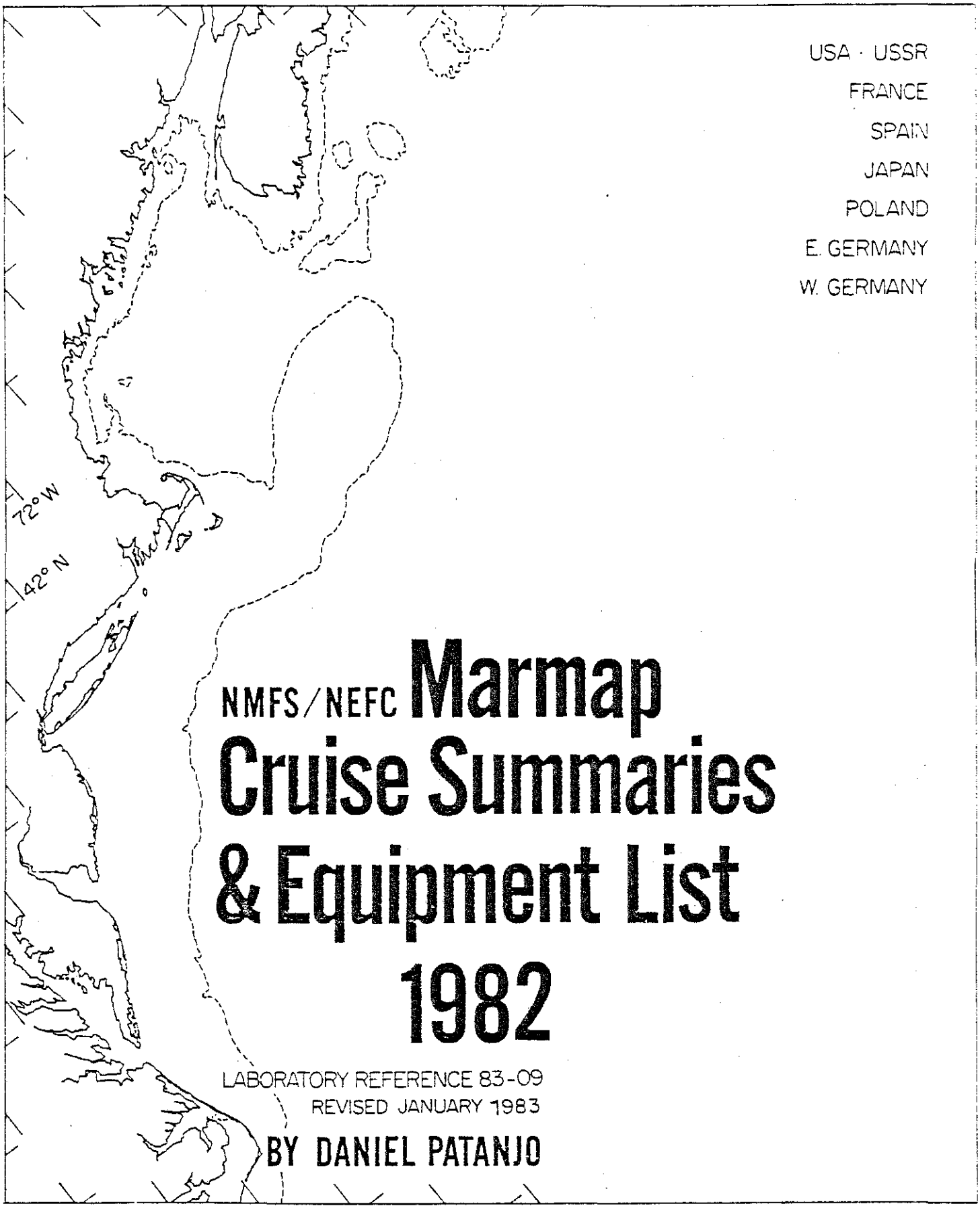


# NMFS/NEFC Marmap Cruise Summaries & Equipment List 1982

LABORATORY REFERENCE 83-09
REVISED JANUARY 1983

BY DANIEL PATANJO

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

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Fisheries Center
Woods Hole Laboratory
Woods Hole, Massachusetts 02543

March 3, 1983 F/NEC1: DP

TO: Distribution

FROM: Daniel Patanjo

SUBJECT: NMFS/NEFC MARMAP Cruise Summaries and Equipment List 1982

This report is a 1982 update to the 1976-1982 four-part summary of the operations of all vessels used by NMFS/NEFC.

Please contact me about any errors or missing information you may be aware of, also let me know if you wish more copies.

