUNCHED 1964/1964

LULU is tender for ALVIN

COMMISSIONED

CALL LETTERS

HOME PORT *W.H.O.I. Dock, Woods Hole, MA*

LENGTH (LOA) 25' / 98'

HULL *catamaran*

BREADTH / 48'

DRAFT / 8' MAX MEAN

CRUISING SPEED 1 K / 7K

SHAFT HP . 1600 HP

RANGE 8 hr / 2000 miles

FUEL CAPACITY

ENDURANCE

FUEL CONSUMPTION

SCIENTIFIC CAPABILITY

HABITABILITY

COMMISSIONED OFFICERS

OFFICERS CREW 1/11-

SCIENTISTS 1-2/16

BERTHING

MEDICAL FACILITIES

ELECTRICAL SYSTEM

LAUNCHES / SMALL BOATS

MAIN PROPULSION

WINCHES - CRANES / BOOMS

*ALVIN-Battery power
LULU- (2) Diesel*

REMARKS

ANNANDALE

LAUNCHED 1967

COMMISSIONED

CALL LETTERS

HOME PORT *Wallops, Va*

LENGTH (LOA) 90'-0"

BREADTH 23'-0"

DRAFT 10'-6" MAX MEAN

CRUISING SPEED

RANGE 6000 miles

ENDURANCE

SCIENTIFIC CAPABILITY *Oceanographic & plankton
Limited lab space.*

HABITABILITY

COMMISSIONED OFFICERS

SCIENTISTS 10

BERTHING

ELECTRICAL SYSTEM

2 AC generators

MAIN PROPULSION

Diesel

REMARKS

HULL

SHAFT HP 730

FUEL CAPACITY

FUEL CONSUMPTION

OFFICERS CREW 7

MEDICAL FACILITIES

LAUNCHES / SMALL BOATS

WINCHES - CRANES / BOOMS

*"A" Frame
2 winches*

LAUNCHED 1963

COMMISSIONED *June 1963*CALL LETTERS *DBFR*

HOME PORT

LENGTH (LOA) *273'-0"*HULL *Steel*BREADTH *41'-0"*DRAFT *17'-0"* MAX MEAN

CRUISING SPEED

SHAFT HP

RANGE

FUEL CAPACITY

ENDURANCE *35 days*

FUEL CONSUMPTION

SCIENTIFIC CAPABILITY

HABITABILITY

COMMISSIONED OFFICERS

OFFICERS CREW

SCIENTISTS

BERTHING

MEDICAL FACILITIES

Hospital

ELECTRICAL SYSTEM

LAUNCHES / SMALL BOATS

MAIN PROPULSION

WINCHES - CRANES / BOOMS

*(2) Electric bow thrusters 200 hp each
Active rudder electric 250 hp**4 cranes*

REMARKS

LAUNCHED

COMMISSIONED 1969

CALL LETTERS *ESRL*

HOME PORT

LENGTH (LOA) 278

HULL *Steel*

BREADTH 46'

DRAFT 18' MAX MEAN

CRUISING SPEED *12 knots*

SHAFT HP 2000

RANGE

FUEL CAPACITY

ENDURANCE *80 days*

FUEL CONSUMPTION

SCIENTIFIC CAPABILITY *9 labs - lots of work space*

HABITABILITY

COMMISSIONED OFFICERS

OFFICERS CREW 115

SCIENTISTS + 30

BERTHING

MEDICAL FACILITIES
1 hospital - 1 doctor

ELECTRICAL SYSTEM
50 Hz 220v

LAUNCHES / SMALL BOATS

4

MAIN PROPULSION

WINCHES - CRANES / BOOMS

REMARKS

ATLANTIC TWIN

LAUNCHED

COMMISSIONED 1965

CALL LETTERS WV 3507

HOME PORT

LENGTH (LOA) 90' - 0"

BREADTH 28'

DRAFT 6' - 6" MAX MEAN

CRUISING SPEED 10 K

RANGE 4000 miles

ENDURANCE 20 days

SCIENTIFIC CAPABILITY 10' x 13' lab; Hot & cold fresh water; cold salt water; welding & cutting equip.; freezer

HULL Steel catamaran

SHAFT HP (2) Dieself 456 hp each

FUEL CAPACITY 14,000 gal

FUEL CONSUMPTION 28 gal/hr

HABITABILITY

COMMISSIONED OFFICERS

SCIENTISTS 10

BERTHING 14

ELECTRICAL SYSTEM

115/208 AC
220 1Ø or 3Ø

MAIN PROPULSION

REMARKS

OFFICERS CREW 4

MEDICAL FACILITIES

LAUNCHES / SMALL BOATS

WINCHES - CRANES / BOOMS

Deck handling crane
Trawl winch
BT winch
Oceanographic winch

DIANE MARIE

LAUNCHED

COMMISSIONED

CALL LETTERS

HOME PORT *Atlantic City, N.J.*

LENGTH (LOA) *136'.0"*

BREADTH *25'-0"*

DRAFT *9'-0"* MAX MEAN

CRUISING SPEED

RANGE *3000 N Mi.*

ENDURANCE *12 days*

SCIENTIFIC CAPABILITY *Side trawler and clam dragging*

HULL

SHAFT HP *1000*

FUEL CAPACITY

FUEL CONSUMPTION

HABITABILITY

COMMISSIONED OFFICERS

SCIENTISTS

BERTHING

ELECTRICAL SYSTEM

MAIN PROPULSION

REMARKS

OFFICERS CREW

MEDICAL FACILITIES

LAUNCHES / SMALL BOATS

WINCHES - CRANES / BOOMS

DOLPHIN

LAUNCHED 1953

COMMISSIONED

CALL LETTERS

HOME PORT *Sandy Hook, N.J.*

LENGTH (LOA) 107'

BREADTH 25'

DRAFT 12.5 MAX MEAN

CRUISING SPEED

RANGE 2,000 mi

ENDURANCE 10 days

SCIENTIFIC CAPABILITY 67 sq. ft. lab

HABITABILITY

COMMISSIONED OFFICERS

SCIENTISTS 5

BERTHING 14 men

ELECTRICAL SYSTEM

100 KW AC 115 Volt

MAIN PROPULSION

REMARKS

HULL *Steel*

SHAFT HP 1200 HP Diesel

FUEL CAPACITY 19,000 Gal.

FUEL CONSUMPTION

OFFICERS CREW 9

MEDICAL FACILITIES

LAUNCHES / SMALL BOATS

WINCHES - CRANES / BOOMS

- 1 - Drum winch
- 2 - BT winchs
- 1 - Trawl winch

LAUNCHED 1944

COMMISSIONED March 14, 1975

CALL LETTERS KNBG

HOME PORT Brooklyn, New York

LENGTH (LOA) 176.5 feet

HULL Steel

BREADTH 32 feet

DRAFT 12' MAX 10' MEAN

CRUISING SPEED 10.5 K

SHAFT HP 900

RANGE 5000

FUEL CAPACITY 16,000 gals

ENDURANCE 10 days

FUEL CONSUMPTION 60 gal/hr.

SCIENTIFIC CAPABILITY Dry Lab 32 sq. ft. (1) Chill box 42°F
 Wet Lab 80 sq. ft. (1) Freezer - 10°F
 Portable scientific van

HABITABILITY

COMMISSIONED OFFICERS 7

OFFICERS CREW 18

SCIENTISTS 5

BERTHING 32

MEDICAL FACILITIES

ELECTRICAL SYSTEM 208/110v

LAUNCHES / SMALL BOATS

MAIN PROPULSION
 (2) Diesel
 (2) Propellers

WINCHES - CRANES / BOOMS
 (1) Oceanographic winch
 (1) Trawl winch
 (1) Std winch
 (2) Cranes

REMARKS

LAUNCHED

COMMISSIONED

CALL LETTERS

HOME PORT

LENGTH (LOA) 65'

BREADTH 17'

DRAFT MAX MEAN

CRUISING SPEED 12 K

RANGE 1600 miles

ENDURANCE

SCIENTIFIC CAPABILITY *No Labs*

HULL

SHAFT HP 270 HP Diesel

FUEL CAPACITY

FUEL CONSUMPTION

HABITABILITY

COMMISSIONED OFFICERS

SCIENTISTS 4

BERTHING

ELECTRICAL SYSTEM

20 KW AC

MAIN PROPULSION

REMARKS

OFFICERS CREW 2

MEDICAL FACILITIES

LAUNCHES / SMALL BOATS

WINCHES - CRANES / BOOMS

2 Winch
1 Boom
A Frame

MT. MITCHELL U. S. A.

LAUNCHED *Nov. 29, 1966*

COMMISSIONED *March 23, 1968*

CALL LETTERS *WTEG*

HOME PORT *Norfolk, Va.*

LENGTH (LOA) *231'*

HULL *Welded steel ice strengthened*

BREADTH

DRAFT MAX *14 ft* MEAN *13 ft*

CRUISING SPEED *12.5 knots*

SHAFT HP *2,400*

RANGE *9000 nautical miles*

FUEL CAPACITY *107,000*

ENDURANCE *22 days*

FUEL CONSUMPTION *125 gal/hour*

SCIENTIFIC CAPABILITY *Outfitted for hydrographic surveys involving nautical charting*

HABITABILITY

COMMISSIONED OFFICERS *12*

OFFICERS CREW. *57*

SCIENTISTS *4*

BERTHING *79 bunks*

MEDICAL FACILITIES *2 sickbay bunks*

ELECTRICAL SYSTEM

LAUNCHES / SMALL BOATS

2 generators
300 kw 150 v.

4

MAIN PROPULSION

WINCHES - CRANES / BOOMS

Deisel engine

(2) 3000 lb pull

REMARKS

OCEANUS

LAUNCHED 1975

COMMISSIONED April, 1976

CALL LETTERS

HOME PORT Woods Hole, MA

LENGTH (LOA) 177'

BREADTH 33'

DRAFT 17.5' MAX MEAN

CRUISING SPEED 15 K

RANGE 7,500 miles

ENDURANCE 30 days

SCIENTIFIC CAPABILITY Lab space 1054 sq. ft.
(1) Portable lab

HABITABILITY

COMMISSIONED OFFICERS

SCIENTISTS 12

BERTHING

ELECTRICAL SYSTEM

450 v 3Ø AC
220/110v 1Ø

MAIN PROPULSION

(1) Kort nozzle
(1) 360 hp bow thruster

REMARKS

HULL Steel

SHAFT HP 2,800

FUEL CAPACITY 46,000 gals

FUEL CONSUMPTION 83.3 gal/hr

OFFICERS CREW 12

MEDICAL FACILITIES

LAUNCHES / SMALL BOATS

(1) 12 launch
(1) Rubber boat

WINCHES - CRANES / BOOMS

(1) Hydro winch
(1) Trawl winch
(1) Crane

LAUNCHED 1973

COMMISSIONED 1974

CALL LETTERS

HOME PORT *Vigo, Spain*

LENGTH (LOA) 145'-0"

HULL *Steel*

BREADTH 31'-0"

DRAFT MAX MEAN

CRUISING SPEED

SHAFT HP *Deutz 1440 HP*

RANGE

FUEL CAPACITY

ENDURANCE

FUEL CONSUMPTION

SCIENTIFIC CAPABILITY *20 Metric Tons Freezer*HABITABILITY

COMMISSIONED OFFICERS

OFFICERS CREW 25

SCIENTISTS

BERTHING

MEDICAL FACILITIES

ELECTRICAL SYSTEM

LAUNCHES / SMALL BOATS

MAIN PROPULSION

WINCHES - CRANES / BOOMS

REMARKS *Tuna Trawler*

RESEARCHER ^R103, U. S. A.

LAUNCHED *October 5, 1968*

COMMISSIONED *October 8, 1970*

CALL LETTERS *WTER*

HOME PORT *Miami, Florida*

LENGTH (LOA) *278.3'*

BREADTH *51.0'*

DRAFT MAX *17.1"* MEAN *17.1"*

CRUISING SPEED *12.5 knots*

RANGE *8,400 nautical miles*

ENDURANCE *30 days*

SCIENTIFIC CAPABILITY *General oceanographic; dry oceanographic lab 1,598 sq. ft. Photo lab 150 sq. ft. (cruising speed); Wet oceanographic lab 140 sq. ft. Gravity meter room 174 sq. ft. Meteorological lab 179 sq. ft. Data acquisition system 668 sq. ft.*

HABITABILITY

COMMISSIONED OFFICERS *14*

SCIENTISTS *17*

BERTHING *One bunk 10; two bunk 36; three bunk - four bunk - 1 five bunk*

ELECTRICAL SYSTEM
*2 Delco diesel generators 500 kw
1 Delco emergency 125 kw*

MAIN PROPULSION
*Geared diesel
.2 Alco diesels
Bow thruster*

REMARKS

HULL *Welded steel w/ice strengthening in way of bow*

SHAFT HP *3,200*

FUEL CAPACITY *175,567 gal.*

FUEL CONSUMPTION *175 gal/hr.*

OFFICERS CREW *55*

MEDICAL FACILITIES *4 bunks complete inventory, controlled drugs; Chief pharmacist, mate*

LAUNCHES / SMALL BOATS

WINCHES - CRANES / BOOMS
*2--Oceanographic electric
10,000 lbs stratic 400 ft/min
12,000 ft/min drum capacity
.292 dia.
30,000 ft max drum capacity
3/16" dia.*

RORQUAL

LAUNCHED 1961

COMMISSIONED

CALL LETTERS

HOME PORT

LENGTH (LOA) 65'

HULL

BREADTH 18'

DRAFT F MAX MEAN

CRUISING SPEED 9K

SHAFT HP 152

RANGE

FUEL CAPACITY

ENDURANCE

FUEL CONSUMPTION

SCIENTIFIC CAPABILITY *No labs; Near shore hydro work; plankton & bottom sampling*

HABITABILITY

COMMISSIONED OFFICERS

OFFICERS CREW

SCIENTISTS 4

BERTHING

MEDICAL FACILITIES

ELECTRICAL SYSTEM

120 vdc

115 vac

LAUNCHES / SMALL BOATS

MAIN PROPULSION

WINCHES - CRANES / BOOMS

Diesel

REMARKS

SPIRIT OF '76

LAUNCHED

COMMISSIONED

CALL LETTERS

HOME PORT *New Bedford*

LENGTH (LOA) 50'

HULL *Steel*

BREADTH 16

DRAFT MAX MEAN

CRUISING SPEED

SHAFT HP

RANGE

FUEL CAPACITY

ENDURANCE *Daycruiser*

FUEL CONSUMPTION

SCIENTIFIC CAPABILITY

HABITABILITY

COMMISSIONED OFFICERS

OFFICERS CREW.. 4

SCIENTISTS 2

BERTHING

MEDICAL FACILITIES

ELECTRICAL SYSTEM

LAUNCHES / SMALL BOATS

MAIN PROPULSION

WINCHES - CRANES / BOOMS

REMARKS

STATE ARROW

LAUNCHED 1966

COMMISSIONED

CALL LETTERS

HOME PORT

LENGTH (LOA) 165'

HULL

BREADTH 36'

DRAFT 10 MAX MEAN

CRUISING SPEED 14K

SHAFT HP 2000

RANGE 6500 miles

FUEL CAPACITY

ENDURANCE

FUEL CONSUMPTION

SCIENTIFIC CAPABILITY 2 Labs; ocean observations

HABITABILITY

COMMISSIONED OFFICERS

OFFICERS CREW 6

SCIENTISTS 12

BERTHING

MEDICAL FACILITIES

ELECTRICAL SYSTEM
AC Generator

LAUNCHES / SMALL BOATS

MAIN PROPULSION

WINCHES - CRANES / BOOMS

REMARKS

M/V WHITEFOOT

LAUNCHED 1970

COMMISSIONED August 1970

CALL LETTERS WYZ 2268

HOME PORT Martha's Vineyard

LENGTH (LOA) 65'

HULL

BREADTH 22'

DRAFT 8 1/2 MAX -- MEAN

CRUISING SPEED 10 K

SHAFT HP (2) GM diesels V8 500 hp

RANGE 1500 + miles

FUEL CAPACITY

ENDURANCE + 13 days

FUEL CONSUMPTION

SCIENTIFIC CAPABILITY 440 sq. ft. open deck; inside lab; diving ladder; 3 ton capstan;
hot showers; compressed air; 6 ton crane, 6 ton "A" frame;
3 ton winch

HABITABILITY

COMMISSIONED OFFICERS

OFFICERS CREW 2

SCIENTISTS Overnight 4
Day cruises 15

BERTHING 6

MEDICAL FACILITIES

ELECTRICAL SYSTEM
(2) Diesels 20KW
110/140 v 60 Hz

LAUNCHES / SMALL BOATS

MAIN PROPULSION

WINCHES - CRANES / BOOMS
6 Ton crane
6 Ton "A" frame
3 Ton capstan
3 ton winch

REMARKS

WIECZNO

LAUNCHED

COMMISSIONED

CALL LETTERS

HOME PORT

LENGTH (LOA) *61.25m*

HULL *Steel*

BREADTH *9.8m*

DRAFT MAX MEAN

CRUISING SPEED

SHAFT HP *500*

RANGE *6000 miles*

FUEL CAPACITY

ENDURANCE *30 days*

FUEL CONSUMPTION

SCIENTIFIC CAPABILITY *1 - Hydro Lab*
2 - wet labs

HABITABILITY

COMMISSIONED OFFICERS

OFFICERS CREW

SCIENTISTS *12*

BERTHING

MEDICAL FACILITIES

ELECTRICAL SYSTEM

LAUNCHES / SMALL BOATS

1 - small boat

MAIN PROPULSION

Diesel

WINCHES - CRANES / BOOMS

REMARKS

ALBATROSS IV

VESSEL Albatross IV

CRUISE 76-01

DATES Feb. 9-25, 1976

DAYS AT SEA 16

STATIONS 116

Cruise Objective

Monitor distribution and relative abundance of larval herring and their food organisms for estimates of production, growth, mortality, and dispersal.

Collect nutrient and chlorophyll samples for estimates of primary productivity.

Conduct hydrographic work to describe circulation and diffusive processes in the study area.

Scientific Personnel

Thomas L. Morris, Jr., Chief of Party
David C. Potter
Edward B. Cohen
Gilbert Dering (2/9-2/17/76)
Patrick D. Laughead
Robert J. Pawlowski

Jessica Johnstone
Ronald E. Boisvert
Kerry Elkin
Sidney Worthen
Kim Kastens
Gregory Stone

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	<u>92</u>	SALINITY SAMPLES	<u>420</u>
ICNAF EXTRA STATIONS	<u>21</u>	OXYGEN SAMPLES	<u>302</u>
MOCNESS STATIONS	<u> </u>	NUTRIENT SAMPLES	<u>302</u>
BONGO HAULS	<u>116</u>	CHLOROPHYLL SAMPLES	<u>Note</u>
NEUSTON HAULS	<u>114</u>	TRAWLS	<u> </u>
MOCNESS HAULS	<u> </u>	FISH SAMPLES	<u> </u>
KBT DROPS	<u>118</u>	LONG LINE SET	<u> </u>
BOTTLE CASTS	<u> </u>	CURRENT METERS	<u> </u>
CTD/STD CASTS	<u>49</u>	DROGUE	<u> </u>
ROSETTE	<u>49</u>	PRIMARY PRODUCTIVITY	<u> </u>
	<u> </u>		<u> </u>
	<u> </u>		<u> </u>

Remarks:

Note: Brookhaven Lab
Continuous graph fluorometer aboard

VESSEL Albatross IV

CRUISE 76-02

DATES Mar. 25-April 9, 1976

PART I

DAYS AT SEA 16

STATIONS 110

Cruise Objective

The purpose of the cruise was to determine the spring distribution and relative abundance of fish species, and to collect biological and hydrographical samples for the center. Samples of selected species were collected for studies of age and growth, community feeding relationships, fecundity, maturity, and for investigations of ichthyoplankton and juvenile fish. Meteorological and oceanographic data were collected in conjunction with the aforementioned samples, including those on the Gulf Stream eddy transects.

Scientific Personnel

Henry Jensen, Chief of Party
Donald Flescher
John Nicolas
William Overholtz
Eva Montiero
George Bolz
Margaret McBride

Carolyn Rogers
Regina Carbon
Laura Fay
Bill Lutton
Ann Cowherd
John Thomson
Hugh Oldham

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	114*
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	104	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	105	TRAWLS	110
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	119	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
	_____		_____
	_____		_____

Remarks:

* Surface only

VESSEL Albatross IV

CRUISE 76-02

DATES April 13-30, 1976

LEG II

DAYS AT SEA 17

STATIONS 98

Cruise Objective

The purpose of the cruise was to determine the spring distribution and relative abundance of fish species, and to collect biological and hydrographical samples for the Center. Samples of selected species were collected for studies of age and growth, community feeding relationships, fecundity, maturation cycles, and investigations of ichthyoplankton and juvenile fish. Meteorological and oceanographic data were collected in conjunction with the aforementioned samples. Interest in the Massachusetts Bay area included special work to establish a defined area for the "Lipo" phenomenon, and continued surveillance of the nursery grounds for the New England Biome Program.

Scientific Personnel

Linda Despres, Chief of Party
William Overholtz
John Nicolas
Harold Foster
Patrick Laughead
Wanda Cain
Janet Murphy

Charles Tuttle
Gregory Brzoska
John Fernandes
James Laughlin
Chris Smith
Gregory Dube
Kristina Kantola

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	120
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	107	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	99	TRAWLS	98
MOCNESS HAULS	_____	FISH SAMPLES	_____
KBT DROPS	120	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
BOTTOM SAMPLER	24*		_____

Remarks:

See Part I for cruise track.

*The following grabs & bottom dredges were used for bottom sampling on Parts II & III

Smith McIntyre, Dietz LaFond, Ponar, & Naturalist

VESSEL Albatross IV

CRUISE 76-02

DATES May 3-8, 1976

LEG III

DAYS AT SEA 6

STATIONS 12

Cruise Objective

The purpose of the cruise was to determine the spring distribution and relative abundance of fish species, and to collect biological and hydrographical samples for the Center. Samples of selected species were collected for studies of age and growth, community feeding relationships, fecundity, maturation cycles, and investigations of ichthyoplankton and juvenile fish. Meteorological and oceanographic data were collected in conjunction with the aforementioned samples. Interest in the Massachusetts Bay area included special work to establish a defined area for the "Lipo" phenomenon, and continued surveillance of the nursery grounds for the New England Biome Program.

Scientific Personnel

Linda Despres, Chief Scientist
Donald Flescher, Watch Chief
Wanda Cain, Watch Chief
Elizabeth Bevaqua, Biol. Aid
Roger Clifford, Biol. Tech.
Kristina Kantola, Biol. Aid
Michael Sissenwine, Op.Res. Analyst

Norman Parris, Biol. Aid
George Bolz, Biol. Tech.
Gregory Dube, Biol. Aid
Janet Murphy, Biol. Tech.
Evelyn Howe, Sup. Svc. Asst.
Judy Brennan, Mathematician

Data Collected

ICNAF STANDARD STATIONS	<u> </u>	Total		SALINITY SAMPLES	<u> 38 </u>
ICNAF EXTRA STATIONS	<u> </u>			OXYGEN SAMPLES	<u> </u>
MOCNESS STATIONS	<u> </u>			NUTRIENT SAMPLES	<u> </u>
BONGO HAULS	<u> 36 </u>			CHLOROPHYLL SAMPLES	<u> </u>
NEUSTON HAULS	<u> 35 </u>			TRAWLS	<u> 12 </u>
MOCNESS HAULS	<u> </u>			FISH SAMPLES	<u> </u>
XBT DROPS	<u> </u>			LONG LINE SET	<u> </u>
BOTTLE CASTS	<u> </u>			CURRENT METERS	<u> </u>
CTD/STD CASTS	<u> </u>			DROGUE	<u> </u>
ROSETTE	<u> </u>			PRIMARY PRODUCTIVITY	<u> </u>
BOTTOM SAMPLER DROGUE	<u> 15* </u>				<u> </u>
	<u> </u>				<u> </u>

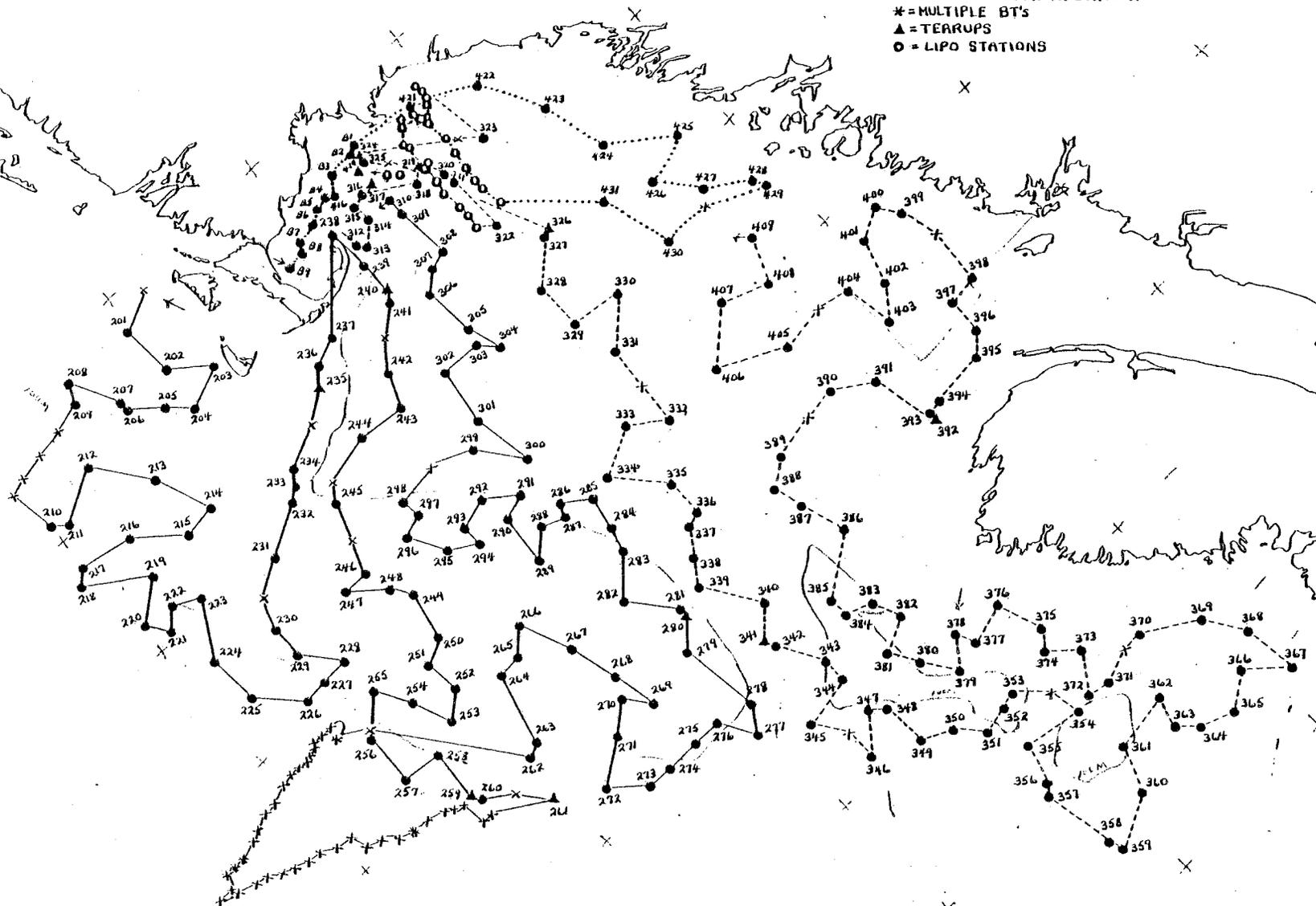
Remarks:

*See Part II.

ALBATROSS IV-76-2 (CODE 762) 119
SPRING BOTTOM TRAWL SURVEY
MARCH 25 - MAY 8, 1976

- — MARCH 25-APRIL 9
- - - - - - APRIL 13-30
- ······ MAY 3-B
- X = BT'S OTHER THAN ON STATION
- * = MULTIPLE BT'S
- ▲ = TEARUPS
- = LIPO STATIONS

A-6



VESSEL Albatross IV

CRUISE 76-03

DATES May 11-21, 1976

DAYS AT SEA 11

STATIONS 95

Cruise Objective

Characterize the deep waters (>100 fathoms) of the Gulf of Maine and Northeast Channel.

Investigate the distribution of post-larval herring and other species in the Gulf of Maine and Georges Bank.

To obtain an estimate of the particular and dissolved primary production in the Gulf of Maine and Georges Bank.

Train various NEFC staff members in the at-sea operations of the STD and interpretations of data for quality control.

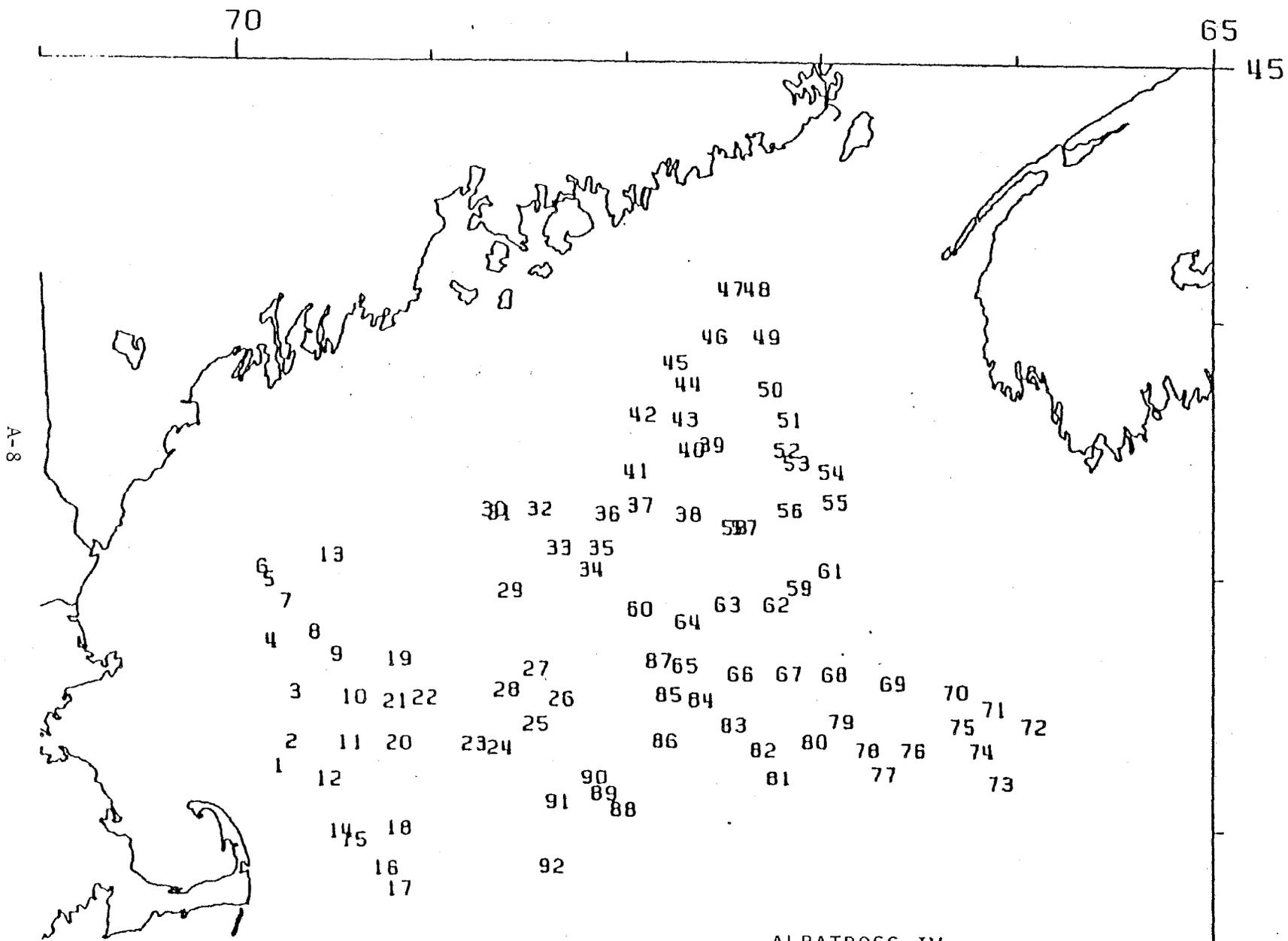
Scientific Personnel

Ronald Schlitz, Chief Scientist
Samuel Nickerson
Robert Pawlowski
Ronald Kirschner
Gilbert Dering
Patrick Laughead
Clarence Davis

George Bolz
Linda Despres
Anne Dorkins
William Skea
Jane Alford
John Laird
Jay Laughlin

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	1090
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	950
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	102
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	102
NEUSTON HAULS	41	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
KBT DROPS	92	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	950	DROGUE	_____
ROSETTE	950	PRIMARY PRODUCTIVITY	10
BOTTOM SAMPLER DROGUE	_____		_____
	_____		_____



ALBATROSS IV

76-03

VESSEL Albatross IV

CRUISE 76-05

DATES July 28-29, 1976

PART I

DAYS AT SEA 1

STATIONS 1

Cruise Objective

Test equipment and procedures for the deployment of a current meter mooring system to be used during a two-year experiment in Northeast Channel beginning September 1976.

Scientific Personnel

W. Redwood Wright, Chief Scientist
Ronald Schlitz
Gilbert Dering
Lt. Robert Pawlowski
William Craig

Marjorie Hock
Robertta Schmidt
Amy Briggs
Theresa Vogel
Nancy King

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____ 1
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
BOTTOM SAMPLER DROGUE	_____		_____
	_____		_____

Remarks:

Current meter set at Lat. 39°58.5 North
Long. 71°01 West

VESSEL Albatross IV

CRUISE 76-05

DATES July 30-16 August, 1976

PART II

DAYS AT SEA 17

STATIONS 133

Cruise Objective

Define the position of the shelf-slope water front from south of Cape Cod to the Northeast Channel.

Characterize the waters of Northeast Channel and Georges Basin to examine slope water intrusions into the Gulf of Maine.

Investigate possible causes for the appearance of relatively cool water in northern Great South Channel and on eastern Georges Bank.

Obtain an estimate of the particulate and dissolved primary production in the Georges Bank area at not less than 20 stations.

Engage in a cooperative phytoplankton experiment with WHOI.

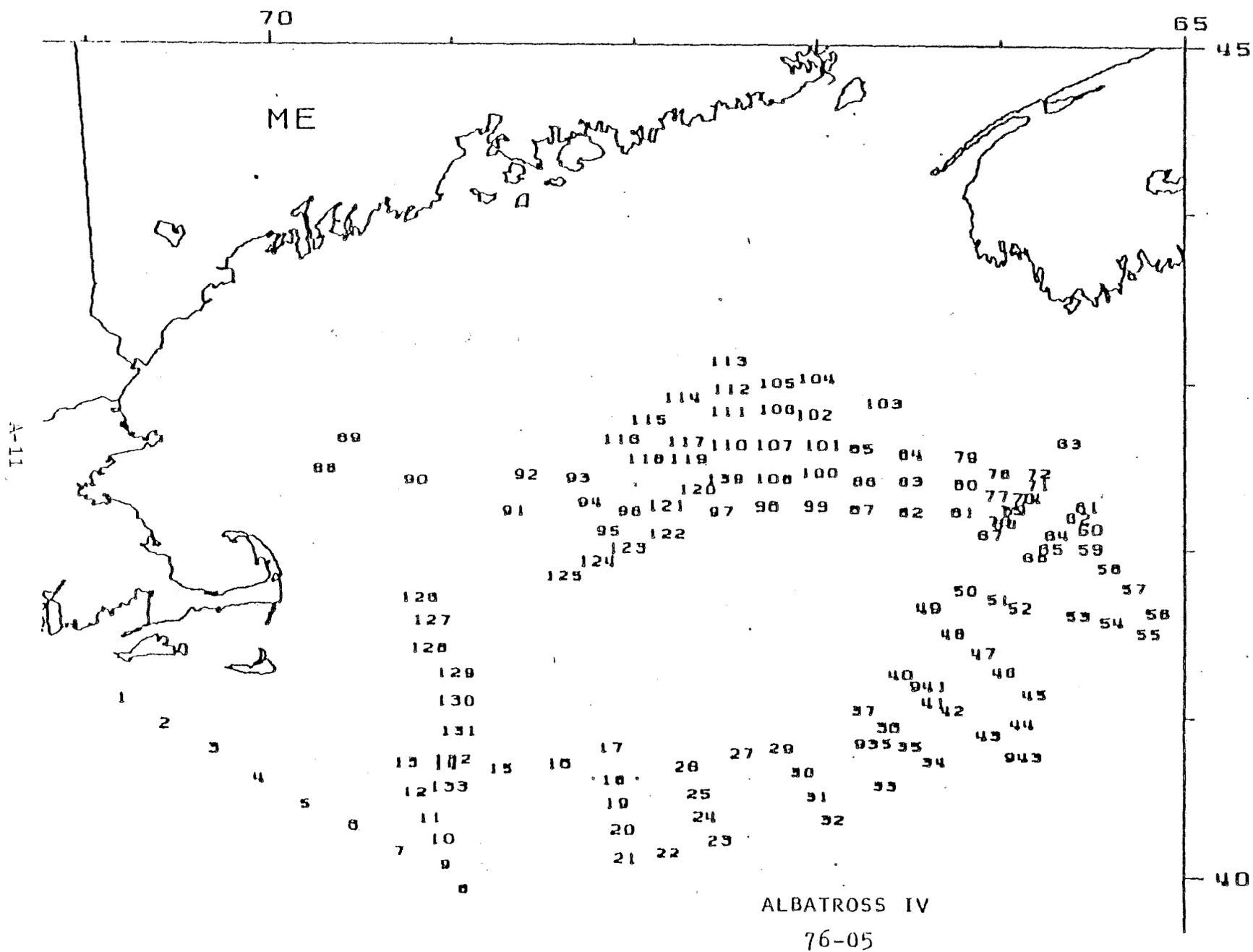
Scientific Personnel

Ronald Schlitz, Chief Scientist
W. Redwood Wright
Samuel Nickerson
Ronald Kirschner
Steven Ramp
Patrick Laughead
Gilbert Dering

Anne Dorkins
Timothy Cain
Mary Nolf
Jane Alford
John Laird
David Wall
Jay Laughlin

Data Collected

ICNAF STANDARD STATIONS	<u> </u>	Total	SALINITY SAMPLES	<u>1700</u>
ICNAF EXTRA STATIONS	<u> </u>		OXYGEN SAMPLES	<u>1550</u>
MOCNESS STATIONS	<u> </u>		NUTRIENT SAMPLES	<u>1550</u>
BONGO HAULS	<u>27</u>		CHLOROPHYLL SAMPLES	<u>800</u>
NEUSTON HAULS	<u>27</u>		TRAWLS	<u> </u>
MOCNESS HAULS	<u> </u>		FISH SAMPLES	<u> </u>
XBT DROPS	<u>181</u>		LONG LINE SET	<u> </u>
BOTTLE CASTS	<u>22</u>		CURRENT METERS	<u> </u>
CTD/STD CASTS	<u>133</u>		DROGUE	<u> </u>
ROSETTE	<u>133</u>		PRIMARY PRODUCTIVITY	<u>22</u>
SURFACE PHYTOPLANKTON	<u>133</u>			<u> </u>
CLARKE BUMPUS	<u>3</u>			<u> </u>



VESSEL Albatross IV

CRUISE 76-09

DATES Sept. 28-Oct. 18, 1976

PART I

DAYS AT SEA 20

STATIONS 178

Cruise Objective

Investigate the distribution, weights and abundance of finfish and invertebrates collected in a standard otter trawl from Martha's Vineyard to Cape Hatteras.

Investigate the distribution and abundance of larval and juvenile fishes collected by 60 cm bongo nets and neuston nets at selected stations in the survey areas.

Make extensive sample collections for colleagues at both participating Centers as well as State and Federal facilities and universities. These samples are generally for life-history studies including age and growth, food habits, maturation, and fecundity.

Make hydrographic collections for temperature, salinity, and oxygen determinations.

Scientific Personnel

Thomas Azarovitz, Chief Scientist
Malcolm J. Silverman, Watch Chief
Wallace Morse, Watch Chief
Valentine Anderson, Biol. Aid
Andrew Thoms, Biol. Aid
Steven Murawski, Fish. Biol.
Myron J. Silverman, Fish. Biol.

Susan Roberts, Fish. Biol.
Ann Matarese, Biol. Aid(Student)
Paul Christian, Biol.Aid(Student)
Louise Behrman, Biol. Aid
John Sibunka, Fish. Biol.
Ray Bowman, Fish. Biol.

Data Collected

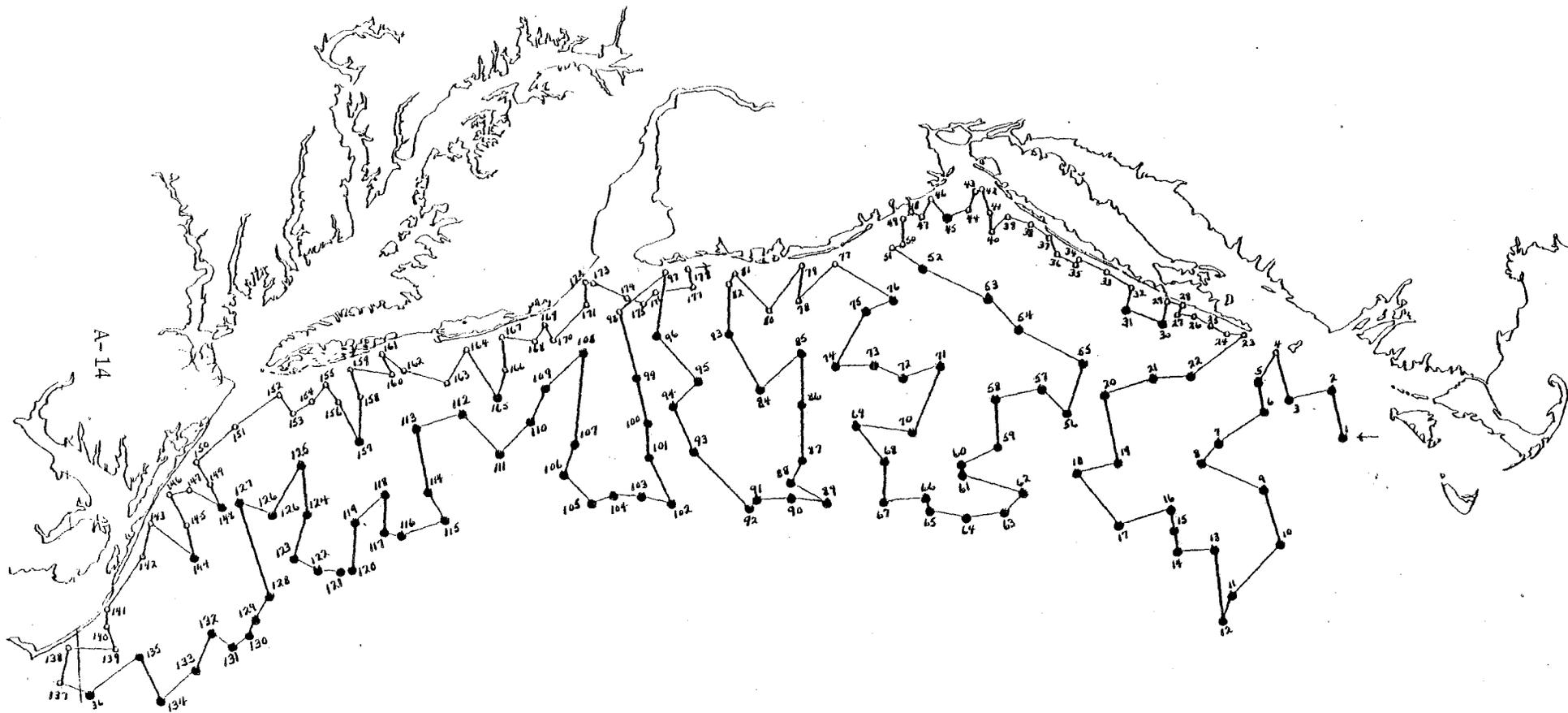
	Total
ICNAF STANDARD STATIONS	_____
ICNAF EXTRA STATIONS	_____
MOCNESS STATIONS	_____
BONGO HAULS	79
NEUSTON HAULS	178
MOCNESS HAULS	_____
XBT DROPS	185
BOTTLE CASTS	179
CTD/STD CASTS	_____
ROSETTE	_____

	Total
SALINITY SAMPLES	207
OXYGEN SAMPLES	423
NUTRIENT SAMPLES	_____
CHLOROPHYLL SAMPLES	_____
TRAWLS	178
FISH SAMPLES	Note
LONG LINE SET	_____
CURRENT METERS	_____
DROGUE	_____
PRIMARY PRODUCTIVITY	_____

Remarks:

See Cruise Results for samples taken.
Stations 52 to 73 and Sta 85 were fish kill stations.

ALBATROSS IV 76-9 (CODE 767) ¹²²
FALL BOTTOM TRAWL SURVEY
SEP 28 - OCT 17, 1976
O = INSHORE STATIONS (CODE 460)



VESSEL Albatross IV

CRUISE 76-09

DATES Oct. 20-5 Nov. 1976

PART II

DAYS AT SEA 16

STATIONS 92

Cruise Objective

The purpose of the cruise was to determine the fall distribution and relative abundance of fish species and to collect biological and hydrographical samples for the Center. Samples of selected species were collected for studies of age and growth, community feeding relationships, fecundity, maturation cycles, and investigations of ichthyoplankton and juvenile fish. Meteorological and oceanographic data were collected in conjunction with the aforementioned samples.

Scientific Personnel

Linda Despres, Chief of Party
Ronald Brooks
Steve Clark
Evelyn Howe
Kristina Kantola
Rhett Lewis
Paul Loiseau

Eva Montiero
William Overholtz
Penny Scott
Trevor Lloyd-Evans
John Sibunka
Cynthia DeGorge
Ruth Taylor

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>103</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	<u>6</u>	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	<u>6</u>	TRAWLS	<u>92</u>
MOCNESS HAULS	_____	FISH SAMPLES	<u>Lots</u>
XBT DROPS	<u>103</u>	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

VESSEL Albatross IV

CRUISE 76-09

DATES Nov. 9-23, 1976

PART III

DAYS AT SEA 16

STATIONS 74

Cruise Objective

The purpose of the cruise was to determine the fall distribution and relative abundance of fish species and to collect biological and hydrographical samples. Samples were collected for the study of age and growth, community feeding relationships, fecundity, maturity, and for ichthyoplankton and juvenile fish investigations. Meteorological and hydrographical data were collected at each station.

Scientific Personnel

William J. Overholtz, Chief of Party
John Nicolas
Donald Flescher
Thomas Morris, Jr.
Lauri Sullivan
Evelyn Howe
Maureen Romansko

Louise Dery
Cathy Rearden
Clayton Edwards
Mary Gesner
Craig Scharf
David Townsend
Donna Perette

Data Collected

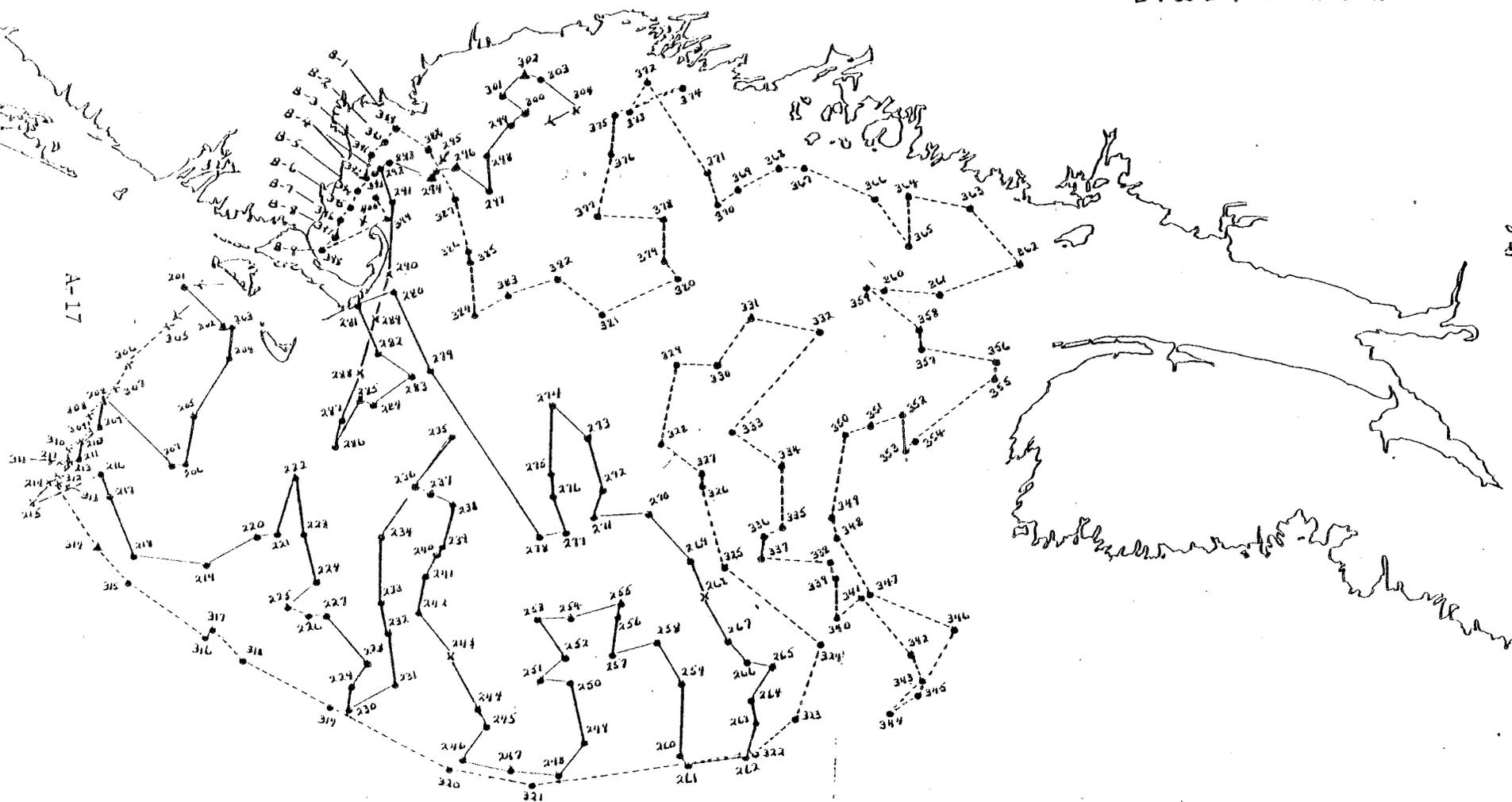
	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	25	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	25	TRAWLS	74
MOCNESS HAULS	_____	FISH SAMPLES	Lots
XBT DROPS	94	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
BIOME STATIONS	9		

ALBATROSS ISLAND (CODE 767)
1976 FALL BOTTOM TRAWL SURVEY

— PART II - OCT 20 - NOV 5
- - - PART III - NOV 9 - NOV 23

▲ = BT STATIONS
x = TEARUPS

B-1 to B-9 = BIOME STATIONS



.ESSEL Albatross IV

CRUISE 76-10

DATES Aug. 25-29, 1976

LEG I

DAYS AT SEA 5

STATIONS 4

Cruise Objective

To determine effects of heavy metals on the transfer rates of energy and carbon (seabed oxygen consumption and heterotrophic uptake) for organisms at or near the base of the food web for demersal fish. To determine the interrelationships between the rates at which organic material (including organic waste) is taken up (incorporated) and decomposed by these organisms and the numbers and kinds of organisms (microbial) responsible for these activities. To monitor the distribution and magnitude of oxidation (decomposition) of organic matter (including dredge spoils and sewage sludge) by the seabed in the apex and to compare the rates found with previous summers (see Special Symposium Volume of Limnology and Oceanography, Fall 1976).

Scientific Personnel

James P. Thomas, Chief Scientist
William C. Phoel
Jay E. O'Reilly
Christine A. Evans
Andrew Draxler
John Babinchak
Fred Thurberg

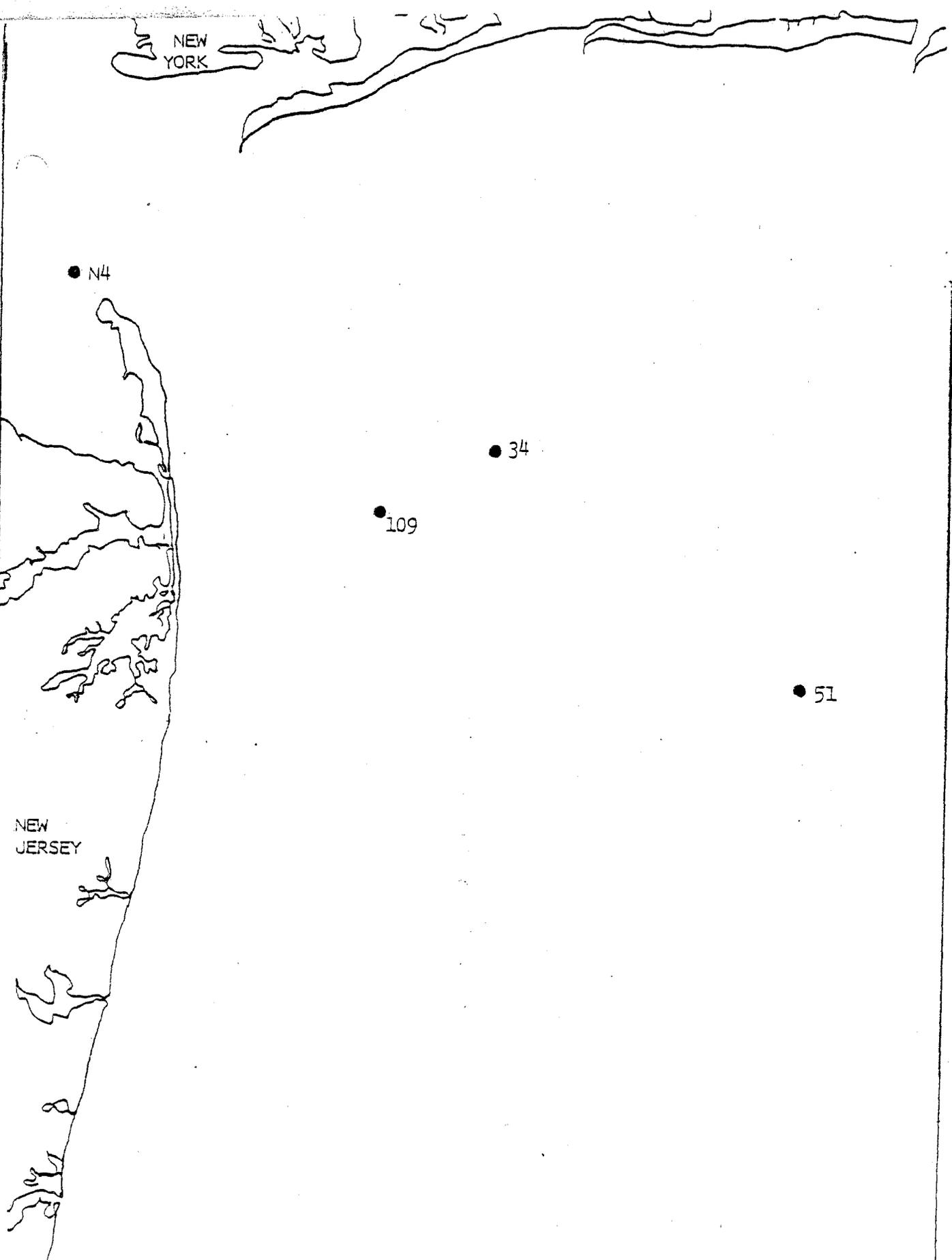
Carol Litchfield
Monica Vengraitis
Joe Zindulus
Christine Carty
William Pringle
James O'Reilly

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
BIOME STATIONS	_____		

Remarks:

Total unknown. For more info call James Thomas,
Sandy Hook Lab.



ALBATROSS IV 76-10

A-20

VESSEL Albatross IV

CRUISE 76-10

DATES Aug. 30-Sept. 9, 1976

LEG II

DAYS AT SEA

STATIONS

Cruise Objective

To examine integrated water column for primary productivity, heavy metal concentrations, total bacterial counts, oxygen consumption by the seabed and water above, and nutrient regeneration from the benthos along a series of gradient transects from the Lower Hudson Estuary to the Outer New York Bight to determine extent and magnitude of influences of the New York Metropolitan area on biological components and activities (particularly those near the base of the food web for pelagic and demersal fisheries) of the affected estuary and adjacent continental shelf, particularly with reference to the recent fish kills.

Scientific Personnel

James P. Thomas, Chief Scientist
William C. Phoel
Jay E. O'Reilly
Christine A. Evans
Andrew Draxler
Kevin Gashlin

James O'Reilly
Terrance Smith
Amy Fischer
David Brunetto
Manuel R. Gamba

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>141</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
KBT DROPS	<u>51</u>	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
SUBMERSIBLE PUMP	_____		

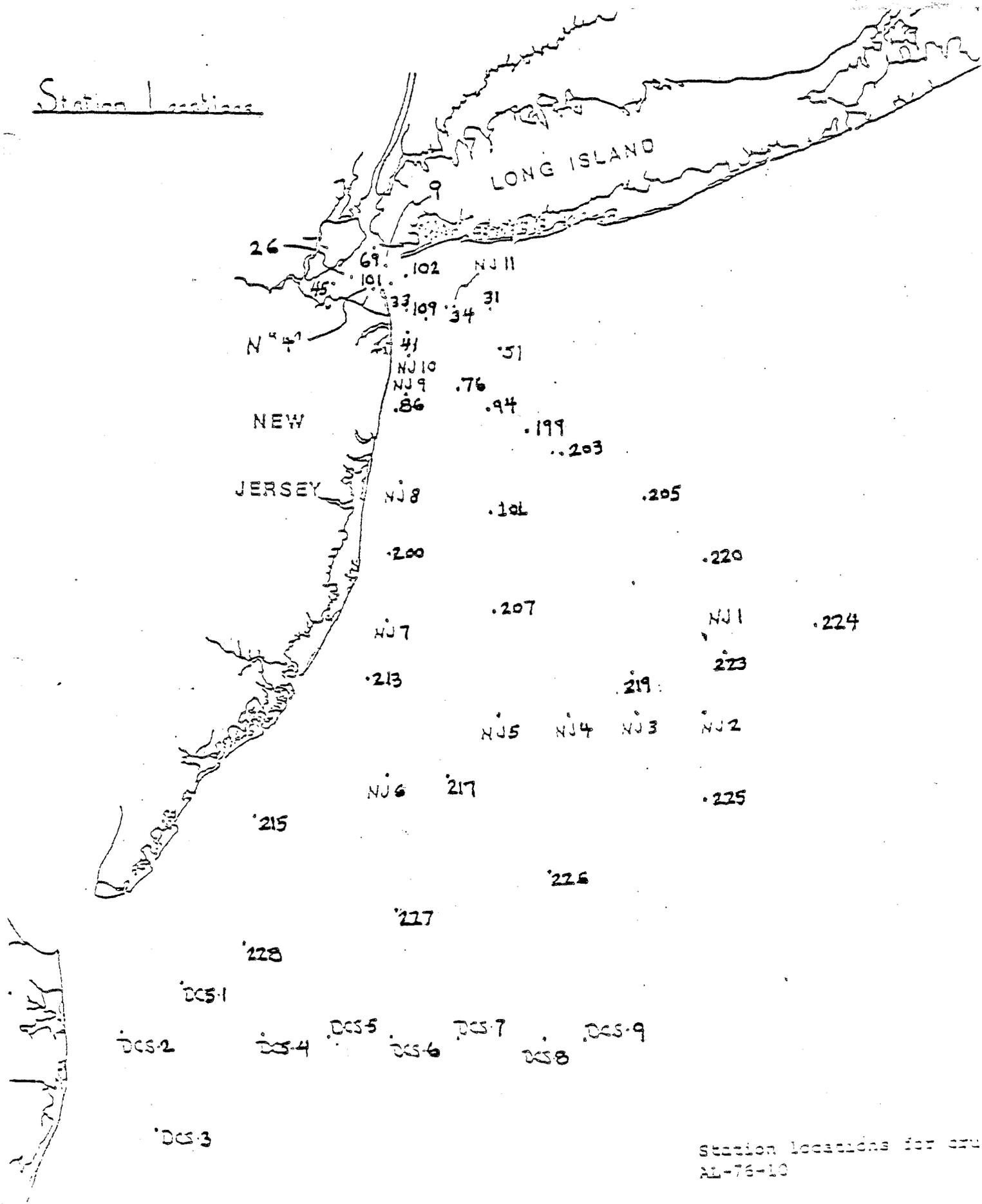
Remarks:

See next page for complete list.

	<u># Measurements</u>
1. Temperature	51 XBT casts
2. Profiles for chla, Turbidity	21
3. Vertical extinction coefficient	21
4. Secchi disc	21
5. Water column O ₂ consumption	1,340
6. Alkalinity	141
7. Salinity	141
8. pH	141
9. Ammonium, NO ₃ , NO ₂ , PO ₄ , Silicates	141 each
10. Particulate carbon	141
11. Particulate nitrogen	141
12. Netplankton and Nannoplankton chlorophyll a concentrations	141 each
13. Simulated <u>in situ</u> primary productivity measurements: Netplankton -	588
Nannoplankton -	588
Dissolved organic matter -	588
14. Photosynthetic capacity: Netplankton	270
Nannoplankton	270
Dissolved organic matter-	270
15. Preserved phytoplankton samples	141
16. Total daily P.A.R.	14 days
17. Dissolved organic carbon	138
18. Hydrogen sulfide	150
19. Rates of mineralization of particulate and dissolved organic nitrogen and phosphorus	36
20. Total bacterial counts: Water -	32
Sediment -	16
21. Seabed oxygen consumption rates	
Total uptake -	170
Cadmium experiments -	72
Formalin killed -	16
22. Ammonium fluxes from sediments	48
Carbon dioxide fluxes from sediments	60
Dissolved organic carbon, silicate and phosphate fluxes from sediments	3
23. Amino acid composition and fluxes from phytoplankton	50
24. Smith-McIntyre bottom grabs for macrofauna	21
25. Experiments conducted by Dr. Litchfield	
Mineralization incubations	1,900
Petri plates inoculated	1,200
26. Heavy metals (Cd, Pb, Cu) analyses	3

A total of 59 different geographical locations (stations) were investigated.

Station Locations



Station locations for cruise
AL-76-10

VESSEL Albatross IV

CRUISE 77-02

DATES April 13-27, 1977

PART I

DAYS AT SEA 15

STATIONS 111

Cruise Objective

The purpose of the cruise was to determine the spring distribution and relative abundance of fish species, to collect biological and hydrographical samples, and to continue monitoring the effects of the ARGO MERCHANT oil spill. Samples of selected species were collected for studies of age and growth, community feeding relationships, fecundity, and maturation cycles; for investigations of ichthyoplankton and juvenile fish; and for hydrocarbon analysis of flesh samples. Meteorological and oceanographic data were collected at each station.

Scientific Personnel

Linda Despres, Chief of Party
George Bolz
Dennis Hansford
Evelyn Howe
Kristina Kantola
John Nicolas
Eva Montiero

William Overholtz
Herb Colby
Joseph Kane
Dan Scribner
Carl Gardiner
Mark McGowan
Al Nickerson

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	127
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	52	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	51	TRAWLS	111
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	127	LONG LINE SET	_____
BOTTLE CASTS	127	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
BOTTOM GRABS	3*		

Remarks:

*Bottom samples were taken with the Ponar & ringnet.

VESSEL Albatross IV

CRUISE 77-02

DATES April 29-May 14, 1977

PART II

DAYS AT SEA 16

STATIONS

Cruise Objective

The purpose of the cruise was to determine the spring distribution and relative abundance of fish species, to collect biological and hydrographical samples, and to continue monitoring the effects of the ARGO MERCHANT oil spill. Samples of selected species were collected for studies of age and growth, community feeding relationships, fecundity, and maturation cycles; for investigations of ichthyoplankton and juvenile fish; and for hydrocarbon analysis of flesh samples. Meteorological and oceanographic data were collected at each station.

Scientific Personnel

Henry Jensen, Chief of Party
Wanda Cain
Philip Chase
Linda Despres
Rhett Lewis
Paul Wood
Carolyn Rogers

Laurie Sullivan
Greg Greene
Andy Mirchel
Richard Smith
Kevin Powers
Lisa Kritzev
Marisa Shanstrom

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	421
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	60	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	60	TRAWLS	88
MOCNESS HAULS	_____	FISH SAMPLES	1950
XBT DROPS	107	LONG LINE SET	_____
BOTTLE CASTS	60	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
BOTTOM SAMPLE	1		

VESSEL Albatross IV

CRUISE 77-02

DATES May 16-20, 1977

PART III

DAYS AT SEA 5

STATIONS 24

Cruise Objective

The purpose of the cruise was to determine the spring distribution and relative abundance of fish species and to collect biological and hydrographical samples. Fish samples were collected for the study of age and growth, community feeding relationships, fecundity, maturity, and for ichthyoplankton and juvenile fish investigations. Meteorological and hydrographical data were also collected at each station.

Scientific Personnel

William Overholtz, Chief Scientist
John Nicolas
Eva Montiero
Evelyn Howe
Elizabeth Bevacqua
Harold Foster
Margaret McBride

Jack Schwartz
Laurie Sullivan
Douglas Tolderlund
Scott See
Jeff Northcult
Patricia Schwartz

Data Collected

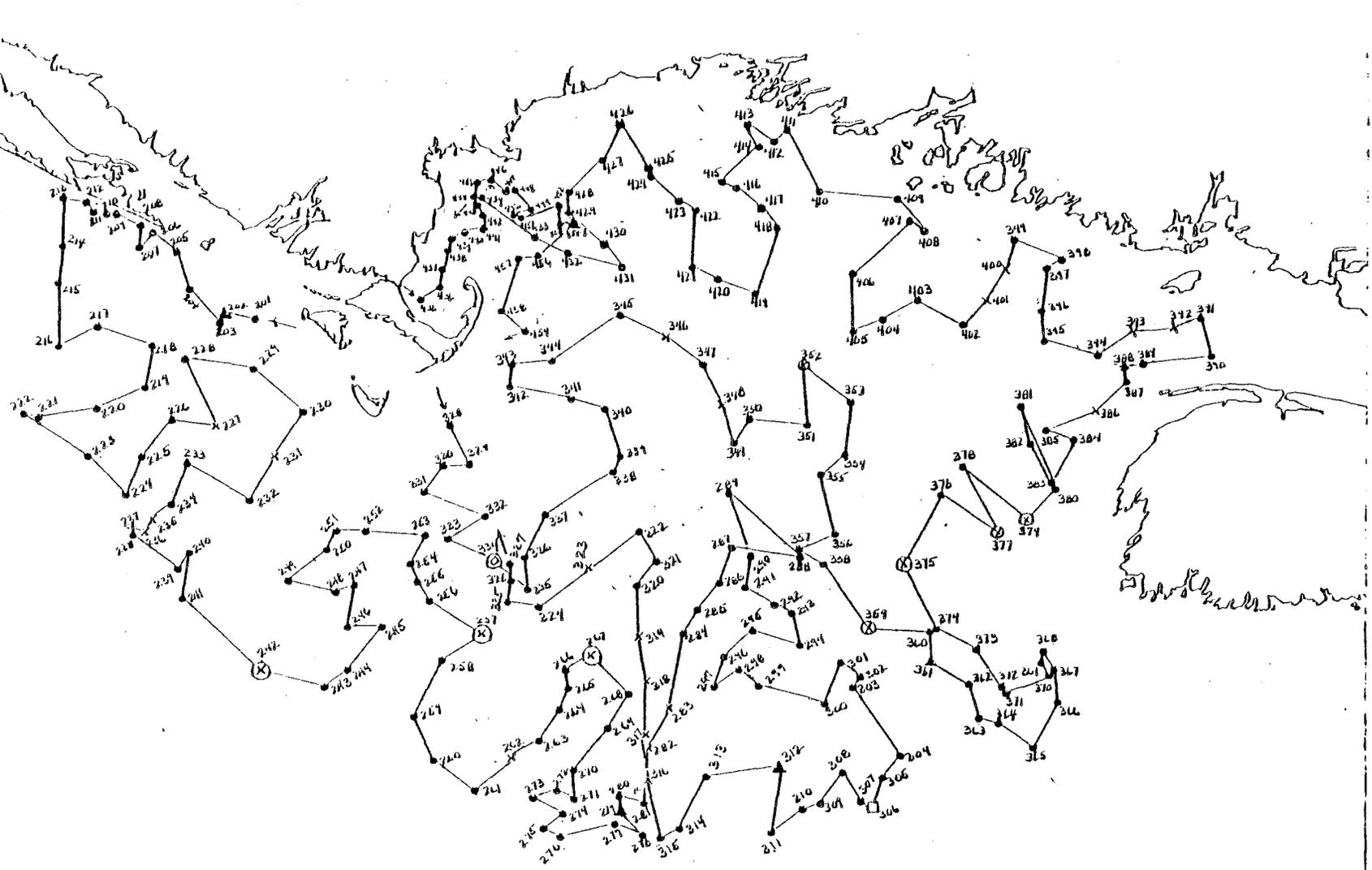
	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	24
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	11	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	11	TRAWLS	24
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	24	LONG LINE SET	_____
BOTTLE CASTS	2	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

ALBATROSS IV - 77-02 (CODE 711)
1977 SPRING BOTTOM TRAWL SURVEY

PART II - APR 13 - APR 26
PART III - APR 30 - MAY 20

- X - XBT STATIONS
- - PLANKTON
- O - HYDRO

A-27



VESSEL Albatross IV

CRUISE 77-03

DATES May 24-June 3, 1977

PART I

DAYS AT SEA 11

STATIONS

Cruise Objective

The purpose of the cruise was to collect biological data to be used for studies of the relative abundance, distribution, and life history of the sea scallop (Placopecten magellanicus). Additional invertebrate samples were collected for studies related to the ARGO MERCHANT oil spill. Meteorological and hydrographic data were collected at each station.

Scientific Personnel

Thomas Azarovitz, Chief of Party
Henry Jensen
John Ropes
Robert Lippson
Heath Stone
Sandy Libby

Susan Darigan
Gale Greene
Scott Becker
Peter Cohen
Paul Donahue

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	15	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	128	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
MOLLUSK DREDGE	128		

VESSEL Albatross IV

CRUISE 77-04

DATES June 7-16, 1977

DAYS AT SEA 10

STATIONS 3

Cruise Objective

1. Characterize the waters of the region with respect to possible flow through Great South Channel.
2. Investigate the continuity of the shelf-slope front from Georges Bank to the Middle Atlantic Bight.
3. Obtain ichthyoplankton-zooplankton samples at selected locations.

In addition to the oceanographic work planned, approximately one-half day will be devoted to setting current meters in the Northeast Channel. It may also be necessary to devote time to drag for current meter mooring #3 set originally on MT FRC-09-76 cruise.

Scientific Personnel

W. R. Wright, Chief Scientist
R. J. Schlitz
Samuel Nickerson
Steven Ramp
Ronald Kirschner
Gilbert Dering
Timothy Cain

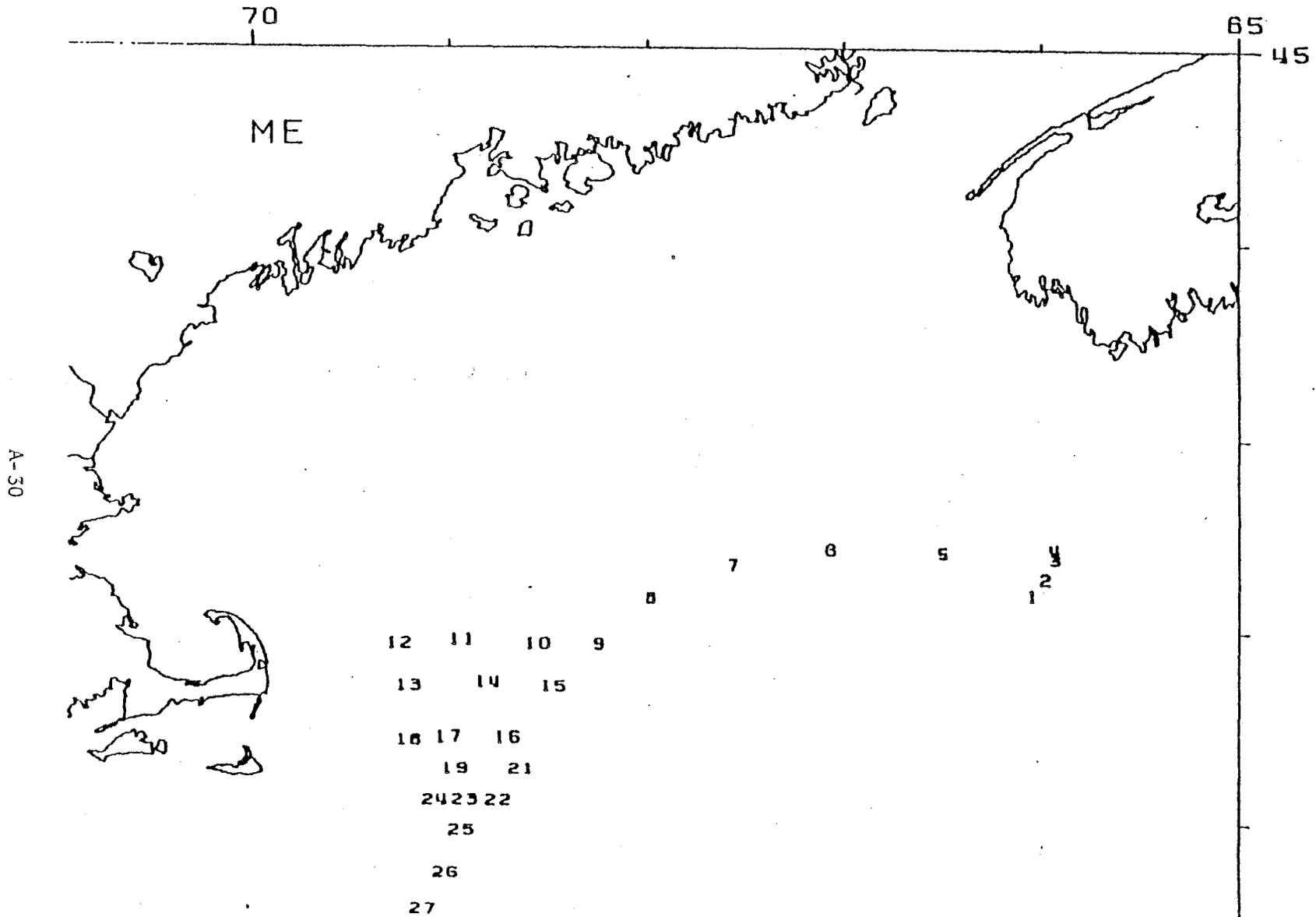
Raymond Cloutier
Amy Briggs
Kitty Clark
Robert Pawlowski
Pat Carter
John Vermersch
Kevin Powers

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	350
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	300
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	69	LONG LINE SET	_____
BOTTLE CASTS	27	CURRENT METERS	3*
CTD/STD CASTS	1	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

Remarks:

*Set



ALBATROSS IV
77-04

VESSEL Albatross IV

CRUISE 77-05

DATES June 22-30, 1977

PART I

DAYS AT SEA 9

STATIONS

Cruise Objective

To examine integrated water column for phytoplankton primary productivity biomass and speciation, nutrients, total bacterial counts, oxygen consumption by the seabed and water above, and nutrient regeneration from the benthos along a series of gradient transects from the Lower Hudson Estuary to the outer New York Bight to determine extent and magnitude of influences of the New York metropolitan area on biological components and activities (particularly those near the base of the food web for pelagic and demersal fisheries). On the adjacent continental shelf, particularly with reference to the recent fish kills.

In addition, a one-day cooperative effort with Dr. Robert Johnson of NASA was accomplished in the New York Bight to provide sea truth for remote sensing of chlorophyll and turbidity accomplished by a NASA fixed-winged aircraft.

Scientific Personnel

James P. Thomas, Chief Scientist
William C. Phoel
Jay E. O'Reilly
Christine A. Evans
Andrew Draxlar
Kevin Gashlin
Craig Robertson

Jack Kelly
Alan K. Jones
Louis Trygar
Lorrie Haggerty
Vincent Carpentiero
Amy Fischer

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	150
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	600
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	150
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	19
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	24	LONG LINE SET	_____
BOTTLE CASTS	19	CURRENT METERS	_____
CTD/STD CASTS	1	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	19
BOTTOM SAMPLE	208	REMOTE SENSING w/NASA	1 day

VESSEL Albatross IV

CRUISE 77-05

DATES July 6-14, 1977

PART II

DAYS AT SEA 12

STATIONS

Cruise Objective

To examine integrated water column for phytoplankton primary productivity biomass and speciation, nutrients and hydrography, total bacterial counts, oxygen consumption by the seabed and water above, and nutrient regeneration from the benthos over Georges Bank (100 m). To provide information supportive to fishery management.

In addition, a cooperative effort with Dr. Robert Johnson of NASA was also accomplished over Georges Bank to provide sea truth for remote sensing of chlorophyll and turbidity on two adjacent days.

Scientific Personnel

James P. Thomas, Chief Scientist
William C. Phoel
Jay E. O'Reilly
Christine A. Evans
Andrew Draxler
Kevin Gashlin

Wendell Hahm
Alan K. Jones
Louis Trygar
Lorrie Haggerty
Vincent Carpentiero
Amy Fischer

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>280</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>1000</u>
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	<u>300</u>
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	<u>400</u>
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	<u>26</u>	LONG LINE SET	_____
BOTTLE CASTS	<u>22</u>	CURRENT METERS	_____
CTD/STD CASTS	<u>1</u>	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	<u>1500</u>
BOTTOM SAMPLE CORE	<u>120</u>		

VESSEL Albatross IV

CRUISE 77-06

DATES July 20-29, 1977

DAYS AT SEA 10

STATIONS

Cruise Objective

The only active dumpsite located in deep water off the east coast of the United States is Deep Water Dumpsite 106 (DWD 106). It is located 106 nautical miles southeast of Ambrose Lightship and 90 nautical miles east of Cape Henlopen, Delaware (Figure 1). The water depths at DWD 106 range from 1750 to 2700 meters. In 1976 it was utilized by 12 industrial dumpers from the New York-northern New Jersey area for the disposal of various waste products. In 1977 the dumping burden in DWD 106 has been increased by the addition of acid-iron waste from the duPont plant in Edge Moor, Delaware, and sewage sludge from Camden, New Jersey. Both of these wastes had previously been dumped at sites much closer to the coast and on the continental shelf.

In 1974, at the request of the Environmental Protection Agency (EPA), National Oceanic and Atmospheric Administration (NOAA) initiated a series of investigations to assess the impact of dumping at DWD 106. Baseline cruises to characterize the physical environment and biota of the site were made in 1974, 1975, and 1976. Two closely spaced cruises in July and August of 1976 were designed to determine chemical and biological effects of waste material entering DWD 106 during two test dumps and to examine the utility of acoustic tracking as a tool for describing the dispersion of waste.

This ALBATROSS IV cruise was part of a two-ship exercise to determine the dispersal pattern, chemical interactions, and biological effects of two waste dumping episodes in Deep Water Dumpsite (DWD) 106. The volume of each dump was approximately one million gallons. In both cases the barge traveled at about 5 knots; the first dump was primary sewage sludge from Camden, NJ, discharged at a rate of about 20,000 gallons per minute (GPM); the second dump was acid-iron waste from the duPont plant in Edge Moor, Delaware, discharged at 3700 gpm.

Dispersal patterns were determined by tracking the acoustic scatter produced by solids in the sludge and by the ferric hydroxide floc formed upon the mixing of acid-iron waste from sea water. Chemical changes induced by dumping and measured on this cruise were increases in concentrations of trace metals and organic matter and the partitioning of trace metals and organic matter between dissolved and particulate forms. The chemical sampling was keyed to the acoustic signals to optimize

our ability to obtain samples manifesting maximum changes. In addition to samples for full chemical analysis, there was also obtained a series of samples for total suspended solids determinations. The collection of these samples was also keyed to the acoustic signal and used to calibrate that signal in terms of scattering intensity versus total suspended load. Hopefully, there will be a correlation between total suspended solids concentration and other chemical parameters so that a description of waste dispersal in acoustic terms will equate at least roughly with chemical dispersion.

The overall goal of our program is to define the effect of ocean dumping on the biological community. Biological sampling was done to:

- a. determine the rate of bacteriological uptake of ^{14}C labeled glucose with samples taken outside and within DWD 106
- b. isolate waste resistant bacteria
- c. monitor the death rate of total and fecal coliform bacteria after the sewage dump
- d. isolate clones of the phytoplankter Thalassiosira pseudonana for laboratory studies on the effects of waste on growth rate
- e. observe differences in the percentages of abnormal fish and copepod eggs collected outside and within DWD 106 (mutagenetics)
- f. collect fish for on-board measurements of respiration rates, osmoregulatory and blood chemistry parameters and biochemical examination of liver tissues (kidney tissues were to be preserved for on-shore analysis)
- g. collect larval, post-larval and adult fish for on-board and shore laboratory pathobiological examination
- h. collect fish to be subjected to chemical extraction techniques and Ames testing to detect presence of mutagenic agents
- i. collect zooplankton for heavy metal analysis
- j. collect sediment samples for biological examination of infaunal assemblages and heavy metal analysis of sediments.

Of these 10 biological components of the cruise, the latter six (e through j) were conducted by personnel from the Northeast Fisheries Center (NEFC) of NOAA/NMFS. These types of measurements

are made in the NEFC Ocean Pulse Program. With the exception of mutagenic work which was done in a preliminary way last summer, this cruise represents the first application of Ocean Pulse type work at deep ocean stations.

Chemical and especially biological manifestations of waste dumping induced effects will be demonstrated only if identical measurements can be made in the dumping area and in an unaffected or control area. It was anticipated from satellite data that DWD 106 would be within a warm-core gulf stream eddy during this exercise and that a second eddy would be relatively nearby to the east-northeast of DWD 106. Our chances of collecting the same species of organisms both within and outside the dumpsite would, therefore, be increased by using the second eddy as a control area.

The other ship involved in this study was NOAA Ship PEIRCE. It was employed solely for XBT and acoustic tracking work. Its not having to take water samples greatly increased its mobility and the acoustic data from the PEIRCE will be most useful for describing waste plume dispersion. The PEIRCE cruise report is attached.

Scientific Personnel

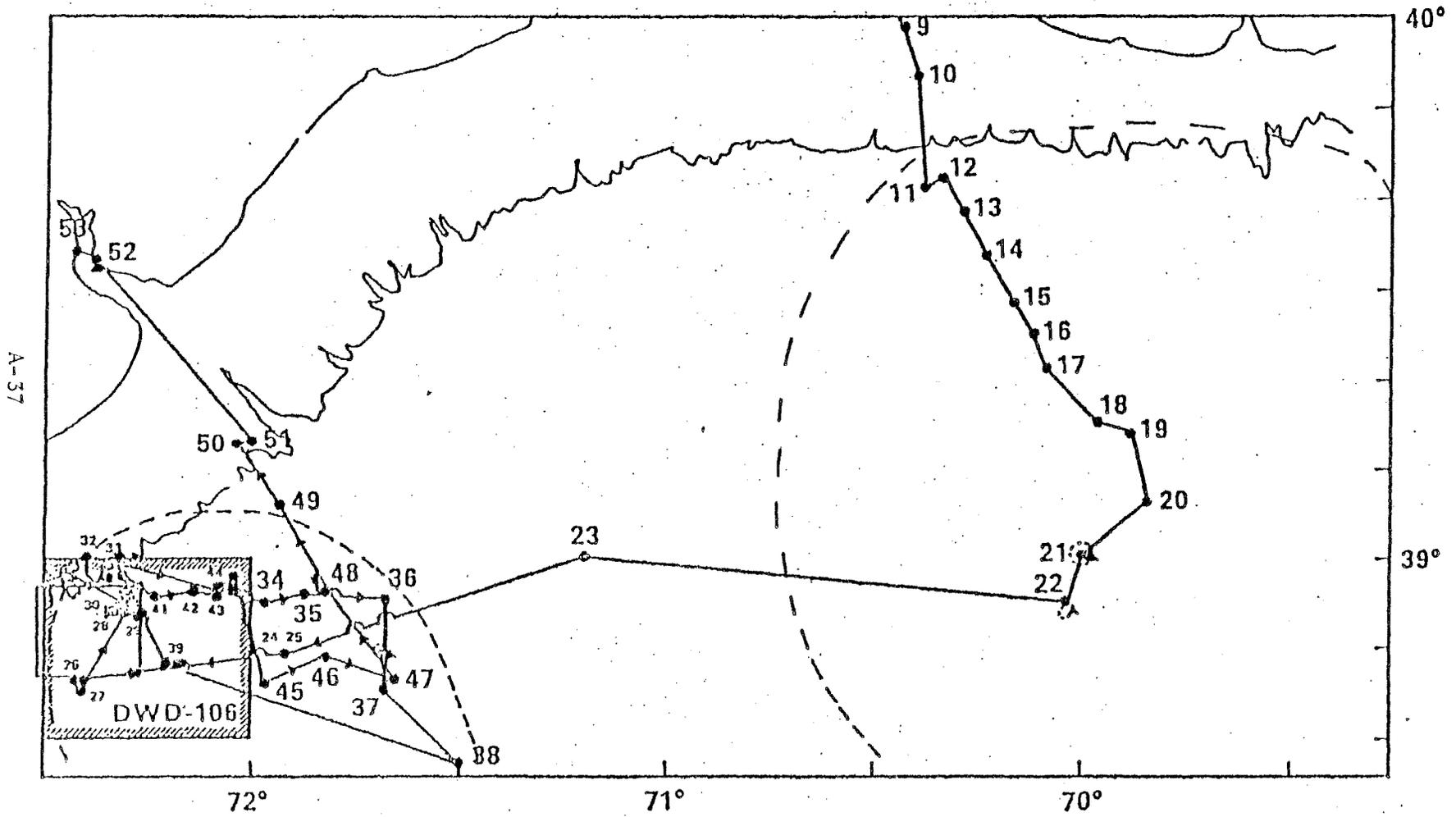
T. O'Connor, Chief Scientist	N. Rawson
R. Hittinger	C. Wingate
M. Dawson	M. Dennett
C. Farley	F. Hess
J. Bisagni	S. Jewell
T. McKanney	D. Crowla
R. Mukherji	R. Goodlet

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____ 9	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____ 33	TRAWLS MIDDEPTH	_____ 3
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	_____ 55	LONG LINE SET	_____
BOTTLE CASTS	_____ 9	CURRENT METERS	_____
CTD/STD CASTS	_____ 9	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
BOTTOM SAMPLE CORE	_____ 120	IN SITU PUMP	20 hr
		ACOUSTIC FISH	60 hr

Remarks:

For information on pump and acoustic fish call Marshall Orr,
WHOI 548-1400.



ALBIV 77-06

VESSEL Albatross IV

CRUISE 77-07

DATES August 1-5, 1977

PART I

DAYS AT SEA 5

STATIONS 32

Cruise Objective

To determine the summer seasonal distribution and relative abundance of fish and invertebrate species found on the continental shelf.

Scientific Personnel

Linda Despres, Chief Scientist
John Nicolas
Evelyn Howe
Eva Montiero
Mike Somers
Gary Shepherd
Barry Armet

Helen Markestyne
Steve Selden
Joseph DeCarlo
Daniel Patanjo
Lance Valentine
P. McLaren
Robert McKenzie

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	188
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	*
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	*
NEUSTON HAULS	_____	TRAWLS	32
MOCNESS HAULS	_____	FISH SAMPLES	Lots
XBT DROPS	32	LONG LINE SET	_____
BOTTLE CASTS	9	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

Remarks:

*Nutrients and chlorophyll samples taken by Brookhaven Lab, also continuous chlorophyll subsurface mapping.

ALBATROSS IV 77-07
1977 SUMMER BOTTOM TRAWL SURVEY

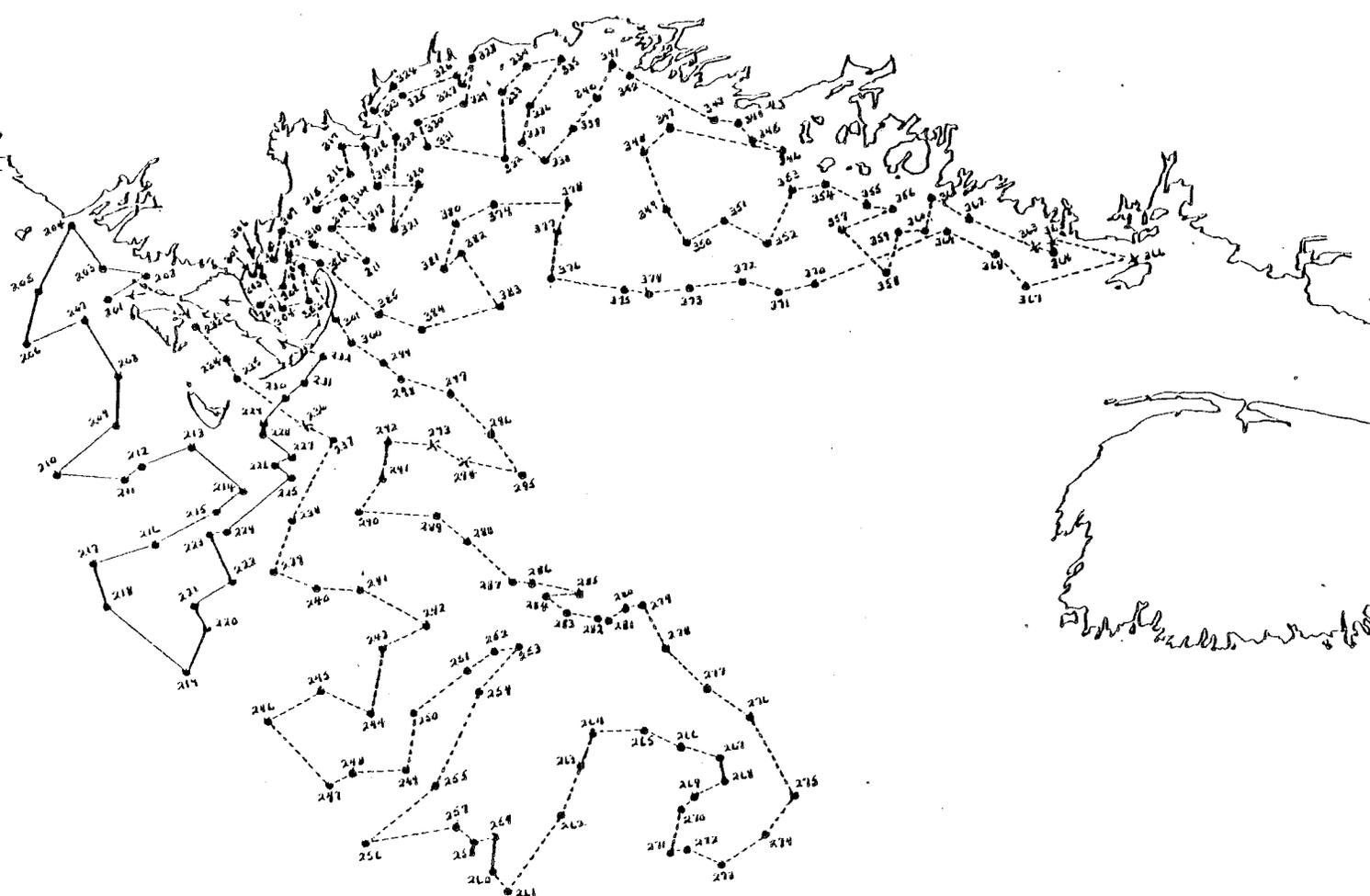
135

— AUG 1-4
- - - - - AUG 16-31

OFFSHORE - CODE 774
INSHORE - CODE 775

X = BT CASTS OTHER THAN ON STATION

A-59



VESSEL Albatross IV

CRUISE 77-07

DATES August 7-12, 1977

LEG II

DAYS AT SEA 6

STATIONS

Cruise Objective

The primary purpose of this cruise was to obtain hydroacoustical backscattering data from aquatic targets (fishes) with simultaneous observations via video monitors and diver scientists. A secondary objective was to conduct bottom trawl operations over a 24-hr period to obtain fishes for stomach content examination. This secondary objective was to be performed at such time as environmental conditions precluded the gathering of high-quality hydroacoustical data (e.g., sea conditions other than calm).

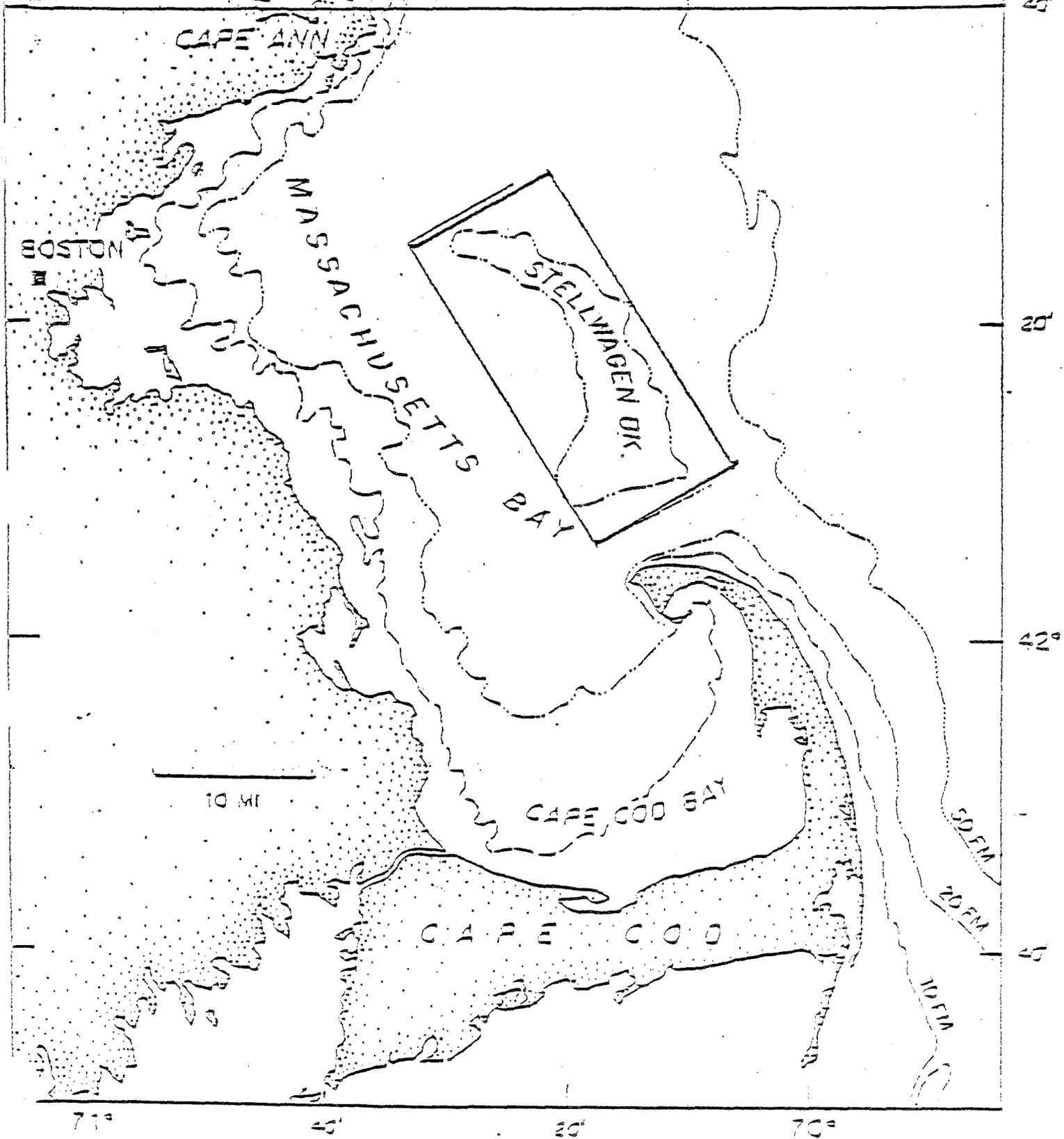
Scientific Personnel

John Suomala, Jr., Chief Scientist
William DeRusso
Roger Clifford
Richard Langton
Jon Gibson

Steven Selden
John Nicolas
Richard Cooper
Kenneth Pecci
Clifford Newell

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS BOTTOM	11
MOCNESS HAULS	_____	FISH SAMPLES	2000
XBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	1	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
DIVING OPERATIONS	150	BOTTOM CORE SAMPLE	1
UNDERWATER TV/PHOTO	500	HYDROACOUSTIC	1000



Area of operations (in heavy outlining) for R/V ALBATROSS IV Cruise No. 77-07 (Part II) during 7-12 August 1977.

VESSEL Albatross IV

CRUISE 77-07

DATES August 16 to September 1, 1977 LEG III

DAYS AT SEA 17

STATIONS 156

Cruise Objective

To determine the summer seasonal distribution and relative abundance of fish and invertebrate species found on the continental shelf.

Scientific Personnel

Henry Jensen, Chief Scientist
Linda Despres
William Overholtz
Donald Flescher
Evelyn Howe
Steve Morrison
Maureen Griffin

Elizabeth Bevacqua
Judith Soares
Judith Brownlow
Robert McTell
Daniel Patanjo
Karl VonBrock
Bruce Bender

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>215</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	<u>*</u>
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	<u>59*</u>
NEUSTON HAULS-5"ring net	<u>55</u>	TRAWLS BOTTOM	<u>144</u>
MOCNESS HAULS	_____	FISH SAMPLES	<u>4800</u>
XBT DROPS	<u>156</u>	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
MAMMAL OBSERVATIONS	<u>52</u>		

Remarks:

For Cruise Track See Part I.

*Nutrients and chlorophyll samples taken by Brookhaven Lab, also continuous chlorophyll subsurface mapping.

VESSEL Albatross IV

CRUISE 77-08

DATES September 6-16, 1977

DAYS AT SEA 11

STATIONS 173

Cruise Objective

To collect biological data to be used in studies of the life history and population dynamics of the sea scallop. Hydrographic and meteorological data will also be collected.

Scientific Personnel

Thomas Azarovitz, Chief Scientist	Connie Beth Cooke
John Ropes	Margaret Carter
Paul Wood	Karen Ferreira
Michael Harwood	Robert Burnett
Philip Dawicki	Robert E. Miller
Bruce Harka	Gordon Starr
Barry Drham	

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	173	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
SCALLOP DREDGE	170	BOTTOM SAMPLE, DREDGE HAUL	3

*Nutrients and chlorophyll samples taken by Brookhaven Lab, also continuous chlorophyll subsurface mapping.

VESSEL Albatross IV

CRUISE 77-09

DATES September 19-25, 1977

LEG I

DAYS AT SEA 7

STATIONS

Cruise Objective

The objectives of the cruise were, in order of importance, to:

1. Recover three subsurface current meter moorings in the Northeast Channel which were placed there in June 1977 on Cruise No. AL-77-04.
2. Replace each of these moorings with a new mooring at the same location. Mooring design is shown in Figure 1.
3. Search the Northeast Channel for a lost mooring, originally located at $42^{\circ}10.7'N$, $66^{\circ}02.3'W$, using side-scan sonar provided by EG&G, Inc., of Waltham, Massachusetts.
4. Take hydrographic measurements and samples using a Plessey 9040 STD and a General Oceanics rosette sampler at stations in the Northeast Channel, Great South Channel, and along the axis of Georges and Wilkinson Basins in the Gulf of Maine.
5. Take XBT observations and surface salinity observations at hourly intervals along the entire cruise track.

Scientific Personnel

Steven Ramp
Redwood Wright
Ronald Schlitz
Gilbert Dering
Thomas Laughton
Robert Pawlowski

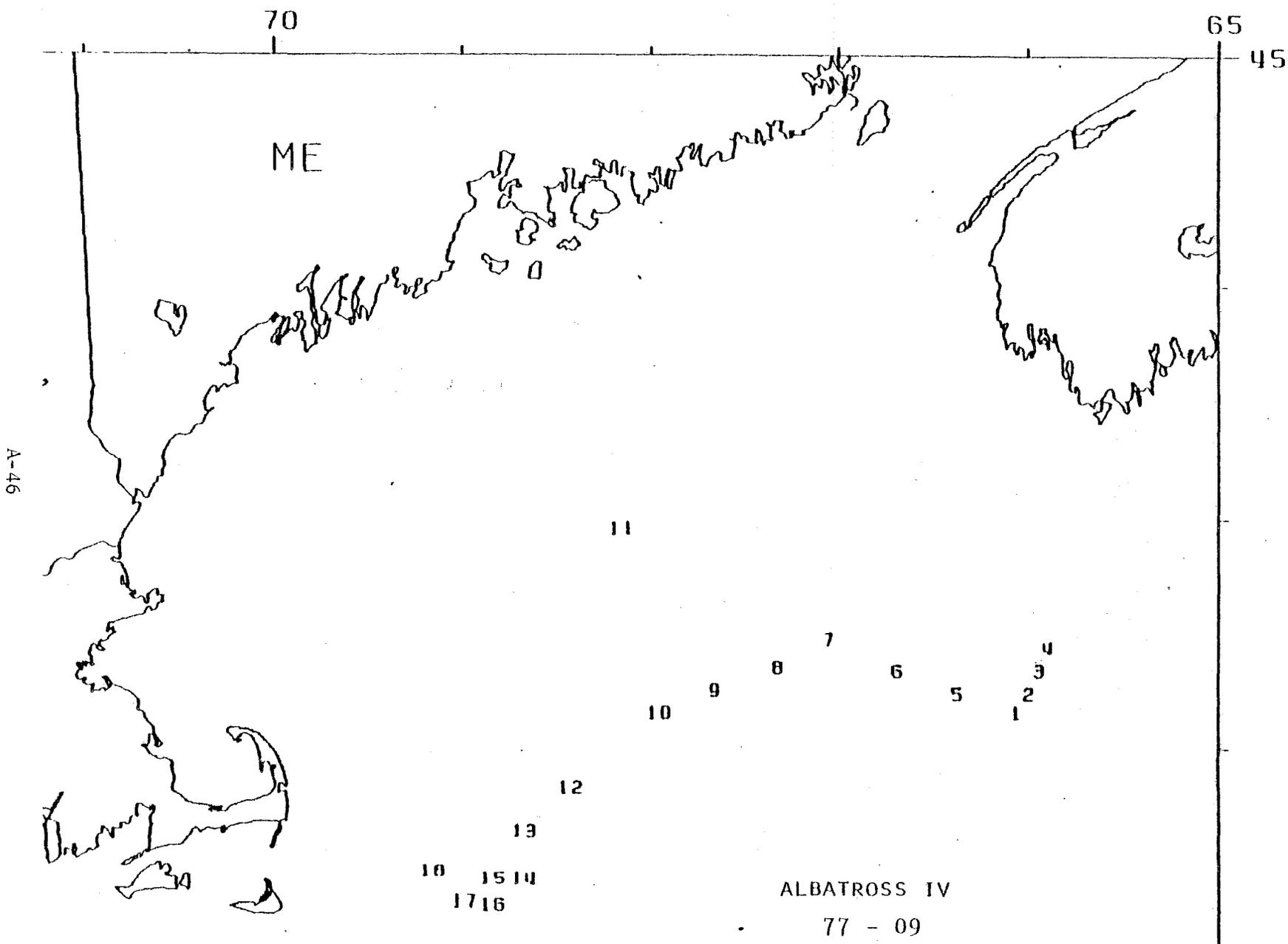
Pat Carter
Mary Nolf
Robert Bailey
Larry Brand
Jeff Gillis

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>216</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>216</u>
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	<u>92</u>	LONG LINE SET	_____
BOTTLE CASTS	<u>18</u>	CURRENT METERS	<u>3*</u>
CTD/STD CASTS	<u>18</u>	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

Remarks:

*3 set/3 retrieved.



VESSEL Albatross IV

CRUISE 78-01

DATES January 18-27, 1978

PART I

DAYS AT SEA 9

STATIONS 82

Cruise Objective

The purpose of the cruise was to determine the winter distribution and relative abundance of Atlantic herring and to collect biological and hydrographic samples.

Scientific Personnel

Linda Despres, Chief of Party
Robert Boeri
Evelyn Howe
Eva Montiero
John Nicolas
Carl Russell
Frank Streeter

Lee Rosenblom
Rochelle Araujo
Kevin Columbe
Steven Bliven
Fran Pearce
Cindy Reidel

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	82*
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	90
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	82	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

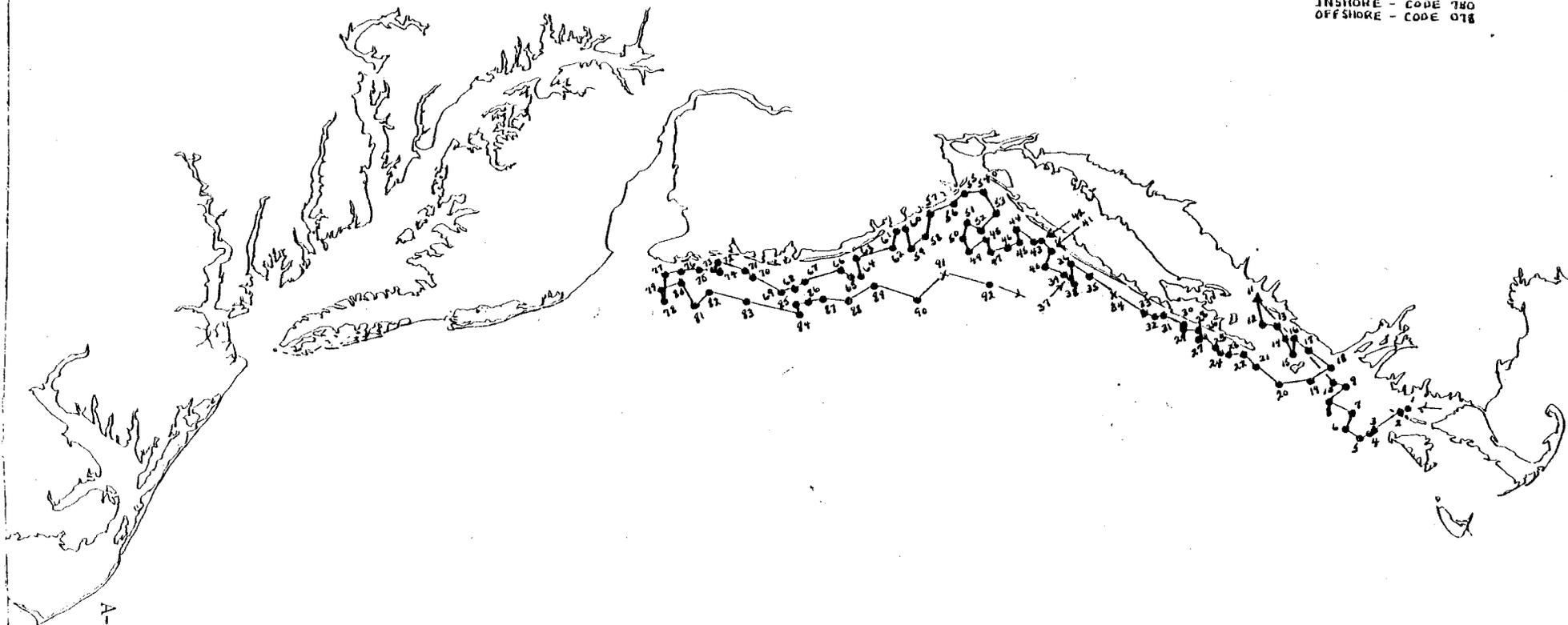
Remarks:

*surface only.

ALBATROSS IV 78-01
WINTER HERRING SURVEY
JAN 18-27, 1978

142

▲ = TEARUPS
X = BT CASTS OTHER THAN ON STATION
INSHORE - CODE 780
OFFSHORE - CODE 078



A-48

VESSEL Albatross IV

CRUISE 78-01

DATES January 31-February 5, 1978

PART II

DAYS AT SEA 6

STATIONS

Cruise Objective
Ecological survey.

Scientific Personnel

Thomas O'Connor, Chief Scientist

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>106</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>106</u>
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	<u>106</u>
BONGO HAULS	<u>4</u>	CELOROPHYLL SAMPLES	_____
NEUSTON HAULS	<u>28</u>	TRAWLS	_____
MOCNESS HAULS.	_____	FISH SAMPLES	_____
XBT DROPS	<u>79</u>	LONG LINE SET	_____
BOTTLE CASTS	<u>11</u>	CURRENT METERS	_____
CTD/STD CASTS	<u>11</u>	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
ACOUSTIC TRACKING	<u>93</u>		

VESSEL Albatross IV

CRUISE 78-02

DATES February 14 to March 7, 1978

PARTS I and II

DAYS AT SEA 22

STATIONS 157

Cruise Objective

The primary objectives of the cruise were to: (1) monitor distribution and relative abundance of larval herring and their food organisms for estimates of production, growth, mortality, and dispersal; (2) conduct limited hydrographic work to describe water mass distribution in the study area; (3) collect a special series of standard bongo net plankton hauls for a comparison of day-night avoidance of herring larvae at two different towing speeds (1.5 and 3.5 knots); (4) conduct special vertical haul day-night series with electronically controlled opening/closing nets (MOCNESS) to determine diel vertical distribution of larvae and their prey; (5) collect sufficient numbers of herring and sand lance (Ammodytes sp.) larvae for otolith aging analysis; and (6) collect live Pseudocalanus minutus for growth rate measurements at various combinations of temperatures and food levels. A secondary objective was to obtain water samples for hydrocarbon analysis by Energy Resources Co. (ERCO) as part of the Bureau of Land Management baseline studies on Georges Bank.

Scientific Personnel

George Bolz, Chief of Party, Part I
Gregory Lough, Chief of Party, Part II
Cabell Davis
Edward Cohen
Harold Merry
George Bolz
Joseph Kane

George Perry
Reinier Courant
Kim Kaughman
Thomas Pugh
Susan Fitch
Craig Carey

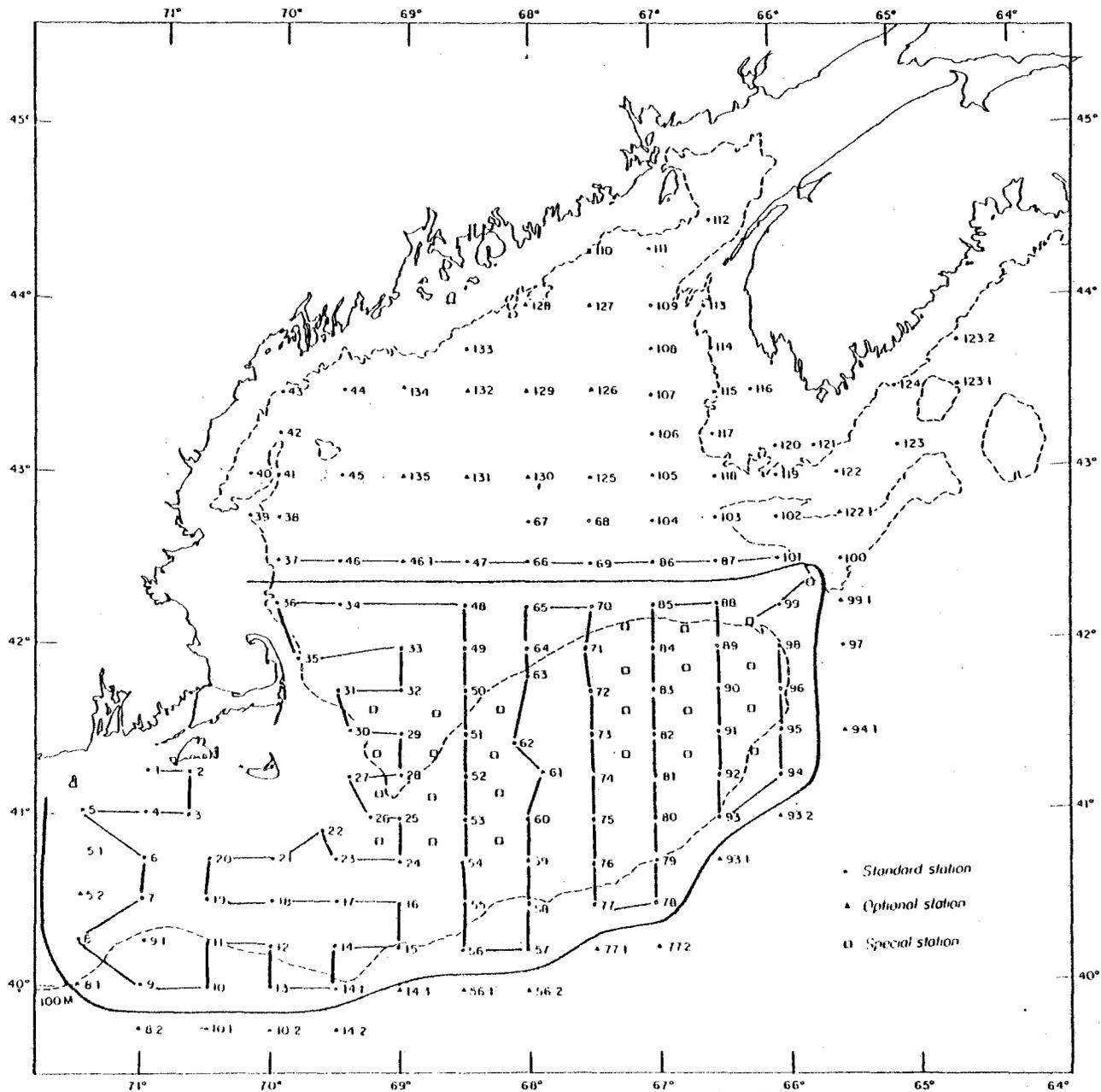
Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>157(B)*</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	<u>140(A)*</u>	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____8	FISH SAMPLES	_____
XBT DROPS	_____157	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

Remarks:

- *(A) 106 standard
34 fine grid
- *(B) Surface only

A-52



VESSEL Albatross IV

CRUISE 78-03

DATES March 10-15, 1978

DAYS AT SEA 5

STATIONS

Cruise Objective

- (1) Recover three subsurface current-meter moorings in the Northeast Channel which were placed there in September on Cruise No. AL 77-09.
- (2) Replace each of these moorings with a new mooring at the same location. Mooring design is shown in Figure 1.
- (3) Deploy a fourth mooring with surface flotation and instrumentation at a point midway between subsurface moorings No. 1 and No. 2. This mooring has two neutrally buoyant tethered current meters supplied by the Environmental Devices Corp. of Marion, Massachusetts. Mooring design is shown in Figure 2.
- (4) Take hydrographic measurements and water samples using a Plessey 9040 STD and a General Oceanics rosette sampler at stations in the Northeast Channel, offshore from the Northeast Channel, and along the axis of Georges and Wilkinson Basins in the Gulf of Maine (Figure 3).
- (5) Take expendable bathythermograph (XBT) observations and surface salinity observations at hourly intervals along the entire cruise track (Figure 4).
- (6) Take a closely spaced XBT section along the axis of the Northeast Channel (Figure 5, Stations 39-61).

Scientific Personnel

Steven Ramp

Redwood Wright

Ronald Schlitz

Ronald Kirschner

Robert Pawlowski

Gilbert Dering

Raymond Cloutier

Anne Dorkins

Daniel Patanjo

Kevin Powers

Edward Sherrill

Marco Lanza

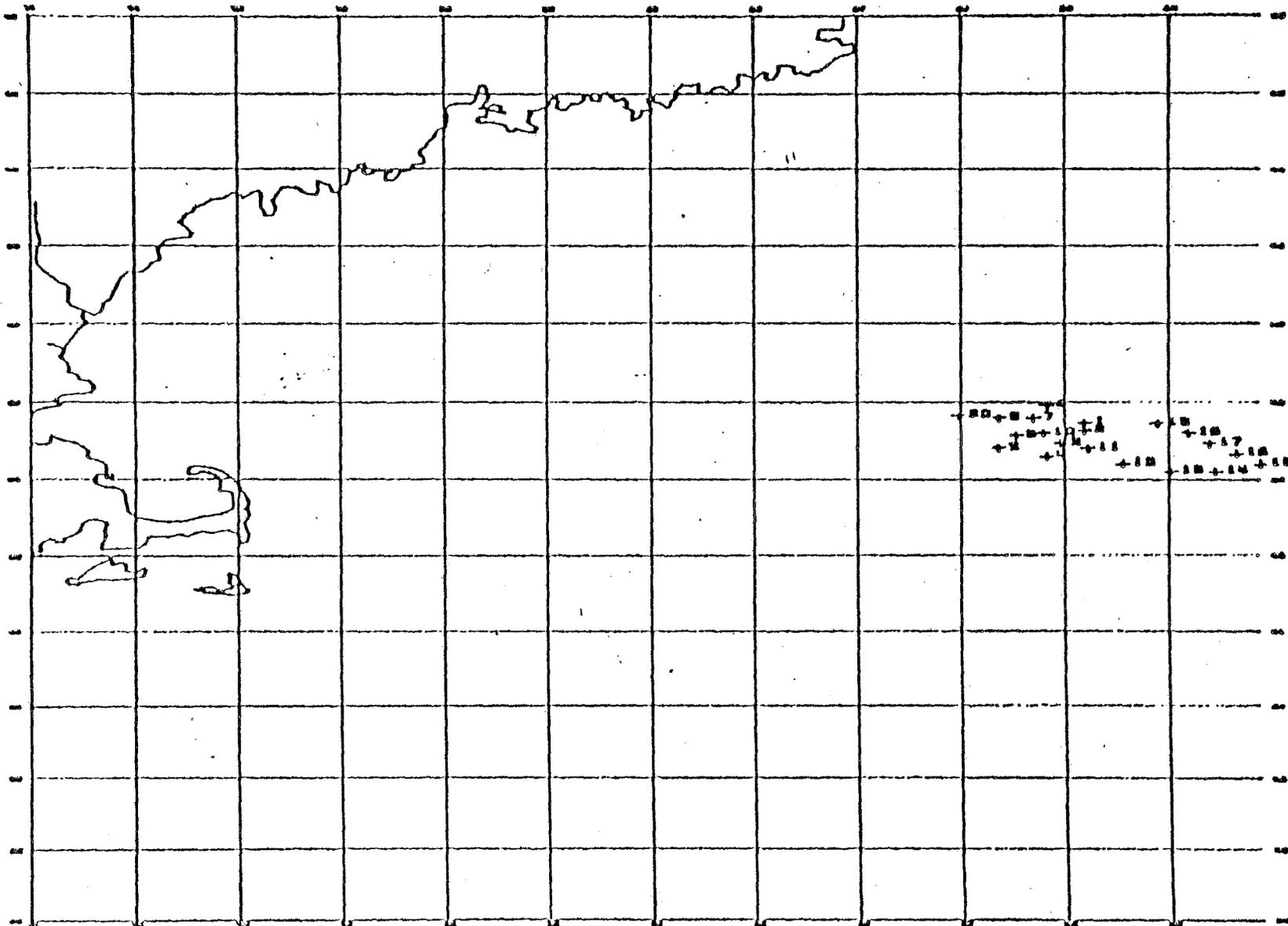
Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MCCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MCCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	3*
CTD/STD CASTS	20	DROGUE	_____
ROSETTE	20	PRIMARY PRODUCTIVITY	_____

Remarks:

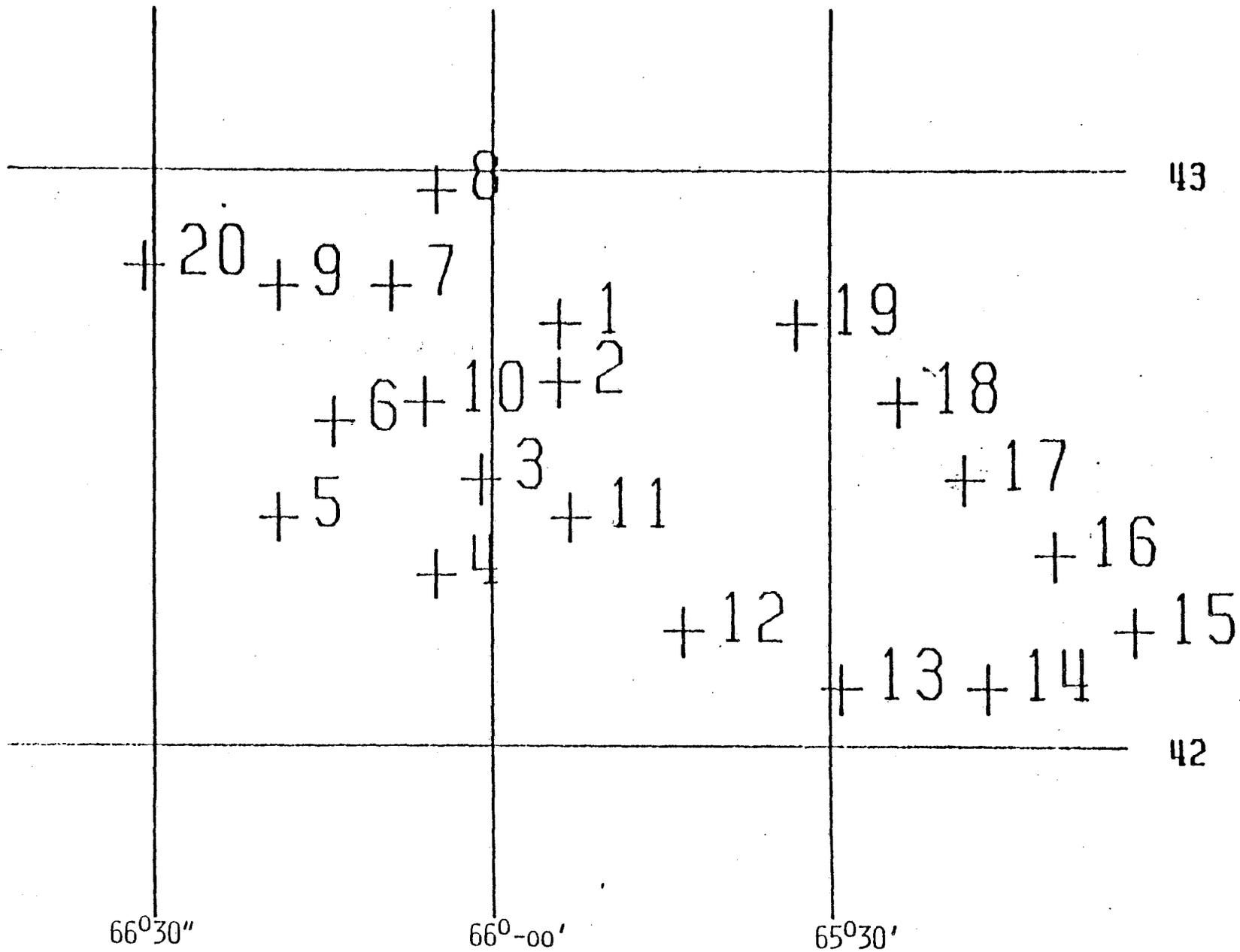
*Set

A-SS



ALBATROSS IV

A-56



VESSEL Albatross IV

CRUISE 78-04

DATES March 20-30, 1978

PART I

DAYS AT SEA 10

STATIONS 117

Cruise Objective

The objectives of the cruise were: (1) to determine the spring distribution and relative abundance of fish species; (2) to collect biological samples; and (3) to collect hydrographical and meteorological samples and data. Collections of fish samples for the study of age and growth relationships, fecundity, maturity, and special collections for interested scientists were planned.

Scientific Personnel

Charles Byrne, Chief Scientist
Malcolm Silverman
Donald Flscher
Eva Montiero
Loretta O'Brien
Andrew Thoms
Carl Russell

Jerry Skinner
Gary Isbell
Mary Gesner
Marc Smith
John Ziskowski
William Rising

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>117*</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	<u>86</u>
MOCNESS HAULS	_____	FISH SAMPLES	<u>3419</u>
XBT DROPS	<u>117</u>	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CID/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

Remarks:

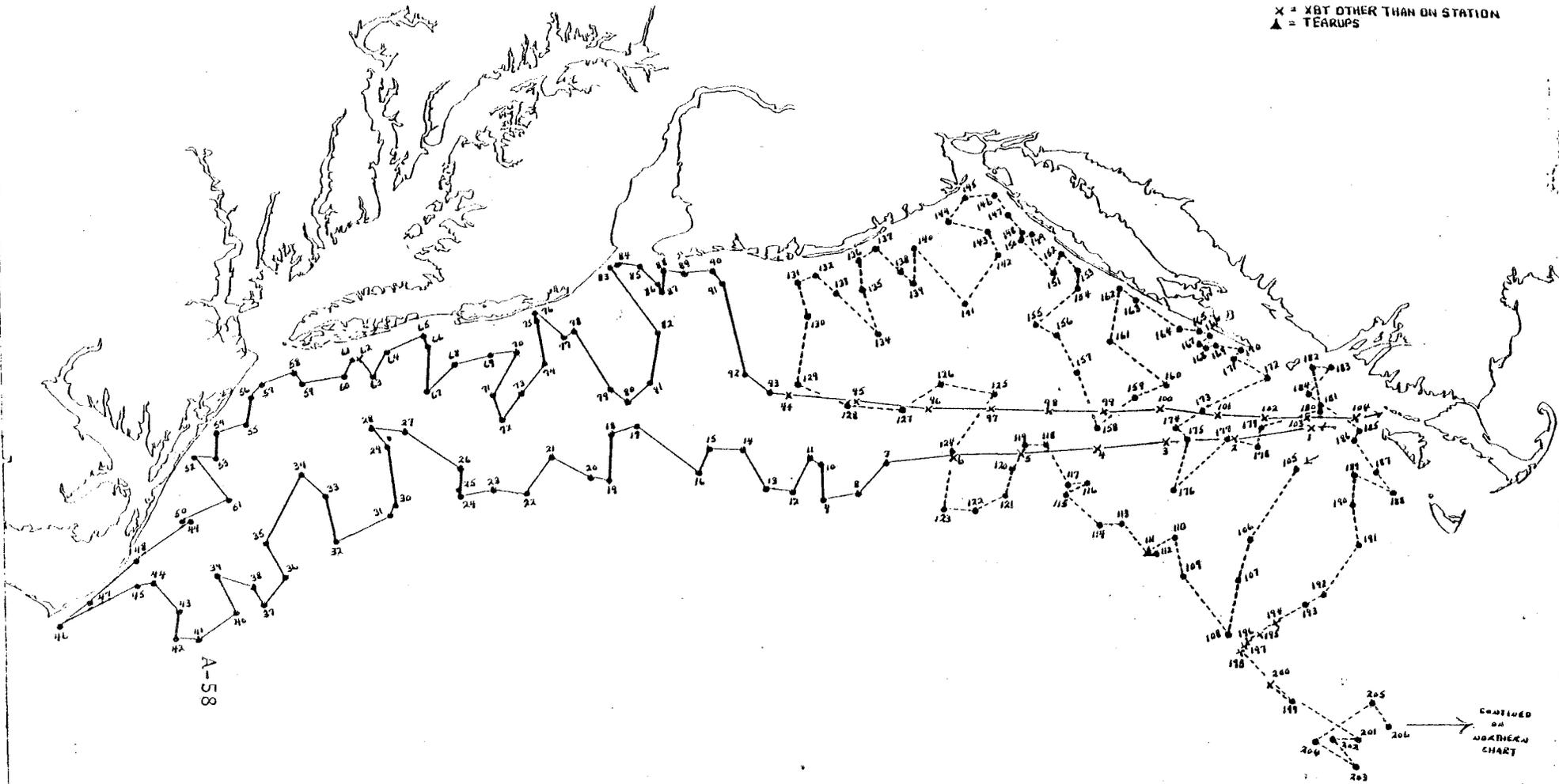
*Surface only.

ALBATROSS IV 78-04 147
1978 SPRING BOTTOM TRAWL SURVEY

—●— PART I - 20-31 MAR
- - -●- - PART II - 3-14 APR

INSHORE CODE 782
OFFSHORE CODE 783

X = XBT OTHER THAN ON STATION
▲ = TEARUPS



VESSEL Albatross IV

CRUISE 78-04

DATES April 3-14, 1978

PART II

DAYS AT SEA 11

STATIONS 114

Cruise Objective

The purposes of the cruise were to determine the spring distribution and relative abundance of fish species, to collect biological and hydrographic samples, and to continue monitoring the effects of the ARGO MERCHANT oil spill.

Scientific Personnel

Linda Despres, Chief Scientist
Charles Byrne
John Nicolas
Evelyn Howe
Marge Allion
Melinda Grace
Galen Pittman

Eve Fraser
Mireille Reichgelt
Wallace Morse
Patrick Bowe
Linda Cummings
Richard Neves
Bruce Hartke

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>125</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	<u>114</u>
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	<u>125</u>	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

Remarks:

For Cruise Track see Parts I and III.

VESSEL Albatross IV

CRUISE 78-04

DATES April 17 - May 3, 1978

PART III

DAYS AT SEA 16

STATIONS 84

Cruise Objective

The purposes of the cruise were: to determine the spring distribution and relative abundance of fish species; to collect biological, hydrographic, and ichthyoplankton samples; and to continue monitoring the effects of the ARGO MERCHANT oil spill.

Scientific Personnel

Linda Despres, Chief Scientist
John Messersmith
Eva Montiero
Gary Press
Jon Gibson
Kevin Powers
Paul Grabhorn
Nadene Butcher

Anne Charles
Renato Pasqualin
Katherin Kanning
Joseph Kane
Patricia Clem
Wallace Morse
Cindy Tatum

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>105*</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	<u>36</u>	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	<u>17</u>	TRAWLS	<u>84</u>
MOCNESS HAULS	_____	FISH SAMPLES	<u>Lots</u>
XBT DROPS	<u>105</u>	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

Remarks:

*Surface only.

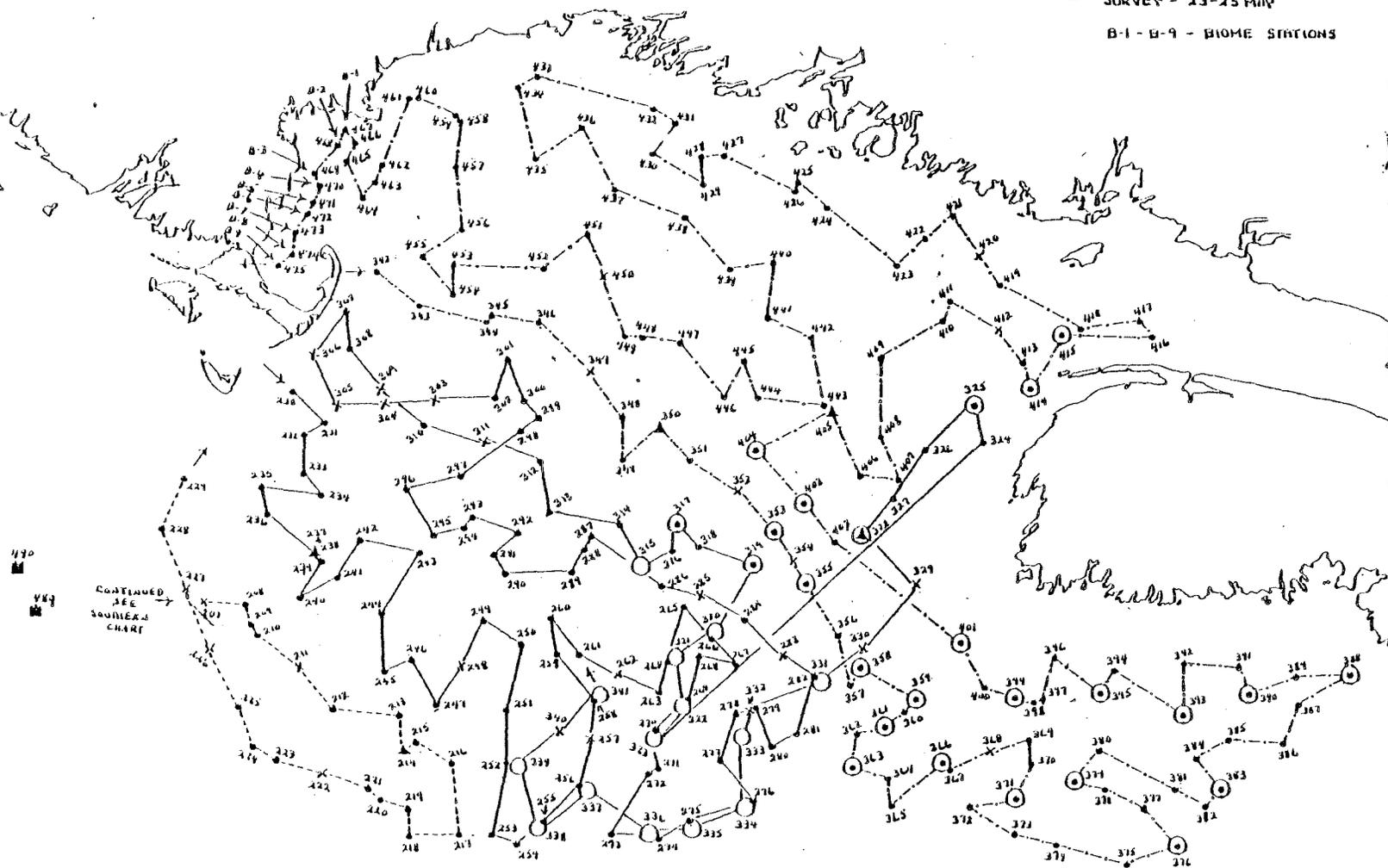
ALBATROSS IX 78-04 (CODE 103) 149
1918 SPRING BOTTOM TRAWL SURVEY

- PART II - (CONTINUED)
- PART III - 17 APR - 3 MAY
- PART IV - 8-23 MAY

- X = XBT OTHER THAN ON STATION
- ▲ = FEARUPS
- = PLANKTON
- ◻ = COMPLETED DURING YELLOWTAIL SURVEY - 23-25 MAY

B-1 - B-9 - BIOME STATIONS

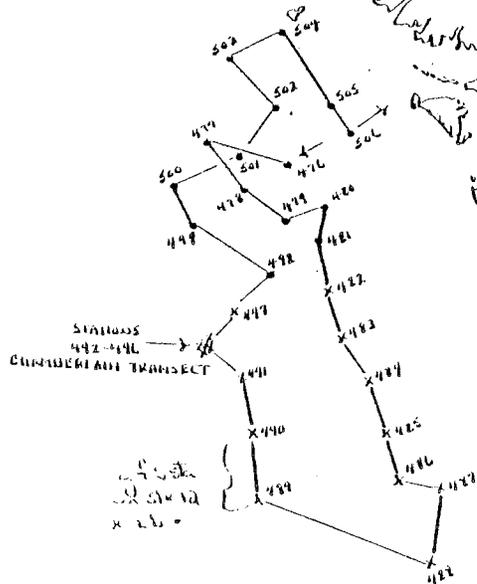
19-61



ALBATROSS IS. '78-04 (CODE 378) 49
1978 SPRING YELLOWTAIL SURVEY
23-25 MAY
(FISHED DURING BOTTOM TRAWL
SURVEY '78-04 PART II)

X = YBT OTHER THAN GU STATION

A-63



VESSEL Albatross IV

CRUISE 78-05

DATES May 31-June 2, 1978

DAYS AT SEA 3

STATIONS 21

Cruise Objective

The purpose of the cruise was to collect fish food habits data, with an emphasis on evaluating the feeding chronology of the major fish species, in a relatively localized area.

Scientific Personnel

Richard Langton, Chief Scientist
Ray Bowman
John Nicolas
Richard Brodeur
Karl Russel
Kevin McCarthy
Rose Concha

Judy Lettes
Helen Gordon
Robert Munson
John Hacunda
Simmon Morgan
Thomas Donnelly

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	21
MOCNESS HAULS	_____	FISH SAMPLES	Lots
XBT DROPS	14	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

VESSEL Albatross IV

CRUISE 78-06

DATES June 7-17, 1978

DAYS AT SEA 10

STATIONS 162

Cruise Objective

The objectives of the cruise were to: (1) study the hydrographic structure and water motions in the frontal region at the northern edge of Georges Bank; (2) investigate the supposed clockwise continuity of flow around eastern Georges Bank in summer; (3) recover near-surface current meters in the Northeast Channel and make hydrographic observations in the channel; (4) test techniques of measuring short-term (tidal and wind-driven) water motions with drogued floats; and (5) investigate the interaction of a warm-core Gulf Stream ring with shelf water along the southern edge of Georges Bank.

Scientific Personnel

Redwood Wright, Chief Scientist	<u>Univ. of Massachusetts, Amherst, MA</u>
Ronald Schlitz	Mary Charlesworth
Samuel Nickarson	
Ronald Kirschner	<u>Univ. of New Hampshire, Durham, NH</u>
Gilbert Dering	Douglas Denninger
Timothy Cain	
Ann Dorkins	<u>Coll. of the Atlantic, Bar Harbor, ME</u>
Dan Patanjo	Gary Carter
Donna Geary	
Brooke Hayes	
Stephen Fogg	

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	690
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	528
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	162	LONG LINE SET	_____
BOTTLE CASTS	1 1/2	CURRENT METERS	2
CTD/STD CASTS	43	DROGUE	6
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

VESSEL Albatross IV

CRUISE 78-07

DATES June 22-July 1, 1978

PARTS I AND II

DAYS AT SEA 10;13

STATIONS 66;83

Cruise Objective

This cruise is the fifth of six surveys conducted during the fiscal year to monitor seasonal changes in distribution and abundance of fish eggs and larvae and to collect basic primary productivity data and hydrographic information.

Scientific Personnel - Part I: June 22-July 1

National Marine Fisheries Service,
NEFC, Sandy Hook, NJ

John Sibunka, Chief Scientist
Christine Evans
Amy Fischer
Susan Barker
Steven Ward
David Gordon

Univ. Rhode Island, Kingston, RI
Linda Bireley

Drew University, Madison, NJ
Carol Meise
Jayne Fitzgerald

College of the Atlantic,
Bar Harbor, ME
Gary Carter

National Marine Fisheries Service,
NEFC, Woods Hole, MA

William Brennan
Anne Dorkins
Steven Fogg

Manomet Bird Observatory,
Manomet, MA
Richard Hall

Scientific Personnel - Part II: July 5-17

National Marine Fisheries Service,
NEFC, Sandy Hook, NJ

John Sibunka, Chief Scientist
Susan Barker
Donald McMillan
Steven Ward

Cornell University, Ithaca, NY
William Haake

Drew University, Madison, NJ
Kenneth Jones
William Hogelin

National Marine Fisheries Service,
NEFC, Woods Hole, MA

William Brennan
Thomas Laughton
Daniel Patanjo
William Burns

College of the Atlantic,
Bar Harbor, ME
Gary Carter

Manomet Bird Observatory,
Manomet, MA
Ann Mason

National Marine Fisheries Service,
NEFC, Narragansett, RI

Jaqueline Firsella

Data Collected

	Total	Total		Total	Total
ICNAF STANDARD STATIONS	<u>66</u>	<u>83</u>	SALINITY SAMPLES	<u>539</u>	<u>900</u>
ICNAF EXTRA STATIONS	<u> </u>	<u> </u>	OXYGEN SAMPLES	<u>481</u>	<u>752</u>
MOCNESS STATIONS	<u> </u>	<u> </u>	NUTRIENT SAMPLES	<u>89</u>	<u>9</u>
BONGO HAULS	<u>79</u>	<u>99</u>	CHLORO SAMPLES	<u>948</u>	<u>1508</u>
NEUSTON HAULS	<u>66</u>	<u>83</u>	TRAWLS	<u> </u>	<u> </u>
MOCNESS HAULS	<u> </u>	<u> </u>	FISH SAMPLES	<u> </u>	<u> </u>
XBT DROPS	<u>66</u>	<u>83</u>	LONG LINE SET	<u> </u>	<u> </u>
BOTTLE CASTS	<u>66</u>	<u>83</u>	CURRENT METERS	<u> </u>	<u> </u>
CTD/STD CASTS	<u> </u>	<u> </u>	DROGUE	<u> </u>	<u> </u>
ROSETTE	<u> </u>	<u> </u>	PRIMARY PROD	<u> </u>	<u> </u>
HAEDRICH NEUSTON	<u>34</u>	<u>42</u>			

VESSEL Albatross IV

CRUISE 78-08

DATES June 25-29, 1978

DAYS AT SEA 5

STATIONS 3

Cruise Objective

Cruise operations were designed to measure acoustically the headrope height and wingspread (in feet) of the following trawls at prescribed vessel speeds, scopes, directions of tow, and depths: (1) three No. 36 Yankee trawls, standard for bottom trawl surveys, rigged with roller gear and 36, 203-mm (8-inch) spherical floats and measured in concert with each of two pairs of doors; (2) three two-seamed modified No. 41 Yankee trawls, also standard for bottom trawl surveys, rigged with roller gear and 53, 203-mm (8-inch) spherical floats and measured in concert with each of two pairs of doors. The No. 36 Yankee trawls are to be used during the 1978 summer and fall surveys; the No. 41 trawls during the 1979 spring survey.

Scientific Personnel

National Marine Fisheries Service

NOAA Corps, Woods Hole, MA

Malcolm Silverman, Chief Scientist

Ronald Smolowitz

John Messersmith

Patrick Twohig

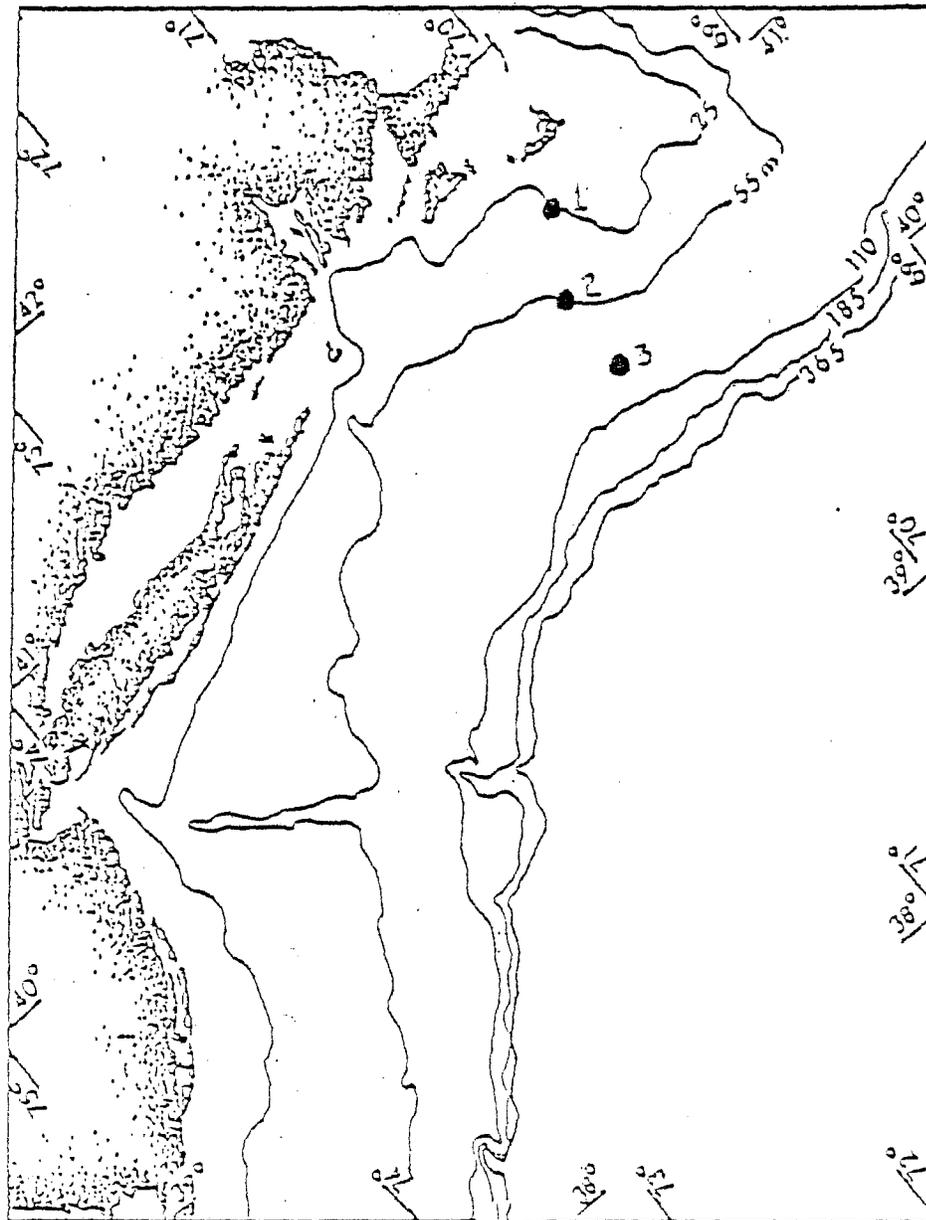
Amherst College, Amherst, MA

Gary Press

Ronald Grosslein

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____3
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____



Areas of trawl mensuration during
 ALBATROSS IV Cruise No. AL 78-03
 from 25 to 29 July 1978

VESSEL Albatross IV

CRUISE 78-09

DATES July 31-August 11, 1978

DAYS AT SEA 12

STATIONS 113

Cruise Objective

The objectives of the cruise were: (1) to determine the summer distribution and relative abundance of fish species; (2) to collect biological samples; and (3) to collect hydrographical and meteorological samples and data. Collections of fish samples were planned for the study of age and growth relationships, fecundity, maturity, and specialized research by interested scientists.

Scientific Personnel

NMFS, NEFC, Woods Hole Laboratory, Woods Hole, MA

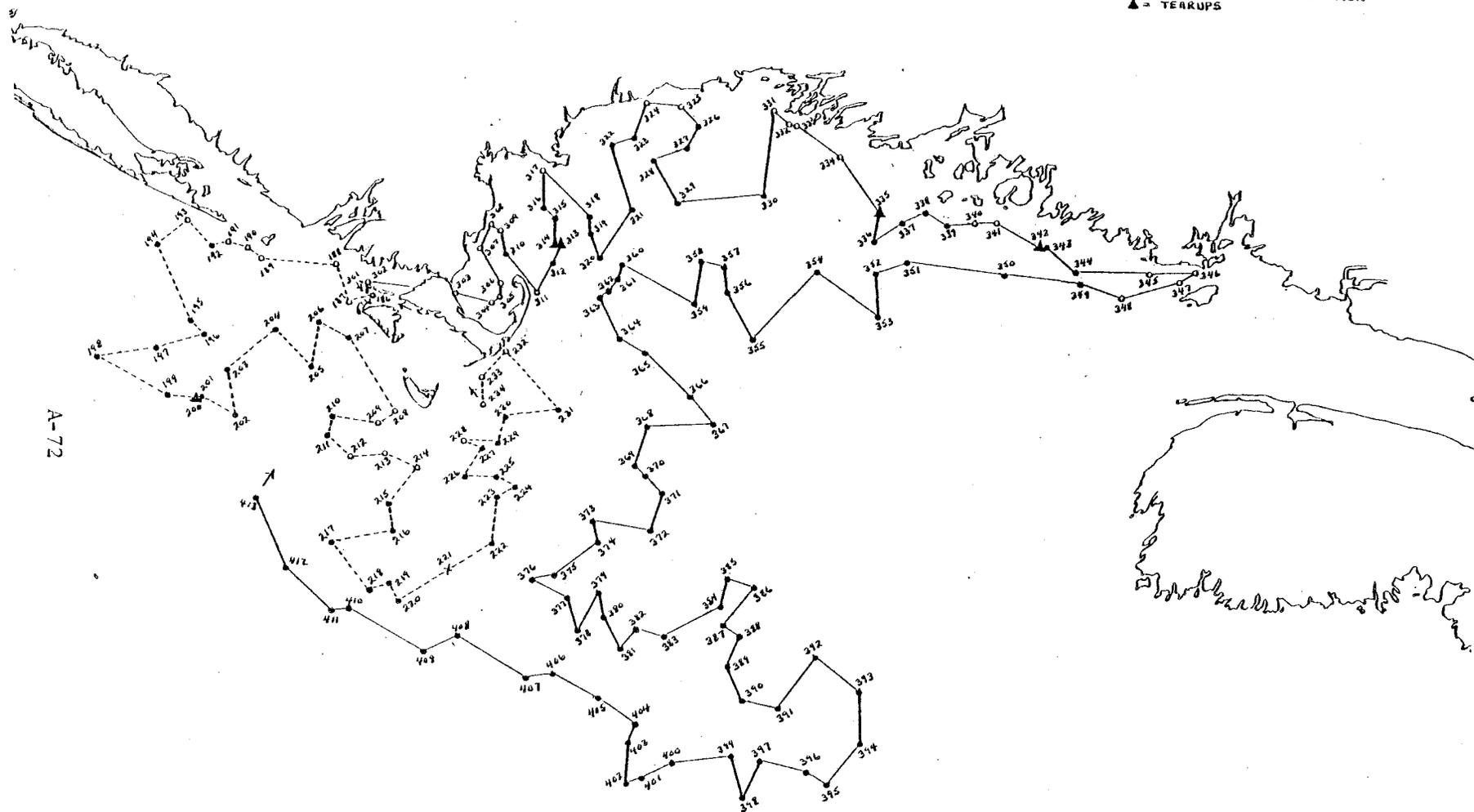
Charles Byrne, Chief Scientist	Gary Shephard
Harold Foster	Carl Russel
Ralph Mayo	Gary Press
Evelyn Howe	James Townes
Loretta O'Brien	

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	113
MOCNESS HAULS	_____	FISH SAMPLES	4061
XBT DROPS	113	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

1978 SUMMER BOTTOM TRAWL SURVEY
 ALBATROSS IY 78-09 - 31 JUL - 11 AUG (PART III)
 DELAWARE II 78-05 - 15 AUG - 20 AUG (PART IV)

- = INSHORE - CODE 786
- = OFFSHORE - CODE 787
- ✕ = BT'S OTHER THAN ON STATION
- ▲ = TEARUPS



A-72

VESSEL Albatross IV

CRUISE 78-10

DATES August 15-September 1, 1978

DAYS AT SEA 15

STATIONS 327

Cruise Objective

The objectives of the cruise were: (1) to determine the distribution and relative abundance of the sea scallop (Placopecten magellanicus); (2) to conduct a dredge comparison with the DELAWARE II; and (3) to collect biological, hydrographical, and meteorological samples and data.

Scientific Personnel

NMFS, NEFC, Woods Hole Laboratory,
Woods Hole, MA

Henry Jensen, Chief Scientist
Paul Wood
Philip Chase
Elizabeth Bevacqua
Richard Cloud
Maureen Griffin

Florida Institute of Technology
Melbourne, FL

Scott Scrupski

Duke Univ., Durham, NC
Patrice Forework

So. Mass. University,
South Dartmouth, MA

Daniel Dwane

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	340	LONG LINE SET	_____
BOTTLE CASTS	20	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
SEA SCALLOP STATIONS	327		

VESSEL Albatross IV

CRUISE 78-11

DATES September 13-16, 1978

DAYS AT SEA 4

STATIONS

Cruise Objective

1. Recover three subsurface current-meter moorings in the Northeast Channel which were moored there in March 1978 during Cruise No. AL 78-03. Mooring design for these moorings is shown in Figure 1.
2. Deploy one-half of the planned Canadian-American Georges Bank larval herring patch study moored array experiment. This half consists of three subsurface moorings deployed along $66^{\circ}41'W$ as shown in Figure 2. The design of each mooring is similar to that pictured in Figure 1.
3. Protect each of the three new subsurface moorings with a triangle of surface moored marker buoys. These buoys are described in Figure 3.
4. Collect hydrographic data at six-to-ten stations in the Northeast Channel to determine water characteristics at the time of recovery (Figure 4).
5. Make 10-12 salinity-temperature-depth (STD) stations in the vicinity of the patch study moorings to investigate frontal structure in that area.

Scientific Personnel

Northeast Fisheries Center, NMFS, Woods Hole, MA

Steven Ramp, Chief Scientist
W. Redwood Wright
Ronald Schlitz
Ronald Kirschner
Gilbert Dering
Timothy Cain
Daniel Patanjo
Thomas Laughton
Kathryn Bush
JoAnne Varville

Manomet Bird Observatory, Manomet, MA

Galen Pittman

Volunteers

Ed Sherrill

Deborah Daniels

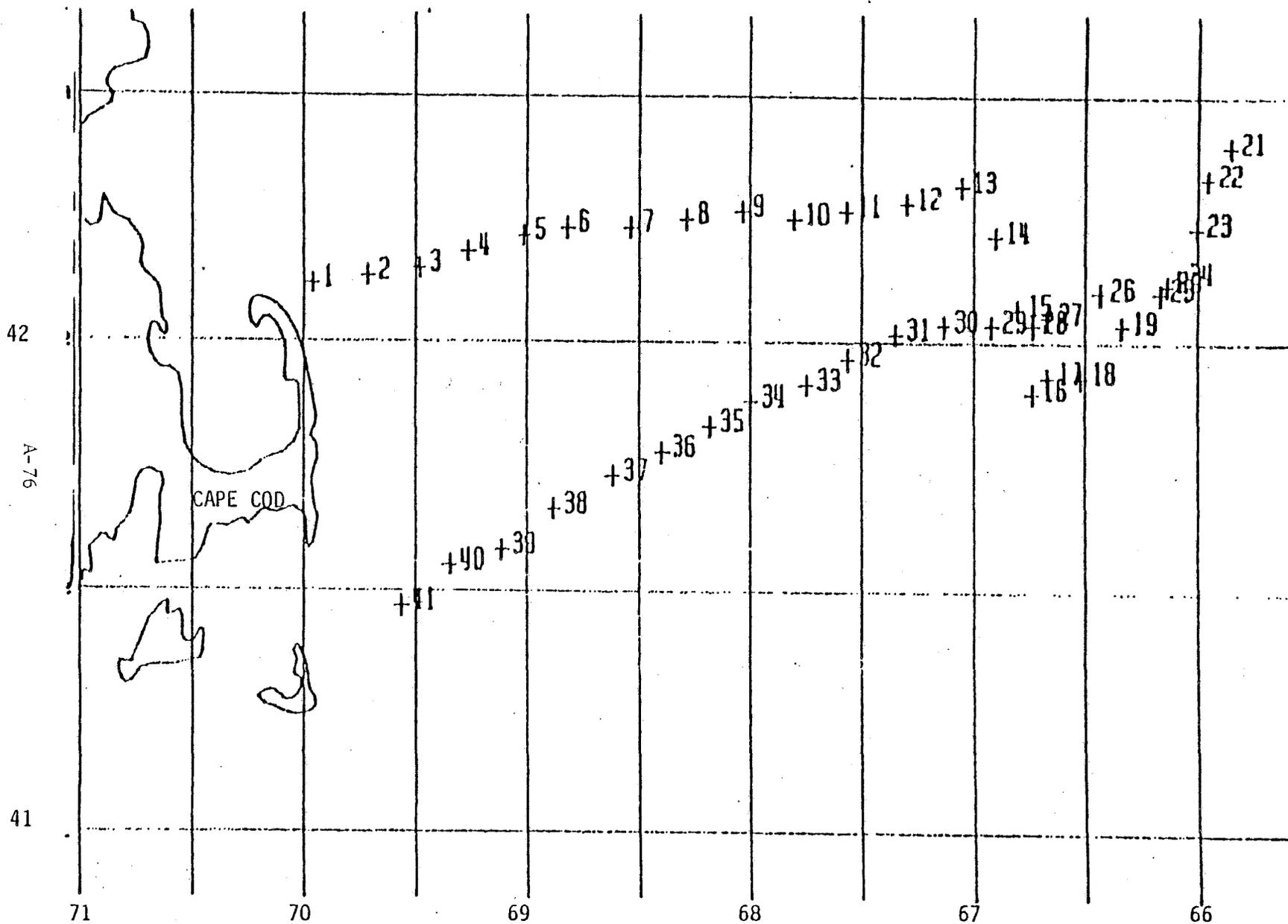
Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	41	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	9(B)
CTD/STD CASTS	5*(A)	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

Remarks:

*(A) CDT used for first time.

(B) Recovered.



A-76

ALBATROSS IV
78-11

VESSEL Albatross IV . CRUISE 78-12
 DATES I September 19-25/
 II September 26-October 5/
 III October 6-9, 1978 PARTS I, II, III
 DAYS AT SEA 6/9/3 STATIONS 172

Cruise Objective

Ocean Pulse (OP) is a comprehensive environmental monitoring program being conducted by the Northeast Fisheries Center. Its purpose is to assess and monitor the health of marine biological resources, their environment and critical ecological factors on the continental shelf of the United States north of Cape Hatteras. In order to investigate man's impact on marine resources, as distinct from the effects of natural change and variation, this monitoring program provides a series of long-term measurements from a wide variety of environmental and biological parameters. This cruise was the second in the operation test phase (OTP) of the program and is specifically intended to develop baselines and test field experimental techniques which are applicable to the overall program.

Scientific Personnel

<u>NMFS, NEFC, Sandy Hook Lab., Highlands, NJ</u>	<u>Part</u>
Frank Steimle (Chief Scientist)	I & II
David Radosh	I
Gregory Parker	I
Stephen Ward	I & II
Thomas Wilhelm	II
Charles Idleberger	II
Clyde MacKenzie	III

NMFS, NEFC, Milford Lab., Milford, CT

Margaret Dawson	I
Kenneth Buckland	I & II
Jim Witman	I
Eileen Flynn	I
Susan Scherman	I
Barry Nawvichih	I
Frederick Thurberg	II
John Graikoski	II
David Nelson	II
Dean Perry	II

NMFS, NEFC, Narragansett Lab., Narragansett, RI

Thomas McKenney I & II

NMFS, NEFC, Oxford Lab., Oxford, MD

Tim Goodger III

U.S.F.D.A., Davisville, MD

Jack Gaines (Chief Scientist) III

Virgil Carr III

John Musselman III

Willard Adams III

Dixon Boxwell III

U.S.E.P.A., Philadelphia, PA

John Ruggera III

NOAA, NOS, Washington, DC

Duane Simpson III

State of Maryland, Water Resources Admin.,
Annapolis, MD

Jay Lewis III

Osborn Laboratory, Coney Island, NY

Peter Burn I & II

University of Mass., Amherst, MA

Martin Kent II

University of Maine, Orono, ME

Maureen Logue III

Data Collected

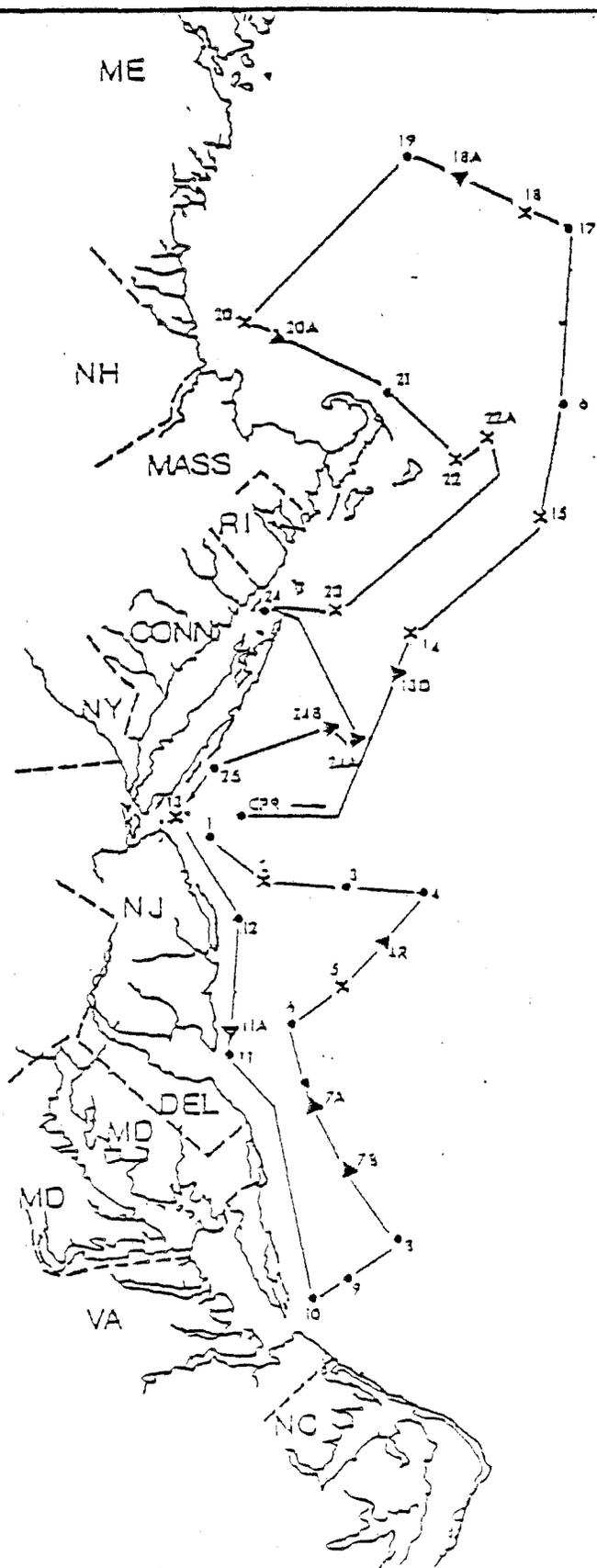
	Total		Total
ICNAF STANDARD STATIONS	<u> </u>	SALINITY SAMPLES	<u>132</u>
ICNAF EXTRA STATIONS	<u> </u>	OXYGEN SAMPLES	<u>89</u>
MOCNESS STATIONS	<u> </u>	NUTRIENT SAMPLES	<u> </u>
BONGO HAULS	<u>56</u>	CHLOROPHYLL SAMPLES	<u>425</u>
NEUSTON HAULS	<u>59</u>	TRAWLS	<u>33</u>
MOCNESS HAULS	<u> </u>	FISH SAMPLES	<u> </u>
XBT DROPS	<u>28</u>	LONG LINE SET	<u> </u>
BOTTLE CASTS	<u>32</u>	CURRENT METERS	<u> </u>
CTD/STD CASTS	<u> </u>	DROGUE	<u> </u>
ROSETTE	<u> </u>	PRIMARY PRODUCTIVITY	<u>1380</u>
BOTTOM GRAB	<u>144</u>	CORE SAMPLES	<u>316</u>

Remarks:

You must read cruise report for all three parts.

*Must note: Core samples were subsamples of bottom grab "Smith-MacIntyre" type.

Station No.	Position	
1	40°15'	73°40'
2	39°45'	78°30'
3	39°20'	73°00'
4	38°51'	72°15'
4A	38°48'	72°55'
5	38°46'	73°30'
6	38°45'	74°02'
7	38°20'	74°16'
7A	38°17'	74°16'
7B	37°33'	74°33'
8	36°40'	74°45'
9	36°47'	75°11'
10	36°50'	75°37'
11	38°42'	74°44'
11A	38°50'	74°32'
12	39°37'	73°54'
13A	40°25'	73°44'
13B	40°25'	73°46'
13C	40°25'	73°56'
13D	40°07'	71°11'
14	40°15'	70°49'
15	40°21'	68°28'
16	40°58'	67°33'
17	41°56'	66°51'
18	42°16'	67°31'
19	43°14'	67°59'
20	43°00'	70°00'
21	41°50'	69°30'
22	41°07'	69°23'
22A	40°59'	69°01'
23	40°41'	71°22'
24	41°14'	71°49'
24A	39°52'	71°49'
24B	40°14'	71°57'
25	40°25'	73°11'



(AL 78-12) Fall 1978, Ocean Pulse Monitoring Cruise (Parts I and II)
 Cruise track and station locations; x stations include Primary
 Production

VESSEL Albatross IV

CRUISE 78-13

DATES October 16-November 10, 1978

DAYS AT SEA 26

STATIONS

Cruise Objective

The major objective of the cruise was to locate and follow an aggregation or "patch" of recently hatched Atlantic sea herring larvae to provide short-term (hours and days) estimates of growth, mortality, and dispersal of the larval population in relation to variations in their physical and biological environment. In this context, ALBATROSS IV served as the command vessel to coordinate the sampling activities of the eight vessels involved in the study. As a secondary objective, until herring were found, ALBATROSS IV studied the vertical distribution of plankton in relation to the physical structure along selected transects across the ocean front in the northeastern Georges Bank region.

<u>Scientific Personnel</u>	<u>Parts</u>		<u>Parts</u>
Gregory Lough	I & II	Tim Cain	I
George Bolz	I & II	Ron Kirschner	I
Robert Halpin	I & II	Dan Patanjo	II
Peter Hamer	I & II	Tom Laughton	II
William Michaels	I & II	Per Solemdal	Bergen, Norway
Cabell Davis	I & II	Tim Lambert	Dartmouth, NS
Harold Merry	I & II	Jeff McCruer	Dartmouth, NS
Rosalind Cohen	I	Dan Ware	Dartmouth, NS
Mary Nolf	I		

Data Collected

	<u>Total</u>		<u>Total</u>
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	69	NUTRIENT SAMPLES	_____
BONGO HAULS <u>Note</u>	253*	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	69	FISH SAMPLES	_____
XBT DROPS	259	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	34	DROGUE	6
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
PHOTOMETER CAST	20	SPECIAL SAMPLES	641
SECCI DISC CAST	20	HERRING LARVAE	674
CYCLOSONDE CAST	4		

Remarks:

*Standard-62 vertical.
Please read cruise report.

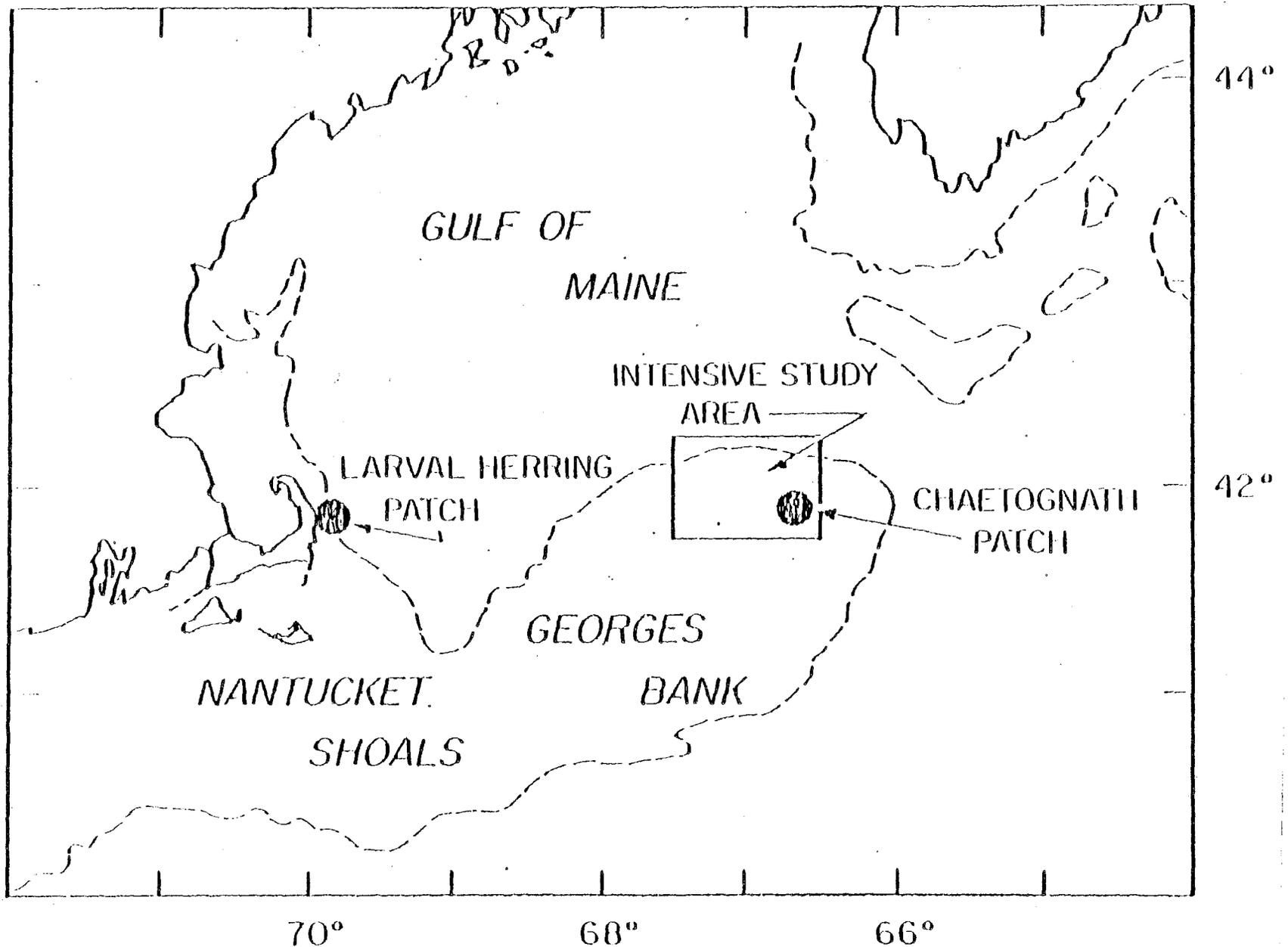


Chart of the Georges Bank-Nantucket Shoals area showing locations of the larval herring and chaetognath patches studied during the International Larval Herring Patch Experiment during ALBATROSS IV Cruise No. AL 78-13, 16 October - 10 November 1978.

VESSEL Albatross IV

CRUISE 78-14

DATES November 13-16, 1978

PART I

DAYS AT SEA 3

STATIONS

Cruise Objective

- (1) Recover three subsurface current meter moorings which were deployed during Cruise AL 78-11 as part of the Georges Bank Larval Herring Patch Study Experiment. The location of these moorings is shown in Figure 1. A detailed description of the mooring design may be found in the Cruise Report for Cruise AL 78-11.
- (2) Recover nine surface-moored marker buoys deployed during Cruise AL 78-11. Three of these buoys were moored to form a triangle around each subsurface current meter mooring, in order to protect it from fishing activities in the area.
- (3) Take expendable bathythermograph (XBT) and surface salinity samples at stations along the mooring line in order to determine the water properties at the time of recovery.

Scientific Personnel

Northeast Fisheries Center, Woods Hole MA

Steven Ramp, Chief Scientist

Timothy Cain

Ronald Schlitz

Thomas Laughton

W. Redwood Wright

Ronald Kirschner

Gilbert Dering

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	_____7	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS Pickup	_____3
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

VESSEL Albatross IV

CRUISE 78-14

DATES November 18-22, 1978

PART II

DAYS AT SEA 4

STATIONS

Cruise Objective

The major objectives of the cruise were to: (1) identify and map the larval herring patch studied during late October and early November (ALBATROSS IV 78-13) on Nantucket Shoals using standard bongo gear and methods; (2) launch drogues at the patch center; (3) conduct fine-scale studies of the vertical and horizontal structure of herring larvae and zooplankton community within the larval patch in relation to water motion, by sampling in the vicinity of the drogues with an electronically controlled opening/closing net system (MOCNESS) and a vertical bongo array; and (4) collect subsamples of herring larvae for otolith aging, condition factor measurements based on RNA-DNA ratios and C-N-H analysis.

Scientific Personnel

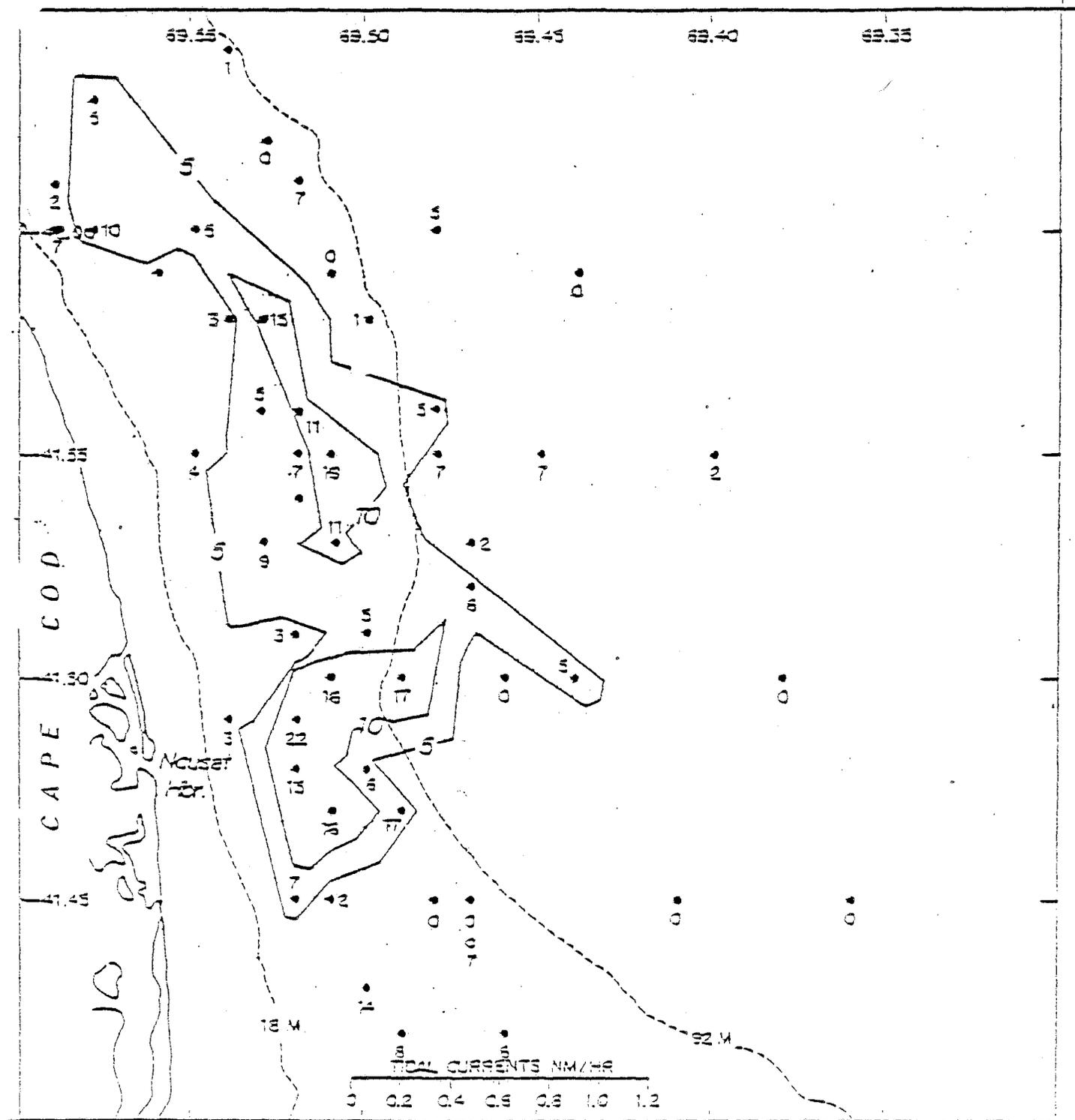
Northeast Fisheries Center, Woods Hole MA

George Bolz, Chief Scientist
David Potter
Hal Merry
Robert Halpin

Peter Hamer
William Michaels
Mary Nolf
Tom Laughton

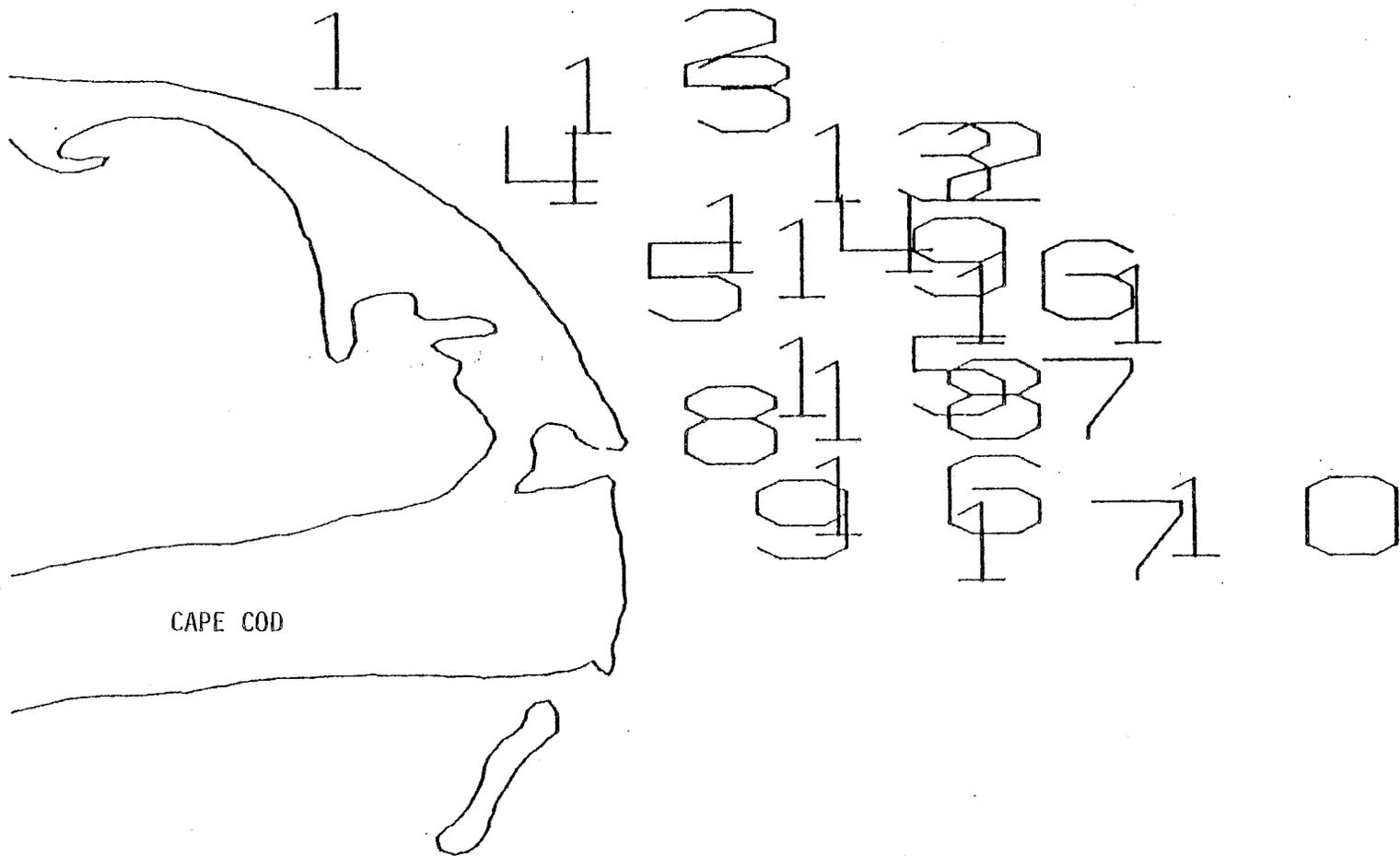
Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	18
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	57	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	8	TRAWLS	_____
MOCNESS HAULS	12	FISH SAMPLES	_____
XBT DROPS	18	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
PHOTOMETER CAST	4		



Number of larvae/m² obtained at the various stations during R/V ALBATROSS IV Cruise 78-14 (11) during 18-22 November 1978.

A-87



ALBATROSS IV LARVAL HERRING STATIONS

78-14

VESSEL Albatross IV

CRUISE 78-15

DATES November 29-December 7, 1979

DAYS AT SEA 16

STATIONS

Cruise Objective

The major objectives of the cruise were to: (1) monitor distribution and relative abundance of larval herring and their food organisms for estimates of production, growth, mortality, and dispersal; (2) conduct limited hydrographic work to describe water-mass distribution in the study area; (3) identify and map the larval herring patch studied during October and November (ALBATROSS IV 78-13 and 78-14) on Nantucket Shoals using standard bongo gear and methods; (4) conduct fine-scale studies of the vertical and horizontal structure of herring larvae and zooplankton community within the larval patch in relation to water motion, by sampling in the vicinity of the highest density noted during the patch mapping with an electronically controlled opening/closing net system (MOCNESS) and a vertical bongo array; and (5) collect subsamples of herring larvae for otolith aging, condition factor measurements based on RNA-DNA ratios and C-N-H analysis.

Scientific Personnel

Northeast Fisheries Center, Woods Hole MA

George Bolz, Chief Scientist
William Michaels
Robert Halpin
Mary Nolf

Suffolk University, Boston, MA

Donald Ouellette

Univ. of Rhode Island, Narragansett, RI

William Lloyd

E. Nazarene College,
Quincy, MA

Kimberly Vandervort
Cynthia Mengle

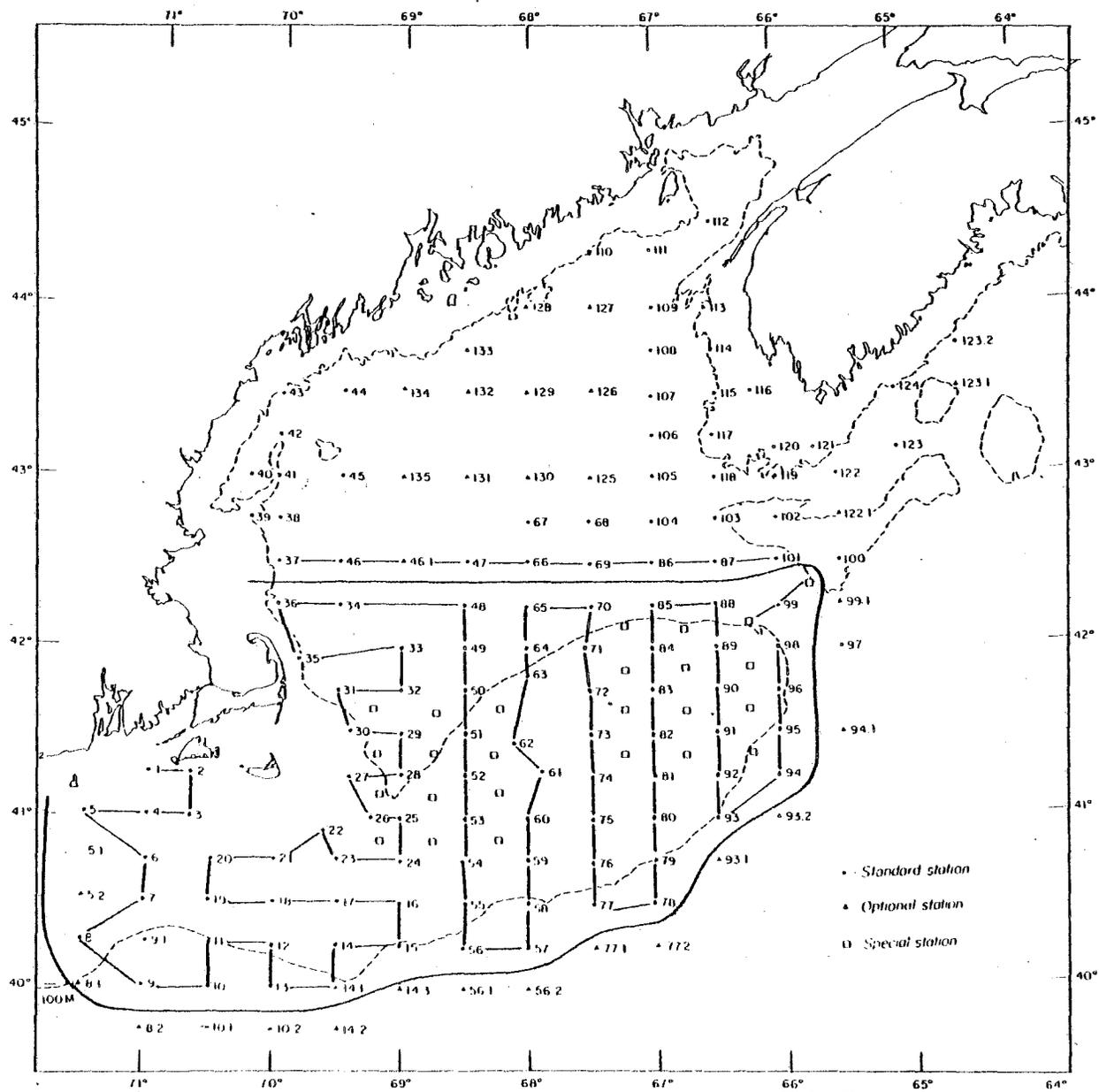
Manomet Bird Observatory,
Manomet, MA

Eleanor Perkins

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	106
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MCCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	157	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MCCNESS HAULS	3	FISH SAMPLES	_____
XBT DROPS	106	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

A-90



ALB IV 78-15

VESSEL Albatross IV

CRUISE 79-02

DATES 15-25 March 1979

DAYS AT SEA 10

STATIONS 96

Cruise Objective

The objectives of the cruise were to: 1. Monitor changes in the distribution of phytoplankton, zooplankton, and primary productivity, record hydrographic measurements and collect nutrient samples on the shelf from Nantucket to Cape Hatteras. 2. Monitor the disposal of the pesticide Mopac at DWDS #106 and collect samples of phytoplankton, zooplankton, and ichthyoplankton for pesticide effect studies.

Scientific Personnel

State University of New York, Stony Brook, NY

Wayne Esaias, Chief Scientist
Pamela Kaneta
Michele Schnitzer
Richard Beck

Brookhaven National Laboratory, Upton, NY

Creighton Wirick
Karl Von Bock
Andrew Stoddard
Ann Herriott
Roland Hautsch
Peter Lane

Bigelow Laboratory for Ocean Sciences, Boothbay Harbor, ME

Newell Garfield

National Marine Fisheries Service, NEFC, Narragansett, RI

Joseph Kane

University of Rhode Island, Kingston, RI

Richard Sears

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MCGNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MCGNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____ 96	CURRENT METERS	_____
BOTTLE CASTS	_____ 40	DROGUE	_____
FTD CASTS	_____ 29	PRIMARY PRODUCTIVITY	_____ 9
ROSETTE	_____	SECCHI DISC	_____

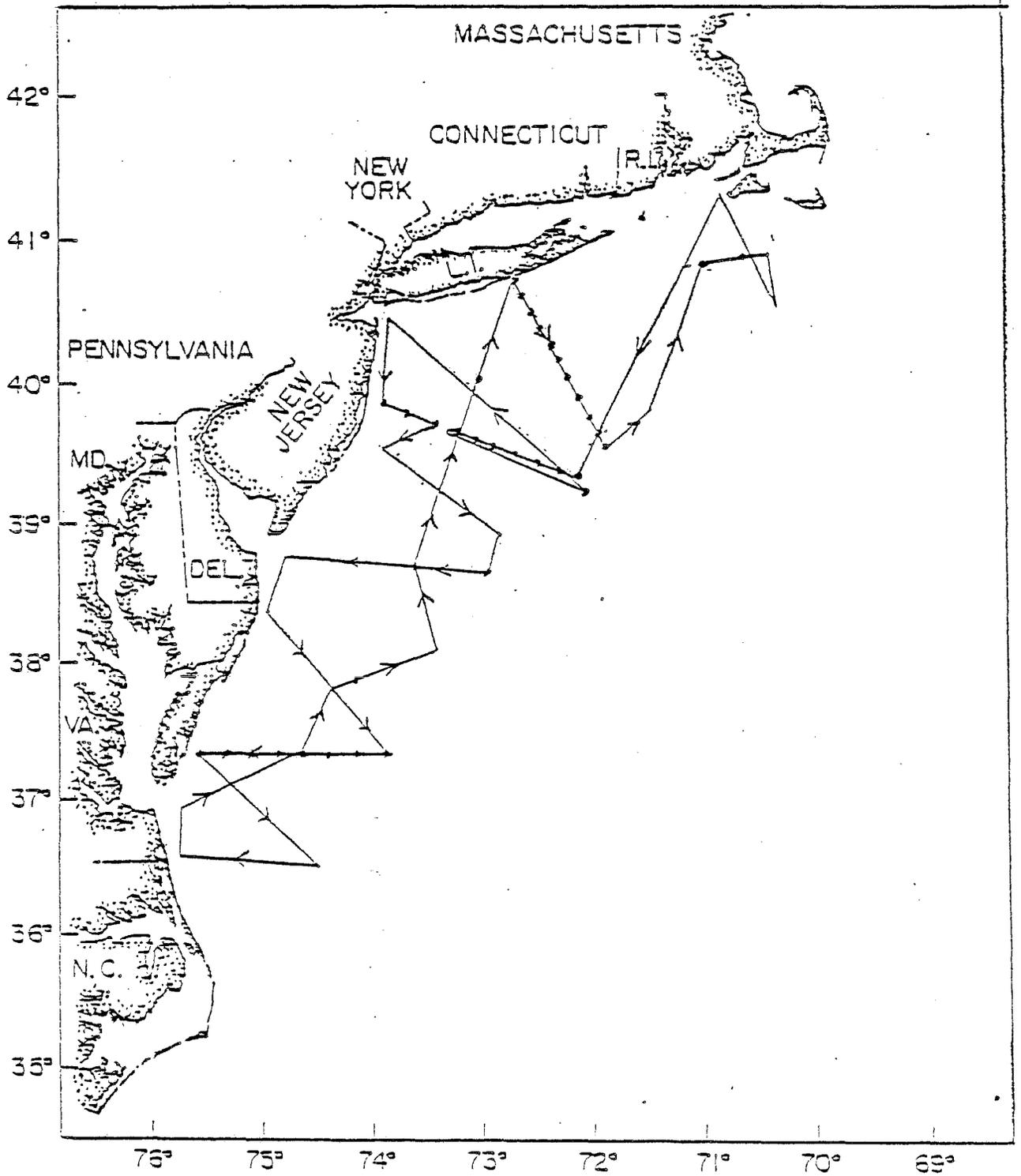


Figure 1. Station Location and Cruise Track for ALBATROSS IV 79-02, Oceanography, Mapping and Primary Productivity Survey, 15-25 March 1979.

VESSEL Albatross IV

CRUISE 79-03

DATES March 31-April 9, 1979

PART I

DAYS AT SEA 10

STATIONS 56

Cruise Objective

The purposes of the cruise were: to determine the spring distribution and relative abundance of fish species, and to collect biological, hydrographic, and ichthyoplankton samples.

Scientific Personnel

NMFS, NEFC, Woods Hole, MA

Henry Jensen, Chief Scientist
John Messersmith
Rhett Lewis
Margaret McBride
Harold Foster

James Townes
Jeffrey Floyd
Lauretta Savelkoul
Thomas Morris, Jr.
William Brennan

Wheaton College, Norton, MA

Ann Charles

Ohio State Univ., Columbus, OH

Carolyn Wilcox
Cheryl Gosse

Hanover Jr. H. S., Hanover, MA

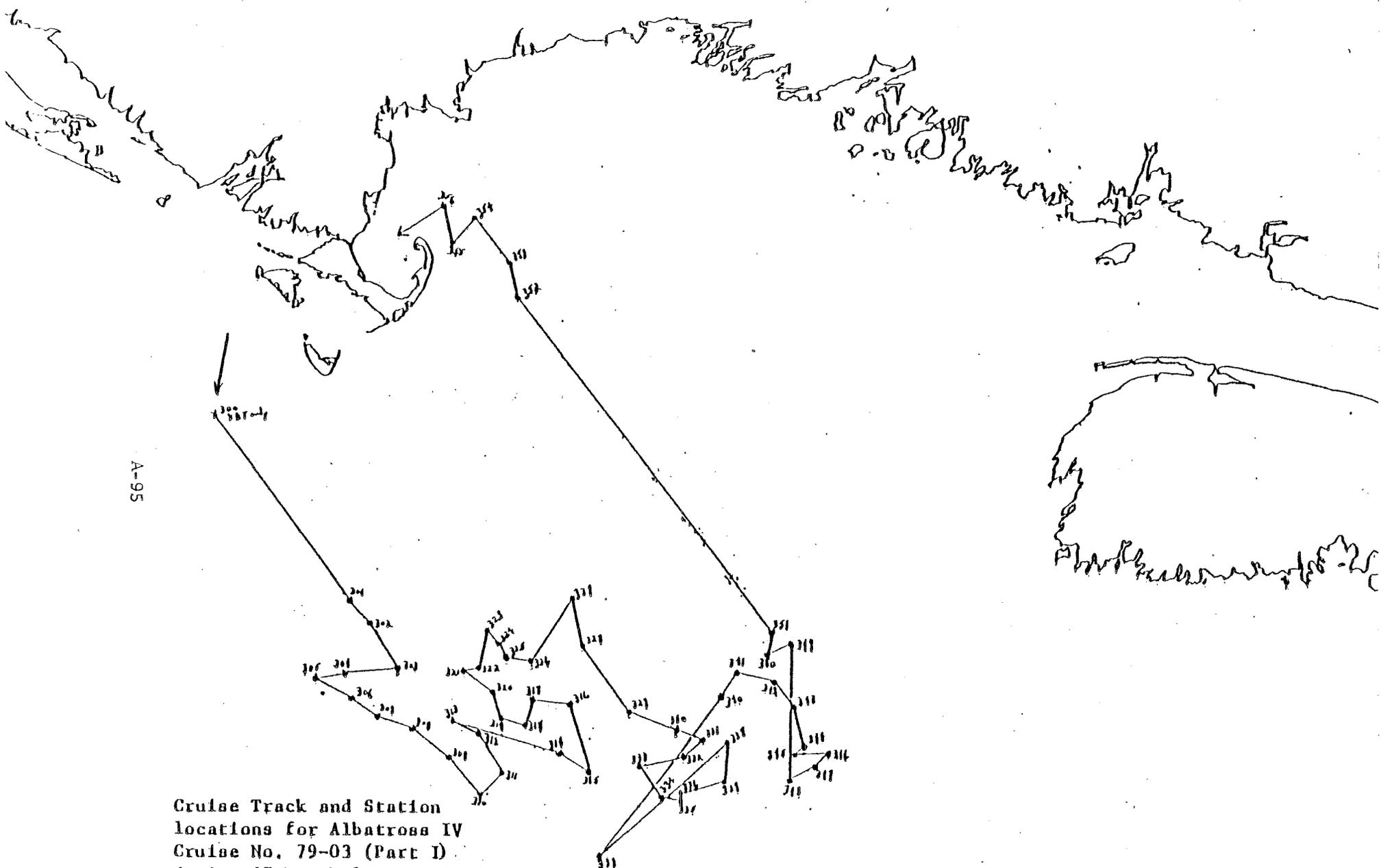
Laurdeen Sheridan
David Casoni

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	57 surf. only
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	22	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	22	TRAWLS	56
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	57	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
FTD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____	HERRING TAGGING	_____
HAEDRICH HAULS	11		

A-95

Cruise Track and Station
locations for Albatross IV
Cruise No. 79-03 (Part D)
during 27 March-9 April, 1979.



VESSEL Albatross IV

CRUISE 79-03

DATES April 12-26; May 2-12, 1979

PARTS II & III

DAYS AT SEA 14; 10

STATIONS 128

Cruise Objective

The purposes of the cruise were: to determine the spring distribution and relative abundance of fish species, and to collect biological, hydrographic, and ichthyoplankton samples.

Scientific Personnel

	<u>Part I</u>	<u>Part II</u>
<u>NMFS, NEFC, Woods Hole, MA</u>		
Linda Despres, Chief Scientist	X	X
Frank Almeida	X	X
Eva Montiero	X	X
Ray Bowman	X	X
Thomas Morris, Jr.	X	X
Otis Jackson	X	X
Loretta O'Brien	X	X
Karl Russell	X	X
John Messersmith	X	X
Steven Morrison		X
Jeffrey Floyd		X
<u>NMFS, NEFC, Narragansett, RI</u>		
Thomas McKinney	X	
<u>NMFS, NEFC, Sandy Hook, NJ</u>		
Wallace Morse	X	
<u>Massasoit Community College, Brockton, MA</u>		
Gregory Lamontaine	X	
<u>Eastern Nazarene College, Quincy, MA</u>		
Melodye Elliott		X
David Denneno		X
John Browne		X
Cynthia Mengle*		X

Darien H.S., Darien, CT

Astrid Munte X

University of Rhode Island, Kingston, RI

Porter Turnbull X

Manomet Bird Observatory, Manomet, MA

Galen Pitman X X

*replaced by Melodye Elliott at Rockland, ME

Data Collected

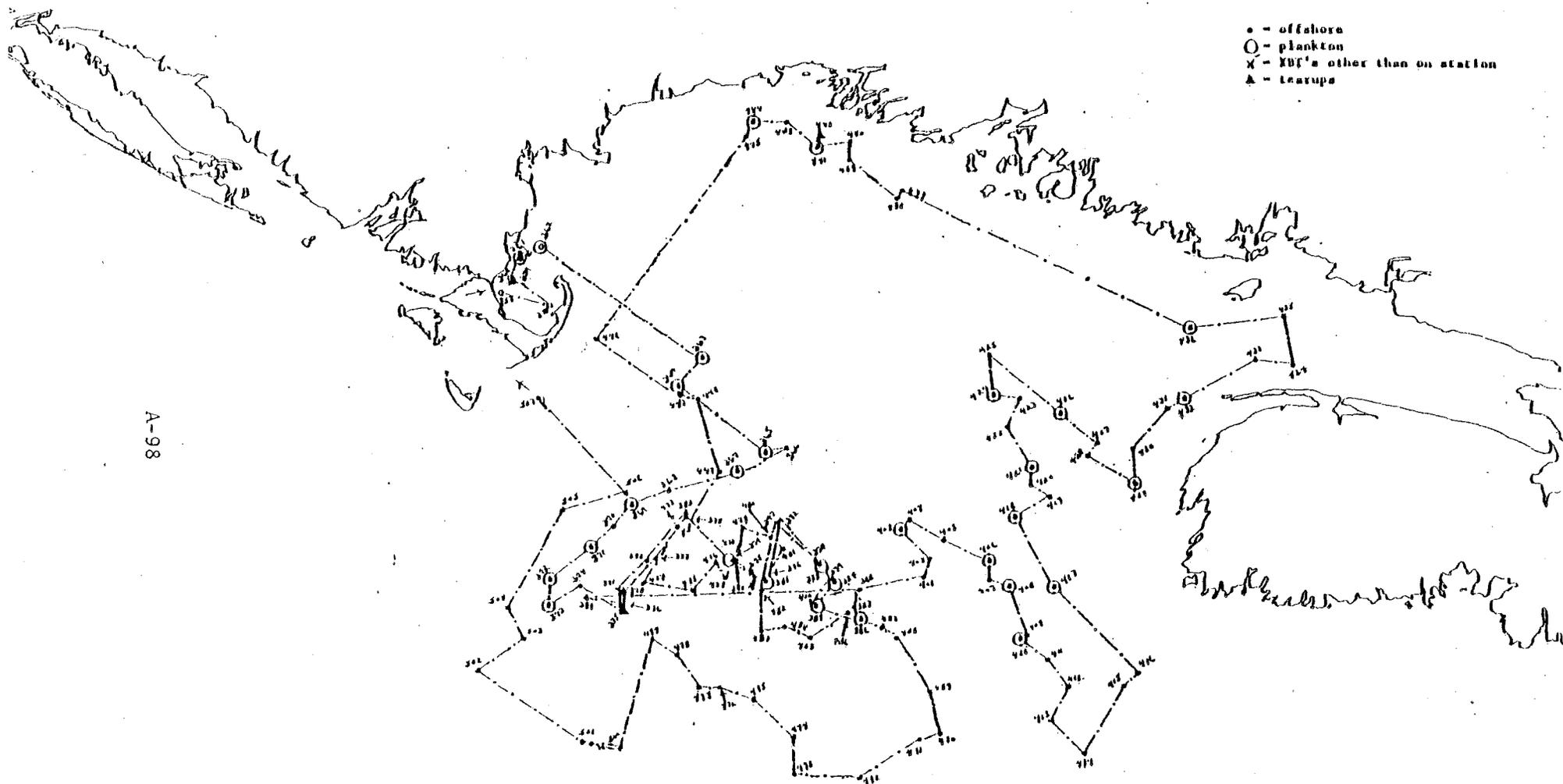
	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>128</u> surf. only
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	<u>30</u>	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	<u>30</u>	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	<u>128</u>	CURRENT METERS	_____
BOTTLE CASTS	<u>47</u>	DROGUE	_____
FTD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____	HERRING TAGGING	_____
HAEDRICH	<u>5</u>		

Remarks:

Port call - April 18-21, Electrical Problems.

--- 12-26 Apr & 2-12 May (ALB)

- - offshore
- - plankton
- X - XBT's other than on station
- ▲ - tows



A-98

Figure 1. Station locations and cruise track for ALBATROSS IV Cruise 79-03 (Parts II and III) during 12 April-12 May 1979.

VESSEL ALBATROSS IV

CRUISE 79-04

DATES 15-25 May; 26 May-1 June 1979

PARTS I & II

DAYS AT SEA 5

STATIONS 311

Cruise Objective

The objectives of the cruise were: (1) to determine the distribution and relative abundance of the sea scallop (Placopecten magellanicus); (2) to collect biological, hydrographical and meteorological samples and data; and (3) to test the new NMFS 2.44 meter (8-foot) scallop dredge.

Scientific Personnel

<u>NMFS, NEFC, Woods Hole, MA</u>	Part I	Part II
Henry Jensen, Chief Scientist	X	X
Linda Despres	X	X
Charles Byrne	X	X
Andrew Thoms	X	X
Cathy Rearden	X	
Philip Chase	X	X
Elizabeth Bevacqua	X	X
David Swift	X	
<u>University of Maine, Walpole, ME</u>		
Lewis Incze	X	
<u>Fisheries and Environment, Canada, Halifax, Nova Scotia</u>		
Nancy Witherspoon		X
<u>Manomet Bird Observatory, Manomet, MA</u>		
Sam Fitton	X	
Sarah Hinckley		X
<u>University of Rhode Island, Kingston, RI</u>		
Joshua Margolis	X	X

Darien H.S., Darien, CT

Cynthia Groves
William Towell

X
X

Data Collected

	Total
ICNAF STANDARD STATIONS	_____
ICNAF EXTRA STATIONS	_____
BONGO HAULS 20 cm	_____
BONGO HAULS 61 cm	_____
NEUSTON HAULS	_____
MOCNESS HAULS	_____
XBT DROPS	_____140
BOTTLE CASTS	_____
FTD CASTS	_____
ROSETTE	_____

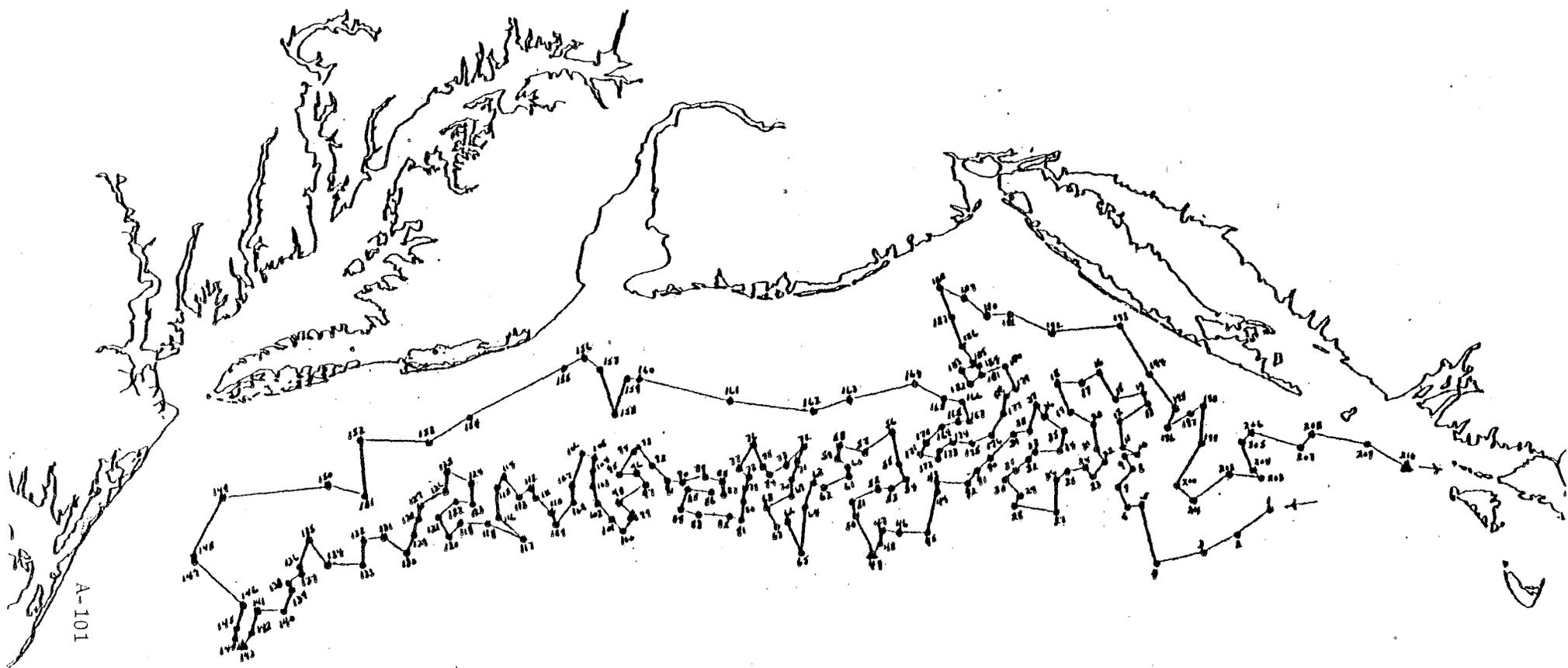
	Total
SALINITY SAMPLES	_____49
OXYGEN SAMPLES	_____
NUTRIENT SAMPLES	_____
CHLOROPHYLL SAMPLES	_____
DREDGE	_____311
FISH SAMPLES	_____
CURRENT METERS	_____
DROGUE	_____
PRIMARY PRODUCTIVITY	_____
SECCHI DISC	_____
LONG LINE SET	_____

ALBATROSS IV 79-04 (CODE 9)

179 SPRING
H SCALLOP SURVEY

PART I - 15-25 MAY

▲ = NON-SURVEY



Station locations and cruise track for ALBATROSS IV Cruise 79-04
Part I, during 15-25 May 1979.

ALBATROSS IV (code 917)
1979 S. 016
SEN SCALOP SURVEY
PORT JE - 26 MAY - 1 JUN
X - ST'S OTHER THAN ON STATION
A - NON-SURVEY

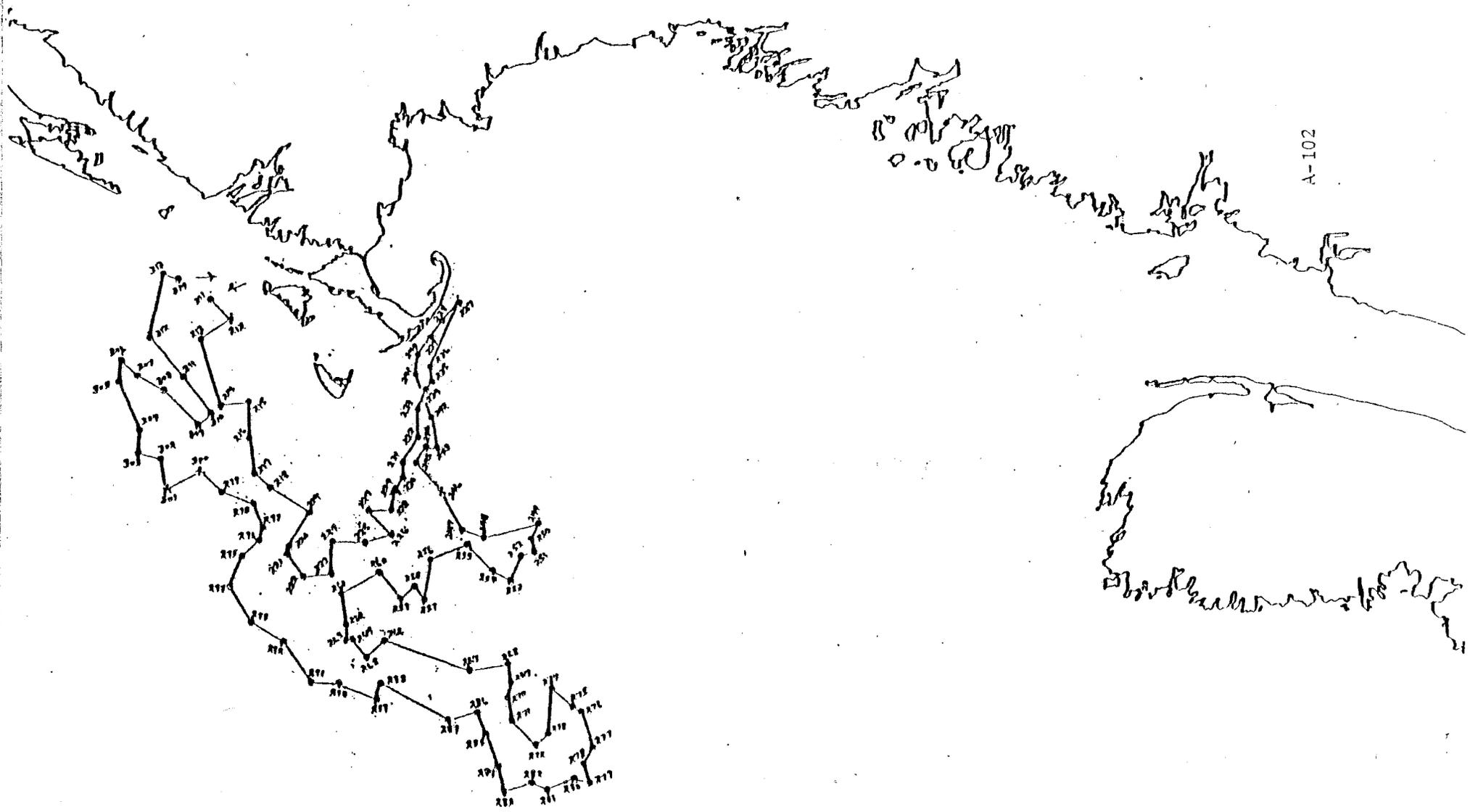


Figure 2. Station locations and cruise track for ALBATROSS IV Cruise 79-04 Part II, during 26 May-1 June 1979.

VESSEL ALBATROSS IV

CRUISE 79-06

DATES 12 June-14 July 1979

PART I & II

DAYS AT SEA 12, 14

STATIONS 130

Cruise Objective

This cruise is the fifth of six surveys conducted annually to monitor seasonal changes in distribution and abundance of fish eggs and larvae, zooplankton and phytoplankton, and to collect oceanographic information and primary productivity data.

Scientific Personnel

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

John Sibunka, Chief Scientist	Parts I and II
James Duggan	Parts I and II
Wallace Smith	Part I*
Donald McMillian	Part II
Edward Christian	Part II

*Departed vessel on 20 June

National Marine Fisheries Service, NEFC, Woods Hole, MA

William Brennen	Parts I and II
David Swift	Part I
Ann Dorkins	Part I
Thomas Laughton	Part I**
Derek Sutton	Part I**
Janet Murphy	Part II
Ronald Kirschner	Part II
Timothy Cain	Part II
James King	Part II

**Derek Sutton replaced Thomas Laughton on 22 June

National Marine Fisheries Service, NEFC, Narragansett, RI

Christopher Powell	Part I
Donna Busch	Part II
Jacquelin Frisella	Part II
Lauretta Sullivan	Part I

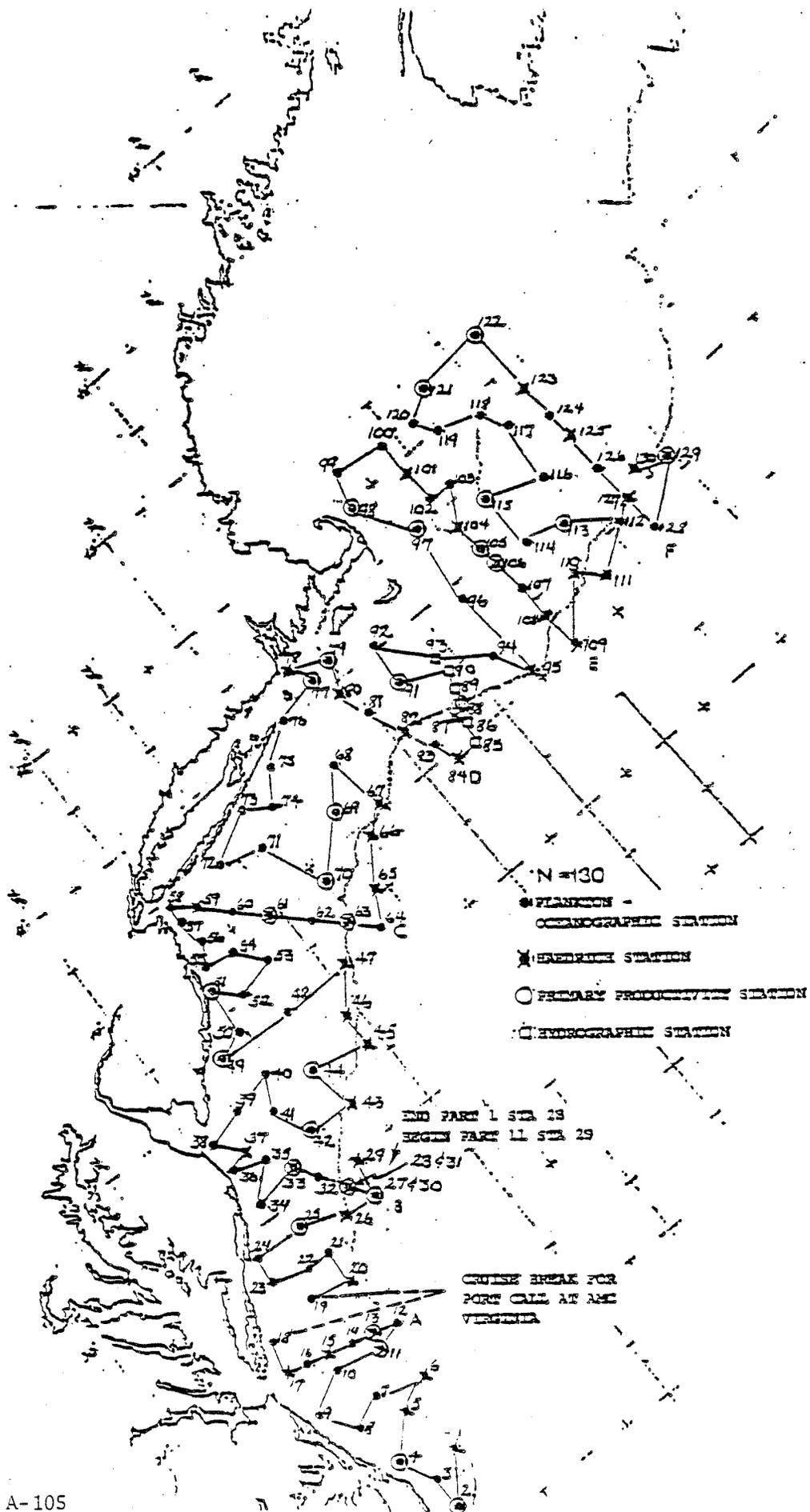
Drew University, Madison, NJ

Katherine LoBuglio	Part I
Robert Leaper	Part I
Sandra Riley	Part II

Data Collected

	Total
ICNAF STANDARD STATIONS	_____
ICNAF EXTRA STATIONS	_____
BONGO HAULS 20 cm	51
BONGO HAULS 61 cm	125
NEUSTON HAULS	155
MOCNESS HAULS	_____
XBT DROPS	47
BOTTLE CASTS	131
FTD CASTS	_____
ROSETTE	_____

	Total
SALINITY SAMPLES	1171
OXYGEN SAMPLES	1010
NUTRIENT SAMPLES	499
CHLOROPHYLL SAMPLES	1138
DREDGE	_____
FISH SAMPLES	_____
CURRENT METERS	_____
DROGUE	_____
PRIMARY PRODUCTIVITY	29
SECCHI DISC	74
LONG LINE SET	_____



A-105

Station locations and cruise track for R/V ALBATROSS IV cruise 79-06 during 12 June-14 July 1979

VESSEL ALBATROSS IV

CRUISE 79-07

DATES 17-27 July 1979

DAYS AT SEA

STATIONS

Cruise Objective

This was one of a seasonal series of cruises which monitors the environmental health of the marine waters of the northeastern U.S. Determination of the water's health will be done by analyzing data compiled for the following studies which were included on this cruise: (1) benthic invertebrate and phytoplankton structure and productivity; (2) chemical oceanography; and (3) physiological, pathological, biochemical, chemical, and calorimetric analysis of key organisms or communities.