As you will notice, the equipment list is null - if you wish or know of some equipment that should be listed, please let me know.

The 1976-1982 summary and equipment list is still available.

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APPENDIX A

1983 MARMAP Stations Listings

VESSEL ALBATROSS IV | CRUISE 82-01 (NEMP 82-01)

DATES 25 Jan.-3 Feb. | PART I, II

DAYS AT SEA 19 | STATIONS 59

Cruise Objective

The survey is part of a continuing series that makes collection and measurements relative to assessing the health of the ocean's biota, especially fishery resources. Specific objectives were: 1) to collect select indicator species for examination of certain biochemical, physiological, pathological, and chemical contamination variables that are related to the organism's health; 2) to collect water samples from a wide range of locations to monitor nutrients, chlorophyll concentration, phytoplankton community structure, and standard hydrographic variables (salinity, dissolved oxygen, temperature); and 3) to collect benthic samples for pathology monitoring, sediment analysis (physical and chemical), the presence of certain types of bacteria (*Vibrio* sp. and *Clostridium* sp.), and benthic community structure.

Scientific Personnel

National Ocean Survey, Oceans and Atmospheres, NEFC, Sandy Hook, NJ

| | |
|---|---|
| Denise Hollomon, Chief Scientist | Parts I and II |

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

| | |
|---|---|
| David Radosh | Parts I and II |
| Steven Fromm | Parts I and II |
| Anthony Ruiz | Parts I and II |
| Cynthia Muchant | Parts I and II |
| David Burdick | Part I |
| James Nickels | Part I |
| Thomas Finneran | Part II |
| Robert Fitzgerald | Part II |

National Marine Fisheries Service, NEFC, Milford, CT

| | |
|---|---|
| David Nelson | Parts I and II |
| Jose Pereira | Parts I and II |
| Jennifer Hauser | Part II |