Scientific Personnel

National Marine Fisheries Service, NEFC, Milford, CT

Anthony Calabrese, Chief Scientist
Frederick Thurberg
John Graikoski
John MacInnes
Stasia Penkoff

National Marine Fisheries Service, NEFC, Oxford, MD

Anne Charles

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

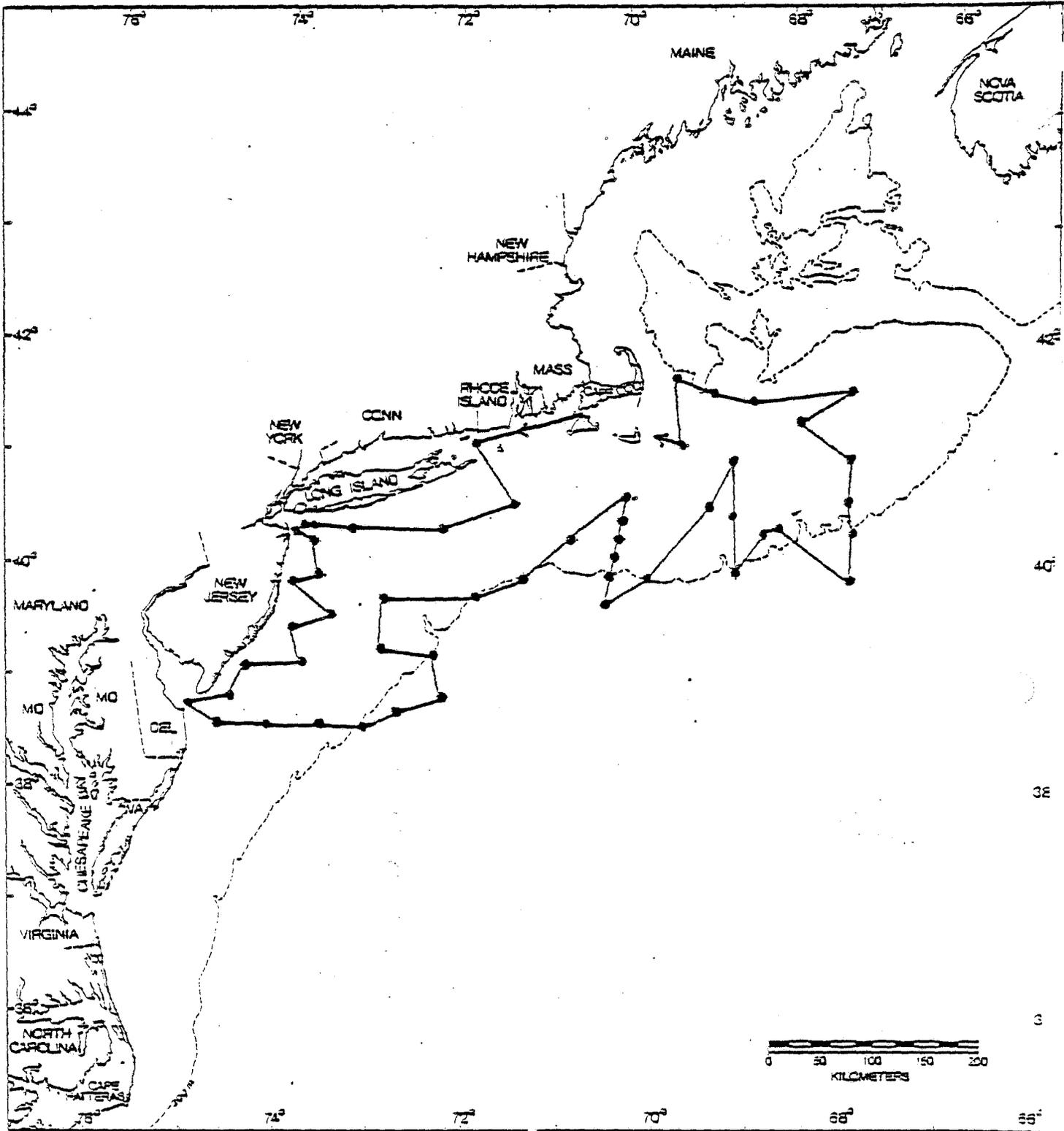
Jay O'Reilly Vincent Zdanowicz Jacquelin Frisella
Andrew Draxler Ralph Bruno

New York Zoological Society, Brooklyn, NY

Peter Burn

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>365</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>365</u>
BONGO HAULS 20 cm	_____	NUTRIENT SAMPLES	<u>367</u>
BONGO HAULS 61 cm	_____	CHLOROPHYLL SAMPLES	<u>830</u>
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	<u>48</u>	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
FTD CASTS	_____	PRIMARY PRODUCTIVITY	<u>1200</u>
ROSETTE	_____	SECCHI DISC	_____
		LONG LINE SET	_____



Station locations and cruise track of ALBATROSS IV Cruise 79-07 during 17 - 27 July 1979.

VESSEL ALBATROSS IV

CRUISE 79-08

DATES 30 July-10 August 1979

PART I

DAYS AT SEA 12

STATIONS 118

Cruise Objective

The objectives of the cruise were: (1) determine the summer distribution and relative abundance of fish species, (2) collect biological samples, and (3) collect oceanographic and meteorological samples and data, and collect samples of fish for studies of age and growth, fecundity, maturity, food habits, and special collections for various scientists.

Scientific Personnel

NMFS, Northeast Fisheries Center, Woods Hole, MA

Malcolm Silverman, Chief Scientist
Frank Almeida
Paul Wood
Eva Montiero
Karen Johnson
Garret Flaherty

James Whalen
James Fletcher
Dennis Hansford
Karl Russell

New York Department of Environmental Conservation, Cape Vincent, NY

Clifford Schneider

University of Pennsylvania, Philadelphia, PA

Ronald Landry

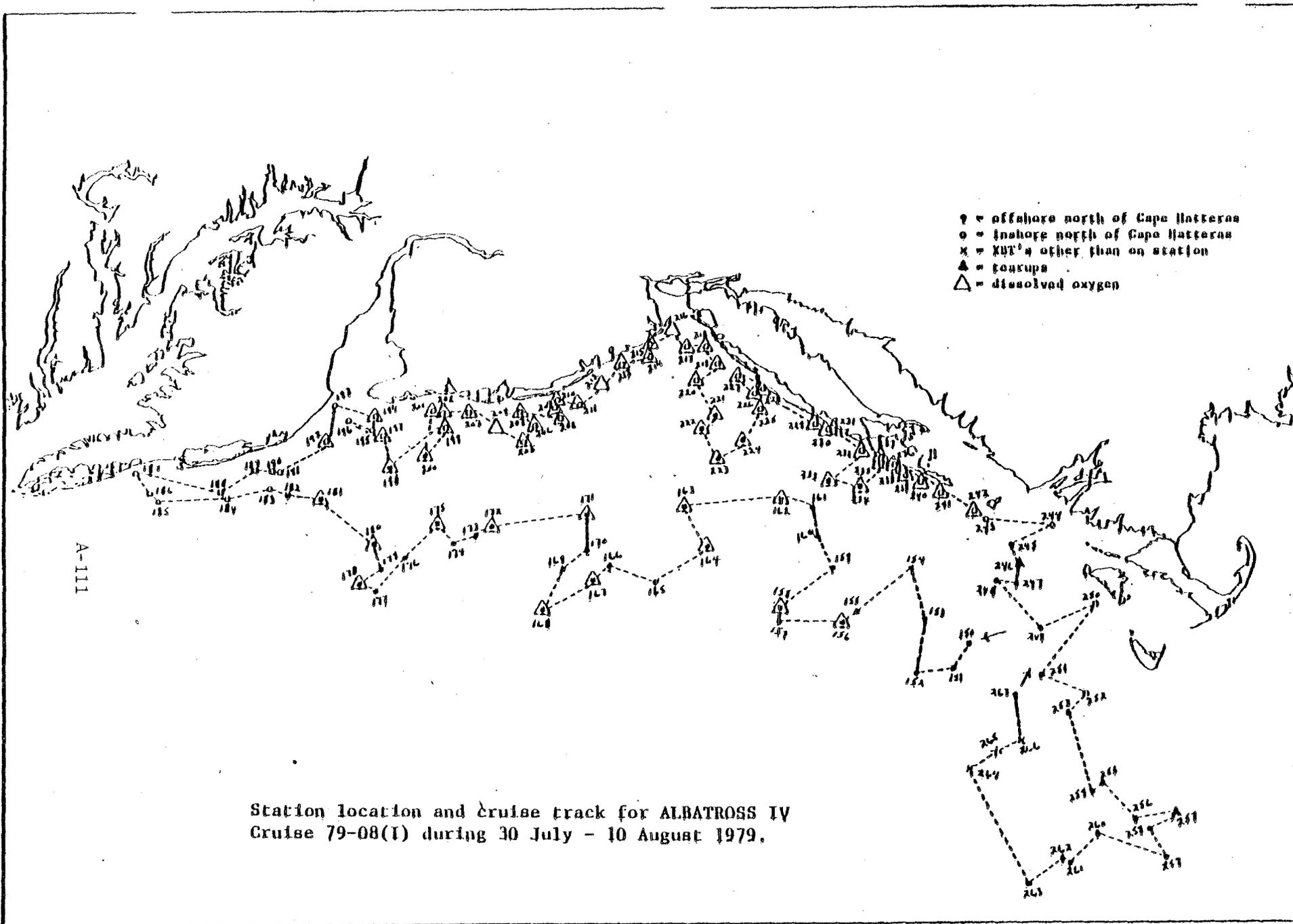
Cornell University, Ithaca, NY

Joy Galen

Data Collected

	Total
ICNAF STANDARD STATIONS	_____
ICNAF EXTRA STATIONS	_____
BONGO HAULS 20 cm	_____
BONGO HAULS 61 cm	_____
NEUSTON HAULS	_____
MOCNESS HAULS	_____
XBT DROPS	_____
BOTTLE CASTS	_____
FTD CASTS	_____
ROSETTE	_____
	<u>117</u>

	Total
SALINITY SAMPLES	<u>110</u>
OXYGEN SAMPLES	<u>61</u>
NUTRIENT SAMPLES	_____
CHLOROPHYLL SAMPLES	_____
TRAWLS	<u>110</u>
FISH SAMPLES	<u>944</u>
CURRENT METERS	_____
DROGUE	_____
PRIMARY PRODUCTIVITY	_____
SECCHI DISC	_____
LONG LINE SET	_____



VESSEL ALBATROSS IV

CRUISE 79-08

DATES 13-20 August

PART II

DAYS AT SEA 7

STATIONS 69

Cruise Objective

The objectives of the cruise were: (1) determine the summer distribution and relative abundance of fish species; (2) collect biological samples of fish for studies of age and growth, fecundity, maturity, food habits, pathology, and special collections for various scientists; (3) collect oceanographic and meteorological samples and data.

Scientific Personnel

NMFS, Northeast Fisheries Center, Woods Hole, MA

Henry Jensen, Chief Scientist
John Messersmith
John Nicolas
Rhett Lewis
William Overholtz
Margaret McBride
Ronald Essig
Lisa Diaz
Marjorie Aelion
Maurice Crawford
Katherine Rodrigues

NMFS, Northeast Fisheries Center, Sandy Hook, NJ

Erin Feeney

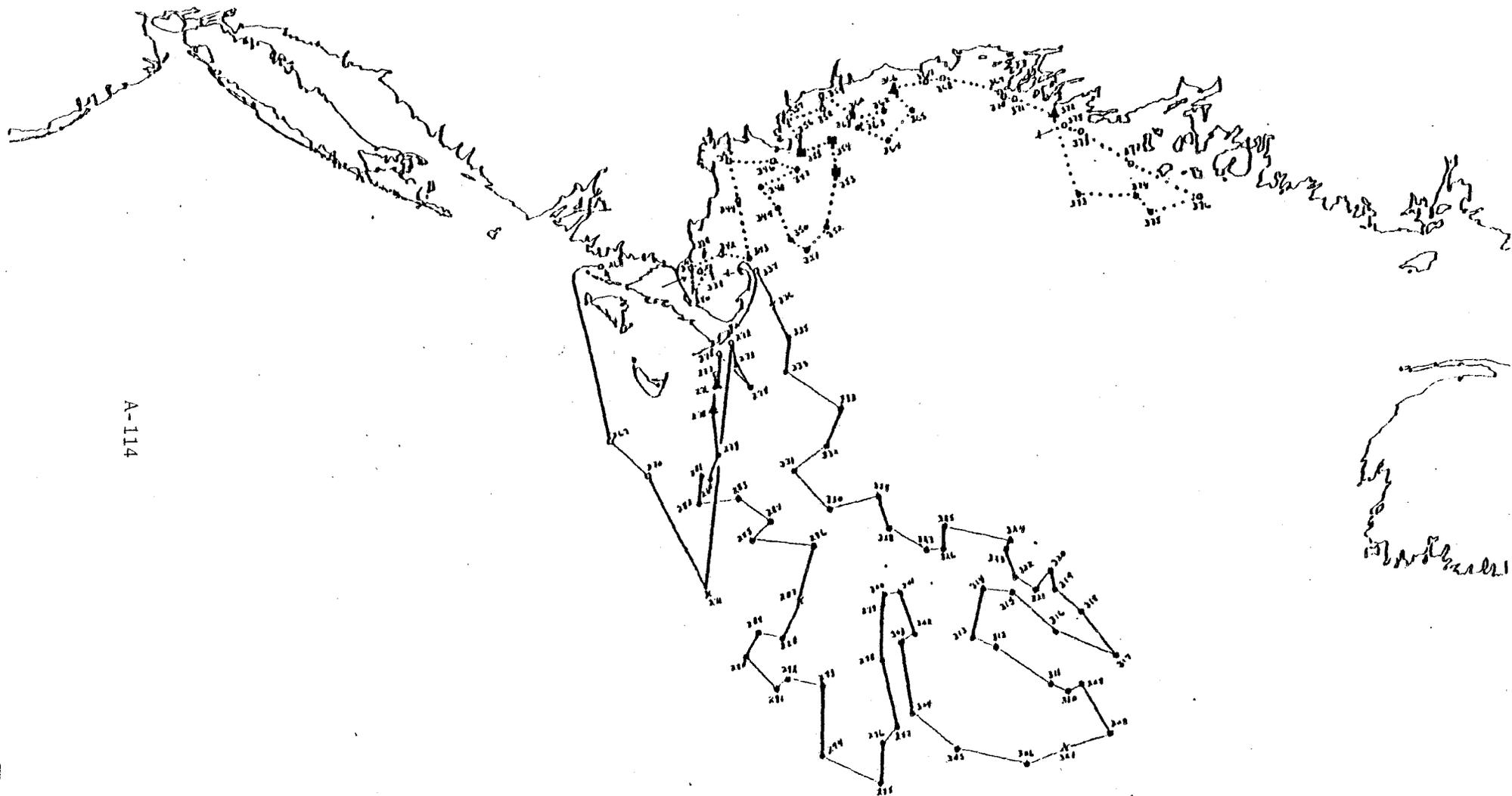
University of New Hampshire, Durham, NH

Nancy Franzageo

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>67</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWL	<u>63</u>
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	<u>69</u>	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
LONG LINE SET	_____		

- = offshore north of Cape Hatteras
- = inshore north of Cape Hatteras
- = State of Maine stations
- ▲ = Tearups



A-114

Station locations and cruise tracks for ALBATROSS IV Cruise 79-08(II) during 13-20 August 1979, and DELAWARE II Cruise 79-09(I) during 27 August - 1 September 1979.

ALBATROSS IV 79-08(II) = —————
 DELAWARE II 79-09(I) = - - - - -

VESSEL ALBATROSS IV

CRUISE 79-09

DATES 4-9 September 1979

DAYS AT SEA

STATIONS

Cruise Objective

- 1) Recover three subsurface current meter moorings at locations N1, N4, and N5 (Figure 1).
- 2) Deploy a new subsurface current meter mooring at the same locations as stated in 1) and replace those that were recovered.
- 3) Exchange current meters moored beneath four surface floats at locations N1, N3, N4, and N5 with the assistance of divers from NEFC, Woods Hole Laboratory.
- 4) Deploy a new working surface buoy and current meter at location N6; replace the existing surface marker whose light had failed.
- 5) Make repairs to a surface buoy at location N4 whose light was not working.
- 6) Make 10 - 12 CTD stations between locations N1 and N6 and make XBT stations halfway between them.
- 7) Make additional CTD stations, as time permitted.
- 8) Track surface drogues near the moored array to provide a Lagrangian comparison with the moored instruments, and test a new radio direction finding (RDF) unit to be used with the drogues.
- 9) Make hourly XBT stations to and from the work site.

Scientific Personnel

NMFS, Northeast Fisheries Center, Woods Hole, MA

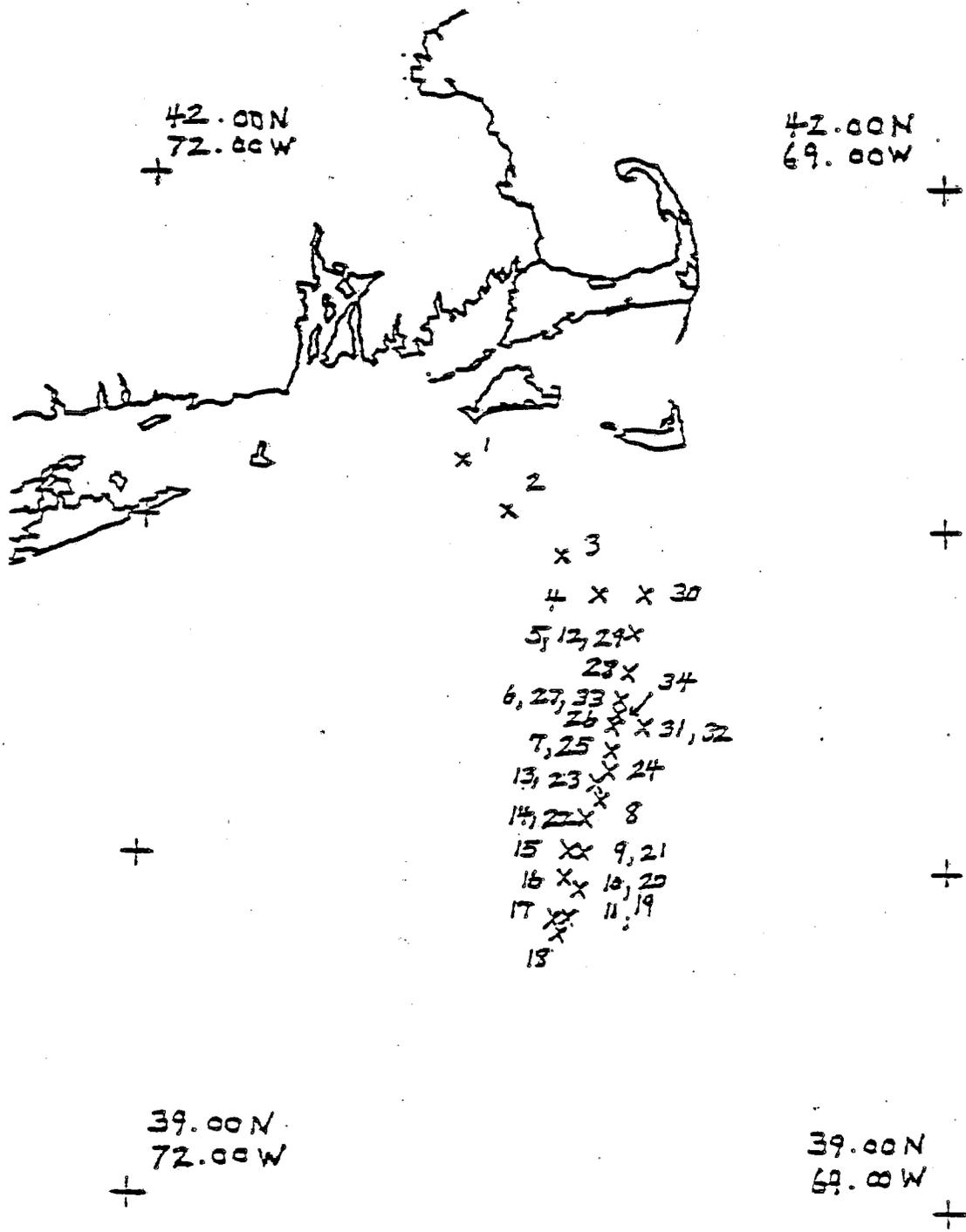
Steven Ramp, Chief Scientist	Kenneth Pecci
W. Redwood Wright	Roger Clifford
Ronald Schlitz	Kathryn Bush
Gilbert Dering	Cynthia Chappell
Daniel Patanjo	Patricia Hersey
James King	Derek Sutton

Woods Hole Oceanographic Institution, Woods Hole, MA

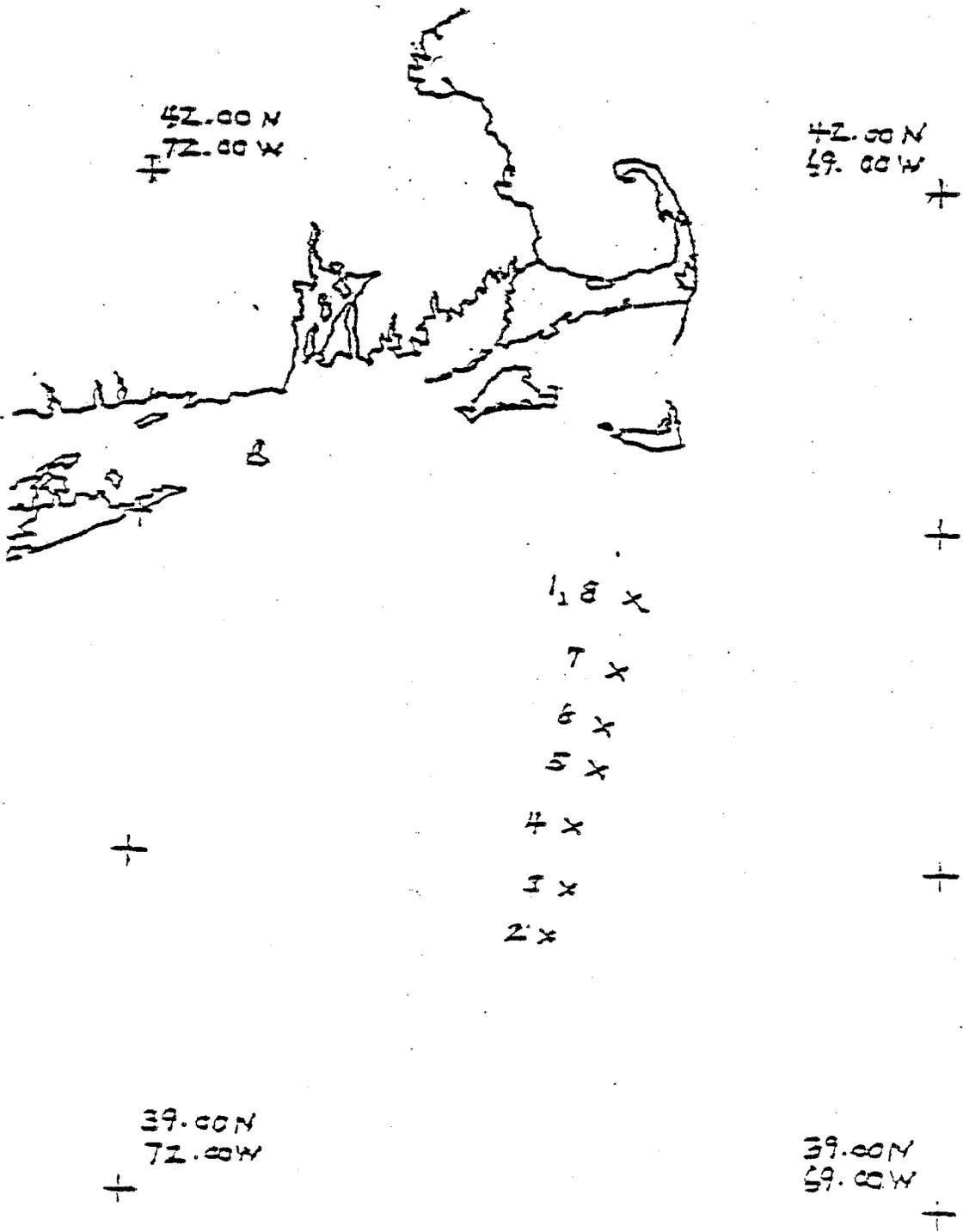
John Vermersch

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	65
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	65
BONGO HAULS 20 cm	_____	NUTRIENT SAMPLES	63
BONGO HAULS 61 cm	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	33	CURRENT METERS	6
BOTTLE CASTS	8	DROGUE	2
FTD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
		LONG LINE SET	_____



Location of XBT and surface salinity observations made during ALBATROSS IV Cruise 79-09 during 4 - 9 September 1979.



Location of hydrographic bottle stations made during ALBATROSS IV Cruise 79-89 during 4 - 9 September 1979.

VESSEL ALBATROSS IV

CRUISE 79-10

DATES 12-19; 20-28 September 1979

PART I & II

DAYS AT SEA 7; 8

STATIONS 60

Cruise Objective

The purpose of this cruise was to provide, as part of the Ocean Pulse Program: 1) seasonal monitoring data on primary productivity, phytoplankton biomass and community structure, benthic meio- and macrofauna community structure, sediment chemistry, hydrography, and nutrients, 2) establish baselines and begin monitoring seabed and total plankton respiration and initiate an algal bioassay program; and 3) measure total suspended solids in the surface waters to provide "sea truth" for concurrent CSZS NIMBUS 7 satellite imagery. Some experiments on the effect of tidal change on seabed and total plankton respiration and primary productivity were done, in addition to the above, in Delaware Bay.

Scientific Personnel

Part I: 12-19 September 1979

NMFS, Northeast Fisheries Center, Highlands, NJ

Frank Steimle, Chief Scientist
James Thomas
Craig Robertson
William Phoel
David Radosh
Vincent Zdanowicz
Ralph Bruno
James Duggan
Steven Hastings
Keith Vinal

University of Rhode Island, Kingston, RI

Peter Auster

Pace University, NY

Ping Chee

Part II: 20-28 September 1979

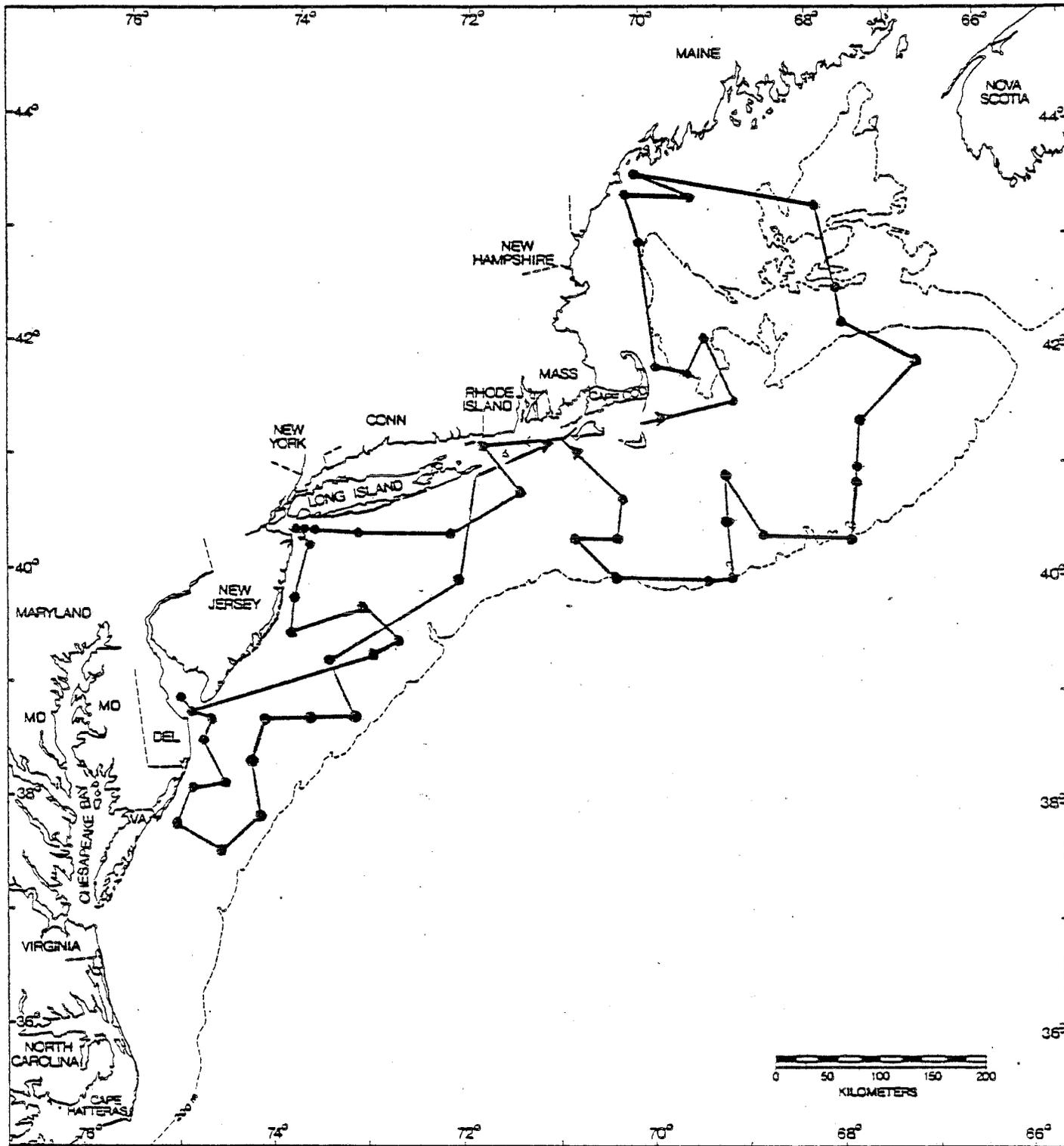
NMFS, Northeast Fisheries Center, Highlands, NJ

Frank Steimle, Chief Scientist
James Thomas
Craig Robertson
William Phoel
David Radosh
Ralph Bruno
James Duggan
Steven Hastings
William Krensich
Vincent Zdanowicz

University of Rhode Island, Kingston, RI

Peter Auster

<u>Sample Type or Variables</u>	<u>Number</u>	<u>No. of Stations</u>
1. Chlorophyll measurements	974	55
2. Filtered water samples for lab. algal bioassay	66	14
3. Total suspended solids for sea truth for NIMBUS-7	8	8
4. Whole water samples for phyto- plankton community analysis	82	15
5. Total plankton respiration measurements	2000	36
6. Seabed oxygen consumption	236	38
7. Benthic bottom samples for macrofauna community analysis	120	24
8. Benthic meiofauna samples	76	19
9. Sediment cores for geological and chemical analysis	240	24
10. XBT profile	60	60
11. D.O. measurement	458	59
12. Nutrient samples	432	59
13. Salinity samples	519	62
14. Dissolved ammonium samples	190	59
15. Secchi disc readings	23	23
16. Subsurface photometry	23	23
17. Alkalinity measurements	46	23
18. pH measurements	46	23
19. Net plankton samples	460	23
20. Nanoplankton samples	460	23
21. Dissolved organic samples	460	23
22. Sediment organic carbon	32	32



Station locations and cruise track for ALBATROSS IV Cruise 79-10 during 12 - 28 September 1979.

VESSEL ALBATROSS IV CRUISE 79-11
DATES Oct. 1-13; 15-19, 1979 PARTS I & II
DAYS AT SEA 13; 15 STATIONS 68; 98

Cruise Objective

This cruise is the first of six surveys conducted annually to monitor seasonal changes in distribution and abundance of fish eggs and larvae, zooplankton and phytoplankton, and to collect oceanographic and primary productivity data.

Scientific Personnel

Part I: 1-13 October
Part II: 15-29 October

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

John Sibunka, Chief Scientist	Part I
Peter Berrien, Chief Scientist	Part II
Jay O'Reilly	Part I
Alyce Wells	Parts I and II
James Duggan	Part I
Susan Barker	Part II
Ralph Bruno	Part II

National Marine Fisheries Service, NEFC, Woods Hole, MA

William Brennan	Part I
William Metcalf	Parts I and II
Dana Densmore	Part I
Derek Sutton	Part I
Ronald Kirschner	Part II

National Marine Fisheries Service, NEFC, Narragansett, RI

Joseph Kane	Part II
Jerome Prezioso	Part II
Thomas McKenney	Part II

New Jersey Marine Science Consortium, Sandy Hook, NJ

Mary Fariello	Part I
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Darien High School, Darien, CT

Joseph Stanko Part I
Steven Kimmer Part I

Eastern Nazarene College, Quincy, MA

Sharon Knox Part II
David Dennen Part II

University of Rhode Island, Kingston, RI

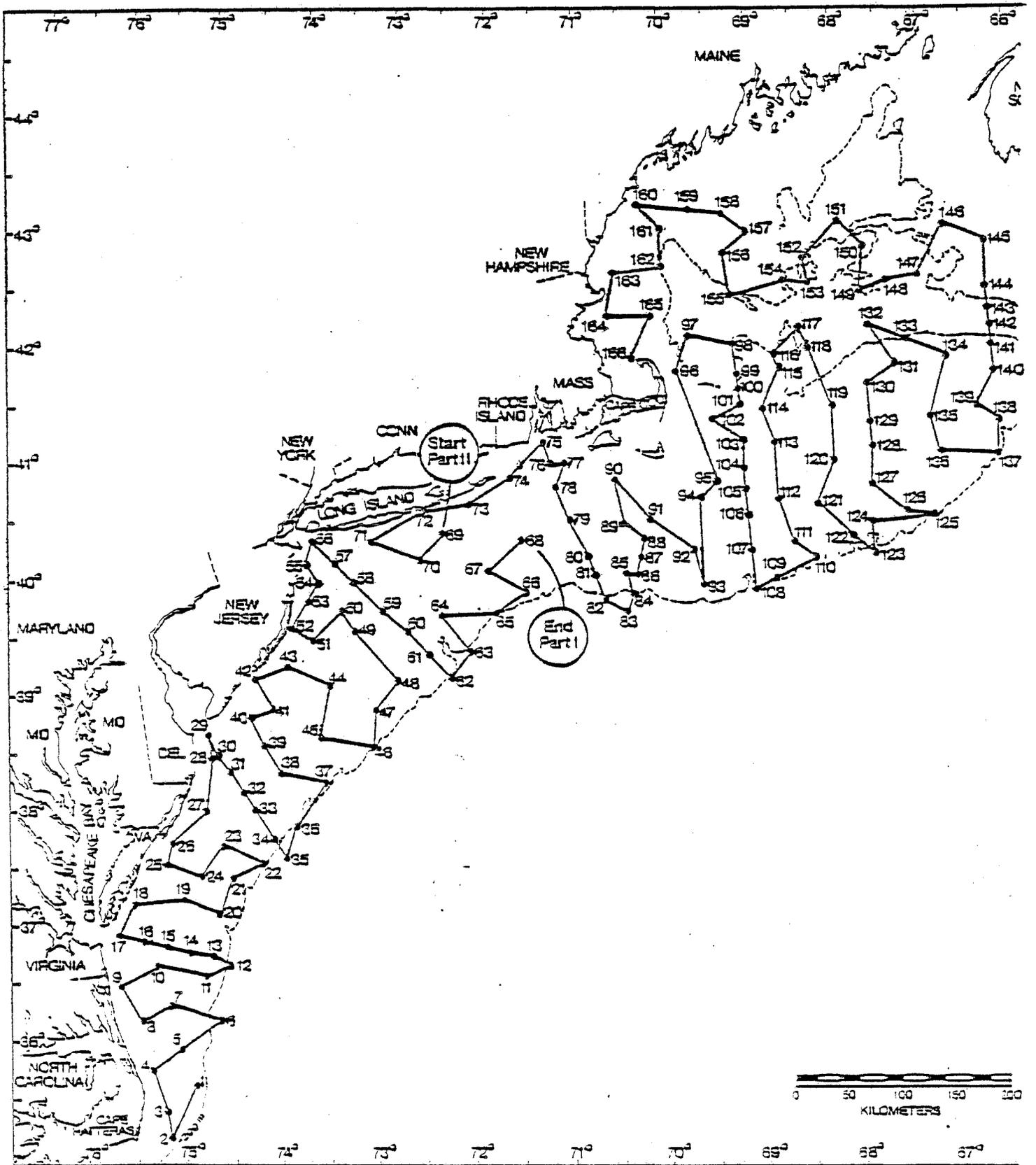
Richard Baker Part I
Robert Bowman Part II

Manomet Bird Observatory, Manomet, MA

Dorcas Miller Part I
Craig Kesselheim Part II

Data Collected

	<u>Part I</u>	<u>Part II</u>	<u>Total</u>
.61 cm BONGO	67	94	161
.20 cm BONGO	29	71	100
.61 cm NEUSTON	67	92	159
.20 cm NEUSTON			
HAEDRICH	21	22	43
XBT	20	42	62
BOTTLE CAST	68	98	166
CTD CAST			
CURRENT METERS			
SALINITY SAMPLES	593	1090	1683
OXYGEN SAMPLES	217	503	720
NUTRIENT SAMPLES	233	330	563
CHLOROPHYLL SAMPLES	562	802	1364
PRIMARY PRODUCTIVITY	15	24	39
DROGUES			
SECCHI DISC	39	39	78
TRAWLS			
FISH SAMPLES			



Station Locations and Cruise Track for ALBATROSS IV Cruise 79-11 During 1 - 29 October 1979.

VESSEL ALBATROSS IV

CRUISE 79-12

DATES November 1-9, 1979

DAYS AT SEA 8

STATIONS 91

Cruise Objective

The objectives of the survey were: (1) to determine the autumn distribution and relative abundance of fish species, (2) to collect biological samples of fish for studies of age and growth, fecundity, maturity, food habits, pathology, and special collections for various scientists, and (3) to obtain various oceanographic data and to record meteorological observations.

Scientific Personnel

National Marine Fisheries Service, NEFC, Woods Hole, MA

Henry Jensen, Chief Scientist
Paul Wood
Thurston Burns
John Ropes
Gordon Waring
Suzanne Lynch

National Marine Fisheries Service, NEFC, Narragansett, RI

Jerome Prezioso

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Darryl Christensen
Wallace Morse

Harvard University, Cambridge, MA

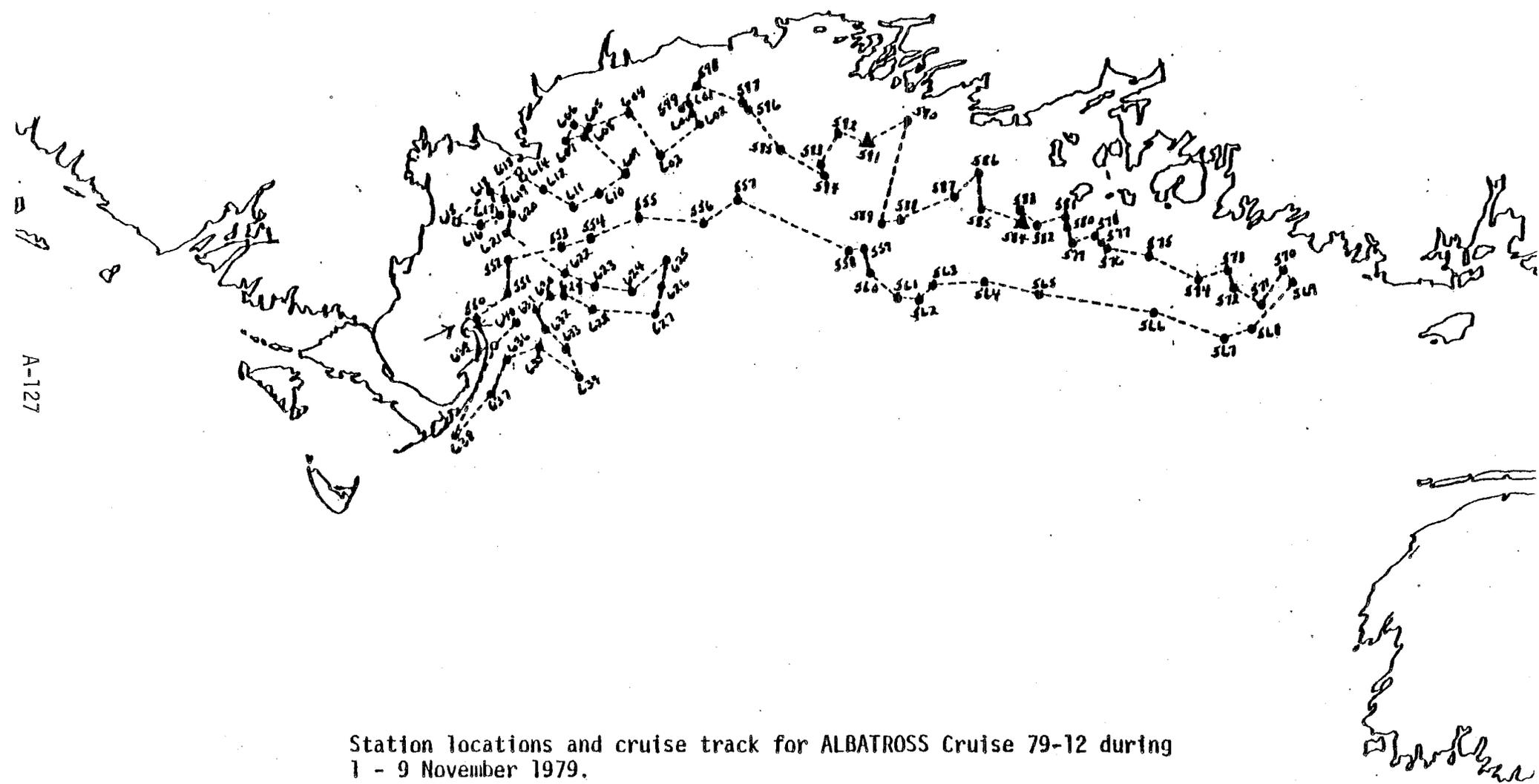
Susan Schoen

Boston University, Boston, MA

George Yerger

Data Collected

	<u>Part I</u>	<u>Part II</u>	<u>Total</u>
.61 cm BONGO	_____	_____	_____
.20 cm BONGO	_____	_____	_____
.61 cm NEUSTON	_____	_____	_____
.20 cm NEUSTON	_____	_____	_____
HAEDRICH	_____	_____	_____
XBT	_____	_____	91
BOTTLE CAST	_____	_____	_____
CTD CAST	_____	_____	_____
CURRENT METERS	_____	_____	_____
SALINITY SAMPLES	_____	_____	_____
OXYGEN SAMPLES	_____	_____	_____
NUTRIENT SAMPLES	_____	_____	_____
CHLOROPHYLL SAMPLES	_____	_____	_____
PRIMARY PRODUCTIVITY	_____	_____	_____
DROGUES	_____	_____	_____
SECCHI DISC	_____	_____	_____
TRAWLS	_____	_____	89
FISH SAMPLES	_____	_____	_____
LONG LINE SETS	_____	_____	_____



VESSEL ALBATROSS IV CRUISE 79-13
DATES Nov. 14-17, Nov. 30-Dec. 21 1979 PARTS I, II
DAYS AT SEA 4; 22 STATIONS 12; 76

Cruise Objective

This cruise is one of a series of surveys conducted annually to monitor seasonal changes in distribution and abundance of fish eggs and larvae, zooplankton and phytoplankton, and to collect oceanographic and primary productivity data.

Scientific Personnel

Part I: 14-17 November
Part II: 30 November-21 December

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

John Sibunka, Chief Scientist	Parts I and II
Ralph Bruno	Part I
Alyce Wells	Part I
James Duggan	Part II*
Myron Silverman	Part II

*Departed vessel on 12 December.

National Marine Fisheries Service, NEFC, Woods Hole, MA

William Brennan	Parts I and II
Dana Densmore	Parts I and II
William Michaels	Part I
Daniel Patanjo	Part II

National Marine Fisheries Service NEFC, Narragansett, RI

Jacqueline Frisella	Parts I and II**
Christopher Powell	Part II

**Replaced James Duggan on 13 December.

New Jersey Marine Science Consortium, Sandy Hook, NJ

Joan Murray	Part II
Kim Tatar	Part II

Jersey City State College, Jersey City, NJ

Enrique Hernandez	Part I
Walter McCabe	Part I
Robert Kerbel	Part II
Gary Sanderson	Part II

EG&G, Waltham, MA

Charles Menzies	Part I
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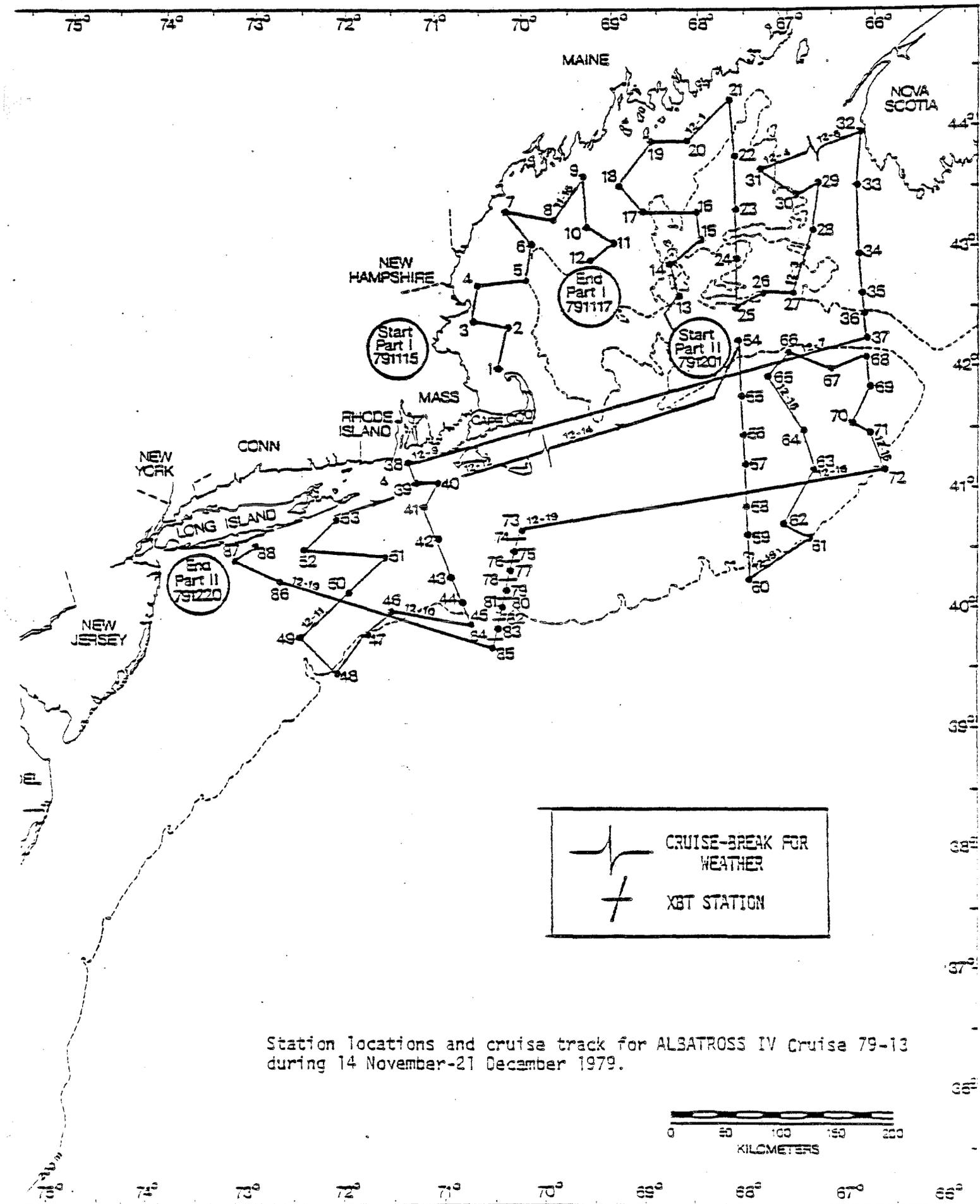
Manomet Bird Observatory, Manomet, MA

Galen Pittman	Parts I and II+
Galen Burrel	Part II

+Galen Burrel replaced Galen Pittman on 13 December.

Data Collected

	<u>Part I</u>	<u>Part II</u>	<u>Total</u>
.61 cm BONGO	12	64	76
.20 cm BONGO	2	13	15
.61 cm NEUSTON	10	64	74
.20 cm NEUSTON	2	19	21
HAEDRICH			
XBT	3	41	44
BOTTLE CAST	12	70	82
CTD CAST			
CURRENT METERS			
SALINITY SAMPLES	141	814	955
OXYGEN SAMPLES	59	374	433
NUTRIENT SAMPLES	35	256	291
CHLOROPHYLL SAMPLES	128	670	798
PRIMARY PRODUCTIVITY	4	14	18
DROGUES			
SECCHI DISC	7	26	33
TRAWLS			
FISH SAMPLES			
LONG LINE SETS			
BOTTOM CORES			



Station locations and cruise track for ALBATROSS IV Cruise 79-13 during 14 November-21 December 1979.

DELAWARE II

VESSEL Delaware II

CRUISE 76-01

DATES January 29-February 6, 1976

DAYS AT SEA 8

STATIONS 3

Cruise Objective

To acoustically measure the headrope height and wingspread of four newly constructed 2-seam modified No. 41 high-opening bottom trawls (identification numbers 75-1-7, 75-2-8, 75-3-9, and 75-4-10). These trawls are expected to be used by both the Northeast Fisheries Center (ALBATROSS IV) and Middle Atlantic Coastal Fisheries Center (DELAWARE II) during the conduct of the 1976 Spring groundfish survey; confirmation of their performance precedes any use.

Scientific Personnel

January 29-February 6	Edgar W. Bowman, Chief of Party
January 29-February 6	Warren Handwork
January 29-February 6	Alan Blott
January 29-February 6	James Crossen
January 28-February 7	Malcolm Silverman

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	3*
MOCNESS HAULS	_____	FISH SAMPLES	_____
KBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

Remarks:

*Three experimental trawls.

VESSEL Delaware II

CRUISE 76-05

DATES March 4-25, 1976

DAYS AT SEA 21

STATIONS 174

Cruise Objective

1. Investigate the distribution, weights, and abundance of finfish and invertebrates collected in a standard otter trawl from Martha's Vineyard to Cape Hatteras.
2. Investigate the distribution and abundance of larval and juvenile fishes collected by 60 cm bongo nets and neuston nets at selected stations in the survey areas.
3. Make extensive sample collections for colleagues at both participating Centers as well as State and Federal facilities and universities. These samples are generally for life-history studies including age and growth, food habits, maturation, and fecundity.
4. During the cruise obtain surface and bottom salinities and temperature profiles at all stations.

Scientific Personnel

March 2-24, 1976

T. Azarovitz, Chief Scientist
 C. Byrne, Watch Chief
 V. Anderson
 A. Thoms
 P. Lanham (NEFC)

March 4-9, 1976

M. Fahay
 C. DeGorgue
 W. Morse

March 10-24, 1976

J. Sibunka
 My Silverman
 V. L. Behrman,
 Volunteer

Data Collected

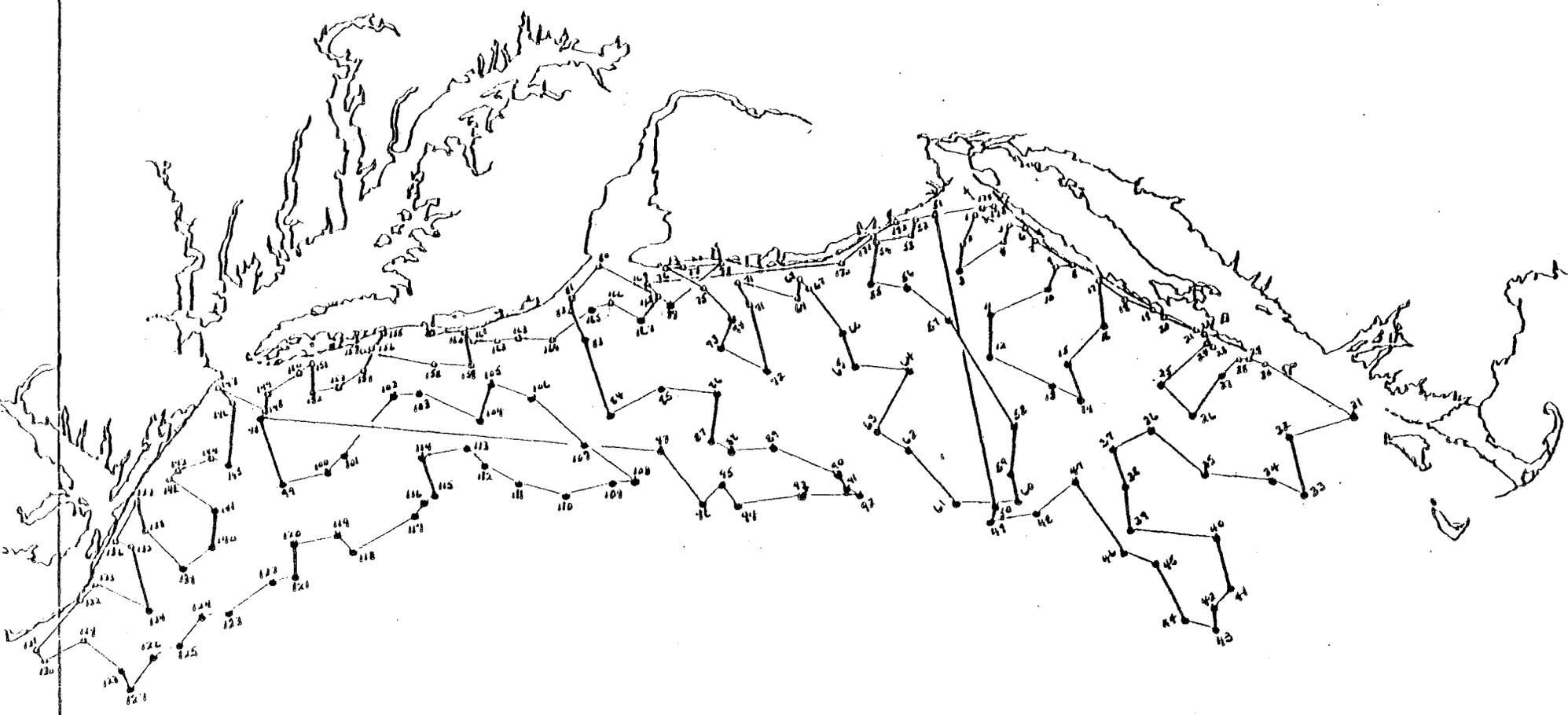
ICNAF STANDARD STATIONS	<u> </u>	SALINITY SAMPLES	<u>252</u>
ICNAF EXTRA STATIONS	<u> </u>	OXYGEN SAMPLES	<u> </u>
MOCNESS STATIONS	<u> </u>	NUTRIENT SAMPLES	<u> </u>
BONGO HAULS	<u>76</u>	CHLOROPHYLL SAMPLES	<u> </u>
NEUSTON HAULS	<u>76</u>	TRAWLS	<u>176</u>
MOCNESS HAULS	<u> </u>	FISH SAMPLES	<u> </u>
KBT DROPS	<u>176</u>	LONG LINE SET	<u> </u>
BOTTLE CASTS	<u>176</u>	CURRENT METERS	<u> </u>
CTD/STD CASTS	<u> </u>	DROGUE	<u> </u>
ROSETTE	<u> </u>	PRIMARY PRODUCTIVITY	<u> </u>
HAEDRICH STATIONS	<u>176</u>		

DELAWARE II 76-05 (CODE 762) 118
SPRING BOTTOM TRAWL SURVEY
MARCH 4-24, 1976

○ INSIDRE STATIONS (CODE 450)

D-5

D-5



VESSEL Delaware II

CRUISE D-76-7

DATES May 17-24, 1976

DAYS AT SEA 10

STATIONS 85

Cruise Objective

- 1) To collect samples of fish eggs and larvae, zooplankton and phytoplankton, and hydrographic data to study their distribution in this area.
- 2) To collect ichthyological samples (mackerel eggs) from environmentally-degraded oceanic waters and from relatively pristine ocean waters for subsequent studies on the incidence and prevalence of chromosomal aberrations and of the effects thereof during the several development stages of the fish eggs.

Scientific Personnel

Arthur Kendall, Sandy Hook
 Peter Berrien, Sandy Hook
 Anne Naplin, Sandy Hook
 Gail Peterson, Sandy Hook

John Sibunka, Sandy Hook
 Myron Silverman, Sandy Hook
 Peter Underwood, SUNY, Stony Brook
 Dick Murtagh, SUNY, Stony Brook

Data Collected

ICNAF STANDARD STATIONS	<u> </u>	SALINITY SAMPLES	<u> 320 </u>
ICNAF EXTRA STATIONS	<u> </u>	OXYGEN SAMPLES	<u> </u>
MOCNESS STATIONS	<u> </u>	NUTRIENT SAMPLES	<u> 280 </u>
BONGO HAULS	<u> 85 </u>	CHLOROPHYLL SAMPLES	<u> ? </u>
NEUSTON HAULS	<u> </u>	TRAWLS	<u> </u>
MOCNESS HAULS	<u> </u>	FISH SAMPLES	<u> </u>
KBT DROPS	<u> 55 </u>	LONG LINE SET	<u> </u>
BOTTLE CASTS	<u> 51 </u>	CURRENT METERS	<u> </u>
CTD/STD CASTS	<u> </u>	DROGUE	<u> </u>
ROSETTE	<u> </u>	PRIMARY PRODUCTIVITY	<u> </u>

VESSEL Delaware II

CRUISE D-76-10

DATES June 9-13, 1976

DAYS AT SEA 5

STATIONS 32

Cruise Objective

To collect samples of fish eggs and larvae, zooplankton and phytoplankton, and hydrographic data to study their distribution in this area.

Scientific Personnel

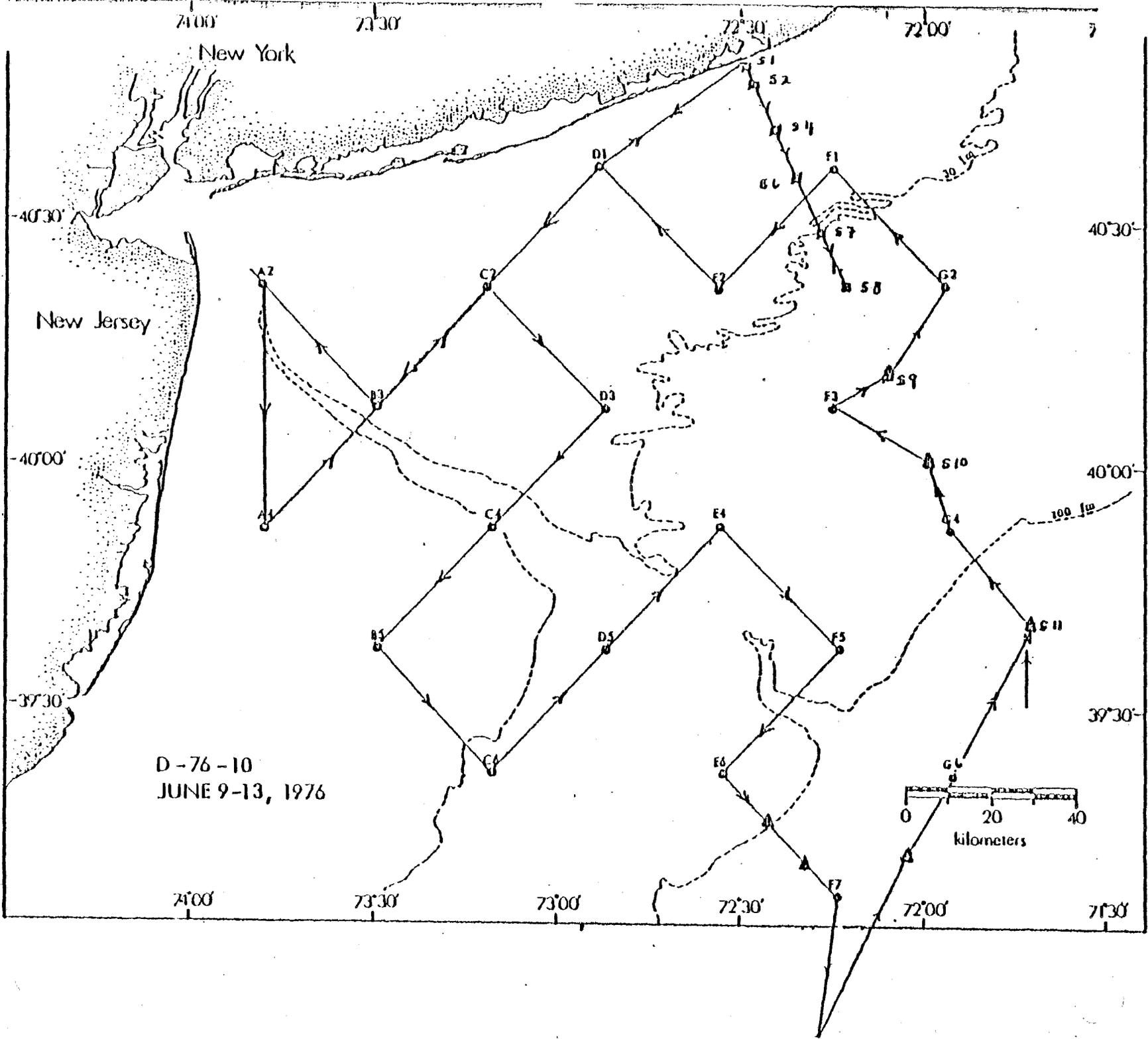
Arthur Kendall, Sandy Hook
Wallace Smith, Sandy Hook
John Sibunka, Sandy Hook
Doris Finan, Sandy Hook

Cindy DeGorgue, Sandy Hook
Mike Taylor, MESA
Bob Comeau, SUNY, Stony Brook
Dick Murtagh, SUNY, Stony Brook

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	32	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	26	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	32?	LONG LINE SET	_____
BOTTLE CASTS	32	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

D-6



D-6

VESSEL Delaware II

CRUISE 76-12

DATES December 5-21, 1976

DAYS AT SEA 15

STATIONS 114

Cruise Objective

1. Investigate the distribution, weights, and abundance of finfish and invertebrates collected in a standard otter trawl from Martha's Vineyard to Cape Hatteras.
2. Investigate the distribution and abundance of larval and juvenile fishes collected by 60 cm bongo nets and neuston nets and selected stations in the survey areas.
3. Make extensive sample collections for colleagues in the Northwest Fisheries Center. These samples are generally for life-history studies including age and growth, maturation and fecundity.
4. During the cruise obtain temperature profiles at all stations and dissolved oxygen concentrations and salinities at selected depths and stations.

Scientific PersonnelNortheast Fisheries Center, Sandy Hook, NJ

Wallace Morse, Chief Scientist	Valentine Anderson, Biological Aid
Charles Byrne, Watch Chief	Doris Finan, Biological Aid
John Sibunka, Fishery Biologist	Alyce Wells, Biological Aid
Andrew Thoms, Biological Technician	Terrance Tibedo, Biological Aid, (student)

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>217</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>217</u>
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	<u>49</u>	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	<u>38</u>	TRAWLS	<u>113</u>
MOCNESS HAULS	_____	FISH SAMPLES	_____
KBT DROPS	<u>114</u>	LONG LINE SET	_____
BOTTLE CASTS	<u>113</u>	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
HAEDRICH	<u>113</u>		

VESSEL Delaware II

CRUISE 76-13

DATES December 22-24, 1976

DAYS AT SEA 2

STATIONS 11

Cruise Objective

The purpose of the cruise was to sample the fish and associated populations of invertebrates and plankton in the vicinity of the oil spill as well as from outside the area contaminated by the oil slick for use as controls. Additional objectives were to obtain oil, water, and sediment samples and observe the effect of oil on birds and mammals in the area.

Scientific Personnel

Henry Jensen, Chief of Party
 Peter Gibb
 Rhett Lewis
 Gordon Waring
 Paul Loiseau

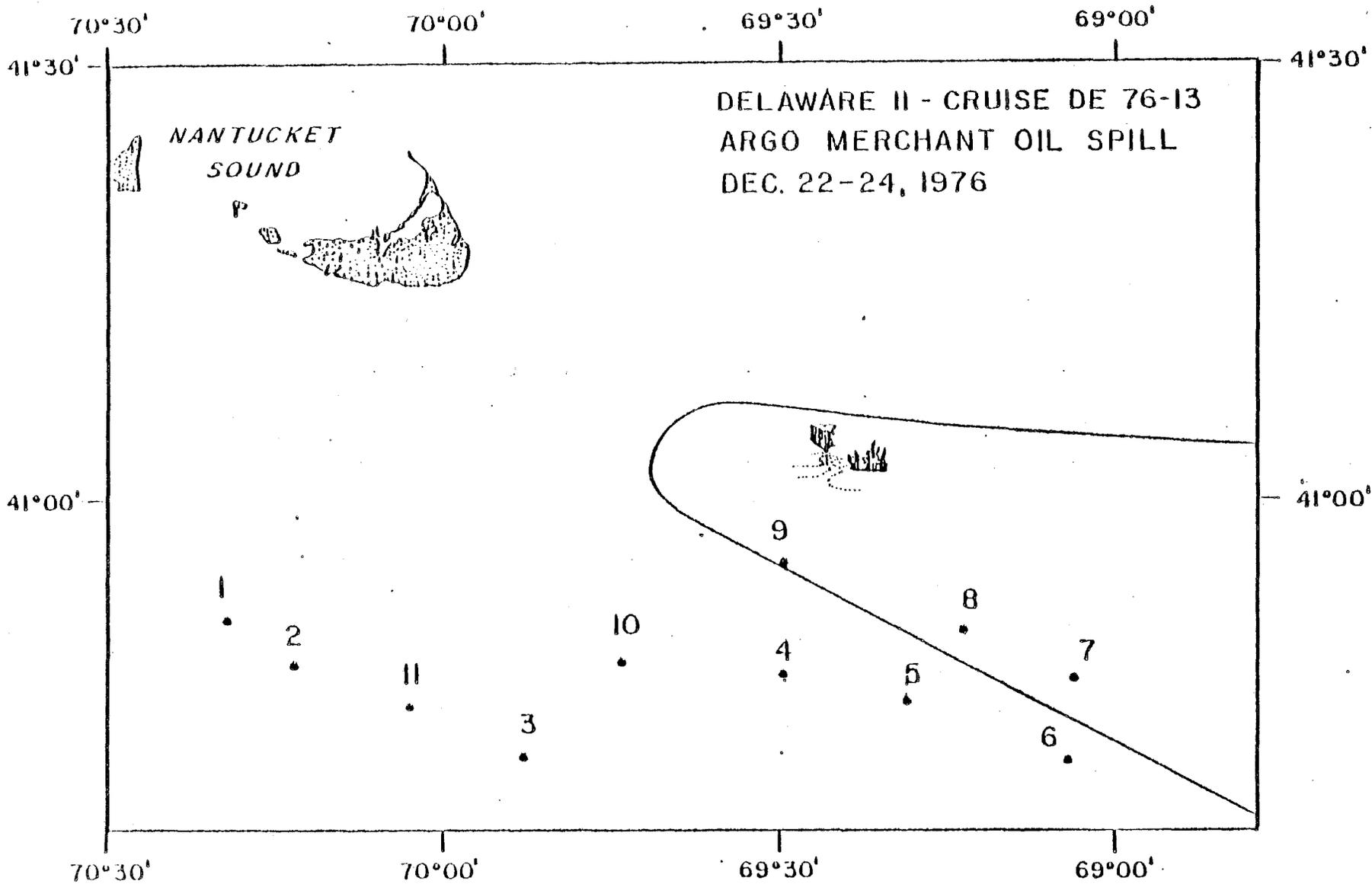
Frank Almeida
 Ron Boisvert
 Gary Carter
 Joe Kane
 Kevin McCarthy

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	_____ 11	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CMD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

Remarks:

Surface water samples were taken at each station (11).



D-9

D-9

VESSEL Delaware II

CRUISE 77-01

DATES January 4-10, 1977

DAYS AT SEA 6

STATIONS 24

Cruise Objective

The purpose of the cruise was to assess the condition of the fish stocks and associated populations of invertebrates and plankton on the portions of Nantucket Shoals and Georges Bank through which the oil from the tanker ARGO MERCHANT had drifted. An additional objective was to obtain oil, water, and sediment samples, along with observations of the oil's effect on birds and mammals of the area.

Scientific Personnel

Henry Jensen, Chief of Party
John Nicolas
Linda Despres
Eva Montiero
Randy Goodlat

Joseph Kane
Laurie Sullivan
Craig Scharf
John Ziskowski

Data Collected

ICNAF STANDARD STATIONS	<u> </u>	SALINITY SAMPLES	<u> 43 </u>
ICNAF EXTRA STATIONS	<u> </u>	OXYGEN SAMPLES	<u> </u>
MOCNESS STATIONS	<u> </u>	NUTRIENT SAMPLES	<u> </u>
BONGO HAULS	<u> 39 </u>	CHLOROPHYLL SAMPLES	<u> </u>
NEUSTON HAULS	<u> 38 </u>	TRAWLS	<u> 24 </u>
MOCNESS HAULS	<u> </u>	FISH SAMPLES	<u> </u>
XBT DROPS	<u> 43 </u>	LONG LINE SET	<u> </u>
BOTTLE CASTS	<u> </u>	CURRENT METERS	<u> </u>
CTD/STD CASTS	<u> </u>	DROGUE	<u> </u>
ROSETTE	<u> </u>	PRIMARY PRODUCTIVITY	<u> </u>

D-11

ARGO MERCHANT OIL SPILL

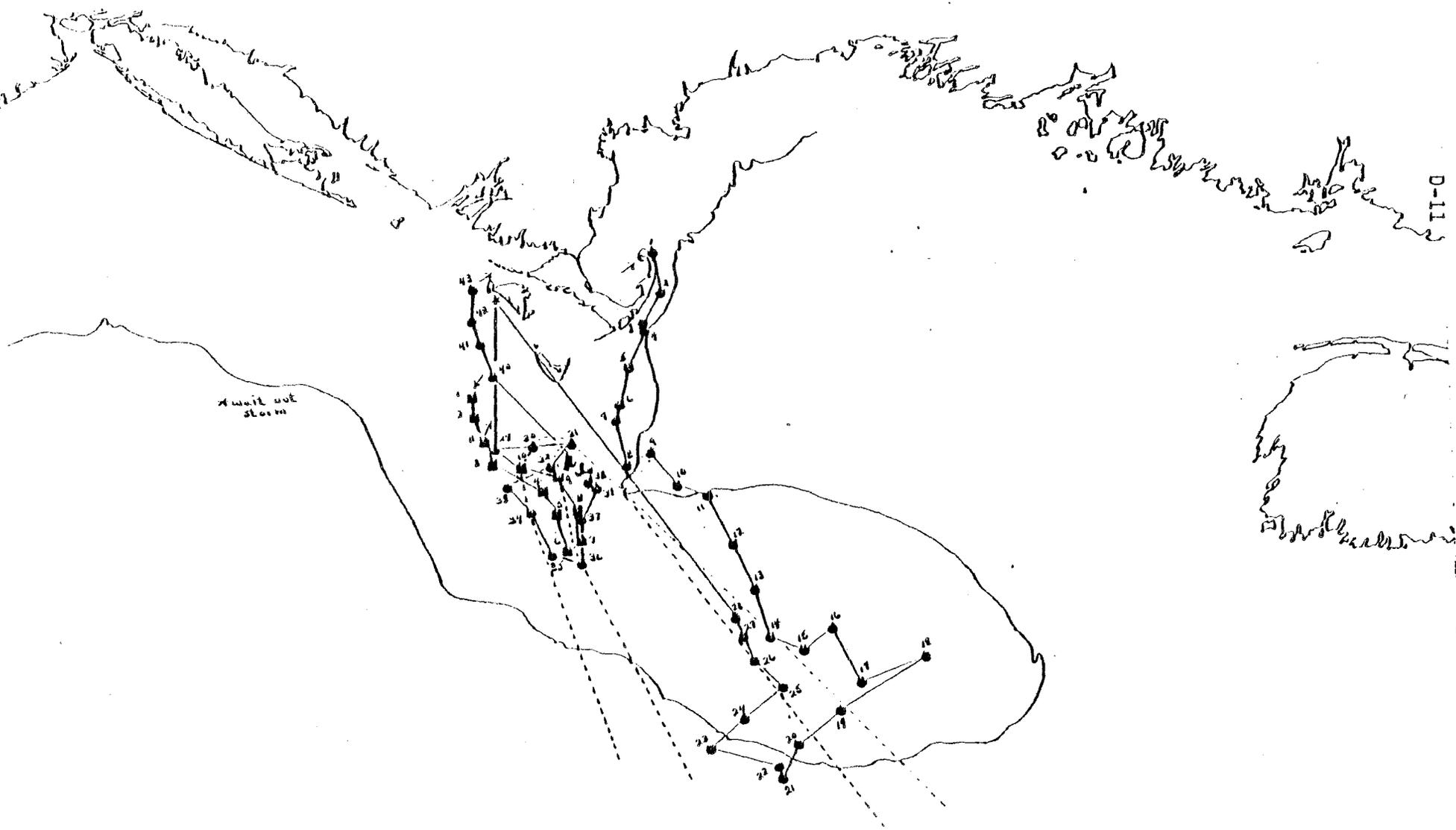
R/V DELAWARE II

- ■ CRUISE 76-13 - DEC 22-23, 1976
- ● CRUISE 77-01 - JAN 4-10, 1977

126

177

D-11



VESSEL Delaware II

CRUISE 77-02

DATES January 26, 1977

PARTS I, II, III

DAYS AT SEA

STATIONS 280

Cruise Objective

Monitor seasonal changes in distribution and abundance of fish eggs, larvae and invertebrate zooplankton, record hydrographic measurements, and collect basic primary productivity data in shelf and slope waters from Cape Hatteras to the Scotian Shelf.

Scientific PersonnelNMFS, Woods Hole, MA

John Ropes, Chief Scientist
 Robert MacIntosh
 Dave McQuay
 Andrew Thoms
 Steve Murawski
 Hillary Herring
 Maureen Griffin
 Charles Byrne
 Jonathan Hill

Greg Power
 William George
 George Ward
 Douglas Jones
 Donald Flescher
 Scott See
 Mark Berlinger
 Daniel Scribner
 Bruce Sammaris

Data Collected

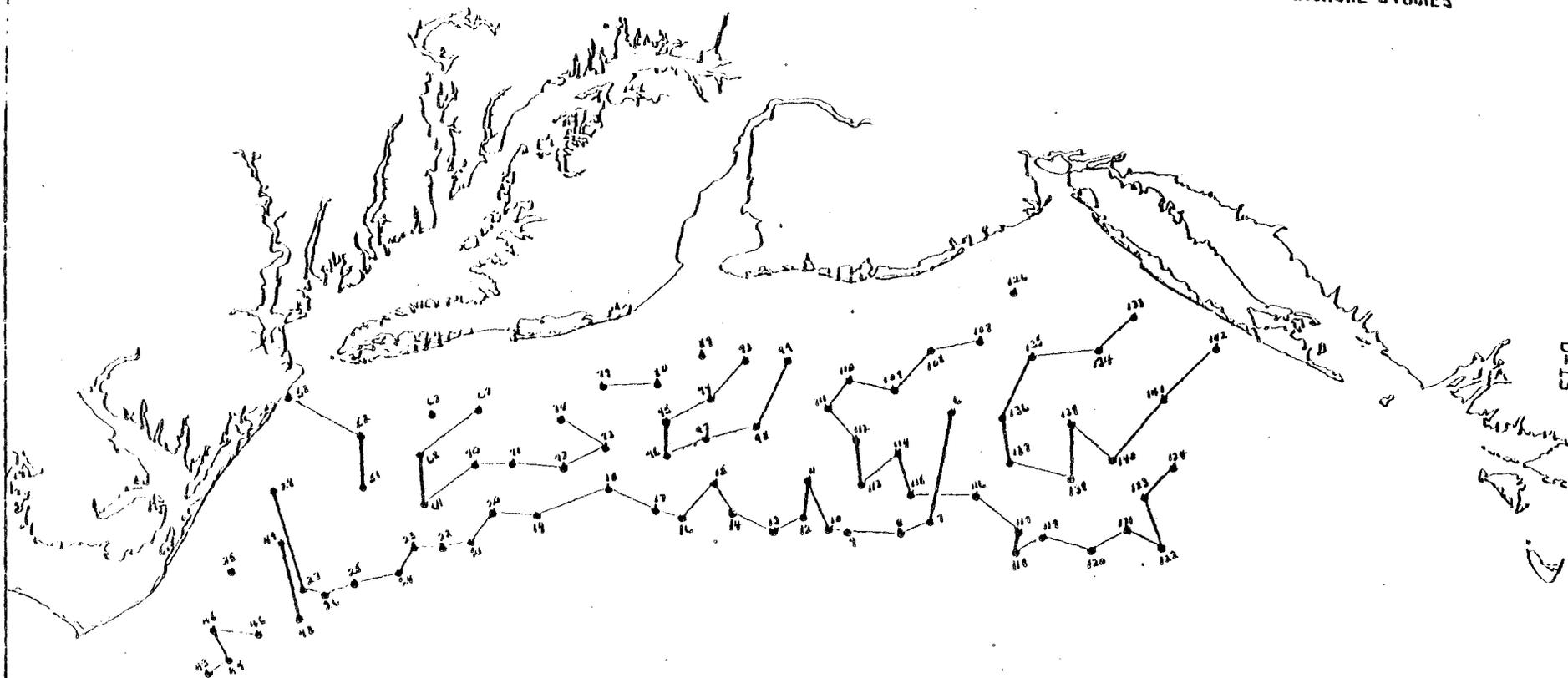
	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
KBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
DREDGE	<u>212</u>		

Remarks:

Stopped at Sandy Hook March 29 for change of personnel and provisions.

DELAWARE II 77-03 (CODE 77)
SPRING BOTTOM TRAWL SURVEY
MAR 19 - APR 8, 1977

NOTE: MISSING STATIONS WERE
FISHED FOR SANDY HOOK
INSHORE STUDIES



D-15

D-15

VESSEL DELAWARE II

CRUISE 77-04

DATES 12-29 April 1977

DAYS AT SEA 18

STATIONS 151

Cruise Objective

The objectives of this cruise, in conjunction with data from preceding and subsequent cruises, were to collect fish eggs and larvae which would help determine spawning area, time, and intensity; as well as egg and larva production, survival, and dispersal among spring-time spawners, particularly yellowtail flounder (Limanda ferruginea) and Atlantic mackerel (Scomber scombrus).

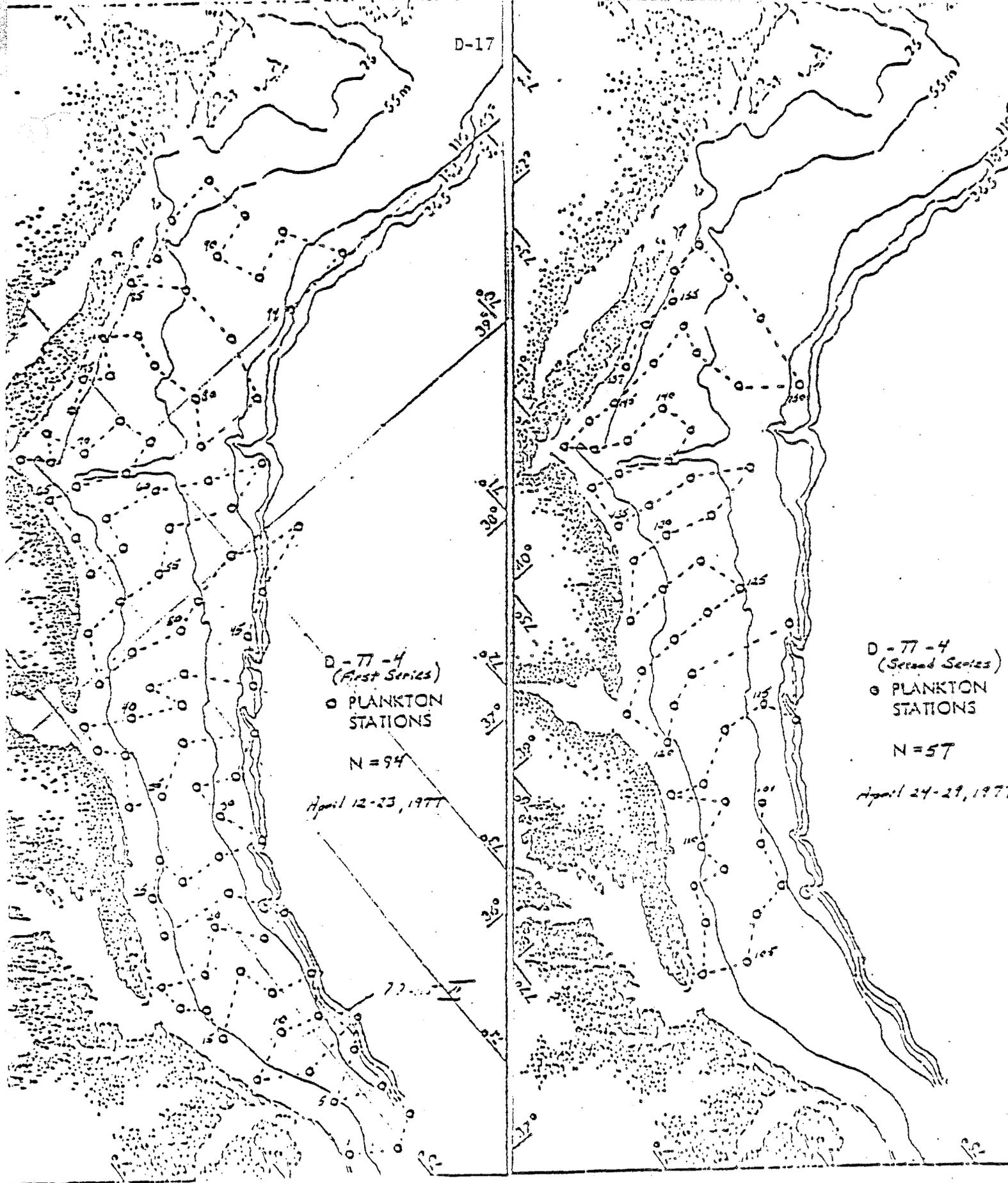
We also collected hydrographic data so as to relate environmental features to spawning and to egg and larva dispersal and survival. Additionally, dissolved oxygen levels were determined throughout the survey area as part of a continuing monitoring effect of that parameter.

Scientific Personnel

Peter Berrien (Chief Scientist)
Cindy de Gorgue
Ann Matarese
Susan Roberts
John Sibunka
Alyce Wells

Data Collected

ICNAF STANDARD STATIONS	Total	SALINITY SAMPLES	Total
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	822
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	426
BONGO HAULS	151	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	151	DREDGE	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	151	CURRENT METERS	_____
BOTTLE CASTS	151	DROGUE	_____
STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
		LONG LINE SET	_____



D-77-4
(First Series)
○ PLANKTON
STATIONS

N = 94

April 12-23, 1977

D-77-4
(Second Series)
○ PLANKTON
STATIONS

N = 57

April 24-29, 1977

VESSEL Delaware II CRUISE 77-05
 DATES May 3-27, 1977 PARTS I & II
 DAYS AT SEA 22 STATIONS 193

Cruise Objective

The objectives of this cruise, in conjunction with data from preceding and subsequent cruises, were to collect fish eggs and larvae which would help determine spawning area, time, and intensity; as well as egg and larva production, survival, and dispersal among springtime spawners, particularly yellowtail flounder (Limanda ferruginea) and Atlantic mackerel (Scomber scombrus).

We also collected hydrographic data so as to relate environmental features to spawning and to egg and larva dispersal and survival. Additionally, dissolved oxygen levels were determined on Part 2 as part of a continuing monitoring effort of that parameter.

Scientific PersonnelPart 1: 3 to 13 May

W. G. Smith (Chief Scientist)
 M. P. Fahay
 A. Kendall
 P. Christian

Part 2: 17 to 27 May

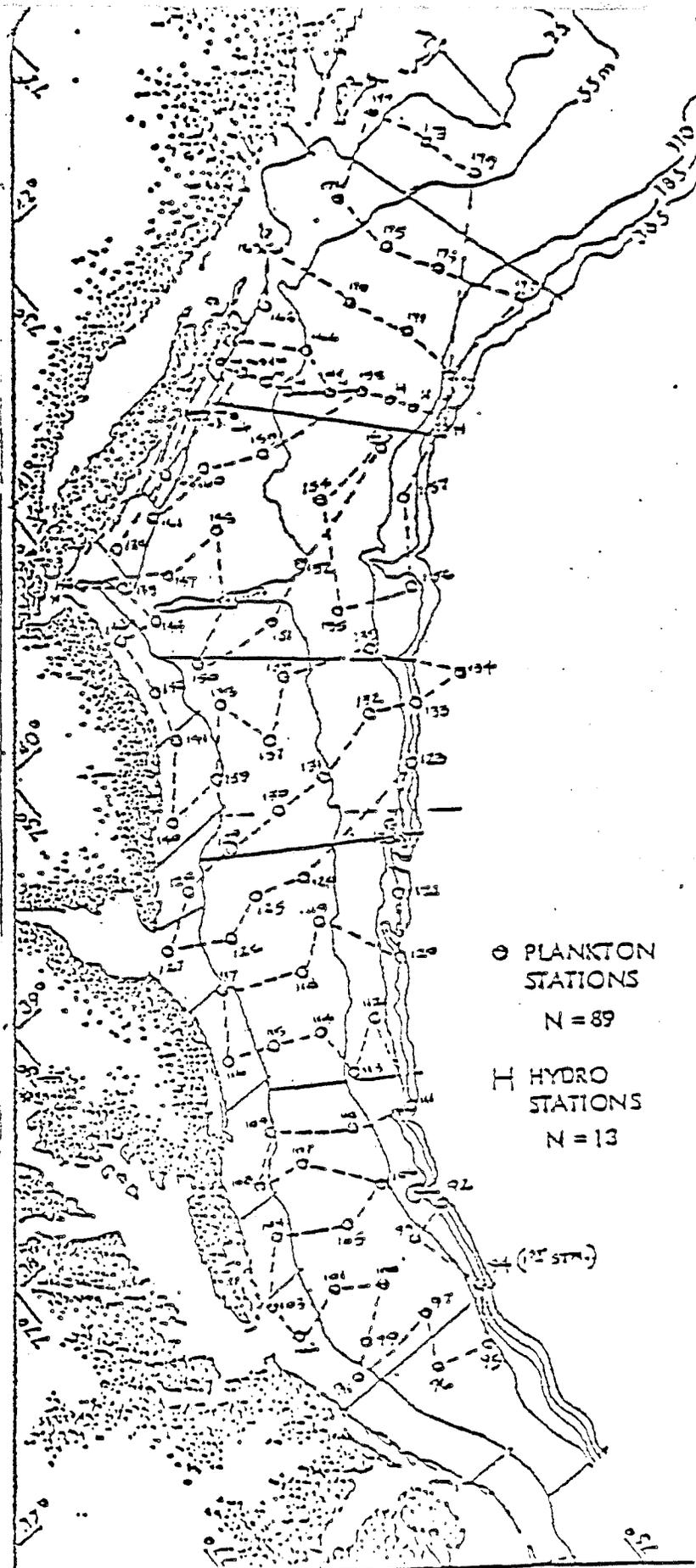
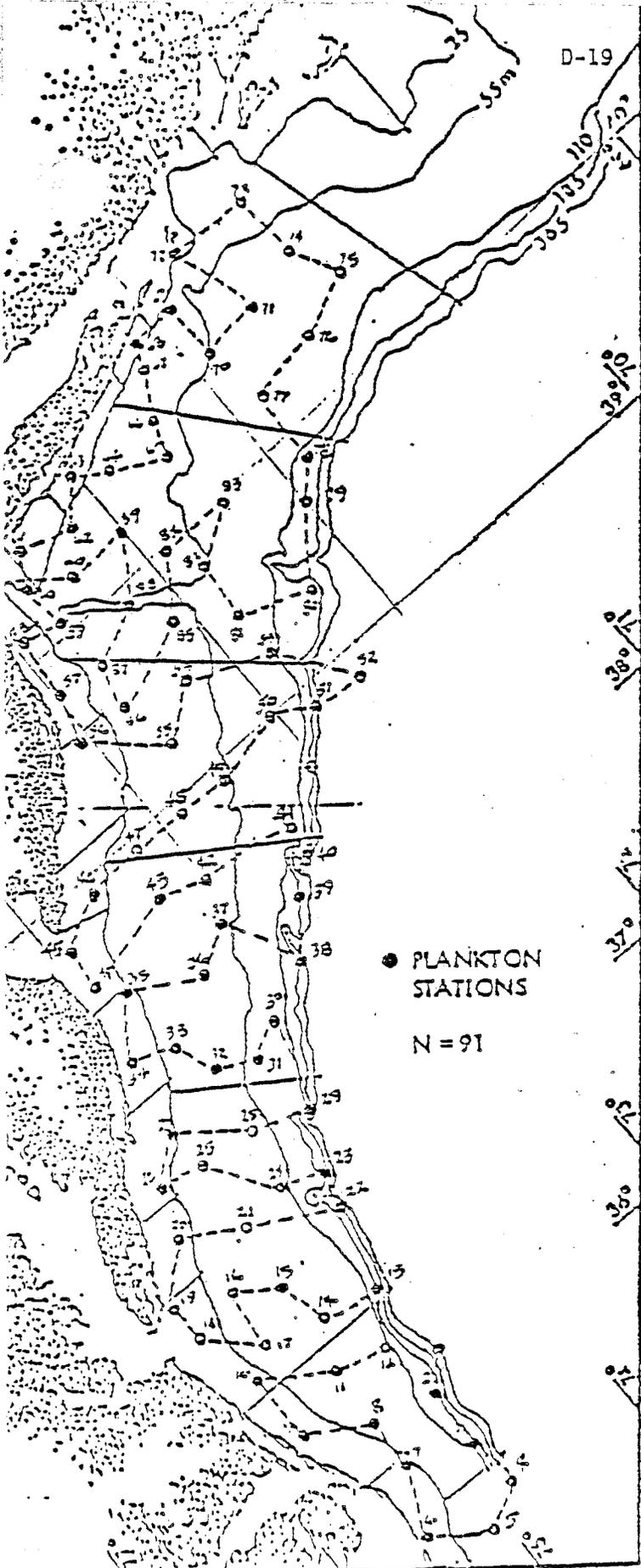
J. Sibunka (Chief Scientist)
 M. Silverman
 C. DeGorgue
 A. Matarese
 P. Christian
 B. Policastro

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>864</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>486</u>
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	<u>395</u>
BONGO HAULS	<u>180</u>	CHLOROPHYLL SAMPLES	<u>523</u>
NEUSTON HAULS	<u>281</u>	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	<u>193</u>	LONG LINE SET	_____
BOTTLE CASTS	<u>191</u>	CURRENT METERS	_____
CMD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

Remarks:

In port May 13-17 for change of personnel.



DE II 77 - 05, MAY 3 - 13, 1977. PLANKTON STATIONS, PART 1.

DE II 77 - 05, MAY 17 - 27, 1977. PLANKTON AND HYDROGRAPHIC STATIONS, PART 2.

VESSEL Delaware II

CRUISE 77-06

DATES June 1-6, 1977

PART I

DAYS AT SEA 5

STATIONS 48

Cruise Objective

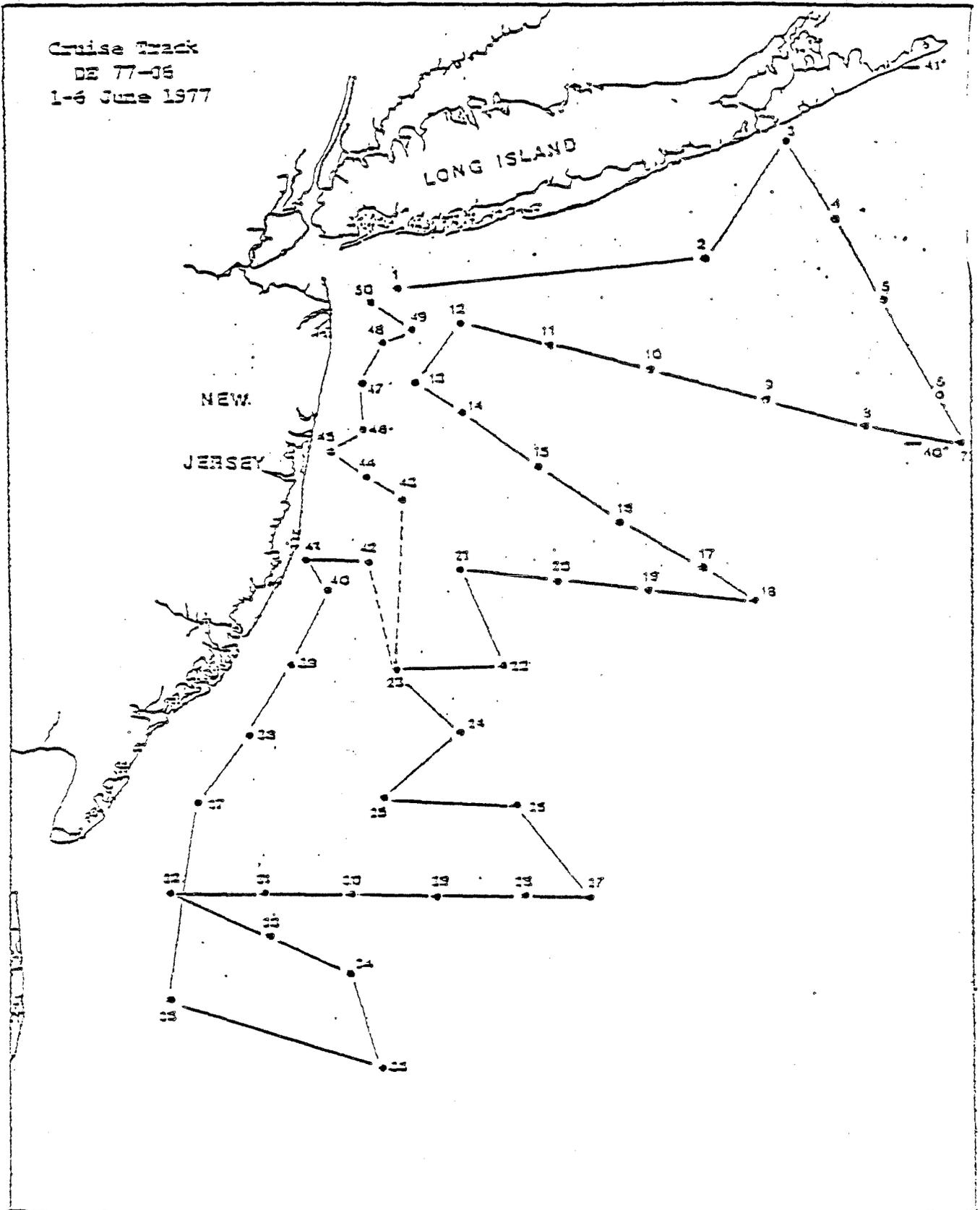
The purpose of the cruise was to monitor hydrographic conditions of the New York Bight during the month of June as part of the Division of Environmental Assessment's monthly monitoring series. Cruises in this series are intended to aid in detection and prediction of further oxygen depletion problems in the New York Bight. An additional objective was to collect benthic samples near the New Jersey coast to make a preliminary estimate of surf clam spatfall in the most severely impacted area of last year's oxygen depletion related shellfish mortalities. A third objective was to investigate reports by sport divers and commercial fishermen of an unusually extensive colonization of several species of tube-dwelling polychaete worms, known locally as "spaghetti-mud", which fishermen expressed concern about because it fouled their trawls.

Scientific Personnel

Frank Steimle, Chief Scientist
David Radosh
William Emery
Elin Haugeu

Data Collected

ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____ 48
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____ 48
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
KBT DROPS	_____ 48	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
		BOTTOM GRABS	_____ 24



VESSEL Delaware II

CRUISE 77-06

DATES August 29-September 2, 1977

PART II

DAYS AT SEA 4

STATIONS 40

Cruise Objective

1. To characterize hydrographic conditions in the N.Y. Bight, during the late summer, as part of the NEFC, Division of Environmental Assessment's series of monthly hydrographic surveys, initiated after the 1976 N.Y. Bight anoxia phenomenon.
2. To conduct Ocean Pulse mode experiments on the effect of cadmium chloride "spikas" on seabed oxygen consumption rates at three sites (a dredge spoil and sewage sludge dumpsite and an adjacent control area) in the N.Y. Bight Apex.

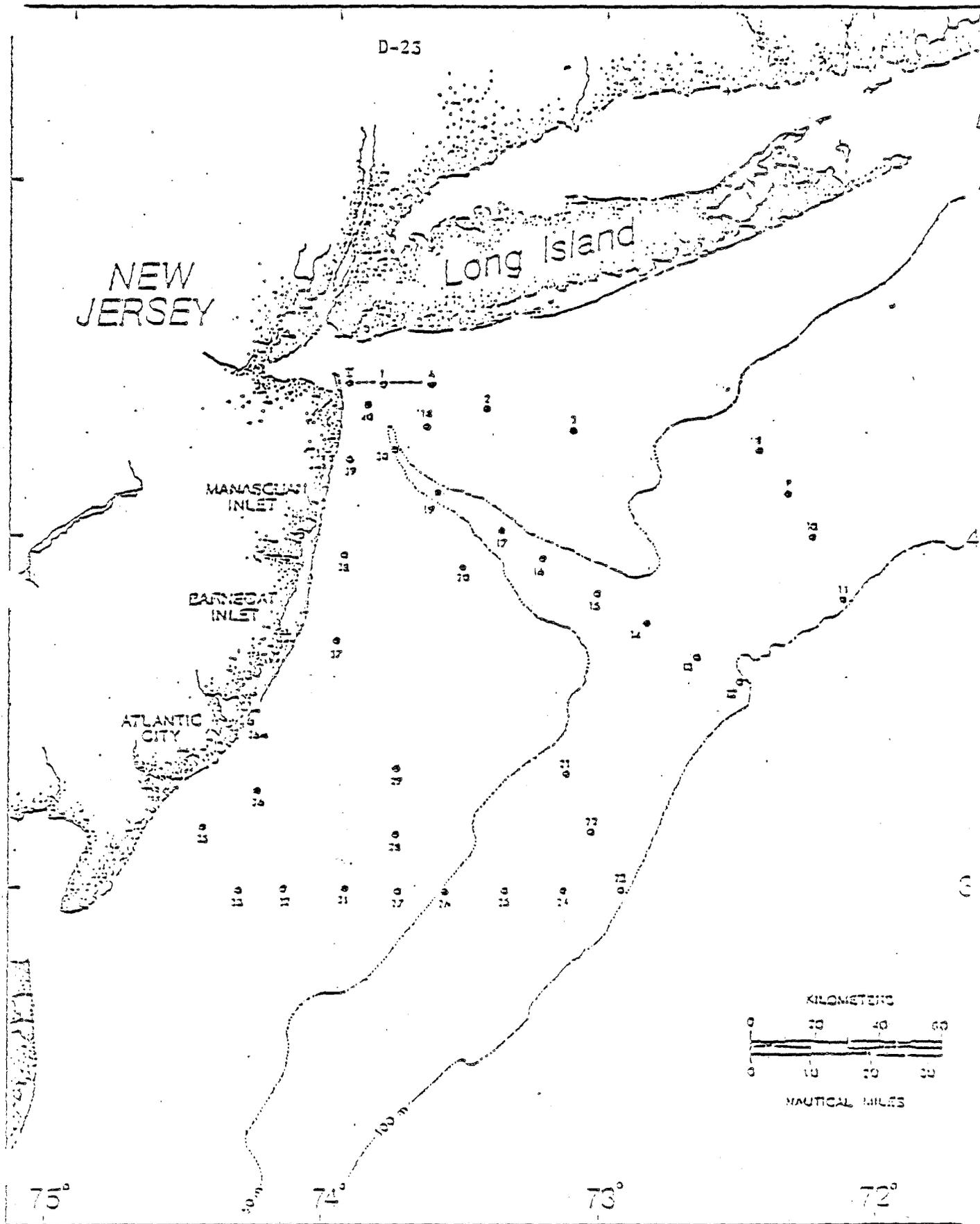
Scientific Personnel

James Thomas
 Frank Steimle
 William Phoel
 David Radosh

Craig Robertson
 Cynthia Dey
 Frederick Thurberg
 Mary Grogeen

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>140</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>140</u>
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	<u>36</u>	LONG LINE SET	_____
BOTTLE CASTS	<u>36</u>	CURRENT METERS	_____
CMD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____



Station locations for Belvedere II cruise DW-77-0611, August 29-September 2, 1977.

VESSEL DELAWARE II

CRUISE 77-07

DATES 9-17 & 20-30 June

PART I & II

DAYS AT SEA 9; 11

STATIONS 39; 94

Cruise Objective

The objectives of this cruise, in conjunction with data from preceding cruises, were to collect fish eggs and larvae which would help determine spawning area, time, and intensity; as well as egg and larva production, survival, and dispersal among spring-time spawners, particularly yellowtail flounder (Limanda ferruginea) and Atlantic mackerel (Scomber scombrus).

We also collected hydrographic data to relate environmental features to spawning and to egg and larva dispersal and survival. Phytoplankton samples were obtained from each station for subsequent primary production determination. Dissolved oxygen was measured at all stations in the Mid-Atlantic Bight as part of a continuing monitoring effort of that parameter.

Scientific PersonnelPart 1, June 9 to 17NMFS, Northeast Fisheries Center, Sandy Hook, NJ

M. P. Fahay (Chief Scientist)
J. Sibunka
A. Matarese
P. Christian
B. Policastro

NMFS, Northeast Fisheries Center, Narragansett, RI

R. Boisvert
T. Plichta
M. Silverman

Part 2, June 20 to 30NMFS, Northeast Fisheries Center, Sandy Hook, NJ

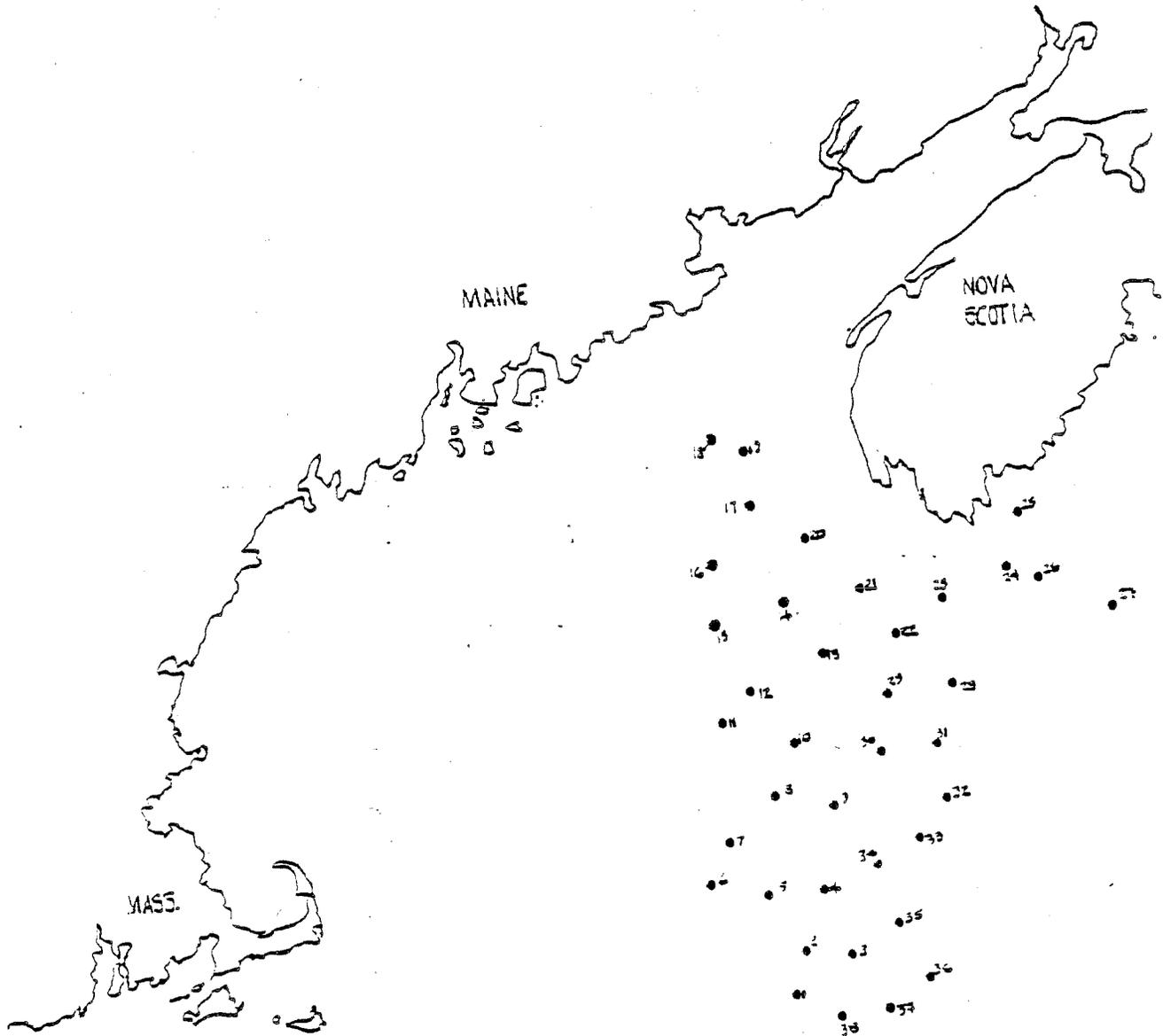
P. Berrien (Chief Scientist)
 J. Sibunka
 C. deGorgue
 S. Roberts
 M. Silverman

NMFS, Northeast Fisheries Center, Narragansett, RI

R. Boisvert

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	828
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	445
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	134	CHLOROPHYLL SAMPLES	665
NEUSTON HAULS	133	DREDGE	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	140	CURRENT METERS	_____
BOTTLE CASTS	141	DROGUE	_____
STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
LONG LINE SET	_____		



37

VESSEL Delaware II CRUISE 77-08
 DATES July 15-18, 1977 PART I
 DAYS AT SEA 3 STATIONS 55

Cruise Objective

Sample bottom waters and benthic macrofauna throughout Long Island and Block Island Sounds (LIS and BIS), continuing our study of long-term benthic population trends in these areas; sample the benthos of two areas in Block Island Sound, one which had recently experienced heavy hydraulic dredging for ocean quahogs, and the other a control area, to determine the effects of this dredging on sediments and benthos; and; sample intensively the benthos of the New London dredging grounds, further assessing spoiling effects and recolonization; measure bottom oxygen values off the south shore of Long Island, contributing to the larger effort in Part II.

Scientific Personnel

Robert Reid, Chief Scientist	Leigh Baines
Clyde MacKenzie, Watch Chief	Pat Billings
Ann Frame	Julie Graef

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
KBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

VESSEL Delaware II

CRUISE 77-08

DATES July 18-22, 1977

PART II

DAYS AT SEA 4

STATIONS 51

Cruise Objective

Monitor hydrographic conditions in the New York Bight during July as part of the NEFC Division of Environmental Assessment's monthly series; collect benthic grab samples in the area most severely impacted by the 1976 oxygen depletion phenomenon, to study recolonization; trawl for winter flounder in the New York Metropolitan Area's ocean sewage disposal dump to note the incidence of "fin rot" or other pathological symptoms; collect plankton and neuston at select stations as part of a study of the effects of stressed and unstressed environments on the mutation rates of fish and invertebrate eggs; and test the feasibility of performing physiological and biochemical bioassays on freshly collected material on board.

Scientific Personnel

Frank Steimle, Chief Scientist	Mark Freedman (Physiol., Hematol.)
David Radosh, Watch Chief	Dean Perry (Mutagenesis)
Dr. Robert Tucker (ATPase Bioassay)	Robert Mako
John Ziskowski (Pathology)	Henry Slater

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	49
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	49
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	18	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	18	TRAWLS	7
MOCNESS HAULS	_____	FISH SAMPLES	80
KBT DROPS	37	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CYD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

VESSEL Delaware II

CRUISE 77-09

DATES July 27-August 6, 1977

PARTS I & II

DAYS AT SEA 10

STATIONS 115

Cruise Objective

The objectives of the cruise were: (1) to determine the summer distribution and relative abundance of fish species (especially those of recreational importance; (2) to collect surface and subsurface ichthyoplankton samples; and (3) to collect hydrographic measurements and samples. The collection of parts and whole frozen fish for the study of age and growth relationships, fecundity, and maturity was also planned.