National Marine Fisheries Service, NEFC, Woods Hole, MA

| | |
|---|---|
| Kenneth Pecci | Part I |
| Roger Clifford | Part I |

Cook College, New Brunswick, NJ

| | |
|---|---|
| Christa Facciola | Parts I and II |

State University of New York, Stony Brook, NY

Wendy Stephenson — Part II

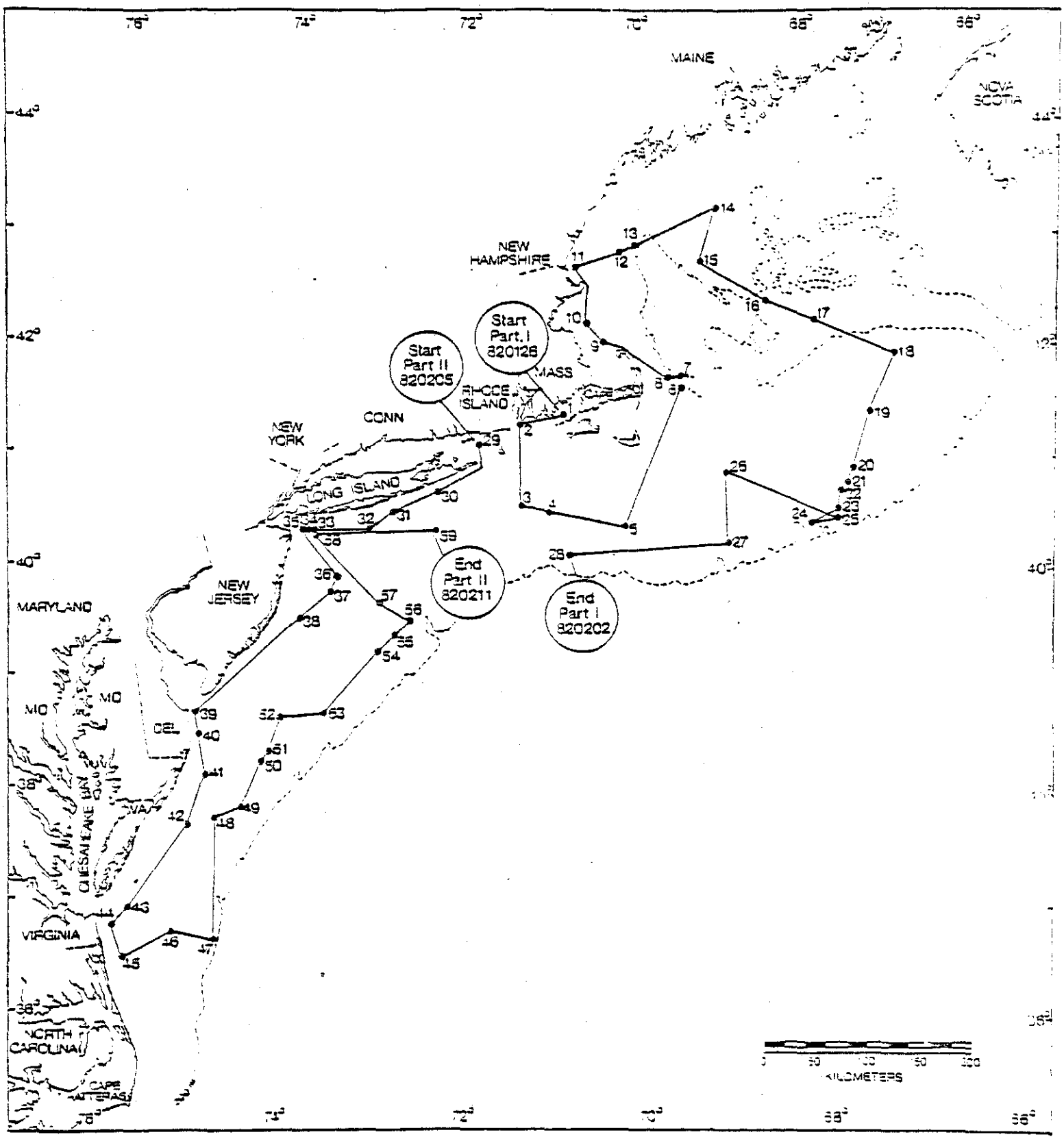
Manomet Bird Observatory, Manomet, MA

Steven Mullane — Parts I and II

## DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | | | 44 |
| BOTTLE CAST | | | |
| CTD CAST | | | |
| CURRENT METERS | | | |
| SEDIMENT CORES | | | |
| Trace metals | | | 140 |
| Grain size | | | 140 |
| BENTHIC MACROFAUNA | | | 140 |
| BENTHIC CRUSTACEA | | | 18 |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | 438 |
| OXYGEN SAMPLES | | | 279 |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | 423 |
| PRIMARY PRODUCTIVITY | | | 23 |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | | 27 |
| FISH SAMPLES | | | YES |
| BACTERIOLOGY (water samples) | | | 30 |
| ZOOPLANKTON | | | 8 |
| BACTERIOLOGY (grab samples) | | | 15 |
| SCALLOP DREDGES | | | 2 |




Cruise track and station locations for ALBATROSS IV Cruise 82-01 (I-II) Northeast Monitoring Program (NEMP 82-01) Biological Effects Survey, during 25 January-12 February 1982.

VESSEL ALBATROSS IV | CRUISE 82-02

DATES 16-25 Feb., 2-11 Mar., 15-25 Mar. | PARTS I, II, III

DAYS AT SEA 32 | STATIONS I - 34
II - 49
III - 63

## 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. Marine birds were also collected for food habits analysis and morphological and physiological studies.

## Scientific Personnel

### National Marine Fisheries Service, NEFC, Sandy Hook, NJ

| | |
|---|---|
| John Sibunka, Chief Scientist | Parts I, II, III |
| Cynthia Muchant | Parts I, II, III |
| David Burdick | Parts I, II, III |
| James Nickels | Parts I, II, III |
| Peter Berrien | Part I |
| Thomas Finneran | Part III |

### National Marine Fisheries Service, NEFC, Woods Hole, MA

| | |
|---|---|
| Dana Densmore | Parts I, II, III |
| Daniel Patanjo | Parts II, III |
| Thomas Laughton | Part II |
| Catherine Jewell | Part III |

### National Marine Fisheries Service, NEFC, Narragansett, RI

| | |
|---|---|
| Joseph Kane | Part III |

### Lamont-Doherty Geological Observatory, Palisades, NY

| | |
|---|---|
| Ted Baker | Part I |
| Jack Danforth | Part I |

### Darien High School, Darien, CT

| | |
|---|---|
| Paul Furtaw | Part I |
| Catherine Lobdell | Part I |
| James Joy | Part II |
| Gail Savarese | Part II |
| Laurence Cochrane | Part III |
| Jennifer Young | Part III |