Scientific Personnel

Charles Byrne (Chief Scientist)
Wallace Morse
Doris Finan
Martin Wiley
Keith Dayton
Peter Himchak

Andrew Thoms
Hillary Herring
C. E. Richards
Robert Copeland
Sydney Worthen

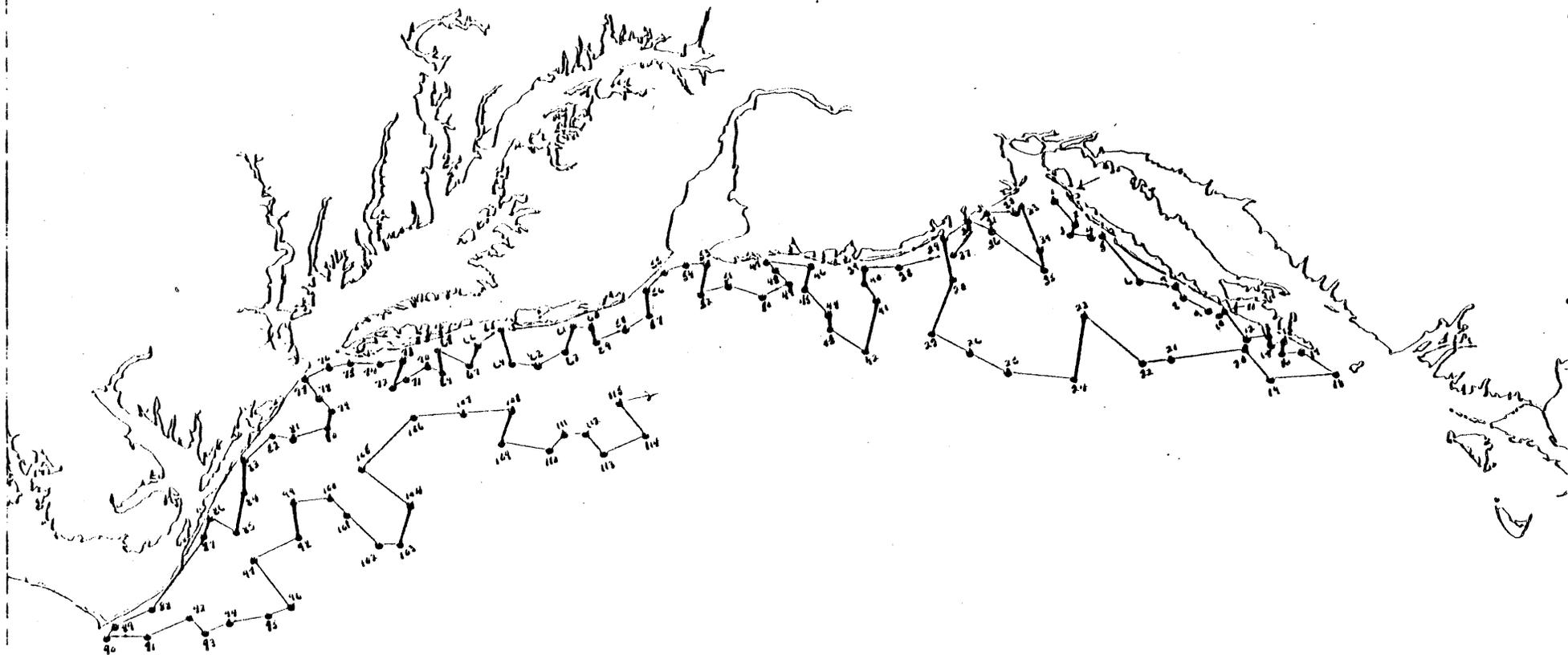
Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>115</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>115</u>
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	<u>15</u>	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	<u>15</u>	TRAWLS	<u>115</u>
MOCNESS HAULS	_____	FISH SAMPLES	_____
KBT DROPS	<u>115</u>	LONG LINE SET	_____
BOTTLE CASTS	<u>115</u>	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

DELAWARE II 77-09 134
SUMMER BOTTOM TRAWL SURVEY
JUL 27 - AUG 5, 1977

OFFSHORE - CODE 774
INSHORE - CODE 775

D-51



D-51

VESSEL Delaware II

CRUISE 77-10

DATES August 17-25, 1977

DAYS AT SEA 8

STATIONS

Cruise Objective

1. Gather information on the physical performance of the hydraulic dredging system.
2. Vary operation parameters to determine their effect on fishability.
3. Identify modifications improving fishability.
4. Determine improvements in the fishing method to better insure consistency in sampling results.

Scientific Personnel

Michael Corbett, Chief Scientist
 Alan Blott, Mechanical Engineer
 Vernon Nulk, Mechanical Engineering Technician
 Clifford Newell, Biological Technician/Diver
 Kenneth Pecci, Fishery Biologist/Diver
 Roger Clifford, Biological Technician/Diver
 Steven Murawski, Fishery Biologist

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

Remarks:

Dredges towed and tested.

VESSEL Delawara II

CRUISE 77-11

DATES September 7-9, 1977

PART I

DAYS AT SEA 2

STATIONS 8

Cruise Objective

The objectives of the cruise were: 1) to rig the mid-water trawl to fish properly; 2) to develop operational procedures for mid-water surveys; and 3) to determine the ability of the trawl to catch fishes of recreational importance in areas of known occurrence and concentration in the Middle Atlantic Bight.

Scientific Personnel

S. J. Wilk (Chief Scientist)
 V. Anderson
 C. Byrne
 M. Silverman
 P. Twohig
 W. Handwork

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____ 2
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	_____ 8	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

VESSEL Delaware II CRUISE 77-11
 DATES September 13-21, 1977 PART II
 DAYS AT SEA 8 STATIONS 6

Cruise Objective

The purpose of this cruise was to measure acoustically the headrope height and wingspread of three #36 Yankee bottom trawls and three, two-seam, modified #41 Yankee bottom trawls. These trawls are to be used during the 1977 fall and 1978 spring groundfish surveys, respectively.

Scientific Personnel

Malcolm J. Silverman, Chief Scientist
 Andrew Thoms
 Warren Handwork
 Patrick Twohig
 Robert Middleton

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	6
MOCNESS HAULS	_____	FISH SAMPLES	_____
KBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CID/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

VESSEL Delaware II

CRUISE 77-12

DATES September 26-October 7, 1977

PART I

DAYS AT SEA 11

STATIONS 137

Cruise Objective

The objectives of the cruise were: (1) to determine the fall distribution and relative abundance of fish species; (2) to collect biological samples; and (3) to collect hydrographical and meteorological samples and data. Collections of fish samples for the study of age and growth relationships, fecundity, maturity, and special collections for interested scientists were planned.

Scientific Personnel

Charles Byrne (Chief Scientist)
 Thurston Burns
 Ray Bowman
 William Overholtz
 Hillary Herring
 Wendy Wolfe
 Wallace Morse
 Val Anderson

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	<u>92</u>	SALINITY SAMPLES	<u> </u>
ICNAF EXTRA STATIONS	<u>45</u>	OXYGEN SAMPLES	<u> </u>
MOCNESS STATIONS	<u> </u>	NUTRIENT SAMPLES	<u> </u>
BONGO HAULS	<u> </u>	CHLOROPHYLL SAMPLES	<u> </u>
NEUSTON HAULS	<u> </u>	TRAWLS	<u>137</u>
MOCNESS HAULS	<u> </u>	FISH SAMPLES	<u>1402</u>
KBT DROPS	<u>137</u>	LONG LINE SET	<u> </u>
BOTTLE CASTS	<u> </u>	CURRENT METERS	<u> </u>
CTD/STD CASTS	<u> </u>	DROGUE	<u> </u>
ROSETTE	<u> </u>	PRIMARY PRODUCTIVITY	<u> </u>

VESSEL Delaware II

CRUISE 77-12

DATES October 11-21, 1977

PART II

DAYS AT SEA 10

STATIONS 71

Cruise Objective

The purpose of the cruise was to determine the fall distribution and relative abundance of fish species; to collect biological hydrographic samples, and to continue monitoring the effects of the ARGO MERCHANT oil spill.

Scientific Personnel

Linda Despres
 Kristina Kantola
 Pamela Lanham
 Ralph Mayo
 Loretta O'Brien
 Andrew Thoms
 Val Anderson
 John Ziskowski

Data Collected

	* Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	71*
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	71
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	71	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

Remarks:

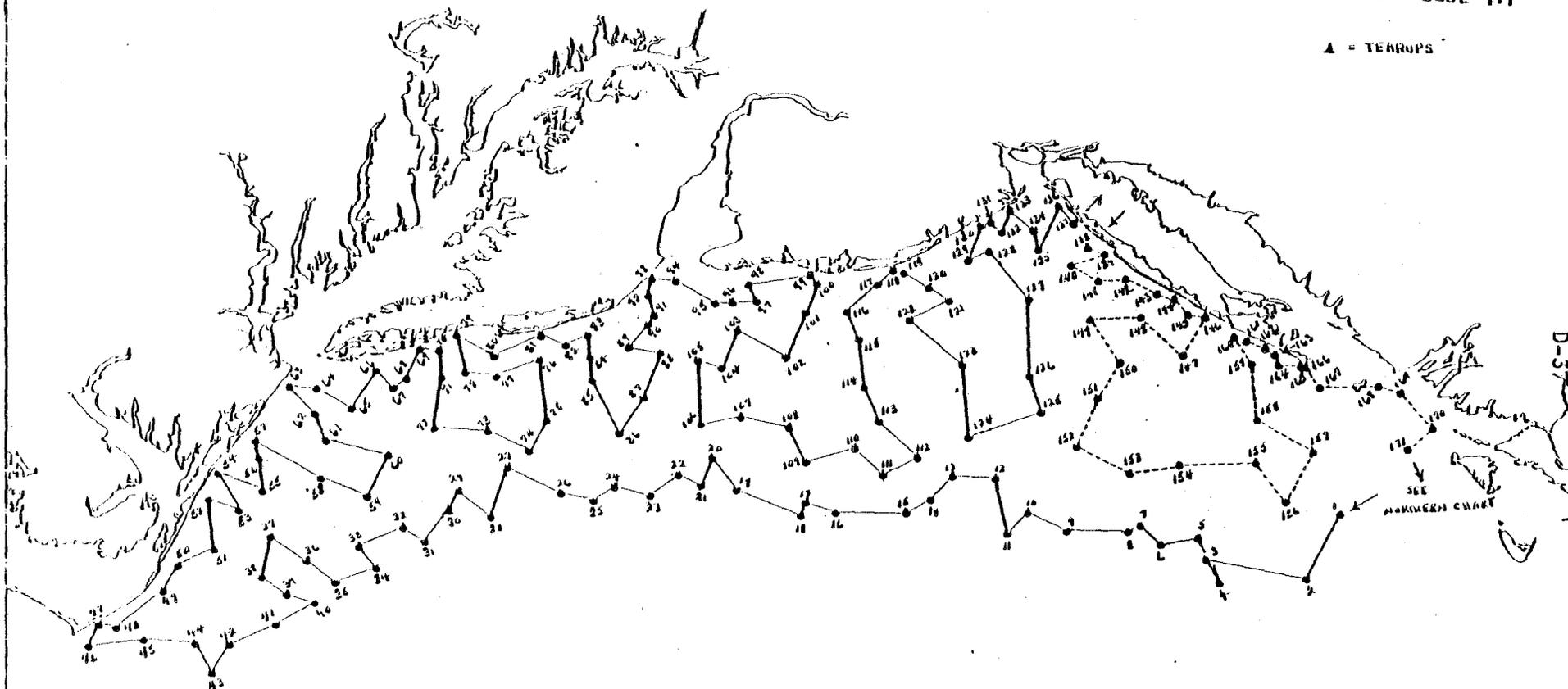
For Cruise Track See Parts I & III.

*Surface only.

DELAWARE II 77-12
FALL BOTTOM TRAWL SURVEY
SEP 26 - OCT 14, 1977
●——— SEP 26 - OCT 7
●- - - - OCT 11-14

OFFSHORE - CODE 779
INSHORE - CODE 777

▲ = TEARUPS



VESSEL Delaware II CRUISE 77-12
 DATES October 25-November 7, 1977 PART III
 DAYS AT SEA 13 STATIONS 138

Cruise Objective

The purpose of the cruise was to determine the fall distribution and relative abundance of offshore demersal fishes and to collect biological and hydrographic information for the NMFS-Northeast Fisheries Center. Specifically, age and growth samples, stomachs for demersal food chain studies, fecundity, maturity samples, and hydrographic information were collected. Secondary objectives included: 1) the collection of specimens and samples for special studies at the NEFC and for state, federal, and private institutions; and (2) a rendezvous with Office of Naval Research aircraft to conduct a noise level study.

Scientific Personnel

William Overholtz, Chief Scientist	Andrew Thoms
Donald Flescher	David Dodson
John Nicolas	Maureen Griffin
Evelyn Howe	Harold Foster

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	138
XBT DROPS	138	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

VESSEL Delaware II CRUISE 77-12
 DATES November 8-December 5, 1977* PART IV
 DAYS AT SEA 13 STATIONS 72

Cruise Objective

The purpose of the cruise was to determine the autumn distribution and relative abundance of fish and invertebrate species found on the Gulf of Maine's continental shelf. Secondary objectives included collecting biological samples and hydrographic data for associated studies, and continuing to monitor the inshore stations of Massachusetts and Cape Cod Bays for the Northeast Fisheries Center's Environmental Assessment Division (see Figure 1, Station No.'s B-1 through B-9).

Scientific Personnel

Henry Jensen, Chief Scientist	Malcolm Silverman
Donald Flischer	Gordon Waring
Margaret McBride	Robert Boeri
Eva Montiero	Richard Brodeur

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	75
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	72
KBT DROPS	75	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____

Remarks:

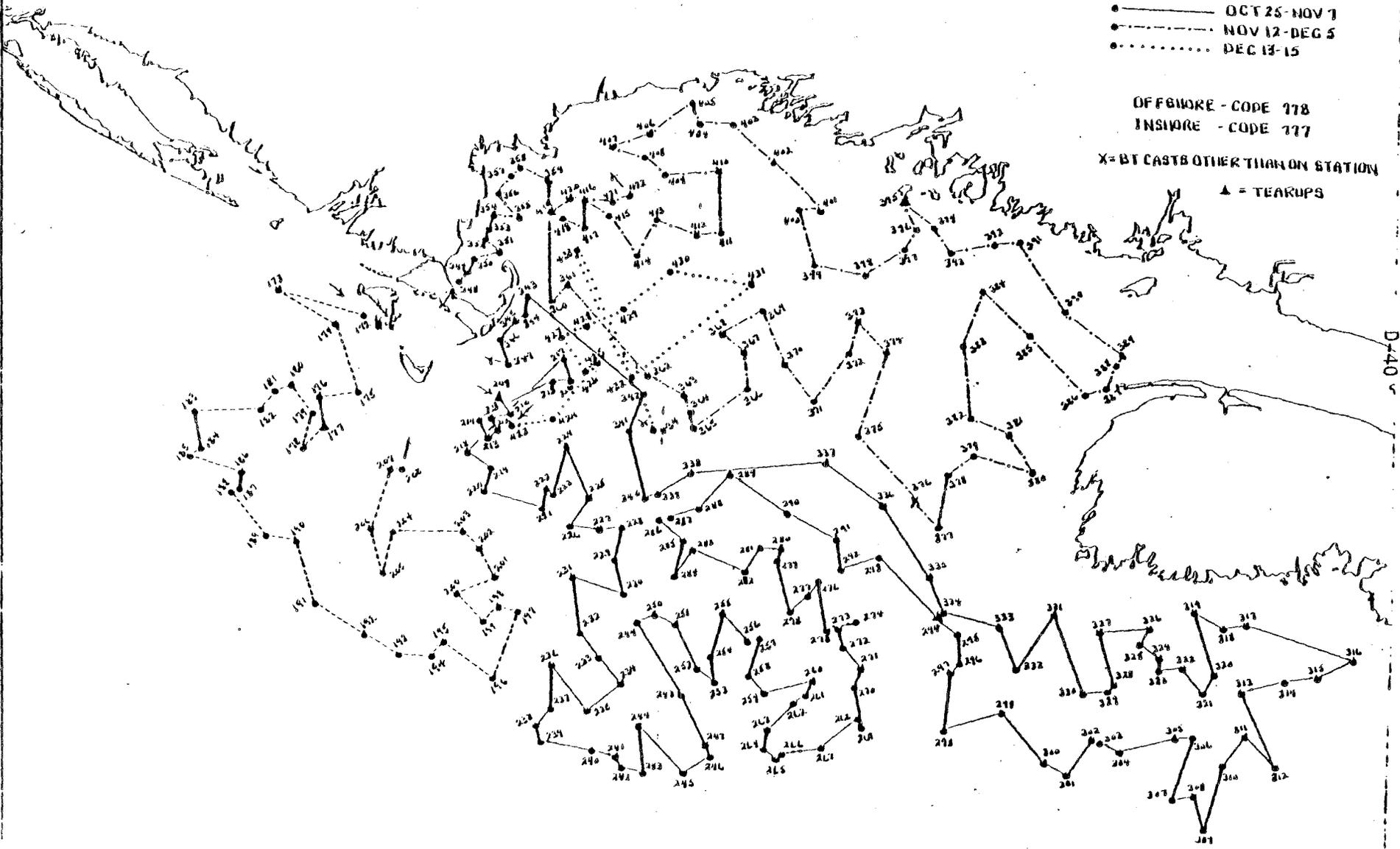
*In port for repairs Nov. 14-23.
 For cruise track see Part III.

DELAWARE II 77-12
 FALL BOTTOM TRAVEL SURVEY
 OCT 15- DEC 15, 1977

- OCT 15-21
- OCT 25-NOV 7
- - - - - NOV 12-DEC 5
- DEC 13-15

OFFSHORE - CODE 778
 INSIDRE - CODE 777

X=BT CASTS OTHER THAN ON STATION
 ▲ = TEARUPS



VESSEL Delaware II

CRUISE 77-13

DATES December 8-20, 1977

DAYS AT SEA 12

STATIONS 74

Cruise Objective

The major objectives of the cruise were to: (1) monitor distribution and relative abundance of larval herring and their food organisms for estimates of production, growth, mortality, and dispersal; (2) collect a special series of standard bongo-net plankton hauls for a comparison of day-night avoidance of herring larvae at two different towing speeds (1.5 and 3.5 knots); (3) conduct limited hydrographic work to describe water-mass distribution in the study area; and (4) complete the bottom trawl survey (12 tows) of a previous cruise (DELAWARE II Cruise No. DE 77-12) in the Gulf of Maine.

Scientific Personnel

George Bolz, Chief Scientist
 Andy Rosenberg
 Robert Halpin
 Hillary Herring

Nicole Dafour
 Carol Haber
 Evans Kerrigan
 Maureen Griffin

Data Collected

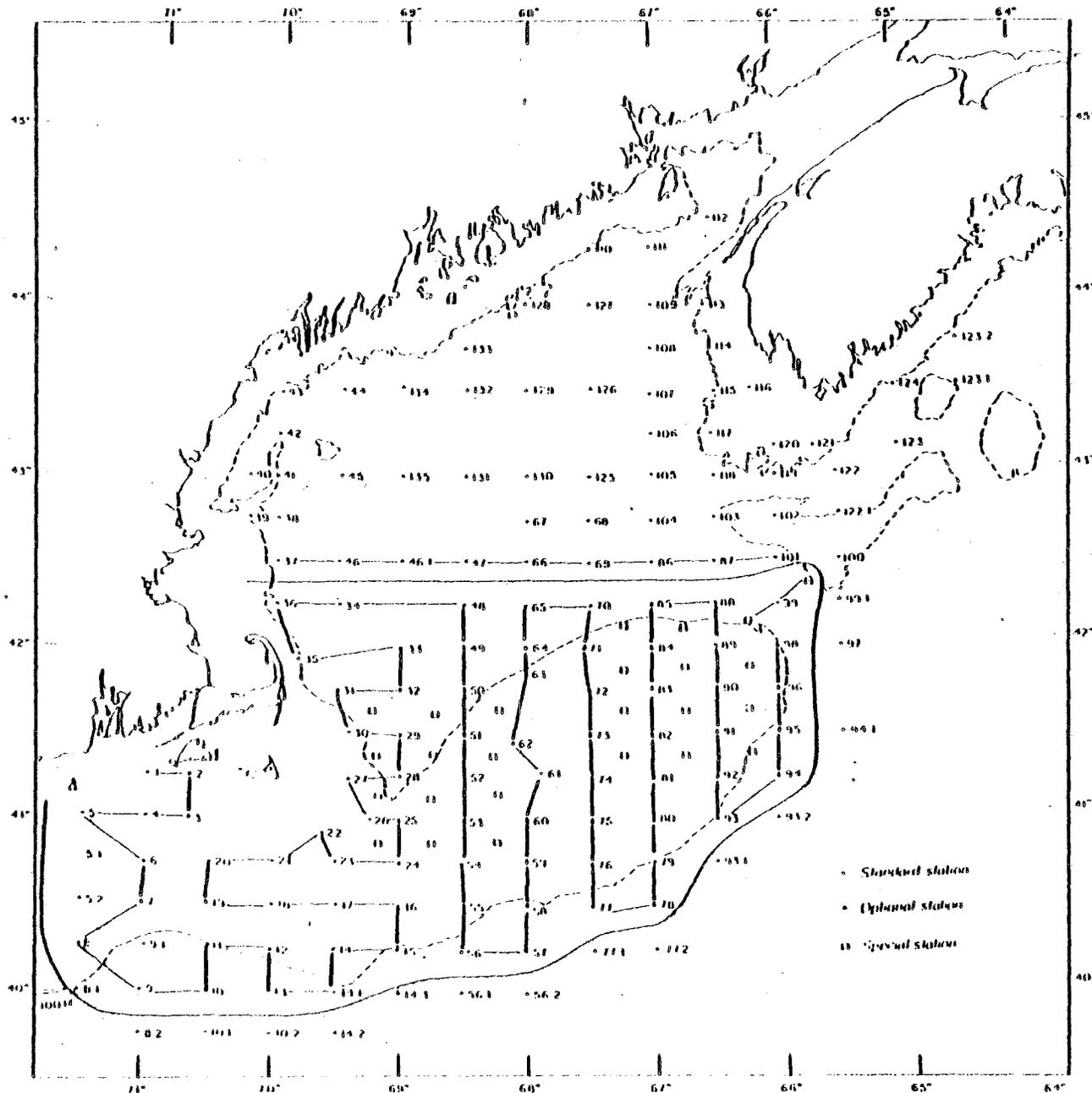
	Total		Total
ICNAF STANDARD STATIONS	<u>60</u>	SALINITY SAMPLES	<u>74*</u>
ICNAF EXTRA STATIONS	<u>2</u>	OXYGEN SAMPLES	<u> </u>
MOCNESS STATIONS	<u> </u>	NUTRIENT SAMPLES	<u> </u>
BONGO HAULS	<u>62</u>	CHLOROPHYLL SAMPLES	<u> </u>
NEUSTON HAULS	<u>59</u>	TRAWLS	<u>12</u>
XBT DROPS	<u>74</u>	LONG LINE SET	<u> </u>
BOTTLE CASTS	<u> </u>	CURRENT METERS	<u> </u>
CTD/STD CASTS	<u> </u>	DROGUE	<u> </u>
ROSETTE	<u> </u>	PRIMARY PRODUCTIVITY	<u> </u>

Remarks:

Surface temperature and salinity recorded continuously w/Thermosalinograph.

*Surface only.

D-42



D-42

DEL II 77-13

VESSEL Delaware II

CRUISE 78-01

DATES January 5-February* 11, 1978

PARTS I, II + III

DAYS AT SEA 26

STATIONS

Cruise Objective

The purposes of the cruise were to: (1) collect biological data; and (2) to determine the distribution and relative abundance of surf clams and ocean quahogs.

Scientific Personnel

Henry Jensen, Chief Scientist
 Andrew Thoms
 John Ropes
 Ronald Smolowitz
 Kris Kantola
 Loretta O'Brien
 Michael Corbett
 Parnell Lewis
 Mark Seel

Thomas Azarovitz
 Warren Handwork
 Karl Russell
 Jeffrey Floyd
 Paul Gleason
 Steve Murawski
 Kris Kantola
 Rhett Lewis

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
KBT DROPS	93	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
DREDGE TOWS	346		

Remarks:

*In port 14 Jan. and 25-30 Jan. for change of personnel.

VESSEL Delaware II

CRUISE 78-02

DATES February 14-March 13, 1978

PARTS I, II, + III

DAYS AT SEA 29

STATIONS 132

Cruise Objective

This cruise is the third of six surveys conducted annually to monitor seasonal changes in distribution and abundance of fish eggs and larvae and to collect basic primary productivity data and hydrographic information.

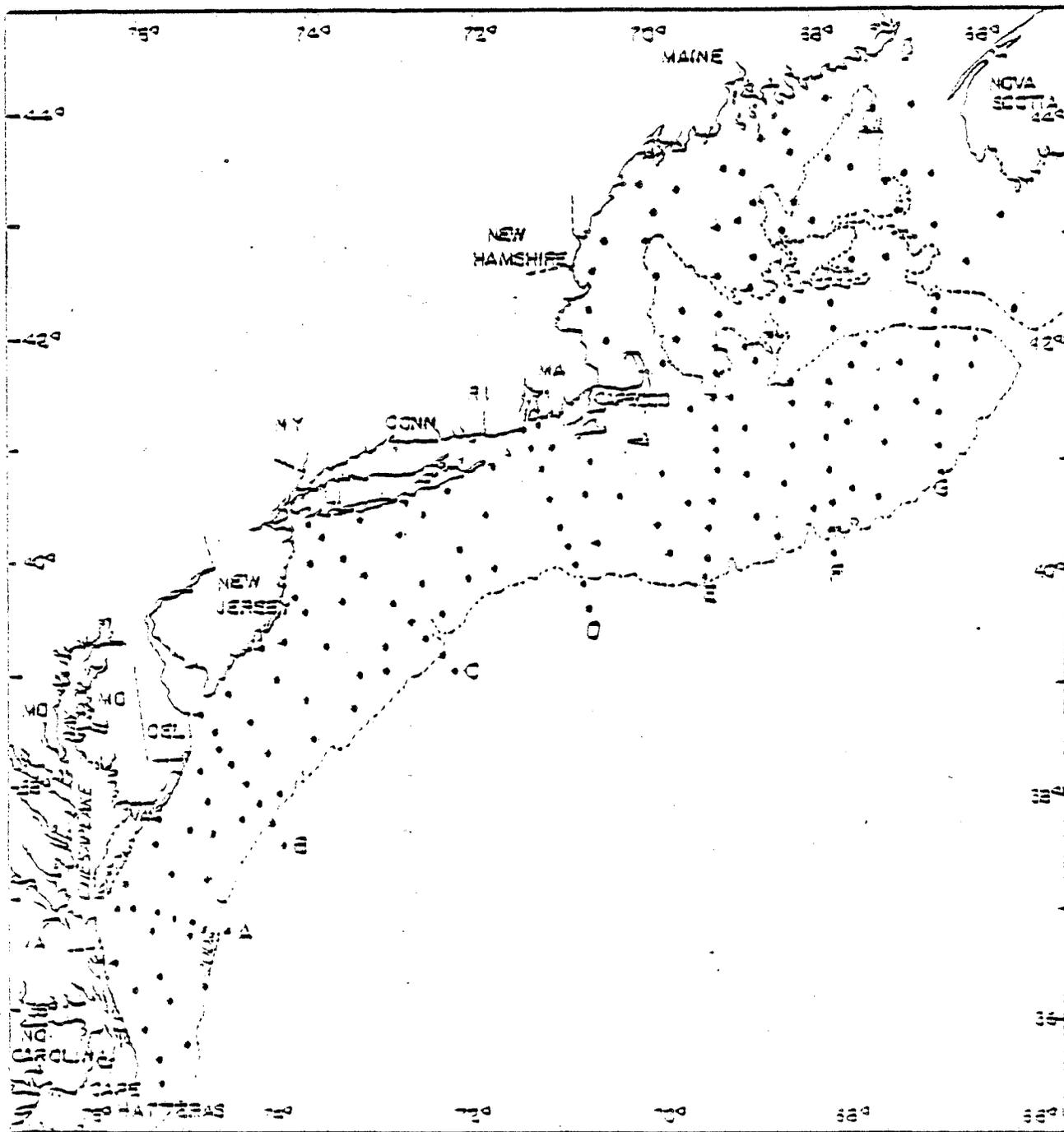
Scientific Personnel

John Sibunka (Chief Scientist)
Alyca Wells
George Flimlin
Joseph Ruane
Raymond Menell
Arthur Kendall
William Brennan

Raymond Cloutier
Timothy Cain
Daniel Patanjo
Ann Dorkins
Jerome Prezioso
Joseph Kane

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	1380
ICNAF EXTRA STATIONS	132	OXYGEN SAMPLES	218
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	159	CHLOROPHYLL SAMPLES	1106
NEUSTON HAULS	199	TRAWLS	_____
KBT DROPS	134	LONG LINE SET	_____
BOTTLE CASTS	132	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____



MAP

20-81 II 130

VESSEL Delaware II

CRUISE 78-03

DATES June 29-July 7, 1978

DAYS AT SEA 9

STATIONS 43

Cruise Objective

Monitor changes in distribution and abundance of phytoplankton, zooplankton, record hydrographic measurements, and collect basic primary productivity data in the shelf waters from the Northeast Channel to Shinnecock Inlet.

Scientific PersonnelBrookhaven National Laboratory, Upton, NY

John Walsh, Chief Scientist
 James Lofstrand, Oceanographer
 Karl Von Boch, Oceanographer
 Rowland Hautsch, Oceanographer
 Steven Howe, Oceanographer
 Andrew Stoddard, Oceanographer
 David Grill, Oceanographer
 Dennis Carlson, Oceanographer

State University of New York, Stony Brook, NY

William Behrens,
 Oceanographer
 Joseph Tokos, Oceanographer

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
XBT DROPS	48	LONG LINE SET	_____
BOTTLE CASTS	43	CURRENT METERS	_____
CTD/STD CASTS	35	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	6

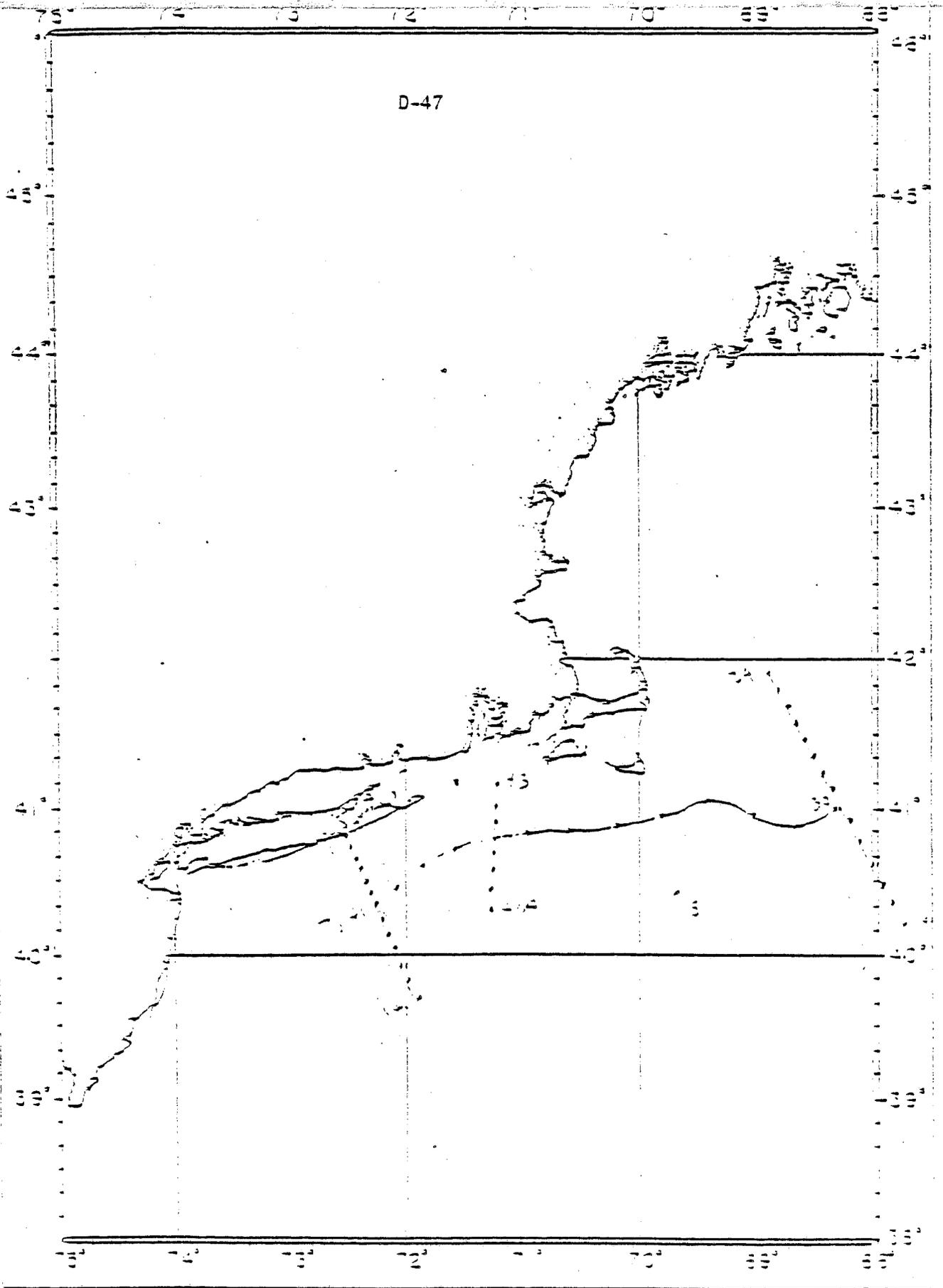


Figure 1. Cruise track for R/V DELAWARE 73-03, 19 June - 6 July 1973.

VESSEL Delaware II

CRUISE 78-04

DATES July 12-20, 1978

DAYS AT SEA 9

STATIONS 98

Cruise Objective

The objectives of the cruise were to: (1) continue a long-term study of sediments, sediment metals and benthic macrofauna of LIS; (2) examine seabed respiration at established NYB stations, and also in LIS; (3) characterize benthic macrofauna and seabed respiration at an alternate sewage sludge disposal site 60 miles east of New York Bight; (4) collect neustonic and planktonic fish eggs in LIS and NYB for mutagenics studies; (5) analyze surf clam spatfall and benthic macrofauna recolonization in the 1976 anoxia area off New Jersey; (6) collect water samples at key NYB stations for analysis of phytoplankton species composition and abundance; and (7) collect NYB sediments for a New Jersey Marine Sciences Consortium study of distribution of dinoflagellate resting spores.

Scientific Personnel

National Marine Fisheries Service,
Sandy Hook, NJ

Robert Reid, Chief Scientist
William Phoel
Thomas Wilhelm
Clyde MacKenzie
Charles Idelberger
Gregory Parker
Lori Sender
Janice Gandy

National Marine Fisheries Service,
Narragansett, RI

Eileen Flynn

National Marine Fisheries Service,
Milford, CT

Vivian Botelho

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>72</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>72</u>
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	<u>19</u>	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	<u>24</u>	TRAWLS	_____
XBT DROPS	<u>72</u>	LONG LINE SET	_____
BOTTLE CASTS	<u>72</u>	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
BOTTOM GRABS	_____	SEA BOTTOM TEMP.	<u>98</u>
Smith-MacIntyre	<u>319</u>		
CORE FROM GRAB	<u>72</u>		

VESSEL Delaware II

CRUISE 78-05

DATES July 25-August 3, 1978

PART I

DAYS AT SEA 10

STATIONS 184

Cruise Objective

The objectives of the cruise were: (1) to determine the summer distribution (from 5 to 60 fathoms) and relative abundance of fish species, especially those of recreational importance; (2) to collect biological samples and hydrographic data for associated studies; and (3) to extend the southern limit of the bottom trawl survey from Cape Hatteras to Cape Fear, NC.

Scientific PersonnelPart I

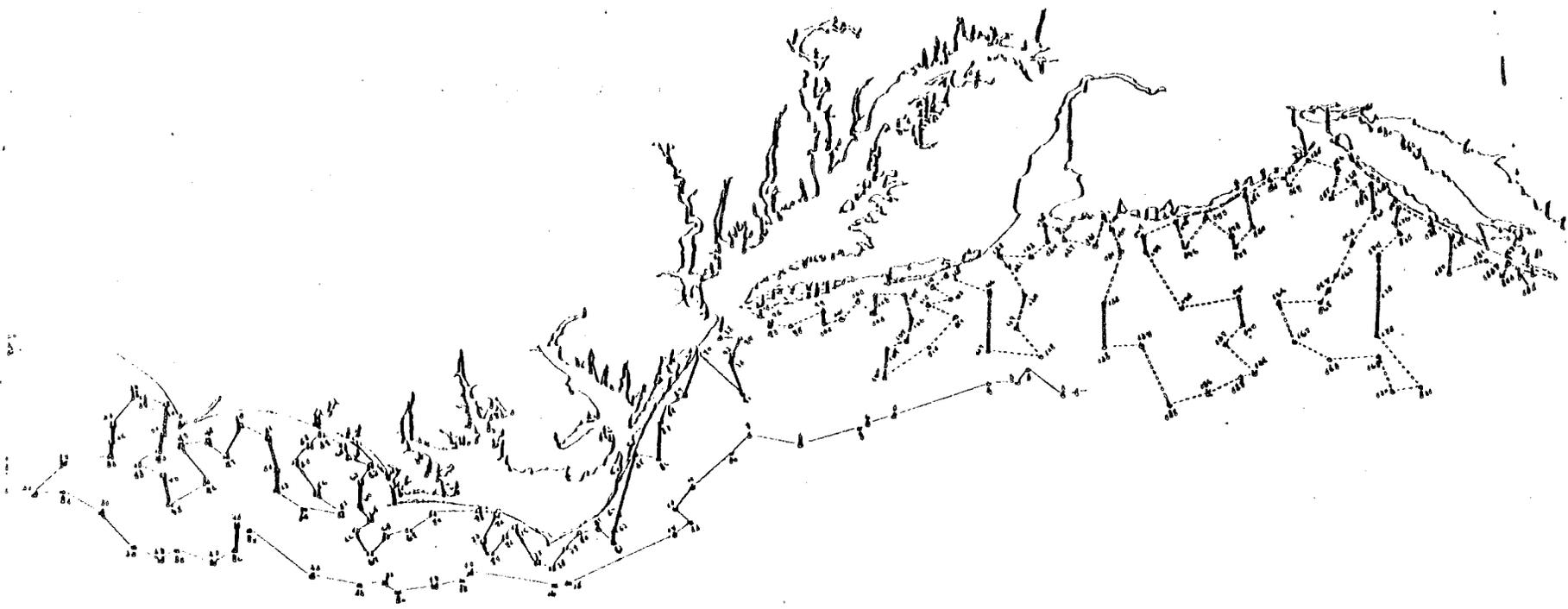
Thomas Azarovitz, Chief Scientist
 Maureen Griffin
 Joseph Fuller
 Andrews Thoms
 Eva Montiero

Darryl Christensen
 Kris Kantola
 Karen Johnson
 Steven Seldon
 Michael Campbell

Data Collected

ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
XBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
FISH SAMPLES	_____		
	<u>185</u>		<u>184</u>
	<u>Lots</u>		

THE BATHON BATTERY TRAIL SURVEY
 1. 100' - 100' - 100' - 100'
 2. 100' - 100' - 100' - 100'
 3. 100' - 100' - 100' - 100'
 4. 100' - 100' - 100' - 100'
 5. 100' - 100' - 100' - 100'
 6. 100' - 100' - 100' - 100'
 7. 100' - 100' - 100' - 100'
 8. 100' - 100' - 100' - 100'
 9. 100' - 100' - 100' - 100'
 10. 100' - 100' - 100' - 100'



VESSEL Delaware II CRUISE 78-05
 DATES August 15-20, 1978 PARTS II & III
 August 22-27, 1978 PT II
 DAYS AT SEA PT I 5, PT II 6 STATIONS 89

Cruise Objective

The purposes of the bottom trawl cruise were: to determine the summer distribution (from 5 to 60 fathoms) and relative abundance of fish species, especially those of recreational importance; and to collect biological and hydrographic samples. The purposes of the scallop dredge cruise were: to determine if the DELAWARE II could efficiently set and retrieve the scallop dredge and to compare the catches of the ALBATROSS IV using a 10-ft standard offshore scallop dredge versus the DELAWARE II using an 8-ft prototype scallop dredge.

<u>Scientific Personnel</u>	<u>Part II</u>	<u>Part III</u>
Linda Despres, Chief Scientist	X	X
William Overholtz	X	X
William Cliff	X	X
Steven Morrison	X	X
James Baker		
Lauretha Fields	X	X
Laurie Savelkoul	X	X
Lauretta O'Brien	X	X
Hillary Herring	X	
Malcolm Silverman	X	
John Messersmith	X	

Data Collected

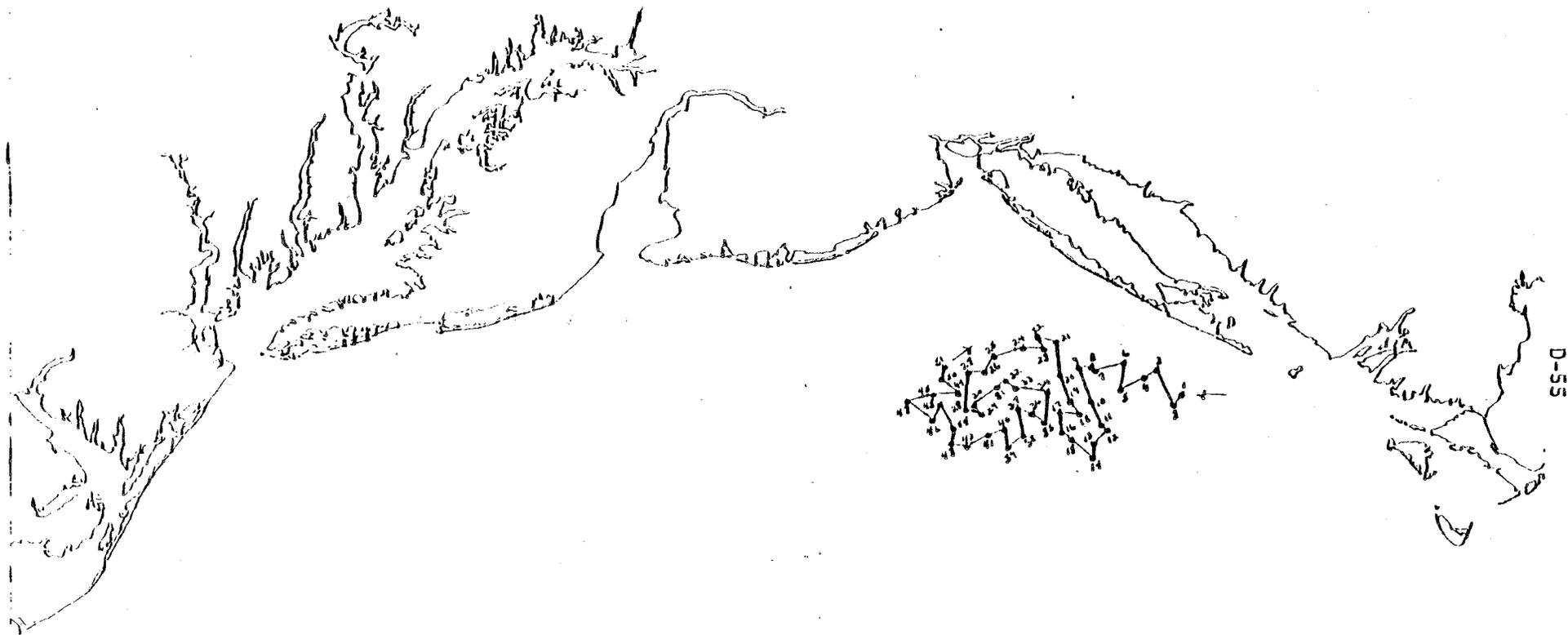
	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	89
KBT DROPS	90	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
SCALLOP DREDGE STAT	51	FISH SAMPLES	Lots

Remarks:

For Cruise Track Part II See Part I

1978 SUMMER
SCALLOP DREDGE COMPARISON SURVEY
DELAWARE II 78-05 (CODE 970)

22-27 AUG

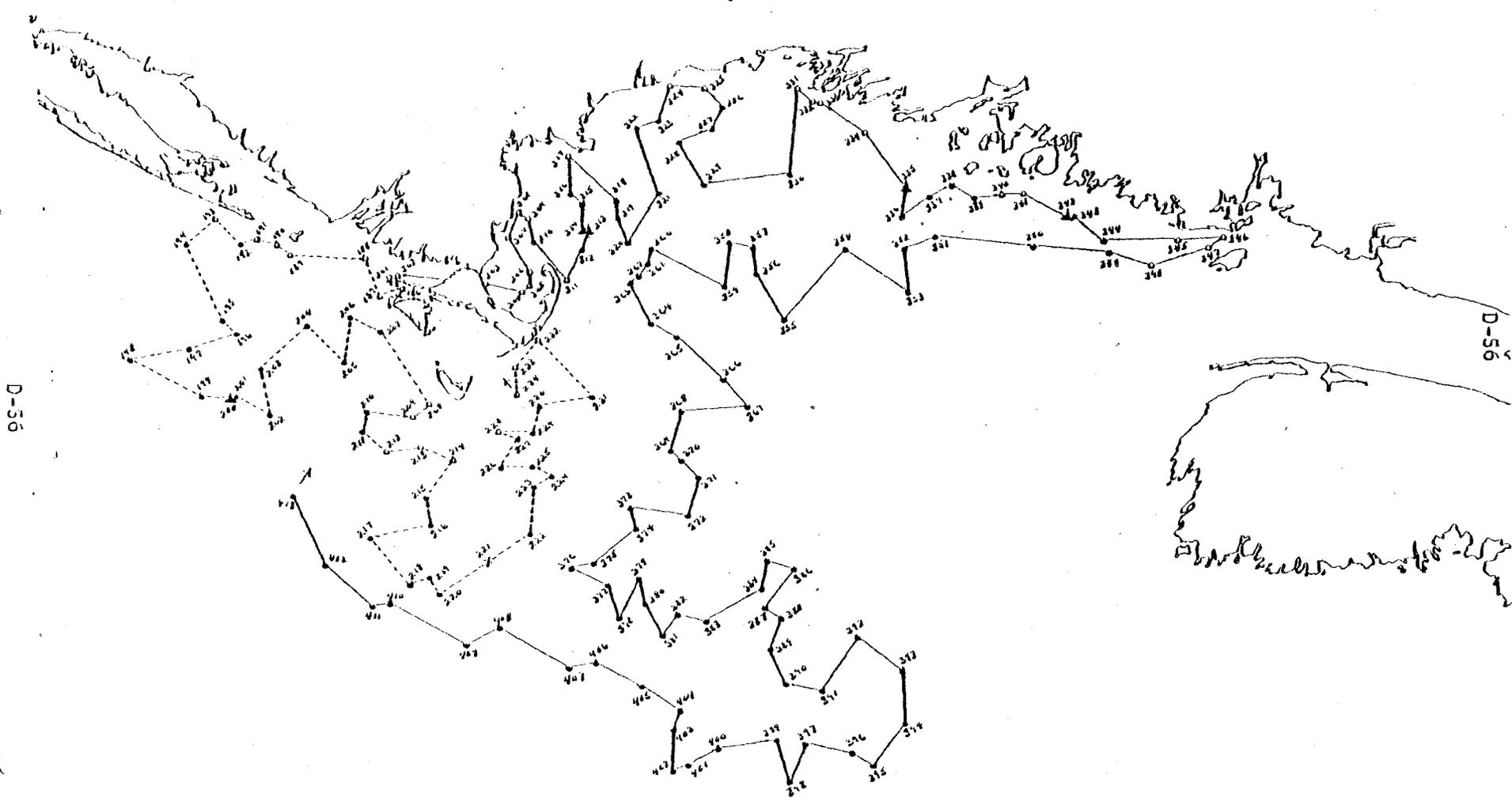


D-55

D-55

1978 SUMMER BOTTOM TRAWL SURVEY
ABRATHOSS IX 7X 09 - 31 JUL - 11 AUG (PART III)
DELAWARE II 7X 05 - 15 AUG - 20 AUG (PART IV)

- = INSHORE - CODE 78L
- = OFFSHORE - CODE 787
- x = EIT'S OTHER TRAWL ON STATION
- ▲ = TRAWLUPS



VESSEL Delaware II

CRUISE 78-06

DATES September 6-13, 1978

PART I

DAYS AT SEA 8

STATIONS 166

Cruise Objective

The objectives of the cruise were: (1) to determine the distribution and relative abundance of fish species; (2) to collect biological samples; and (3) to collect hydrographical and meteorological samples and data. Collections of fish samples were planned for the study of age and growth relationships, fecundity, maturity, and specialized research by interested scientists.

Scientific PersonnelLinda Despres, Chief Scientist Ohio State Univ., Columbus, OH

Andrew Thoms

Eva Montiero

Thomas Johnston

Harold Foster

John Rupert

Kristina Kantola

James O'Connell

Laurie Savelkoul

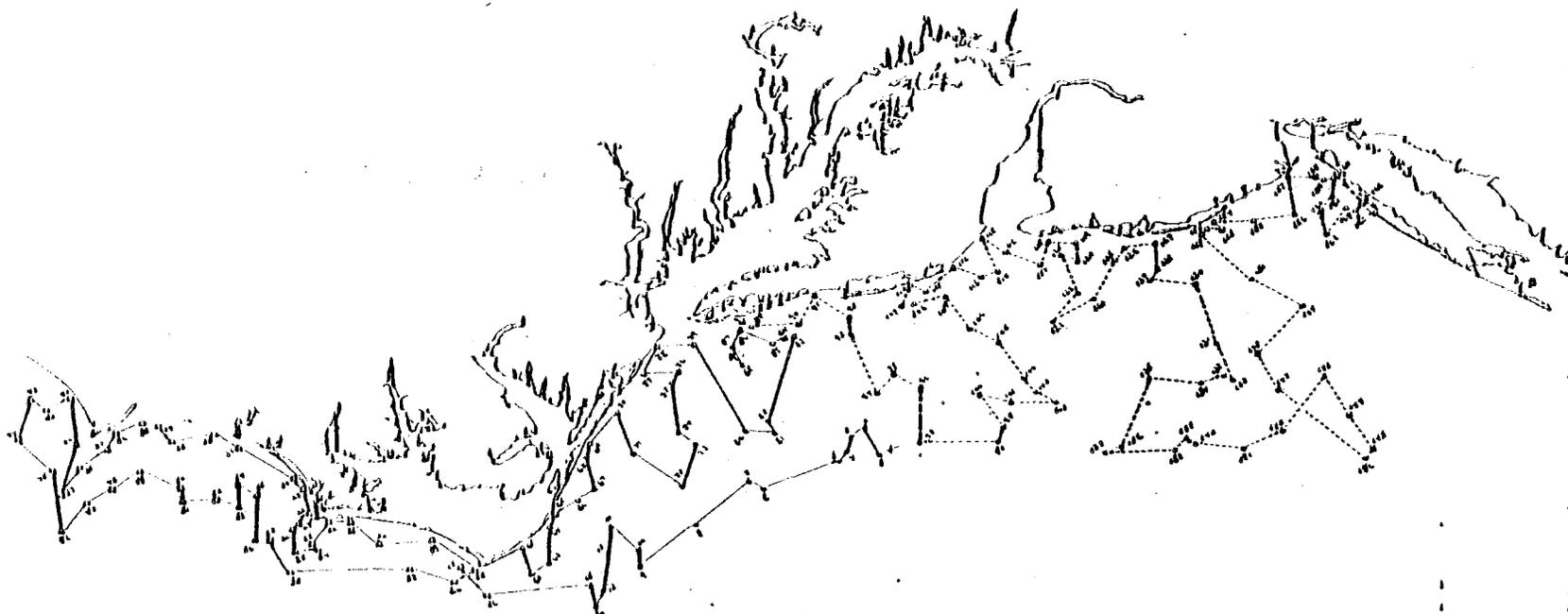
John Nicolas

Data Collected

ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>166</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	<u>166</u>
NET DROPS	<u>166</u>	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
FISH SAMPLES	<u>1872</u>		

1930 FALL SURVEY TRAIL SURVEY
DISTANCE 1/2 TO 1/4 (PART I)
S-20 (S.P. 1100 (1))
S-22 (S.P. 1100 (1))

10 MEASURED LENGTH OF TRAIL SEGMENT - 1000
10 MEASURED LENGTH OF TRAIL SEGMENT - 1000
10 MEASURED LENGTH OF TRAIL SEGMENT - 1000



D-538

VESSEL Delawara II CRUISE 78-06
 DATES September 25-October 6, 1978 PART II
 DAYS AT SEA 12 STATIONS 110

Cruise Objective

The objectives of the cruise were: (1) to determine the fall distribution and relative abundance of fish species; (2) to collect biological samples; and (3) to collect hydrographical and meteorological samples and data. Collections of fish samples were taken for the study of age and growth relationships, fecundity, maturity, food habits, and special collections for interested scientists.

Scientific Personnel

NMFS, NEFC, Woods Hole, MA

Malcolm Silverman, Chief Scientist
 John Nicolas
 Kathy Rodriguez
 Frank Bailey
 Brenda Figuerido
 Laurretta O'Brien
 Joseph Wade

NMFS, NEFC, Sandy Hook, NJ

John Ziskowski

BLM, New York, NY

Dean Parsons

VIMS, Gloucester Point, VA

Rebecca Bowles

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>122</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MCGNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	<u>110</u>
KBT DROPS	<u>122</u>	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
FISH SAMPLES	<u>1100</u>		

VESSEL Delaware II CRUISE 78-06
 DATES October 10-20, 1978 PART III
 DAYS AT SEA 10 STATIONS 104

Cruise Objective

The objectives of the cruise were: (1) to determine the fall distribution and relative abundance of fish species; (2) to collect biological samples; and (3) to collect hydrographical and meteorological samples and data. Collections of fish samples were taken for the study of age and growth relationships, fecundity, maturity, and specialized research by interested scientists.

Scientific PersonnelNMFS, NEFC, Woods Hole Laboratory

Charles Byrne, Chief Scientist
 John Messersmith
 Ambrose Jearld
 Cathy Raarden
 Evelyn Howe
 Brian Hayden
 Brenda Fields

NMFS, NEFC, Sandy Hook Laboratory

Wallace Morse

NMFS, NEFC, Narragansett Laboratory

Mary Braisted

NOAA, EDIS, Woods Hole MA

George Haimerding

Data Collected

ICNAF STANDARD STATIONS	_____	Total	_____
ICNAF EXTRA STATIONS	_____	SALINITY SAMPLES	104
MOCNESS STATIONS	_____	OXYGEN SAMPLES	_____
BONGO HAULS	_____	NUTRIENT SAMPLES	_____
NEUSTON HAULS	_____	CHLOROPHYLL SAMPLES	_____
KBT DROPS	104	TRAWLS	104
BOTTLE CASTS	_____	LONG LINE SET	_____
CTD/STD CASTS	_____	CURRENT METERS	_____
ROSETTE	_____	DROGUE	_____
FISH SAMPLES	3144	PRIMARY PRODUCTIVITY	_____

VESSEL Delaware II

CRUISE 78-06

DATES October 24-November 3, 1978

PART IV

DAYS AT SEA 10

STATIONS

Cruise Objective

The purposes of the cruise were: to determine the fall distribution and relative abundance of fish species; to collect biological hydrographic, and ichthyoplankton samples.

Scientific PersonnelNMFS, NEFC, Woods Hole MA

Linda Despres, Chief Scientist
Harold Foster
Hillary Herring
John Nicolas
Patricia Carter
James Baker
Gary Shepherd
Joan Palmer

Maine Dept. of Marine Resources

Michael Hogan

Chatham Sea Food Co-Operative

Jay Lanzillo

Data Collected

ICNAF STANDARD STATIONS	_____	Total	_____
ICNAF EXTRA STATIONS	_____		
MOCNESS STATIONS	_____		
BONGO HAULS	_____	9	
NEUSTON HAULS	_____	9	
KBT DROPS	_____	73	
BOTTLE CASTS	_____		
CTD/STD CASTS	_____		
ROSETTE	_____		
FISH SAMPLES	_____	Lots	
			Total
			73*

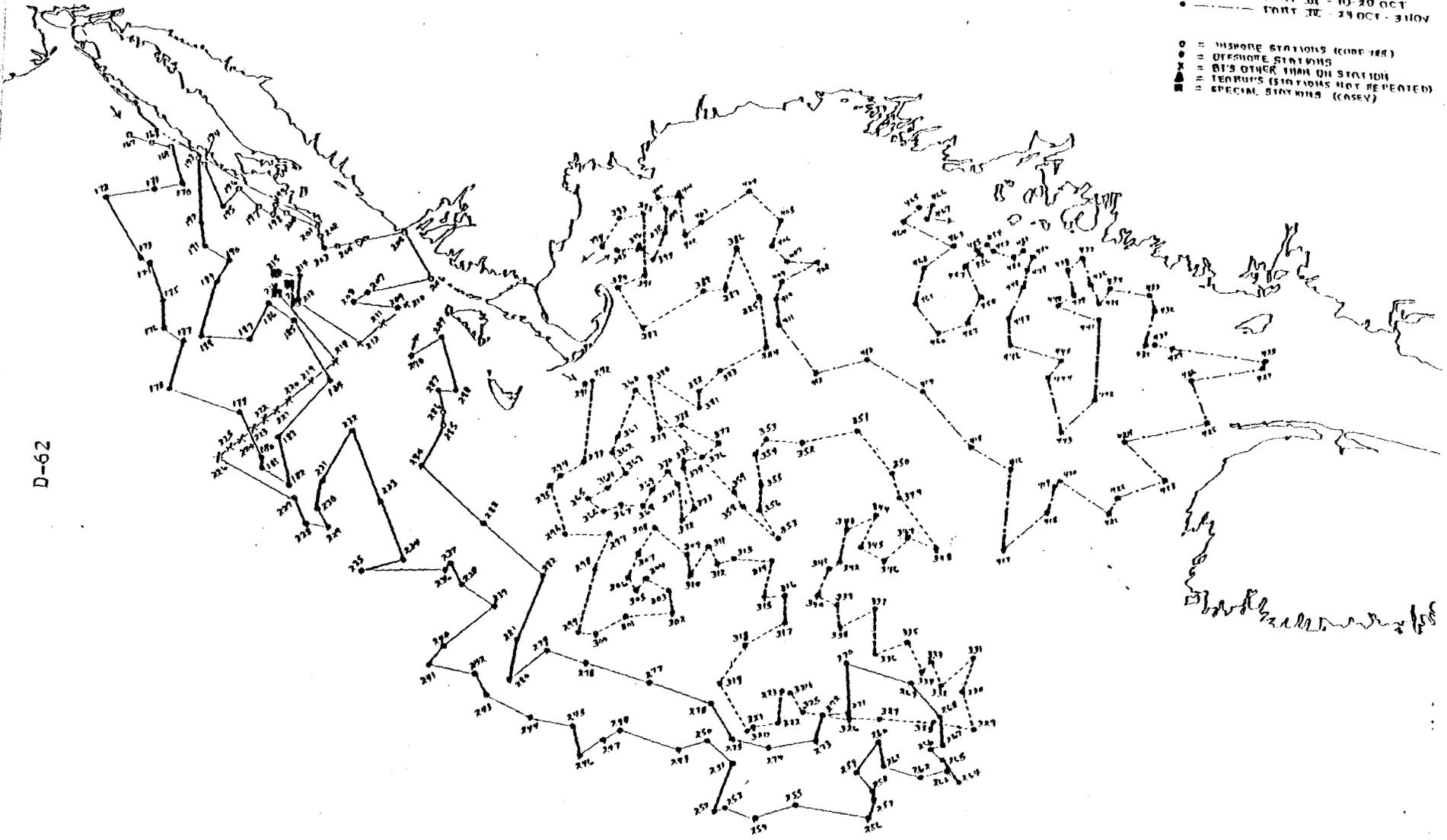
Remarks:

*Surface only.

DELAWARE II TR-06 (CONT)
 1978 FALL BOTTOM TRAWL SURVEY

- = PORT II - 25 SEP - 6 OCT
- = PORT III - 10 - 20 OCT
- = PORT IV - 24 OCT - 3 NOV

- = INSHORE STATIONS (CODE 188)
- = OFFSHORE STATIONS
- ⊗ = BT'S OTHER THAN ON STATION
- ▲ = TENDERS (STATIONS NOT REPEATED)
- = SPECIAL STATIONS (CASEY)



D-62

D-62

VESSEL Delaware II

CRUISE 78-06

DATES November 7-22, 1978

PART V

DAYS AT SEA 15

STATIONS 115

Cruise Objective

The objectives were to determine the fall distribution and relative abundance of fish species; and to collect biological, hydrographic, and ichthyoplankton samples.

Scientific Personnel

Henry Jensen, Chief Scientist

NMFS, NECF, Oxford, MD

Eva Montiero

John Messersmith

John Ziskowski

Frank Almeida

Jim O'Connell

Maine Dept. Sea & Shore Fisheries.

Laurie Savalkoul

Boothbay Harbor, MENMFS, NEFC, Sandy Hook NJ

Michael Dunton

Wallace Morse

Guardian Newspaper, New York, NY

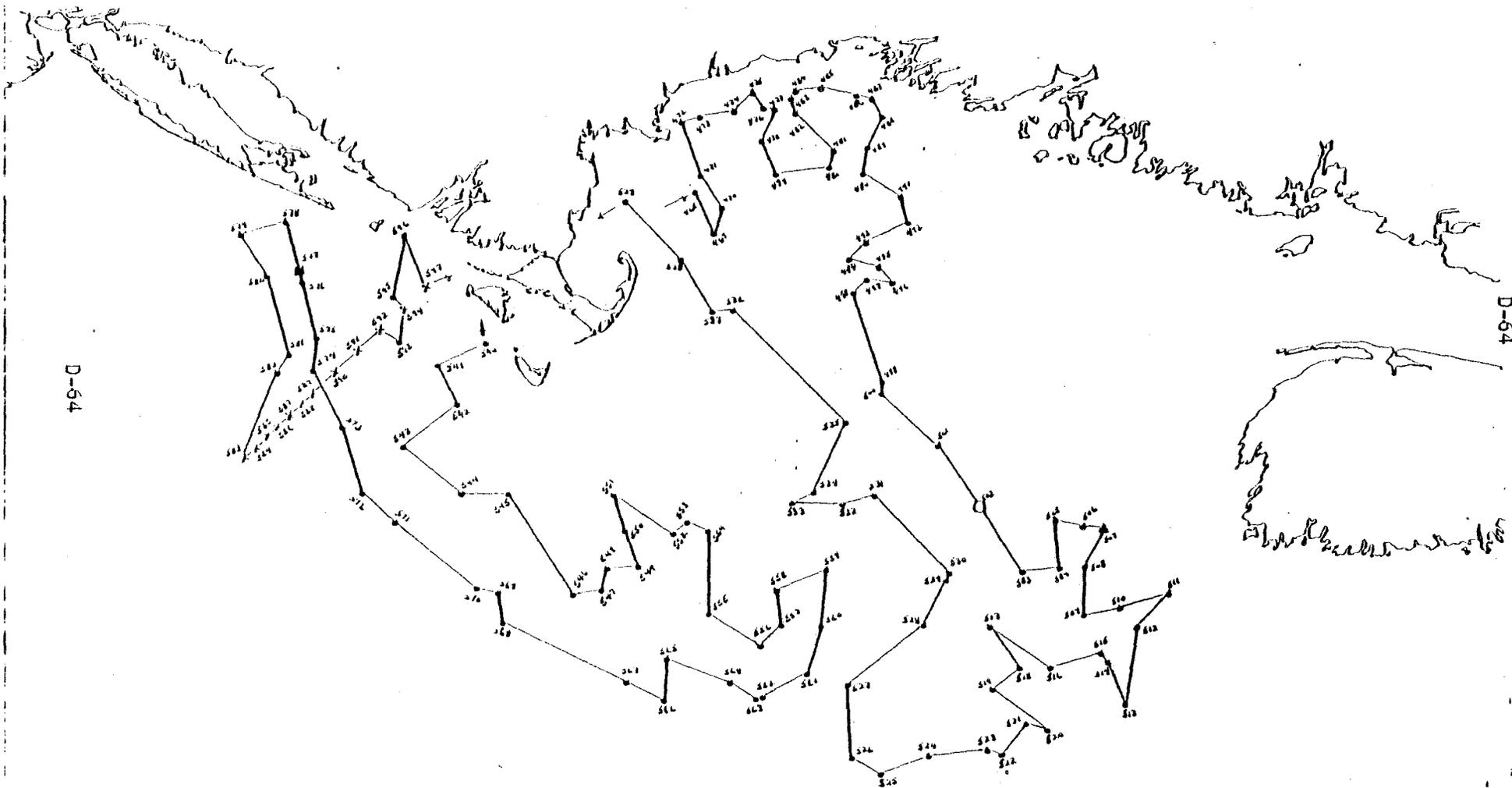
John Sackton

Data Collected

ICNAF STANDARD STATIONS	Total	SALINITY SAMPLES	Total
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	129
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS .505 .333	5	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	5	TRAWLS	115
KBT DROPS	129	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
FISH SAMPLES	Lots		

DELAWARE III 78-04-31 (CODE 784)
1978 FALL BOTTOM TRAWL SURVEY
7-22 NOV

- ▲ = TRAWL (STATION NOT REPEATED)
- X = BT'S OTHER TRAWL ON STATION
- ⊖ = SPECIAL STATION (LEAK TEST)
- = PLANKTON STATION



VESSEL Delaware II

CRUISE 78-07

DATES December 2-21, 1978

DAYS AT SEA 19

STATIONS 163

Cruise Objective

The principal objectives of the cruise were to determine the relative abundance of surf clams, Spisula solidissima, and ocean quahogs, Arctica islandica, although populations of southern hard clams, Mercenaria campechiensis, and sea scallops, Placopecten magellanicus, were also sampled. Additional observations were made on several species of true crabs (Cancer spp., Ovalipes spp.), and horseshoe crabs, Limulus polyphemus.

Scientific Personnel

Eastern Nazarene College,
Quincy MA

James Bolton
James White
Edith Angell

NMFS, NEFC, Woods Hole, MA.

Steven Murawski, Chief Scientist
Paul Wood
John Ropes
Roger Clifford
Joseph Wade

Manomet Bird Observatory,
Manomet, MA

Andrew McLachlan

Northern Michigan University,
Marquette, MI

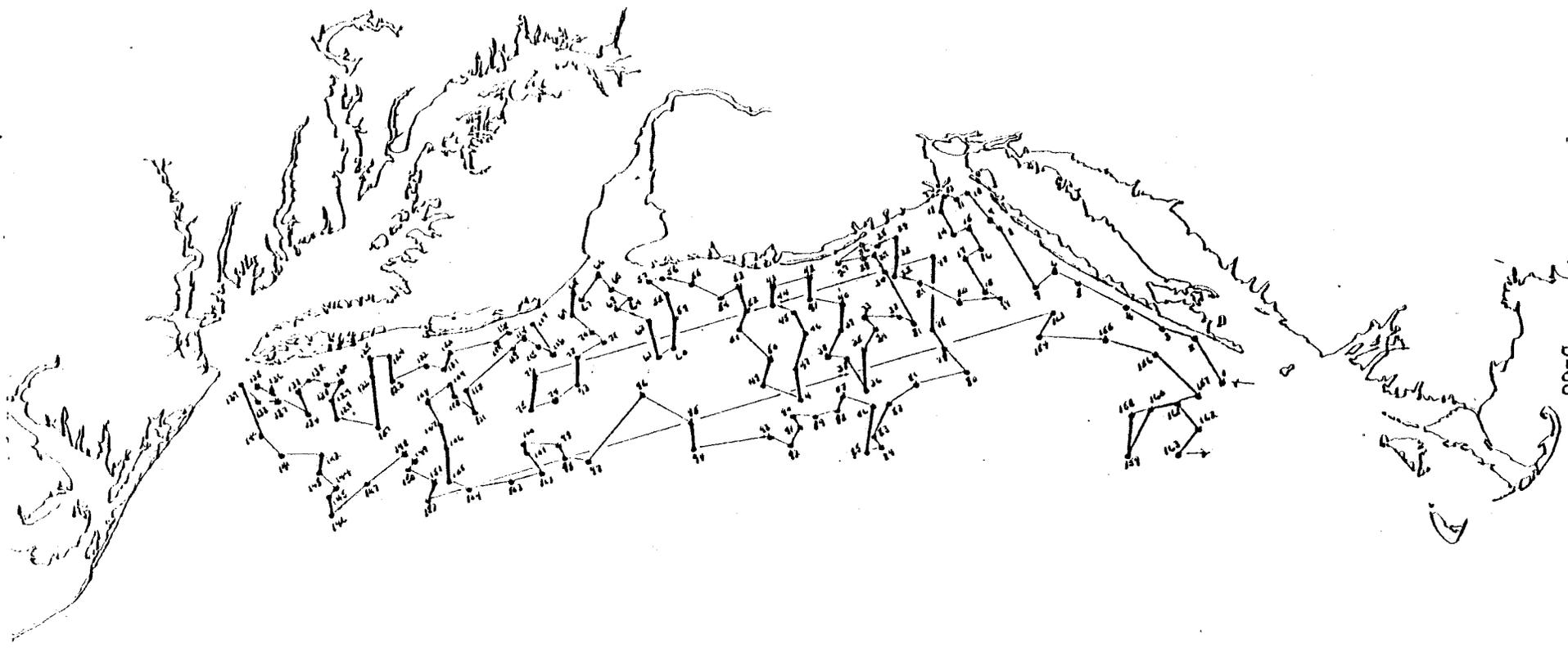
Susan Pilling

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
XBT DROPS	48	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
FISH SAMPLES	_____	DREDGE PUMPING SYSTEM	163

DELAWARE II 78-07 (CODE 874)
1978 WINTER CLAM SURVEY
5-20 DEC

D-56



D-66

VESSEL Delaware II

CRUISE 79-01

DATES January 4, 1979

PART I

DAYS AT SEA 1

STATIONS 3

Cruise Objective

Three test dredge tows were made. The basic dredge operation operation was successfully tested including the ability to slow the ship to the desired 1.5 knots. The length of towing hawser put out was equal to three times the water depth. The 5-ft wave height encountered was determined to be about the maximum at which this gear could be safely launched and retrieved. Electricity to the water pump was turned on when the dredge was on the bottom and turned off when the dredge left the bottom. A current of 90 amps was maintained by one of the vessel's generators. Chafing of the electric cable against the side of the stern ramp occurred and was corrected by moving the pulley directly over the center of the ramp. Approximately 20 feet of damaged wire was cut off and canvas was wrapped around the first 30 feet to guard against further chafing. Several side boards were added to the sorting table to help retain the catch.

Scientific Personnel

Henry Jensen

Michael Sissenwine

Tom Azarovitz

Ron Smolowitz

James Crossen

Michael Corbett

Ambrose Jearld

John Kennedy

Steve Murawski

Vernon Nulk

John Ropes

Raymond Parsons

Albert Soderland

Charles Mortimer

Fred Serchuk

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
IBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CMD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
FISH SAMPLES	_____	HYDRAULIC CLAM DREDGE	3

VESSEL Delaware II

CRUISE 79-01

DATES January 5-9, 1979

PART II

DAYS AT SEA 4

STATIONS 49

Cruise Objective

The purposes of the cruise were: (1) to test, and gain proficiency using the new shellfish assessment 60-inch dredge; (2) to determine the distribution and relative abundance of surf clams and ocean quahogs; and (3) to collect biological data. An additional objective of obtaining hydrographic samples for the Ocean Pulse study was initiated during the last part.

Scientific Personnel

Henry Jensen
James Crossen
Robert Flynn
Harold Foster
James Kirkley

John Messersmith
Malcolm Silverman
Ronald Smolowitz
Andrew Thoms
Vernon Nulk

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
XBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
FISH SAMPLES	_____	HYDRAULIC CLAM DREDGE	49

VESSEL Delaware II

CRUISE 79-01

DATES January 11-12, 1979

PART III

DAYS AT SEA 2

STATIONS 13

Cruise Objective

The purposes of the cruise were: (1) to test, and gain proficiency using the new shellfish assessment 60-inch dredge; (2) to determine the distribution and relative abundance of surf clams and ocean quahogs; and (3) to collect biological data. An additional objective of obtaining hydrographic samples for the Ocean Pulse study was initiated during the last part.

Scientific Personnel

Henry Jensen
James Crossen
Robert Flynn
John Messersmith
Ron Smolowitz
Andy Thoms
Vernon Nulk

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CELOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
XBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
FISH SAMPLES	_____	HYDRAULIC CLAM DREDGE	<u>13</u>

VESSEL Delaware II

CRUISE 79-01

DATES January 15-19, 1979

PART IV

DAYS AT SEA 4

STATIONS 20

Cruise Objective

The purposes of the cruise were: (1) to test, and gain proficiency using the new shellfish assessment 60-inch dredge; (2) to determine the distribution and relative abundance of surf clams and ocean quahogs; and (3) to collect biological data. An additional objective of obtaining hydrographic samples for the Ocean Pulse study was initiated during the last part.

Scientific Personnel

Henry Jensen
Charles Byrne
Jeffrey Floyd
Harold Foster
Hillary Herring

John Messersmith
Jeffrey Mills
Loratta O'Brien
Karl Russell
Andy Thoms

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
XBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CMD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
FISH SAMPLES	_____	HYDRAULIC CLAM DREDGE	20

VESSEL Delaware II

CRUISE 79-01

DATES January 22-February 1, 1979

PART V

DAYS AT SEA 11

STATIONS

Cruise Objective

The purposes of the cruise were: (1) to test, and gain proficiency using the new shellfish assessment 60-inch dredge; (2) to determine the distribution and relative abundance of surf clams and ocean quahogs; and (3) to collect biological data. An additional objective of obtaining hydrographic samples for the Ocean Pulse study was initiated during the last part.

Scientific Personnel

Henry Jensen
Pat Carter
James Crossen
Harold Foster
Ambrose Jearld

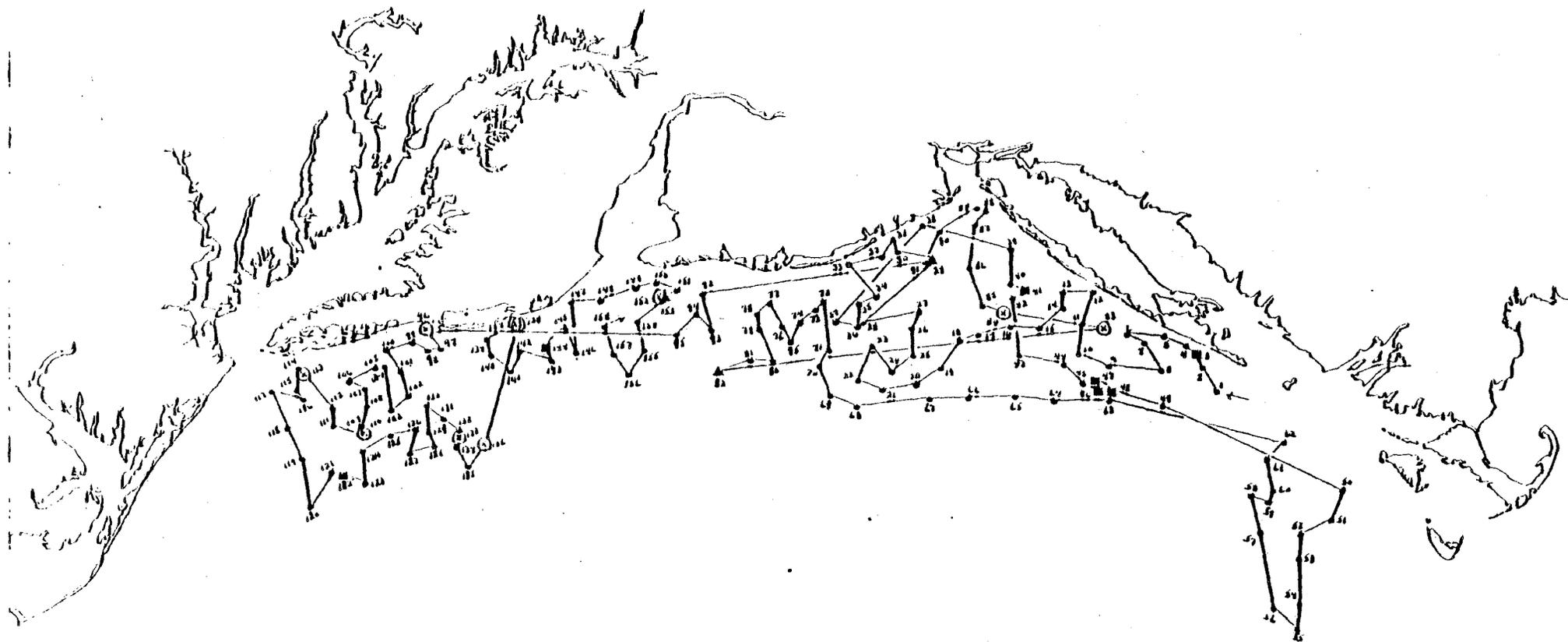
John Messersmith
Loretta O'Brien
Karl Russell
Andy Thoms
Steve Ward

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	128
NEUSTON HAULS	_____	TRAWLS	_____
XBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	10	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	10
FISH SAMPLES	_____	HYDRAULIC CLAM DREDGE	66

DELAWARE II 74-01 (CODE 741)
1974 WINTER CLAM SURVEY
7-31 JANUARY

● = RANDOM STATIONS
■ = NON-RANDOM STATIONS
○ = HYDRO CASTS
▲ = GEAR MALFUNCTION
X = YOT'S



D-72

D-72

VESSEL Delaware II

CRUISE 79-02

DATES February 13-16, 1979

DAYS AT SEA 3

STATIONS 4

Cruise Objective

The objective was to continue the series of periodic monitoring measurements and collections as part of the NEFC's Ocean Pulse Program.

Scientific PersonnelNMFS, NEFC, Sandy Hook, NJ

Frank Steimle, Chief Scientist
David Radosh
Andrew Draxler
Stephen Ward
Susan Barker

NMFS, NEFC, Milford, CT

Margaret Dawson
Jennifer Hauser
Mary Grojean
Guy Spinelli

N.Y. Zoological Society,
Osborn Lab., Brooklyn, NY

Peter Burn

Data Collected

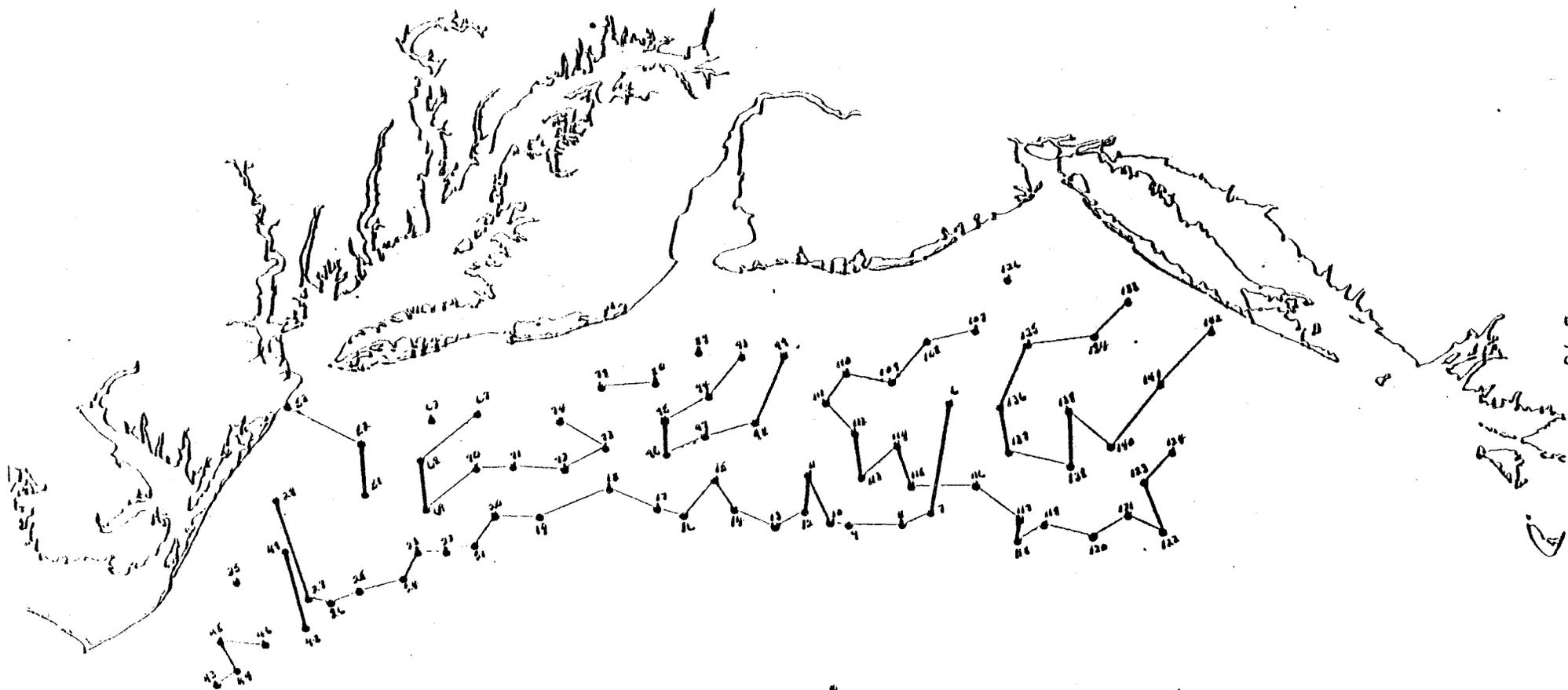
	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____ 2	CHLOROPHYLL SAMPLES	_____ 38
NEUSTON HAULS	_____ 2	TRAWLS	_____ 4
XBT DROPS	_____ 3	LONG LINE- SET	_____
BOTTLE CASTS	_____ 3	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____ 60
FISH SAMPLES	_____	SMITH-MCINTYRE GRAB	_____ 12
CRAB DREDGE	_____ 2		

Data Collected

	<u>Total</u>	<u>Total</u>		<u>Total</u>	<u>Total</u>
	<u>Part I</u>	<u>Part II</u>		<u>Part I</u>	<u>Part II</u>
ICNAF STANDARD STATIONS	_____	_____	SALINITY SAMPLES	<u>557</u>	<u>367</u>
ICNAF EXTRA STATIONS	_____	_____	OXYGEN SAMPLES	<u>141</u>	<u>120</u>
MOCNESS STATIONS	_____	_____	NUTRIENT SAMPLES	_____	_____
BONGO HAULS	<u>93</u>	<u>41</u>	CHLOROPHYLL SAMPLES	<u>1051</u>	<u>681</u>
NEUSTON HAULS	<u>91</u>	<u>42</u>	TRAWLS	_____	_____
MOCNESS HAULS	_____	_____	LONG LINE SET	_____	_____
XBT DROPS	<u>22</u>	<u>19</u>	CURRENT METERS	_____	_____
BOTTLE CASTS	<u>76</u>	<u>35</u>	DROGUE	_____	_____
CTD/STD CASTS	_____	_____	PRIMARY	_____	_____
ROSETTE	_____	_____	PRODUCTIVITY	<u>16</u>	<u>7</u>
FISH SAMPLES	_____	_____	SECCI DISC	<u>31</u>	<u>17</u>

DELAWARE II 77-03 (CODE 771)
SPRING BOTTOM TRAWL SURVEY
MAR 19 - APR 8, 1977

130



D-76

D-10

VESSEL Delaware II

CRUISE 79-04

DATES March 20-April 6, 1979

PART I

DAYS AT SEA 18

STATIONS 147

Cruise Objective

The objectives of the cruise were to determine the spring distribution and relative abundance of fish species and to collect biological and hydrographic samples.

Scientific PersonnelNMFS, NEFC, Woods Hole, MA

Thomas Azarovitz, Chief Scientist

Hillary Herring

Linda Despres

Karl Russell

Eva Montiero

Richard Brodeur

John Nicolas

Maureen Griffin

NMFS, NEFC, Sandy Hook, NJ

Wallace Morse

University of Maine, Walpole, ME

John Eaton

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	147 surf. only
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	147
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	147	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
FTD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____	HERRING TAGGING	_____

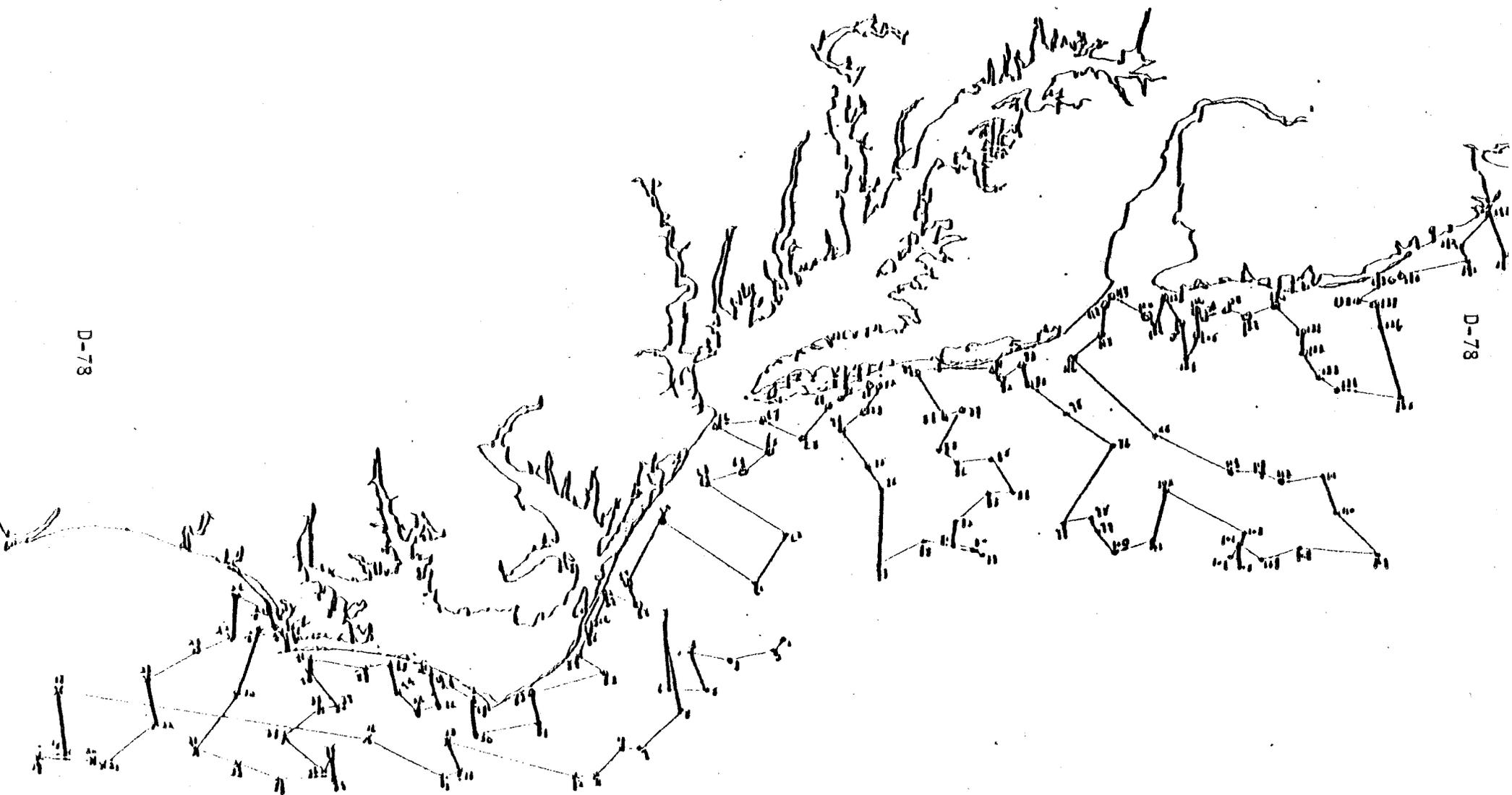


Figure 1. Station locations and cruise track for DE II Cruise 79-04 (I), Spring Bottom Trawl Survey during 20 March-6 April 1979. □ & ○ - Inshore stations, X & ● - offshore stations.

VESSEL Delaware II

CRUISE 79-04

DATES April 11-20, 1979

PARTS II

DAYS AT SEA 19

STATIONS 177

Cruise Objective

The objectives of the cruise were: (1) to determine the spring distribution and relative abundance of fish species; (2) to investigate the distribution and abundance of larval and juvenile fishes collected by 61 cm bongo nets and neuston nets at selected stations in the survey area; (3) to collect biological samples; (4) to collect hydrographic and meteorological samples and data; and (5) to participate in Large Area Marine Productivity Experiment (LAMPEX). Fish samples were taken for the study of age and growth relationships, fecundity, maturity, and food habits. Special collections were made for various scientists.

Scientific PersonnelNMFS, NEFC, Woods Hole, MA

Malcolm Silverman, Chief Scientist
Steven Murawski
Andrew Thoms
Patricia Carter
Dana Temple
John Nicolas*

NMFS, NEFC, Narragansett, RI

Carolyn Griswold
Joseph Kane

NMFS, NEFC, Milford, CT

James Hughes

NMFS, NEFC, Sandy Hook, NJ

Doris Finan

Darien H. S., Darien, CT

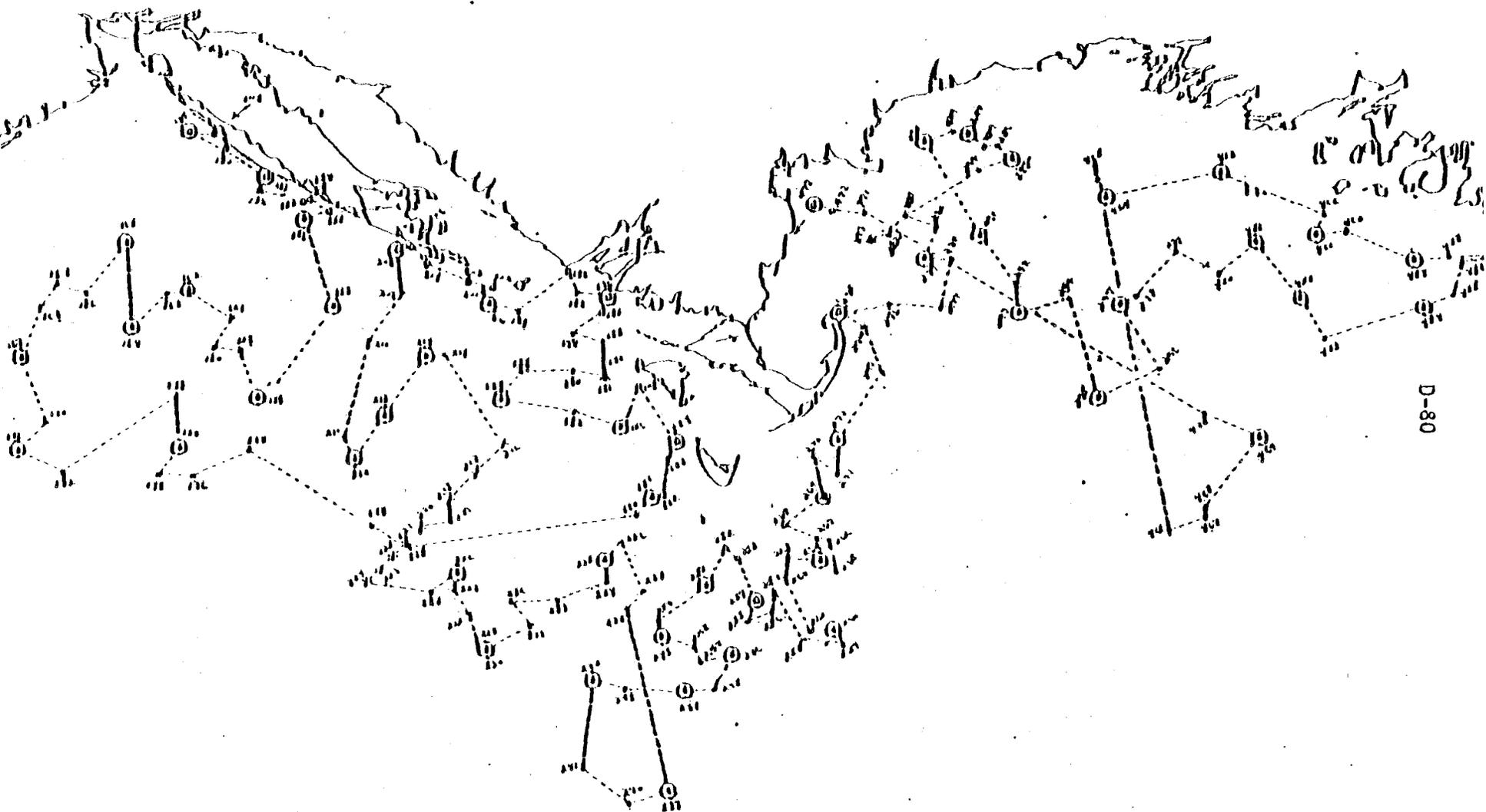
Rebecca Nagel

*replaced Andrew Thoms at Portland, ME.

11 Apr - 30 Apr

- o - Apulona - Code 192
- y - allahona - Code 193
- - plankton
- x - XBI's other than on station
- △ - testups

D-80



D-80

Figure 1. Station locations and cruise track for DELAWARE 11 Cruise 79-04 (11), during 11-30 April 1979.

VESSEL Delaware II

CRUISE 79-05

DATES 4-15; 17-29 May 1979

PARTS I & II

DAYS AT SEA 12; 13

STATIONS 77; 98

Cruise Objective

This cruise is the fourth of six surveys conducted annually to monitor seasonal changes in distribution and abundance of fish eggs and larvae, zooplankton, and phytoplankton, and to collect oceanographic information and primary productivity data.

Scientific PersonnelNational Marine Fisheries Service, NEFC, Sandy Hook, NJ

John Sibunka, Chief Scientist	Parts I and II
Peter Berrien	Parts I and II
Susan Barker	Parts I and II
William Hogelin	Parts I and II
Jay O'Reilly	Part I
Myron Silverman	Part I
Cindy Obenchain	Part II
Alyce Wells	Part II

National Marine Fisheries Service, NEFC, Woods Hole, MA

Thomas Laughton	Parts I and II
Daniel Patanjo	Parts I and II
Janet Murphy	Part I
William Brennan	Part I

National Marine Fisheries Service, NEFC, Narragansett, RI

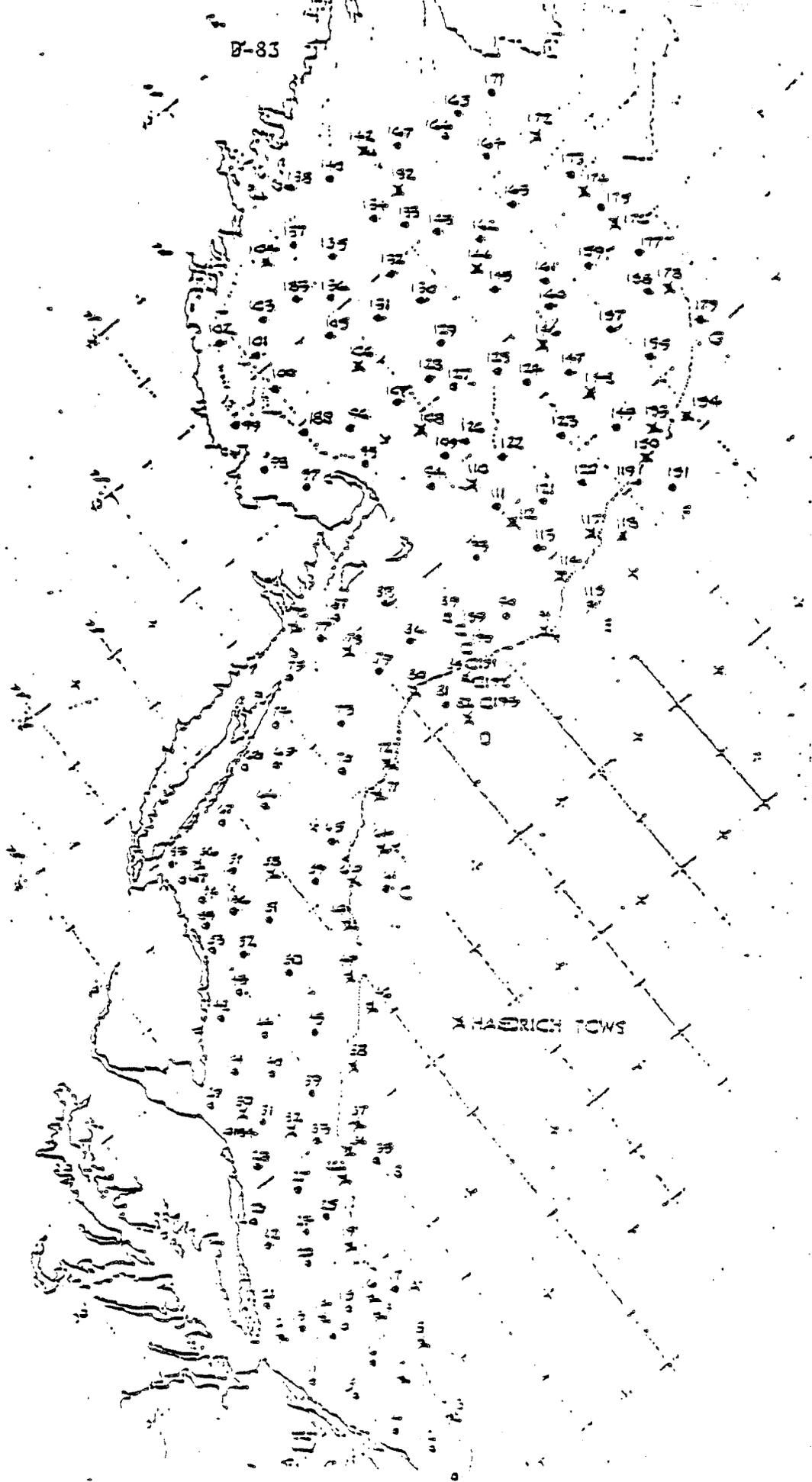
Christopher Powell	Part II
--------------------	---------

Drew University, Madison, NJ

Elizabeth Alleman	Part II
-------------------	---------

Data Collected

	<u>Part I</u>		<u>Part II</u>	
	<u>Total</u>	<u>Total</u>	<u>Total</u>	<u>Total</u>
ICNAF STANDARD STATIONS	_____	_____	SALINITY SAMPLES	<u>597</u> <u>994</u>
ICNAF EXTRA STATIONS	_____	_____	OXYGEN SAMPLES	<u>224</u> <u>469</u>
MOCNESS STATIONS	_____	_____	NUTRIENT SAMPLES	<u>224</u> <u>342</u>
BONGO HAULS	<u>76</u>	<u>94</u>	CHLOROPHYLL SAMPLES	<u>1138</u> <u>1741</u>
NEUSTON HAULS	<u>76</u>	<u>94</u>	TRAWLS	_____
MOCNESS HAULS	_____	_____	LONG LINE SET	_____
XBT DROPS	<u>20</u>	<u>40</u>	CURRENT METERS	_____
BOTTLE CASTS	<u>78</u>	<u>98</u>	DROGUE	_____
FTD CASTS	_____	_____	PRIMARY PRODUCTIVITY	<u>16</u> <u>20</u>
ROSETTE	_____	_____	SECCHI DISC	<u>42</u> <u>49</u>
HAEDRICH	<u>23</u>	<u>26</u>		



58-15

SMOKE HOUSE

Figure 1. Scenic view of the area of the site of the

VESSEL DELAWARE II

CRUISE 79-06

DATES 9-20 July 1979

DAYS AT SEA 11

STATIONS 64

Cruise Objective

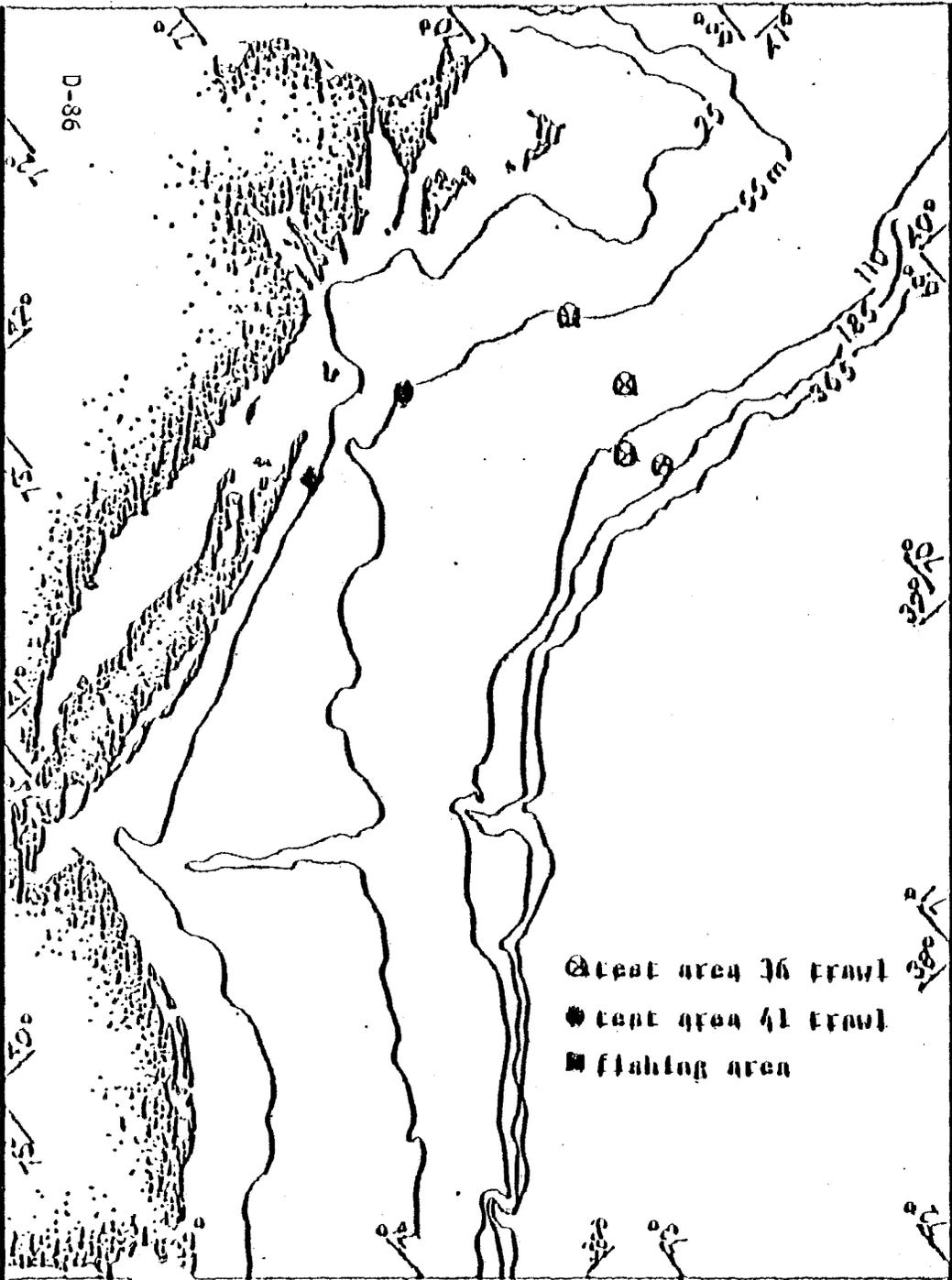
Cruise operations were designed to measure acoustically the headrope height and wingspread (in feet) of the following trawls at prescribed vessel speeds, scopes, directions of tow, and depths: (1) three #36 Yankee trawls, standard for bottom trawl surveys to be measured in concert with each of two pairs of doors; (2) one #36 Yankee trawl, rigged same as standard trawl, but having a trawlex chain instead of wire through the sweep and measured in concert with two pairs of doors; (3) three two-seam modified #41 trawls, standard for groundfish surveys to be measured in concert with each of two pairs of doors; (4) measure performance of Portuguese Polyvalent doors with survey trawls. The three #36 Yankee trawls are to be used during the 1979 summer and fall surveys; the three #41 trawls during the 1980 spring surveys.

Scientific PersonnelNMFS, Northeast Fisheries Center, Woods Hole, MA9-16 July 197916-20 July 1979

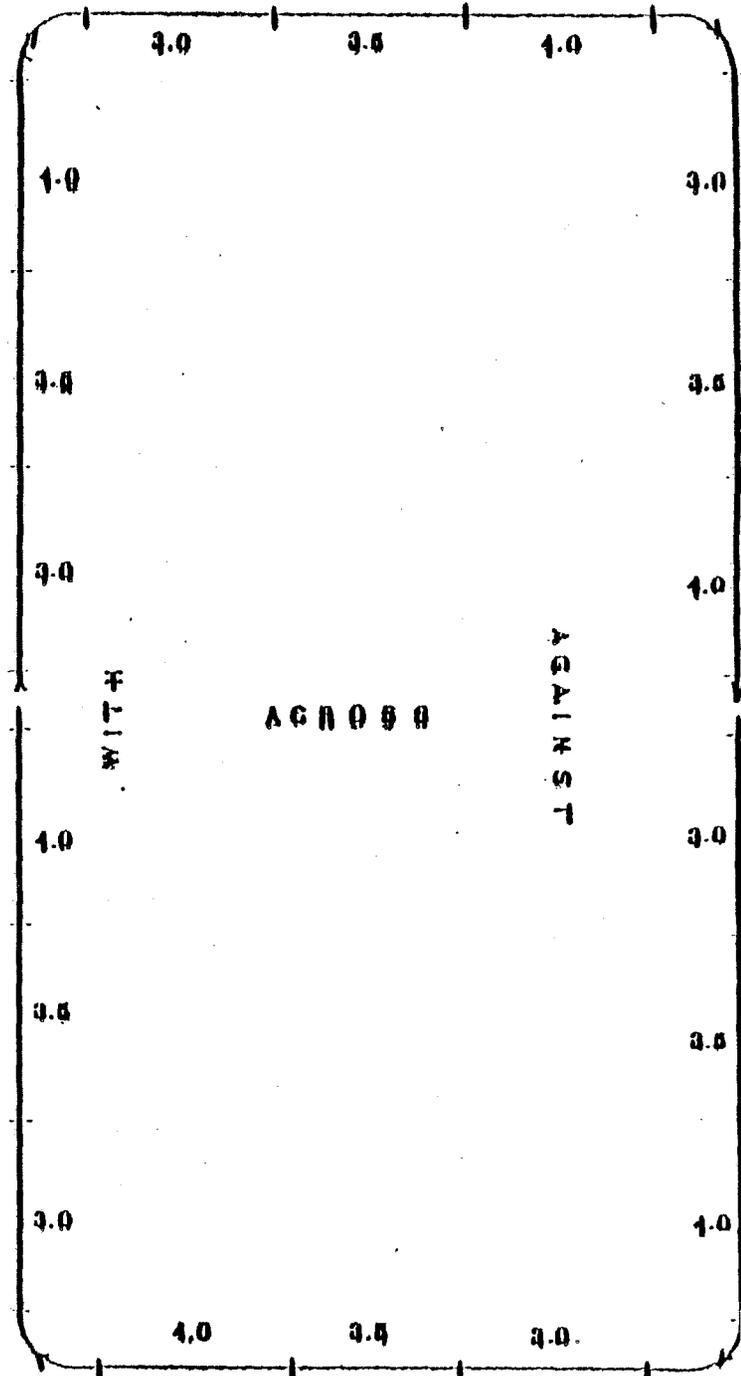
Malcolm Silverman	X	X
Harold Foster	X	X
Robert Flynn	X	X
Patrick Twohig	X	
Charles Byrne	X	
John Nicolas	X	
James Fletcher		X
Michael Thompson		X

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
BONGO HAULS 20 cm	_____	NUTRIENT SAMPLES	_____
BONGO HAULS 61 cm	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____ 64
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
FTD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
		LONG LINE SET	_____



Locations of trawl measurement during Delaware II Cruise no. DE 79-06 from 9-20 July 1979.



Direction of trawl relative to tidal current and vessel speed during Delaware II Cruise No.

VESSEL DELAWARE II

CRUISE 79-07

DATES 25 July-5 August 1979

DAYS AT SEA

STATIONS 92

Cruise Objective

The objectives of the cruise were to determine the summer distribution (5.9 to 109 meters) and relative abundance of fish species, especially those of recreational importance, and to collect biological samples and hydrographic data for associated studies.