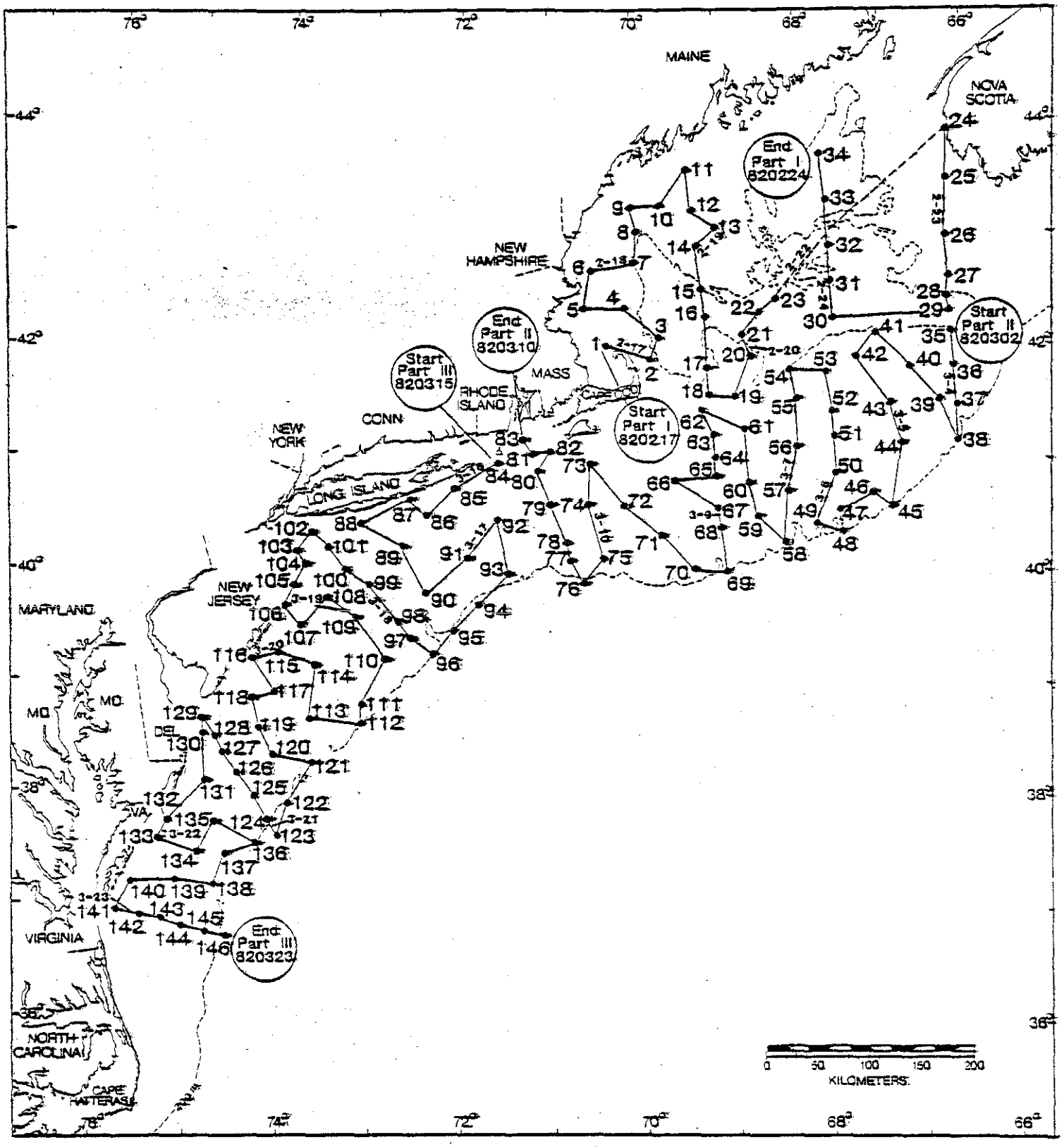
Manomet Bird Observatory, Manomet, MA

Steven Mullane — Parts I, III
Edward Backus — Part II

DATA COLLECTED

| | I PT | II PT | III PT | TOT. |
|---|---|---|---|---|
| .61 m. BONGO | 34 | 49 | 63 | 146 |
| .20 cm BONGO | 8 | 10 | 11 | 29 |
| .61 cm NEUSTON | 33 | 49 | 62 | 144 |
| .20 cm NEUSTON | | | | |
| HAEDRICH | 9 | 16 | 19 | 44 |
| XBT | 13 | 12 | 14 | 39 |
| BOTTLE CAST | 33 | 48 | 64 | 145 |
| CTD CAST | | | | |
| CURRENT METERS | | | | |
| MARINE MAMMAL SIGHTINGS | 1 | 1 | 79 | 81 |
| $H_2{}^{18}O$ | 418 | 516 | 575 | 1509 |

| | I PT | II PT | III PT | TOT. |
|---|---|---|---|---|
| SALINITY SAMPLES | 448 | 516 | 575 | 1509 |
| OXYGEN SAMPLES | 204 | 216 | 253 | 673 |
| NUTRIENT SAMPLES | 117 | 163 | 236 | 516 |
| CHLOROPHYLL SAMPLES | 359 | 483 | 522 | 1364 |
| PRIMARY PRODUCTIVITY | 9 | 11 | 16 | 36 |
| DROGUES | | | | |
| SECCHI DISC | 14 | 15 | 14 | 43 |
| TRAWLS | | | | |
| FISH SAMPLES | | | | |
| .020 m. BONGO TOWS .165/.053 mm | 8 | 11 | 16 | 35 |
| .020 m BONGO TOWS .253/253 mm | 0 | 5 | 0 | 5 |




Station locations numbered consecutively for R/V Albatross IV Cruise 82-02 (I-III), Ichthyoplankton-Zooplankton, Oceanographic, Primary Productivity Survey, during 16 February-25 March 1982.

VESSEL ALBATROSS IV | CRUISE 82-03 (NEMP 82-02)

DATES 30 Mar.-9 April | PART I

DAYS AT SEA | STATIONS 29

## Cruise Objective

The survey is part of a continuing series that makes collection and measurements relative to assessing the health of the ocean's biota, especially fishery resources. Specific objectives were: 1) to collect select indicator species for examination of certain biochemical, physiological, pathological, and chemical contamination variables that are related to the organism's health; 2) to collect water samples from a wide range of locations to monitor nutrients, chlorophyll concentrations, phytoplankton community structure, and standard hydrographic variables (salinity, dissolved oxygen, temperature); and 3) to collect benthic samples for pathology monitoring, sediment analysis (physical and chemical), and the presence of certain types of bacteria (*Vibrio* sp. and *Clostridium* sp.).

## Scientific Personnel

National Ocean Survey, Oceanic and Atmopsheres, NEFC, Sandy Hook, NJ

Denise Hollomon, Chief Scientist

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Vincent Zdanowicz
Daniel Ralph
Thomas Finneran
Cynthia Muchant
Russell Terranova

National Marine Fisheries Service, NEFC, Milford, CT

David Nelson
Jose Pereira
Elizabeth Marks
John Graikoski
Jennifer Hauser

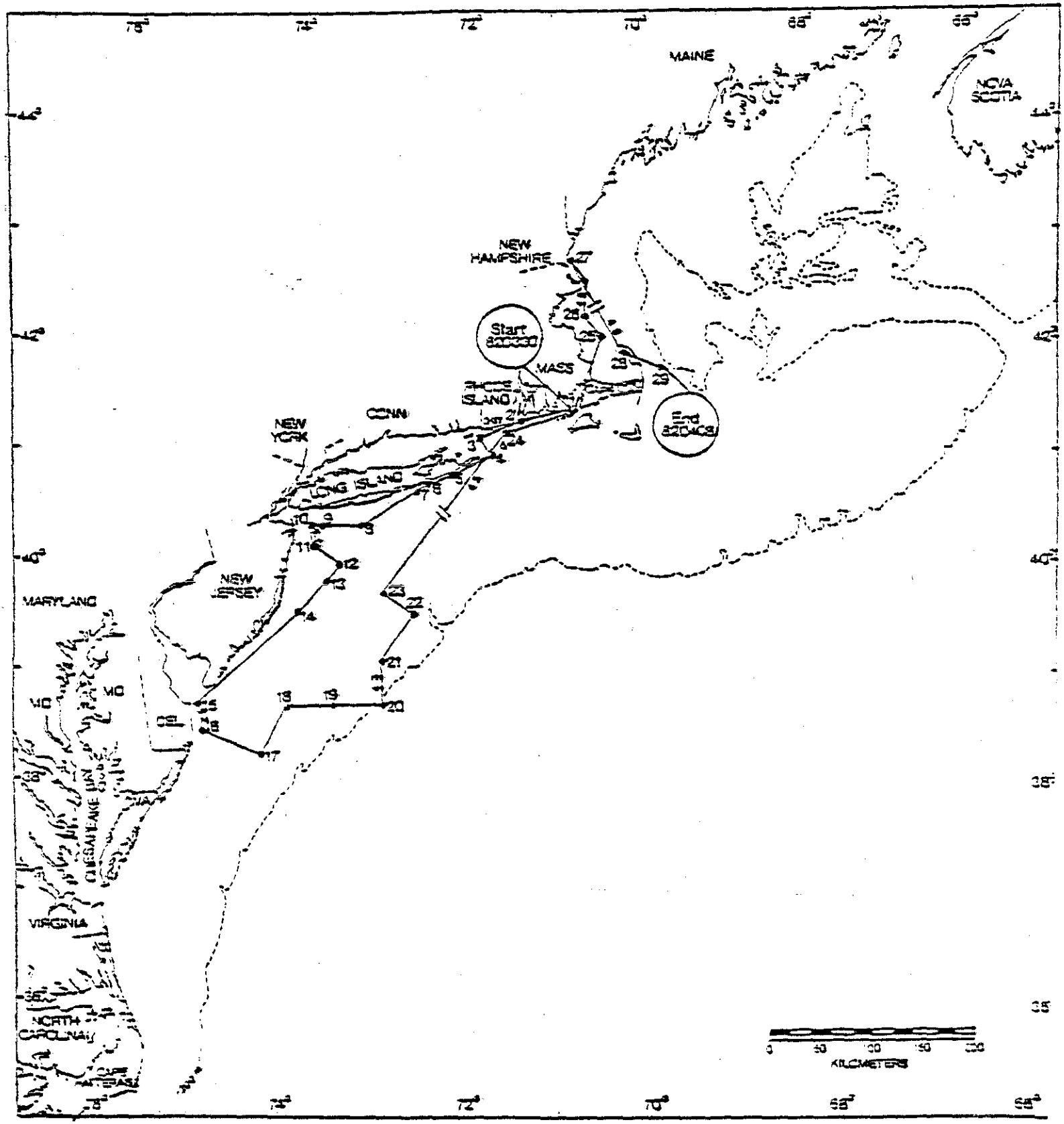
National Marine Fisheries Service, NEFC, Oxford, MD