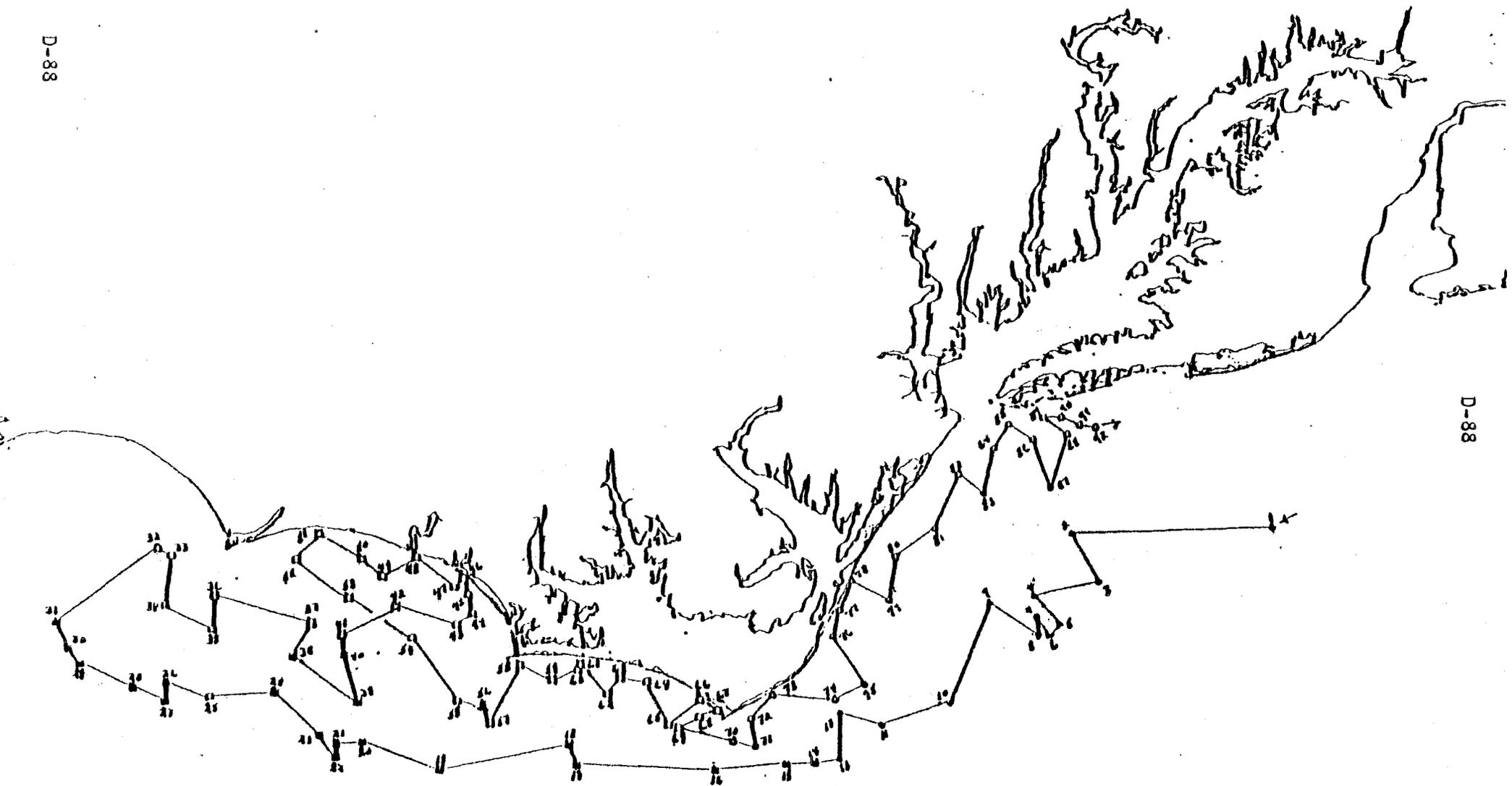
Scientific PersonnelNMFS, Northeast Fisheries Center, Woods Hole, MA

Thomas Azarovitz, Chief Scientist
Linda Despres, Watch Chief
John Messersmith, Watch Chief
James Townes
Loretta O'Brien

William Burnes
Steven Morrison
Evelyn Howe
Patricia Carter
Steven Seldon

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____ 92
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
BONGO HAULS 20 cm	_____	NUTRIENT SAMPLES	_____
BONGO HAULS 61 cm	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____ 92
MOCNESS HAULS	_____	FISH SAMPLES	_____ 706
XBT DROPS	_____ 92	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
FTD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
		LONG LINE SET	_____



Station location and cruise track for R/V DELAWARE II
Cruise No. 79-07 during 25 July - 5 August 1979.

VESSEL DELAWARE II

CRUISE 79-08

DATES August 13-22, 1979

DAYS AT SEA 10

STATIONS 78

Cruise Objective

The objectives of the cruise were to: (1) test the operation of various system components, (2) collect data on the efficiency and selectivity of the system in catching clams when it was fished in a research survey mode, and (3) recover tagged clams planted during a previous cruise.

Scientific PersonnelNMFS, Northeast Fisheries Center, Woods Hole, MA

Ronald Smolowitz, Chief Scientist (LCDR, NOAA Corps)
 Clifford Newell, Biological Technician (Diver)
 Thomas Meyer, Diver (LT, NOAA Corps)
 Kenneth Pecci, Fishery Biologist (Diver)
 Kevin McCarthy, Biological Aid (Diver)
 Steven Murawski, Fishery Biologist
 Harold Foster, Fishery Biologist
 Jeffrey Mills, Electronics Aid

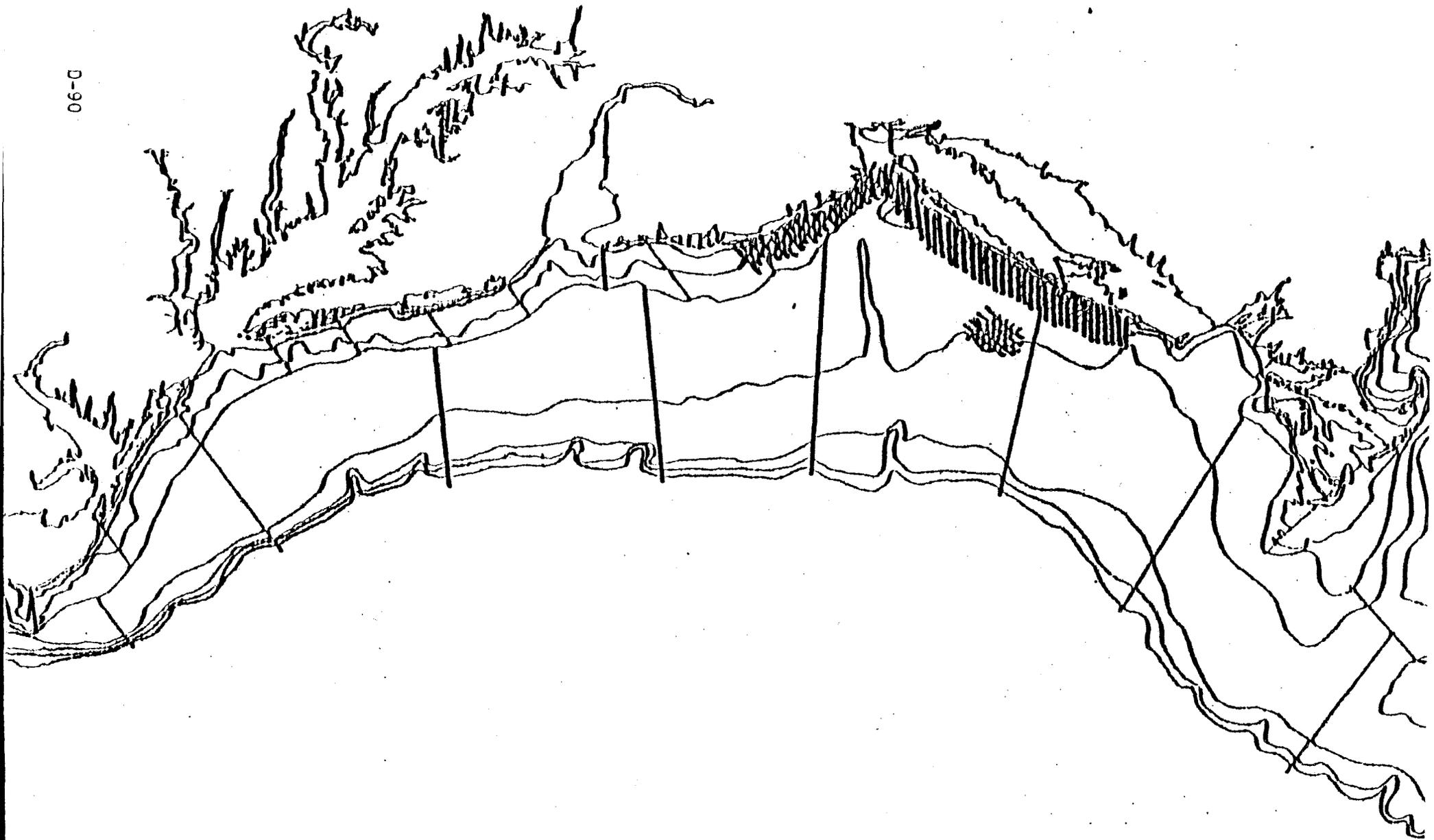
NMFS, Northeast Fisheries Center, Gloucester, MA

Jack Moakley, Fisheries Engineer (LT, NOAA Corps)
 Vernon Nulk, Fisheries Engineering Technician

Data Collected

.61 cm BONGO	_____	SALINITY SAMPLES	_____
.20 cm BONGO	_____	OXYGEN SAMPLES	_____
.61 cm NEUSTON	_____	NUTRIENT SAMPLES	_____
.20 cm NEUSTON	_____	CHLOROPHYLL SAMPLES	_____
HAEDRICH	_____	PRIMARY PRODUCTIVITY	_____
XBT	_____	DROGUES	_____
BOTTLE CAST	_____	SECCHI DISC	_____
CTD CAST	_____	TRAWLS	_____
CURRENT METERS	_____	FISH SAMPLES	_____
CLAM DREDGE	_____		_____
	78		

D-90



Area of study for DELAWARE II Cruise 79-08 during 13 - 22 August 1979.

VESSEL DELAWARE II

CRUISE 79-09

DATES 27 August - 1 September 1979

PART I

DAYS AT SEA 5

STATIONS 41

Cruise Objective

The objectives of the cruise were: (1) determine the summer distribution and relative abundance of fish species; (2) collect biological samples of fish for studies of age and growth, fecundity, maturity, food habits, pathology, and special collections for various scientists; (3) collect oceanographic and meteorological samples and data.

Scientific PersonnelNMFS, Northeast Fisheries Center, Woods Hole, MA

Henry Jensen, Chief Scientist
 Rhett Lewis
 Ronald Essig
 Maurice Crawford
 Katherine Rodrigues
 Ray Bowman
 David Potter
 James Townes
 Suzanne Avtges

University of Rhode Island, Kingston, RI

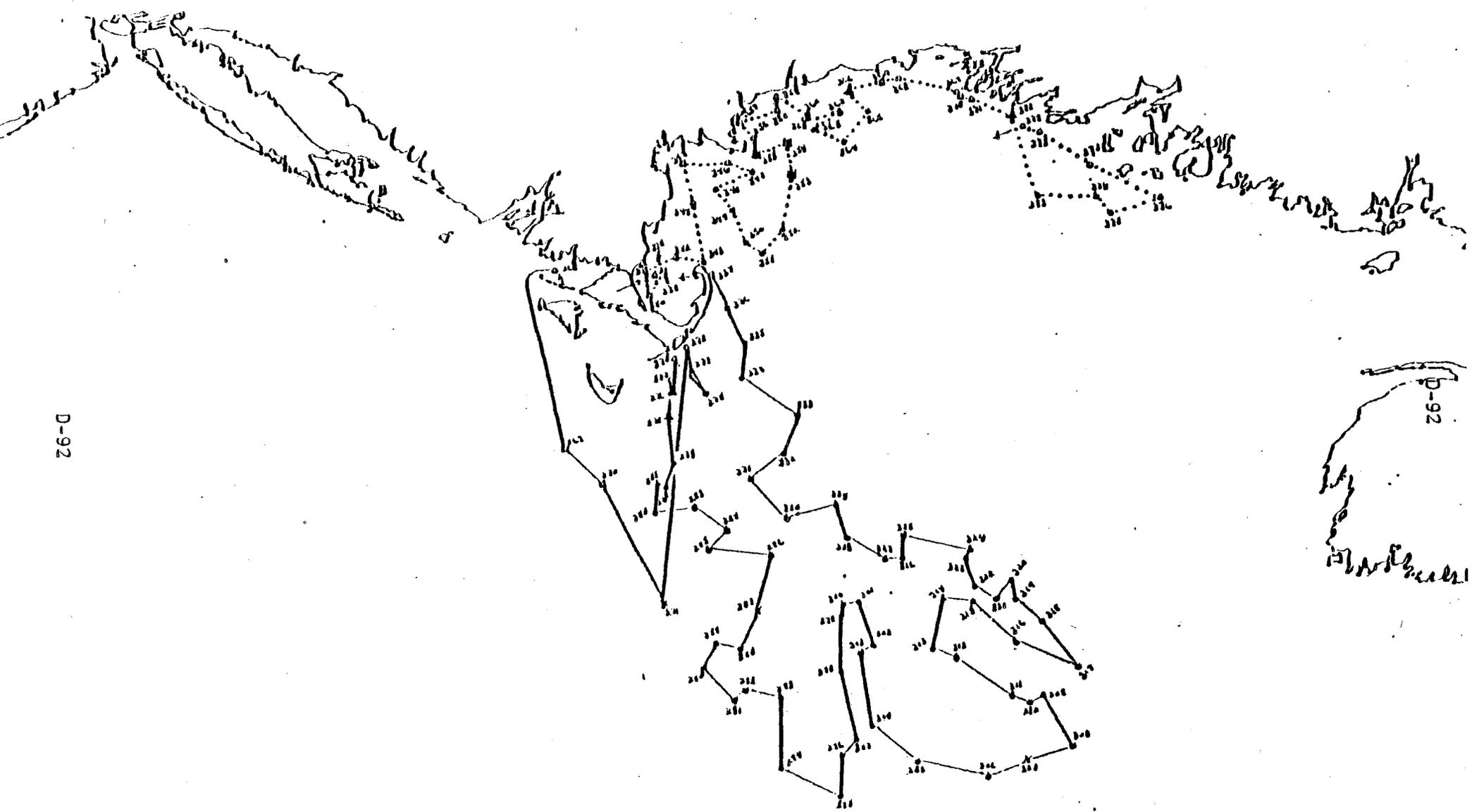
John Roanowicz, Mammalogist

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____ 41
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWL	_____ 39
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	_____ 41	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
LONG LINE SET	_____		

□ = State of Maine atirwood
 ▲ = Tarrups

D-92



Station locations and cruise tracks for ALBATROSS IV Cruise 79-08(II) during 13-20 August 1979, and DELAWARE II Cruise 79-09(I) during 27 August - 1 September 1979.

ALBATROSS IV 79-08(II) = —————
 DELAWARE II 79-09(I) = - - - - -

VESSEL DELAWARE II

CRUISE 79-09

DATES 1-7 September 1979

DAYS AT SEA 7

STATIONS 50

Cruise Objective

The objectives of the cruise were to quantitatively compare three types of midwater gear: (1) 10-foot Isaacs-Kidd (I-K) trawl, (2) 6-foot Isaacs Kidd trawl, and (3) a Canadian euphausiid trawl. A secondary objective was to collect information on the food of the fish caught.

Scientific PersonnelNMFS, Northeast Fisheries Center, Woods Hole, MA

Richard Langton, Chief Scientist
Ray Bowman
David Potter
John Dickinson
James Towns

NMFS, Northeast Fisheries Center, Narragansett, RI

John Green

NMFS, Northeast Fisheries Center, Gloucester, MA

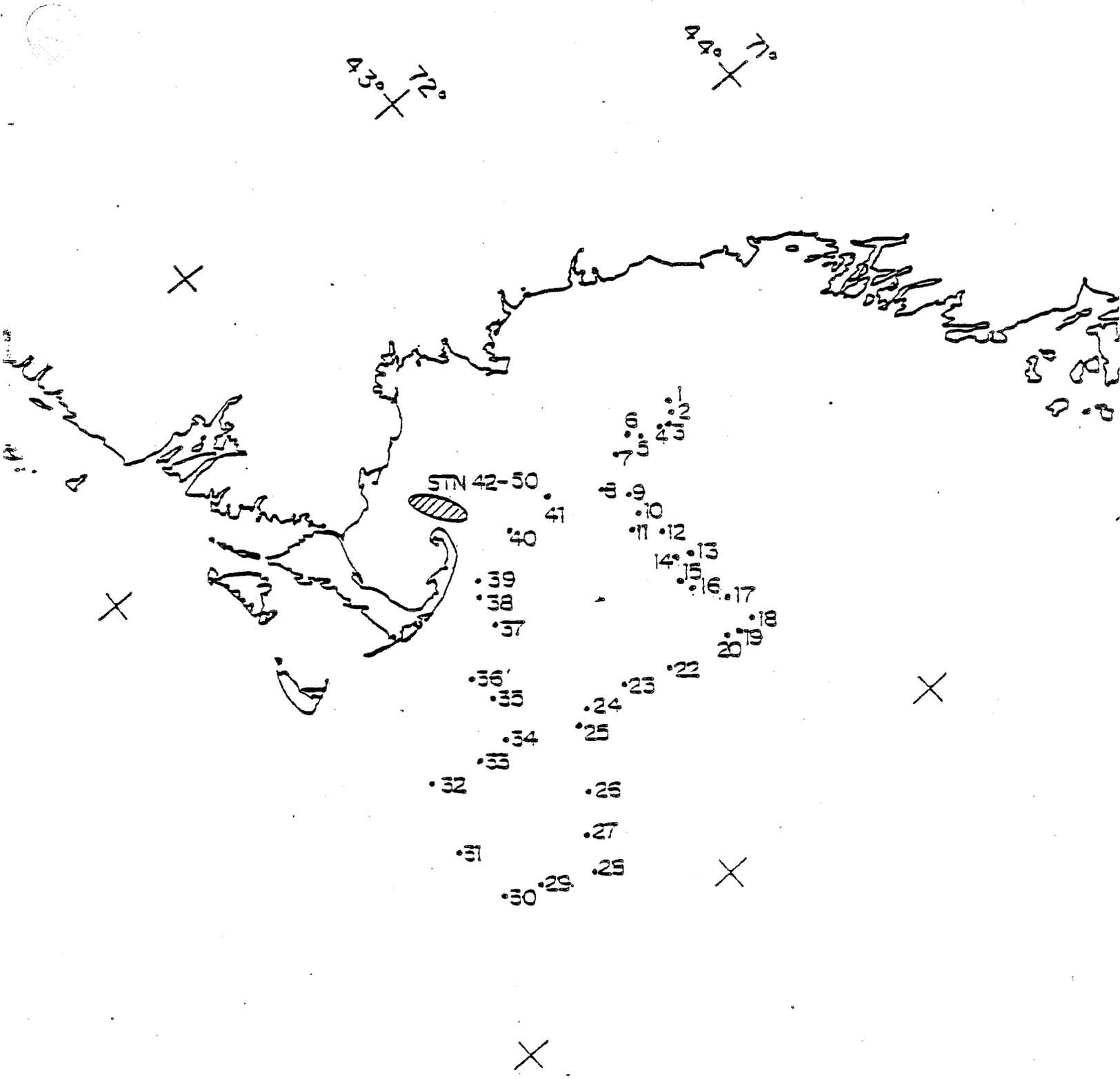
John Kenny

Fisheries and Oceans, Marine Fish Division
Bedford Institute of Oceanography, Dartmouth, NS, Canada

Robert O'Boyle

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
BONGO HAULS 20 cm	_____	NUTRIENT SAMPLES	_____
BONGO HAULS 61 cm	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	50
MOCNESS HAULS	_____	FISH SAMPLES	48
XBT DROPS	8	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
FTD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
		LONG LINE SET	_____



Study area and location of stations on DELAWARE II
Cruise 79-09, during 1-7 September 1979.

D-97



D-97

Station locations for DELAWARE II Cruise 79-10 (I) during 12-28 September 1979.

VESSEL DELAWARE II

CRUISE 79-10

DATES October 2-15, 1979

PART II

DAYS AT SEA

STATIONS 141

Cruise Objective

The objectives of the cruise were: (1) determine the autumn distribution and relative abundance of fish species, (2) collect biological samples of fish for studies of age and growth, fecundity, maturity, food habits, pathology, and special collections for various scientists, and (3) obtain various oceanographic data and record meteorological observations.

Scientific Personnel

NMFS, Northeast Fisheries Center, Woods Hole, MA

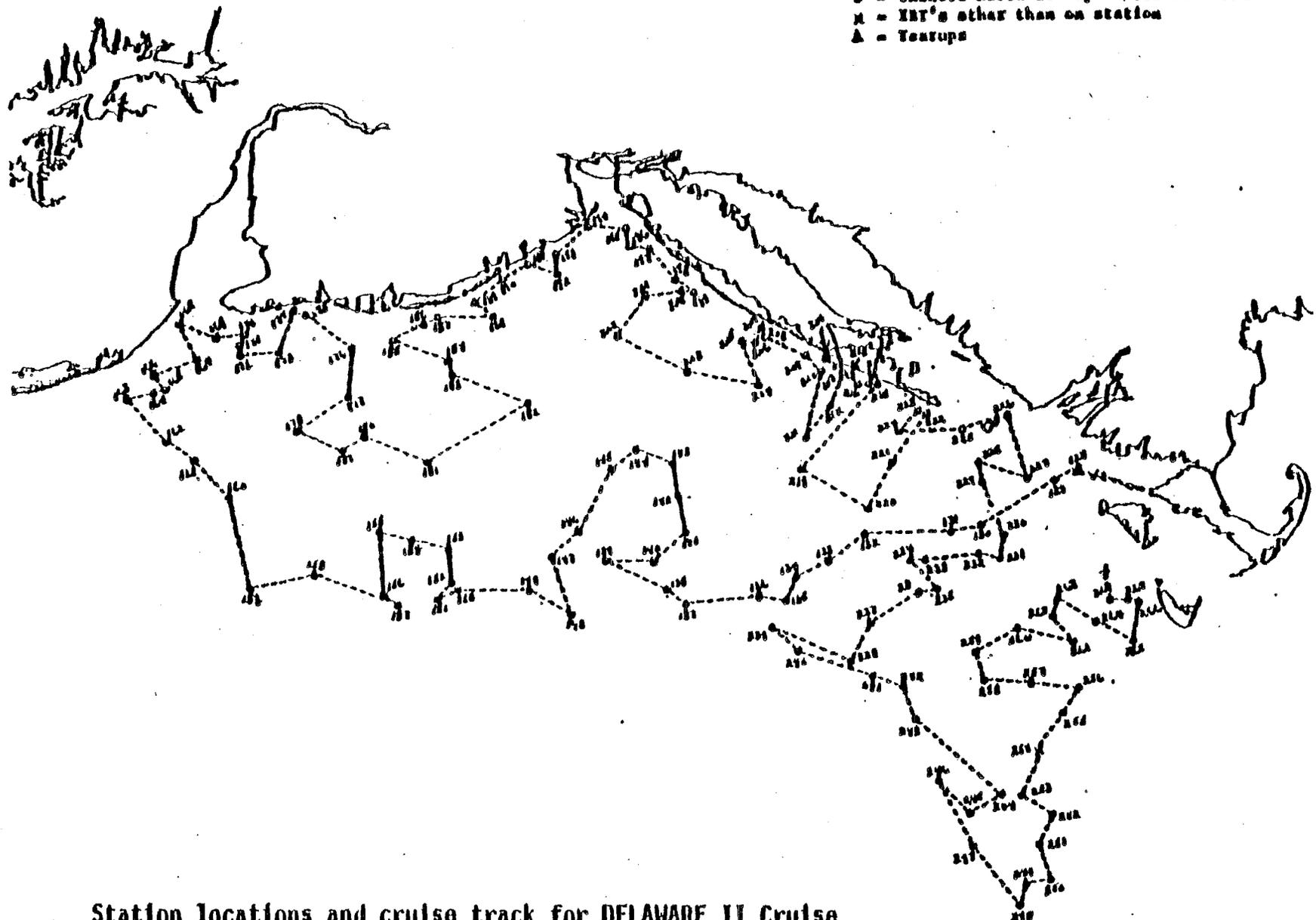
Henry Jensen, Chief Scientist	Otis Jackson
Eva Montiero	Brenda Figuerido
John Messersmith	William Michaels
John Nicolas	Ronald Essig
Harold Foster	

Johns Hopkins University, Baltimore, MD

Niles Primrose

Data Collected

.61 cm BONGO	_____	SALINITY SAMPLES	_____
.20 cm BONGO	_____	OXYGEN SAMPLES	_____
.61 cm NEUSTON	_____	NUTRIENT SAMPLES	_____
.20 cm NEUSTON	_____	CHLOROPHYLL SAMPLES	_____
HAEDRICH	_____	PRIMARY PRODUCTIVITY	_____
XBT	_____ 141	DROGUES	_____
BOTTLE CAST	_____	SECCHI DISC	_____
CTD CAST	_____	TRAWLS	_____ 140
CURRENT METERS	_____	FISH SAMPLES	_____



	Code
W	797
u	796
e	799
o	798
x	XBT's other than on station
A	Towrops

D-99

D-99

Station locations and cruise track for DELAWARE II Cruise 79-10 (Part II) during 2 - 15 October 1979.

VESSEL DELAWARE II

CRUISE 79-10

DATES October 19-November 2, 1979

PART III

DAYS AT SEA 14

STATIONS 148

Cruise Objective

The objectives of the cruise were to determine the autumn distribution (from 18 to 364 meters) and relative abundance of fish species, to become more familiar with the third wire package, and to collect biological samples and hydrographic data for associated studies.

Scientific PersonnelNational Marine Fisheries Service, NEFC, Woods Hole, MA

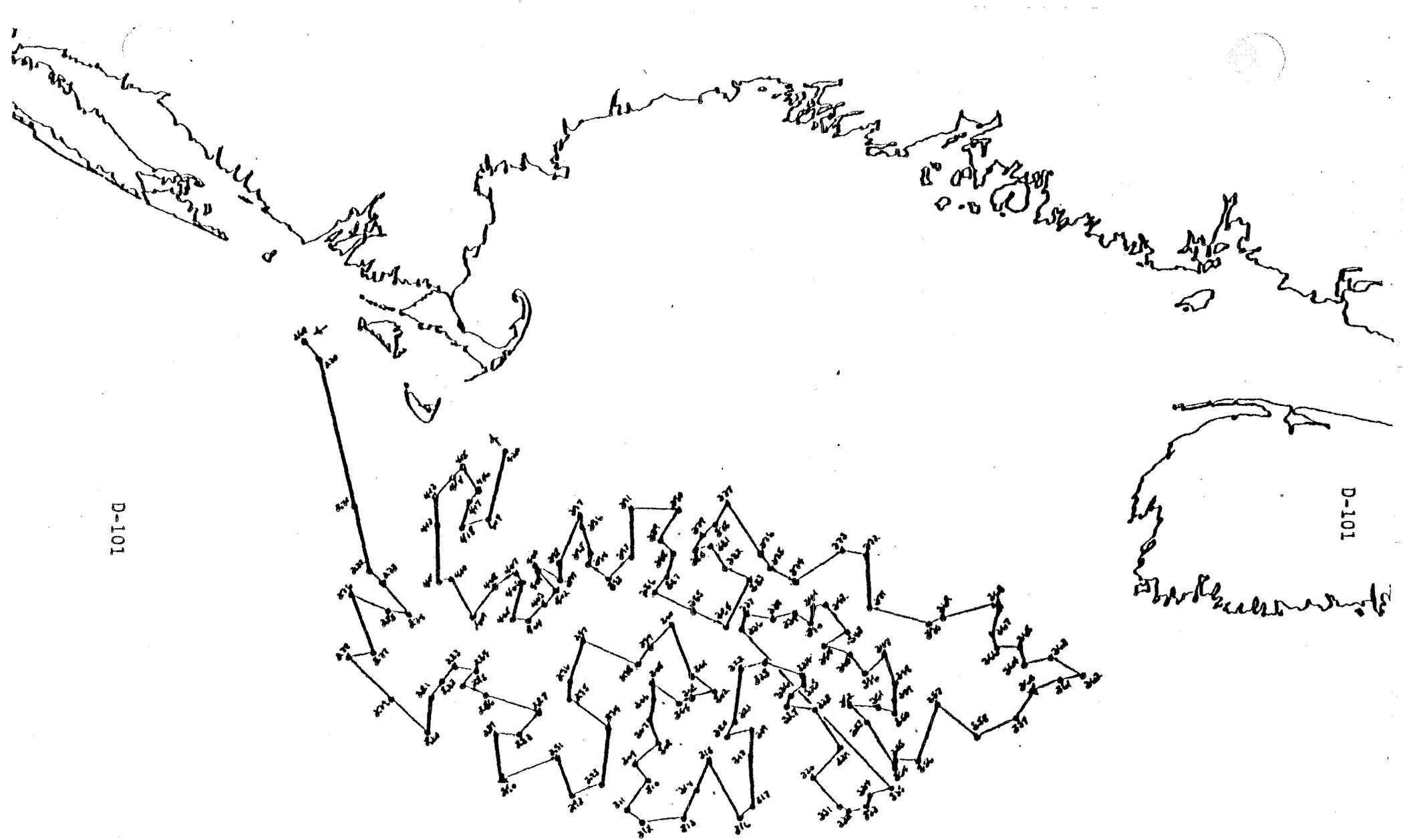
Linda Despres, Chief Scientist
 Maureen Griffin
 Donald Flescher
 Frank Almeida
 Fred Serchuk
 Andrew Thoms
 James O'Connell
 Dennis Hansford
 Louis Kerr

State University of New York, Stonybrook, NY

Raoul Castaneda

Data Collected

.61 cm BONGO	_____	SALINITY SAMPLES	_____
.20 cm BONGO	_____	OXYGEN SAMPLES	_____
.61 cm NEUSTON	_____	NUTRIENT SAMPLES	_____
.20 cm NEUSTON	_____	CHLOROPHYLL SAMPLES	_____
HAEDRICH	_____	PRIMARY PRODUCTIVITY	_____
XBT	152	DROGUES	_____
BOTTLE CAST	152	SECCHI DISC	_____
CTD CAST	_____	TRAWLS	148
CURRENT METERS	_____	FISH SAMPLES	_____



Station locations and cruise track for DELAWARE II Cruise 79-10 (III) during 19 October - 2 November 1979.

VESSEL DELAWARE II

CRUISE 79-10

DATES November 7-19, 1979

PARTS IV

DAYS AT SEA 12

STATIONS 100

Cruise Objective

The objectives of the cruise were: (1) to determine the fall distribution and relative abundance of fish species, (2) to collect biological samples of fish for studies of age and growth, fecundity, maturity, food habits, and special collections for various scientists, and (3) to collect oceanographic and meteorological samples and data.

Scientific Personnel

National Marine Fisheries Service, NEFC, Woods Hole, MA

Malcolm Silverman, Chief Scientist

John Messersmith

John Nicolas

Anne Lange

Ambrose Jearld

Patricia Carter

Evelyn Howe

Joan Palmer

Loretta O'Brien

*Tonga Brennan

*Maureen Griffin

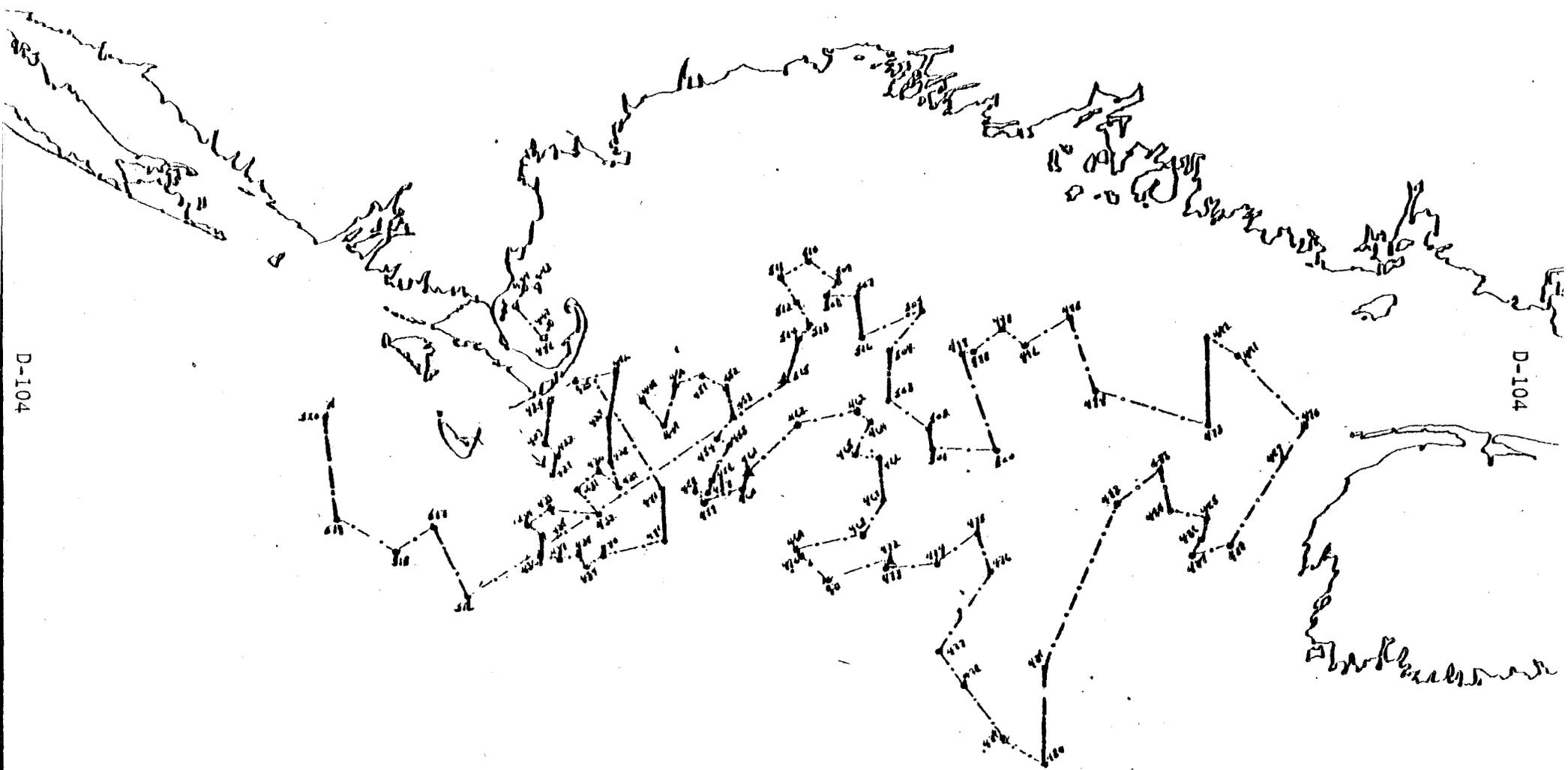
*Maureen Griffin replaced Tonga Brennan on November 9, 1979.

Data Collected

	<u>Part I</u>	<u>Part II</u>	<u>Total</u>
.61 cm BONGO	_____	_____	_____
.20 cm BONGO	_____	_____	_____
.61 cm NEUSTON	_____	_____	_____
.20 cm NEUSTON	_____	_____	_____
HAEDRICH	_____	_____	_____
XBT	_____	_____	99
BOTTLE CAST	_____	_____	_____
CTD CAST	_____	_____	_____
CURRENT METERS	_____	_____	_____
SALINITY SAMPLES	_____	_____	_____
OXYGEN SAMPLES	_____	_____	_____
NUTRIENT SAMPLES	_____	_____	_____
CHLOROPHYLL SAMPLES	_____	_____	_____

PRIMARY PRODUCTIVITY	_____	_____	_____
DROGUES	_____	_____	_____
SECCHI DISC	_____	_____	_____
TRAWLS	_____	_____	100
FISH SAMPLES	_____	_____	3100
LONG LINE SETS	_____	_____	_____

- - offshore
- - inshore
- ▲ - transect



Station locations and cruise track for DELAWARE II
Cruise 79-10 (IV) during 7 - 19 November 1979.

Table 3. (continued)

Investigator	Samples taken	Approximate Number
John Nicolas, NMFS Woods Hole, MA	mammal observations	1 observation
Frederick Nichy, NMFS Woods Hole, MA	butterfish	2 samples
Dennis Sabo, Massachusetts Maritime Academy, Buzzards Bay, MA	fish	86 individuals
Salvatore Testaverde, NMFS, Gloucester, MA	yellowtail flounder	107 individuals

VESSEL DELAWARE II	CRUISE 79-11
DATES December 3-12; 12-18, 1979	PARTS I, II
DAYS AT SEA	STATIONS 52

Cruise Objective

This cruise is the eighth in a series of broad range environmental monitoring surveys. These surveys are conducted quarterly to develop baselines and to monitor the quality of the environment and the health of resource and indicator species as part of the NEFC's Ocean Pulse marine environmental monitoring program.

Scientific PersonnelNational Marine Fisheries Service, NEFC, Sandy Hook, NJ

William Phoel, Chief Scientist	Part I
Frank Steimle, Chief Scientist	Part II
David Radosh	Parts I and II
Susan Barker	Parts I and II
Vincent Zdanowicz	Parts I and II
Suellen Craig	Part II
John LeBaron	Part II

National Marine Fisheries Service, NEFC, Milford, CT

Deedee Tucker	Part I
Robert Stamm	Part II
Laure Devine	Part II
Susan Halvanik	Part II

Southampton College, Southampton, NY

William Krencik	Part I
Keith Vinal	Part II

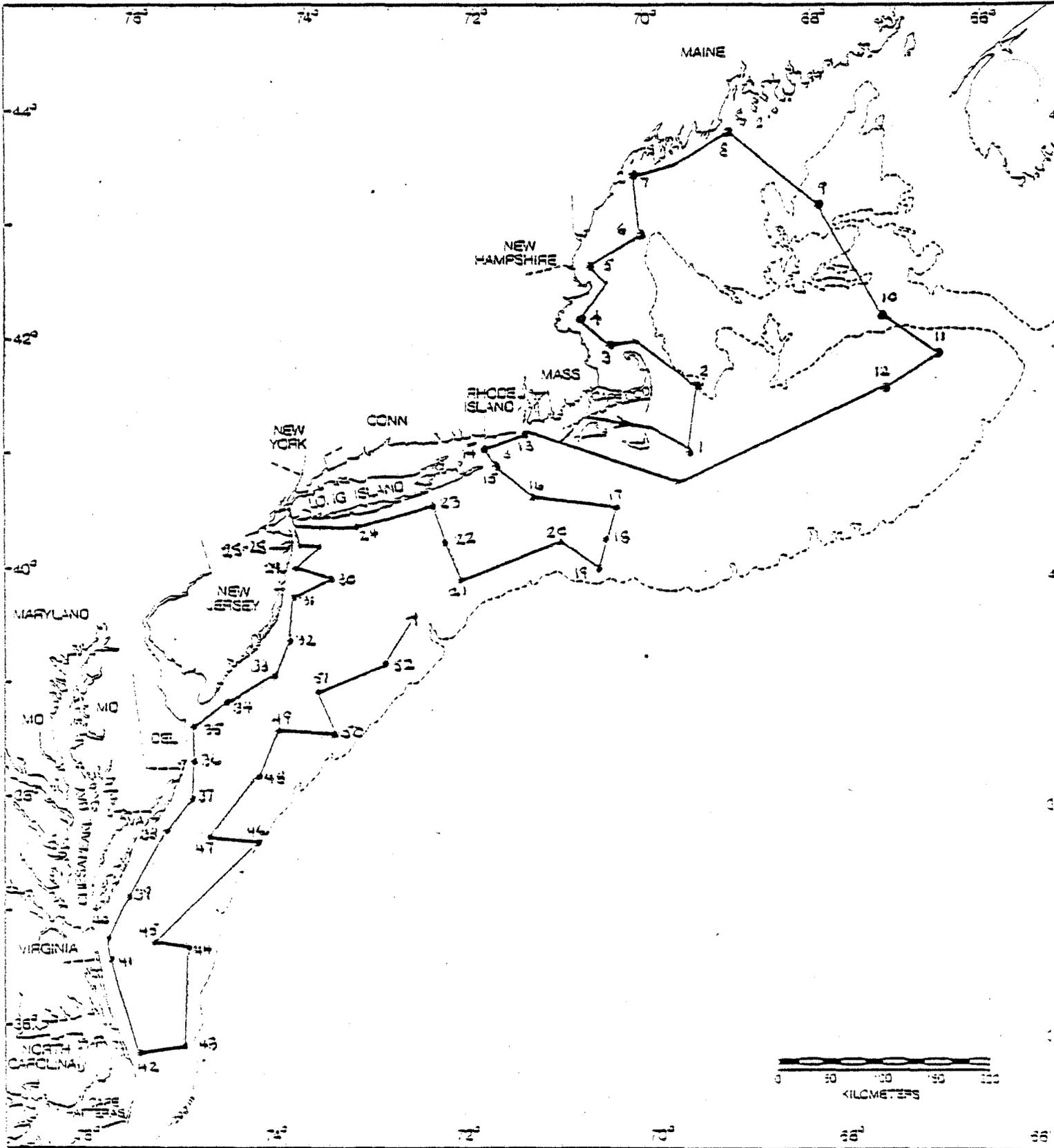
New Jersey Marine Science Consortium, Highlands, NJ

Barbara Lamp	Part I
--------------	--------

New York Zoological Society, Osborn Marine Laboratory, Brooklyn, NY

Peter Burn

	<u>Data Collected</u>		
	<u>Part I</u>	<u>Part II</u>	<u>Total</u>
.61 cm BONGO	_____	_____	_____
.20 cm BONGO	_____	_____	_____
.61 cm NEUSTON	_____	_____	_____
.20 cm NEUSTON	_____	_____	_____
HAEDRICH	_____	_____	_____
XBT	_____	_____	40
BOTTLE CAST	_____	_____	52
CTD CAST	_____	_____	_____
CURRENT METERS	_____	_____	_____
SALINITY SAMPLES	_____	_____	310
OXYGEN SAMPLES	_____	_____	340
NUTRIENT SAMPLES	_____	_____	310
CHLOROPHYLL SAMPLES	_____	_____	400
PRIMARY PRODUCTIVITY	_____	_____	_____
DROGUES	_____	_____	_____
SECCHI DISC	_____	_____	_____
TRAWLS	_____	_____	25
FISH SAMPLES	_____	_____	YES
LONG LINE SETS	_____	_____	_____
BOTTOM CORES	_____	_____	125



Station locations and cruise track for DELAWARE II Cruise 79-11, Ocean Pulse Winter Monitoring Survey, during 3 - 18 December 1979.

OTHER VESSELS

VESSEL Advance II

CRUISE 77-01

DATES March 16-24/
March 25-April 2, 1977

PARTS I & II

DAYS AT SEA

STATIONS

Cruise Objective

Part I. The original objectives of the cruise were as follows: to examine integrated water column for phytoplankton primary productivity biomass and speciation, nutrients, total bacterial counts, oxygen consumption by the seabed and water above, and nutrient regeneration from the benthos along a series of gradient transects from the Lower Hudson Estuary to the Outer New York Bight to determine extent and magnitude of influences of the New York Metropolitan area on biological components and activities (particularly those near the base of the food web for pelagic and demersal fisheries) on the adjacent continental shelf, particularly with reference to the recent fish kills.

At each station the following series of measurements were made except where noted (see data matrix-Appendix I).

1. Wind direction and speed and sea state.
2. Temperature profile with XBT.
3. Submersible pump in conjunction with on deck fluorometer and turbidometer to measure vertical distribution of chlorophyll and turbidity.
4. Photosynthetically active radiation (P.A.R.) was measured using a submersible photometer to determine vertical extinction coefficient and depths where 70%, 49%, 30%, 11%, 4%, 1%, or surface sunlight remained.
5. Secchi disc disappearance depth. Water was collected at 5 to 9 depths depending on total depth. Generally we sampled at surface, 30%, 11%, 4%, 1% surface light-depths, bottom, and one or two depths between bottom and 1% light depth. Bottom water was sampled with bottles attached to multiple coring device. When high concentrations of chlorophyll or detritus existed at other than the standard light-depths (as evidenced from submersible pump data) additional depths were sampled to characterize the layer or layers. Water, from each of the sampled depths was used for the following measurements.
6. Salinity.

7. Dissolved oxygen.
8. pH
9. Alkalinity.
10. Plant nutrients: ammonium measured on ship. Filtrates frozen for measurements of nitrate, nitrite, phosphate and silicates.
11. Dissolved organic carbon concentration.
12. Particulate carbon concentration.
13. Particulate nitrogen concentration.
14. Particulate carbohydrate concentration.
15. Suspended particulate weight.
16. Whole water samples preserved with KI-I₂ for phytoplankton counts.

In addition, a cooperative effort with Dr. Robert Johnson of NASA was to be accomplished in the New York Bight Apex to provide sea truth for remote sensing of chlorophyll and turbidity accomplished by a NASA fixed-wing aircraft (see attached letter).

Part II. To examine integrated water column for phytoplankton primary productivity biomass and speciation, nutrients and hydrography, total bacterial counts, oxygen consumption by the seabed and water above, and nutrient regeneration from the benthos over Georges Bank (<00 m) to provide information supportive to fishery management.

Scientific Personnel

Part I: 16-24 March 1977

Northeast Fisheries Center, NMFS, Sandy Hook, NJ

James P. Thomas, Chief Scientist	Andrew Draxler
William C. Phoel	Kevin Gashlin
Jay E. O'Reilly	Craig Robertson
Christine A. Evans	

Northeast Fisheries Center, NMFS, Milford, CT

John Babinchak

Part II: 25 March-2 April 1977

Northeast Fisheries Center, NMFS, Sandy Hook, NJ

James P. Thomas, Chief Scientist Andrew Draxler
William C. Phoel Kevin Gashlin
Jay E. O'Reilly Craig Robertson
Christine Evans

Northeast Fisheries Center, NMFS, Milford, CT

John Babinchak

Data Collected Parts I & II

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>223</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>889</u>
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	<u>31</u>
NEUSTON HAULS	_____	TRAWLS	_____
XBT DROPS	<u>52</u>	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
FISH SAMPLES	_____	SECCHI DISC	<u>30</u>

VESSEL Advance II

CRUISE 79-01

DATES April 18-27, 1979

DAYS AT SEA 10

STATIONS

Cruise Objective

The purposes of the cruise were: 1) to collect samples and make measurements pertinent to monitoring the quality of the marine environment between Canada and Cape Hatteras as part of the NEFC's Ocean Pulse program, and 2) to cooperate with a BLM sponsored survey of marine birds and mammals.

Scientific Personnel

NMFS, NEFC, Sandy Hook, NJ

Frank Steimle, Chief Scientist
Charles Idelberger
Jay O'Reilly
Andrew Draxler
James Duggan
Vincent Zdanowicz

NMFS, NEFC, Milford, CT

Margaret Dawson
Jennifer Hauser
Janice Rancort
Statia Penkott
Patrick Bowe

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	297
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	158
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	173
BONGO HAULS	9	CHLOROPHYLL SAMPLES	705
NEUSTON HAULS	3	TRAWLS	23
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	25	CURRENT METERS	_____
BOTTLE CASTS	46	DROGUE	_____
FTD CASTS	_____	PRIMARY PRODUCTIVITY	15
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____	HERRING TAGGING	_____
SMITH-McINTYRE GRAB	12		

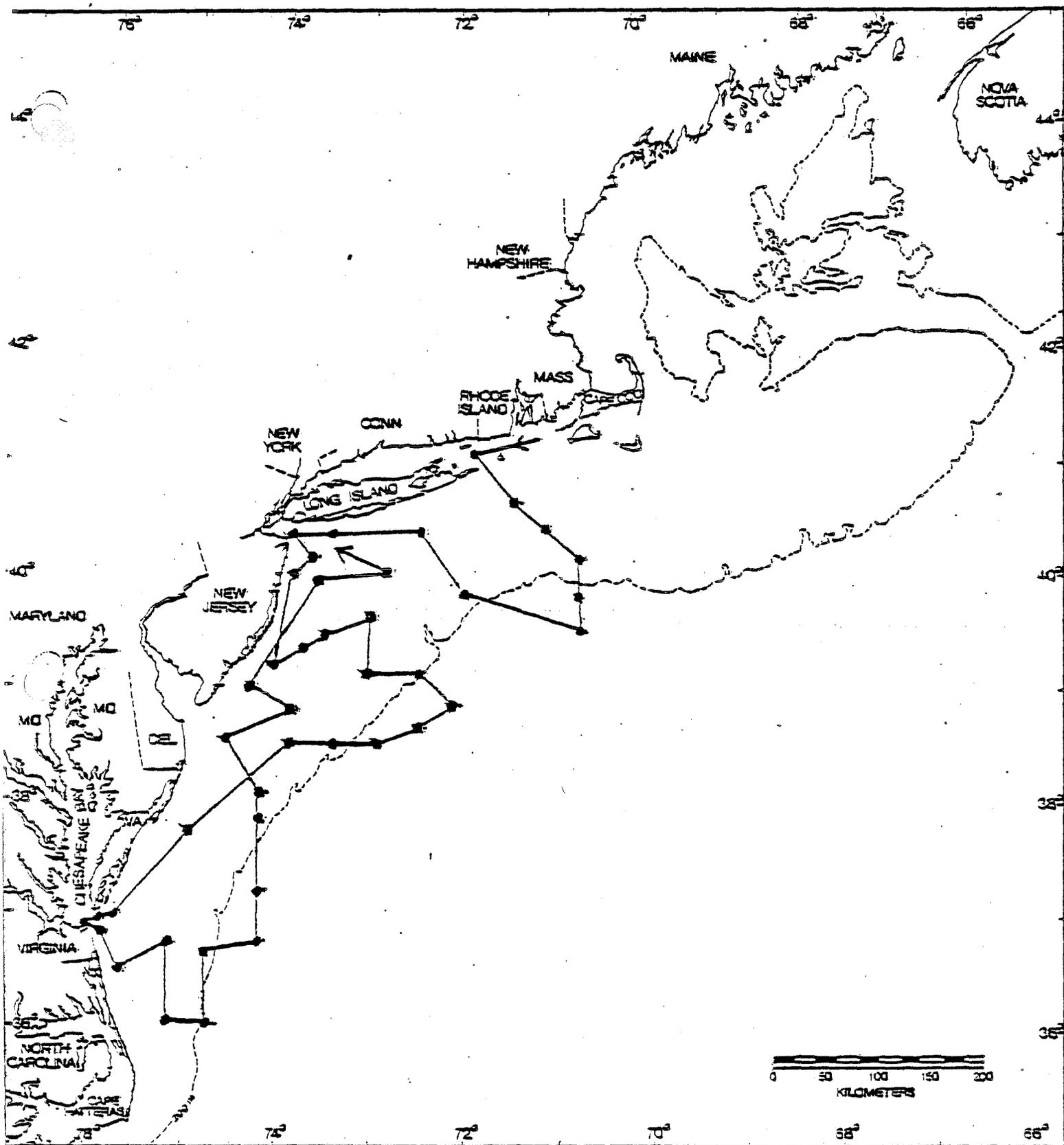


Figure 1. Station Locations and cruise track for ADVANCE II, cruise 79-01, Ocean Pulse spring environmental monitoring, during April 17-27, 1979.

VESSEL Advance II

CRUISE 79-02

DATES April 27-May 2, 1979

DAYS AT SEA 6

STATIONS 68

Cruise Objective

Map the distribution of temperature, salinity, nutrients, chlorophyll, and plankton in several shelf transects and in a dense grid on the inner shelf between Shinnecock and Moriches, Long Island.

Scientific Personnel

Brookhaven National Laboratory, Upton, NY

Thomas Hopkins, Chief Scientist	Everina Wold
Edward Davis	Steven Howe
James Lofstrand	Ann Herriott-Immerman
Thoms Wold	

State University of New York, Stony Brook, NY

Pamela Kaneta

New York Ocean Science Laboratory, Montauk, NY

Jeffrey Turner

Bigelow Laboratory for Ocean Sciences, Boothbay Harbor, ME

Newell Garfield

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	yes
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	yes
BONGO HAULS	46	CHLOROPHYLL SAMPLES	yes
NEUSTON HAULS	46	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	56	CURRENT METERS	_____
BOTTLE CASTS	68	DROGUE	_____
FTD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____	HERRING TAGGING	_____

6-AO-9

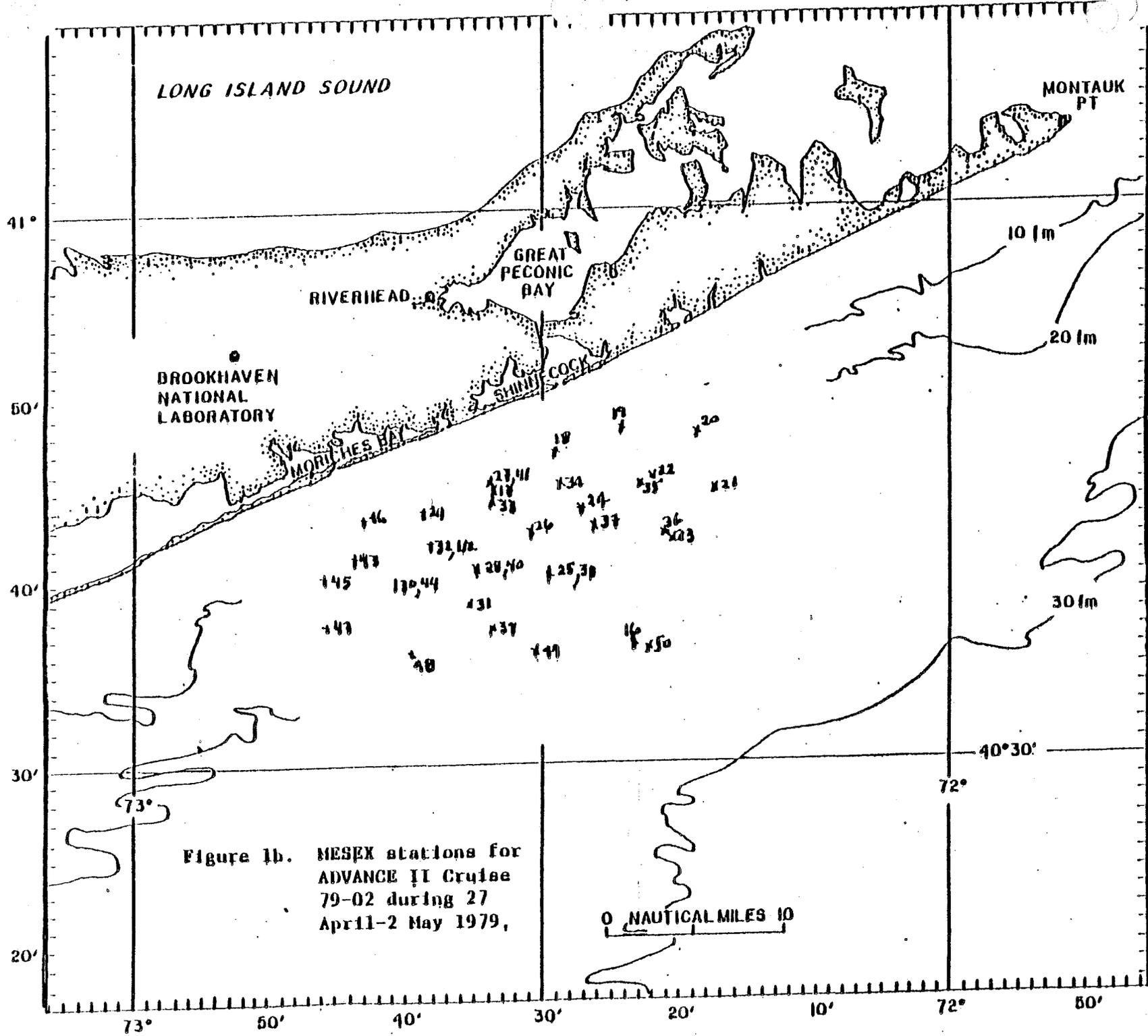
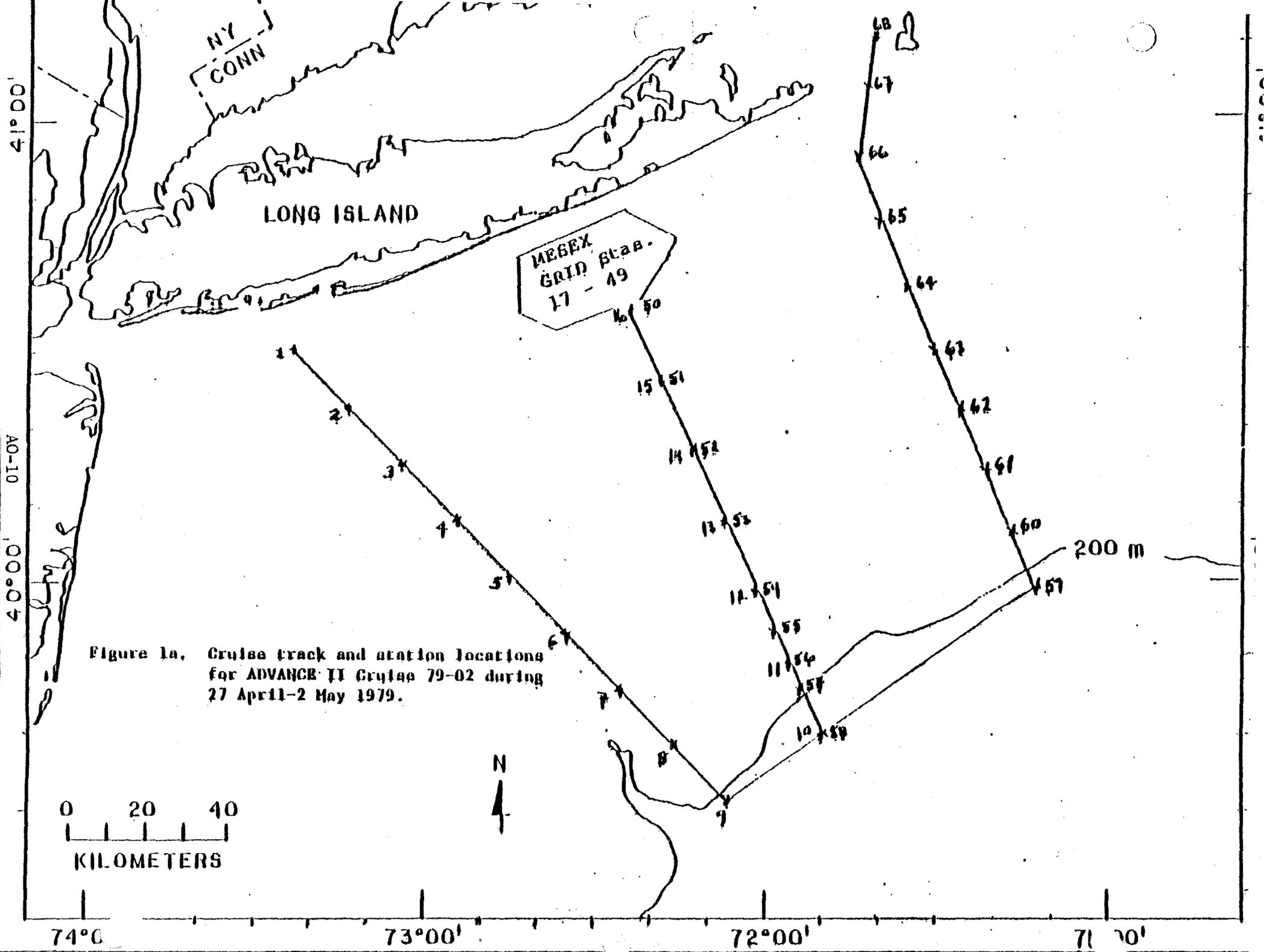


Figure 1b. MESEX stations for ADVANCE II Cruise 79-02 during 27 April-2 May 1979,



VESSEL Aliot

CRUISE 78-01

DATES June 20-29, 1978

PART I

DAYS AT SEA 9

STATIONS 62

Cruise Objective

The objectives of the cruise were to: (1) monitor changes in the early life stages of ichthyoplankton and in their predators and prey by using standard MARMAP sampling methods; and (2) make special tows with plankton sampling gear to compare USA and USSR sampling methods for silver and red hake; and (3) study the environmental conditions during the spawning of silver and red hake.

Scientific Personnel

AtlantNIRO, Kaliningrad, USSR

Alexander Romanchenko, Chief Scientist
Vladimir Luchinin
Pavel Aleksiev
Leonid Bugaev

NMFS, NEFC, Narragansett Laboratory, Narragansett, RI

Loretta Sullivan

NMFS, NEFC, Woods Hole Laboratory, Woods Hole, MA

Deborah Dwyer

Manomet Bird Observatory, Manomet, MA

Galen Pittman

3

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	62	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	62	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	62	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/SID CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____		
FISH SAMPLES	_____		

VESSEL Aliot

CRUISE 78-01

DATES July 15-31, 1978

PART II

DAYS AT SEA 16

STATIONS 73

Cruise Objective

The objectives of the cruise were to: (1) monitor changes in the early life stages of ichthyoplankton and in their predators and prey by using standard MARMAP sampling methods; and (2) study the environmental conditions during the spawning of silver and red hake.

Scientific Personnel

AtlantNIRO, Kaliningrad, USSR

Alexander Romanchenko, Chief Scientist
Vladimir Luchinin
Pavel Aleksiev
Leonid Bugaev

NMFS, NEFC, Narragansett Laboratory, Narragansett, RI

Jerome Prezioso

Manomet Bird Observatory, Manomet, MA

John Dugdale

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	73
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	73	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	73	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	73	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____		
FISH SAMPLES	_____		

VESSEL Aliot

CRUISE 78-02

DATES August 2-14, 1978

DAYS AT SEA 13

STATIONS

Cruise Objective

The primary purpose of the cruise was to collect fish food habits data, with an emphasis on the feeding habits of pelagic species and juvenile life stages. A secondary objective was to document photographically the occurrences of marine mammals.

Scientific Personnel

NMFS, NEFC, Woods Hole Laboratory, Woods Hole, MA

John Nicolas, Chief Scientist
Deborah Dwyer

NMFS, NEFC, Narragansett Laboratory, Narragansett, RI

Jack Green

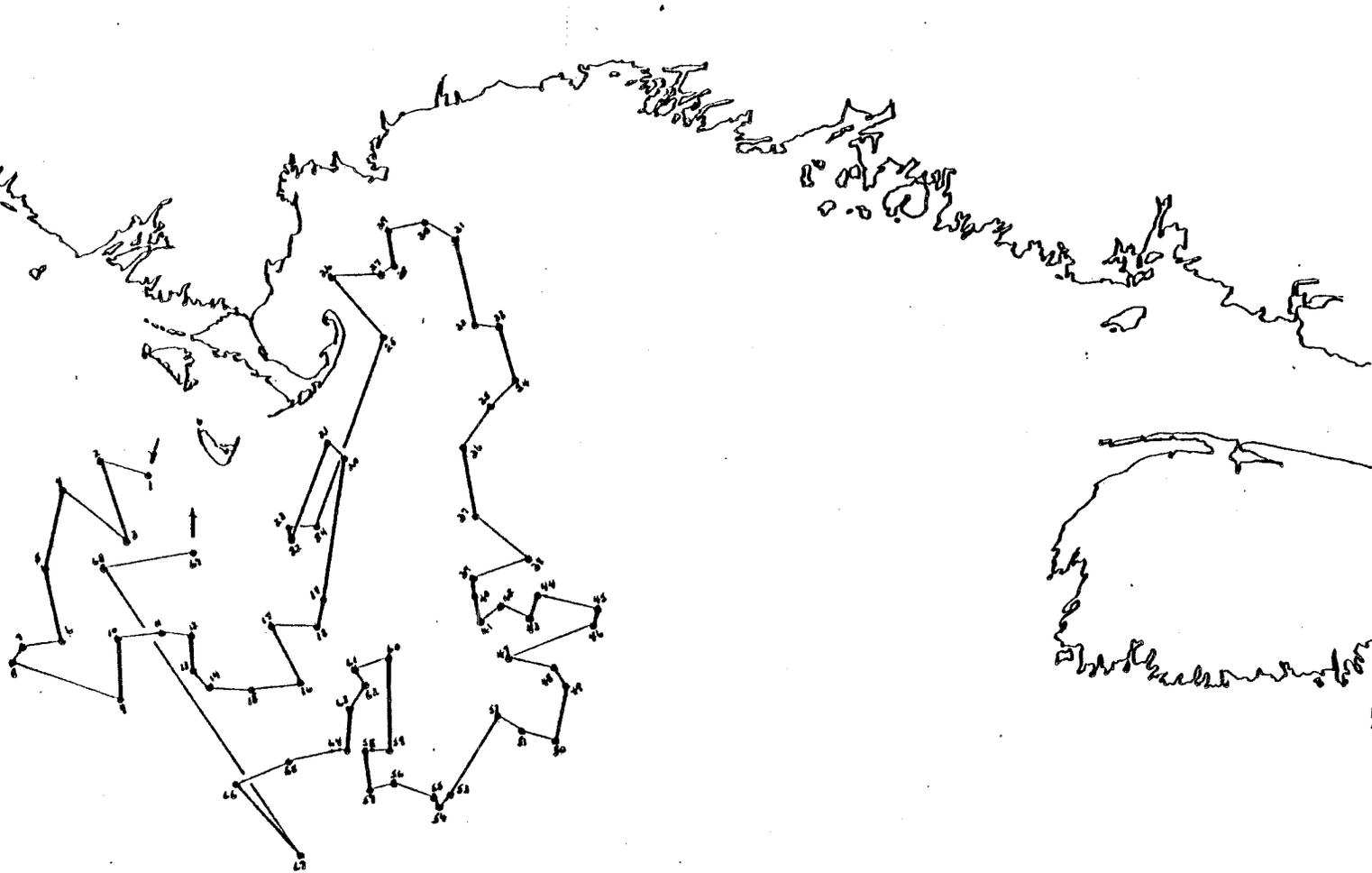
Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____		
FISH SAMPLES	<u>354</u>		

Remarks

Marine mammals sighted and photographed.

SOVIET R/V ALIOT 78-02 (CODE 000)
1978 SUMMER PELAGIC FISH SURVEY
3-14 AUG



AO-15

VESSEL Aliot

CRUISE 78-03

DATES August 14-28, 1978

DAYS AT SEA 14

STATIONS

Cruise Objective

The objectives of the cruise were: (1) to collect marine birds for food habits analysis and physiological, anatomical, and systematical studies; (2) to collect neuston samples to correlate with stomach and proventriculi contents; and (3) to conduct transect censuses of marine birds to continue to monitor their seasonal changes in distribution and abundance on shelf and slope areas of Georges Bank and contiguous waters.

Scientific Personnel

AtlantNIRO, Kaliningrad, USSR

Alexander Romanchenko

Leonid Bugaev

Vladimir Luchinin

Pavel Aleksiev

Manomet Bird Observatory, Manomet, MA

Kevin D. Powers, Chief Scientist

Peabody Museum, Yale University, New Haven, CT

Fred C. Sibley

NMFS, Northeast Fisheries Center, Woods Hole, MA

Deborah Dwyer

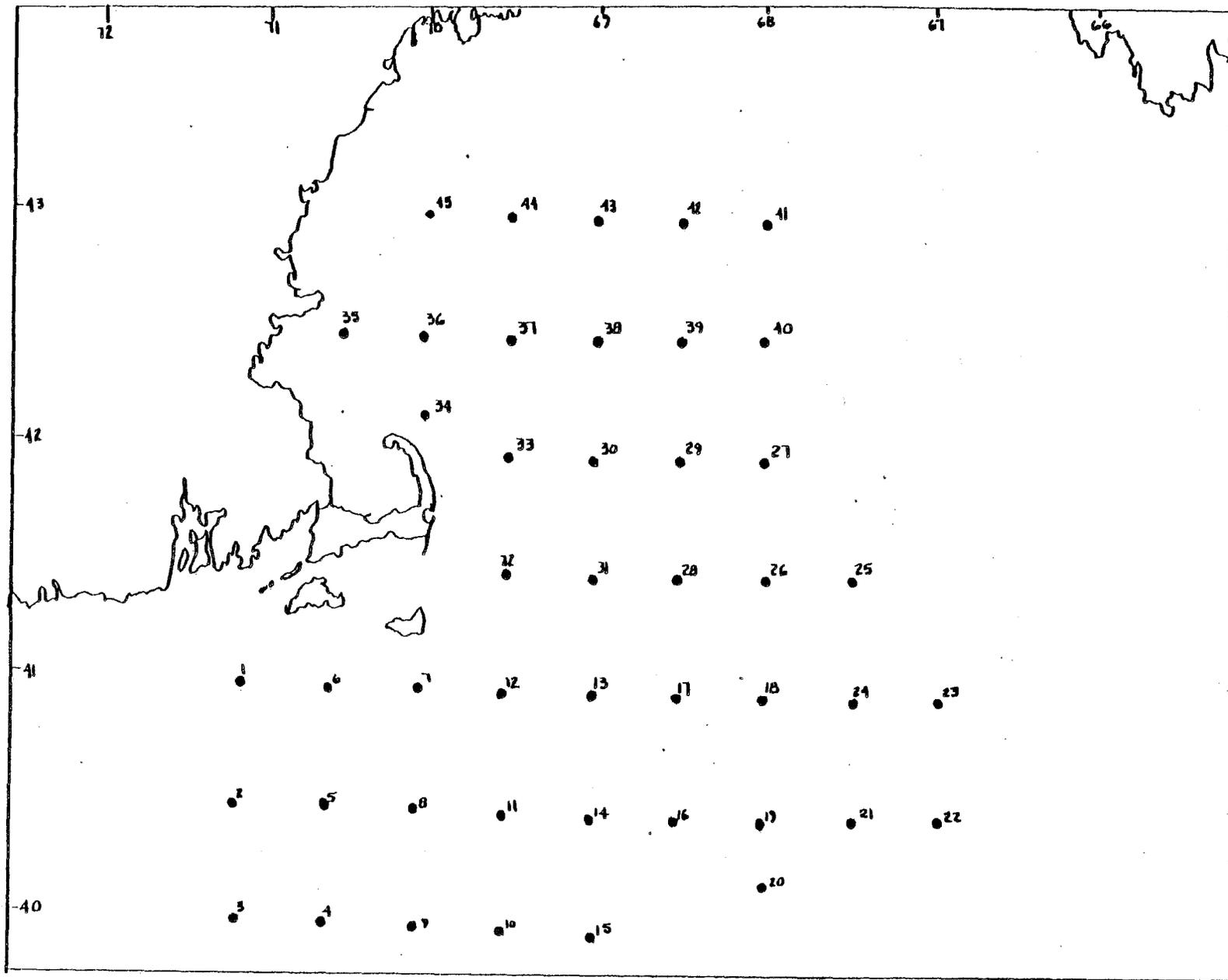
Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____		
FISH SAMPLES	_____		

Remarks

One hundred twenty-six birds collected by shotgun,
Boston whaler, and dipnet.

AO-18



ALLOT 78-03

VESSEL Aliot

CRUISE 78-04

DATES August 29-September 13, 1978

DAYS AT SEA 14

STATIONS 90

Cruise Objective

The objectives of the cruise were to: (1) determine the distribution and relative abundance of juvenile silver and red hake; (2) determine the feasibility of sampling juvenile fish with a small-mesh Soviet mid-water trawl; (3) collect adult and juvenile silver hake for stock identification and morphometric studies; and (4) collect hydrographical and meteorological data from the sampling area.

Scientific Personnel

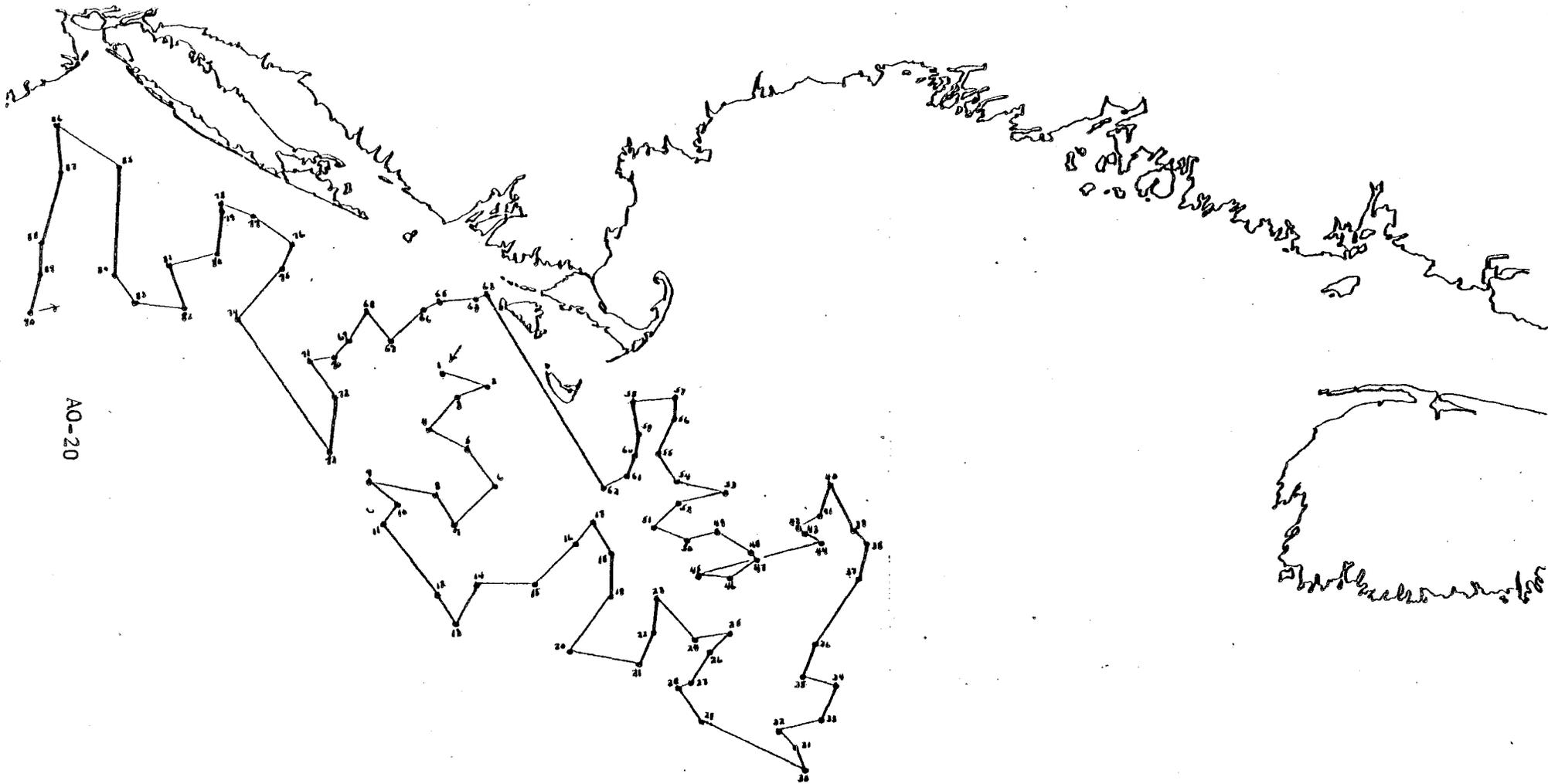
NMFS, NEFC, Woods Hole Laboratory, Woods Hole, MA

Frank Almeida, Chief Scientist
Hillary Herring
Deborah Dwyer

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	90
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	90	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____		
FISH SAMPLES	197		

SOVIET RESEARCH VESSEL (CODE 015)
1978 FALL JUVENILE HAKE SURVEY
29 AUG - 13 SEP



AO-20

VESSEL ALIOT

CRUISE 79-02

DATES 1-13 August 1979

DAYS AT SEA 13

STATIONS

Cruise Objective

No special stations were occupied during this leg of the cruise for comparison of MARMAP and Soviet sampling methods, as indicated in the sailing orders. Marine mammal sightings were recorded daily.

Scientific Personnel

AtlantNIRO, Kaliningrad, USSR

Igor Segaev, Chief Scientist
Pavel Alekseev
Leonid Bugaev
Alexander Nesheretov
Pavel Filippenko

NMFS, Northeast Fisheries Center, Woods Hole, MA

Deborah Dwyer

University of Rhode Island, Kingston, RI

Irene Briga

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	DREDGE	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
LONG LINE SET	_____		

VESSEL ALIOT

CRUISE 79-03

DATES 15-30 August 1979

DAYS AT SEA 15

STATIONS 30

Cruise Objective

The objectives of the cruise were: (1) to collect marine birds for food habits analysis and morphological and physiological studies; (2) to collect neuston samples to correlate with stomach and proventriculi contents; (3) to collect thermal hydrographic data to correlate bird density with physical oceanographic features; and (4) to conduct transect censuses of marine birds to monitor their seasonal changes in distribution and abundance on shelf and slope areas of Georges Bank and contiguous waters.

Scientific Personnel

AtlantNIRO, Kaliningrad, USSR

Igor Sigaev
Leonid Bugaev
Pavel Alekseev
Pavel Filippenko
Alexander Nesheretov

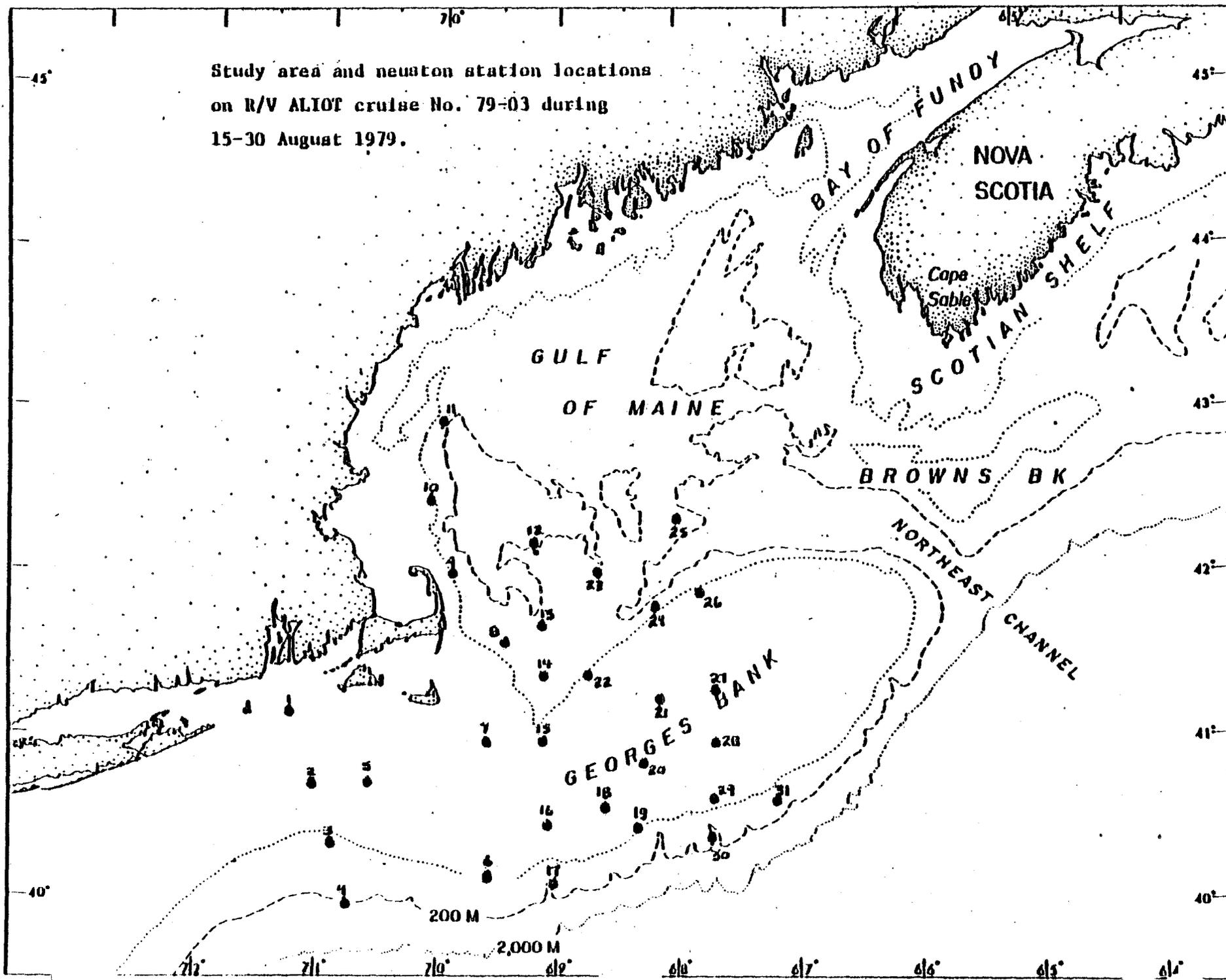
Manomet Bird Observatory, Manomet, MA

Kevin D. Powers, Chief Scientist
Galen L. Pittman

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
BONGO HAULS 20 cm	_____	NUTRIENT SAMPLES	_____
BONGO HAULS 61 cm	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	31	TRAWLS	_____
MOCNESS HAULS	_____	FISH SAMPLES	_____
XBT DROPS	30	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
FTD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
BIRD SPECIMENS	91	LONG LINE SET	_____

Study area and neuston station locations
on R/V ALIOF cruise No. 79-03 during
15-30 August 1979.



AO-23

VESSEL Annandale

CRUISE 76-01

DATES October 1-18, 1976

DAYS AT SEA 18

STATIONS 80

Cruise Objective

The primary objective of the cruise was to monitor the distribution and abundance of herring larvae (Clupea harengus) in the Gulf of Maine area for estimates of production, growth, mortality, and dispersal. Hydrographic work was conducted to describe the water-mass distribution in the study area. Water samples also were collected for nutrient and chlorophyll analysis and primary productivity experiments.

Scientific Personnel

R. Gregory Lough, Party Chief, NMFS, NEFC, Woods Hole, MA
David C. Potter, Fishery Biol., NMFS, NEFC, Woods Hole, MA
George Bolz, Biological Aid, NMFS, NEFC, Woods Hole, MA
Andrew Rosenberg, Student-Trainee, NMFS, NEFC, Woods Hole, MA
Joseph Cain, Fishery Biologist, NMFS, NEFC, Narragansett, RI
Gina Martinuzzi, Student Volunteer, Cambridge School, Weston, MA
Jane Alford, Chemical Oceanographer, Bigelow Lab, W. Boothbay Hbr., ME
Tom Gohsell, Chemical Oceanographer, Bigelow Lab, W. Boothbay Hbr., ME

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>217</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	<u>153</u>
BONGO HAULS	<u>78</u>	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	<u>78</u>	TRAWLS	<u>153</u>
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	<u>79</u>	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	<u>15</u>	PRIMARY PRODUCTIVITY	<u>7</u>
ROSETTE	_____		
FISH SAMPLES	_____		

VESSEL Annandale

CRUISE 77-01

DATES May 12-17, 1977

DAYS AT SEA 5

STATIONS 33

Cruise Objective

1. To sample waters of the Middle Atlantic Bight for fish eggs, particularly mackerel, to be preserved for mutagenic studies.
2. To collect eggs and water for concurrent chemical analysis, hydrocarbons and heavy metals.
3. To conduct a salinity tolerance-cytogenetic experiment.
4. To conduct a colchicine experiment.

Scientific Personnel

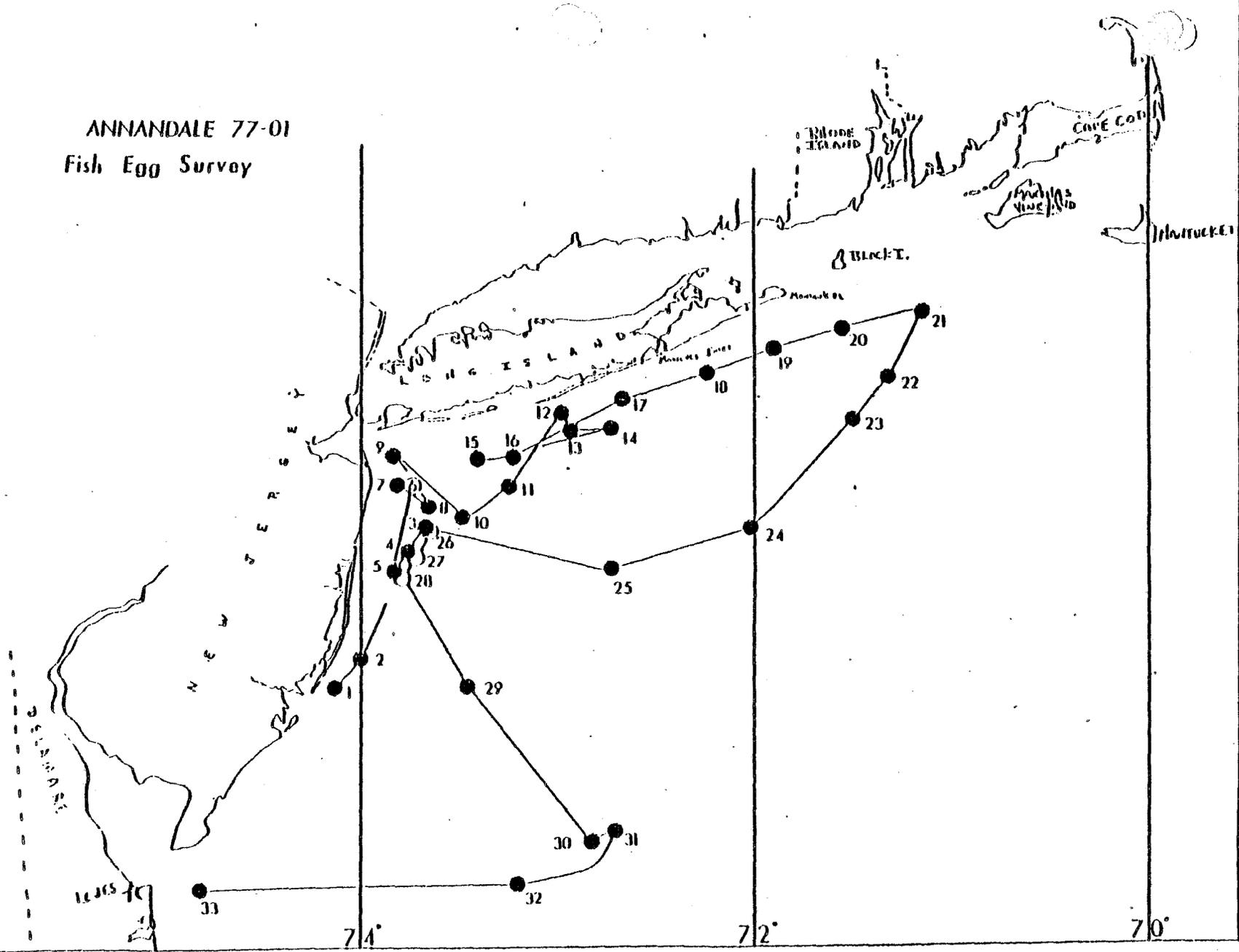
Ray Maurer, Chief Scientist
James Hughes
Vincent Zdanowicz
Dean Perry

David Nelson
James Davis
Laurie Savelkoul
Paul Gleason

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>31</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>27</u>
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	<u>33</u>	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	<u>33</u>	TRAWLS	<u>33</u>
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	<u>33</u>	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	<u>15</u>	PRIMARY PRODUCTIVITY	<u>7</u>
ROSETTE	_____	pH	<u>24</u>
FISH SAMPLES	_____	CHEM. MICROLAYER	<u>11</u>

ANNANDALE 77-01
Fish Egg Survey



Cruise track showing station locations.

VESSEL Anton Dohrn

CRUISE 76-01

DATES March 1-9, 1976

DAYS AT SEA 9

STATIONS

Cruise Objective

The principal objective was to determine, by daytime trawling, the distribution and relative abundance of juvenile herring and associated groundfish. Other objectives were: to monitor the distribution and relative abundance of larval herring and their food organisms for estimates of production, growth, mortality and dispersal; to take water temperature, oxygen, and salinity measurements; and to collect samples for age and growth studies on herring, mackerel, and pollock.

Scientific Personnel

Federal Republic of Germany

Dr. Holger Dornheim (C.S.)
Mr. Gunnar Joakimsson
Dieter Baumgartl
Horst Taraschewsky
Willy Hotopp
Hellfried Niederl
Dr. Ernst Ebermann
Karl-Heinz Martin

NMFS, Northeast Fisheries Center,
Woods Hole, MA

Henry Jensen
Wanda Cain
Margaret McBride
Dr. Vaughn Anthony (1-2 March)

Manomet Bird Observatory,
Manomet MA

Trevor L. Lloyd-Evans

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	399
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	399
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	32	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	40
XBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	57	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
FISH SAMPLES	_____		

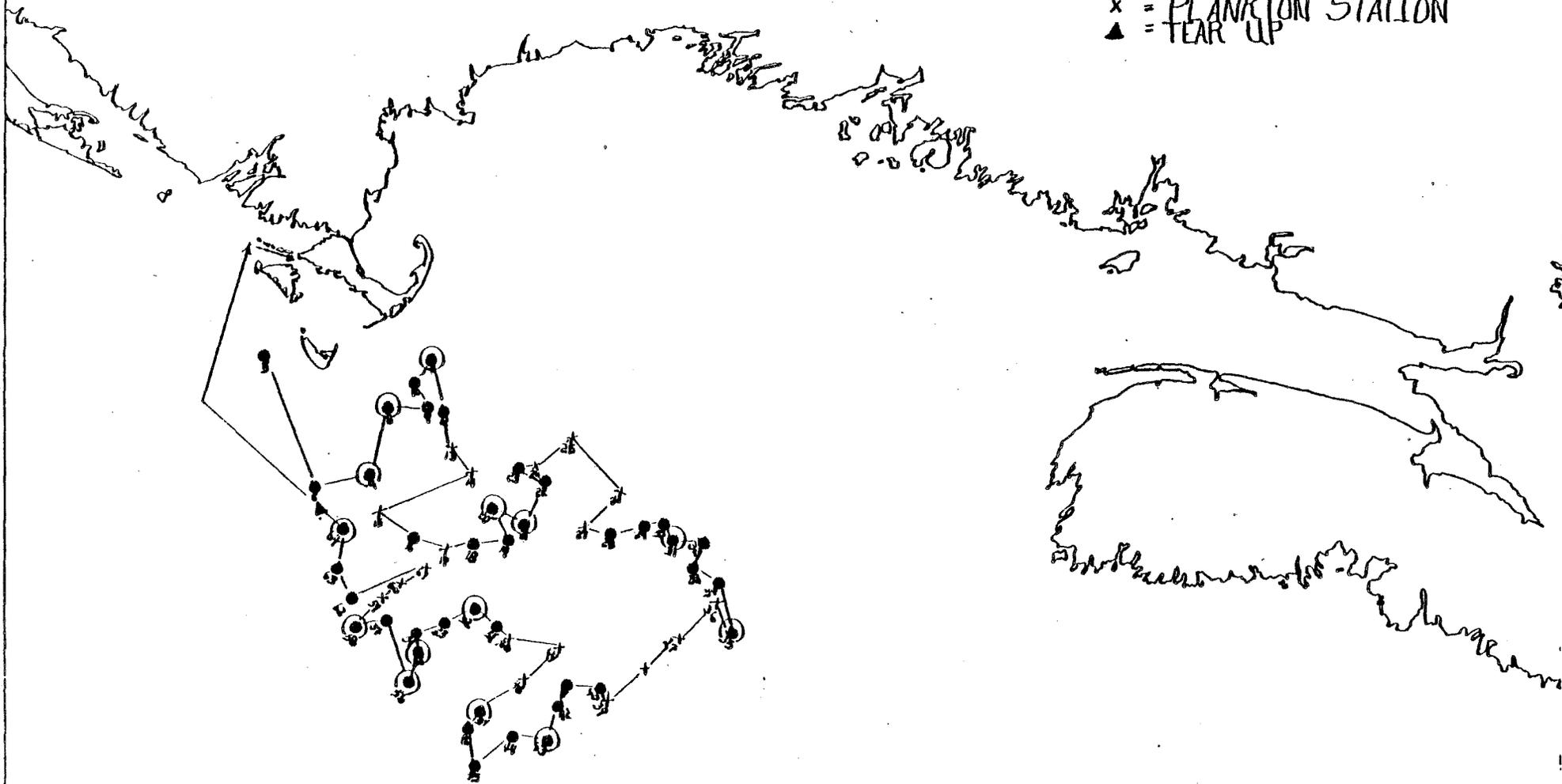
Remarks

No Cruise Track.

GERMAN RAZ ANTON DOHRN 76/1 CODE III
JUVENILE HERRING SURVEY

SPRING 1976
MARCH 2-9

- = TRAWL STATION
- ⊙ = TRAWL + PLANKTON STA.
- x = PLANKTON STATION
- ▲ = TEAR UP



VESSEL Anton Dohrn

CRUISE 76-02

DATES November 14-December 1, 1976

DAYS AT SEA 17

STATIONS 137

Cruise Objective

1. Monitor distribution and relative abundance of larval herring and their food organisms for estimates of production, growth, and mortality and dispersal.
2. Collect chlorophyll and nutrient samples for estimates of primary productivity.
3. Conduct C-14 productivity experiments to measure C-14 uptake by planktonic algae.
4. Conduct hydrographic work to describe the physical parameters and water mass distribution of the study area.

Scientific Personnel

Federal Republic of Germany

Gunnar Joakimsson, Chief Scientist
Rudolf Hermes
Friedeburg Busch
Elena Clasing
Rachel Vandenberg

NMFS, Northeast Fisheries Center,
Woods Hole, MA

George R. Bolz

NMFS, Sandy Hook, NJ

John Sibunka

Bigelow Laboratory of Ocean Sciences

Betsy Bass
Spencer Apollonio

Manomet Bird Observatory,
Manomet, MA

Kevin Powers

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	<u>87</u>	SALINITY SAMPLES	<u>1239</u>
ICNAF EXTRA STATIONS	<u>41*</u>	OXYGEN SAMPLES	<u>1250</u>
MOCNESS STATIONS	<u> </u>	NUTRIENT SAMPLES	<u>1250</u>
BONGO HAULS	<u>133</u>	CHLOROPHYLL SAMPLES	<u>900</u>
NEUSTON HAULS	<u>133</u>	TRAWLS	<u> </u>
XBT DROPS	<u> </u>	LONG LINE SET	<u> </u>
BOTTLE CASTS	<u>107</u>	CURRENT METERS	<u> </u>
CTD/STD CASTS	<u> </u>	DROGUE	<u> </u>
ROSETTE	<u> </u>	PRIMARY PRODUCTIVITY	<u>310</u>
FISH SAMPLES	<u> </u>		

Remarks

*Plus extra stations 9

VESSEL Anton Dohrn

CRUISE 77-01

DATES March 15-21, 1977

DAYS AT SEA 6

STATIONS 52

Cruise Objective

1. Monitor distribution and relative abundance of larval herring and their food organisms for estimates of production, growth, mortality, and dispersal.
2. Conduct hydrographic work to describe the physical parameters and water mass distribution of the study area.
3. Collect chlorophyll and nutrient samples for estimates of primary productivity.

Scientific Personnel

Federal Republic of Germany

Dr. Holger Dornheim
Dietmar Pietschock
H. Ganter
W. Bernoe
H. Bohm
Gunnar Joakimsson
B. Burkert
U. Frank
N. Klages

NMFS, Northeast Fisheries Center,
Woods Hole, MA

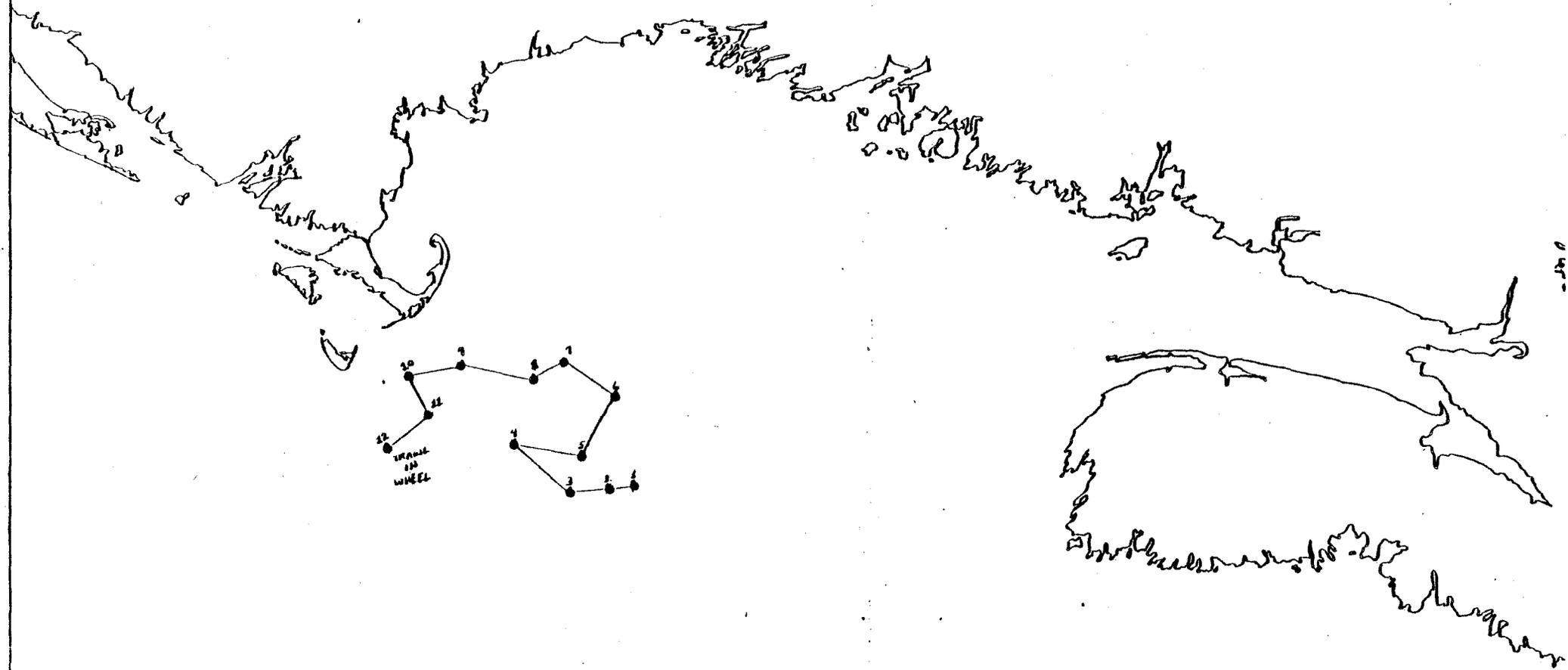
Roger Clifford

Manomet Bird Observatory,
Manomet, MA

Peter Connell

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____ 52	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____ 52
XBT DROPS	_____	LONG LINE SET	_____
BOTTLE CASTS	_____	CURRENT METERS	_____
CTD/STD CASTS	_____	DROGUE	_____
ROSETTE	_____	PRIMARY PRODUCTIVITY	_____
FISH SAMPLES	_____		



VESSEL Anton Dohrn

CRUISE 77-02

DATES October 10-30, 1977

DAYS AT SEA 20

STATIONS 78

Cruise Objective

The primary objectives of the cruise were to determine the location, relative size, and age-length composition of spawning herring. Secondary objectives were to obtain hydroacoustical backscattering data from schooling herring and to sample stomachs of other fishes caught in the herring trawl for a study of predation on adult herring.

Scientific Personnel

BFA, Institut fur Seefischeri, Hamburg, FR6

Holger Dornheim, Chief Scientist
Dietmar Pietschock
Jan Runge
Jurgen Muser

NMFS, NEFC, Woods Hole Laboratory, Woods Hole, MA

Thomas Azarovitz
James Crossen

NMFS NEFC, Sandy Hook Laboratory, Highlands, NJ

Stuart Wilk

Department of the Environment, Fisheries and Marine Service,
Marine Fish Division, Bedford, Nova Scotia

Kaija Meruzals

C.S. Draper Laboratory, Cambridge, MA

William DeRusso

Dowling College, Oakdale, NY

Charles Fray

Manomet Bird Observatory, Manomet, MA

Susan (Finch) Fitch

Eastern Nazarene College, Quincy, MA

Ruth Taylor

College of the Atlantic, Bar Harbor, ME

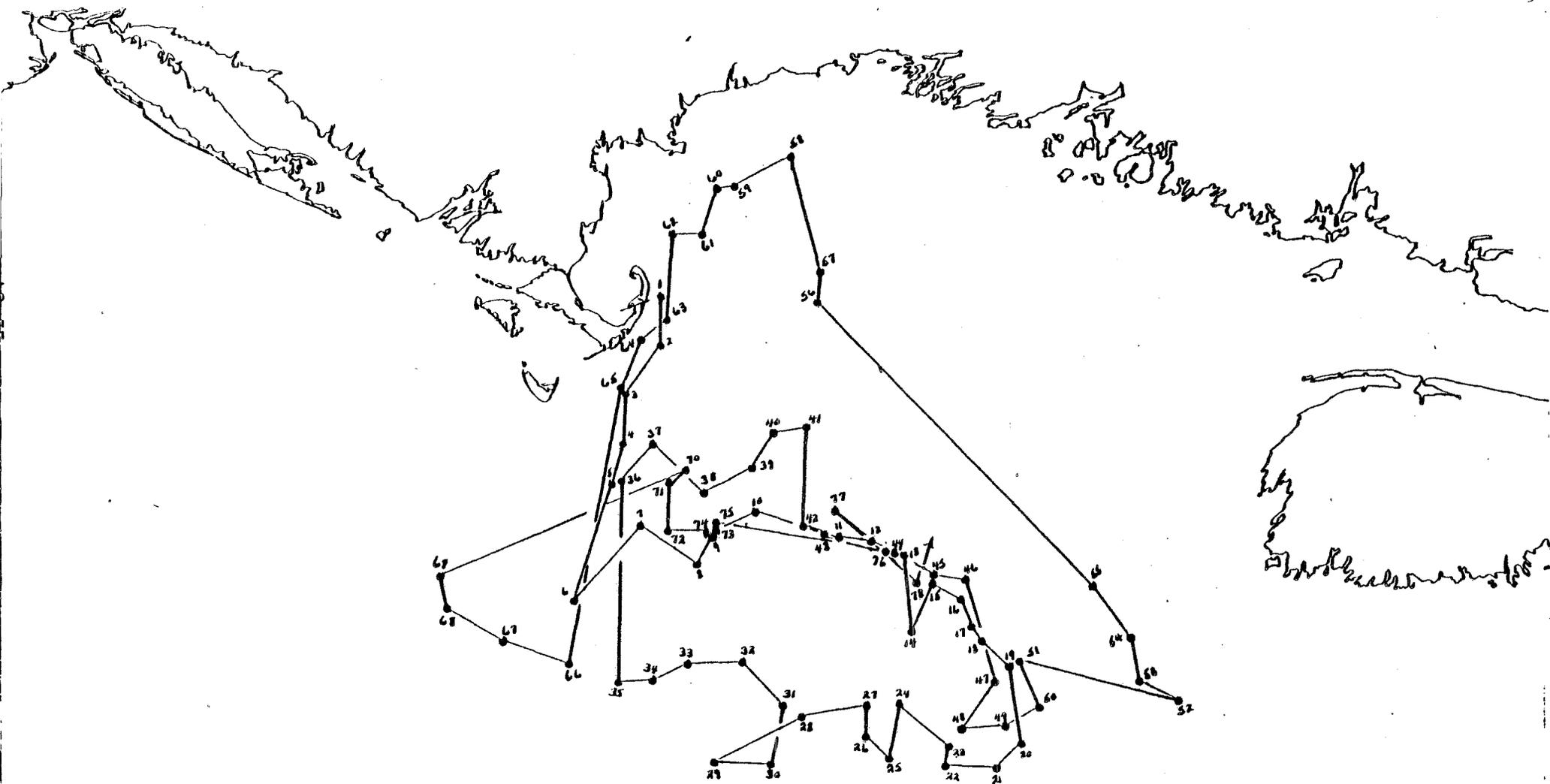
Bruce Bender

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	<u>78</u>	SALINITY SAMPLES	<u> </u>
ICNAF EXTRA STATIONS	<u> </u>	OXYGEN SAMPLES	<u> </u>
MOCNESS STATIONS	<u> </u>	NUTRIENT SAMPLES	<u> </u>
BONGO HAULS	<u> </u>	CHLOROPHYLL SAMPLES	<u> </u>
NEUSTON HAULS	<u> </u>	TRAWLS	<u> </u>
XBT DROPS	<u> </u>	LONG LINE SET	<u> </u>
BOTTLE CASTS	<u> </u>	CURRENT METERS	<u> </u>
CTD/STD CASTS	<u> </u>	DROGUE	<u> </u>
ROSETTE	<u> </u>	PRIMARY PRODUCTIVITY	<u> </u>
FISH SAMPLES	<u> </u>		

FRG R/V ANTON DOHN 77-02 (CODE 919)
FALL HERRING SPAWNING SURVEY
OCT 11-28, 1977

18



VESSEL Anton Dohrn

CRUISE 77-03

DATES November 1-18, 1977

DAYS AT SEA 18

STATIONS 115

Cruise Objective

Monitor distribution and relative abundance of larval herring and their food organisms for estimates of production, feeding, growth, mortality, and dispersal in the Georges Bank - Gulf of Maine region.

Conduct special sampling on concentrations of herring larvae and on their prey and predators using a Multiple Opening/Closing Net and Environmental Sensing System (MOCNESS) to determine diel vertical distribution.

Conduct hydrographic work to describe water mass distribution in the study area.

Scientific Personnel

Gregory Lough

Manomet Bird Observatory, Manomet, MA

George Bolz

Robert Halpin

Joseph Van Os

Edward Cohen

Harold Merry

College of the Atlantic, Bar Harbor, ME

Ronald Kirschner

Thomas Laughton

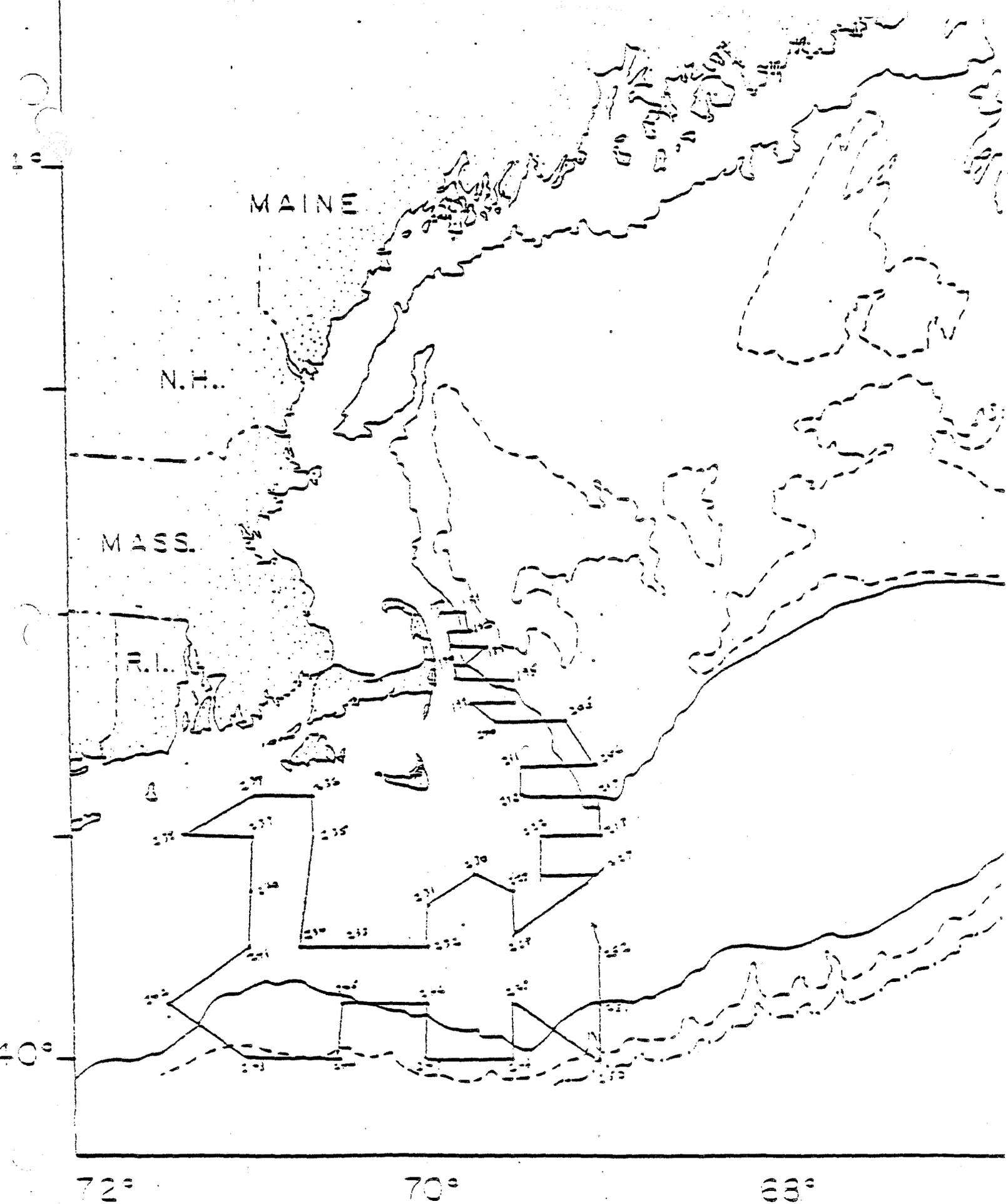
Ian Jones

NMFS, NEFC, Narragansett, RI

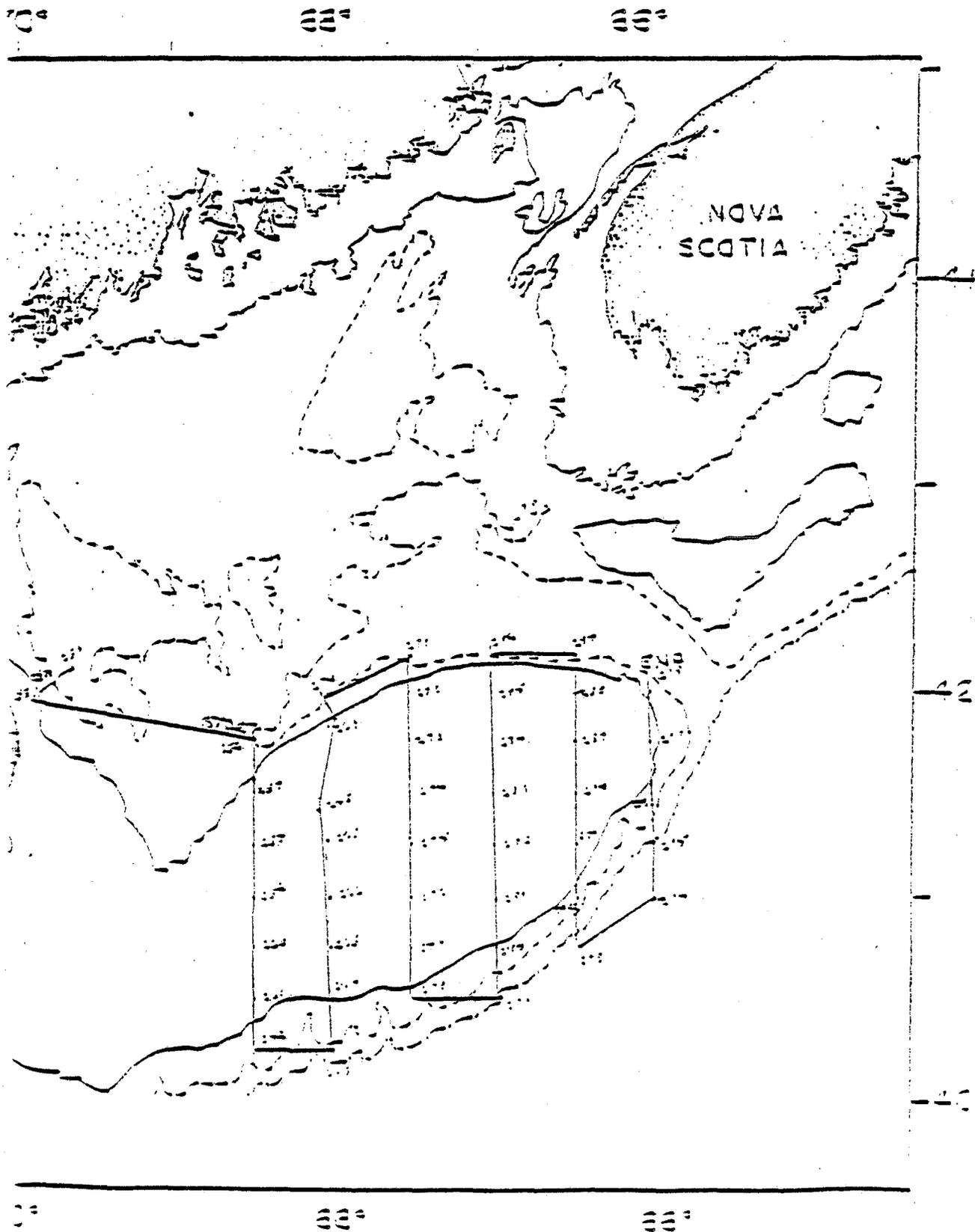
Jack Green

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	<u>95</u>	SALINITY SAMPLES	<u>700</u>
ICNAF EXTRA STATIONS	<u>20</u>	OXYGEN SAMPLES	<u>695</u>
MOCNESS STATIONS	<u>2</u>	NUTRIENT SAMPLES	<u> </u>
BONGO HAULS	<u>115</u>	CHLOROPHYLL SAMPLES	<u>Continuous</u>
NEUSTON HAULS	<u>91</u>	TRAWLS	<u> </u>
MOCNESS HAULS	<u>24</u>	LONG LINE SET	<u> </u>
XBT DROPS	<u>149</u>	CURRENT METERS	<u> </u>
BOTTLE CASTS	<u>99</u>	DROGUE	<u>1</u>
CTD/STD CASTS	<u> </u>	PRIMARY PRODUCTIVITY	<u> </u>
ROSETTE	<u> </u>		
FISH SAMPLES	<u> </u>		



Station Location and Cruise Track for R/V ANTON DCHRIL during Cruise 73-03, 26 October - 17 November 1978.