Jay Lewis

## DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | 20 | | 20 |
| BOTTLE CAST | | | |
| CTD CAST | | | |
| CURRENT METERS | | | |
| SALINITY SAMPLES | 181 | | 181 |
| OXYGEN SAMPLES | 141 | | 141 |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| NUTRIENT SAMPLES | 121 | | 121 |
| CHLOROPHYLL SAMPLES | 181 | | 181 |
| PRIMARY PRODUCTIVITY | 9 | | 9 |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | | |
| FISH SAMPLES | YES | | |
| SUSPENDED SOLIDS | 37 | | 37 |
| BACTERIOLOGY | 30 | | 30 |
| BACTERIOLOGY | 68 | | 68 |
| BENTHIC CRUSTACEA | 8 | | 8 |




Cruise track and station locations for ALBATROSS IV Cruise 82-03 Northeast Monitoring Program (NEMP 82-02) Biological Effects Survey, during 30 March-9 April 1982.

VESSEL ALBATROSS IV CRUISE 82-04

DATES 19 April - 4 May

DAYS AT SEA 16 STATIONS 99

Cruise Objective

There were three major purposes of the cruise. The first was to describe the physical and biological characteristics of the shelf water entrained by warm-core rings. This was possible two times during the cruise; ring "82-A" was located near the southern edge of Georges Bank and ring "82-B" was located south of Martha's Vineyard. The second objective to investigate was the interaction between the circulation associated with a warm-core ring and shelf water. Ring "82-B" was chosen for this due to relative isolation from the effects of a meandering Gulf Stream and simplicity of structure. The third was to continue to evaluate the Applications Technology Satellite (ATS) as a communication link for the transmission of data derived from polar orbiting satellites. In this case, enhanced images were received from NASA, Goddard Space Flight Center, in addition to previous data.

In addition to the major objectives listed above, observations were made on the distribution and approximate abundance of birds and mammals.

Scientific Personnel

National Marine Fisheries Service, NEFC, Woods Hole, MA

Ronald Schlitz, Chief Scientist
David Mountain
Thomas Laughton
Arthur Allen
David Potter
Gilbert Dering