Station Location and Cruise Track for R/V ANTON DORRIS during Cruise 73-33, 25 October - 17 November 1973.

VESSEL Anton Dohrn

CRUISE 78-01

DATES February 28-March 12-25, 1978 PARTS I & II

DAYS AT SEA

STATIONS 73; 51

Cruise Objective

The primary objectives were to determine the distribution and relative abundance of herring and associated fish species in the area of Southern New England, Georges Bank, and the Gulf of Maine. Secondary objectives included the collection of samples of other fish for age, growth, maturity, and food chain investigations.

Scientific Personnel

Part I (28 February - 12 March 1978)

Bundesforschungsanstalt fur Fescherei, Hamburg,
Federal Republic of Germany

Dr. Holger Dornheim, Chief Scientist
Dietmar Pietschok
Christean Weyers

Northeast Fisheries Center, NMFS, Woods Hole, MA

Thurston Burns, Chief Scientist Robert Livingstone
Frank Almeida John Nicolas

Electro Prep, East Falmouth, MA

Ellen White

Northeastern University, Boston, MA

Fran Pearce

Part II (12-25 March)

Bundesforschungsanstalt fur Fescherei, Hamburg,
Federal Republic of Germany

Dr. Holger Dornheim, Chief Scientist
Dietmar Pietschok
Christean Weyers

Northeast Fisheries Center, NMFS, Woods Hole, MA

Gordon Waring, Chief Scientist

Northeast Fisheries Center, NMFS, Sandy Hook, NJ

Daryl Christensen

Northeast Fisheries Center, NMFS, Narragansett, RI

Jack Green

Lorrie Sullivan

Electro-Prep, East Falmouth, MA

Ellen White

Northeastern University, Boston, MA

Fran Pearce

Data Collected

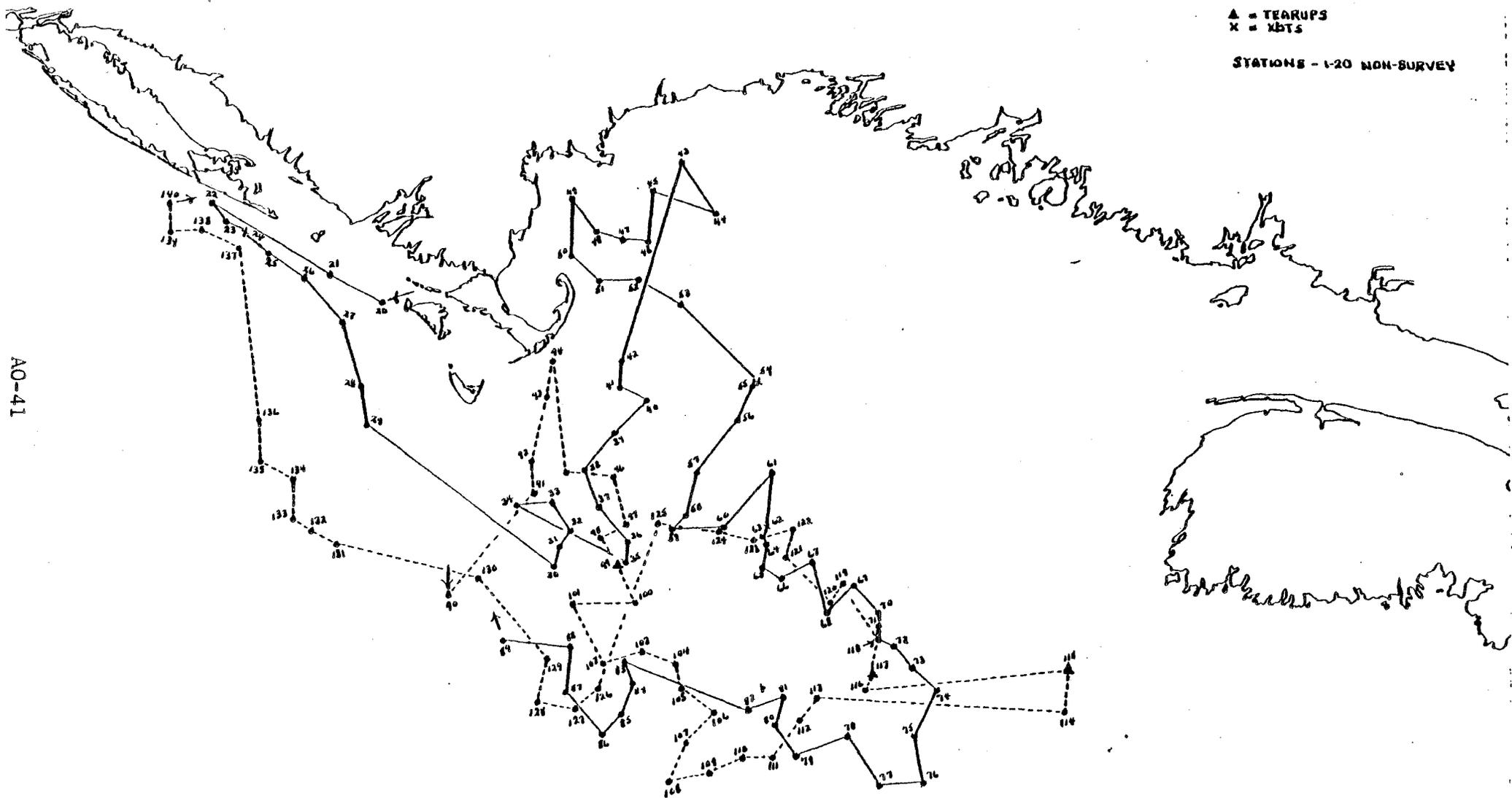
	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	80	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____		
FISH SAMPLES	_____		

FRS ANTON DOHRN 12-01 (CODE 795) 143
1978 SPRING
JUVENILE HEARNO AND GROUND FISH SURVEY

— PART I - 28 FEB - 11 MAR
- - - PART II - 13 - 23 MAR

▲ = TEARUPS
X = XBTs

STATIONS - 1-20 NON-SURVEY



AO-41

VESSEL Anton Dohrn

CRUISE 78-02

DATES October 1-19, 1978
Part II, October 19-24, 1978

PARTS I & II

DAYS AT SEA 19 and 5

STATIONS 85;

Cruise Objective

The objective of Part I was to determine the distribution and relative abundance of bottom and pelagic fish stocks with special attention to Atlantic herring, Atlantic mackerel, and squid. The objectives of Part II were to: (1) record hydroacoustical backscattering data from mid-water fish aggregations, (2) conduct limited trawl net tows to identify the probable targets which produced the data recorded in (1), and (3) conduct a series of measurements of the backscattered signal from a standard reference target to obtain calibration parameters of the hydroacoustical equipment.

Scientific Personnel

BFA, Institut fur Seefischeri, Hamburg, FRG

Holger Dornheim, Chief Scientist (Parts I & II)
Dietmar Pietschok (Parts I & II)
Hans Wagner (Parts I & II)
Bernd Burkert (Parts I & II)

NMFS, NEFC, Woods Hole Laboratory, Woods Hole, MA

William J. Overholtz (Part I)
Thomas Azarovitz (Part I)
James Crossen (Part I)

NMFS, NEFC, Oxford Laboratory, Oxford, MD

Sandra Casanella (Part I)

FRBC, Biological Station, St. Andrews, New Brunswick, CA

Peter Koehler (Part I)

Harvard University, Cambridge, MA

Kevin Cain (Part I)

Brown University, Providence, RI

Sydney Worthen (Part I)

Manomet Bird Observatory, Manomet, MA

Kevin Powers (Part I)

C.S. Draper Laboratory, Cambridge, MA

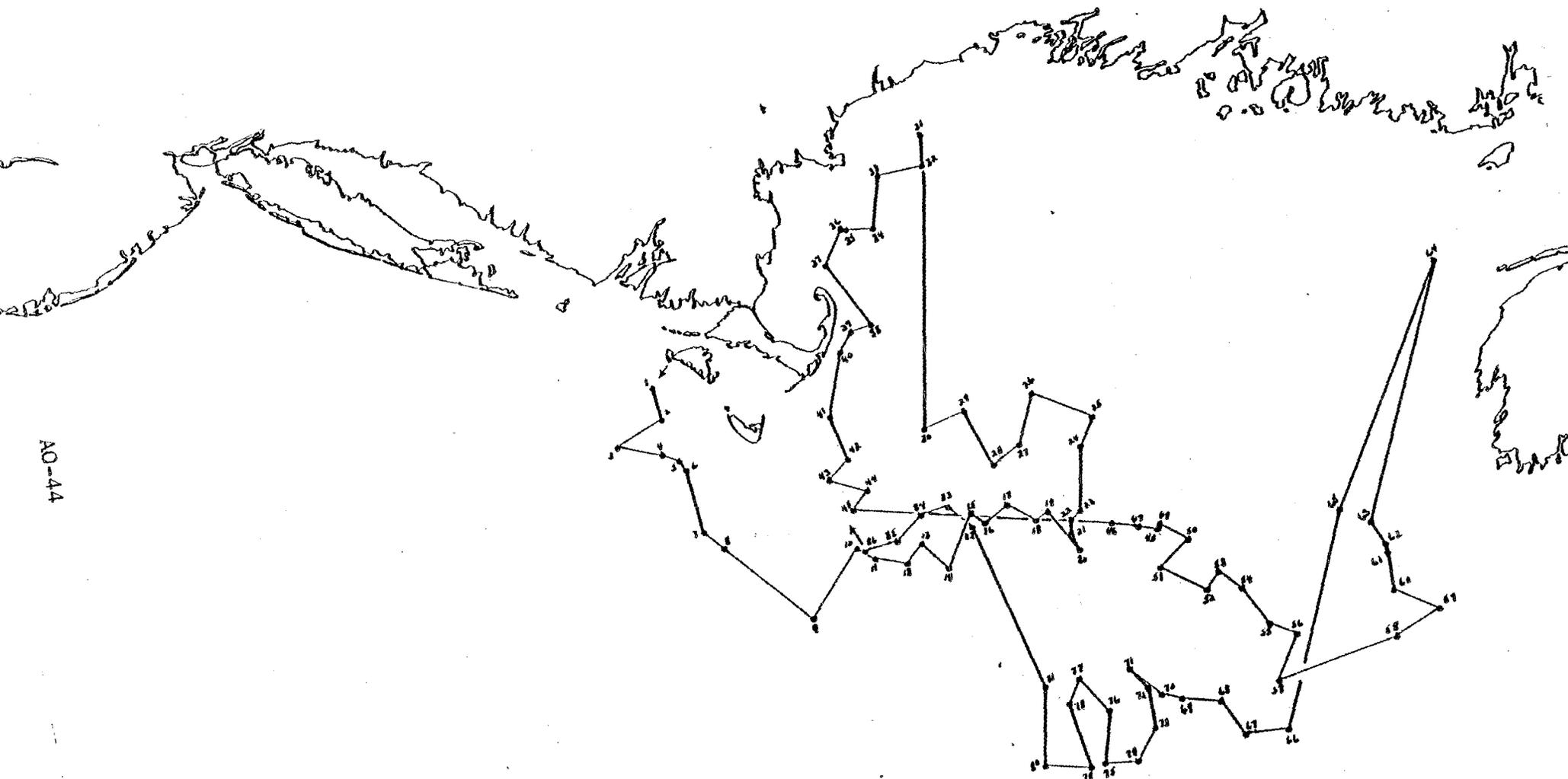
John Suomala, Jr. (Part II)

William DeRusso (Part II)

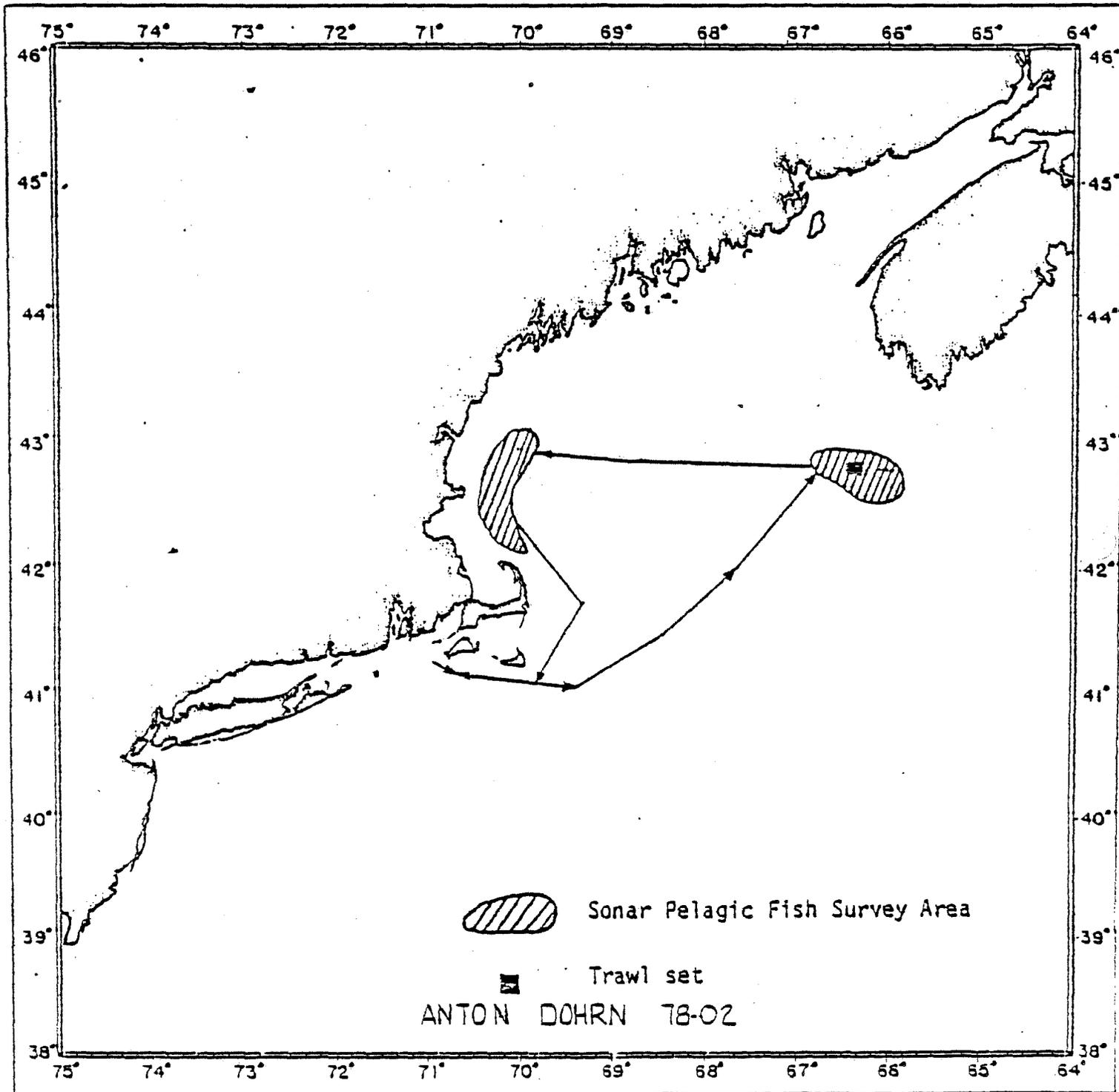
Ann Suomala (Part II)

Data Collected

	<u>Pt.I</u>	<u>Pt.II</u>		<u>Pt.I</u>	<u>Pt.II</u>
	<u>Total</u>	<u>Total</u>		<u>Total</u>	<u>Total</u>
ICNAF STANDARD STATIONS	_____	_____	SALINITY SAMPLES	_____	_____
ICNAF EXTRA STATIONS	_____	_____	OXYGEN SAMPLES	_____	_____
MOCNESS STATIONS	_____	_____	NUTRIENT SAMPLES	_____	_____
BONGO HAULS	_____	_____	CHLOROPHYLL SAMPLES	_____	_____
NEUSTON HAULS	_____	_____	TRAWLS	_____	1
MOCNESS HAULS	_____	_____	LONG LINE SET	_____	_____
XBT DROPS	_____	_____	CURRENT METERS	_____	_____
BOTTLE CASTS	_____	_____	DROGUE	_____	_____
CTD/STD CASTS	_____	_____	PRIMARY PRODUCTIVITY	_____	_____
ROSETTE	_____	_____	HYDROACOUSTICAL WORK	_____	_____
FISH SAMPLES	<u>3934</u>	_____			



AO-44



VESSEL Anton Dohrn

CRUISE 78-03

DATES October 26-November 17, 1978

DAYS AT SEA 23

STATIONS 52

Cruise Objective

The major objective of the cruise was to locate and follow an aggregation or "patch" of recently hatched larvae of Atlantic sea herring to provide short-term (hours and days) estimates of growth, mortality, and dispersal of the larval population in relation to variations in their physical and biological environment. The Anton Dohrn was one of eight vessels involved with the study. Secondary objectives of this cruise were to: (1) locate a concentration of euphausiids and sample intermittently for two days to determine their vertical distribution and the vertical distribution of the food they consume, (2) locate a concentration of larval herring to sample for two days to determine their vertical distribution and the vertical distribution of the organisms they consume, and (3) survey a standard grid of stations to search for larval herring to monitor their abundance in the Georges Bank-Nantucket Shoals area, as in past years.

Scientific Personnel

NMFS, NEFC, Narragansett, RI

Jerome Prezioso, Chief Scientist

NMFS, NEFC, Woods Hole, MA

Deborah Dwyer

NMFS, NEFC, Sandy Hook, NJ

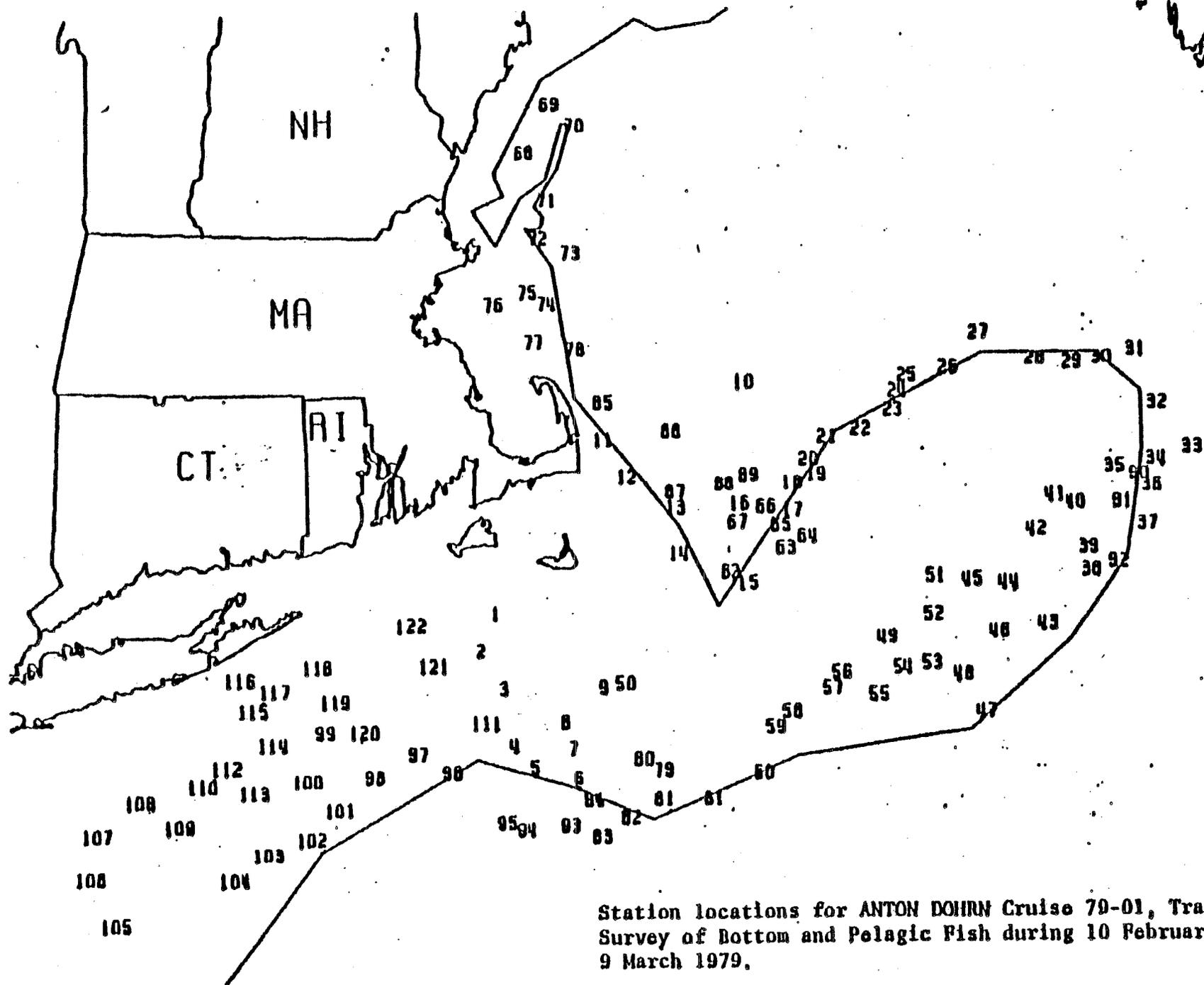
Doris Finan

Manomet Bird Observatory, Manomet, MA

Ann Mason

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	<u>33</u>	NUTRIENT SAMPLES	_____
BONGO HAULS	<u>295</u>	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	<u>86</u>	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	<u>108</u>	CURRENT METERS	_____
BOTTLE CASTS	<u>4</u>	DROGUE	_____
CTD/STD CASTS	<u>33</u>	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____		
FISH SAMPLES	_____		



Station locations for ANTON DOHRN Cruise 79-01, Trawl Survey of Bottom and Pelagic Fish during 10 February-9 March 1979.

VESSEL ANTON DOHRN

CRUISE 79-02

DATES September 27-October 19, 1979

DAYS AT SEA 22

STATIONS 93

Cruise Objective

The primary objective was to determine the distribution and relative abundance of herring and associated fish species in the area of southern New England, Georges Bank, and the Gulf of Maine. Secondary objectives included the collection of samples of other fish for studies of age, growth, and disease.

Scientific Personnel

Institut fur Seefischerei, Hamburg, FRG

Holger Dornheim, Chief Scientist
Dietmar Pietschok
Jan Runge
Peter Kanje

National Marine Fisheries Service, NEFC, Woods Hole, MA

Ralph K. Mayo

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Wallace Morse
John Ziskowski

Manomet Bird Observatory, Manomet, MA

Galen Pittman

University of Rhode Island, Kingston, RI

John Raonowicz

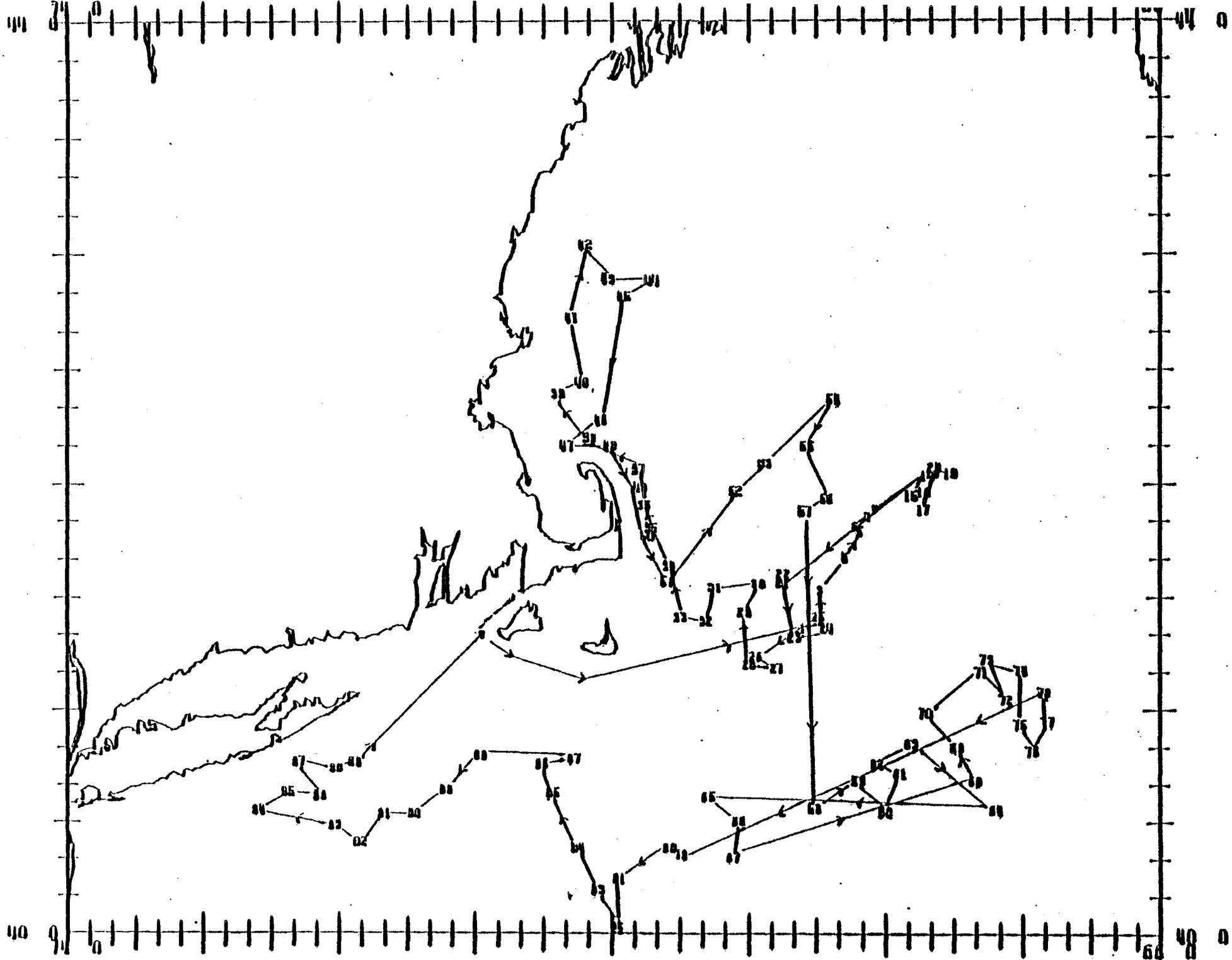
Darien High School, Darien, CT

Allison Huther
Christopher Keeley
Gretchen Lebuhn

Data Collected

	<u>Part I</u>	<u>Part II</u>	<u>Total</u>
.61 cm BONGO	_____	_____	_____
.20 cm BONGO	_____	_____	_____
.61 cm NEUSTON	_____	_____	_____
.20 cm NEUSTON	_____	_____	_____
HAEDRICH	_____	_____	_____
XBT	_____	_____	YES
BOTTLE CAST	_____	_____	_____
CTD CAST	_____	_____	_____
CURRENT METERS	_____	_____	_____
SALINITY SAMPLES	_____	_____	_____
OXYGEN SAMPLES	_____	_____	_____
NUTRIENT SAMPLES	_____	_____	_____
CHLOROPHYLL SAMPLES	_____	_____	_____
PRIMARY PRODUCTIVITY	_____	_____	_____
DROGUES	_____	_____	_____
SECCHI DISC	_____	_____	_____
TRAWLS	_____	_____	93
FISH SAMPLES	_____	_____	_____

AO-51



Station locations and cruise track for ANTON DOIRI cruise 79-02 during 27 September - 19 October 1979.

VESSEL ANTON DOHRN

CRUISE 79-03

DATES October 23-November 16

PARTS I, II, III

DAYS AT SEA

STATIONS

Cruise Objective

The primary objective of the cruise was to determine whether unexploited stocks of traditional or potential commercial importance occur in the deeper parts of the continental slope.

Scientific Personnel

Ichthyologie Institut fur Seefischerei, Hamburg, FRG

Matthias Stehmann, Chief Scientist
Gudrun Schulze

National Marine Fisheries Service, NEFC, Woods Hole, MA

Ronald Schlitz
Gilbert Dering

National Marine Fisheries Service, NEFC, Gloucester, MA

Warren Rathjen

Virginia Institute of Marine Science, Gloucester Point, VA

John A. Musick
Ken Sulak
Eric Anderson
Jacque Carter
Roy Crabtree

South Carolina Marine Resources Department, Charleston, SC

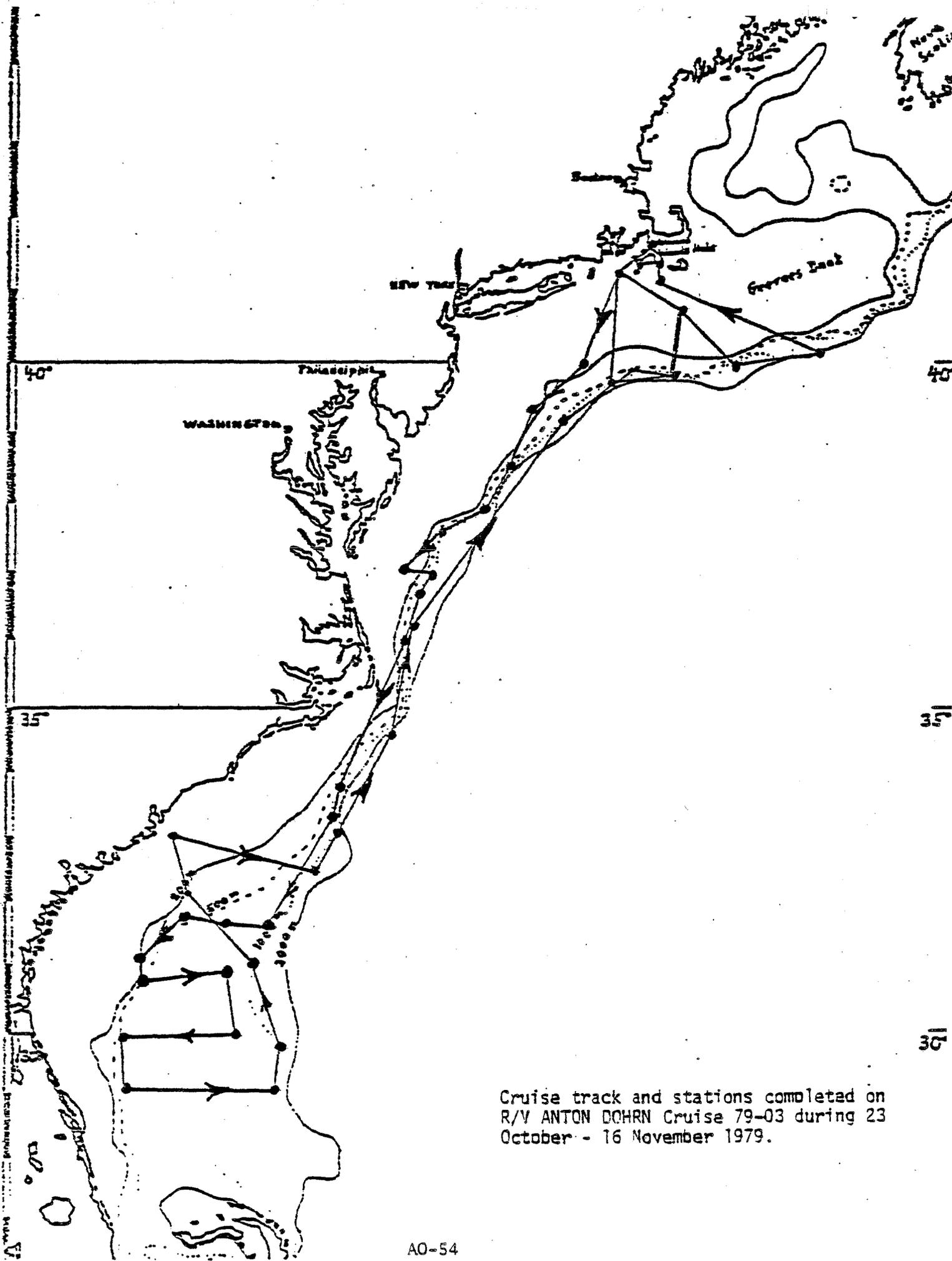
Charles Wenner

Huntsman Marine Laboratory, St. Andrews, NB, Canada

Douglas F. Markle

Data Collected

	<u>Part I</u>	<u>Part II</u>	<u>Total</u>
.61 cm BONGO	_____	_____	_____
.20 cm BONGO	_____	_____	_____
.61 cm NEUSTON	_____	_____	_____
.20 cm NEUSTON	_____	_____	_____
HAEDRICH	_____	_____	_____
XBT	_____	_____	_____
BOTTLE CAST	_____	_____	_____
CTD CAST	_____	_____	_____
CURRENT METERS	_____	_____	2
SALINITY SAMPLES	_____	_____	_____
OXYGEN SAMPLES	_____	_____	_____
NUTRIENT SAMPLES	_____	_____	_____
CHLOROPHYLL SAMPLES	_____	_____	_____
PRIMARY PRODUCTIVITY	_____	_____	_____
DROGUES	_____	_____	_____
SECCHI DISC	_____	_____	_____
TRAWLS	_____	_____	55
FISH SAMPLES	_____	_____	_____
LONG LINE SETS	_____	_____	_____



Cruise track and stations completed on
R/V ANTON DOHRN Cruise 79-03 during 23
October - 16 November 1979.

VESSEL Argus

CRUISE 77-01

DATES October 15-25/October 25-
November 11, 1977

PARTS I & II

DAYS AT SEA 29

STATIONS 142

Cruise Objective

The objectives of the cruise were: (1) monitor seasonal changes in distribution and abundance of zooplankton; (2) record hydrographic measurements; and (3) collect basic data on primary productivity in shelf and slope waters from Cape Hatteras to the shelf of Nova Scotia.

Scientific Personnel

AtlantNIRO, Kaliningrad, USSR

Mikhail V. Belevich, Chief Scientist
Igor K. Sigaev
Vasily F. Turok
Anatoliy M. Strela
Joseph E. Kuznetsov
Yury M. Froerman
Victor M. Perekhovoy

Kaliningrad University, Kaliningrad, USSR

Vladimir N. Babarika
Leonid A. Bugaev

NMFS, NEFC, Woods Hole Laboratory, Woods Hole, MA

Thomas L. Morris, Jr. (Parts I and II)
Daniel Patanjo (Part II, 25-30 October only)

NMFS, NEFC, Sandy Hook Laboratory, Highlands, NJ

John D. Sibunka (Part I)
Christine A. Evans (Part I)
Craig N. Robertson (Part I)
Andrew F. Draxler (Part II)
Doris M. Finan (Part II)
Alyce M. Wells (Part II)

NMFS, NEFC, Narragansett Laboratory, Narragansett, RI

John Green (Part I)
Jerome Prezioso (Part II)

Manomet Bird Observatory, Manomet, MA

Phillip Martin (Part I)
Albert Nickerson (Part II)

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>1363</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>226</u>
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS (All types)	<u>336</u>	CHLOROPHYLL SAMPLES	<u>1596</u>
NEUSTON HAULS " "	<u>216</u>	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	<u>142</u>	CURRENT METERS	_____
BOTTLE CASTS	<u>142</u>	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	<u>65</u>
FISH SAMPLES	_____		

VESSEL USSR Argus

CRUISE 77-02

DATES November 13-25, 1977

DAYS AT SEA 29

STATIONS 142

Cruise Objective

Secondary objectives were: (1) to obtain length-frequencies and numbers and weights per tow of all species caught during this cruise; (2) to collect hydrographic information including temperature and surface and bottom salinities; and (3) to collect specimens and samples for special studies at the Northeast Fisheries Center (NEFC) and for colleagues involved in marine research.

The primary objectives of the cruise were: (1) to investigate the distribution of long-finned squid (Loligo) and short-finned squid (Illex) in relation to depth (50-800 m); (2) to locate Illex spawning grounds, especially as they relate to depth; (3) to investigate diel feeding habits and movements of squid (Loligo and Illex); and (4) to collect data for studies of growth rate and maturation of squid (Loligo and Illex).

Scientific Personnel

NMFS, NEFC, Woods Hole Laboratory, Woods Hole, MA

Anne Tibbetts-Lange
Charles Byrne

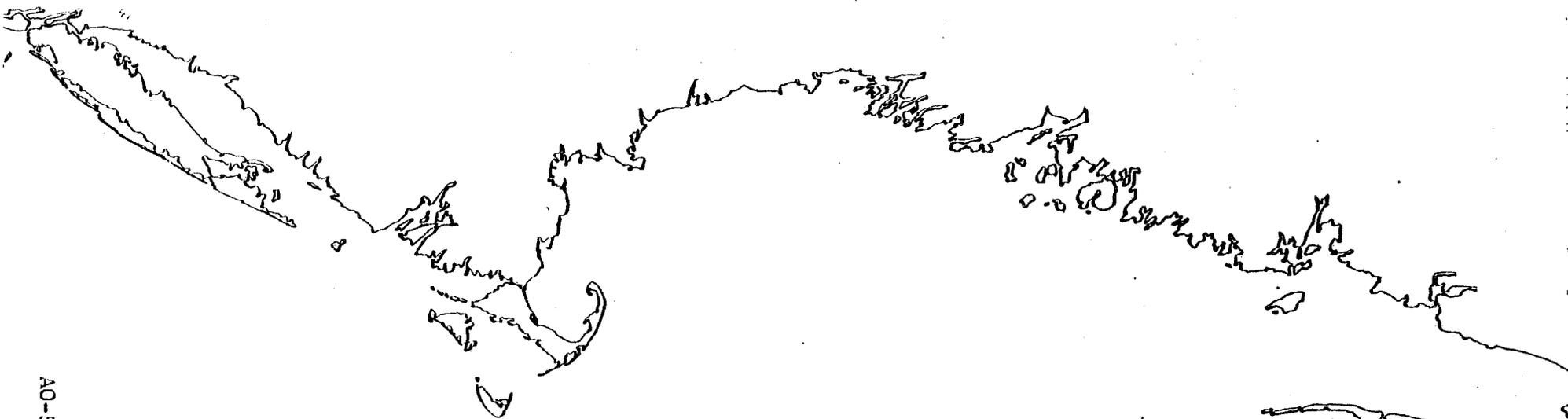
Environment Canada, Shellfish Division,
Resource Branch, Halifax, NS

Tissa Amaratunga

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____ 8
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____ 41	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____ 41	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____ 43	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____		
FISH SAMPLES	_____		

SOVIET R/V ARGUS '41
FALL SQUID SURVEY
NOV 15-23, 1977
(8 (17))



AO-58

Block 1
● ← STATIONS
2-17

Block 2
● ← STATIONS
22, 23
21-22



VESSEL USSR Argus

CRUISE 78-01

DATES January 28-February 14, 1978

PARTS I, II, III

DAYS AT SEA 18

STATIONS 150

Cruise Objective

The research objectives of the joint USSR-USA cruise were to:
(1) investigate the winter distribution, relative abundance, and age structure of Atlantic mackerel and Atlantic herring; (2) investigate the distribution of long-finned squid (Loligo sp.) and short-finned squid (Illex sp.) in relation to depth; (3) investigate diel feeding habits of squid; and (4) collect data for studies of the growth rate and maturity of squid.

Scientific Personnel Part III (3-23 March 1978)

NMFS, NEFC, Woods Hole Laboratory, Woods Hole, MA

Anne Tibbetts-Lange
Deborah Dwyer
Karen Johnson

NMFS, NEFC, Sandy Hook Laboratory, Highlands, NJ

Stuart Wilk

Part I (28 January-14 February 1978)

NMFS, NEFC, Woods Hole Laboratory, Woods Hole, MA

William Overholtz
John Messersmith
Deborah Dwyer

Smithsonian Institution, Washington, DC

Michael Sweeny

Part II (15 February-2 March 1978)

NMFS, NEFC, Woods Hole Laboratory, Woods Hole, MA

John Messersmith
Brian Hayden
Deborah Dwyer

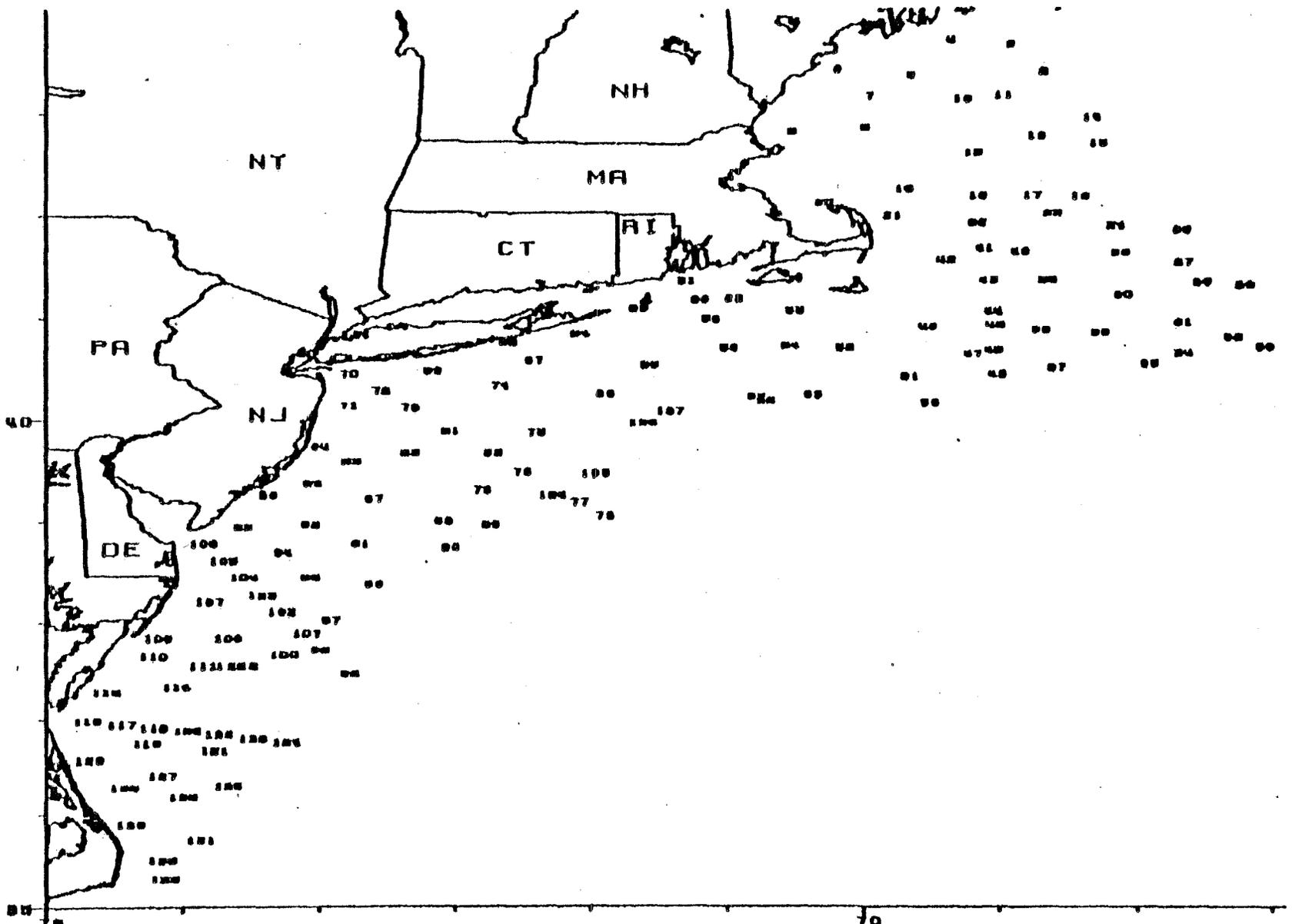
Eastern Nazarene College, Quincy, MA

Ruth Taylor

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____		
FISH SAMPLES	<u>500</u>		

AO-61



ARCUS
78-01

VESSEL USSR Argus

CRUISE 78-02

DATES March 25-April 8, 1978

PART I

DAYS AT SEA 15

STATIONS

Cruise Objective

Monitor changes in distribution and abundance of phytoplankton, zooplankton, record hydrographic measurements, and collect basic primary productivity data in the shelf waters from the Northeast Channel to Shinnecock Inlet.

Scientific Personnel

Brookhaven National Laboratory, Upton, NY

Thomas Hopkins, Chief Scientist
James Lofstrand, Oceanographer

State University of New York, Stony Brook, NY

William Behrens, Oceanographer
Dominick Ninivaggi, Oceanographer

Bigelow Laboratory for Ocean Sciences, W. Boothbay Harbor, ME

Newell Garfield

National Marine Fisheries Service, Narragansett, RI

Donna Busch, Oceanographer

National Marine Fisheries Service, Woods Hole, MA

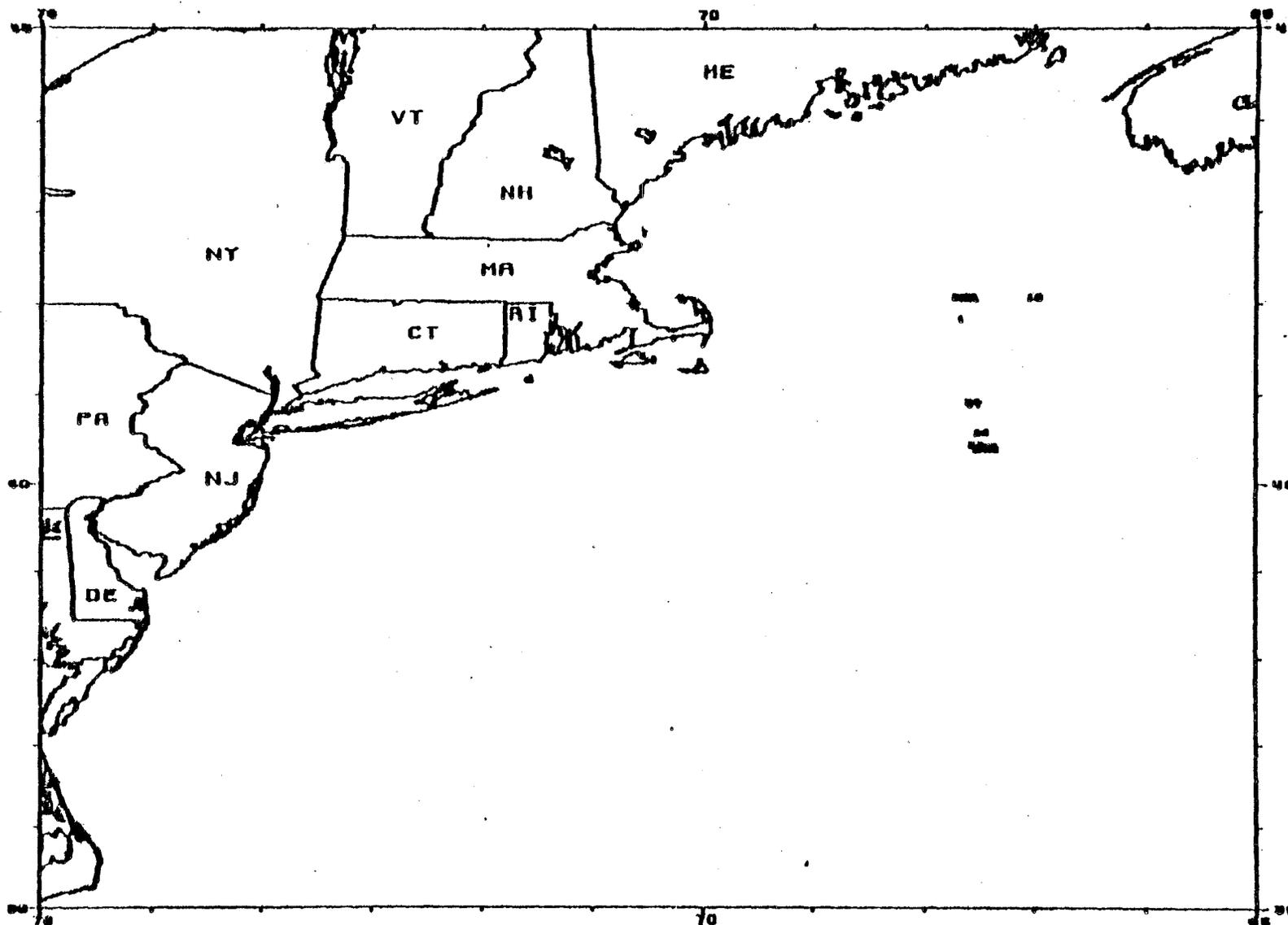
Tom Morris, Fishery Biologist
Debbie Dwyer, Interpreter

3

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	58	CURRENT METERS	_____
BOTTLE CASTS	32	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	5
ROSETTE	_____	CARBON	14
FISH SAMPLES	_____		

AO-64



ARCUS
78-02

VESSEL USSR Argus

CRUISE 78-02

DATES April 29-May 5, 1978

PART II

DAYS AT SEA 6

STATIONS

Cruise Objective

Monitor changes in distribution and abundance of phytoplankton, zooplankton, record hydrographic measurements, and collect basic primary productivity data in the shelf waters from the Northeast Channel to Shinnecock Inlet.

Scientific Personnel

Brookhaven National Laboratory, Upton, NY

Paul Falkowski, Chief Scientist
Karl Von Bock
Rowland Hautsch
Andrew Stoddard

State University of New York, Stony Brook, NY

David Riper

Bigelow Laboratory for Ocean Sciences, W. Boothbay Harbor, ME

Newell Garfield

National Marine Fisheries Service, Woods Hole, MA

Debbie Dwyer

National Marine Fisheries Service, Sandy Hook, NJ

John Sibunka
Michael Fahay

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	CARBON	<u>14</u>
FISH SAMPLES	_____		

VESSEL USSR Argus

CRUISE 78-03

DATES April 10-13, 1978

DAYS AT SEA 3

STATIONS 3

Cruise Objective

The objectives of the research survey were to: (1) record hydroacoustical backscattering data from mid-water fish aggregations; (2) make limited trawl tows in order to identify the probable targets which produced the data recorded in (1) above; and (3) obtain limited hydroacoustical backscattering measurements from a selected individual fish obtained in (2) above.

Scientific Personnel

NMFS, NEFC, Woods Hole Laboratory, Woods Hole, MA

James Crossen
Michael Fleming
Helen Mustafa

C.S. Draper Laboratory, Cambridge, MA

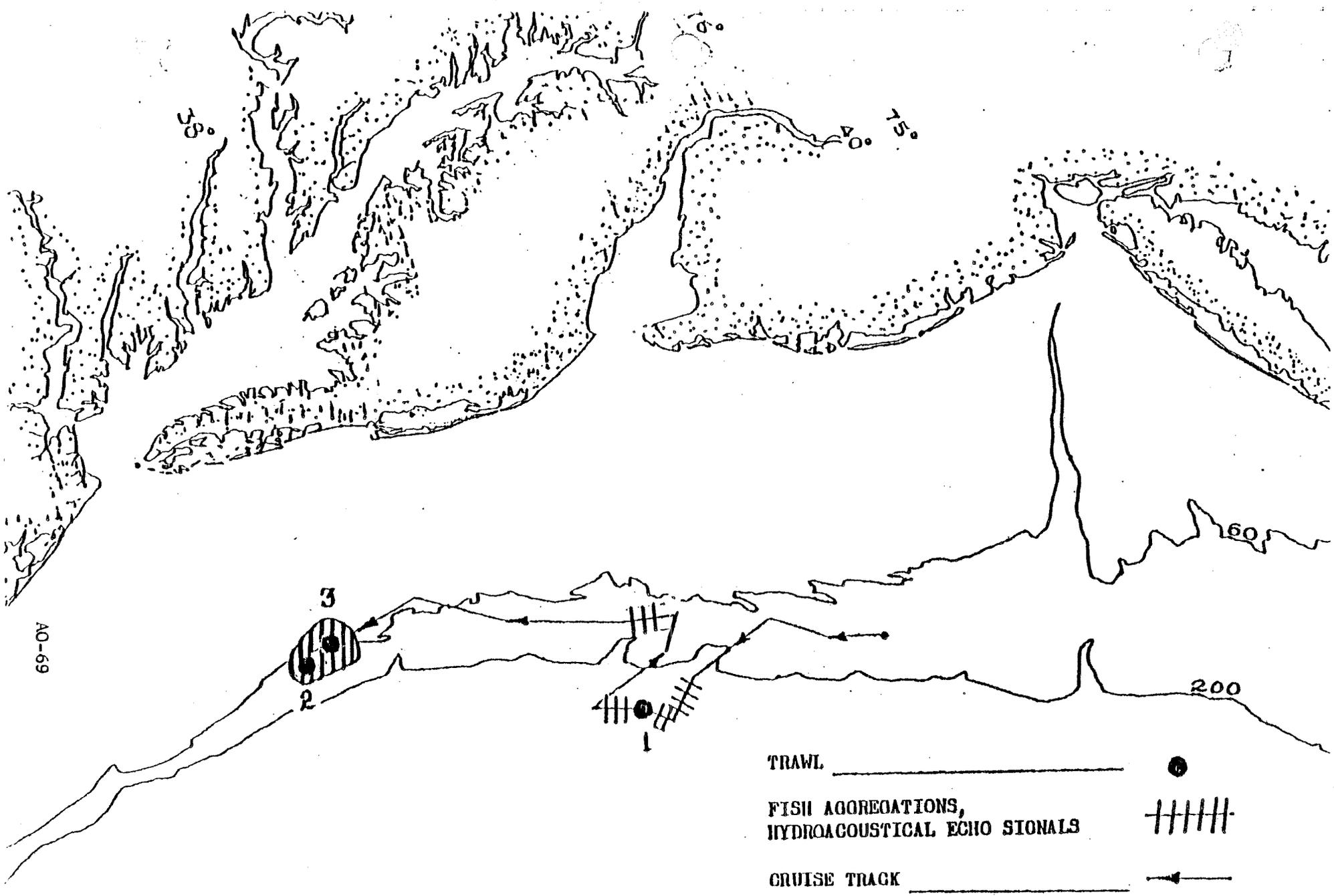
John Suomala, Jr., Chief Scientist
William DeRusso

NMFS, Washington, DC

Robert Green

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/SYD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	HYDROACOUSTIC	_____ 3
FISH SAMPLES	_____		



AO-69

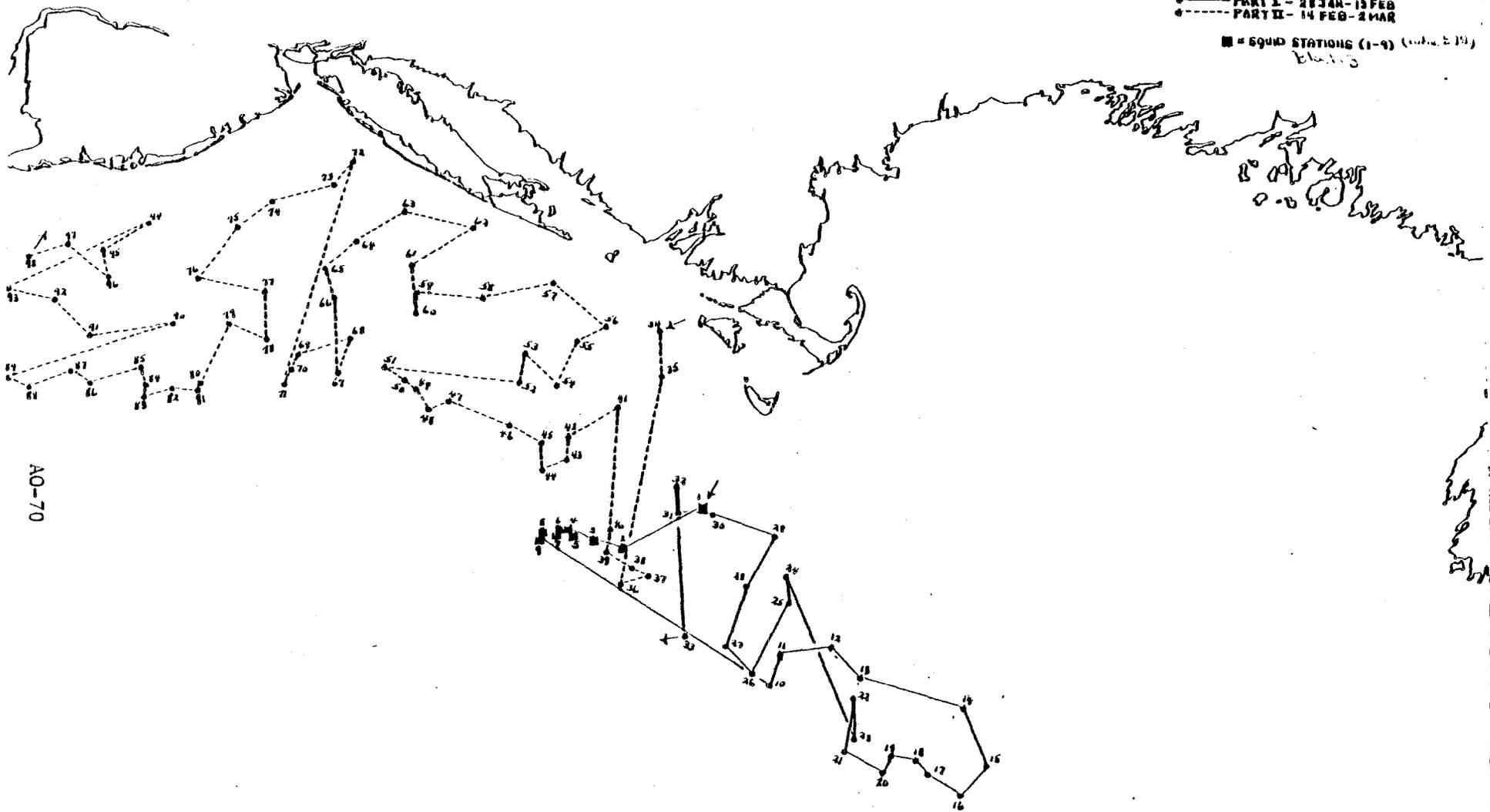
TRAWL 
 FISH AGGREGATIONS,
 HYDROACOUSTICAL ECHO SIGNALS 
 CRUISE TRACK 

R/V AROUS CRUISE 78-03, CRUISE TRACK AND AREA OF STUDY, 10-13 APRIL 1970

SOVIET ARCHA 78-03 (CODE 781) 144
1978 WINTER
MACKEREL, HERRING, SQUID SURVEY

● PART I - 28 JAN - 13 FEB
○ PART II - 14 FEB - 2 MAR

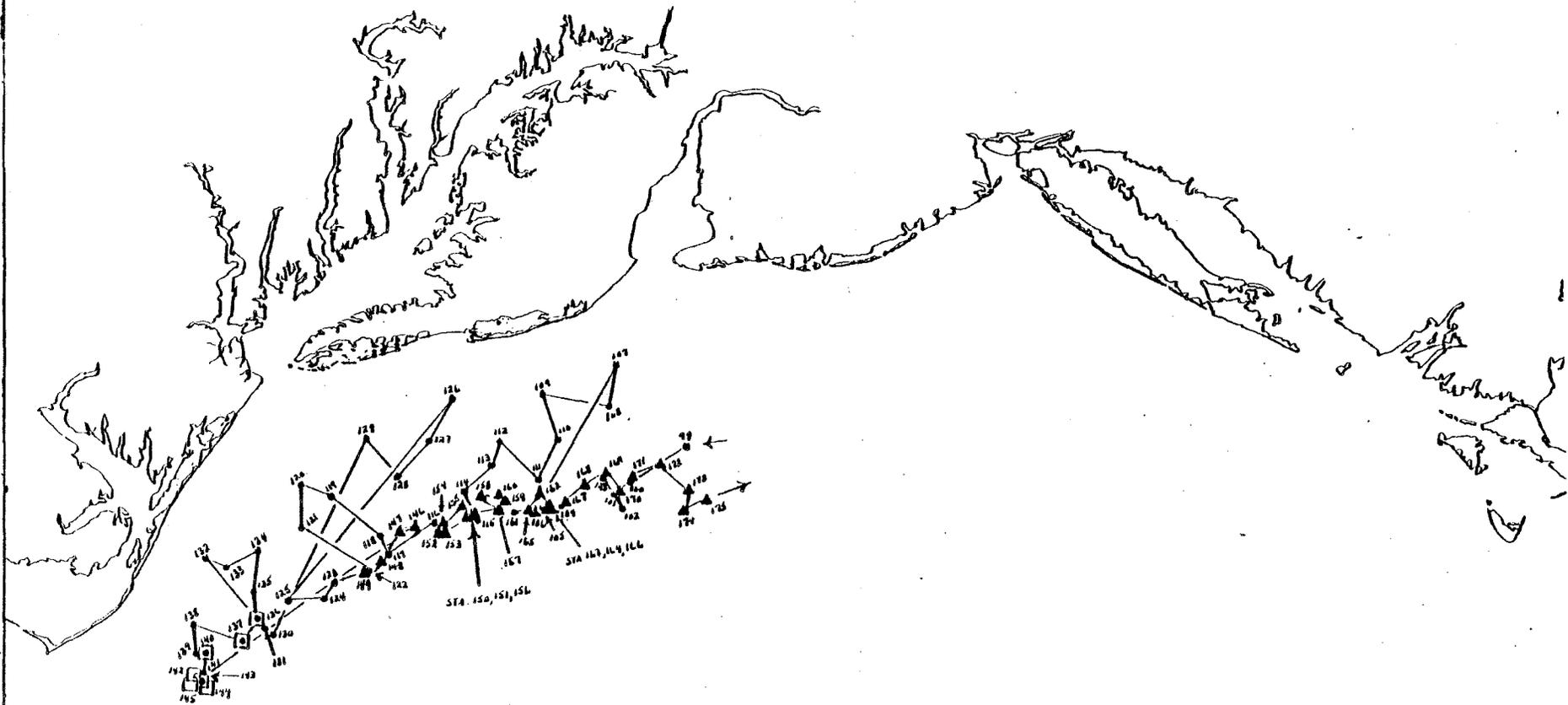
■ = SQUID STATIONS (1-9) (CODE 211)
BLANK



AO-70

SOVIET ARGUS 76-03 (CODE 761) 145
 1978 WINTER
 SQUID, GROUND FISH, HYDROACOUSTICS SURVEY
 PART III - 5-23 MAR

- = GROUND FISH STATIONS
- = SQUID STATIONS
- ◻ = SQUID AND GROUND FISH STATIONS
- ▲ = HYDROACOUSTICS STATIONS



131 10611
 141 10611

AO-71

VESSEL USSR Argus

CRUISE 78-04

DATES April 13-28 - May 7-24, 1978

PARTS I, II

DAYS AT SEA 34

STATIONS 149

Cruise Objective

The objectives of the cruise were to: (1) monitor seasonal changes in distribution and abundance of zooplankton and fish eggs and larvae; (2) collect and analyze hydrographic samples and data; (3) conduct phytoplankton (chlorophyll) baseline studies; and (4) conduct primary productivity analyses.

Scientific Personnel

NMFS, NEFC, Woods Hole Laboratory, Woods Hole, MA

Thomas Morris, Jr. (Parts I and II)
Daniel Patanjo (Part I)
Ronald Kirschner (Part II)
Timothy Cain (Part II)
Anne Dorkins (Part I)
Deborah Dwyer (Part II)

NMFS, NEFC, Sandy Hook Laboratory, Highlands, NJ

Arthur Kendall (Part I)
Joseph Ruane (Parts I and II)
George Flimlin (Part I)
Doris Finan (Part II)
Raymond Menell (Part II)

AtlantNIRO, Kaliningrad, USSR

Yuri Senin, Chief of Mission	Igor Sigaev
Alina Dorofeeva	Vladimir Soldat
Yuri Froerman	Anatoliy Strela
Natalia Istomina	Vyacheslav Sushin
Igor Krasovski	Vladimir Schnar
Anatoliy Ivanov	Yuri Shulyakovski
Vladimir Leontiev	Lubov Vinogradova
Svetlana Melchakova	Vladlen Vorobiev

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>1489</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>1311</u>
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	<u>939</u>
BONGO HAULS	<u>149</u>	CHLOROPHYLL SAMPLES	<u>1300</u>
NEUSTON HAULS	<u>149</u>	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	<u>154</u>	CURRENT METERS	_____
BOTTLE CASTS	<u>150</u>	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	<u>28</u>
ROSETTE	_____		
FISH SAMPLES	_____		

VESSEL Atlantic Twin

CRUISE 76-01

DATES June 14-17; 17-28; 23-30, 1976

PARTS I, II, & III

DAYS AT SEA

STATIONS

Cruise Objective

The purpose of the cruise was to conduct a series of submersible dives in coastal waters to provide an opportunity for several teams of scientists from the Northeast Fisheries Center staff to observe fish and invertebrates in their natural environment. Separate specific objectives for studying sand lance, redfish, groundfish, squid, shrimp, siphonophores, lobsters, and other midwater fish and invertebrates were planned by each team. High priority was given to examining the feasibility of night diving with the submersible as a means of studying the day-night behavior of marine organisms. The location of specific dive sites was decided by the Chief Scientist in consultation with the team leader concerned with each objective. All of the objectives of the cruise were investigated with varying measures of success.

Scientific Personnel

<u>Name</u>	<u>Title</u>	<u>Organization</u>
<u>Part I. 14-17 June 1976</u>		
Richard Cooper	Chief Scientist	NMFS, NEFC, Woods Hole, MA
Joseph Uzmann	Fish. Biologist	NMFS, NEFC, Woods Hole, MA
Kenneth Pecci	Fish. Biologist	NMFS, NEFC, Woods Hole, MA
Thomas Ruzsala	NOAA Corps Off.	NMFS, NEFC, Woods Hole, MA
Roger Clifford	Biol. Techn.	NMFS, NEFC, Woods Hole, MA
Clifford Newell	Biol. Techn.	NMFS, NEFC, Woods Hole, MA
Robert Livingstone, Jr.	Fish. Biologist	NMFS, NEFC, Woods Hole, MA
Harold Foster	Stud. Trainee	NMFS, NEFC, Woods Hole, MA
George Kelly	Fish. Biologist	NMFS, NEFC, Woods Hole, MA
Douglas Biggs	Invert. Biol.	WHOI, Woods Hole, MA

Part II. 18-23 June 1976

Richard Cooper	Chief Scientist	NMFS, NEFC, Woods Hole, MA
Kenneth Pecci	Fish. Biologist	NMFS, NEFC, Woods Hole, MA
Roger Clifford	Biol. Techn.	NMFS, NEFC, Woods Hole, MA
Clifford Newell	Biol. Techn.	NMFS, NEFC, Woods Hole, MA
John Nicolas	Biol. Techn.	NMFS, NEFC, Woods Hole, MA
Henry Jensen	Fish. Biologist	NMFS, NEFC, Woods Hole, MA
Karen Johnson	Stud. Trainee	NMFS, NEFC, Woods Hole, MA
Chris Davis	Biol. Aid	NMFS, NEFC, Woods Hole, MA
Carolyn Rogers	Fish. Biologist	NMFS, NEFC, Narragansett, RI
Gilbert Chase	Biologist	Env. Branch, Corps. of Engineers, Waltham, MA

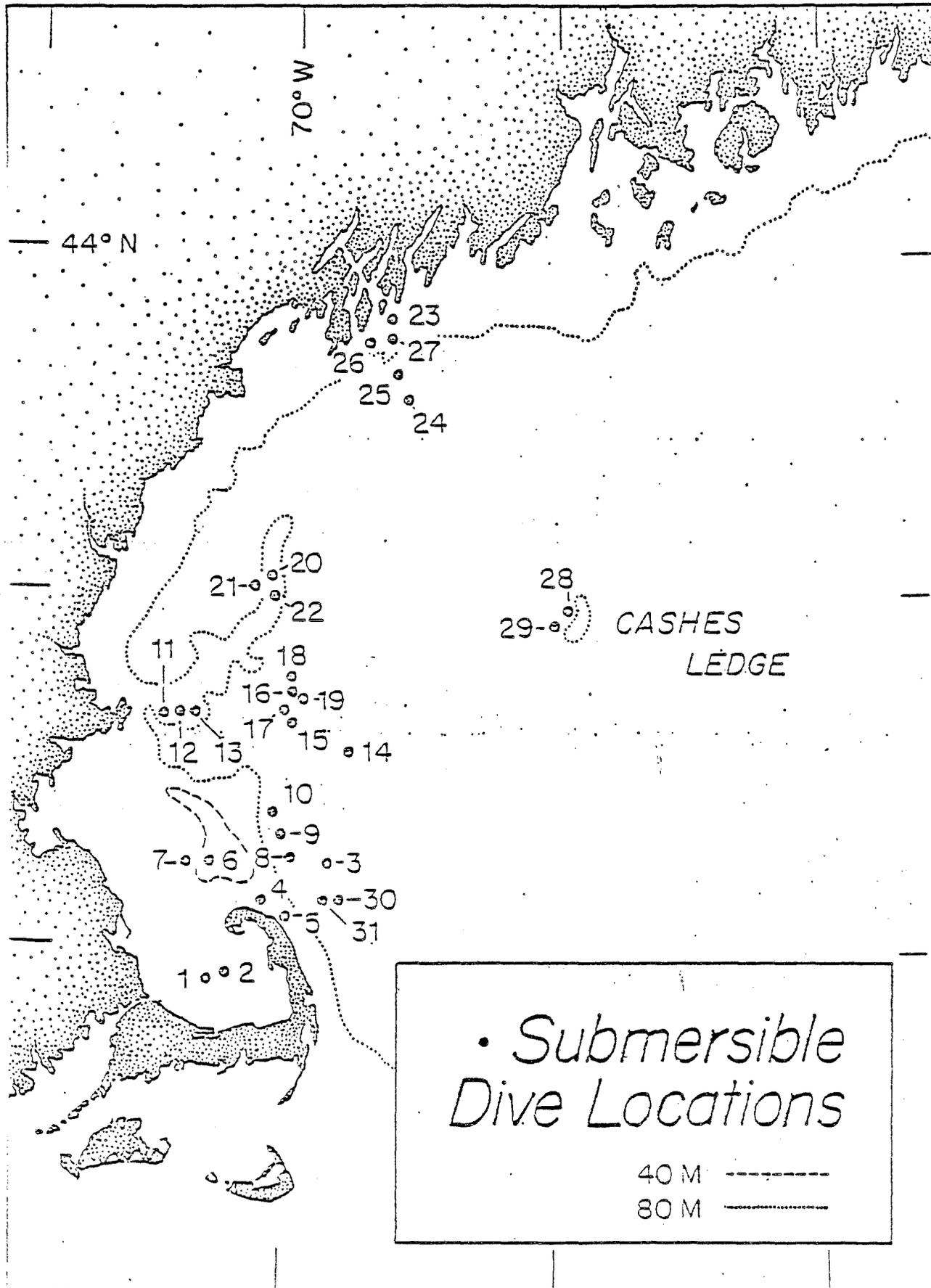
Part III. 24-30 June 1976

Richard Cooper	Chief Scientist	NMFS, NEFC, Woods Hole, MA
Joseph Uzmann	Fish. Biologist	NMFS, NEFC, Woods Hole, MA
Kenneth Pecci	Fish. Biologist	NMFS, NEFC, Woods Hole, MA
Roger Clifford	Biol. Techn.	NMFS, NEFC, Woods Hole, MA
Clifford Newell	Biol. Techn.	NMFS, NEFC, Woods Hole, MA
Chris Davis	Biol. Aid	NMFS, NEFC, Woods Hole, MA
Stephen Clark	Fish. Biologist	NMFS, NEFC, Woods Hole, MA
Linda Despres	Fish. Biologist	NMFS, NEFC, Woods Hole, MA
Ralph Mayo	Fish. Biologist	NMFS, NEFC, Woods Hole, MA
Michael Sissenwine	Fish. Biologist	NMFS, NEFC, Woods Hole, MA

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SUBMERSIBLE DIVER	31
FISH SAMPLES	_____		

Submersible dive locations, 14-30 June 1976.
ATLANTIC TWIN-NEKTON GAMMA Cruise 76-01.



VESSEL Belogorsk

CRUISE 76-01

DATES September 4-13, 1979

PARTS I & II

DAYS AT SEA 9

STATIONS 45

Cruise Objective

The purpose of the cruise was to determine the distribution and relative abundance of fish and invertebrate species, and to collect biological and hydrographical samples for USSR and USA research. An additional objective was to study the temperature, salinity, and plankton of a newly-formed Gulf Stream eddy and its relationship to Georges Bank. Meteorological and oceanographic data were collected in conjunction with the aforementioned samples.

Scientific Personnel

AtlantNIRO, Kaliningrad District, USSR

Michail Belevich, Chief Scientist
Vasily Turok
Vladimir Shatskich
Nicolay Lavinov
Anatoly Maklygin
Vladimir Khrichia
Vladimir Babaryka
Nikolay Naumov
Victor Perekhovoy
Vasily Shnar

Northeast Fisheries Center, Woods Hole, MA

Part

Henry Jensen	I
William Overholtz	I
Wanda Cain	I & II
Margaret McBride	I & II
Thomas Morris	II
Jerome Prezioso	II

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>45</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	<u>45</u>
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	<u>45</u>	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____		
FISH SAMPLES	_____		

3

SOVIET BELOGORSK 76-1 (CODE 766)

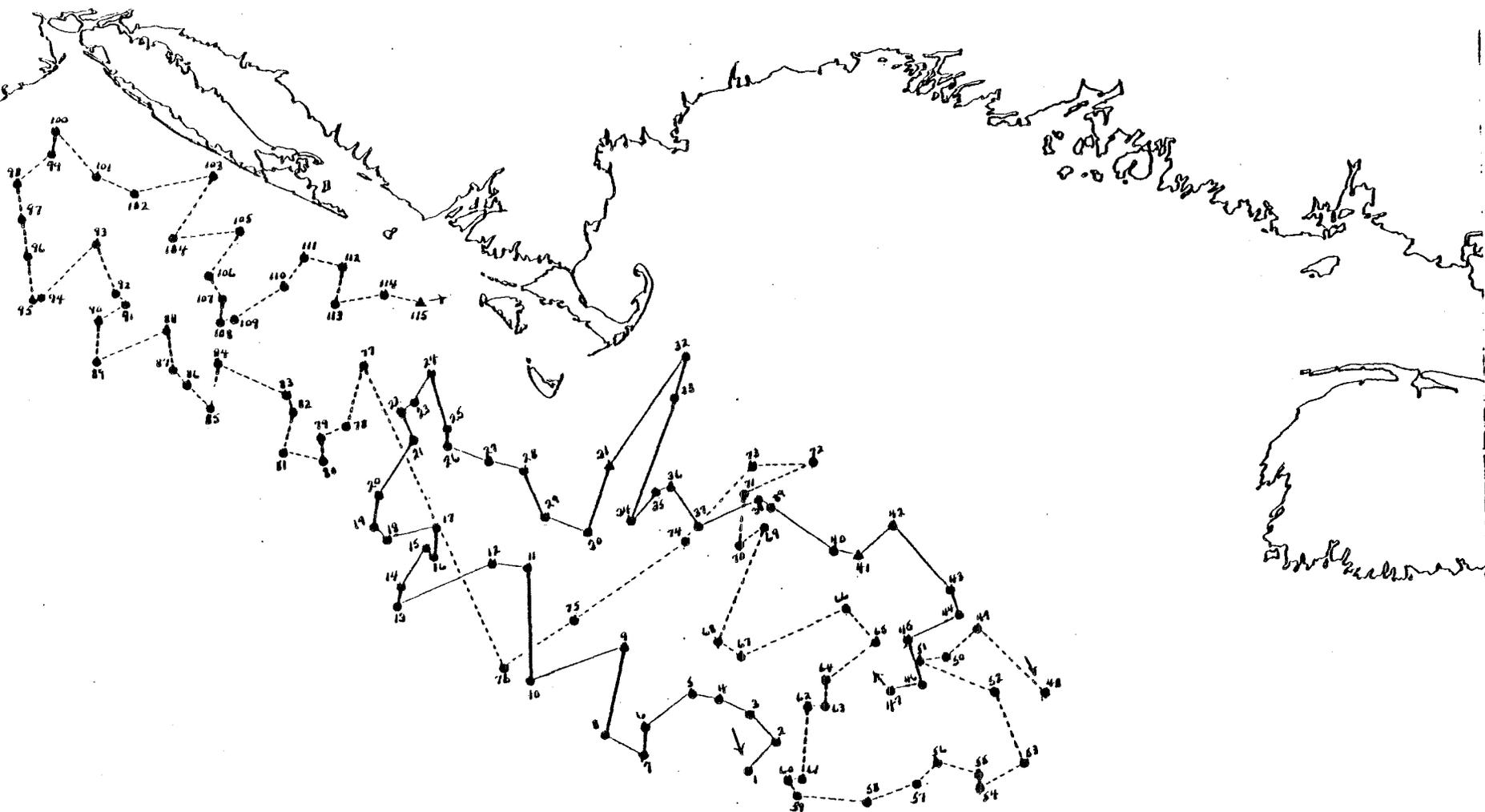
BOTTOM TRAWL SURVEY

SEPTEMBER 6-12, 1976

OCTOBER 11-21, 1976

121

▲-TEARUPS



AO-79

VESSEL Belogorsk

CRUISE 76-02

DATES September 14-30, 1976

DAYS AT SEA 16

STATIONS 10

Cruise Objective

The primary objective of the cruise was to conduct herring tagging operations on herring spawning grounds in the Georges Bank area in order to provide information on migratory patterns and stock boundaries.

Other objectives included the tagging of sharks for migration studies being carried out by Jack Casey of the NEFC, Narragansett Laboratory, Narragansett, Rhode Island. In addition, samples were collected for age and growth analysis and food habit studies.

Scientific Personnel

Northeast Fisheries Center, NMFS, Woods Hole, MA

Gordon T. Waring, Chief of Party
Thurston S. Burns
Rhett Lewis

Fisheries and Marine Science, St. Andrews, New Brunswick

Clayton Dixon

AtlantNIRO, Kaliningrad, USSR

Michael Vasilievich Belevich
Vasilii Tadervicks Turvk
Vasilii Nikolaivich Shnar
Vladimir Petrovich Shatskih
Anatolii Georgevich Maklygin
Vladimir Aleksandrovich Kvichia
Nikolai Dmitrovich Lavumov
Vladimir Nikolaievich Babaryka
Nikolai Ivanovich Naumor

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	PURSE SEINE	_____ 10
FISH SAMPLES	_____		

Remarks:

No Cruise Track.

VESSEL Belogorsk

CRUISE 76-03

DATES October 4-22, 1976

DAYS AT SEA

STATIONS 50

Cruise Objective

1. Monitor distribution and abundance of larval herring for estimates of production, mortality, and dispersal.
2. Describe water circulation and diffusive processes by conducting hydrographic work in the cruise area.
3. Determine distribution and relative abundance of fish and invertebrate species, and collect biological samples for cooperative research.

Scientific Personnel

AtlantNIRO, Kaliningrad, USSR

Michail V. Belevich, Chief Scientist
Nikolay D. Lavumov
Vasilii F. Turok
Vladimir A. Kvichir
Vladimir P. Shatshikh
Vladimir N. Shnar
Victor M. Perekhovoy

ZapRibePromRazvedka, Kaliningrad

Anatoly G. Maklygin

Kaliningrad University, Kaliningrad

Vladimir N. Babarika

Northeast Fisheries Center, Woods Hole, MA

Thomas L. Morris, Jr. Wanda L. Cain
Jerome Prezioso Margaret M. McBride

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	<u>50</u>	SALINITY SAMPLES	<u>339</u>
ICNAF EXTRA STATIONS	<u> </u>	OXYGEN SAMPLES	<u> </u>
MOCNESS STATIONS	<u> </u>	NUTRIENT SAMPLES	<u> </u>
BONGO HAULS	<u>50</u>	CHLOROPHYLL SAMPLES	<u> </u>
NEUSTON HAULS	<u> </u>	TRAWLS	<u> </u>
MOCNESS HAULS	<u> </u>	LONG LINE SET	<u> </u>
XBT DROPS	<u>51</u>	CURRENT METERS	<u> </u>
BOTTLE CASTS	<u>50</u>	DROGUE	<u> </u>
CTD/STD CASTS	<u> </u>	PRIMARY PRODUCTIVITY	<u> </u>
ROSETTE	<u> </u>		
FISH SAMPLES	<u> </u>		

VESSEL Belogorsk

CRUISE 76-04

DATES October 24-November 3, 1976

DAYS AT SEA

STATIONS 67

Cruise Objective

1. Determine day/night differences in mackerel catches with the #41 Yankee trawl in areas of known mackerel concentrations.
2. Collect stomachs to examine trophic interactions involving certain pelagic species during day and night periods.
3. Collect plankton samples to determine abundance and vertical distribution of prey organisms in the environment.
4. Determine the day/night differences in catches of other pelagic species with the #41 Yankee trawl.

Scientific Personnel

Northeast Fisheries Center, NMFS, Woods Hole, MA

Ralph K. Mayo, US Chief of Party
Ray Maurer

Northeast Fisheries Center, NMFS, Narragansett, RI

Jack Schwartz
Ronald Boisvert

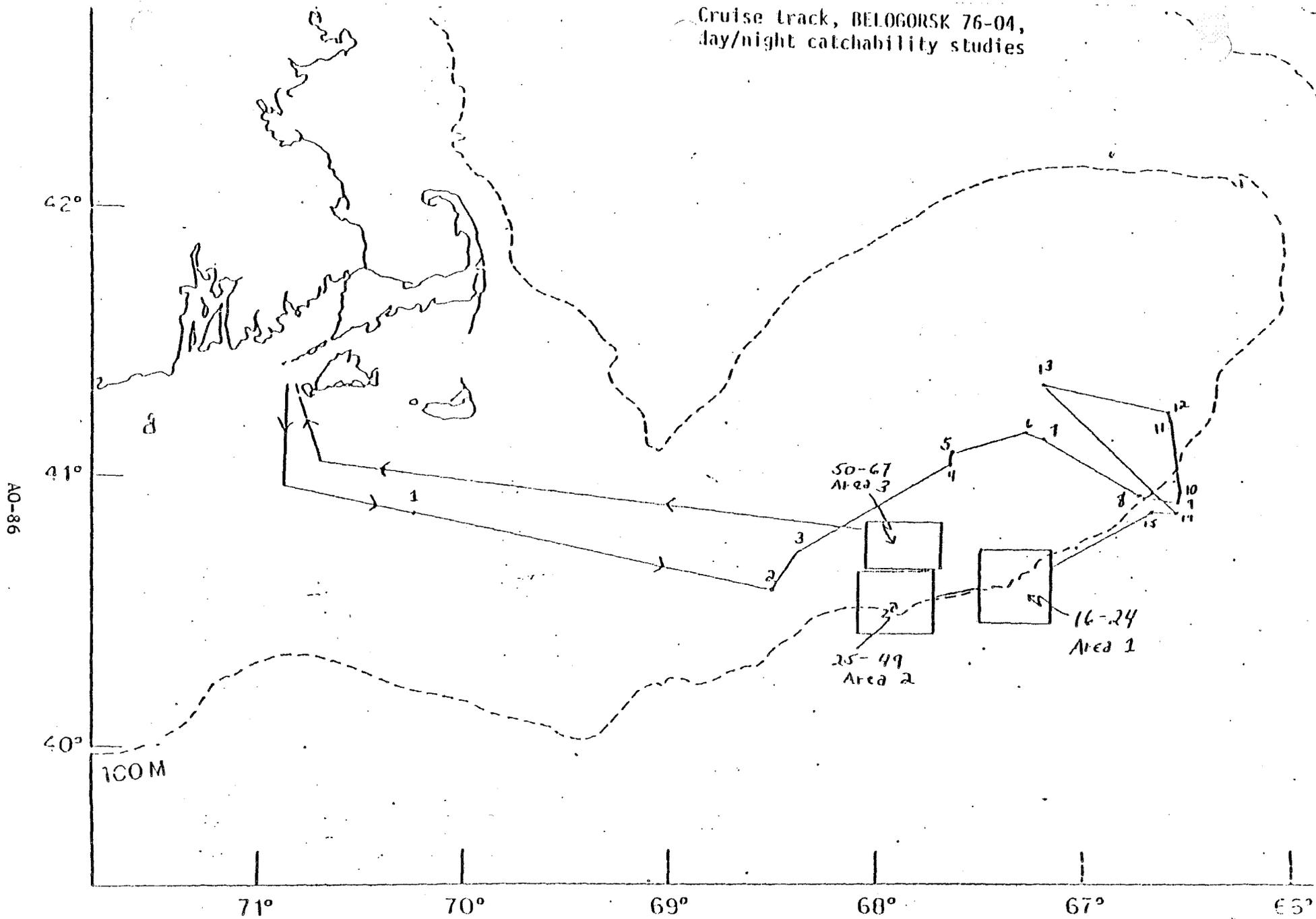
AtlantNIRO, Kaliningrad District, USSR

Michail V. Belevich, USSR Chief of Party
Vasily F. Turok
Vladimir P. Shatskikh
Nicolay D. Lavinov
Anatoly G. Maklygin
Vladimir A. Kvichir
Vladimir N. Babarika
Victor M. Perekhovoy
Vladimir N. Shnar

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	<u>107</u>	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	<u>8</u>	TRAWLS	<u>67</u>
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	<u>50</u>	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CID/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	MBT	<u>65</u>
FISH SAMPLES	_____		

Cruise track, BELOGORSK 76-04,
day/night catchability studies



BELOGORSK 76-04

VESSEL Belogorsk

CRUISE 78-01

DATES August 9-September 5, 1978

PARTS I & II

DAYS AT SEA 29

STATIONS 154

Cruise Objective

The objectives of the cruise were to: (1) monitor distribution and abundance of zooplankton and fish eggs and larvae; (2) collect and analyze hydrographic samples and data; (3) conduct phytoplankton (chlorophyll) baseline studies; and (4) conduct primary productivity analyses.

Scientific Personnel

USSR, AtlantNIRO, Kaliningrad

Michail V. Belevich, Chief Scientist
Victor M. Perekhovoy
Vjacheslav A. Sushin
Vladimir F. Sigantov
Igor V. Krasovsky
Tamara M. Shcherbakovskaya
Anatole N. Vovk

NMFS, NEFC, Woods Hole, MA

Thomas Morris, Jr. Parts I and II
William Brennan Parts I and II

NMFS, NEFC, Sandy Hook, NJ

Amy Fischer Parts I and II
Steven B. Ward Parts I and II
Christine Evans Part I
John O'Reilly Part I
Susan Barker Part II
William Hogelin Part II

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>1612</u>
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	<u>264</u>
BONGO HAULS	<u>154</u>	CHLOROPHYLL SAMPLES	<u>2878</u>
NEUSTON HAULS	<u>154</u>	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	<u>154</u>	CURRENT METERS	_____
BOTTLE CASTS	<u>1612</u>	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____		
FISH SAMPLES	_____		

VESSEL Belogorsk

CRUISE 78-02

DATES September 7-22, October 3, 1978

PARTS I & II

DAYS AT SEA 27

STATIONS 37

Cruise Objective

The purpose of the cruise was to determine the autumn distribution and relative abundance of fish and squid, and their feeding behavior within the study area. Stomachs of selected species were to be collected throughout the area for Soviet scientists. At a location determined by the chief scientist, a fish and feeding chronology study was to be conducted for USA scientists. As part of a cooperative research project all scientific data resulting from the cruise will be exchanged when the work is completed.

Scientific Personnel

USSR, AtlantNIRO, Kaliningrad

Michail V. Belevich, Chief Scientist
Victor M. Perekhovoy
Vjacheslav A. Sushin
Vladimir F. Siganov
Igor V. Krasovsky
Tamara M. Shcherbakovskaya
Anatole N. Vovk

USA, Part I, Northeast Fisheries Center, NMFS, Woods Hole, MA

Thomas Morris, Jr.
James Towns
Patricia Carter

Brown University, Providence, RI

Sydney Worthen

Wellesley College, Wellesley, MA

Helen Gordon

Johns Hopkins University, Baltimore, MD

Susan Peterson

Part II, Northeast Fisheries Center, NMFS, Woods Hole, MA

Ray Bowman
Richard Brodeur
Daniel Couture
Peter Hamer
Deborah Dwyer

Northeast Fisheries Center, NMFS, Narragansett, RI

Jacqueline Frisella

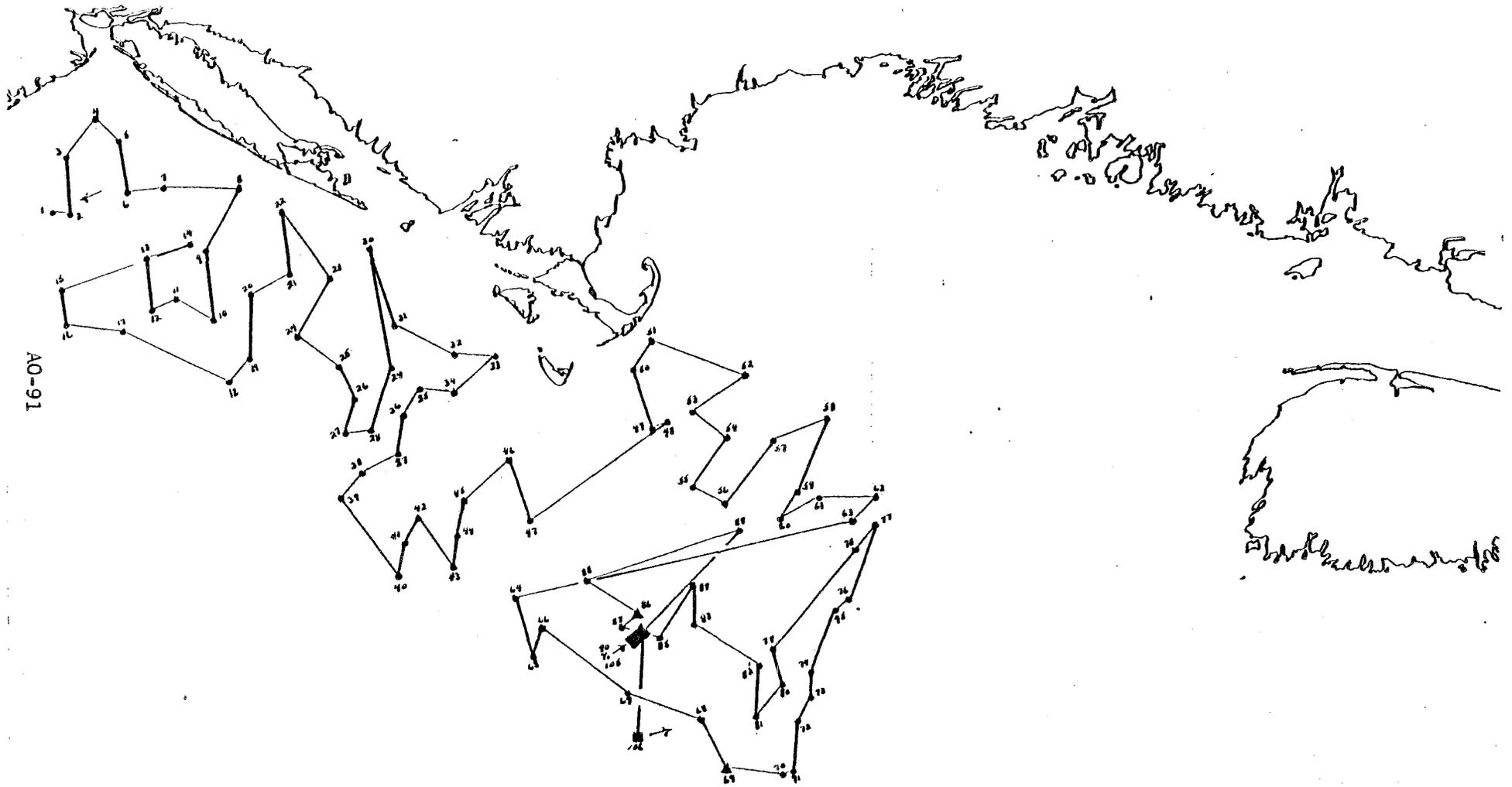
Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____ 37	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____		
FISH SAMPLES	_____ 7992		

SOVIET R/V BELGORASK 78-02
1978 FALL SURVEY
10-20 SEP

STATIONS 1-89 - REGULAR SURVEY (CODE D14)
STATIONS 90-106 - DAY/NIGHT COMPARISON (CODE 000)

▲ - BAD TOWS



AO-91

VESSEL Belogorsk

CRUISE 78-03

DATES October 5-20,
Part II, October 20-November 2, 1978

PARTS I, II

DAYS AT SEA 16; 13

STATIONS 76; 54

Cruise Objective

This cruise is the first of six surveys conducted during the 1979 fiscal year to monitor seasonal changes in distribution and abundance of fish eggs and larvae, zooplankton, phytoplankton, oceanographic information and primary productivity data.

Scientific Personnel

USSR, AtlantNIRO, Kaliningrad

Michail V. Belevich, Chief Scientist
Vladimir F. Siganov
Victor M. Perekhovoy
Anatoly N. Vovk
Igor V. Krasovsky
Tamara M. Shcherbakovskaya

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

John Sibunka	Parts I and II
Susan Barker	Parts I and II
Jay O'Reilly	Part I
William Hogelin	Part I
Christine Evans	Part II
Stephen Ward	Part II

National Marine Fisheries Service, NEFC, Woods Hole, MA

William Brennan Parts I and II

National Marine Fisheries Service, NEFC, Narragansett, RI

Donna Busch	Part I
Joseph Kane	Part II

Data Collected

	Total	Total		Total	Total
	Part I	Part II		Part I	Part II
ICNAF STANDARD STATIONS	_____	_____	SALINITY SAMPLES	865	511
ICNAF EXTRA STATIONS	_____	_____	OXYGEN SAMPLES	397	243
MOCNESS STATIONS	_____	_____	NUTRIENT SAMPLES	158	106
BONGO HAULS	<u>131</u>	<u>72</u>	CHLOROPHYLL SAMPLES	<u>1514</u>	<u>813</u>
NEUSTON HAULS	<u>93</u>	<u>73</u>	TRAWLS	_____	_____
MOCNESS HAULS	_____	_____	LONG LINE SET	_____	_____
XBT DROPS	<u>29</u>	<u>20</u>	CURRENT METERS	_____	_____
BOTTLE CASTS	<u>77</u>	<u>54</u>	DROGUE	_____	_____
CTD/STD CASTS	_____	_____	PRIMARY PRODUCTIVITY	<u>158</u>	<u>106</u>
ROSETTE	_____	_____	AUTO RADIOGRAPHY	<u>TOTAL 42</u>	<u>42</u>
FISH SAMPLES	_____	_____	ALL PHYTOPLANKTON	_____	_____
SECCHI DISC	<u>35</u>	<u>26</u>	SAMPLES	<u>188</u>	<u>136</u>

VESSEL Belogorsk

CRUISE 78-04

DATES November 15-30, 1978

DAYS AT SEA 16

STATIONS 78

Cruise Objective

The objectives of this cruise were to: (1) monitor distribution abundance of ichthyoplankton and zooplankton; (2) collect hydrographic samples and data; (3) conduct phytoplankton (chlorophyll) base line studies; and (4) conduct primary productivity analyses.

Scientific Personnel

USSR, AtlantNIRO, Kaliningrad

Michail V. Belevich, Chief Scientist
Victor M. Perekhovoy
Vjacheslav A. Sushin
Vladimir F. Siganov
Anatole N. Vovk
Igor V. Krasovsky
Tamara M. Shcherbakovskaya

National Marine Fisheries Service, NEFC, Woods Hole, MA

Thomas Morris, Jr.
William Brennan

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Susan Barker
James Duggan

National Marine Fisheries Service, NEFC, Narragansett, RI

Joseph Kane

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>910</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>434</u>
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	<u>148</u>
BONGO HAULS (Total)	<u>299</u>	CHLOROPHYLL SAMPLES	<u>1429</u>
NEUSTON HAULS (Total)	<u>86</u>	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	<u>35</u>	CURRENT METERS	_____
BOTTLE CASTS	<u>78</u>	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	<u>148</u>
ROSETTE	_____	SECCHI DISC	<u>30</u>
FISH SAMPLES	_____		

VESSEL BELOGORSK

CRUISE 79-01

DATES 9-21 Aug., 21 Aug.-3 Sept.

PARTS I & II

DAYS AT SEA 26

STATIONS 151

Cruise Objective

The objectives of the cruise were to: (1) monitor seasonal change in the distribution and abundance of larval fish and and fish eggs (ichthyoplankton) and zooplankton; (2) collect hydrographic samples for analysis; (3) conduct primary productivity studies; and (4) conduct phytoplankton (chlorophyll) baseline studies.

Scientific Personnel

AtlantNIRO, Kaliningrad, USSR

Michail Belevich, Chief Scientist
Vjaceslav Sushin
Igor Krasovsky
Natalia Zhigalova
Valentina Novikova
Valiery Balkhovoy
Vasily Romanov
Leonid Zaitzev

NMFS, NEFC, Woods Hole, Massachusetts

Thomas Morris Parts I & II
Deborah Dwyer Part II

NMFS, NEFC, Narragansett, Rhode Island

Thomas McKenney Part I
Roger Taylor Part I
Jerome Prezioso Part II

NMFS, NEFC, Sandy Hook, New Jersey

Ralph Bruno Parts I & II
Andrew Draxler Part I
James Duggan Part I
Susan Barker Part II

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>1551</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>644</u>
BONGO HAULS 20 cm	<u>30</u>	NUTRIENT SAMPLES	<u>579</u>
BONGO HAULS 61 cm	<u>146</u>	CHLOROPHYLL SAMPLES	<u>1366</u>
NEUSTON HAULS	<u>146</u>	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	<u>61</u>	CURRENT METER STA	<u>6*</u>
BOTTLE CASTS	<u>151</u>	DROGUE	_____
FTD CASTS	_____	PRIMARY PRODUCTIVITY STA	<u>AD</u>
ROSETTE	_____	SECCHI DISC	<u>95</u>

Remarks:

*Pick up water only for 5 o/oo O₂ nutrients.



Station plan for Ichthyoplankton-Zooplankton, Oceanographic, and Primary Productivity Survey for R/V BELOGORSK Cruise 79-01, during 9 August - 3 September 1979.

VESSEL BELOGORSK

CRUISE 79-02

DATES 5-10 September 1979

DAYS AT SEA 5

STATIONS 18

Cruise Objective

The objectives of the cruise were: (1) determine the feasibility of applying recently developed herring tagging techniques to silver hake taken in otter trawls, (2) develop new methods and procedures for tagging silver hake, (3) obtain estimates of tagging mortality rates, and (4) tag and release 3,000 or more silver hake, if possible.

Scientific Personnel

AtlantNIRO, Kaliningrad, USSR

Michail Belevich, Chief Scientist
Valentina Novikova
Valiery Balkhovoy

NMFS, Northeast Fisheries Center, Woods Hole, MA

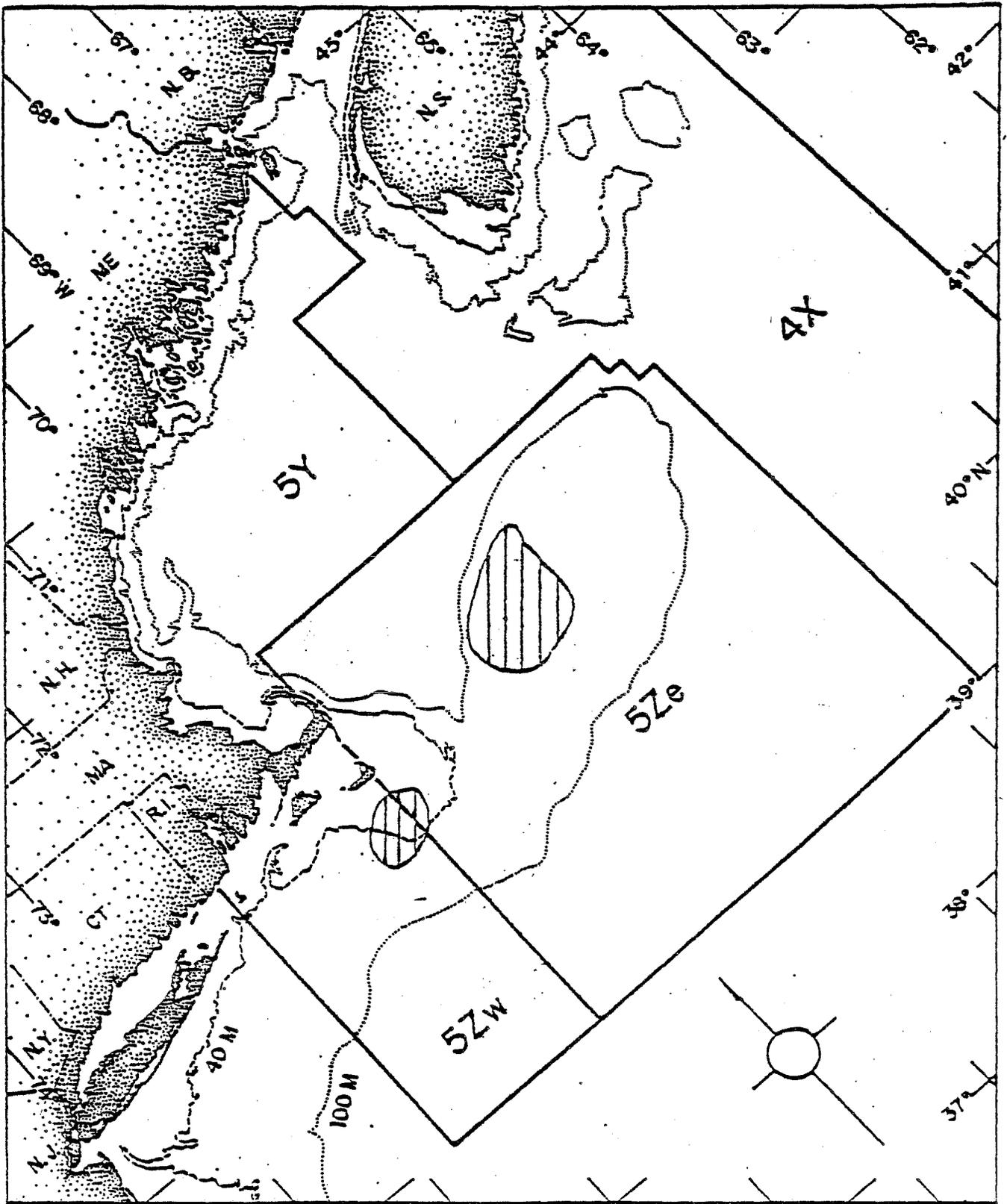
Thurston Burns

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWL	18
MOCNESS HAULS	_____	FISH SAMPLES	*
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
LONG LINE SET	_____		

Remarks:

Silver hake only.



Areas of silver hake tagging operations for R/V BELOGORSK Cruise 79-02 during 5-10 September 1979.

VESSEL BELOGORSK

CRUISE 79-03

DATES Sept.-10-27/Sept. 27-October 10, 1979 PARTS I, II

DAYS AT SEA 17; 12

STATIONS 26; 26

Cruise Objective

The objectives of the survey were: (1) to determine spatial and temporal variability in plankton composition and abundance within several trophic levels of the marine food web in the area from the southern Gulf of Maine to the New York Bight, (2) conduct primary and secondary productivity studies including autoradiography and zooplankton grazing, (3) collect samples for chlorophyll a and nutrient content; and (4) make oceanographic measurements when and where appropriate.