National Marine Fisheries Service, NEFC, Narragansett, RI

Amy Friedlander
Peter Celone
Geoffrey Laurence
John Green
Joseph Kane

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

John O'Reilly
David Burdick

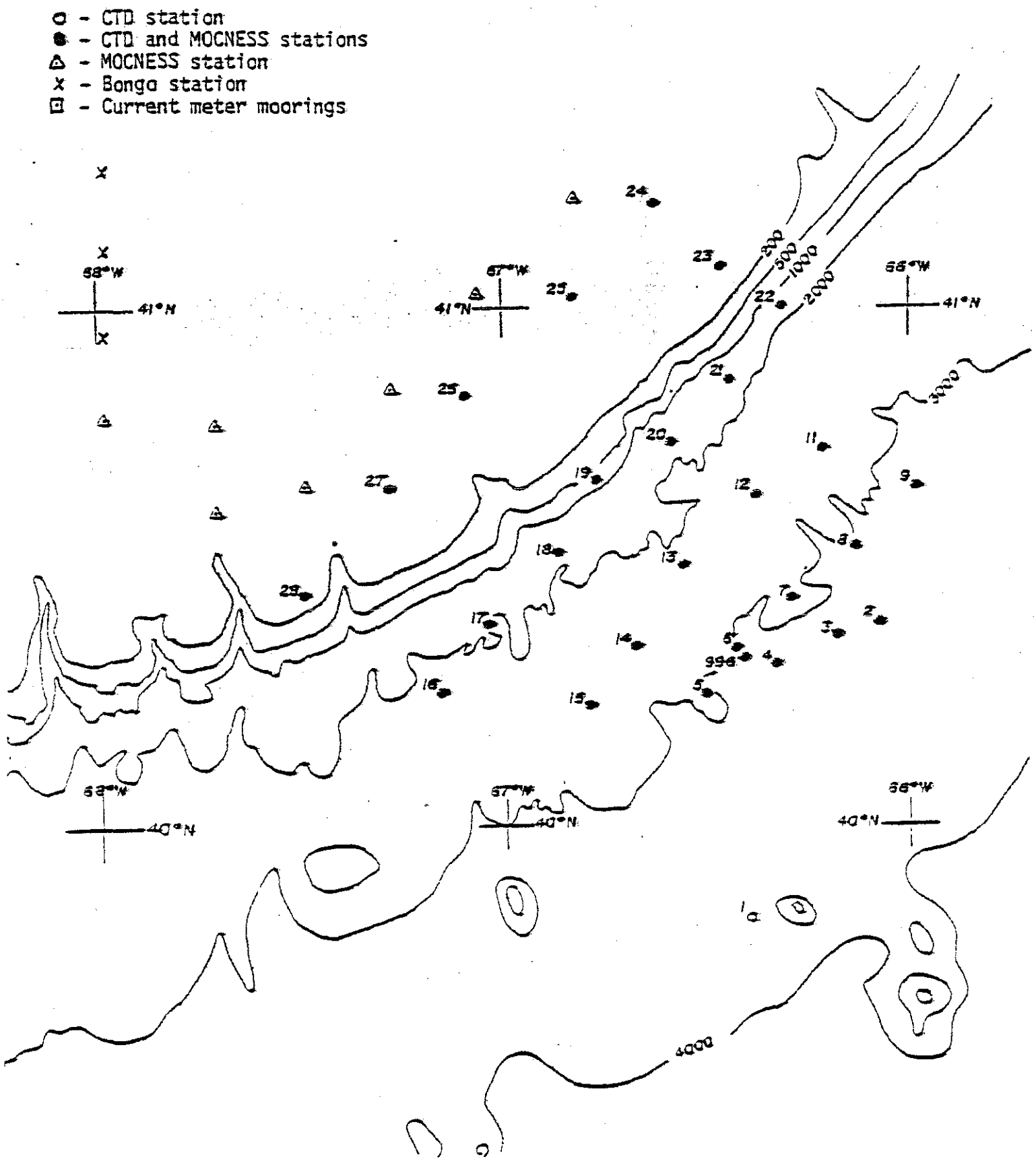
Manomet Bird Observatory, Manomet, MA

Susan Fitch

## DATA COLLECTED

| | IV PT | TOTAL |
|---|---|---|
| BONGO HAULS | 35 | 35 |
| .20 cm BONGO | | |
| .61 cm NEUSTON | | |
| .20 cm NEUSTON | | |
| HAEDRICH | | |
| XBT | 121 | 121 |
| BOTTLE CAST | | |
| CTD CAST | 16 | 16 |
| CURRENT METERS | | |
| MOCNESS TOWS | 37 | 37 |

| | IV PT | TOTAL |
|---|---|---|
| SALINITY SAMPLES | 870 | 870 |
| OXYGEN SAMPLES | 700 | 700 |
| NUTRIENT SAMPLES | 1200 | 1200 |
| CHLOROPHYLL SAMPLES | | |
| PRIMARY PRODUCTIVITY | | |
| DROGUES | | |
| SECCHI DISC | | |
| TRAWLS | | |
| FISH SAMPLES | | |
| ROSETTE CASTS | 64 | 64 |
| NUTRIENTS | 1500 | 1500 |
| OXYGEN | 750 | 750 |




Stations occupied in the vicinity of ring "82-A" on ALBATROSS IV Cruise 82-04 Warm-Core Ring Study, during 19 April-4 May 1982.