Scientific Personnel

National Marine Fisheries Service, NEFC, Narragansett, RI

John Green, Chief Scientist	Parts I and II
Donna Busch	Part I
Christopher Powell	Part II
Jacqueline Frisella	Part II

National Marine Fisheries Service, NEFC, Woods Hole, MA

William Brennan	Part I
Deborah Dwyer	Part II

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Susan Barker	Part I
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Manomet Bird Observatory, Manomet, MA

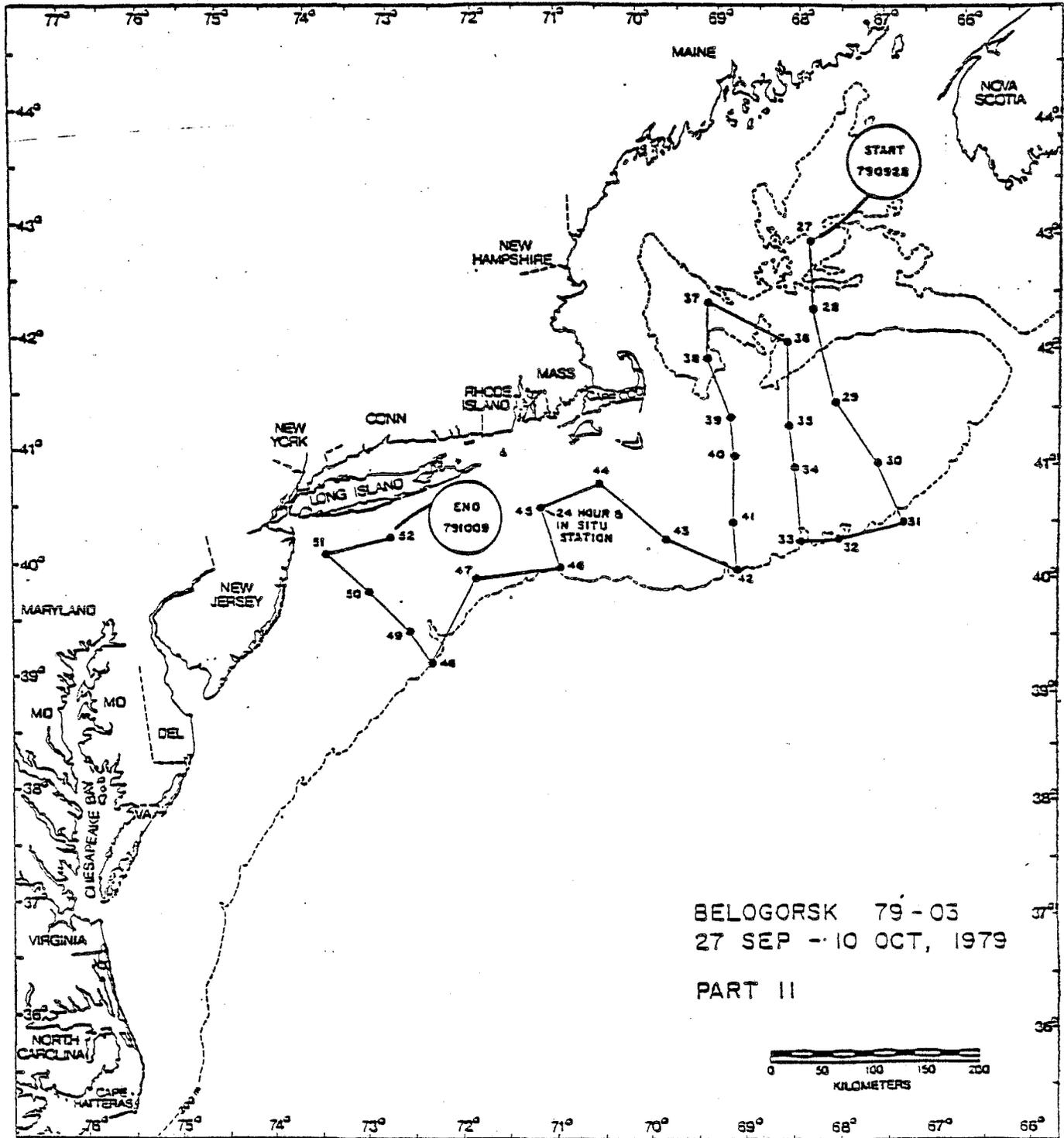
Richard Heil	Part I
Dorothy Holcomb	Part II

University of Rhode Island, Kingston, RI

David Mattila	Part I
Carol Haber	Part II

Data Collected

	<u>Part I</u>	<u>Part II</u>	<u>Total</u>
.61 cm BONGO	_____	_____	60
.20 cm BONGO	_____	_____	60
.61 cm NEUSTON	_____	_____	60
.20 cm NEUSTON	_____	_____	60
HAEDRICH	_____	_____	26
XBT	_____	_____	55
BOTTLE CAST	_____	_____	54
CTD CAST	_____	_____	_____
CURRENT METERS	_____	_____	_____
SALINITY SAMPLES	_____	_____	54
OXYGEN SAMPLES	_____	_____	_____
NUTRIENT SAMPLES	_____	_____	18
CHLOROPHYLL SAMPLES	_____	_____	_____
PRIMARY PRODUCTIVITY	_____	_____	18
DROGUES	_____	_____	_____
SECCHI DISC	_____	_____	_____
TRAWLS	_____	_____	_____
FISH SAMPLES	_____	_____	_____
LONG LINE SETS	_____	_____	_____



Station locations and cruise track for BELOGORSK Cruise 79-03 (II) during 27 September - 10 October 1979.

VESSEL BELOGORSK CRUISE 79-04
 DATES October 10-23; PARTS I, II
 October 24-November 5, 1979
 DAYS AT SEA STATIONS 87

Cruise Objective

The objectives of the cruise were to determine the autumn distribution and relative abundance of fish and squid, and to monitor their feeding behavior within the study area.

Scientific Personnel

National Marine Fisheries Service, NEFC, Woods Hole, MA

Gordon Waring, Chief Scientist	Part I
Deborah Dwyer, Chief Scientist	Part II
Wendell Hahm	Part I
Brian Hayden	Part I
Robert Halpin	Parts I & II
Roger Clifford	Part II

National Marine Fisheries Service, NEFC, Narragansett, RI

Carolyn Griswold	Part I
Jacquelyn Frisella	Part II

Eastern Nazarene College, Quincy, MA

Edith Angell	Part I
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Southern Massachusetts University, South Dartmouth, MA

Kristopher Furtney	Part II
Jon Kerr	Part II

Data Collected

	<u>Part I</u>	<u>Part II</u>	<u>Total</u>
.61 cm BONGO	_____	_____	_____
.20 cm BONGO	_____	_____	_____
.61 cm NEUSTON	_____	_____	_____
.20 cm NEUSTON	_____	_____	_____
HAEDRICH	_____	_____	_____
XBT	_____	_____	87
BOTTLE CAST	_____	_____	_____
CTD CAST	_____	_____	_____
CURRENT METERS	_____	_____	_____

SALINITY SAMPLES	_____	_____	_____
OXYGEN SAMPLES	_____	_____	_____
NUTRIENT SAMPLES	_____	_____	_____
CHLOROPHYLL SAMPLES	_____	_____	_____
PRIMARY PRODUCTIVITY	_____	_____	_____
DROGUES	_____	_____	_____
SECCHI DISC	_____	_____	_____
TRAWLS	_____	_____	87
FISH SAMPLES	_____	_____	8710
LONG LINE SETS	_____	_____	_____

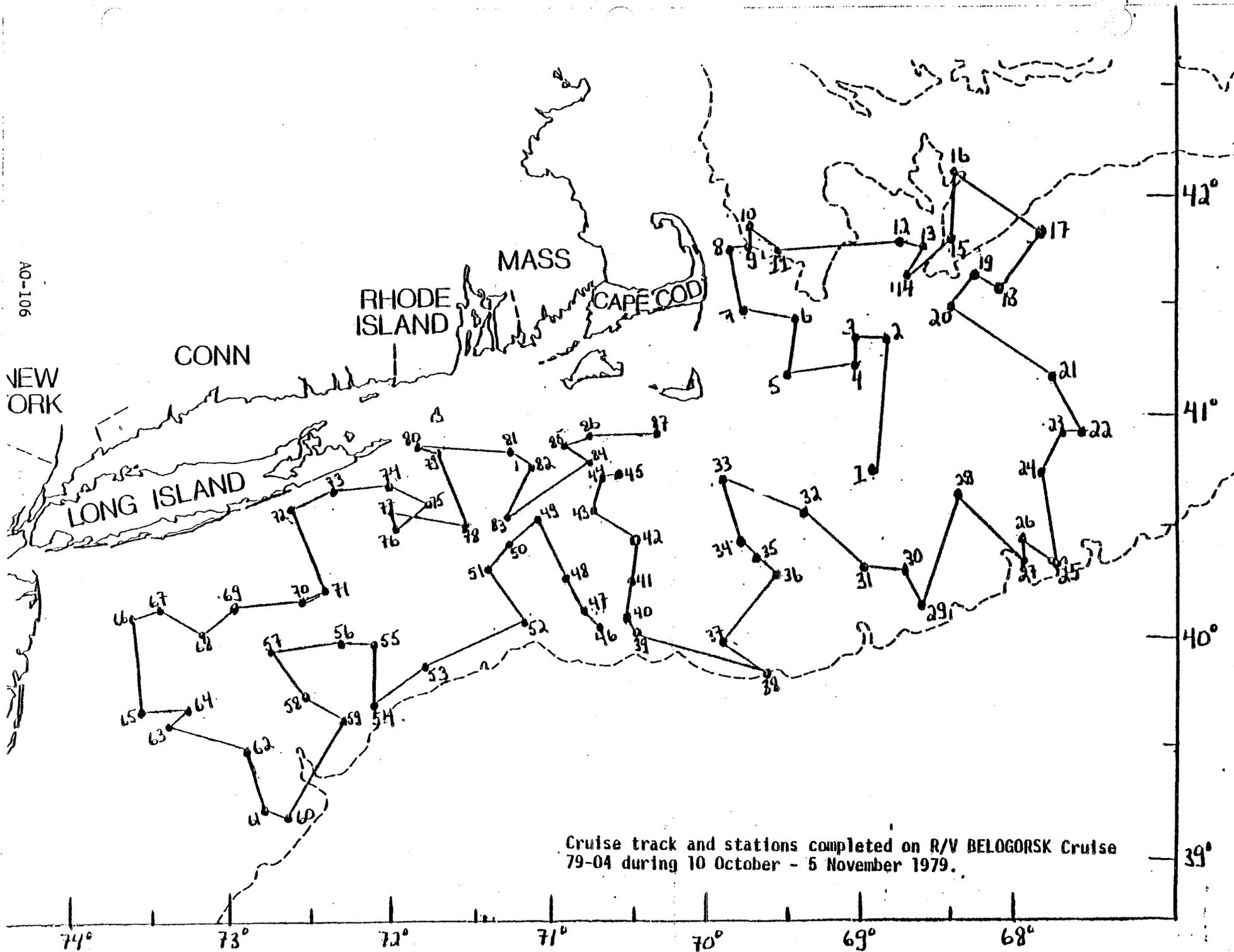
AO-106

NEW
YORK

CONN

RHODE
ISLAND

MASS

CAPE
CODLONG
ISLAND

Cruise track and stations completed on R/V BELOGORSK Cruise
79-04 during 10 October - 5 November 1979.

Table 1. Stomachs collected for the Fish and Squid Food Habits Study on R/V BELOGORSK Cruise 79-04 during 10 October - 5 November 1979.

Species	Number of Stomachs
Silver hake	2508
Red hake	981
Haddock	261
Pollock	36
Cod	205
Ocean pout	97
Spiny dogfish	730
Longhorn sculpin	302
Yellowtail flounder	296
American plaice	216
Butterfish	913
Atlantic mackerel	47
Loligo sp.	809
Illex sp.	470
Offshore hake	8
Smooth dogfish	4
Black sea bass	12
Scup	236
American shad	1
White hake	62
Big skate	34
Round herring	7
Goosefish	71
Little skate	193
Winter flounder	151
Witch flounder	60
TOTAL STOMACHS	8710

VESSEL CANSO CONDOR (Canada) CRUISE 78-03
 DATES Oct. 23-28; Oct. 29-Nov. 10, 1978 PARTS I & II
 DAYS AT SEA 5; 11 STATIONS

Cruise Objective

- 1) Document predation on herring eggs by groundfish and benthic invertebrates.
- 2) Determine patterns of predation on larval herring by pelagic fish.
- 3) Assist primary vessels (Lady Hammond and Albatross IV) with hydrographic and plankton sampling within a larval herring patch.
- 4) Conduct a general pelagic fish survey on Georges Bank using the standard station grid adopted for ichthyoplankton sampling.

Scientific Personnel

October 23-28	October 29-Nov. 10
K. Waiwood (Chief Scientist)	K. Waiwood
W. Dougherty (Technician)	K. Howes (Technician)
C. Nelson (Technician)	R. Langton
R. Langton (Scientist, NEFC, Woods Hole, MA)	R. Saucy
R. Saucy (Volunteer, NEFC, Woods Hole, MA)	
W. Tobin (Volunteer, NEFC, Woods Hole, MA)	

Data Collected

.61 cm BONGO	<u>YES</u>	SALINITY SAMPLES	_____
.20 cm BONGO	<u>YES</u>	OXYGEN SAMPLES	_____
.61 cm NEUSTON	<u>YES</u>	NUTRIENT SAMPLES	_____
.20 cm NEUSTON	<u>YES</u>	CHLOROPHYLL SAMPLES	_____
HAEDRICH	<u>YES</u>	PRIMARY PRODUCTIVITY	_____
XBT	<u>YES</u>	DROGUES	_____
BOTTLE CAST	_____	SECCHI DISC	_____
CTD CAST	_____	TRAWLS	<u>YES</u>
CURRENT METERS	_____	FISH SAMPLES	<u>YES</u>

Remarks:

Must read ALBATROSS IV 78-13 cruise report.

VESSEL Cryos

CRUISE 76-01

DATES November 9-22/November 25-
December 3, 1976

DAYS AT SEA

STATIONS

Cruise Objective

The purpose of the cruise was to determine the distribution, relative abundance, and biological information of squid (Loligo and Illex), herring, and associated species. Meteorological and oceanographic data were collected in conjunction with the biological sampling.

Scientific Personnel

ISTPM, St. Pierre and Miquelon

Benoit Mesnil, Chief Scientist
Andre Foster
Jean Louise Laborde
Jules Agez

Fisheries and Marine Service, Environment Canada,
St. John's, Newfoundland

Paul Collins

Northeast Fisheries Center, NMFS, Woods Hole, Massachusetts

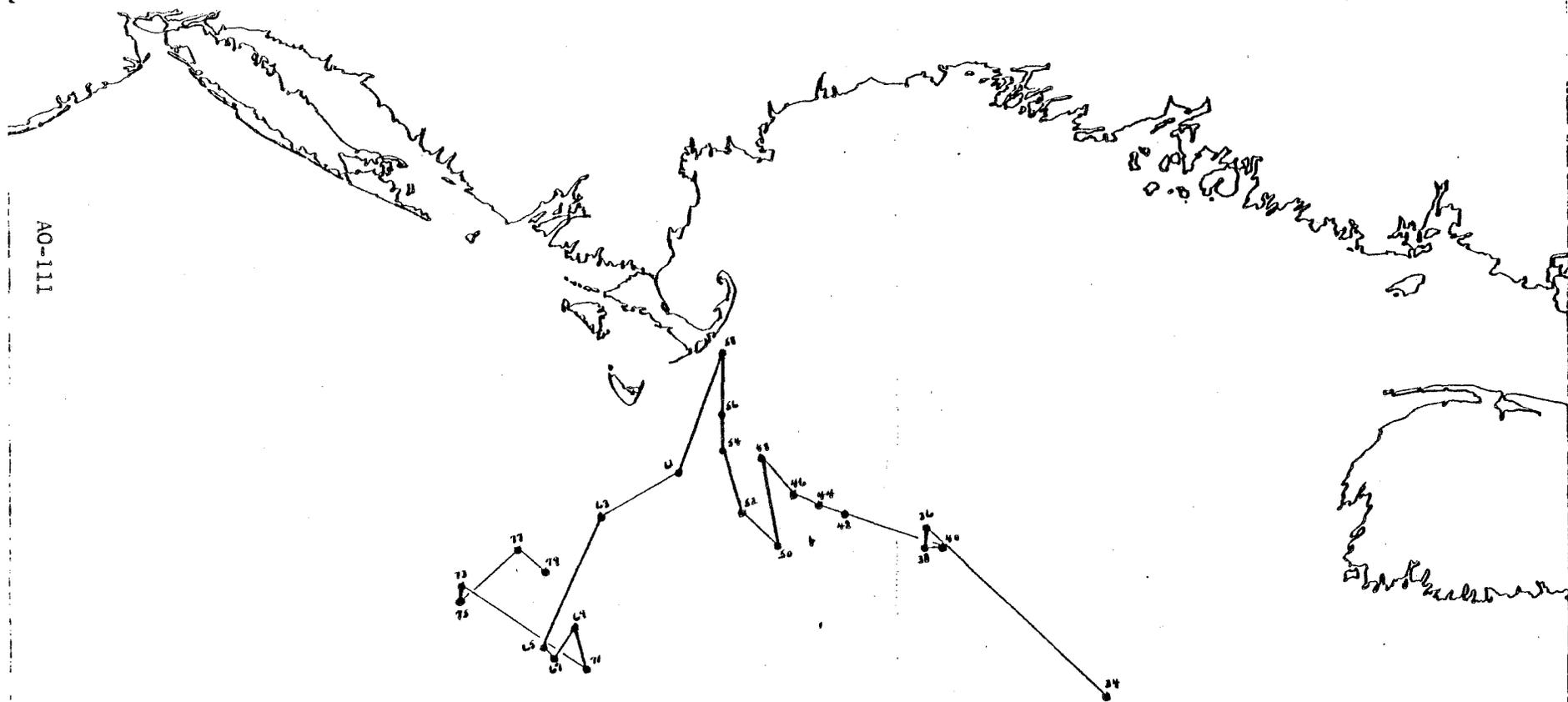
Henry Jensen)
Frank Almeida) Part I. 9-22 November 1976

Anne Tibbetts)
Linda Despres) Part II: 25 November-3 December 1976

Data Collected

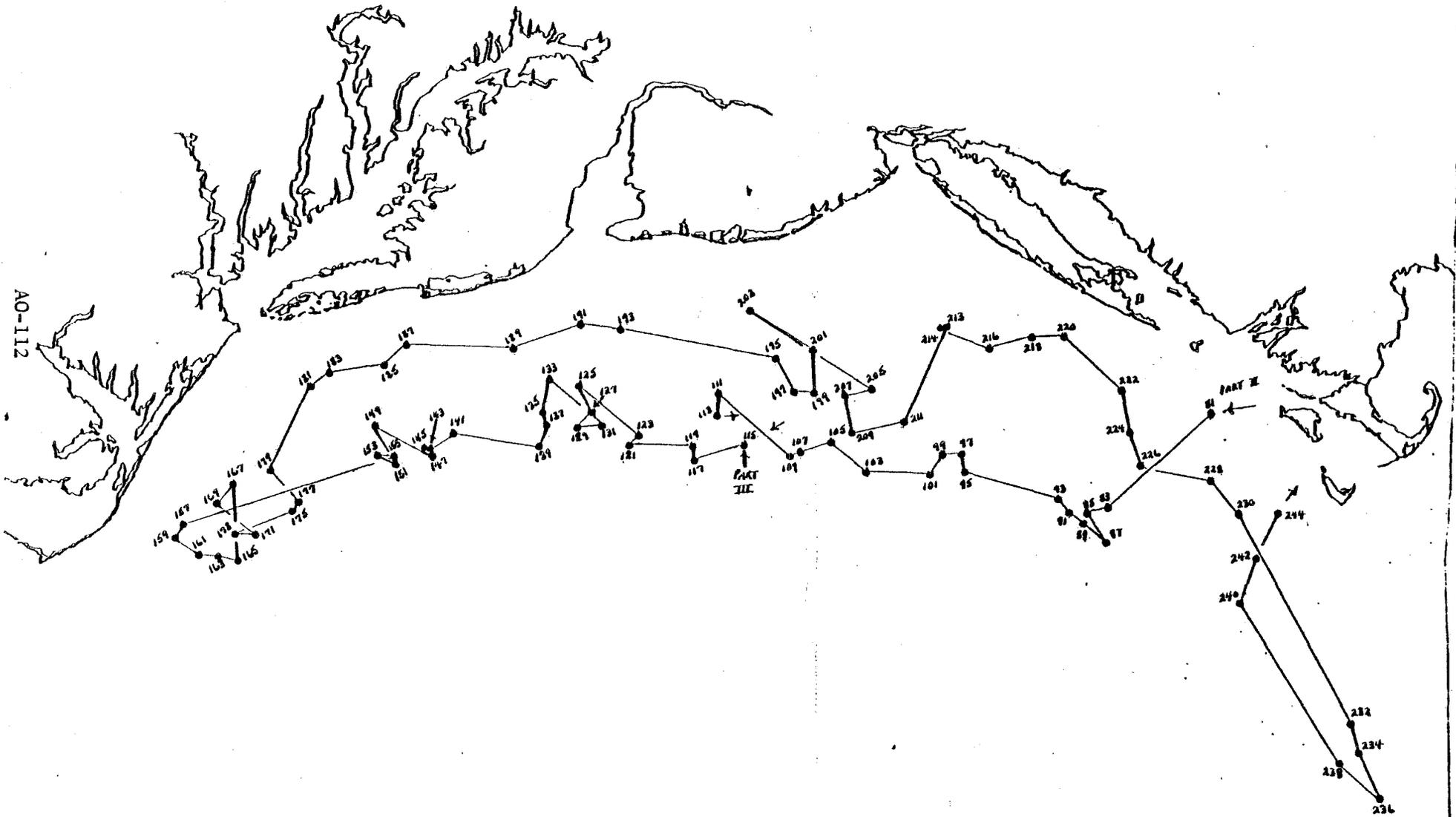
	<u>Total</u>		<u>Total</u>
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	<u>81</u>
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	<u>81</u>	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		

FRENCH R/V CRYOS (CODE 069) 124
FALL BOTTOM TRAWL SURVEY
PART I - OCT 30 - NOV 5, 1976



AO-111

FRENCH RIV CRYOS (CODE 769) 125
FALL BOTTOM TRAWL SURVEY
PART II - NOV 9 - NOV 23, 1976
PART III - NOV 25 - DEC 3, 1976



VESSEL Diane Marie

CRUISE 77-01

DATES November 1, 1977

DAYS AT SEA 17

STATIONS 11 longline

Cruise Objective

The objectives of the cruise were: (1) to tag pelagic sharks and swordfish for migration and age-growth studies; (2) to examine apex predators for fecundity and food habits; and (3) to observe the behavior of swordfish in relation to thermal fronts using hydroacoustical telemetry equipment.

Scientific Personnel

NMFS, NEFC, Narragansett, RI

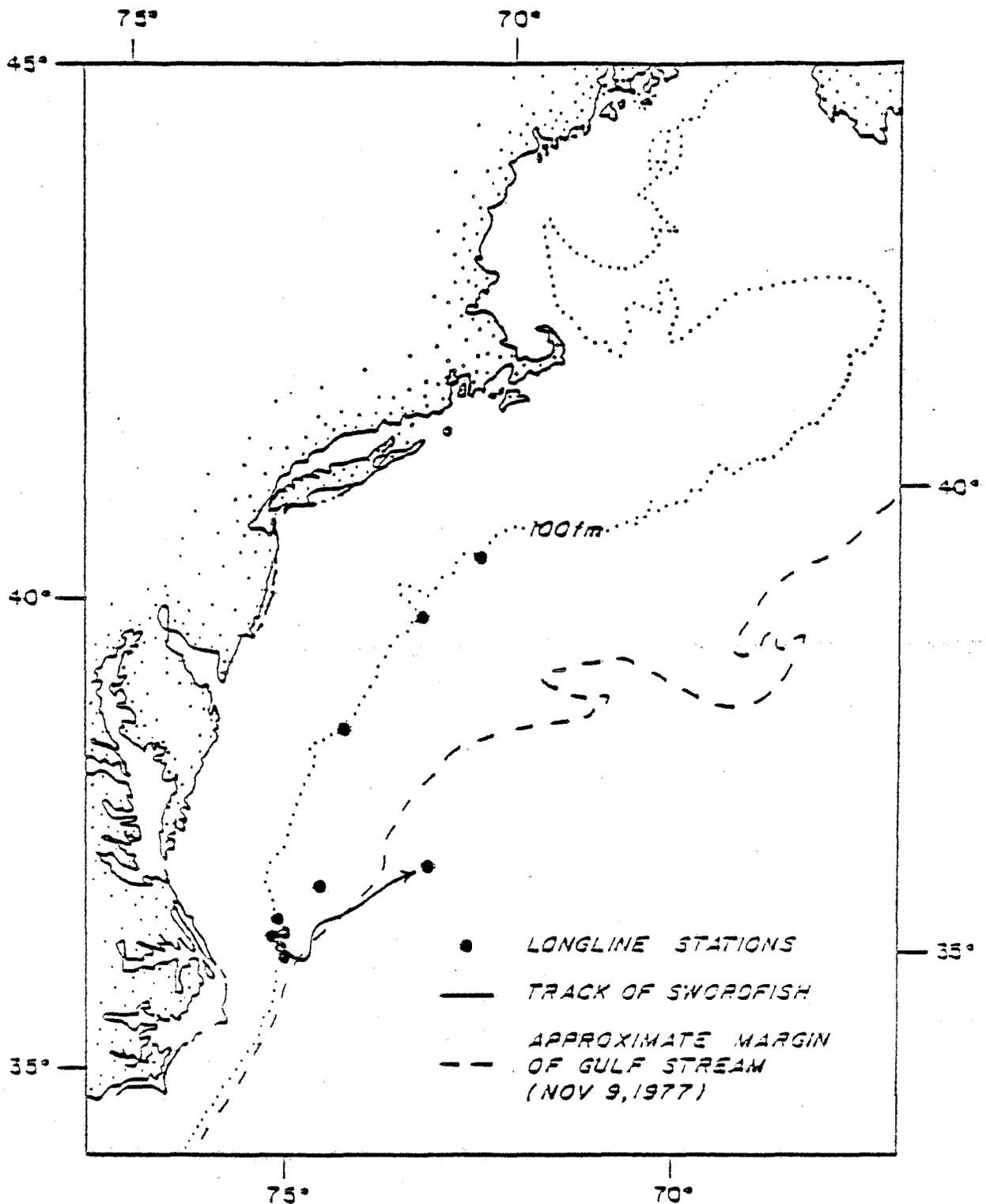
John Casey
Charles Stillwell
Harold Pratt

WHOI, Woods Hole, MA

Frank Carey

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	32 km
XBT DROPS	85	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CID/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		



Longline set positions, track of swordfish movements, and location of Gulf Stream margin for DIANE MARIE Cruise No. DM 77-01 during 1-17 November 1977.

VESSEL Dolphin

CRUISE 78-01

DATES May 9-20, 1978

DAYS AT SEA

STATIONS 70

Cruise Objective

Sample waters of the Middle Atlantic Bight for fish eggs, particularly of Atlantic mackerel, to be preserved for mutagenic studies; collect eggs and water for concurrent chemical analysis for hydrocarbons and heavy metals; conduct a salinity tolerance - cytogenetic experiment; and conduct colchicine and glutaraldehyde experiments.

Scientific Personnel

NMFS, NEFC, Narragansett, RI

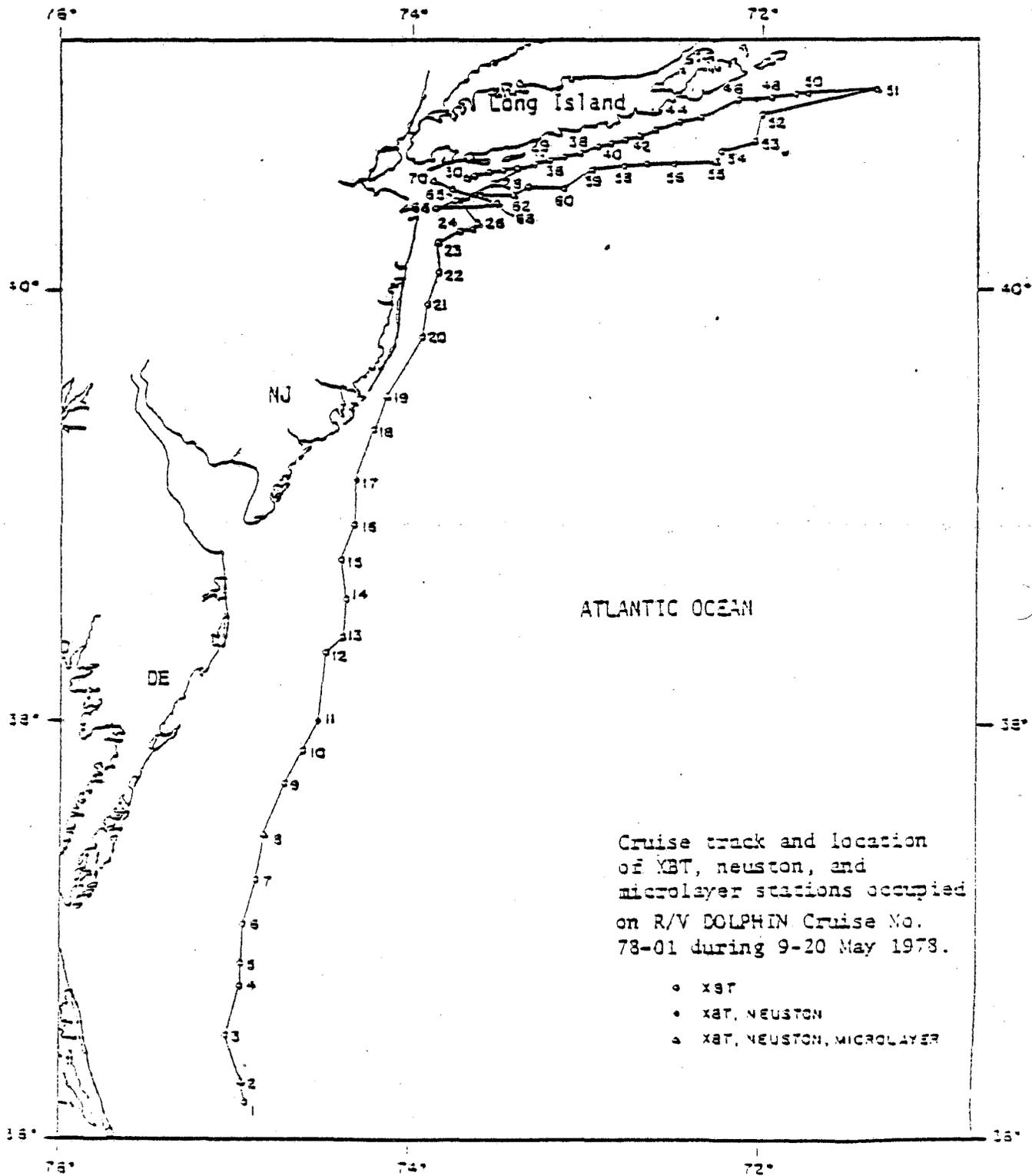
Raymond Maurer, Chief Scientist

NMFS, NEFC, Milford, CT

James Hughes
Vincent Zdanowicz
David Nelson
Dean Perry
Patrick Bowe
Francis Spinelli

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	70
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	38	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	70	CURRENT METERS	_____
BOTTLE CASTS	12	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____	pH	19



VESSEL EISBAR

CRUISE 79-01

DATES April 24-May 7, 1979

DAYS AT SEA 13

STATIONS 29

Cruise Objective

The primary objective was to continue monitoring the distribution and relative abundance of Atlantic herring and mackerel in areas of known historic occurrence. The secondary objective was to conduct standard MARMAP ichthyoplankton sampling at each trawl station.

Scientific Personnel

High Seas Fisheries Institute, Rostock, GDR

Kurt Lambert, Chief Scientist
Norbert Schultz
Hartmut Stein
Norbert Verch

NMFS, NEFC, Woods Hole, MA

Gordon Waring
Deborah Dwyer

NMFS, NEFC, Narragansett, RI

Jerome Prezioso

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	58	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	42	TRAWLS	29
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
FTD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	182	HERRING TAGGING	_____

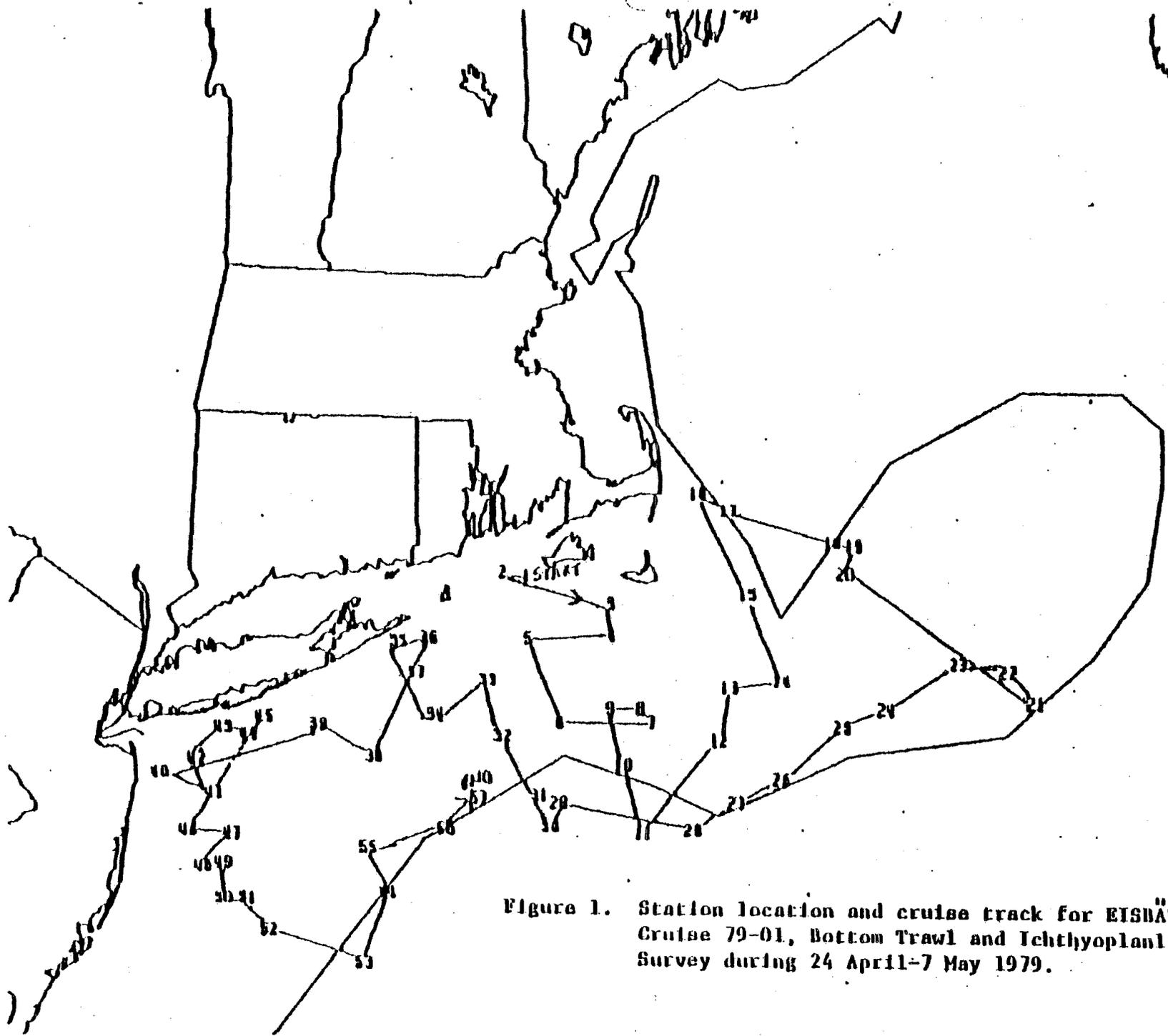


Figure 1. Station location and cruise track for EISNAR Cruise 79-01, Bottom Trawl and Ichthyoplankton Survey during 24 April-7 May 1979.

VESSEL Ernst Haeckel

CRUISE 76-03

DATES March 2-18, 1976

DAYS AT SEA

STATIONS 46

Cruise Objective

To conduct the second year of a time series study, by the Ernst Haeckel, on the distribution and relative abundance of juvenile herring and plankton in the waters of Georges Bank, Gulf of Maine, and Southern New England. Sampling of other species of fish, particularly mackerel, was also done. This was part of a three-vessel survey begun in 1973 designed to determine recruitment to ICNAF SA 5 herring stocks.

Scientific Personnel

NMFS, Northeast Fisheries Center, Woods Hole, MA

Gordon T. Waring, Fishery Biologist

Frank P. Almeida, Fishery Biologist

German Democratic Republic

Kurt Lambert, Chief Scientific

Elke Bergholtz, Fishery Biologist

Harald Koch, Fishery Biologist

Gunter Kloxin, Fishery Biologist

Worbert Schultz, Fishery Biologist

Wolfgang Buch, Scientific Assistant

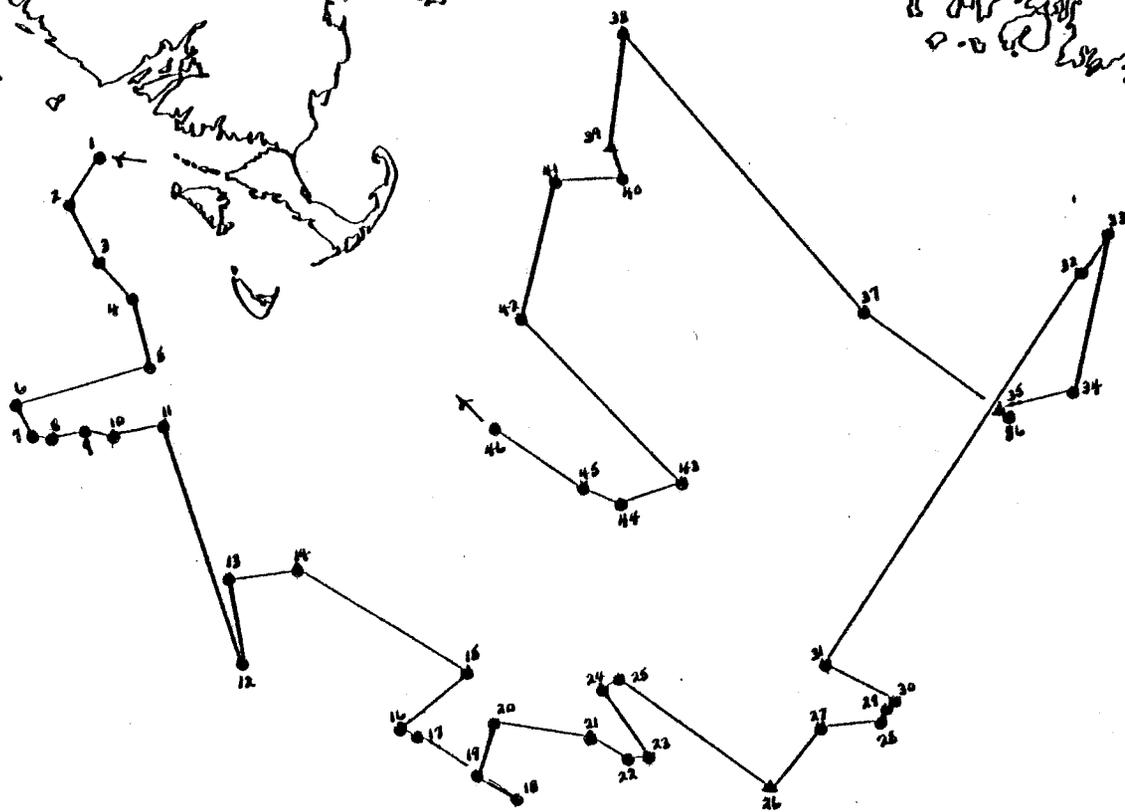
Joachim Oroese, Scientific Assistant

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	22	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	12	TRAWLS	46
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	40	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		

GERMAN ERNST HAECKEL 76-1 (CODE 763) 117
SPRING GROUND FISH SURVEY
MARCH 3-6, 1976

▲ = TEARUPS



AO-120

VESSEL Gorlitz CRUISE 77-01
 DATES March 3-15/March 15-April 7, 1977 PARTS I & II
 DAYS AT SEA 13/23 STATIONS 109

Cruise Objective

The purpose of this cruise was to conduct a survey of juvenile Atlantic herring, associated fishes, and ichthyoplankton in the area extending from Southern New England to Georges Bank and the Gulf of Maine.

Scientific Personnel

Institut fur Hochseefischerei und Fischverarbeitung
 Marlenehe, GDR

Kurt Lambert, Chief Scientist
 Dieter Kaestner
 Norbert Schultz
 Joachim Droese

Northeast Fisheries Center, NMFS, Woods Hole, MA

John Nicolas (Part I)
 William Overholtz (Part II)

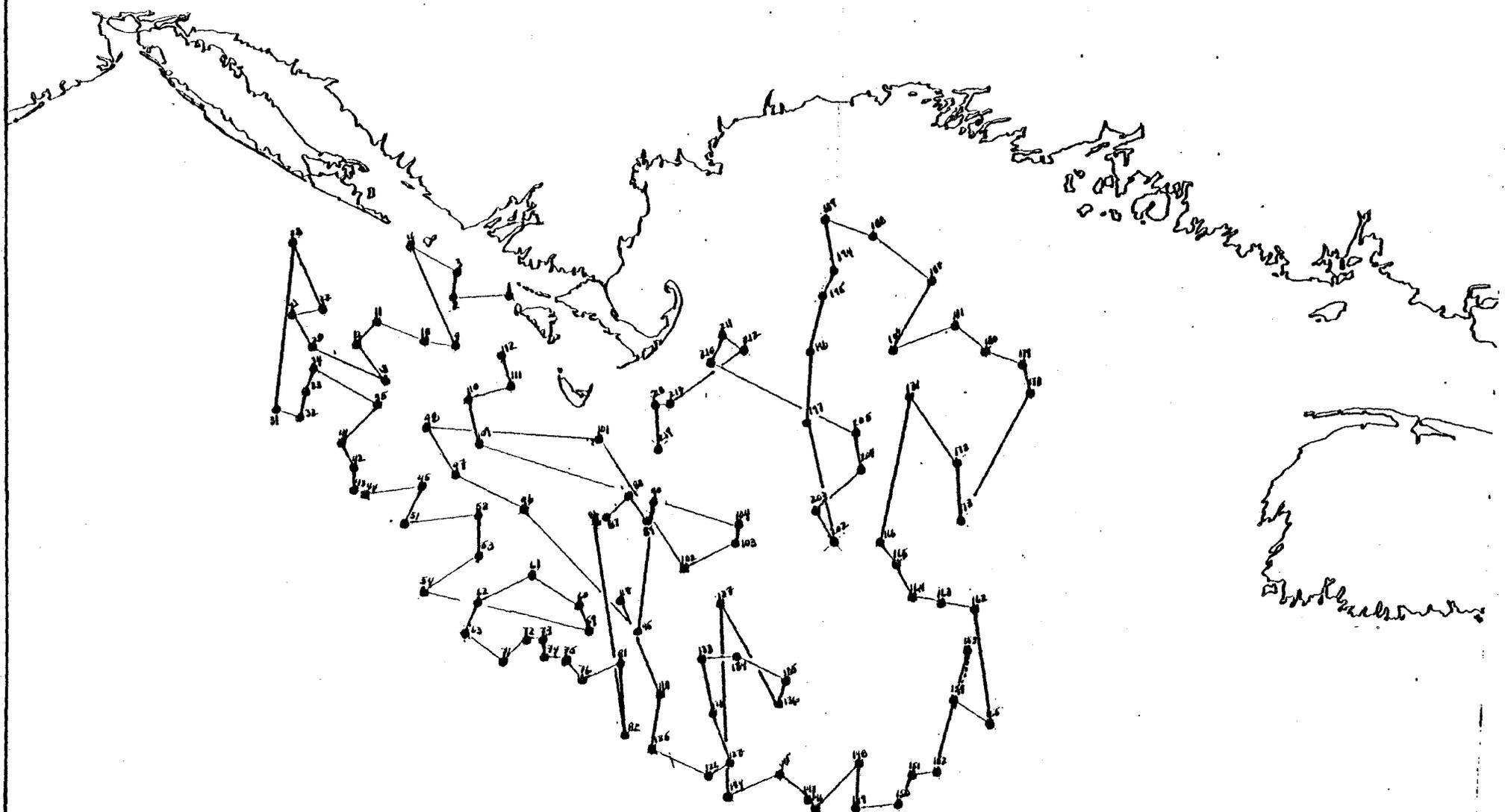
Northeast Fisheries Center, NMFS

John Green (Part I)
 Thomas McKinney (Part II)

Data Collected Parts I & II

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	101	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	97	TRAWLS	109
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	109	DROGUE	_____
CID/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		

GDR R/V GÖRLITZ 77-01 (CODE 772)
BOTTOM TRAWL SURVEY '27
3 MARCH - 8 APRIL 1977



AO-122

VESSEL KELEZ

CRUISE 77-04

DATES April 14-17, 1977

DAYS AT SEA 3

STATIONS

Cruise Objective

The first objective was to recover three subsurface moorings, each with three current meters and a hydroacoustical release. The moorings were set in September 1976 from the NOAA Ship MT. MITCHELL to begin a 2-yr experiment on measuring the deep flow through Northeast Channel. A secondary objective was to take hydrographic samples and measurements at stations across the channel in the vicinity of the moorings in order to continue the series of observations begun in early 1975. A third objective was to obtain a section of XBT and hydrographic observations along the axis of Georges Basin, Wilkinson Basin, and Great South Channel, and to monitor the fate of the large mass of slope water which entered the Gulf of Maine in the spring of 1976.

Because the KELEZ was equipped only for bottle sampling and the WHITEFOOT had no facilities to support hydrographic work, and because time was limited on both cruises, the second and third objectives were modified to include only a single section of stations along the mooring line in the Northeast Channel and XBT measurements along the outbound track of the KELEZ.

Scientific Personnel

Woods Hole Oceanographic Institution, Woods Hole, MA

George Tupper

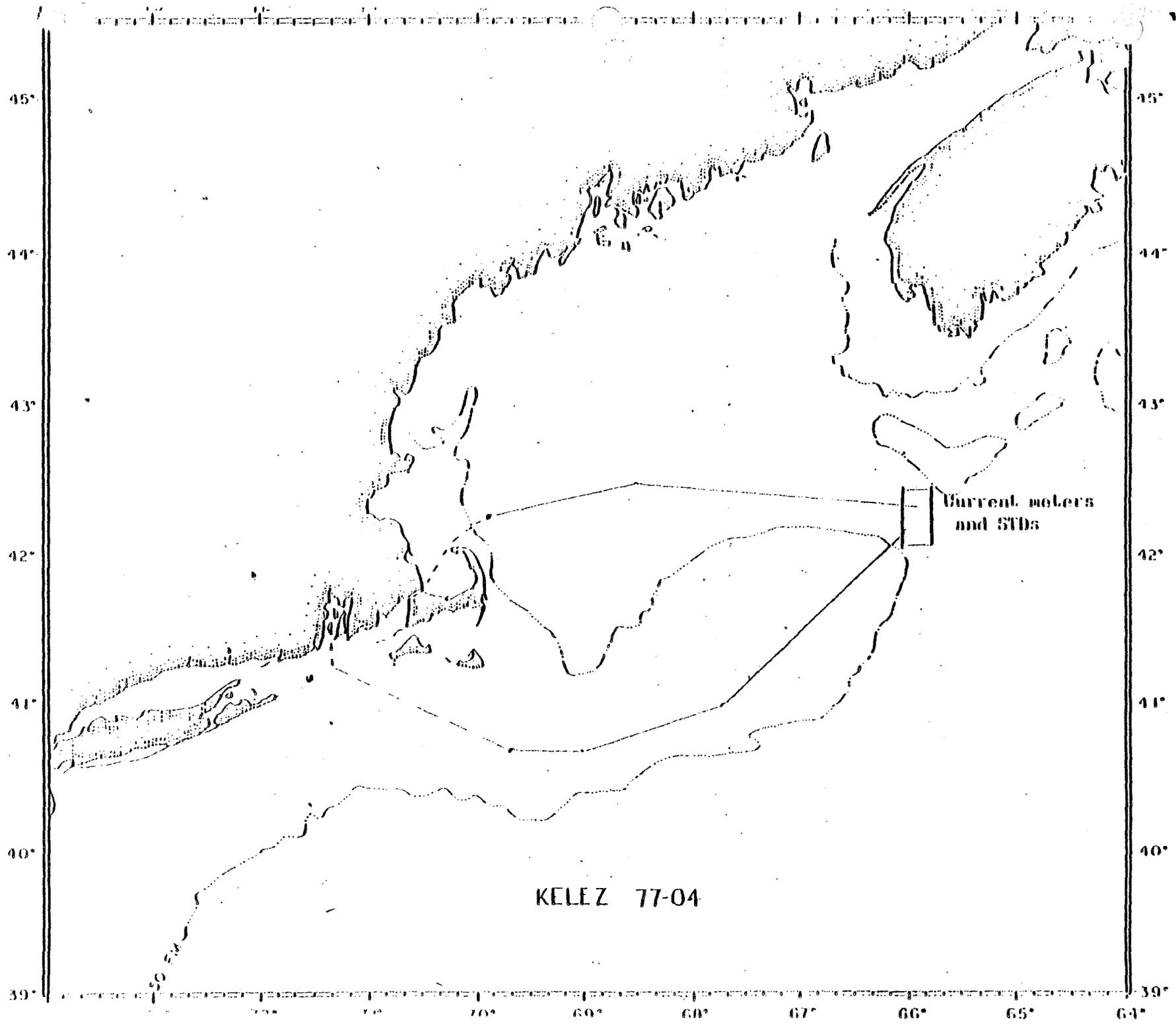
Northeast Fisheries Center, NMFS, Woods Hole, MA

Steven R. Ramp
Robert Pawlowski
Timothy Cain
Raymond Cloutier

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	Hourly	CURRENT METERS	_____ 3
BOTTLE CASTS	_____ 3	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		

AO-125



KELEZ 77-04

VESSEL KELEZ

CRUISE 77-11

DATES November 25-December 4, 1977

DAYS AT SEA 10

STATIONS 38

Cruise Objective

This cruise partially makes up one of six surveys conducted annually to monitor seasonal changes in distribution and abundance of fish eggs and larvae and to collect basic primary productivity data and hydrographic information. Special plankton samples were taken in the area of the Argo Merchant wreck for hydrocarbon analysis.

Scientific Personnel

Northeast Fisheries Center, NMFS, Sandy Hook, NJ

John Sibunka (Chief Scientist) William Phoel
Myron Silverman Albert Matte

Northeast Fisheries Center, NMFS, Woods Hole, MA

Thomas Laughton

Northeast Fisheries Center, NMFS, Narragansett, RI

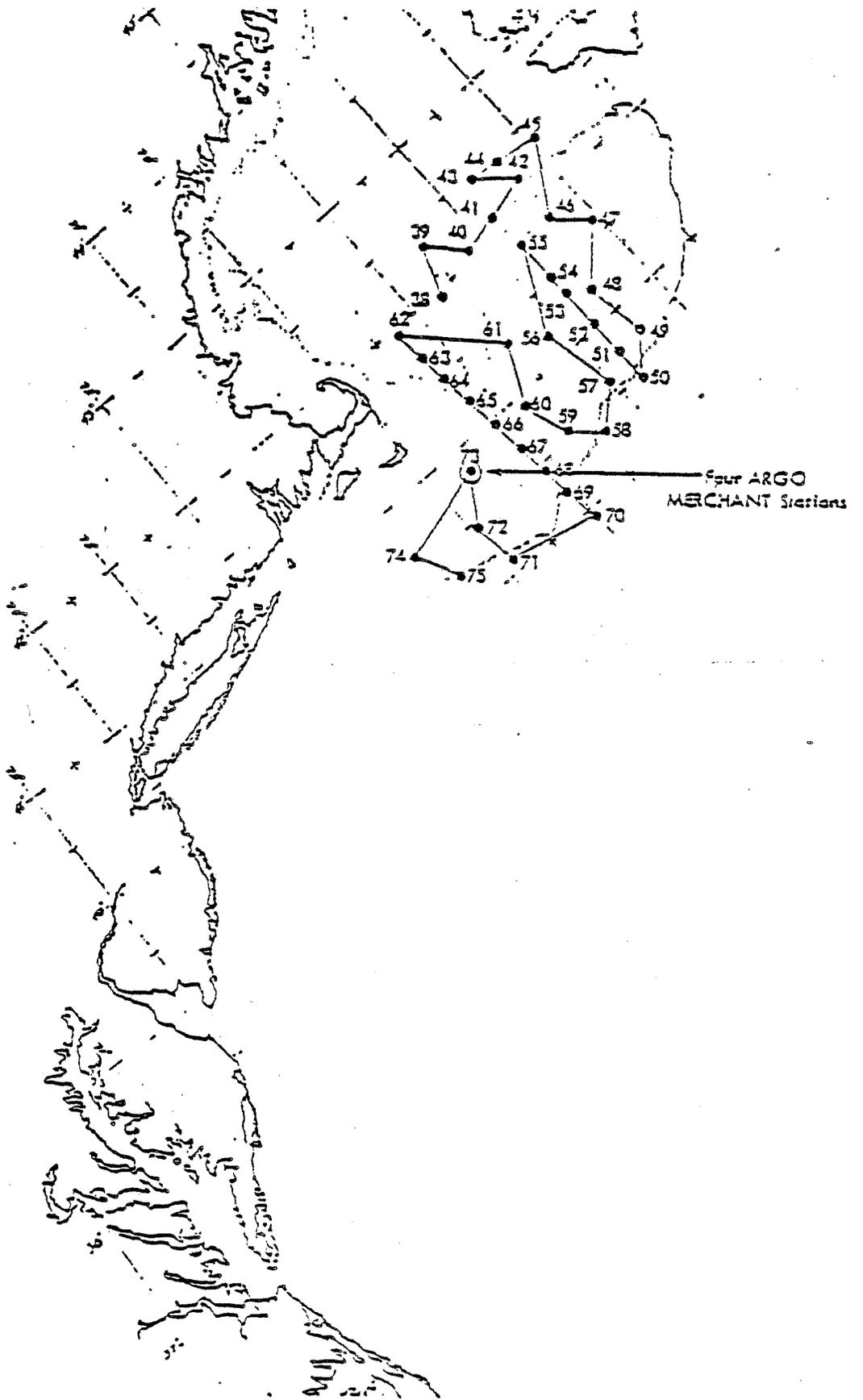
Joseph Kane

Darien High School, Darien, CT

Howard Mastropiero

Data Collected

ICNAF STANDARD STATIONS	_____	Total	_____	SALINITY SAMPLES	_____	Total	_____
ICNAF EXTRA STATIONS	_____			OXYGEN SAMPLES	_____		368
MOCNESS STATIONS	_____			NUTRIENT SAMPLES	_____		83
BONGO HAULS (All types)	_____	50		CHLOROPHYLL SAMPLES	_____		289
NEUSTON HAULS " "	_____	38		TRAWLS	_____		
MOCNESS HAULS	_____			LONG LINE SET	_____		
XBT DROPS	_____	42		CURRENT METERS	_____		
BOTTLE CASTS	_____	38		DROGUE	_____		
CID/STD CASTS	_____			PRIMARY PRODUCTIVITY	_____		
ROSETTE	_____			SECCHI DISC	_____		12
FISH SAMPLES	_____						



Plankton - hydro sampling stations occupied during cruise KE - 11 - 77
 , Nov. 25 - Dec. 13, 1977.

N = 53 plus 4 AG stations

VESSEL KELEZ

CRUISE 77-12

DATES December 6-13, 1977

DAYS AT SEA 8

STATIONS 16

Cruise Objective

This cruise partially makes up one of six surveys conducted annually to monitor seasonal changes in distribution and abundance of fish eggs and larvae and to collect basic primary productivity data and hydrographic information. Special plankton samples were taken in the area of the Argo Merchant wreck for hydrocarbon analysis.

Scientific Personnel

Northeast Fisheries Center, NMFS, Sandy Hook, NJ

John Sibunka (Chief Scientist) Joseph Ruane
Myron Silverman

Northeast Fisheries Center, NMFS, Woods Hole, MA

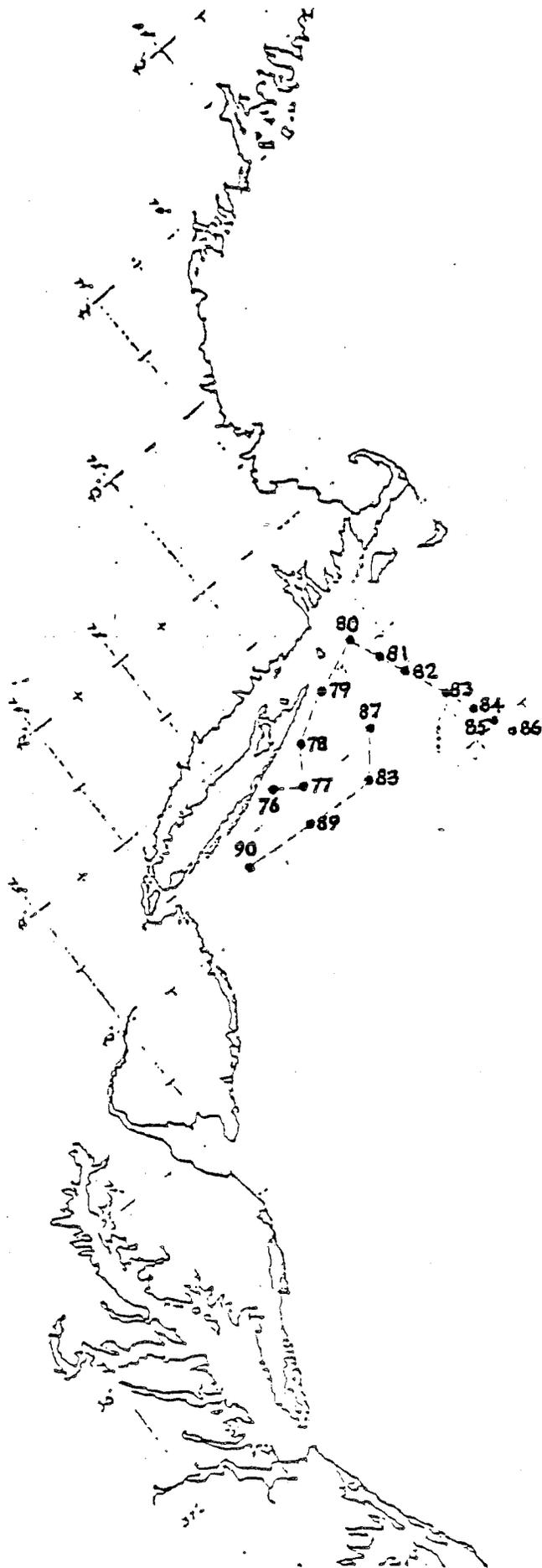
Thomas Laughton
Daniel Patanjo

Northeast Fisheries Center, NMFS, Narragansett, RI

Joseph Kane

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>142</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	<u>64</u>
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS (All types)	<u>19</u>	CHLOROPHYLL SAMPLES	<u>790</u>
NEUSTON HAULS " "	<u>16</u>	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	<u>16</u>	CURRENT METERS	_____
BOTTLE CASTS	<u>16</u>	DROGUE	_____
CID/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	<u>6</u>
FISH SAMPLES	_____		



Plankton - hydro sampling stations occupied during
 KE - 12 - 77 (dashed line), Nov. 25 - Dec. 13, 1977
 N = 53 plus 4 AG stations

VESSEL KELEZ

CRUISE 79-10 & 11

DATES October 10-19; 23-31

PARTS: I, II

DAYS AT SEA

STATIONS 45

Cruise Objective

The objectives of the seasonal Ocean Pulse (OP) Monitoring Survey were: 1) to collect select marine organisms to be used in various ocean pulse physiological, biochemical, chemical experiments and/or measurements, 2) to collect flatfish for analysis of metazoan parasite communities, and 3) to collect samples of benthic organisms for select bacteriological, invertebrate community structure and energetics, and sediment heavy metal concentration analysis.

Scientific Personnel

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Robert Reid, Chief Scientist Part I
Frank Steimle, Chief Scientist Part II
Vincent Zdanowicz

National Marine Fisheries Service, NEFC, Milford, CT

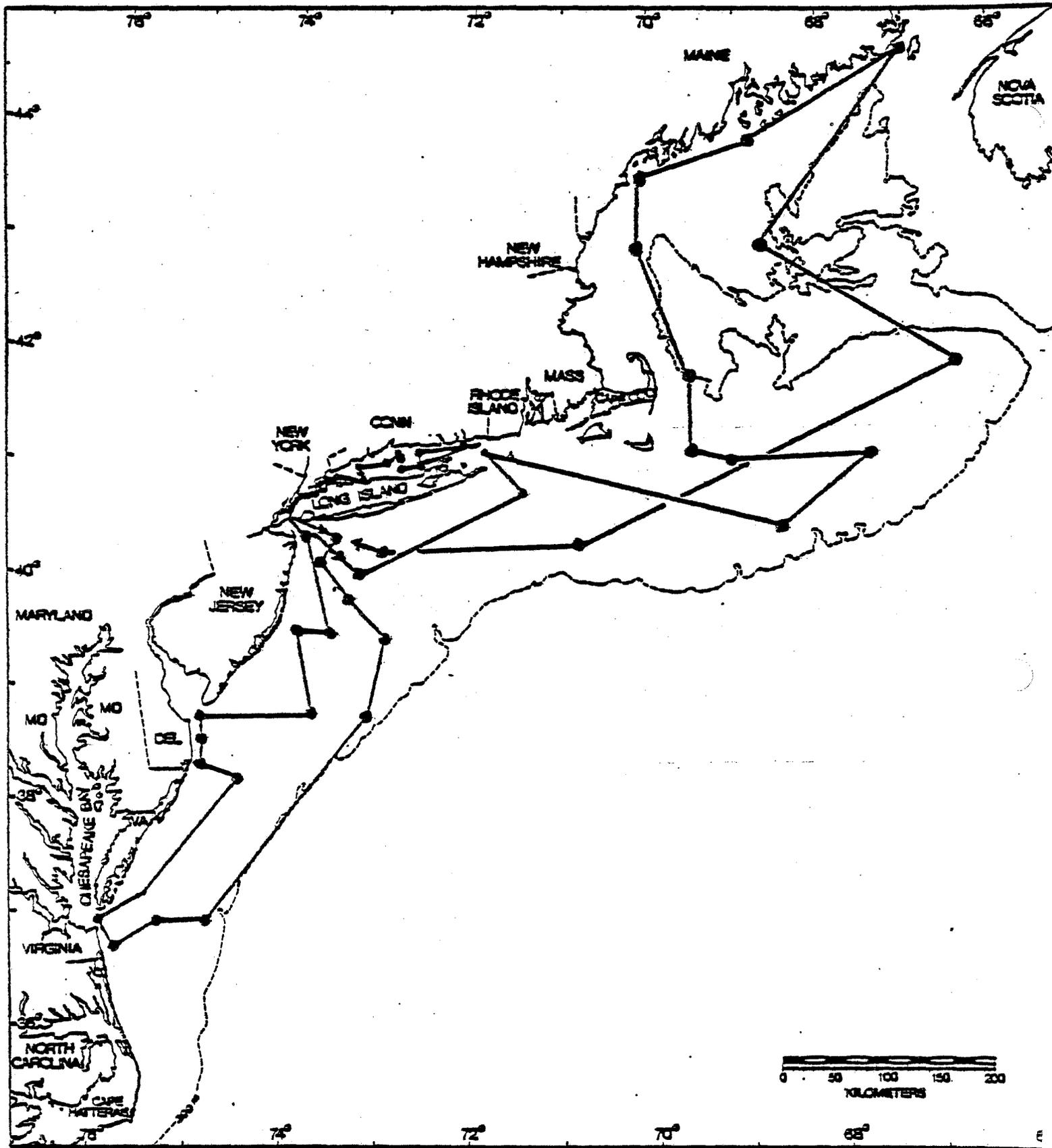
Margarete Dawson Part I
Deedee Tucker Part I
Jennifer Hauser Part I
Mary Grojean Part I & II
Lauretta Devine Part II
David Nelson Part II

New York Zoological Society, Brooklyn, NY

Guido Dingerkus Part II

Data Collected

.61 cm BONGO	_____	SALINITY SAMPLES	_____
.20 cm BONGO	_____	OXYGEN SAMPLES	_____
.61 cm NEUSTON	_____	NUTRIENT SAMPLES	_____
.20 cm NEUSTON	_____	CHLOROPHYLL SAMPLES	_____
HAEDRICH	_____	PRIMARY PRODUCTIVITY	_____
XBT	_____	DROGUES	_____
BOTTLE CAST	_____	SECCHI DISC	_____
CTD CAST	_____	TRAWLS	30
CURRENT METERS	_____	FISH SAMPLES	_____
SMITH-McINTYRE	108	2 METER CRAB RAKE	85



Approximate station locations and cruise track for Ocean Puls Monitoring Survey on KELEZ Cruise FRC-10/11-79 during 10 19 and 23 - 31 October 1979.

VESSEL KVANT

CRUISE 76-01

DATES August 5, 1976

DAYS AT SEA

STATIONS

Cruise Objective

Objectives of this cruise were to conduct a seasonal ecological survey of Georges Bank and adjacent waters between 65°00' W and 73°30' W Latitude. The complex of observations was to include: water temperature, salinity, biogenous elements, phytoplankton, zooplankton, and ichthyoplankton at a total of 74 stations (Figure 1).

Scientific Personnel

AtlantNIRO, Kaliningrad District, USSR

Vladimir T. Soldat, Chief Scientist
Boris A. Leonov
Vasily A. Tsitsorski

Leningrad Hydrometeorological Institute

Anatoli B. Bendik
Eugeni V. Sorokin

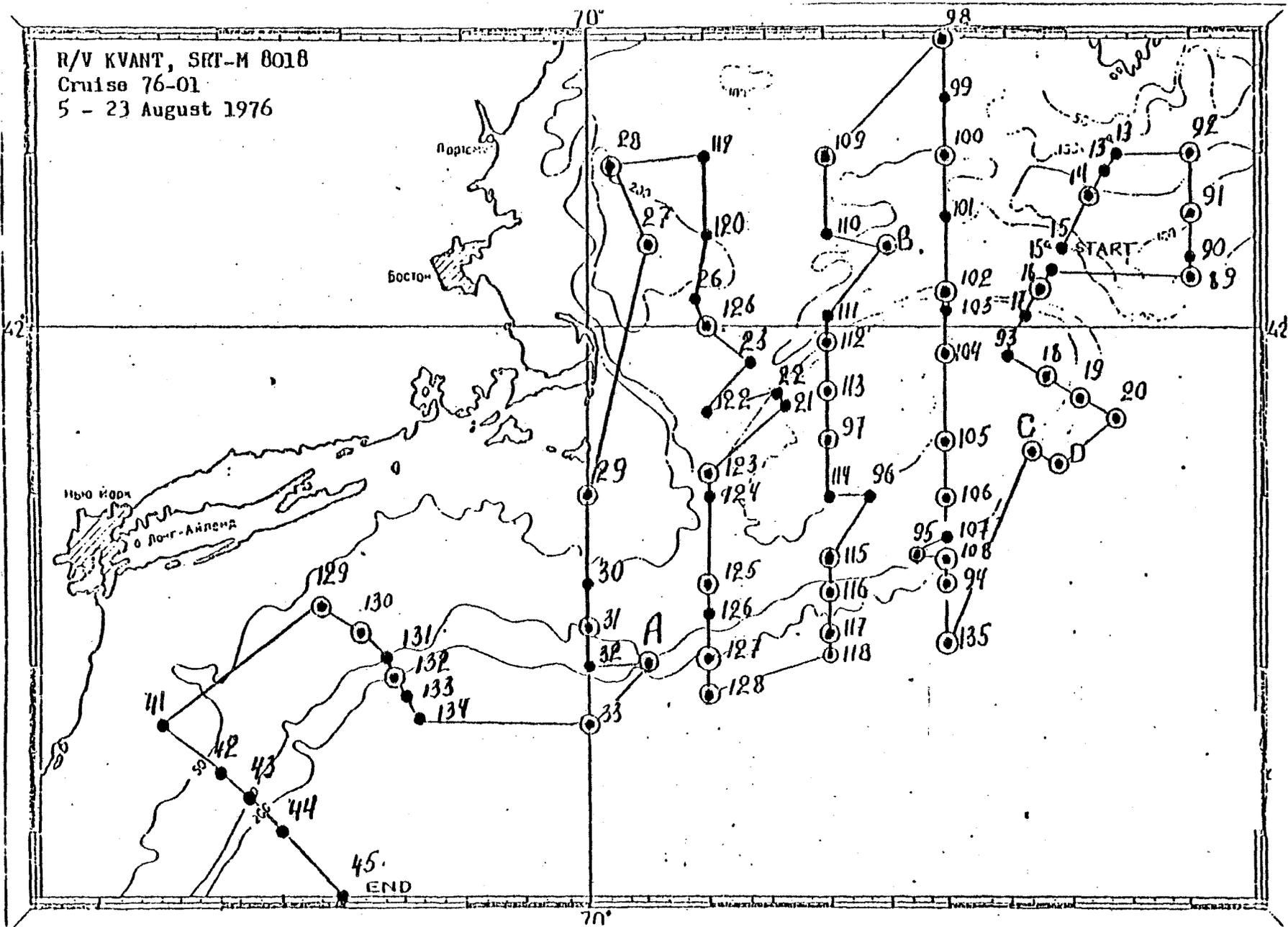
Northeast Fisheries Center, NMFS, Woods Hole, MA

Thomas L. Morris, Jr.
George R. Bolz

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	668
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS .165 & .505	77	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	668	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____	PHOSPHATE ANALYSIS	345
PHYTOPLANKTON	233		

R/V KVANT, SKT-M 8018
Cruise 76-01
5 - 23 August 1976



VESSEL KYMA

CRUISE 78-01

DATES July 25-August 5, 1978

DAYS AT SEA 9

STATIONS 11

Cruise Objective

There were six objectives for this cruise:

- (1) Assist a commercial charter vessel by using divers to replant marked ocean quahogs near the BW "NC" buoy (located in the separation zone between incoming and outgoing Nantucket-to-Ambrose Traffic Lane).
- (2) Assist a commercial charter vessel by using divers to replant marked surf clams near the N"2" buoy (located 2 nautical miles east of Rockaway Point).
- (3) Establish a study area as an Ocean Pulse station by reoccupying the 11 stations sampled during R/V RORQUAL Cruise No. 77-01, and investigate the following clam-related parameters: (a) density; (b) depth; (c) substrate type; (d) size and macro distribution; (e) reburrowing time; (f) heavy metals; (g) predators; (h) age and growth; (i) mortality; (j) settlement; and (k) succession.
- (4) Assess the practicality of conducting the following in situ experiments into the metabolism of surf clam and ocean quahog communities: (a) total seabed oxygen consumption; (b) biological and chemical oxygen consumption partitioning; (c) macrofaunal versus merofaunal-microbistic partitioning of oxygen consumption for surf clam and ocean quahog populations; and (d) nutrient fluxes between the seabed and overlying water.
- (5) Reevaluate the efficiency of an air-lift clam sampler (modified since R/V RORQUAL Cruise No. 77-01) versus diver sampling.
- (6) Evaluate and modify (if necessary) a newly developed quantitative photographic quadrat system.

Scientific Personnel

NMFS, Northeast Fisheries Center, Woods Hole Laboratory, Woods Hole, MA

Thomas Meyer, Chief Scientist	Charles Gross
Kenneth Pecci	John Ropes
Roger Clifford	Steven Murawski
Clifford Newell	Kevin McCarthy

NMFS, Northeast Fisheries Center, Sandy Hook Laboratory, Highlands, NJ

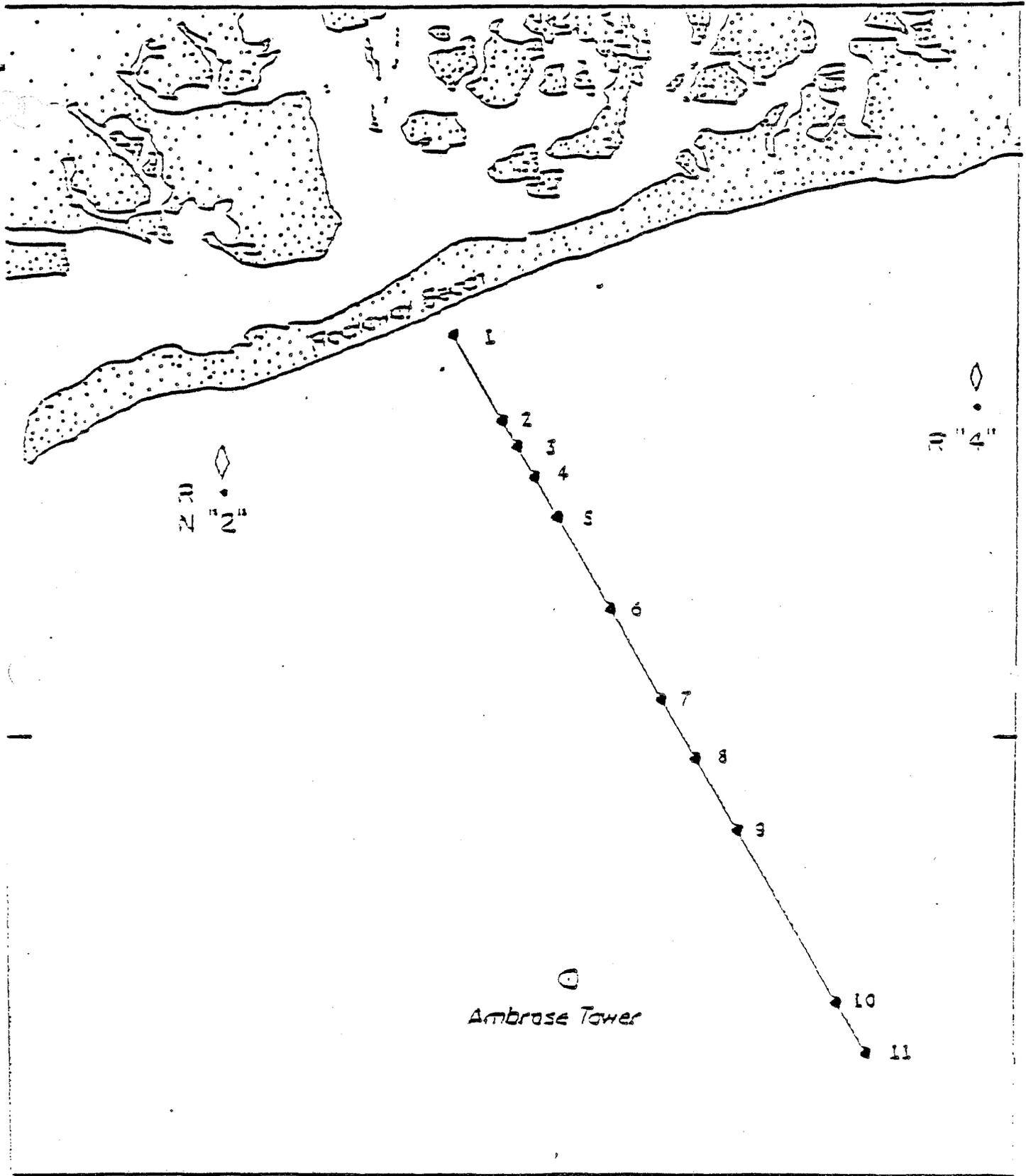
William Phoel

University of Rhode Island, Kingston, RI

Eric Anderson

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		



73° 50'

Cruise area, cruise track, and station locations for
 R/V KYMA Cruise No. 78-01 during 24 July - 7 August 1978.

VESSEL FRC MT. MITCHELL

CRUISE 76-09

DATES September 22-25, 1976

DAYS AT SEA 4

STATIONS

Cruise Objective

Subsidiary objectives were to make STD observations in the vicinity of the current meter moorings, and to measure temperature with XBTs through the deep basins of the Gulf of Maine on the way to the deployment site and across southern Georges Bank and Great South Channel on the return trip. All of these objectives were successfully accomplished.

The principal purpose of the cruise was to set three subsurface moorings, each with three current meters and an acoustic release, across the Northeast Channel just inside the sill. The instruments, manufactured by AMF Sea-Link Systems in Alexandria, VA, are designed to stay in place about six months. They are to be recovered in late March or early April 1977, when a second set of instruments will be deployed. Ultimately it is planned to monitor the deep currents in the Northeast Channel for two years.

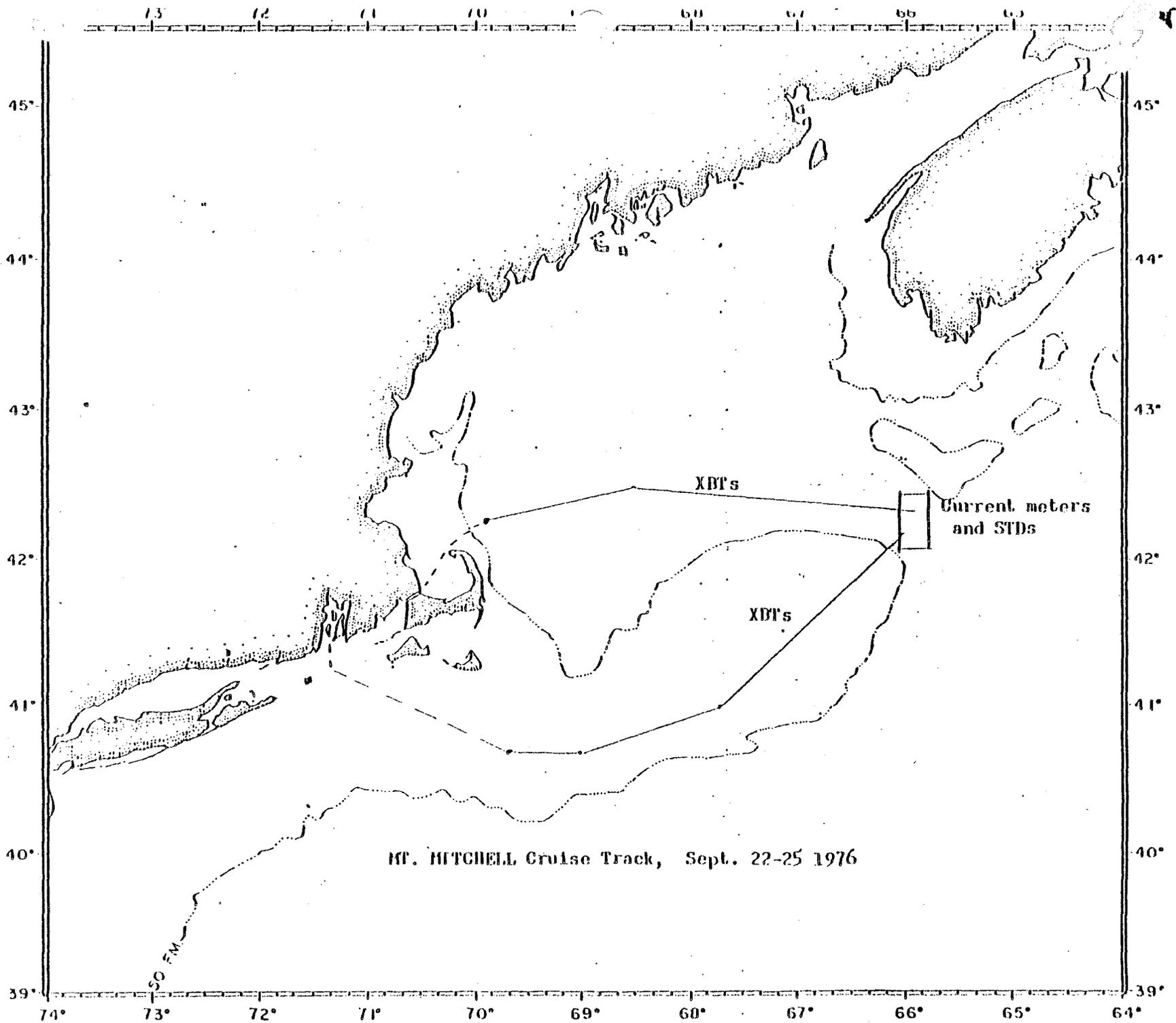
Scientific Personnel

- W. R. Wright, Supervisory Oceanographer,
Chief Scientist, NEFC, Woods Hole, MA
- R. J. Schlitz, Oceanographer, NEFC, Woods Hole, MA
- S. R. Ramp, Oceanographer, NEFC, Woods Hole, MA
- G. Dering, Electronics Technician, NEFC, Woods Hole, MA
- J. Vermersch, Research Associate, WHOI, Woods Hole, MA
- A. Eliason, Consultant, Eliason Data Services, Falmouth, MA

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	16
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	16	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	13	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		

AO-139



Mt. MITCHELL Cruise Track, Sept. 22-25 1976

VESSEL MT. MITCHELL

CRUISE 77-02

DATES February 12-26, 1977

DAYS AT SEA 14

STATIONS 112

Cruise Objective

1. To monitor distribution and relative abundance of larval herring and their food organisms for estimates of production, growth, mortality, and dispersal.
2. To describe water mass distribution by conducting oceanographic work in the study area.
3. To collect special samples of herring larvae for aging purposes.

Scientific Personnel

Northeast Fisheries Center, NMFS, Woods Hole, MA

Thomas L. Morris, Chief of Party	Ronald A. Kirschner
Patrick D. Laughead	Gregory P. Dube
George R. Bolz	Raymond A. Cloutier
Steven R. Ramp	

University of Massachusetts, Amherst, MA

Clayton Heaton

Project SEAL, Marion, MA

Alexander G. Hall

Data Collected

ICNAF STANDARD STATIONS	Total	SALINITY SAMPLES	Total
	100		862
ICNAF EXTRA STATIONS	12	OXYGEN SAMPLES	738
MOCNESS STATIONS		NUTRIENT SAMPLES	
BONGO HAULS (All types)	455	CHLOROPHYLL SAMPLES	
NEUSTON HAULS	111	TRAWLS	
MOCNESS HAULS		LONG LINE SET	
XBT DROPS	134	CURRENT METERS	
BOTTLE CASTS		DROGUE	
CTD/STD CASTS	104	PRIMARY PRODUCTIVITY	
ROSETTE		SECCHI DISC	
FISH SAMPLES			

VESSEL MT. MITCHELL

CRUISE 77-11

DATES November 12-19, 1977

DAYS AT SEA 8

STATIONS 37

Cruise Objective

The objectives of this cruise, in conjunction with data from preceding and subsequent cruises, were to monitor seasonal changes in distribution and abundance of zooplankton and in the level of primary production, and measure accompanying hydrographic parameters.

Scientific Personnel

Northeast Fisheries Center, NMFS, Sandy Hook, NJ

Peter Berrien (Chief Scientist)
William Phoel
Albert Matte

NMFS, Northeast Fisheries Center, Narragansett, RI

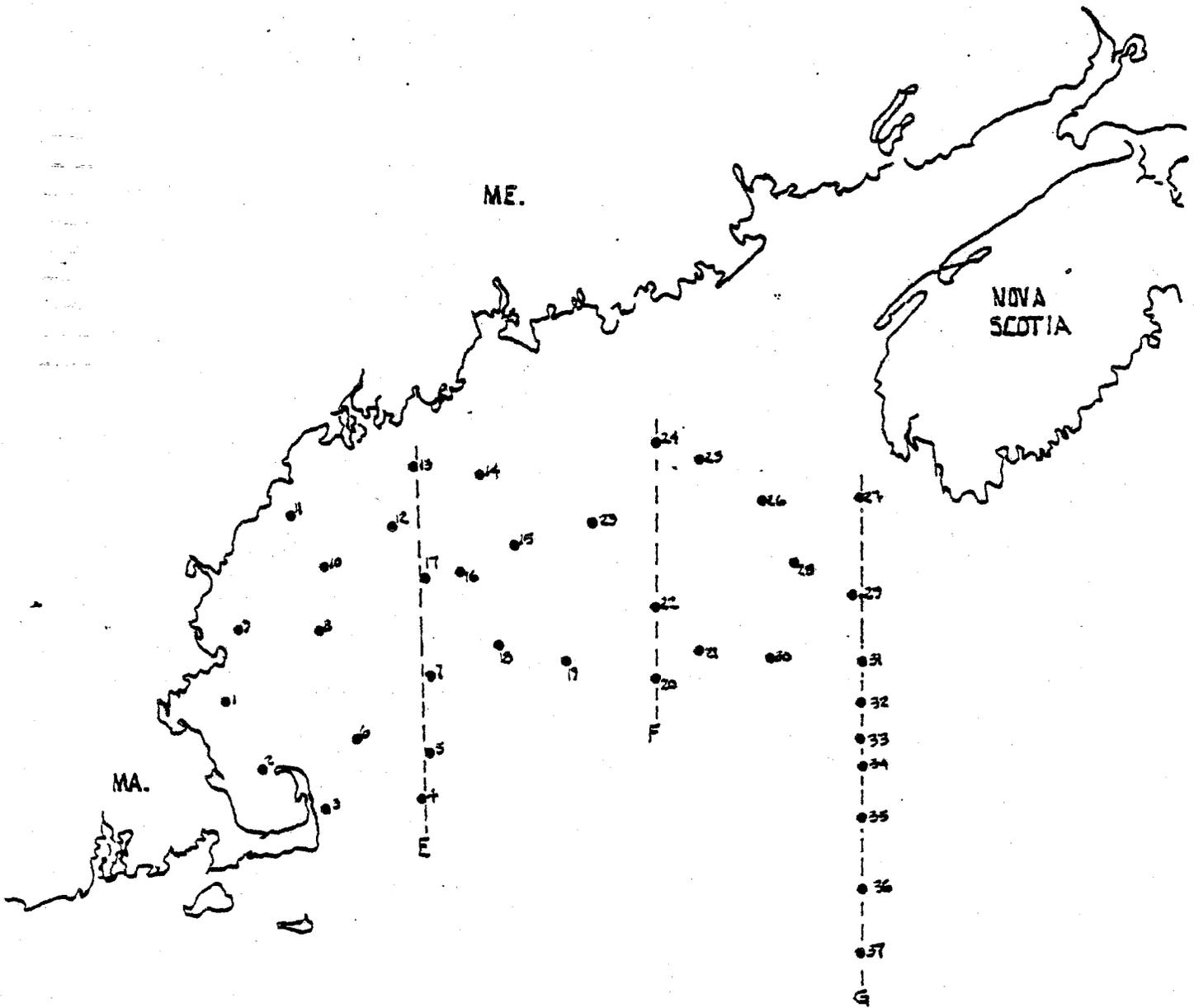
Thomas McKenney

NMFS, Northeast Fisheries Center, Woods Hole, MA

Cabell Davis

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	382
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	180
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	57	CHLOROPHYLL SAMPLES	530
NEUSTON HAULS	35	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	37	CURRENT METERS	_____
BOTTLE CASTS	37	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		



MT. MITCHELL

77-11

VESSEL MT. MITCHELL

CRUISE 79-02

DATES February 15-24, 1979

DAYS AT SEA 9

STATIONS 59

Cruise Objective

The primary objectives of the cruise were to: (1) monitor distribution and abundance of larval herring and their food organisms for estimates of production, growth, mortality, and dispersal; (2) collect and sort larvae of herring and sand lance from the samples obtained during the cruise and preserve in 90% ETOH for special otolith and biochemical investigations. Secondary objectives were to: (1) collect water samples from depth for primary productivity studies and chlorophyll analysis; (2) collect live zooplankton, primarily live Calanus finmarchicus, and (3) conduct a special XBT transect from 40°45';70°00' to 40°00';70°00' with casts every 5 minutes of latitude to monitor the shelf-slope water front in the Southern New England area.

Scientific Personnel

NMFS, NEFC, Woods Hole, MA

David C. Potter (Chief Scientist)
Dana Temple
Cabell Davis

NMFS, NEFC, Narragansett, RI

Joseph Kane

Suffolk University, Boston, MA

Mary Ann Ruzzo

University of Rhode Island, Kingston, RI

Porter Turnbull

Wellesley High School, Wellesley Hills, MA

Paul Andrew

Canton High School, Canton, MA

Patricia Henly

Manomet Bird Observatory, Manomet, MA

Kevin Powers

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>59*</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	<u>53</u>	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	<u>59</u>	CURRENT METERS	_____
BOTTLE CASTS	<u>3</u>	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____	PHOTOMETER CAST	<u>3</u>

Remarks:

*Surface only.

Herring larvae sorted for otoliths and preserved in EIDH -(10).

Ammodytes larvae sorted (200).

VESSEL Nogliki CRUISE 77-01
DATES April 19-May 3/May 5-20, 1977 PARTS I & II
DAYS AT SEA 14/15 STATIONS 1/6

Cruise Objective

The primary objective was to locate and tag migrating Atlantic herring after they had overwintered in the offshore waters off Southern New England and in the Middle Atlantic in order to provide more information on migratory patterns and stock mixing and identification. Secondary objectives were to collect samples of Atlantic herring for age and growth analyses and for studies of food habits.

Scientific Personnel-Parts I & II: 19 April-3 May 1977 & 5-20 May 1977

AtlantNIRO, Kaliningrad, USSR

Anatoliy Strela
Pavel Alekseev
Anatoliy Shezstyukov

Part I: 19 April-3 May 1977

Northeast Fisheries Center, NMFS, Woods Hole, MA

Thurston Burns

Fisheries and Marine Service, St. Andrews, NB, Canada

Clayton Dixon

Part II: 5-20 May 1977

Northeast Fisheries Center, NMFS, Woods Hole, MA

Frank Almeida

Northeast Fisheries Center, NMFS, Sandy Hook, NJ

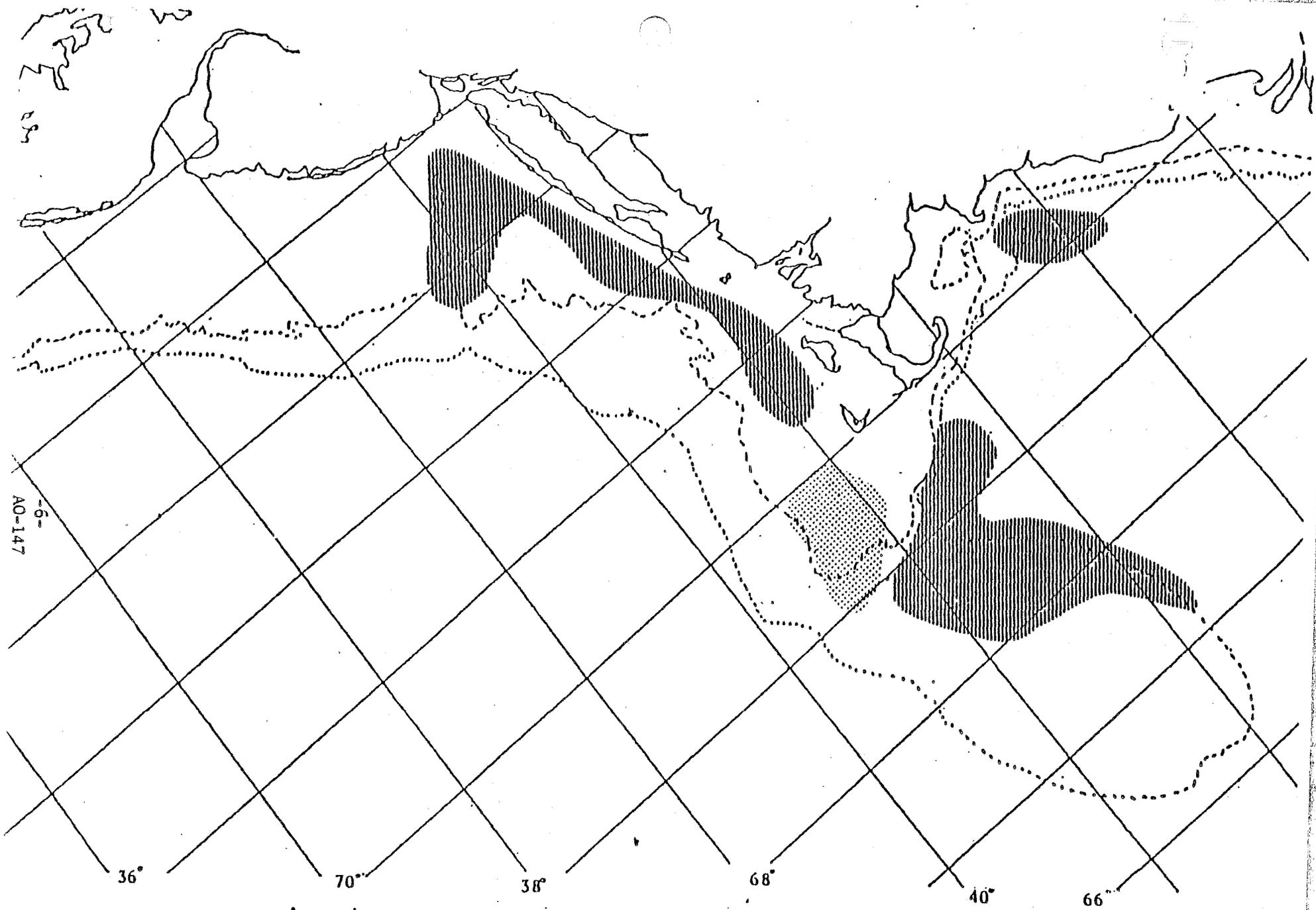
Andrew Thoms

Fisheries and Marine Service, Halifax, NS, Canada

Bernard Swan

Data Collected

	Total		Total	Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____	
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____	
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____	
BONGO HAULS	_____	CELOROPHYLL SAMPLES	_____	
NEUSTON HAULS	_____	TRAWLS	_____	
MOCNESS HAULS	_____	LONG LINE SET	_____	
XBT DROPS	_____	CURRENT METERS	_____	
BOTTLE CASTS	_____	DROGUE	_____	
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____	
ROSETTE	_____	SECCHI DISC	_____	
FISH SAMPLES	_____	SEINE SET	1	6



Approximate areas of search during USSR
R/V NOGLIKI cruise 77-01.

 Part 1
 Part 2

VESSEL Nogliki

CRUISE 77-02

DATES May 22-26, 1977

DAYS AT SEA 16

STATIONS 96

Cruise Objective

The objective of the cruise was to determine the distribution and abundance of zooplankton and to measure hydrographic parameters (salinity, chlorophyll, nutrients, and temperature) in the study area.

Scientific Personnel

AtlantNRO, Kaliningrad District, USSR

Anatoliy Strela
Pavel Alekseev
Anatoliy Shezstyukov

NMFS, NEFC, Woods Hole, MA, USA

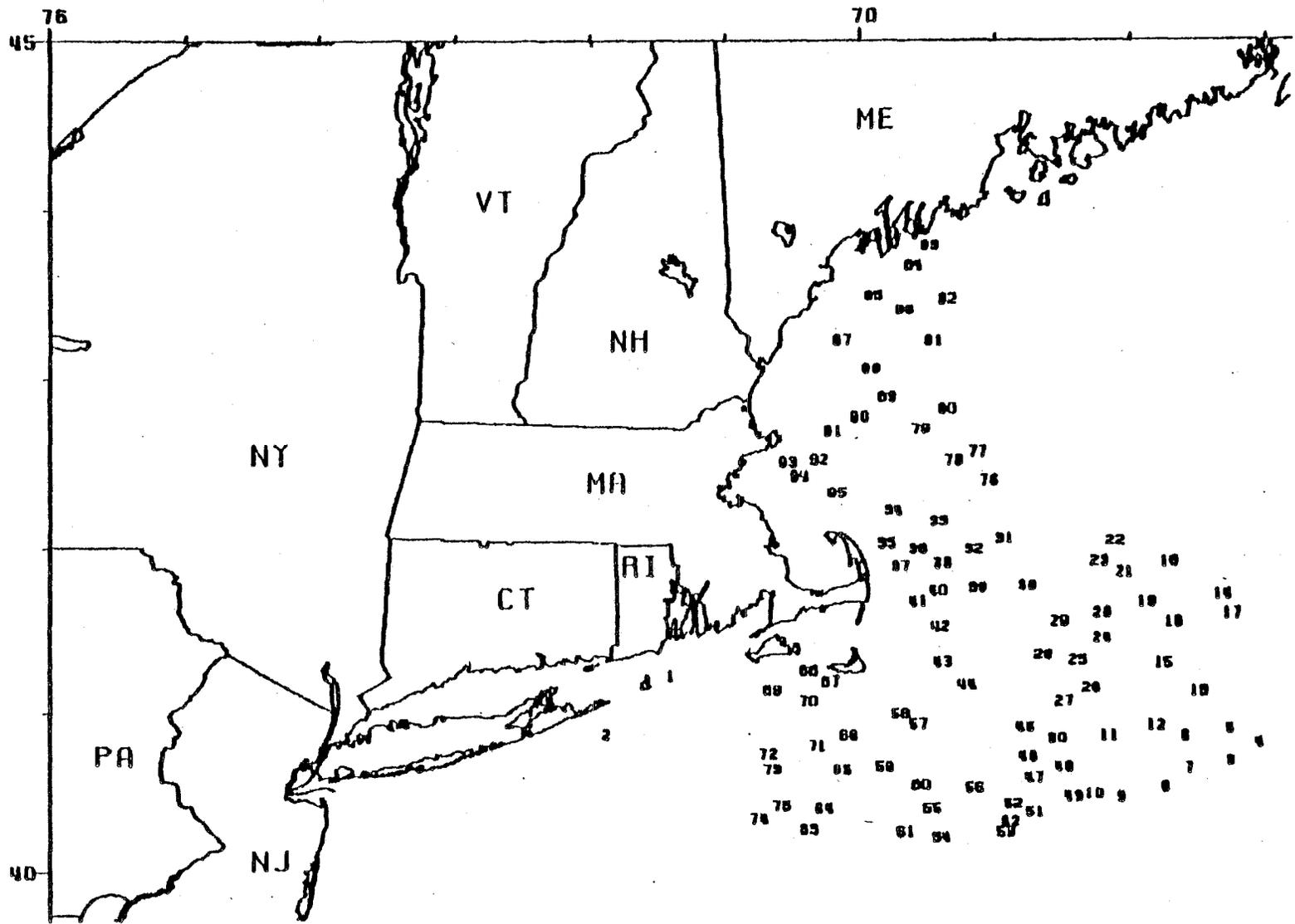
Thomas Morris

NMFS, NEFC, Narragansett, RI, USA

Jerome Prezioso
Donna Busch

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	280
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	355
BONGO HAULS (All types)	380	CHLOROPHYLL SAMPLES	355
NEUSTON HAULS	95	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	95	CURRENT METERS	_____
BOTTLE CASTS (Nansen)	95	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		



AO-149

NOOLIKI
77-02

VESSEL Pescapuerta Segundo

CRUISE 78-01

DATES - May 15-31 - June 1-15, 1978

PARTS I, II

DAYS AT SEA

STATIONS 44

Cruise Objective

The objectives of Part I of this cruise were to: (1) evaluate the relative performance of three types of Spanish commercial trawls in terms of the by-catch resulting from the harvest of both longfin (Loligo sp.) and shortfin (Illex sp.) squid; (2) conduct a cod-end mesh-selectivity study using both 45-mm and 60-mm cod ends and cod-end covers; and (3) acquaint USA scientists and a fishing industry observer with the Spanish squid-fishing operation.

Scientific Personnel

Instituto de Investigaciones Pesquevas, Vigo, Spain

Antonio Vasques Rodriguez

Northeast Fisheries Center, NMFS, Woods Hole, MA

Edgar Bowman

Malcolm Silverman

Industry Representative, Cape May, NJ

Rusty Chew

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	44
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	195313 kg		

VESSEL Researcher

CRUISE 76-11

DATES November 26-December 12, 1976

DAYS AT SEA 17

STATIONS 110

Cruise Objective

The primary objective of the cruise was to monitor the distribution and relative abundance of larval Atlantic herring (Clupea harengus) and their food organisms in the Georges Bank-Nantucket Shoals area for estimates of production, growth, mortality, and dispersal. Hydrographic work was conducted to describe water-mass distribution in the study area. Water samples also were taken for chlorophyll and nutrient analyses for estimates of primary productivity.

Scientific Personnel

Northeast Fisheries Center, NMFS, Woods Hole, MA

David Potter, Chief Scientist Tom Laughton
Andrew Rosenberg Lt. Robert Pawlowksi
Gilbert Dering Donald Flescher

Northeast Fisheries Center, NMFS, Narragansett, RI

Joseph Kane
Lt. Kris Carty

Northeast Fisheries Center, NMFS, Sandy Hook, NJ

Paul Christian
Cris Evans

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	590
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	580
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	590
BONGO HAULS	110	CHLOROPHYLL SAMPLES	590
NEUSTON HAULS	106	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	106	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CID/STD CASTS	79	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		

VESSEL RESEARCHER

CRUISE 78-04/05

DATES April 17-24/ April 27-May 4, 1978

DAYS AT SEA 7/7

STATIONS 15/12

Cruise Objective

Ocean Pulse (OP) is a major program being developed by the Northeast Fisheries Center (NEFC) to monitor the health of marine resource species, their environment and the ecological relationships that affect them, of the northeast region of the United States. It will provide long-term monitoring of a wide variety of interrelated environmental and biological parameters to assess or predict man's impact on fishery resources. This cruise was a major effort in the operation test phase (OTP) of the program and was intended to develop and/or strengthen baselines and examine the feasibility of certain procedures/experiments being considered for inclusion in the monitoring system.

Scientific Personnel

NMFS, Northeast Fisheries Center, Sandy Hook, NJ

	<u>PART I</u>	<u>PART II</u>
Frank Steimle	X	X
David Radosh	X	X
Greg Parker	X	
Thomas Wilhelm		X

NMFS Northeast Fisheries Center, Oxford, MD

Maurice Ellison	X	
Martin Newman		X

NMFS, Northeast Fisheries Center, Milford, CT

Fred Thurberg	X	
Richard Greig	X	
Edith Gould	X	
Lynne Hanson	X	
Al Hanson	X	
Dean Perry	X	
Anthony Calabrese		X
John Graikoski		X
Margret Dawson		X
William Nelson		X
Laure DeVine		X
Andrew Herbert		X
Vincent Zdanowicz		X

NMFS, Northeast Fisheries Center, Narragansett, RI

Tom McKenny

X

X

Osborn Lab., New York Aquarium, NY

Peter Burn

Data Collected

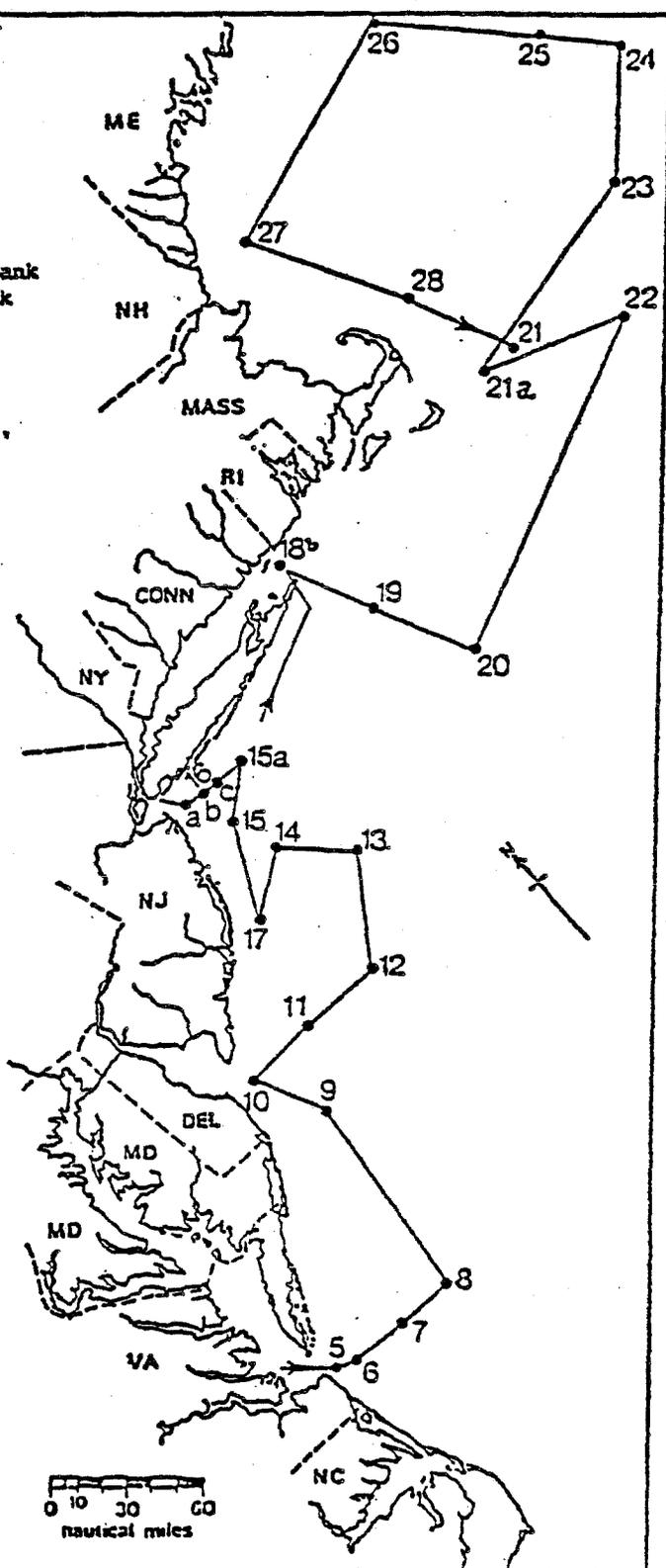
	<u>PART I</u>			<u>PART II</u>	
.61 cm BONGO	<u>15</u>	<u>12</u>	SALINITY SAMPLES	<u>60</u>	<u>48</u>
.20 cm BONGO	<u>15</u>	<u>12</u>	OXYGEN SAMPLES	<u>60</u>	<u>48</u>
.61 cm NEUSTON	<u>15</u>	<u>12</u>	NUTRIENT SAMPLES	<u> </u>	<u> </u>
.20 cm NEUSTON	<u>15</u>	<u>12</u>	CHLOROPHYLL SAMPLES	<u> </u>	<u> </u>
HAEDRICH	<u>15</u>	<u>12</u>	PRIMARY PRODUCTIVITY	<u> </u>	<u> </u>
XBT	<u>15</u>	<u>12</u>	DROGUES	<u> </u>	<u> </u>
BOTTLE CAST	<u>60</u>	<u>48</u>	SECCHI DISC	<u> </u>	<u> </u>
CTD CAST	<u> </u>	<u> </u>	TRAWLS	<u>15</u>	<u>12</u>
CURRENT METERS	<u> </u>	<u> </u>	FISH SAMPLES	<u> </u>	<u> </u>
SMITH-McINTYRE	<u>15</u>	<u>12</u>	EPIBENTHIC SLED	<u>15</u>	<u>12</u>
CRAB DREDGE	<u>15</u>	<u>12</u>			

PART II

- Stat. # - 28 - Southern Gulf of Maine
 27 - Jeffrey's Ledge
 26 - Central Gulf
 25 - Northern Edge of Georges Bank
 24 - Northern Peak, Georges Bank
 23 - Central Georges
 22 - Southern Georges Bank
 21a - Argo Merchant
 21 - Argo Merchant Control
 20 - Southern New England O.C.S.
 19 - Southern N. E. Mid Shelf
 18 - Block Island Sound

PART I

- Stat. # - 17 - N. J. anoxia area
 16c - N. Y. Dredge Spoils Dump
 16b - N. Y. Sewage Sludge Dump
 16a - Sludge Dump
 15a - N. Y. Bight Apex Control
 15 - Industrial Acid Dump
 14 - N. J. Anoxia Control
 13 - Oil Drilling (BCT)
 12 - Delaware OCS
 11 - Delaware Mid Shelf
 10 - Delaware Bay Mouth
 9 - Delaware Dump Site
 8 - Chesapeake OCS
 7 - Chesapeake Mid Shelf
 6 - Chesapeake Bay Plume
 5 - Chesapeake Bay Mouth



Cruise track and station locations, Ocean Pulse OTP Researcher cruise
 RE-(FRC)-70-04/05, April 17-May 4, 1978.

VESSEL Rorqual

CRUISE 77-01

DATES August 17-26, 1977

DAYS AT SEA

STATIONS 11

Cruise Objective

The purpose of the cruise was to: (1) assist the R/V DELAWARE II in calibrating the NMFS clam survey dredge, (2) to photographically document the fauna and geological features of a surf clam community, (3) to investigate various clam associated parameters as stated on operational plan for R/V RORQUAL Cruise 77-01, (4) to determine relative efficiency of a diver operated airlift clam sampler and compare results against diver and clam dredge sampling, and (5) to determine the practicability of an underwater handheld television system as a calibration and (or) survey tool.

Scientific Personnel

Northeast Fisheries Center, NMFS, Woods Hole, MA

Thomas Meyer, Chief Scientist Joseph Uzmann
Richard Cooper John Ropes

Northeast Fisheries Center, NMFS, Sandy Hook, NJ

William Phoel Robert Reid
Andrew Draxler Clyde McKenzie
David Radosh

University of Rhode Island, Kingston, RI

Eric Anderson

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____	DIVES	78

VESSEL RORQUAL

CRUISE 79-01

DATES June 4-29, 1979

PARTS: I, II, III

DAYS AT SEA

STATIONS

Cruise Objective

The purpose was to develop methods for studying the operation of commercial scallop drags using divers and an underwater color TV. This will lead to studies on the size selectivity of drags and to the design of less destructive scallop gear.

Scientific Personnel

National Marine Fisheries Service, NEFC, Gloucester, MA

A. Blott J. Kenney
V. Nulk J. Moakley

National Marine Fisheries Service, NEFC, Woods Hole, MA

R. Smolowitz, Project Leader R. Clifford
C. Newell K. Pecci
T. Meyer P. Twohig
C. Gross H. Merry
K. McCarthy J. Nicholas

Commercial Fisherman, New Bedford, MA

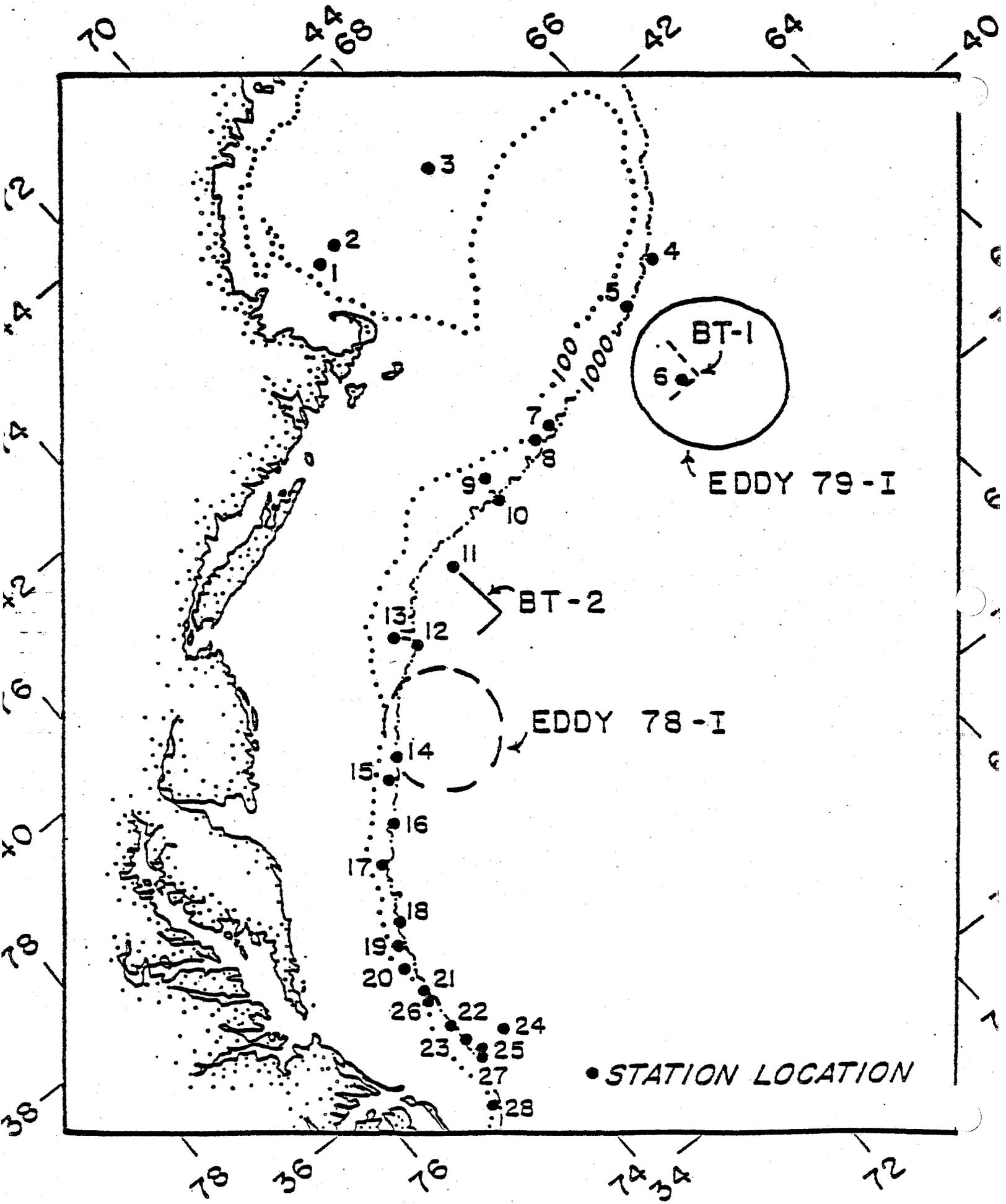
J. Sweeney

Data Collected

.61 cm BONGO	_____	SALINITY SAMPLES	_____
.20 cm BONGO	_____	OXYGEN SAMPLES	_____
.61 cm NEUSTON	_____	NUTRIENT SAMPLES	_____
.20 cm NEUSTON	_____	CHLOROPHYLL SAMPLES	_____
HAEDRICH	_____	PRIMARY PRODUCTIVITY	_____
XBT	_____	DROGUES	_____
BOTTLE CAST	_____	SECCHI DISC	_____
CTD CAST	_____	TRAWLS	_____
CURRENT METERS	_____	FISH SAMPLES	_____
SCALLOP DRAG	_____	TV SYSTEM	<u>6 hours</u>

Remark:

No cruise track available.



VESSEL Silver Lining

CRUISE 76-01

DATES October 8-31, 1976

DAYS AT SEA

STATIONS 3

Cruise Objective

The purpose of this cruise was to tag spawning herring in the area of Jeffreys Ledge (ICNAF Div. 5Y adult fishery) in order to provide information on stock identification and delineation.

Scientific Personnel

Gordon T. Waring, Chief of Party
Thurston Burns, Fishery Biologist
Ralph K. Mayo, Fishery Biologist
Frank Almeida, Fishery Biologist
Don Flescher, Fishery Biologist
Linda Despres, Fishery Biologist
Bill Overholtz, Fishery Biologist
Rhett Lewis, Biological Technician
Jim Sabin, Mech. Engin. Aid
Gary Carter, Biol. Techn., NMFS, NEFC, Narragansett, RI
Larry Gill, Fish. Biol., Cat Cove Lab., Salem, MA
Mass. Dept. of Marine Fisheries
Carlo Sinagua, State Ext. Agent, Gloucester, MA
Mass. Dept. of Marine Fisheries
Garret Spears, Fishery Biologist, Boothbay Harbor, ME
Maine Dept. Natural Resources

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____ 3
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		

VESSEL Spirit of 76

CRUISE 76-01

DATES April 19-24, 1976

DAYS AT SEA

STATIONS 18

Cruise Objective

The purpose of this cruise was to conduct a spring otter trawl and plankton survey in the Biome area (Cape Cod and Massachusetts Bays) in areas inshore from the deeper water biome groundfish and plankton stations occupied by ALBATROSS IV in the spring 1976 survey.

Scientific Personnel

Fred Lux, NMFS, NEFC, Woods Hole, MA
Hugh Oldham, NMFS, NEFC, Woods Hole, MA

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS (60 cm).303	_____	CHLOROPHYLL SAMPLES	_____
	.505		
NEUSTON HAULS	.505	TRAWLS	18
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		

VESSEL Spirit of 76

CRUISE 77-01

DATES March 14-18, 1977

DAYS AT SEA 4

STATIONS 16

Cruise Objective

The purpose of this cruise was to provide basic monitoring data to assess areal and temporal changes in the abundance of fish stocks and zooplankton populations inshore of the waters covered by ALBATROSS IV surveys.

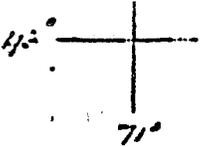
Scientific Personnel

Northeast Fisheries Center, NMFS, Woods Hole, MA

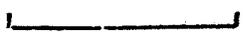
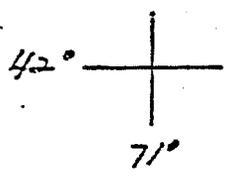
C. W. Davis, Chief of Party
Warren Handwork, Fish. Meth. & Equip. Spec.
Fred E. Lux, Fishery Biologist

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____?	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____?	TRAWLS	_____16
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____16	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		



STON



10 miles

CAPE AN

50 fm

20 fm

10 fm

CAPE COD

SPIRIT OF 76

76-01

VESSEL Spirit of 76

CRUISE 77-02

DATES April 11-16, 1977

DAYS AT SEA 5

STATIONS 18

Cruise Objective

The purpose of this cruise was to provide basic monitoring data to assess areal and temporal changes in the abundance of fish stocks and zooplankton populations inshore of the waters covered by ALBATROSS IV surveys.

Scientific Personnel

Northeast Fisheries Center, NMFS, Woods Hole, MA

Clarence W. Davis, Chief Scientist
Warren Handwork, Fish. Meth. & Equip. Spec.
Fred E. Lux, Fishery Biologist

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	18	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	18	TRAWLS	18
MOCNESS HAULS	4	LONG LINE SET	_____
XBT DROPS	18	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		

VESSEL Spirit of 76

CRUISE 77-03

DATES June 6-11, 1977

DAYS AT SEA 5

STATIONS 11

Cruise Objective

The purpose of this cruise was to conduct a spring otter trawl and plankton survey in the Biome area (Cape Cod and Massachusetts Bays) in the areas inshore from the deeper water Biome groundfish and plankton stations occupied by ALBATROSS IV in the spring 1977 survey.

Scientific Personnel

Northeast Fisheries Center, NMFS, Woods Hole, MA

Clarence W. Davis, Chief Scientist
Warren Handwork, Fish. Meth. & Equip. Spec.
Fred E. Lux, Fishery Biologist

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	11
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		

VESSEL State Arrow

CRUISE ?

DATES July 9-18

DAYS AT SEA 9

STATIONS

Cruise Objective

The objectives of the cruise were to: (1) define and photographically document the surface geology of the submarine canyon over a depth range of 150 to 400 m; (2) define the bottom oriented fauna over the above depth range and relate to the geologic features; (3) define the relative abundance of major fauna (lobsters, crabs, flounders, hakes, sharks, etc.); and (4) train NMFS and academic scientists in submersible operations and scientific applications.

Scientific Personnel

Northeast Fisheries Center, NMFS, Woods Hole, MA

Richard Cooper, Chief Scientist Thomas Meyer
Joseph Uzmann Charles Gross
Kevin McCarthy Cliff Newell
Roger Clifford

NMFS, SEFC, Beaufort, NC

National Shellfisheries Institute

Pete Parker Edward Tolley

Marine Biological Laboratory, Woods Hole, MA

Jella Atema

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		

Remarks

7,000 color photographs were taken.
Bottom currents and temperature taken.
No Cruise Track?

VESSEL Suzuka Maru (Japanese)

CRUISE 77-01

DATES July 19-27, 28-August 8, 1977

PARTS I & II

DAYS AT SEA

STATIONS 112

Cruise Objective

The objectives of this cruise were to: (1) investigate the abundance of longfin (Loligo) and shortfin (Illex) squid on offshore fishing grounds; (2) determine the by-catch associated with catches of squid; (3) investigate the feeding habits of shortfin squid at the time of the survey; and (4) acquaint NEFC scientists and observers with the Japanese midwater squid fishing operation.

Scientific Personnel

Northeast Fisheries Center, NMFS, Woods Hole, MA

Edgar Bowman
Karen Johnson

Northeast Fisheries Center, NMFS, Gloucester, MA

Robert Tabor

Northeast Fisheries Center, NMFS, Woods Hole, MA
Part II: 28 July-8 August 1977

Ralph Mayo
Malcolm Silverman

Northeast Fisheries Center, NMFS, Gloucester, MA

Mark King

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	<u>112</u>
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	<u>69134 kg I 90668 II</u>		

Sukaru Maru 77-01 (Code 776)
1977 Summer Squid Survey
Part I July 20 - July 27
Part II July 28 - Aug 8



VESSEL Tug Whitefoot

CRUISE 77-01

DATES April 19-23, 1977

DAYS AT SEA 4

STATIONS 1

Cruise Objective

The first objective was to recover three subsurface moorings, each with three current meters and a hydroacoustical release. The moorings were set in September 1976 from the NOAA Ship MT. MITCHELL to begin a 2-yr experiment on measuring the deep flow through Northeast Channel. A secondary objective was to take hydrographic samples and measurements at stations across the channel in the vicinity of the moorings in order to continue the series of observations begun in early 1975. A third objective was to obtain a section of XBT and hydrographic observations along the axis of Georges Basin, Wilkinson Basin, and Great South Channel, and to monitor the fate of the large mass of slope water which entered the Gulf of Maine in the spring of 1976.

Because the KELEZ was equipped only for bottle sampling and the WHITEFOOT had no facilities to support hydrographic work, and because time was limited on both cruises, the second and third objectives were modified to include only a single section of stations along the mooring line in the Northeast Channel and XBT measurements along the outbound track of the KELEZ.

Scientific Personnel

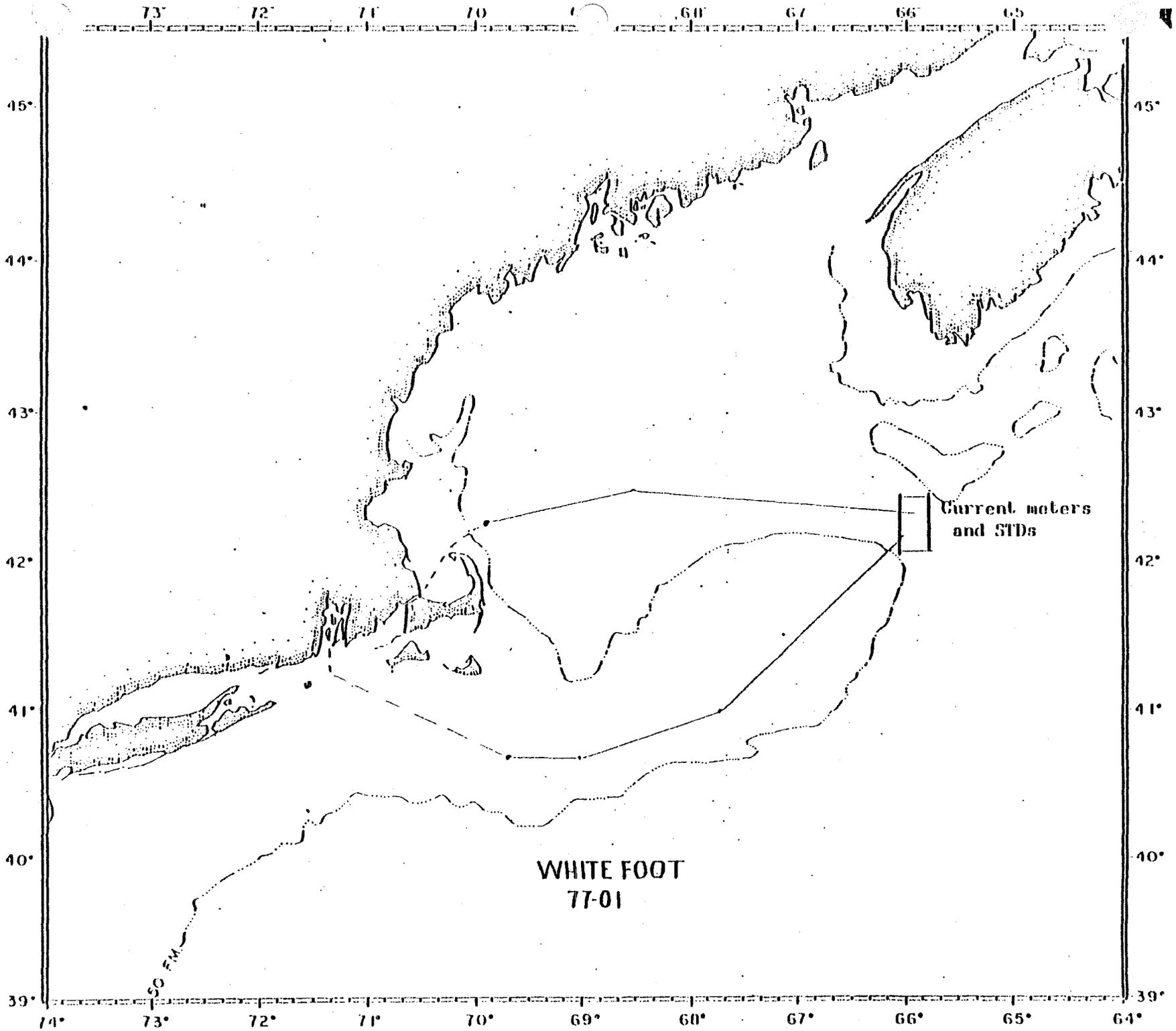
Northeast Fisheries Center, NMFS, Woods Hole, MA

W. R. Wright, Chief of Party
Gilbert Dering
Raymond Cloutier

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____ 1
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		

AO-170



VESSEL Whiting

CRUISE 79-01

DATES May 29-31, 1979

DAYS AT SEA 3

STATIONS 21

Cruise Objective

1. Lower a sonic transducer at each of the four current meter locations to verify the presence of subsurface moorings.
2. Make sections of oceanographic bottle stations and XBTs along the current meter line and along parallel lines 10-20 miles west and east of the moorings.

Scientific Personnel

W. Redwood Wright, Chief Scientist,	NMFS, NEFC, Woods Hole, MA
Gilbert Dering, Electronics Technician,	NMFS, NEFC, Woods Hole, MA
Derek Sutton, NOAA Corps Officer,	NMFS, NEFC, Woods Hole, MA
Timothy Cain, Physical Sci. Techn.,	NMFS, NEFC, Woods Hole, MA
Albert Matte, Oceanographer,	NMFS, NEFC, Sandy Hook, NJ

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	245
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	120
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	40	CURRENT METERS	_____
BOTTLE CASTS	21	DROGUE	_____
FTD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____

VESSEL Wieczno

CRUISE 76-01

DATES April 9-May 4, 1976

DAYS AT SEA 30

STATIONS 143

Cruise Objective

1. Monitor distribution and relative abundance of larval herring and their food organisms for estimates of production, growth, mortality, and dispersal.
2. Conduct a neuston gear comparison study.
3. Examine day-night differences in capture of larval herring.
4. Collect phytoplankton samples to determine general distribution of species in the survey area.
5. Collect chlorophyll and nutrient samples for estimates of primary productivity.
6. Describe water circulation and diffusive processes by conducting hydrographic work in the cruise area.
7. Conduct groundfish survey trawl operations on Georges Bank in the vicinity of plankton stations.

Scientific Personnel

Morski Instytut Rybacki, Gdynia, Poland

Andrzej Furtak, Chief of Party	Andrzej Dobrosielski
Marianna Pastuszek	Roman Pactiva
Wojciech Sztajnduchert	Zdzislaw Formela
Krzysztof Supel	

Northeast Fisheries Center, NMFS, Narragansett, RI

Loretta F. Sullivan

Northeast Fisheries Center, NMFS, Woods Hole, MA

Thomas L. Morris, Jr.

Data Collected

	<u>Total</u>		<u>Total</u>
ICNAF STANDARD STATIONS	<u>113</u>	SALINITY SAMPLES	<u>500</u>
ICNAF EXTRA STATIONS	<u>8</u>	OXYGEN SAMPLES	<u>500</u>
MOCNESS STATIONS	<u> </u>	NUTRIENT SAMPLES	<u>305</u>
BONGO HAULS	<u>Note*</u>	CHLOROPHYLL SAMPLES	<u>180</u>
NEUSTON HAULS	<u>134</u>	TRAWLS	<u>6</u>
MOCNESS HAULS	<u> </u>	LONG LINE SET	<u> </u>
XBT DROPS	<u>132</u>	CURRENT METERS	<u> </u>
BOTTLE CASTS	<u>112</u>	DROGUE	<u> </u>
CID/STD CASTS	<u> </u>	PRIMARY PRODUCTIVITY	<u>6 Stations</u>
		" "	<u>150 Samples</u>
ROSETTE	<u> </u>	SECCHI DISC	<u> </u>
FISH SAMPLES	<u>120</u>		

Remarks

*Bongo hauls.

<u>cm</u>	<u>Mesh mm</u>	<u>Total</u>
61	.505	120
61	.333	119
20	.253	119
20	.165	119
20	.053	12

VESSEL Wieczno

CRUISE 76-02

DATES May 6-20/May 20-29, 1976

PARTS I & II

DAYS AT SEA

STATIONS 101

Cruise Objective

The purpose of the cruise was to conduct a study of the distribution and abundance of groundfish as well as mackerel and herring in the waters of the mid-Atlantic and Georges Bank. Operations were similar to the USA groundfish survey methods and procedures, with length frequency and weight data recorded for all species.

Scientific Personnel

Institute of Sea Fisheries Gdynia, Poland

Staniseau Uciniski, Chief of Party

Roman Pactiva

Andrezej Furtak

Andrezej Dobrosielski

Wieslau Slosarczyk

Krzysztof Supel

Zdzislau Formela

Northeast Fisheries Center

Part I Thurston Burns
Joan Palmer

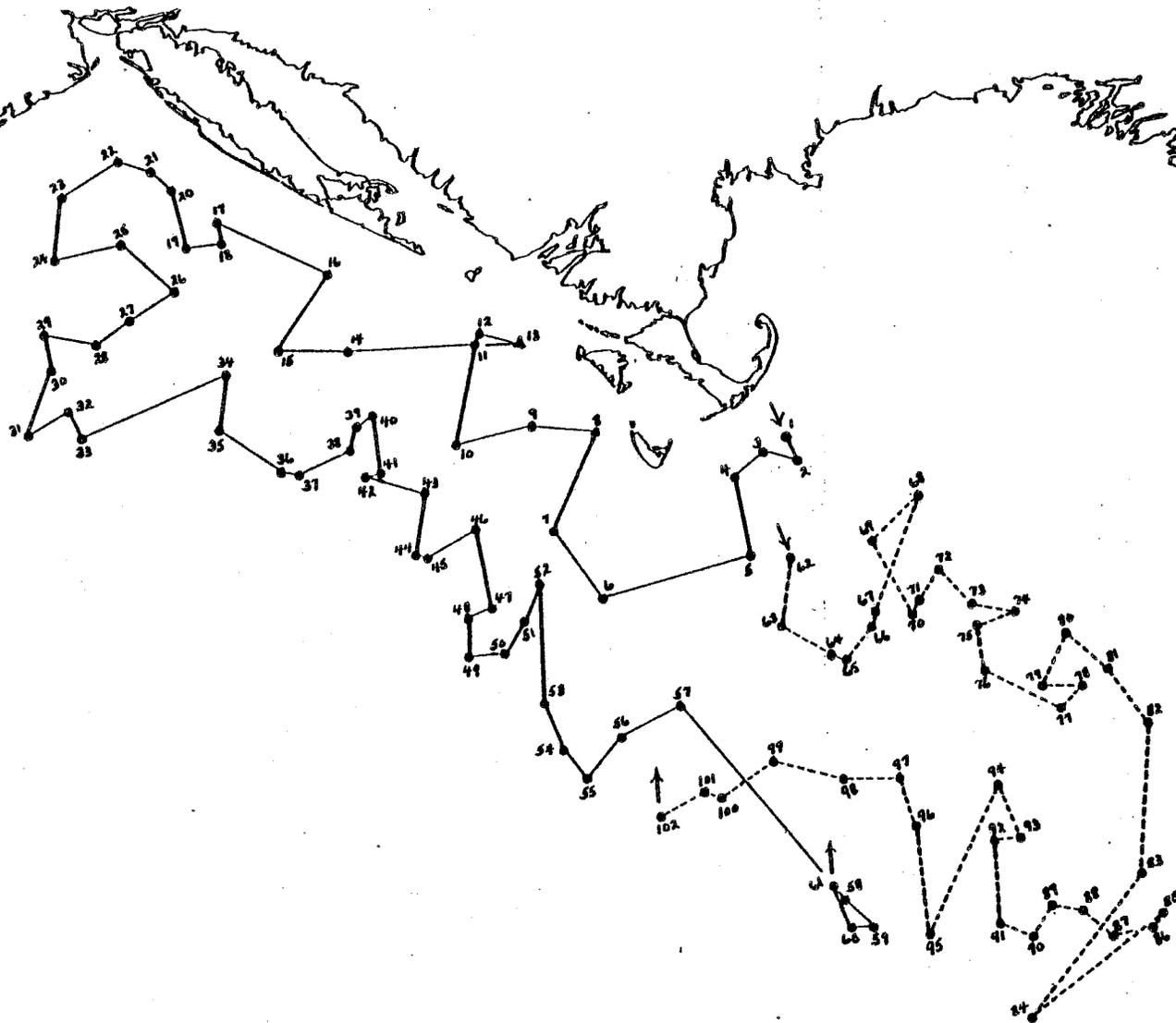
Part II William Overholtz
Norman Parris

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	101	SALINITY SAMPLES	101
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	101
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	101	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		

POLISH R/V WIECZNO (CODE 764) (20)
SPRING BOTTOM TRAWL SURVEY
MAY 6-29, 1976
●—● PART I - MAY 6-20
●- - - PART II - MAY 20-29

▲ - TEARUPS



AO-175

VESSEL Wieczno

CRUISE 76-03

DATES October 13-November 4, 1976

DAYS AT SEA

STATIONS 112

Cruise Objective

1. Monitor distribution and relative abundance of larval herring and their food organisms for estimates of production, growth, mortality, and dispersal.
2. Collect chlorophyll and nutrient samples for estimates of primary productivity, and conduct C-14 productivity experiments.
3. Collect phytoplankton samples to determine general distribution of species in the survey area.
4. Describe water circulation and diffusive processes by conducting hydrographic work in the survey area.

Scientific Personnel

MIR, Gdynia, Poland

Mariana Pastuszek, Chief Scientist
Ryszard Gurbiel
Antoni Kurowicki

Wojciech Sztajnduchert
Stanislaw Solonczyk

NMFS, Narragansett, RI

Loretta Sullivan

NMFS, Woods Hole, MA

Patrick Laughead

Bigelow Laboratory, Boothbay Harbor, Maine

David Hughes
John Laird

Data Collected

	<u>Total</u>		<u>Total</u>
ICNAF STANDARD STATIONS	<u>84</u>	SALINITY SAMPLES	<u> </u>
ICNAF EXTRA STATIONS	<u>9</u>	OXYGEN SAMPLES	<u> </u>
MOCNESS STATIONS	<u> </u>	NUTRIENT SAMPLES	<u>93</u>
BONGO HAULS	<u>Note*</u>	CHLOROPHYLL SAMPLES	<u>47</u>
NEUSTON HAULS	<u>110</u>	TRAWLS	<u> </u>
MOCNESS HAULS	<u> </u>	LONG LINE SET	<u> </u>
XBT DROPS	<u> </u>	CURRENT METERS	<u> </u>
BOTTLE CASTS	<u>93</u>	DROGUE	<u> </u>
CTD/STD CASTS	<u> </u>	PRIMARY PRODUCTIVITY	<u>9</u>
ROSETTE	<u> </u>	SECCHI DISC	<u> </u>
FISH SAMPLES	<u> </u>		

Remarks

*Bongo hauls.

<u>cm</u>	<u>Mesh mm</u>	<u>Total</u>
61	.505	112
61	.333	112
20	.253	112
20	.165	112

VESSEL Wieczno

CRUISE 76-04

DATES November 6-16, 1976

DAYS AT SEA 10

STATIONS 34

Cruise Objective

1. Determine day/night difference in the #41 Yankee trawl catches of mackerel in areas of known mackerel concentrations.
2. Collect fish stomachs to examine trophic interactions involving certain pelagic species during day and night periods.
3. Collect plankton samples to determine abundance and vertical distribution of prey organisms in the environment.
4. Determine day versus night differences in the Polish #28/32 trawl catches of mackerel.

Scientific Personnel

MIR, Gdynia, Poland

Antoni Kurowicki
Roman Pactiva
Stanislaw Solonczyk
Wojciech Sztajnduchert

Northeast Fisheries Center, NMFS, Woods Hole, MA

Ralph K. Mayo, Chief of Party
Ray Bowman
Maurille Mikutowicz

Northeast Fisheries Center, NMFS, Narragansett, RI

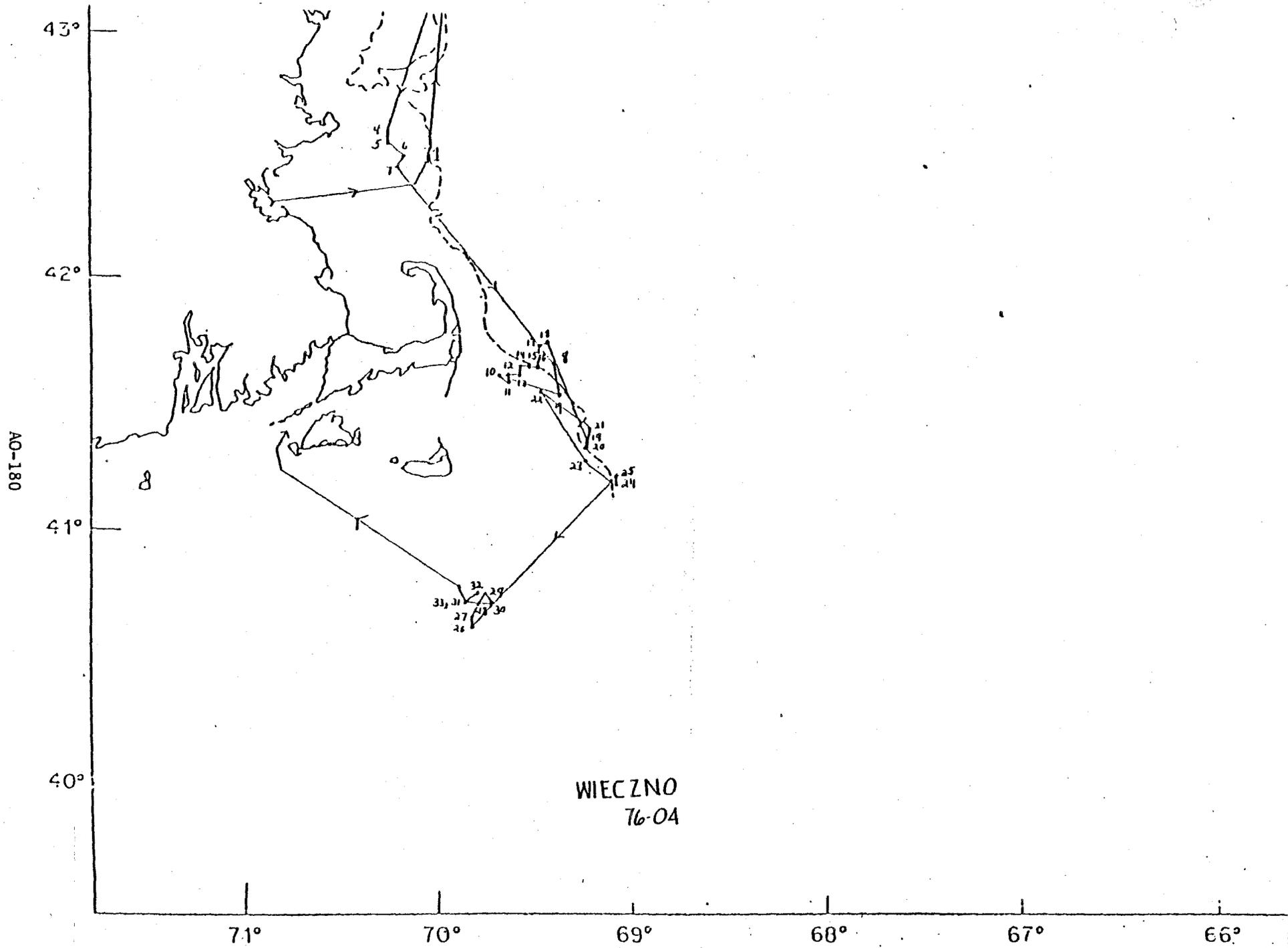
Carolyn Rogers

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	64	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	Note*
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	34	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	836		

Remarks

*Trawls: Yankee #41 - 26
Polish #28/32 - 7



VESSEL Wieczno

CRUISE 76-05

DATES November 18-29, 1976

DAYS AT SEA 10

STATIONS

Cruise Objective

Objectives of the cruise were: (1) conduct sonic tracking experiments to study the behavior and physiology of swordfish, tunas, and mako sharks; (2) mark part of the catch with standard tags for migration studies; and (3) collect samples of stomachs and reproductive organs of apex predators.

Scientific Personnel

Morski Instytut Gdynia, Poland

Mariana Pastuszek
Ryszard Gurbiel
Stanislaw Solonczyk
Romuald Pactwa
Henryk Chiemlowski

Northeast Fisheries Center, NMFS, Narragansett, RI

Charles Stillwell

Woods Hole Oceanographic Institute, Woods Hole, MA

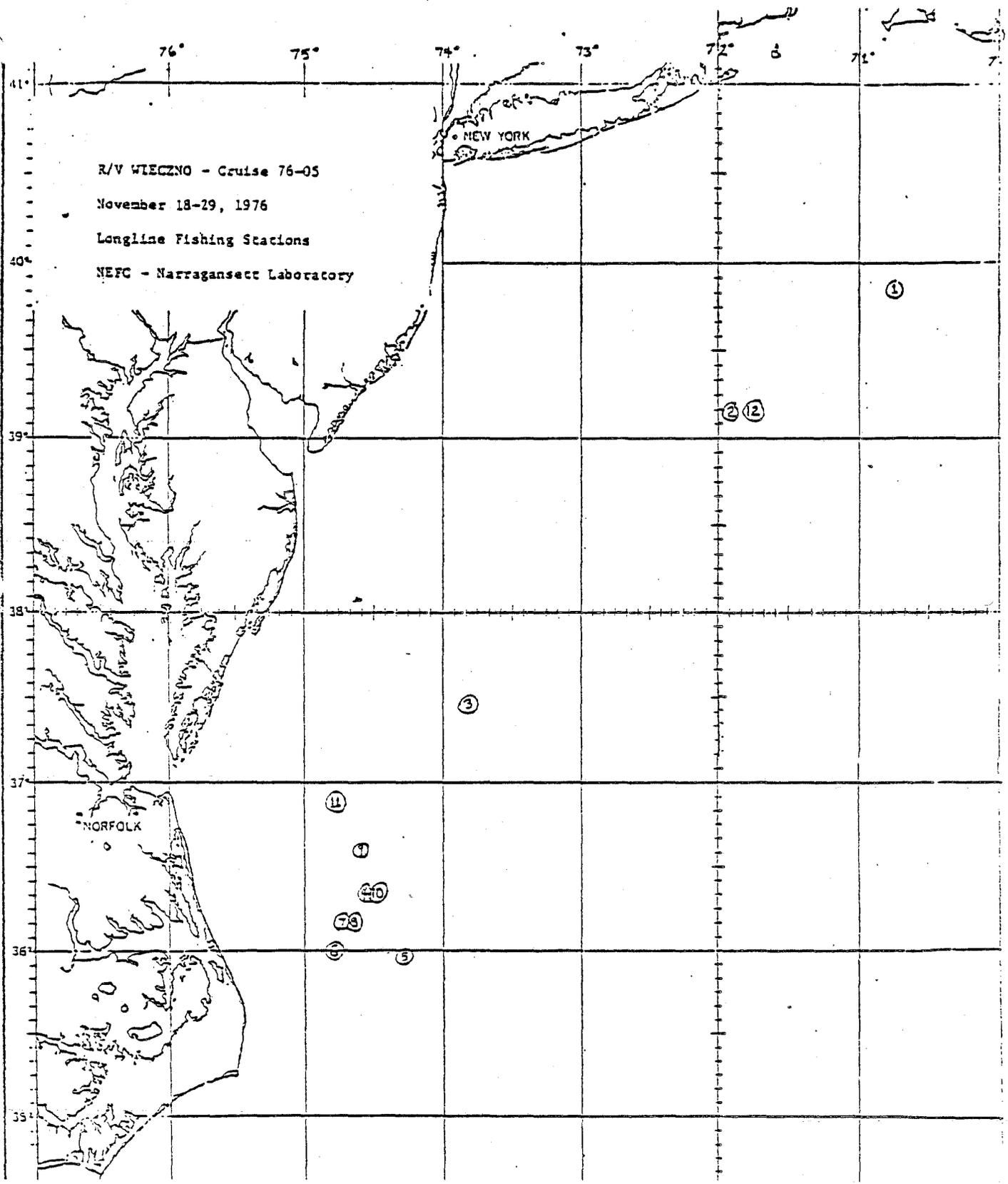
Frank Carey
Karen Moore

Penobscot Gulf Company, St. Simon Island, GA

Leslie Middleton

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	12
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		



VESSEL Wieczno

CRUISE 77-01

DATES February 17-March 7, 1977

DAYS AT SEA 19

STATIONS 30

Cruise Objective

The primary objective of the cruise was to assess the condition of populations of fish and associated invertebrates and plankton in the area impacted by oil from the tanker ARGO MERCHANT. This was the third cruise using NEFC sampling techniques to monitor the effects of the spill (see Cruise Results DELAWARE No. 77-01, 23 February 1977 for details of the second cruise). Additional objectives were: (1) to obtain oil, water, and sediment samples; (2) to observe the effect of oil on birds and mammals; (3) to obtain Atlantic herring and Atlantic mackerel specimens for NEFC age and growth studies; and (4) to obtain a temperature transect across the continental shelf along the 70°10'W longitude line for the NEFC's Atlantic Environmental Group (AEG).

Scientific Personnel

Institute of Sea Fisheries, Gdynia, Poland

Andrzej Kosior, Chief Scientist

Stanislaw Solonczyk

Marek Lipinski

Franciszek Krol

Terzy Kuczynski

Stanislaw Ochocki

Tadeusz Chromicz

Northeast Fisheries Center, NMFS, Woods Hole, MA

Henry Jensen, Chief Scientist

Donald Flescher

Northeast Fisheries Center, NMFS, Narragansett, RI

Joseph Kane

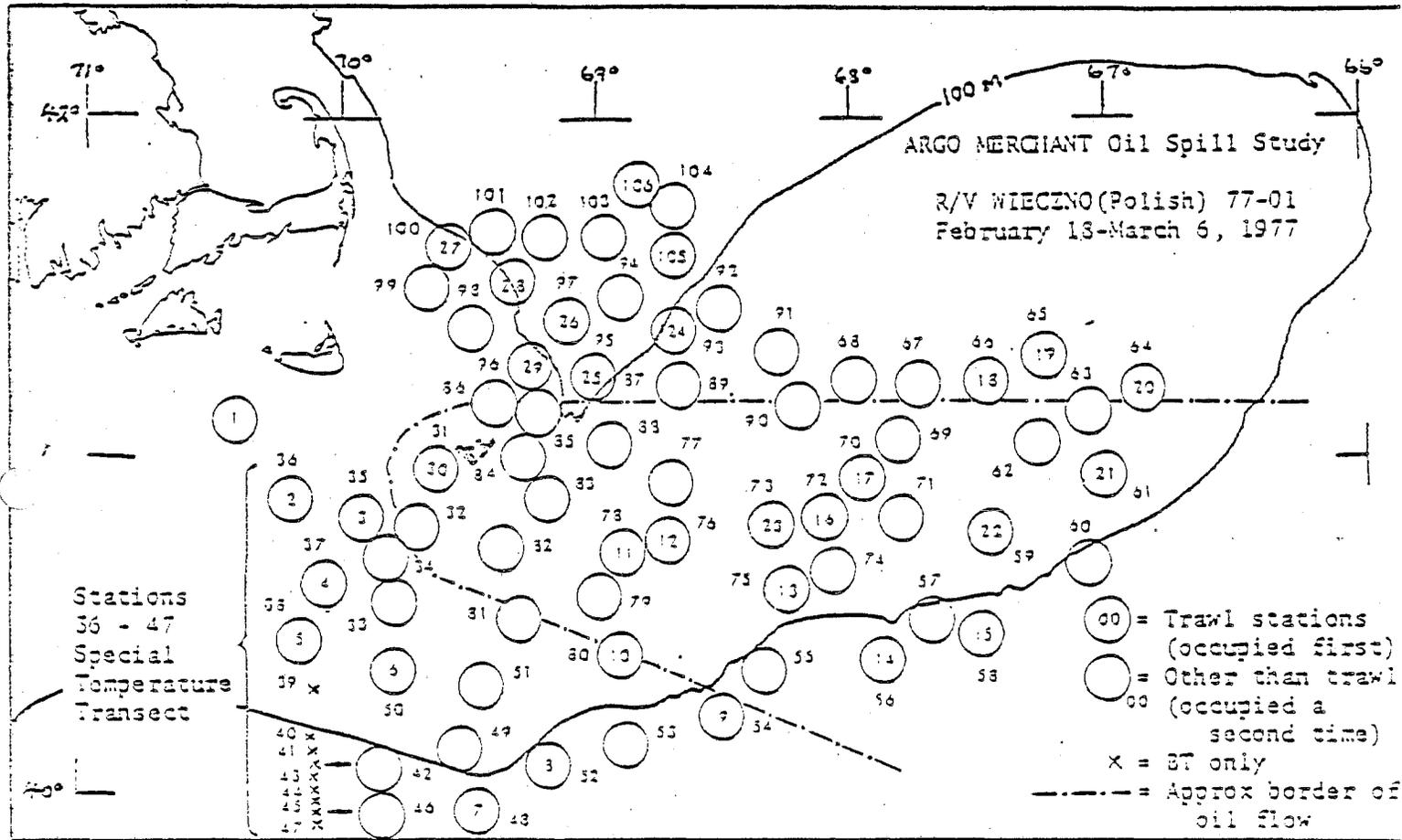
Jerry Prezioso

Data Collected

	Total Part I	Total Part II		Total Part I	Total Part II
ICNAF STANDARD STATIONS	_____	_____	SALINITY SAMPLES	_____	_____
ICNAF EXTRA STATIONS	_____	_____	OXYGEN SAMPLES	_____	_____
MOCNESS STATIONS	_____	_____	NUTRIENT SAMPLES	_____	_____
BONGO HAULS	_____	75	CHLOROPHYLL SAMPLES	_____	_____
NEUSTON HAULS	_____	75	TRAWLS	30	_____
MOCNESS HAULS	_____	_____	LONG LINE SET	_____	_____
XBT DROPS	_____	75	CURRENT METERS	_____	_____
BOTTLE CASTS	_____	_____	DROGUE	_____	_____
CTD/STD CASTS	_____	_____	PRIMARY	_____	_____
ROSETTE	_____	_____	PRODUCTIVITY	_____	_____
FISH SAMPLES	_____	_____	SECCHI DISC	_____	_____
DIETZ-LAFOND GRAB	30	_____	PONAR GRAB	_____	7

Remarks

Totals for Part II may not be correct due to incomplete data on cruise report.



The above chart contains plots of all stations occupied during this cruise.

VESSEL Wieczno

CRUISE 77-02

DATES March 8-18, 1977

DAYS AT SEA 10

STATIONS 29

Cruise Objective

The primary cruise objective was to determine the distribution and relative abundance of juvenile Atlantic herring in the inshore waters of the Gulf of Maine.

Scientific Personnel

MIR, Gdynia, Poland

Andrzej Kosior
Marek Lipinski
Terzy Kuczynski
Tadeusz Chromicz

Staniseau Solonczyk
Franciszek Krol

Northeast Fisheries Center, NMFS, Woods Hole, MA

Ralph K. Mayo, Chief of Party
Fredric M. Serchuk

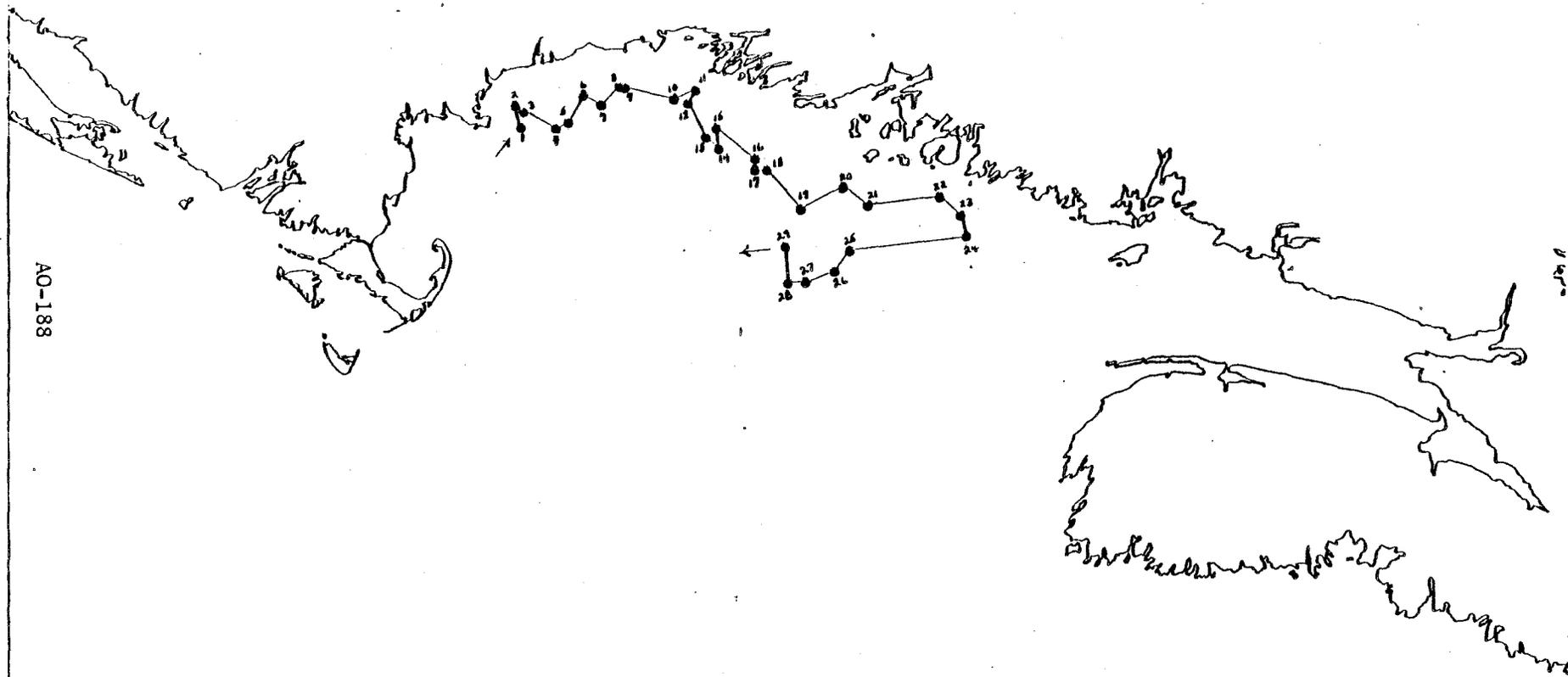
College of the Atlantic, Bar Harbor, ME

Sydney E. Rathbun

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____ 29
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CID/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		

POLISH R/V WIECZNO 77-01 (CODE 713)
JUVENILE HERRING SURVEY 128
MARCH 9-15, 1977



AO-188

VESSEL Wieczno

CRUISE 77-03

DATES March 20-April 5, 1977

DAYS AT SEA 17

STATIONS 19

Cruise Objective

The objectives of the cruise were: (1) to tag large pelagic sharks for migration and age-growth studies, (2) to conduct internal examinations of sharks and other apex predators for food and reproductive studies, and (3) to sample two eddy systems for the possible occurrence of oil from the ARGO MERCHANT spill.

Scientific Personnel

Northeast Fisheries Center, NMFS, Narragansett, RI

John Casey
Charles Stillwell
Harold Pratt
Allen Lingren

Morski Instytut Rybacki, Gdynia, Poland

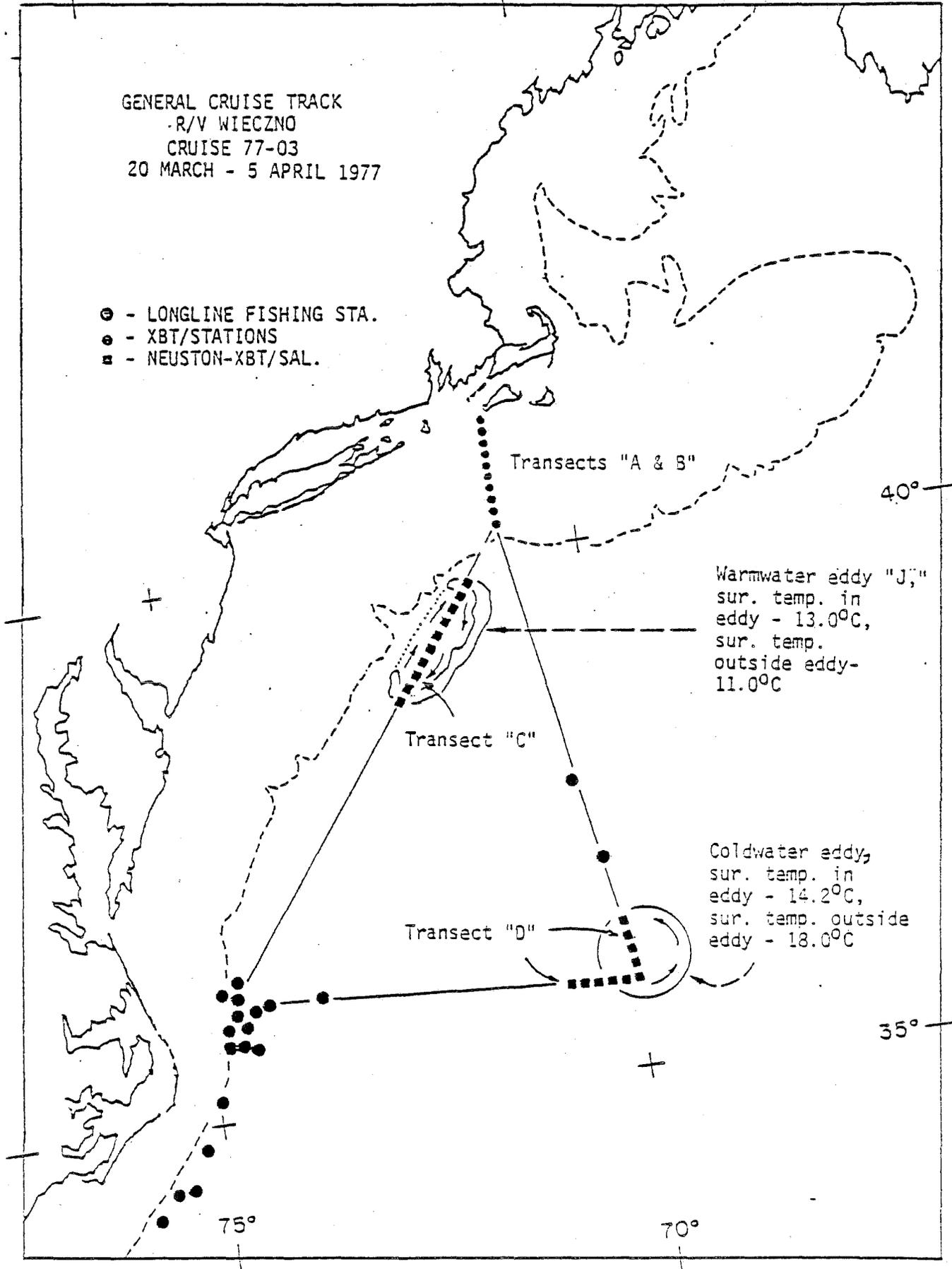
Andrzej Kosior Tadeusz Chromicz
Marek Lipinski Stanislaw Sotonczyk
Jerry Kuczynski Franciszek Krol

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	10	TRAWLS	29
MOCNESS HAULS	_____	LONG LINE SET	19
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CID/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	255		

GENERAL CRUISE TRACK
-R/V WIECZNO
CRUISE 77-03
20 MARCH - 5 APRIL 1977

- ⊙ - LONGLINE FISHING STA.
- - XBT/STATIONS
- - NEUSTON-XBT/SAL.



Warmwater eddy "J,"
sur. temp. in
eddy - 13.0°C,
sur. temp.
outside eddy -
11.0°C

Coldwater eddy,
sur. temp. in
eddy - 14.2°C,
sur. temp. outside
eddy - 18.0°C

VESSEL Wluczno

CRUISE 77-04

DATES September 8-16, 1977

DAYS AT SEA

STATIONS 29

Cruise Objective

The purposes of this cruise were to determine the location, relative size and gonadal condition of prespawning and spawning aggregations of Atlantic herring and to assist the USSR R/V YUBILEINIIY in locating herring schools for tagging in the vicinity of Stellwagen Bank.

Scientific Personnel

Morski Instytut Rybactwa, Gdynia, Poland

Alfred Grelowski, Chief Scientist
Antoni Piotrowski
Tomasz Linkowski
Anna Zwykielski

Stanislaw Solencyk
Marian Smorawski
Tomasz Strozyk
Ryszard Sobczak

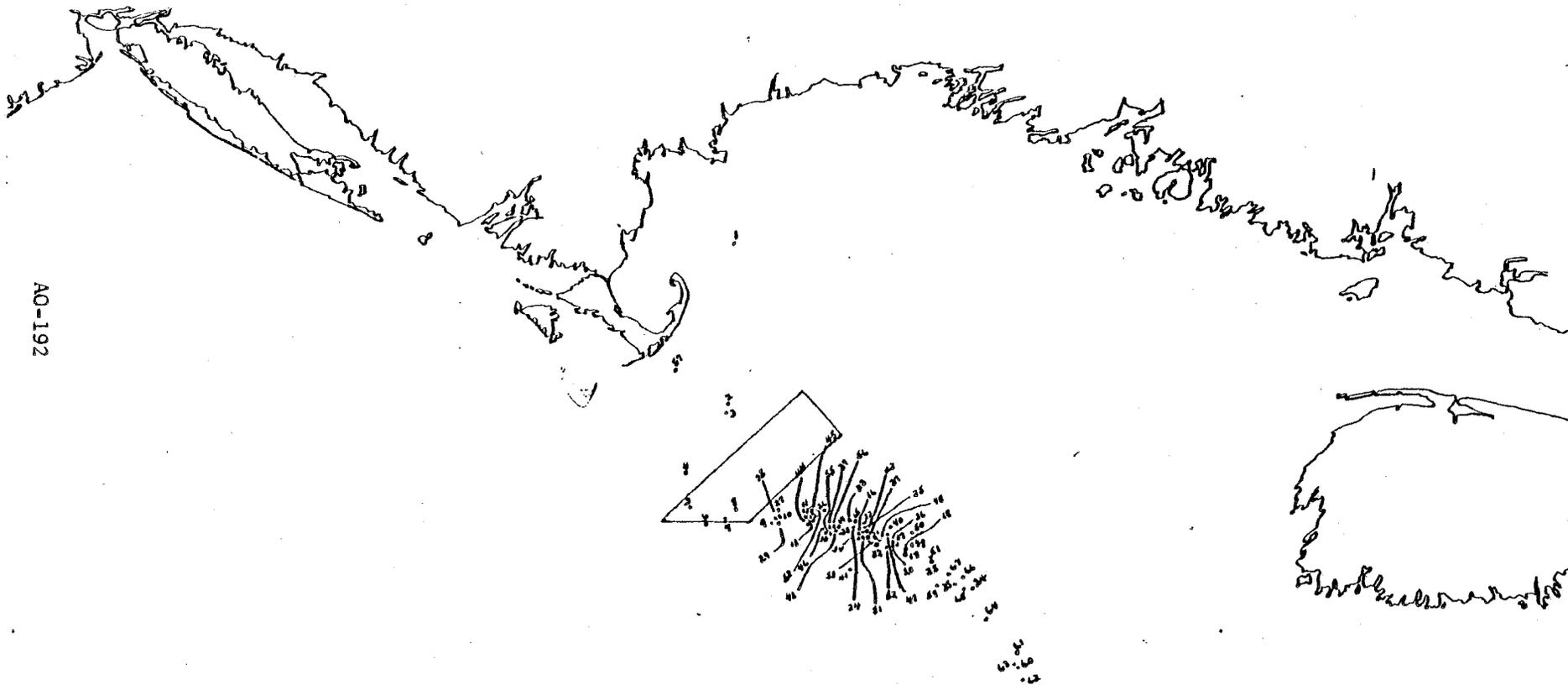
Northeast Fisheries Center, NMFS, Woods Hole, MA

Linda Despres

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	29
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	30	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CID/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	387		

POLISH RV WIECZHO 77-04 (CODE 677)
1977 FALL HERRING SURVEY /17
STA. 1-29 - PRE-SPAWNING-SEP 8-16
STA. 30-67 - PREDATOR-PREY-SEP 18-29



AO-192

VESSEL Wieczno

CRUISE 77-05

DATES September 17-October 3, 1977

DAYS AT SEA

STATIONS 38

Cruise Objective

The purpose of this cruise was to collect food habits data on the predators and prey of pre-spawning and spawning concentrations of the Atlantic herring.

Scientific Personnel

Morski Instytut Rybacki, Gdynia, Poland

Alfred Grelowski, Chief Scientist	Tomasz Linkowski
Ryszard Sobczak	Antoni Piotrowski
Stanislaw Solonczyk	Anna Zwykielska
Marian Smorawski	Tomasz Strozyk

Northeast Fisheries Center, NMFS, Narragansett, RI

Loretta F. Sullivan

Northeast Fisheries Center, Woods Hole, MA

Richard Brodeur

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	15
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	_____	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		



AO-194

2



69

67

WIECZNO 77-05

VESSEL Wieczno

CRUISE 77-06

DATES October 4-24, 1977

DAYS AT SEA 20

STATIONS

Cruise Objective

1. Monitor distribution and relative abundance of larval herring and their food organisms for estimates of production, growth, mortality, and dispersal in the Georges Bank - Gulf of Maine region.
2. Conduct special plankton sampling on concentrations of herring larvae to identify and follow a patch of larvae for several days, determine fine-scale sampling variability within the patch, and identify predators of eggs and larvae using midwater sampling gear.
3. Conduct hydrographic work to describe water mass distribution in the study area.

Scientific Personnel

NMFS, NEFC, Woods Hole Laboratory, Woods Hole, MA

Patricia Carter
Rosalind Cohen
Robert Halpin
Andrew Rosenberg

Northeast Fisheries Center, NMFS, Narragansett, RI

Joseph Kane

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	<u>66</u>	SALINITY SAMPLES	<u> </u>
ICNAF EXTRA STATIONS	<u>18</u>	OXYGEN SAMPLES	<u> </u>
MOCNESS STATIONS	<u> </u>	NUTRIENT SAMPLES	<u> </u>
BONGO HAULS	<u>148</u>	CHLOROPHYLL SAMPLES	<u> </u>
NEUSTON HAULS	<u>85</u>	TRAWLS	<u> </u>
MOCNESS HAULS	<u> </u>	LONG LINE SET	<u> </u>
XBT DROPS	<u>114</u>	CURRENT METERS	<u> </u>
BOTTLE CASTS	<u>60</u>	DROGUE	<u> </u>
CID/STD CASTS	<u> </u>	PRIMARY PRODUCTIVITY	<u> </u>
ROSETTE	<u> </u>	SECCHI DISC	<u> </u>
FISH SAMPLES	<u> </u>		

VESSEL Wieczno

CRUISE 78-01

DATES March 11-20, 1978

DAYS AT SEA

STATIONS 35

Cruise Objective

To: (1) Intercept and mark sharks, swordfish, and tuna as they migrate northward; (2) collect stomach contents, reproductive tissues and vertebral samples from sharks brought on board, and (3) conduct sonic tracking experiments for studying the behavior and physiology of swordfish, tuna, and sharks.

Scientific Personnel

Morski Instytut Rybacki, Gdynia, Poland

Andrzej Kosior
Joseph Wysocki
Krzysztof Kreft
Marian Smorowski

Northeast Fisheries Center, NMFS, Narragansett, RI

Charles Stillwell Nancy Kohler
Harold "Was" Pratt Liet. Cheryl Cavin

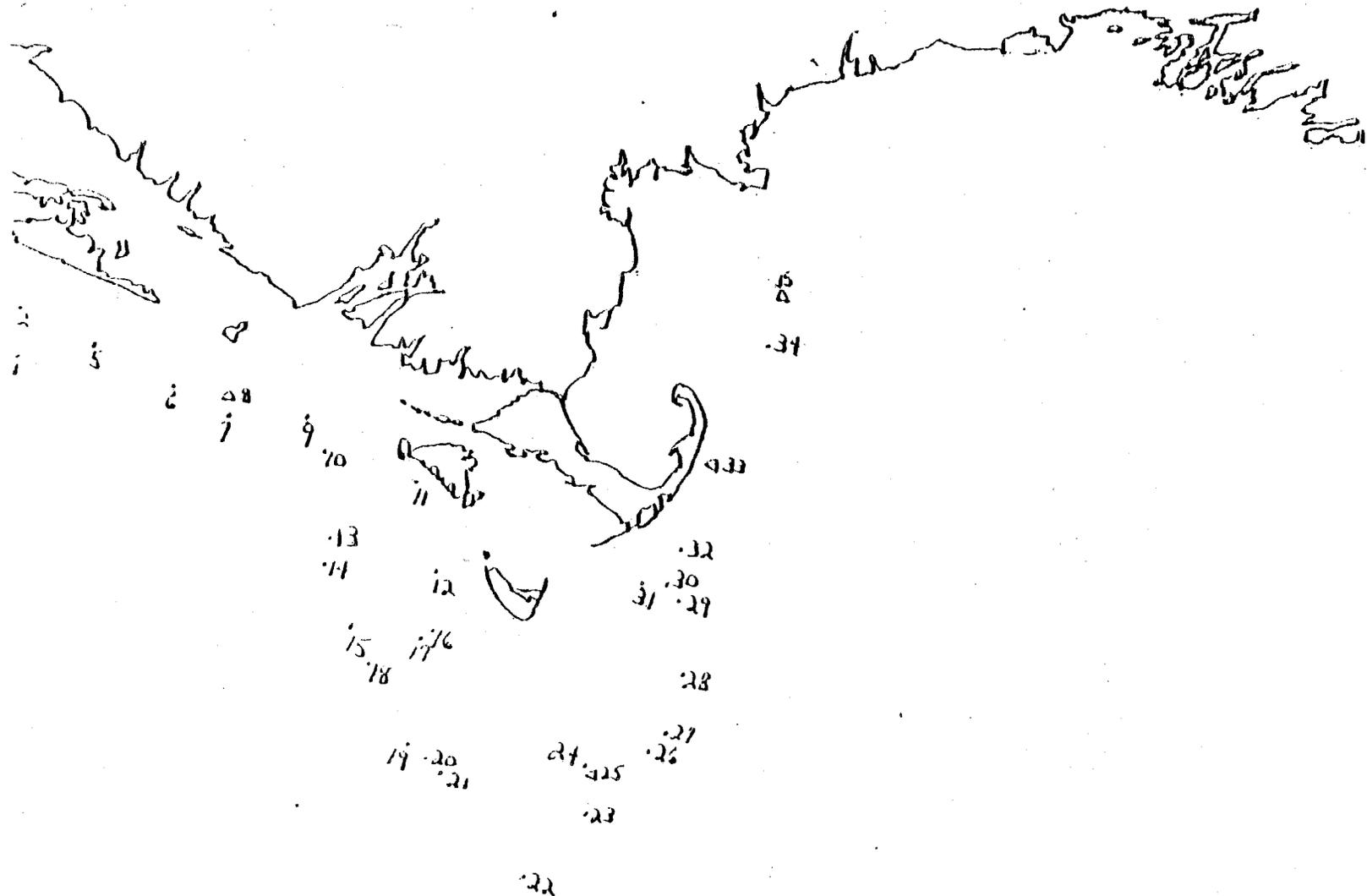
WHOI, Woods Hole, MA

Dr. Frank Carey
Leslie Middleton

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	43
XBT DROPS	35	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	865		

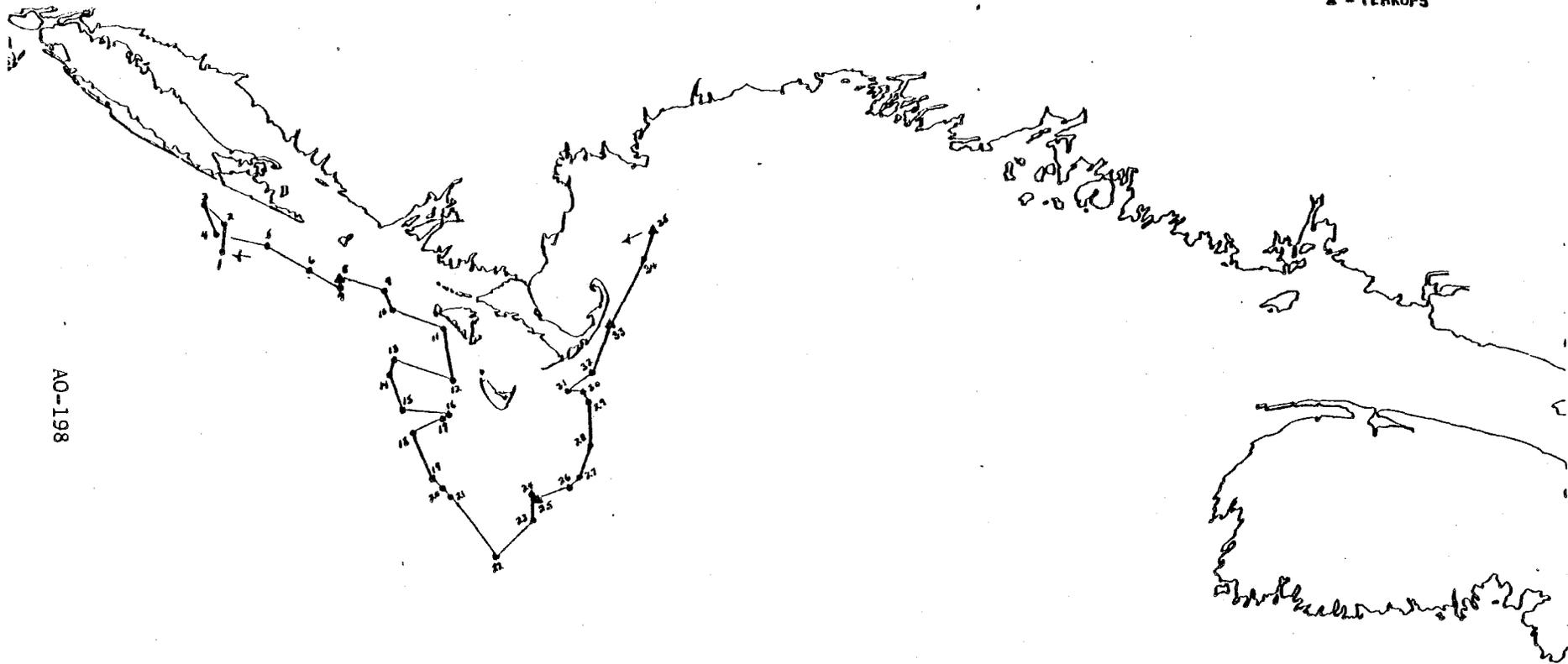
AO-197



Survey area and station locations for WIECZNO Cruise 78-01 during 11-20 March 1978 (Δ refers to where bottom trawl was torn).

POLISH WIECZNO 78-01 (CODE 178) 196
1978 SPRING
HERRING AND GROUND FISH SURVEY
11-20 MAR

▲ = TEARUPS



AO-198

VESSEL Wieczno

CRUISE 78-02

DATES March 21-April 10, 1978

DAYS AT SEA

STATIONS 13

Cruise Objective

The purpose of the cruise was to determine the distribution and abundance of Atlantic herring and associated fish species in coastal waters from Montauk Point, New York, to Massachusetts Bay.

Scientific Personnel

Morski Instytut Rybacki, Gdynia, Poland

Andrzej Kosior, Chief Scientist
Josef Wysocki
Krzysztof Kreft
Antoni Kurowicki
Marian Smorawski

Northeast Fisheries Center, NMFS, Woods Hole, MA

Linda Despres

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	83	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	365		

VESSEL Wieczno

CRUISE 78-03

DATES September 23-October 12, 1978

DAYS AT SEA 21

STATIONS

Cruise Objective

The primary objective of the cruise was to conduct food studies of large sharks and other apex predators. Other objectives were to: investigate the offshore area of the Middle Atlantic Bight, including the Gulf Stream, for the presence of pregnant blue sharks; and to tag a part of the catch for migration studies.

Scientific Personnel

Morski Instytut Rybacki, Gdynia, Poland

Andrzej Matewicz Antoni Kurowicki
Andrzej Furtak Ryszard Sobczak
Jozef Wysocki Zbigniew Tkacz

WMFS, NEFC, Narragansett, RI

John Casey
Charles Stillwell
Harold Pratt

University of Rhode Island, Narragansett, RI

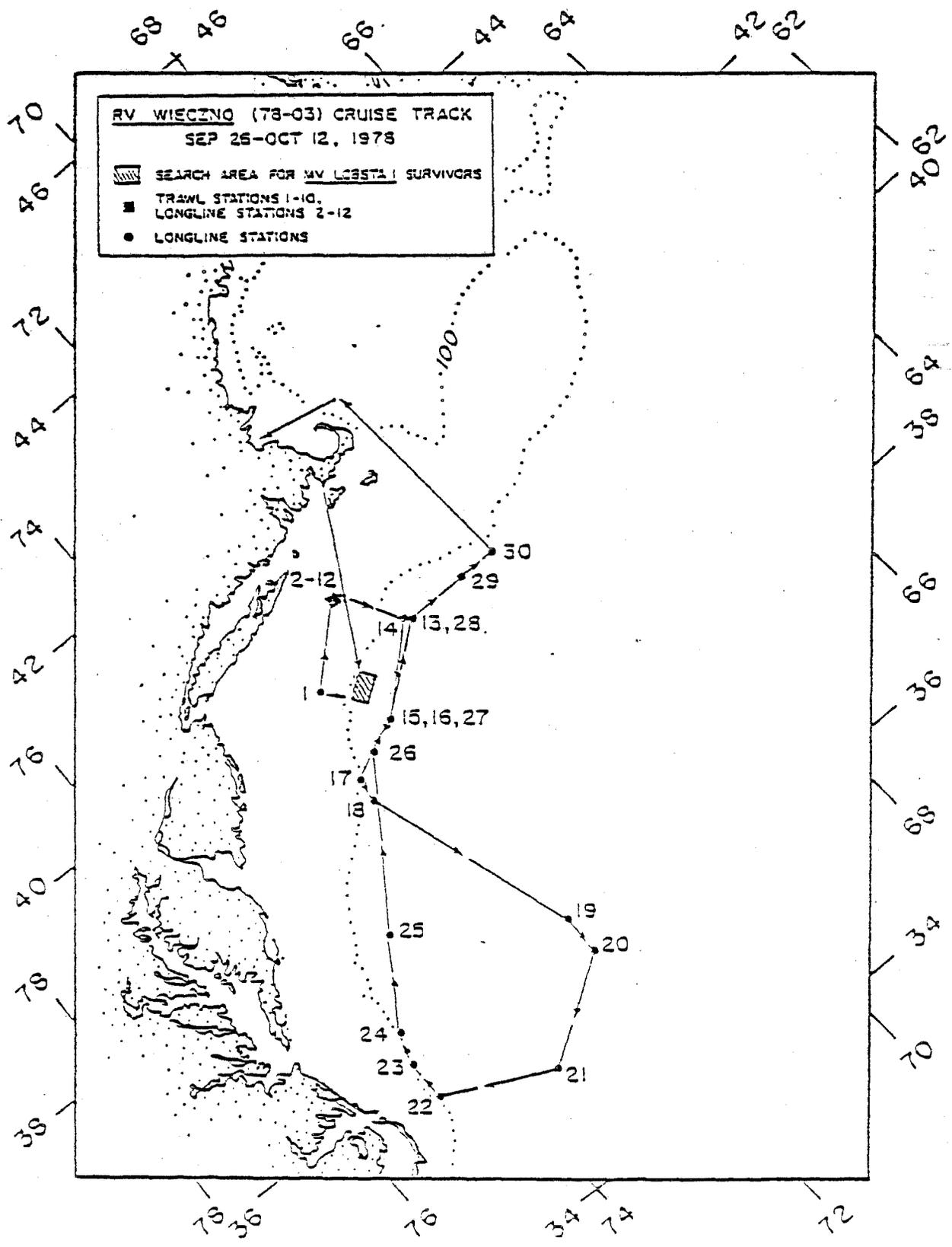
Alan Lintala

University of Connecticut, Storrs, CT

George Benz

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	10
MOCNESS HAULS	_____	LONG LINE SET	30
XBT DROPS	30	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	272		



VESSEL Wieczno

CRUISE 78-04

DATES October 14-November 1, 1978

DAYS AT SEA 18

STATIONS 139

Cruise Objective

The objectives of the cruise were to: (1) conduct a standard larval herring survey to monitor distribution and relative abundance of larval herring and their food organisms for estimates of production, growth, mortality, and dispersal in the Georges Bank-Gulf of Maine region, and (2) to conduct minimum hydrographic work to describe water mass distribution in the study area.

Scientific Personnel

Morski Instytut Rybacki, Gdynia, Poland

Andrzej Majewicz	Antoni Kurowicki
Andrzej Furtak	Ryszard Sobczak
Jozef Wysocki	Zbigniew Tkacz

NMFS, NEFC, Narragansett, RI

Loretta Sullivan

NMFS, NEFC, Woods Hole, MA

Janet Murphy

Allied Whale, College of the Atlantic, Bar Harbor, ME

Gary Carter

Manomet Bird Observatory, Manomet, MA

Albert Nickerson

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	<u>139</u>	SALINITY SAMPLES	<u>68</u>
ICNAF EXTRA STATIONS	<u> </u>	OXYGEN SAMPLES	<u>139</u>
MOCNESS STATIONS	<u> </u>	NUTRIENT SAMPLES	<u> </u>
BONGO HAULS	<u>139*</u>	CHLOROPHYLL SAMPLES	<u> </u>
NEUSTON HAULS	<u> </u>	TRAWLS	<u> </u>
MOCNESS HAULS	<u> </u>	LONG LINE SET	<u> </u>
XBT DROPS	<u>139</u>	CURRENT METERS	<u> </u>
BOTTLE CASTS	<u>68</u>	DROGUE	<u> </u>
CTD/STD CASTS	<u> </u>	PRIMARY PRODUCTIVITY	<u> </u>
ROSETTE	<u> </u>	SECCHI DISC	<u> </u>
FISH SAMPLES	<u> </u>		

Remarks

*.505; .333; .253; .165

VESSEL Wieczno

CRUISE 78-05

DATES November 2-18, 1978

DAYS AT SEA

STATIONS

Cruise Objective

The objective of the cruise was to follow live swordfish tagged electronically for several days to determine the effect of changing water temperature on brain temperature.

Scientific Personnel

Woods Hole Oceanographic Institution, Woods Hole, MA

Francis Carey, Chief Scientist
Oliver Brazier
Lauri Olin

Stony Brook University

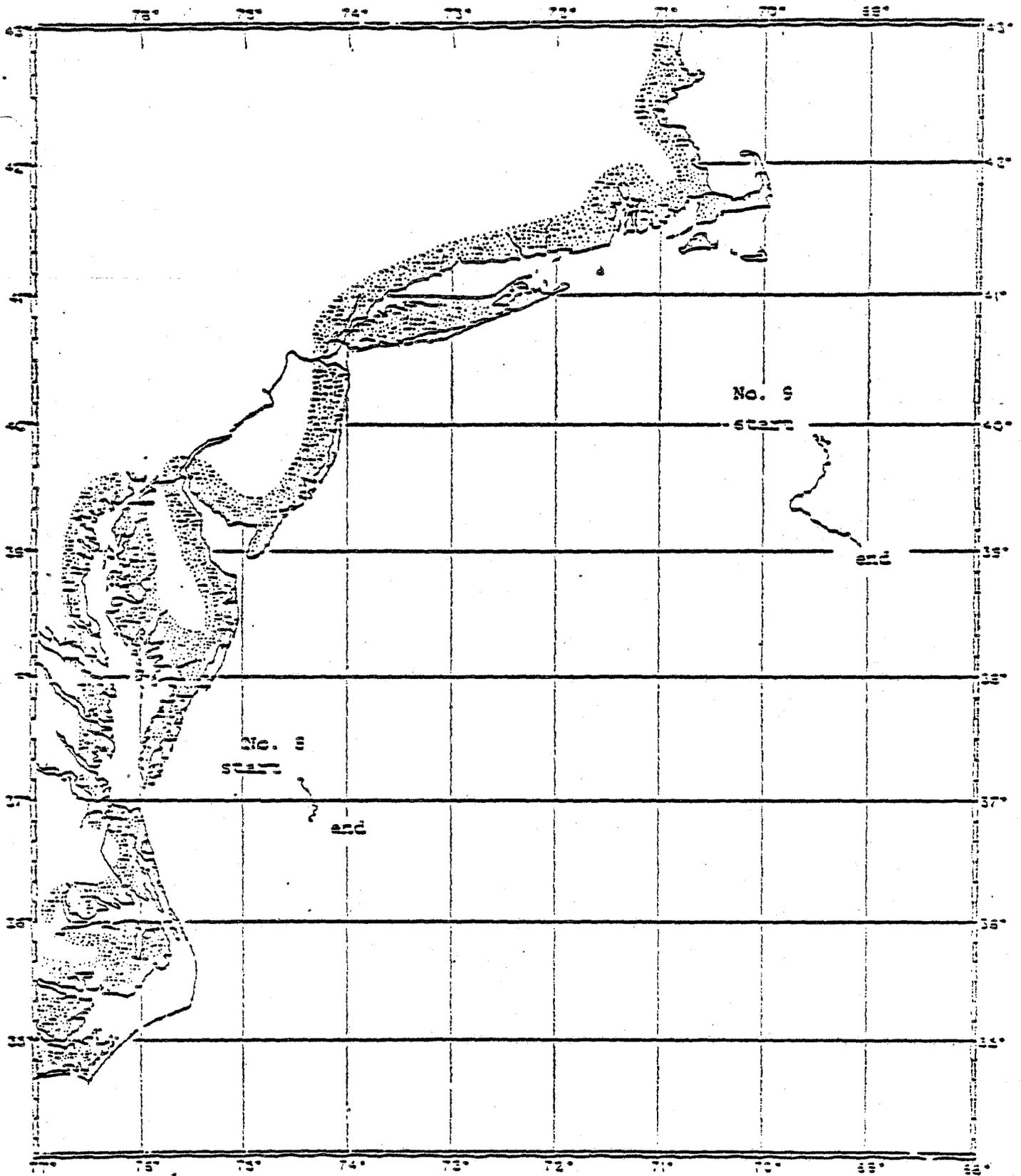
Scott Emery

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	_____
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	_____	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	Note*	CURRENT METERS	_____
BOTTLE CASTS	_____	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____		

Remarks

*XBT every 2 hours.



Cruise track of tagged swordfish number 9 and 9 obtained during N/V WISSINGO Cruise 72-08 2-13 November 1972. These fish were caught near the 1000 fathom curve at the edge of the continental shelf and swam offshore in a general southeast direction.

VESSEL WIECZNO

CRUISE 79-01

DATES October 5-28, 1979

DAYS AT SEA 24

STATIONS 28

Cruise Objective

The objectives were to (1) collect food and feeding related information from sharks, swordfish, and tuna, (2) collect tissue samples from sharks for age-growth, reproduction, and contamination studies, (3) mark apex predators with standard dart tags, and (4) examine warm water eddies for associated predator species.

Scientific Personnel

National Marine Fisheries Service, NEFC, Narragansett, RI

Charles Stillwell, Chief Scientist
John Hoey
Nancy Kohler

Environmental Protection Agency, Narragansett, RI

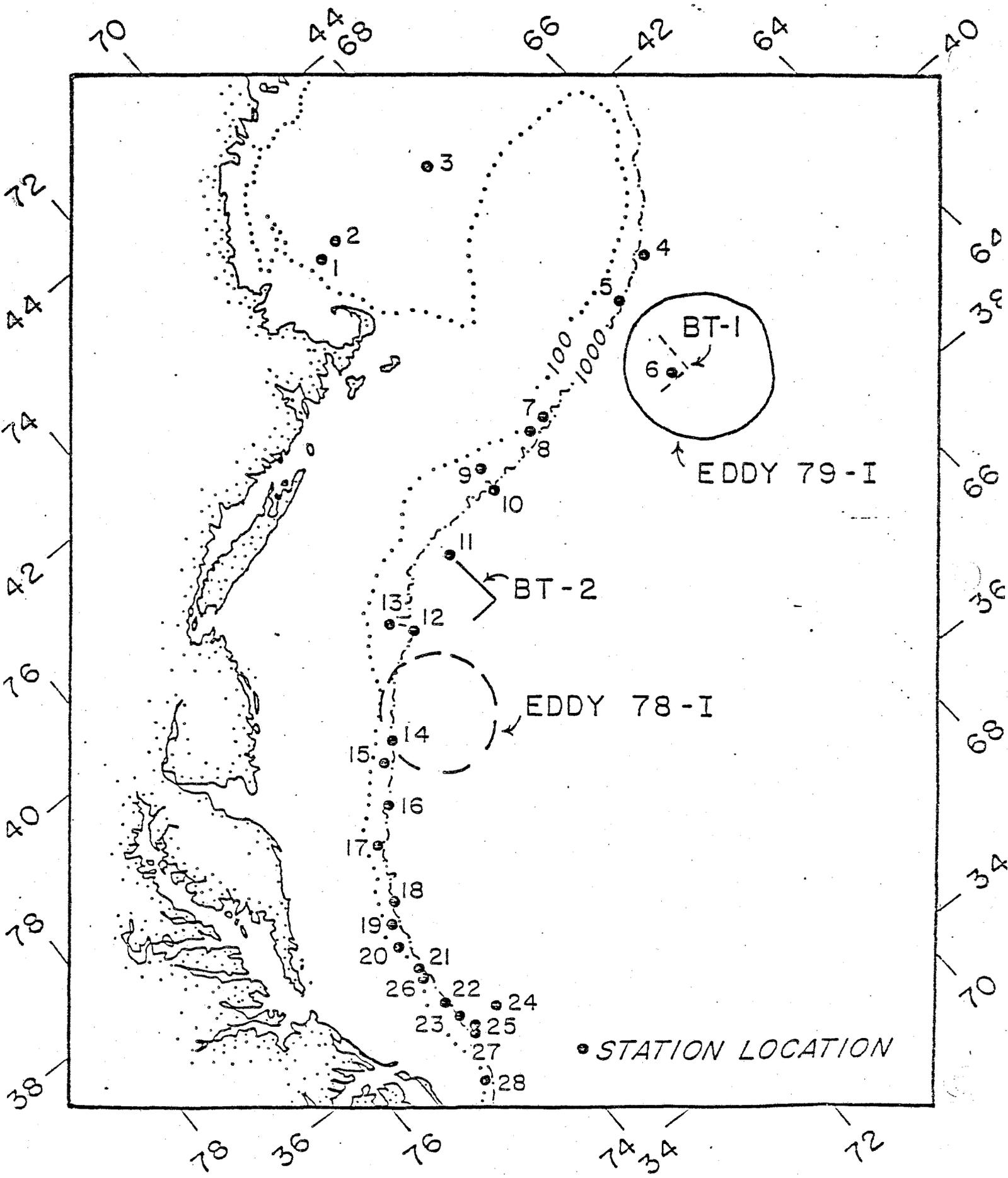
Judith Manfredi

Morski Instytut Rybacki, Gdynia, Poland

Andrzej Kosior, Chief Scientist
Jan Komasa
Andrzej Dobrosielski
Tadeusz Chromicz
Ryszard Grzywacz
Julian Knurowski

Data Collected

.61 cm BONGO	_____	SALINITY SAMPLES	_____
.20 cm BONGO	_____	OXYGEN SAMPLES	_____
.61 cm NEUSTON	_____	NUTRIENT SAMPLES	_____
.20 cm NEUSTON	_____	CHLOROPHYLL SAMPLES	_____
HAEDRICH	_____	PRIMARY PRODUCTIVITY	_____
XBT	_____ 106	DROGUES	_____
BOTTLE CAST	_____	SECCHI DISC	_____
CTD CAST	_____	TRAWLS	_____
CURRENT METERS	_____	FISH SAMPLES	_____ 495
LONG LINE	_____ 28		



Station locations of longline sets and location of eddies on R/V WIECZNO
 Cruise 79-01 during 5 - 28 October 1979. AO-205B

VESSEL WIECZNO

CRUISE 79-02

DATES October 30-November 11, 1979

DAYS AT SEA 11

STATIONS 2

Cruise Objective

Originally the experiments were to have been with swordfish (Xiphias gladius). Swordfishing has been poor this season, however, and at the time of this cruise no commercial swordfishermen were at sea to supply the Wieczno with freshly hooked swordfish in good condition. Consequently, experiments were conducted with blue sharks. These sharks are large, ectothermic pelagic fish; experimental results may be compared with results of previous experiments with endothermic tuna, lamnid sharks, and billfish. The blue sharks are common and easy to obtain in good condition; they are ideal for a study on the activities of this species and its response to temperature and light.

Scientific Personnel

Morski Instytut Rybacki, Gdynia, Poland

Andrzej Kosior, Chief Scientist
Julian Knurowski
Piotr Komasa
Andrzej Dobrosielski
Tadeusz Chromicz
Ryszard Grzywacz

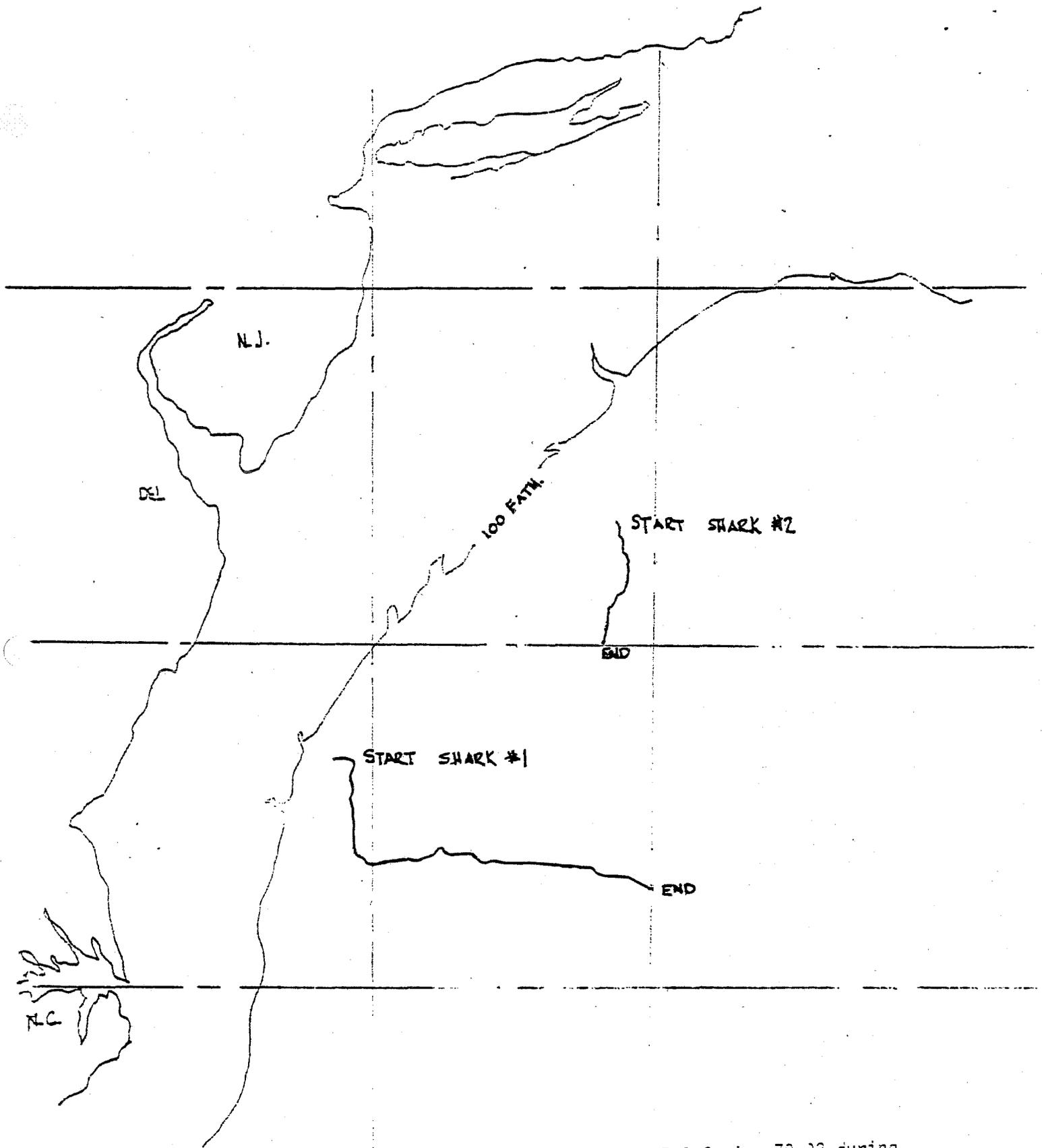
Woods Hole Oceanographic Institution, Woods Hole, MA

Francis Carey, Chief Scientist
John Kanwisher
Oliver Brazier
Anita Brosius
Margaret Race

Data Collected

	<u>Part I</u>	<u>Part II</u>	<u>Total</u>
.61 cm BONGO	_____	_____	_____
.20 cm BONGO	_____	_____	_____
.61 cm NEUSTON	_____	_____	_____
.20 cm NEUSTON	_____	_____	_____
HAEDRICH	_____	_____	_____
XBT	_____	_____	_____

BOTTLE CAST	_____	_____	_____
CTD CAST	_____	_____	_____
CURRENT METERS	_____	_____	_____
SALINITY SAMPLES	_____	_____	_____
OXYGEN SAMPLES	_____	_____	_____
NUTRIENT SAMPLES	_____	_____	_____
CHLOROPHYLL SAMPLES	_____	_____	_____
PRIMARY PRODUCTIVITY	_____	_____	_____
DROGUES	_____	_____	_____
SECCHI DISC	_____	_____	_____
TRAWLS	_____	_____	_____
FISH SAMPLES	_____	_____	2
LONG LINE SETS	_____	_____	2



Course followed by two tagged blue sharks on WIECZNO Cruise 79-02 during 30 October - 11 November 1979.

VESSEL WIECZNO

CRUISE 79-03

DATES November 13-21, 1979

DAYS AT SEA

STATIONS 33 & 12

Cruise Objective

The primary objectives of the cruise were to monitor seasonal changes in the distribution and abundance of ichthyoplankton and their predators and prey, and to collect oceanographic data relating to these changes. Secondary objectives included observation of the distribution of marine birds, and collection of certain species for the study of food habits.

Scientific Personnel

Morski Instytut Rybacki, Gdynia, Poland

Andrzej Kosior, Chief Scientist
Julian Knurowski
Jan Komasa
Andrzej Dobrosielski
Tadeusz Chromicz
Ryszard Grzywacz

National Marine Fisheries Service, NEFC, Woods Hole, MA

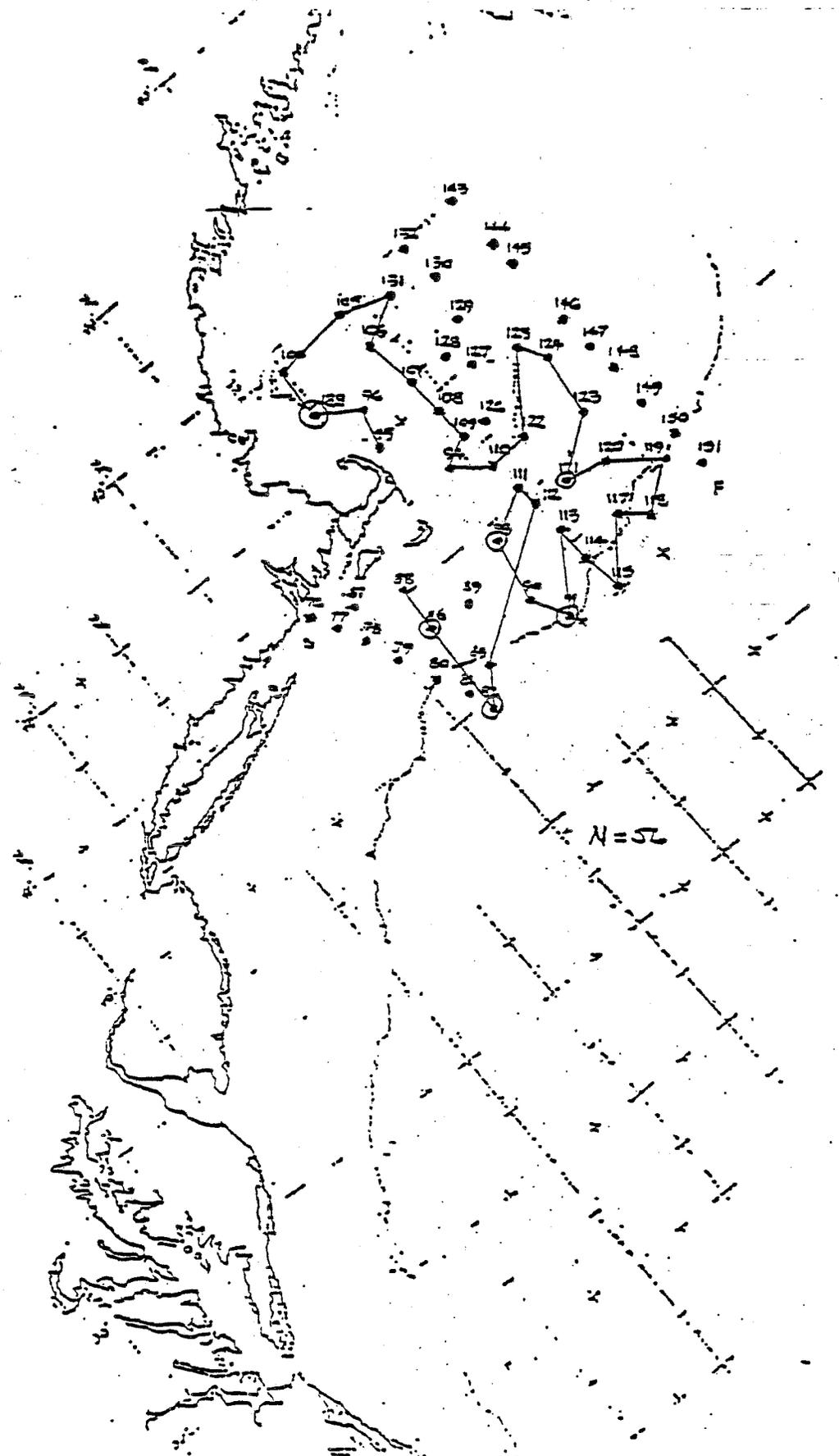
Deborah Dwyer, Chief Scientist
Janet Murphy

Manomet Bird Observatory, Manomet, MA

Kevin Powers
Galen Burrell
Ann Mason

Data Collected

	<u>Part I</u>	<u>Part II</u>	<u>Total</u>
.61 cm BONGO	_____	_____	_____
.20 cm BONGO	_____	_____	_____
.61 cm NEUSTON	_____	_____	_____
.20 cm NEUSTON	_____	_____	_____
HAEDRICH	_____	_____	_____
XBT	_____	_____	33
BOTTLE CAST	_____	_____	33
CTD CAST	_____	_____	_____
CURRENT METERS	_____	_____	_____
SALINITY SAMPLES	_____	_____	33
OXYGEN SAMPLES	_____	_____	33
NUTRIENT SAMPLES	_____	_____	33
CHLOROPHYLL SAMPLES	_____	_____	33
PRIMARY PRODUCTIVITY	_____	_____	_____
DROGUES	_____	_____	_____
SECCHI DISC	_____	_____	33
TRAWLS	_____	_____	_____
FISH SAMPLES	_____	_____	_____
LONG LINE SETS	_____	_____	_____
AEG SAMPLES, Narragansett Lab.	_____	_____	12



Station locations and cruise track for WIECZNO Cruise 79-03 during 13 - 21 November 1979.

VESSEL USSR Yubileiniy

CRUISE 77-01

DATES July 11-28, 1977

DAYS AT SEA 18

STATIONS 120

Cruise Objective

Objectives of the cruise were to conduct a larval hake and oceanographic survey of areas shown in Figures 1 and 2. The complex of observations was to include: ichthyoplankton, zooplankton, phytoplankton, water temperature, salinity, and biogenous elements (nutrients) at 120 stations.

Scientific Personnel

AtlantNIRO, Kaliningrad District, USSR

Alexander Pankratov, Chief Scientist
Vladimir Schnar
Alexander Romanchenko
Igor Kuzmin
Vladimir Luchinin

Northeast Fisheries Center, NMFS, Woods Hole, MA

Thomas Morris

Data Collected

	Total		Total
ICNAF STANDARD STATIONS	_____	SALINITY SAMPLES	<u>960</u>
ICNAF EXTRA STATIONS	_____	OXYGEN SAMPLES	_____
MOCNESS STATIONS	_____	NUTRIENT SAMPLES	_____
BONGO HAULS	<u>240</u>	CHLOROPHYLL SAMPLES	_____
NEUSTON HAULS	_____	TRAWLS	_____
MOCNESS HAULS	_____	LONG LINE SET	_____
XBT DROPS	<u>None taken</u>	CURRENT METERS	_____
BOTTLE CASTS	<u>960</u>	DROGUE	_____
CTD/STD CASTS	_____	PRIMARY PRODUCTIVITY	_____
ROSETTE	_____	SECCHI DISC	_____
FISH SAMPLES	_____	PHOSPHATE SAMPLES	<u>425</u>

VESSEL USSR Yubileiniy

CRUISE 77-02

DATES July 30-August, 17-September 3, 1977

PARTS I & II

DAYS AT SEA 18/18

STATIONS 107;83

Cruise Objective

To monitor zooplankton distribution and abundance, temperature, depth, salinity, dissolved oxygen, chlorophyll distribution, and light penetration on the continental shelf from Nova Scotia to Cape Hatteras, and to determine phytoplankton composition on Georges Bank.

Scientific Personnel

AtlantNIRO, Kaliningrad District, USSR

Alexander Pankratov, Chief Scientist
Vladimir Schnar
Alexander Romanchenko
Igor Kuzmin
Vladimir Luchinin

Northeast Fisheries Center, NMFS, Narragansett, RI, USA

Donna Busch (Part I)
Janet Murphy
Jerome Prezioso (Part II)

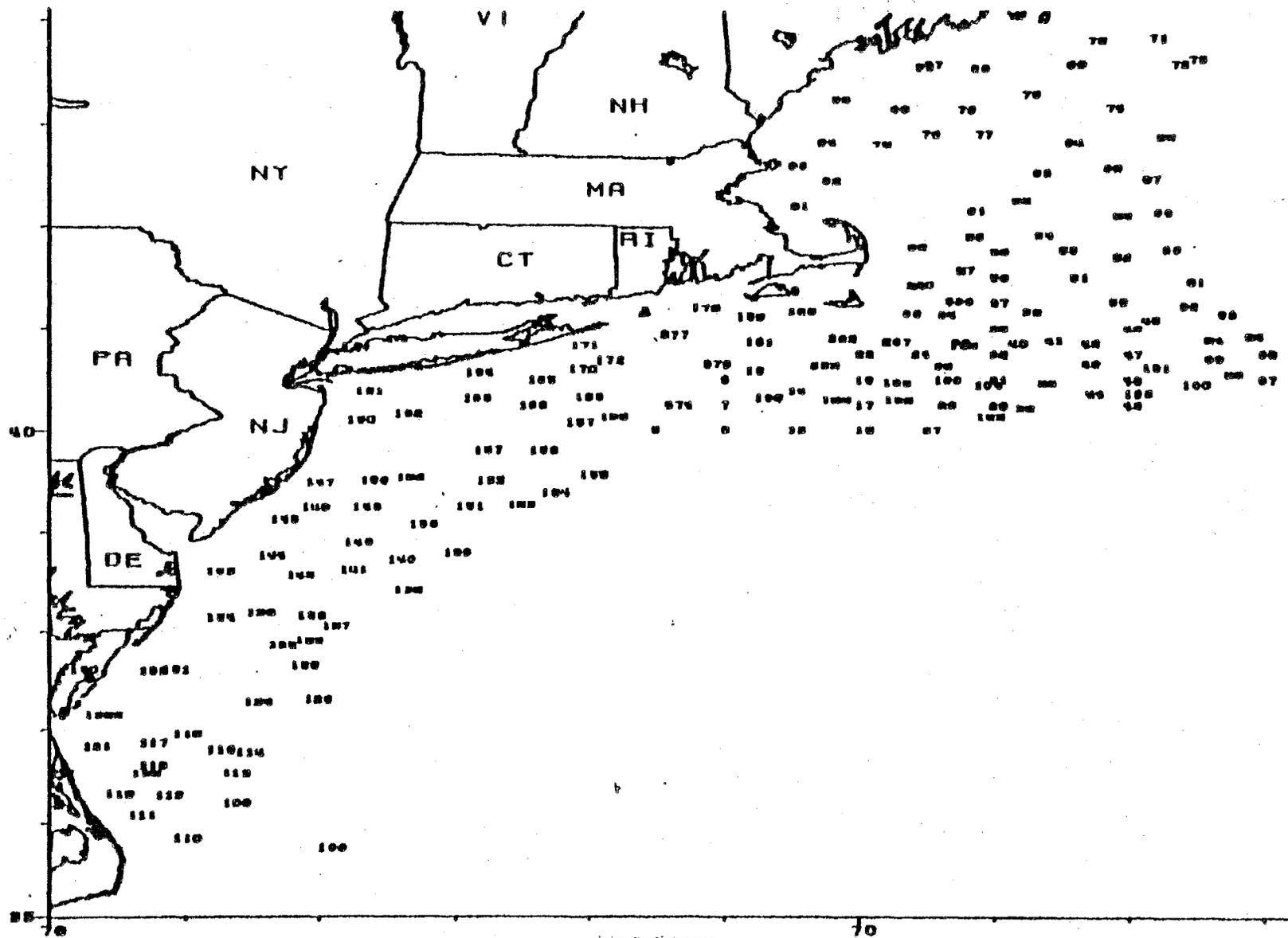
NMFS, NEFC, Woods Hole, MA, USA

Thomas Morris (Part II)
Maurille Mikutowicz (Part I)

Data Collected

	Total	Total		Total	Total
	Part I	Part II		Part I	Part II
ICNAF STANDARD STATIONS	_____	_____	SALINITY SAMPLES	753	435
ICNAF EXTRA STATIONS	_____	_____	OXYGEN SAMPLES	522	516
MOCNESS STATIONS	_____	_____	NUTRIENT SAMPLES	355	250
BONGO HAULS (All types)	386	252	CHLOROPHYLL SAMPLES	264	498
NEUSTON HAULS	107	83	TRAWLS	_____	_____
MOCNESS HAULS	_____	_____	LONG LINE SET	_____	_____
XBT DROPS	107	83	CURRENT METERS	_____	_____
BOTTLE CASTS Nansen	107	83	DROGUE	_____	_____
CASTS Niskin	55	83	PRIMARY PRODUCTIVITY	_____	_____
ROSETTE	_____	_____	SECCHI DISC	55	46
FISH SAMPLES	_____	_____	LIGHT INTEGRATOR	64	52

AO-214



YUBILEINY
77-02

70

VESSEL USSR Yubileiniy

CRUISE 77-03

DATES September 5-16/September 16-
October 4, 1977

PARTS I & II

DAYS AT SEA

STATIONS

Cruise Objective

The primary objective was to locate and tag migrating Atlantic herring in the areas of Stellwagen Bank and Jeffreys Ledge and on the spawning grounds of Georges Bank, respectively. Secondary objectives were to collect samples of herring for age and growth analysis; stomach samples for food habits; and sharks for food chain studies.

Scientific Personnel

AtlantNIRO, Kaliningrad, USSR

Alexander Pankratov, Chief Scientist
Vladimir Schnar
Alexander Romanchenko
Igor Kuzmin
Vladimir Luchinin

Part I: 5-16 September 1977

Northeast Fisheries Center, NMFS, Woods Hole, MA

Thurston Burns
Gordon Waring

Part II: 16 September-4 October 1977

NMFS, NEFC, Woods Hole, MA, USA

Frank Almeida

Fisheries and Marine Service, Environment Canada

Michael Strong

Data Collected

	Total	Total		Total	Total
	Part I	Part II		Part I	Part II
ICNAF STANDARD STATIONS	_____	_____	SALINITY SAMPLES	_____	_____
ICNAF EXTRA STATIONS	_____	_____	OXYGEN SAMPLES	_____	_____
MOCNESS STATIONS	_____	_____	NUTRIENT SAMPLES	_____	_____
BONGO HAULS	_____	_____	CHLOROPHYLL SAMPLES	_____	_____
NEUSTON HAULS	_____	_____	TRAWLS	_____	_____
MOCNESS HAULS	_____	_____	LONG LINE SET	_____	_____
XBT DROPS	_____	_____	CURRENT METERS	_____	_____
BOTTLE CASTS	_____	_____	DROGUE	_____	_____
CID/STD CASTS	_____	_____	PRIMARY PRODUCTIVITY	_____	_____
ROSETTE	_____	_____	SECCHI DISC	_____	_____
FISH SAMPLES	943	_____	HERRING TAGGING	_____	_____

VESSEL USSR Yubileiniy

CRUISE 77-03

DATES September 5-16/September 16-
October 4, 1977

PARTS I & II

DAYS AT SEA 11/18

STATIONS 0/2

Cruise Objective

The primary objective was to locate and tag migrating Atlantic herring in the areas of Stellwagen Bank and Jeffreys Ledge and on the spawning grounds of Georges Bank, respectively. Secondary objectives were to collect samples of herring for age and growth analysis; stomach samples for food habits; and sharks for food chain studies.

Scientific Personnel

AtlantNIRO, Kaliningrad, USSR

Alexander Pankratov, Chief Scientist
Vladimir Schnar
Alexander Romanchenko
Igor Kuzmin
Vladimir Luchinin

Part I: 5-16 September 1977

Northeast Fisheries Center, NMFS, Woods Hole, MA

Thurston Burns
Gordon Waring

Part II: 16 September-4 October 1977

NMFS, NEFC, Woods Hole, MA, USA

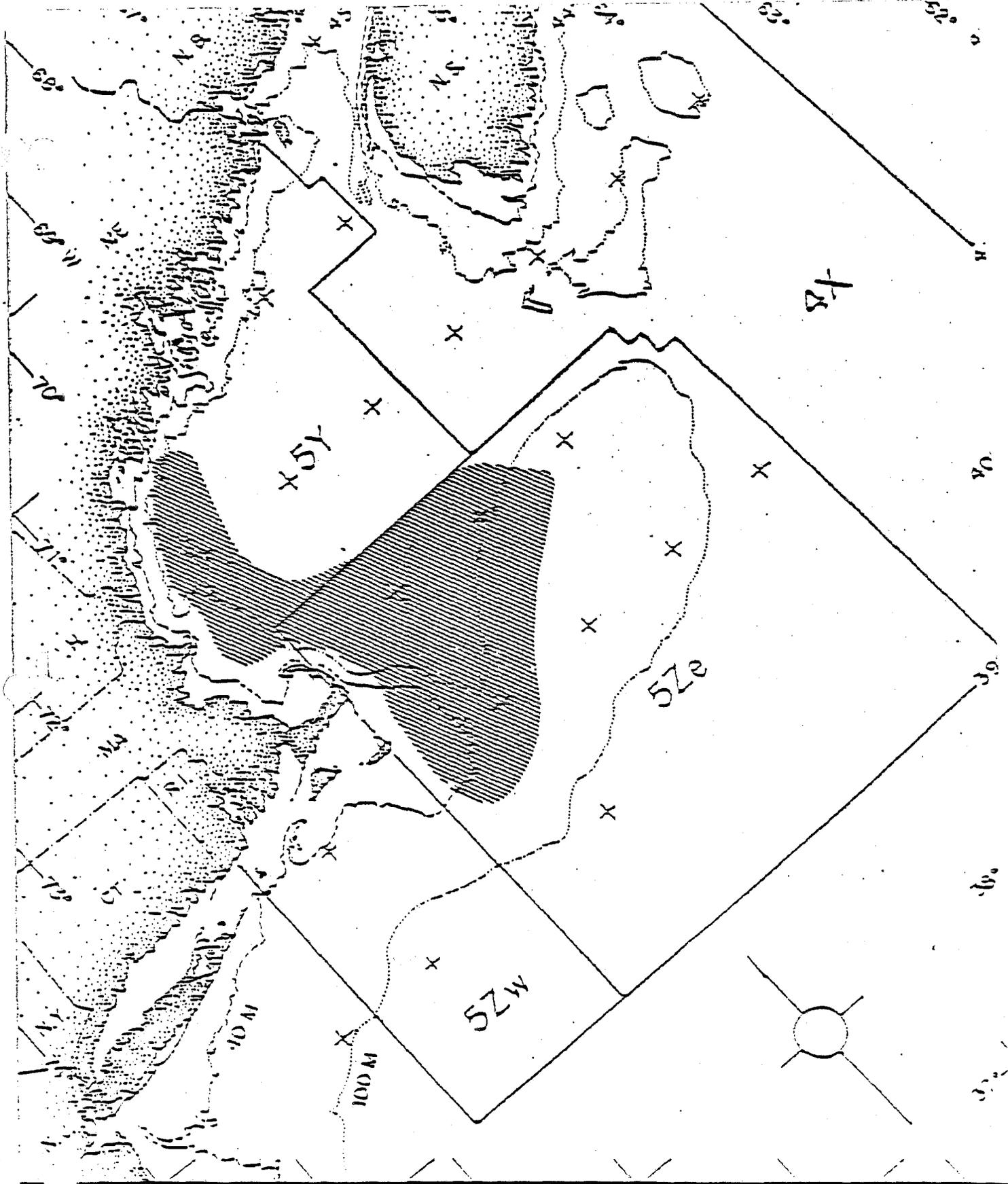
Frank Almeida

Fisheries and Marine Service, Environment Canada

Michael Strong

Data Collected

	Total	Total		Total	Total
	Part I	Part II		Part I	Part II
ICNAF STANDARD STATIONS	_____	_____	SALINITY SAMPLES	_____	_____
ICNAF EXTRA STATIONS	_____	_____	OXYGEN SAMPLES	_____	_____
MOCNESS STATIONS	_____	_____	NUTRIENT SAMPLES	_____	_____
BONGO HAULS	_____	_____	CHLOROPHYLL SAMPLES	_____	_____
NEUSTON HAULS	_____	_____	TRAWLS	_____	_____
MOCNESS HAULS	_____	_____	LONG LINE SET	_____	_____
XBT DROPS	_____	_____	CURRENT METERS	_____	_____
BOTTLE CASTS	_____	_____	DROGUE	_____	_____
CTD/STD CASTS	_____	_____	PRIMARY PRODUCTIVITY	_____	_____
ROSETTE	_____	_____	SECCHI DISC	_____	_____
FISH SAMPLES	_____	_____	SEINE SET	_____ 0	_____ 2



Approximate areas of search (scheduled areas) during USSR R/V YUBILEINIIY Cruise No. 77-03, Parts I and II.