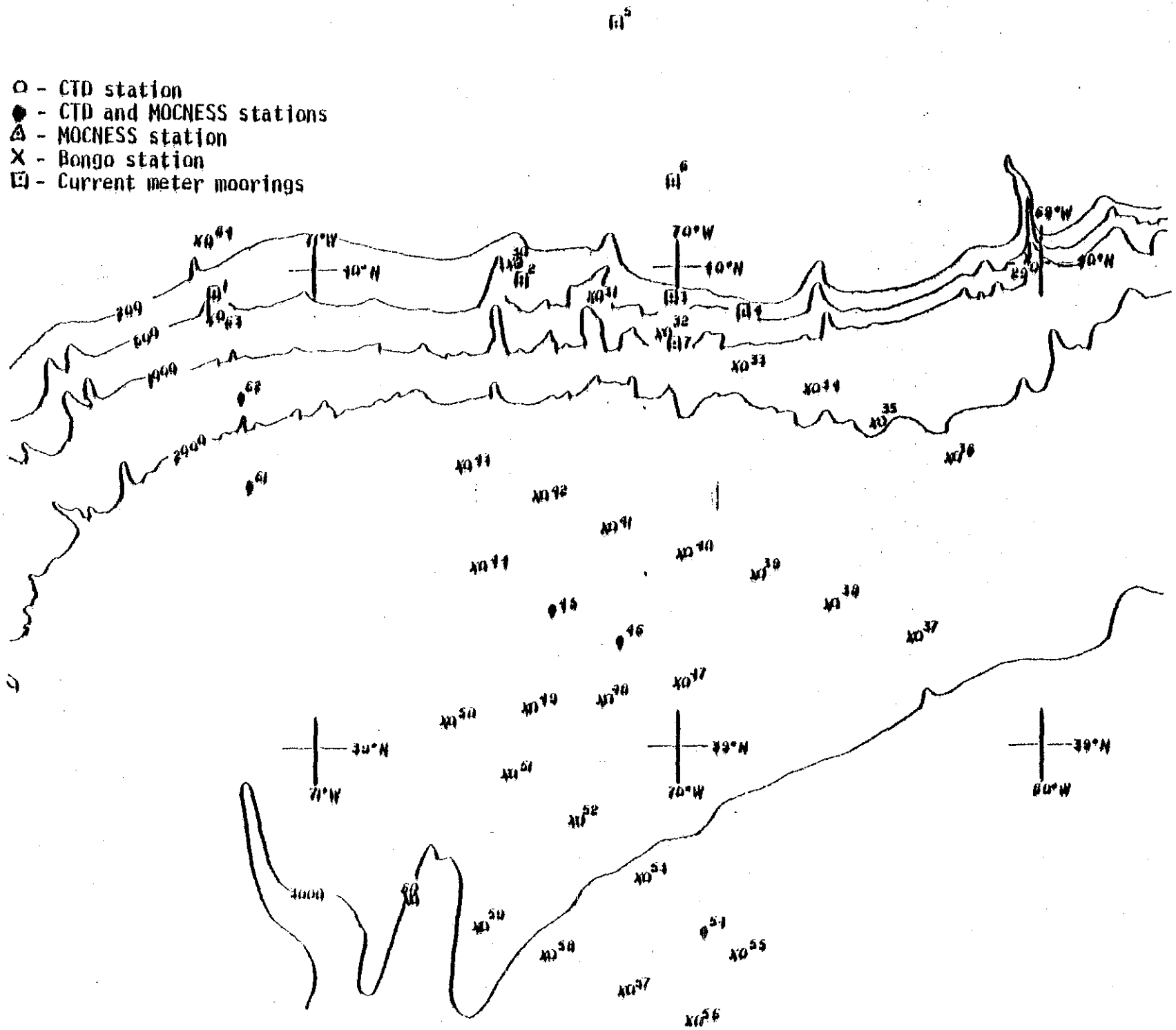



Figure 1b. Stations occupied in the vicinity of ring "82-B" on ALBATROSS IV Cruise 82-04 Warm-Core Ring Study, during 19 April-4 May 1982.

VESSEL ALBATROSS IV | CRUISE 82-05

DATES 10-21 May 1982 | PART I

DAYS AT SEA 12 | STATIONS 42

## Cruise Objective

The objectives of the cruise were to determine the fine-scale vertical and horizontal distribution of larval haddock-cod and their prey organisms and to investigate the physical and biological processes responsible for their distribution.

## Scientific Personnel

### National Marine Fisheries Service, NEFC, Woods Hole, MA

R. Gregory Lough, Chief Scientist
David Potter
George Bolz
Peter Donnelly
Philip LeBlanc
Harold Merry
Roger Clifford
William Michaels

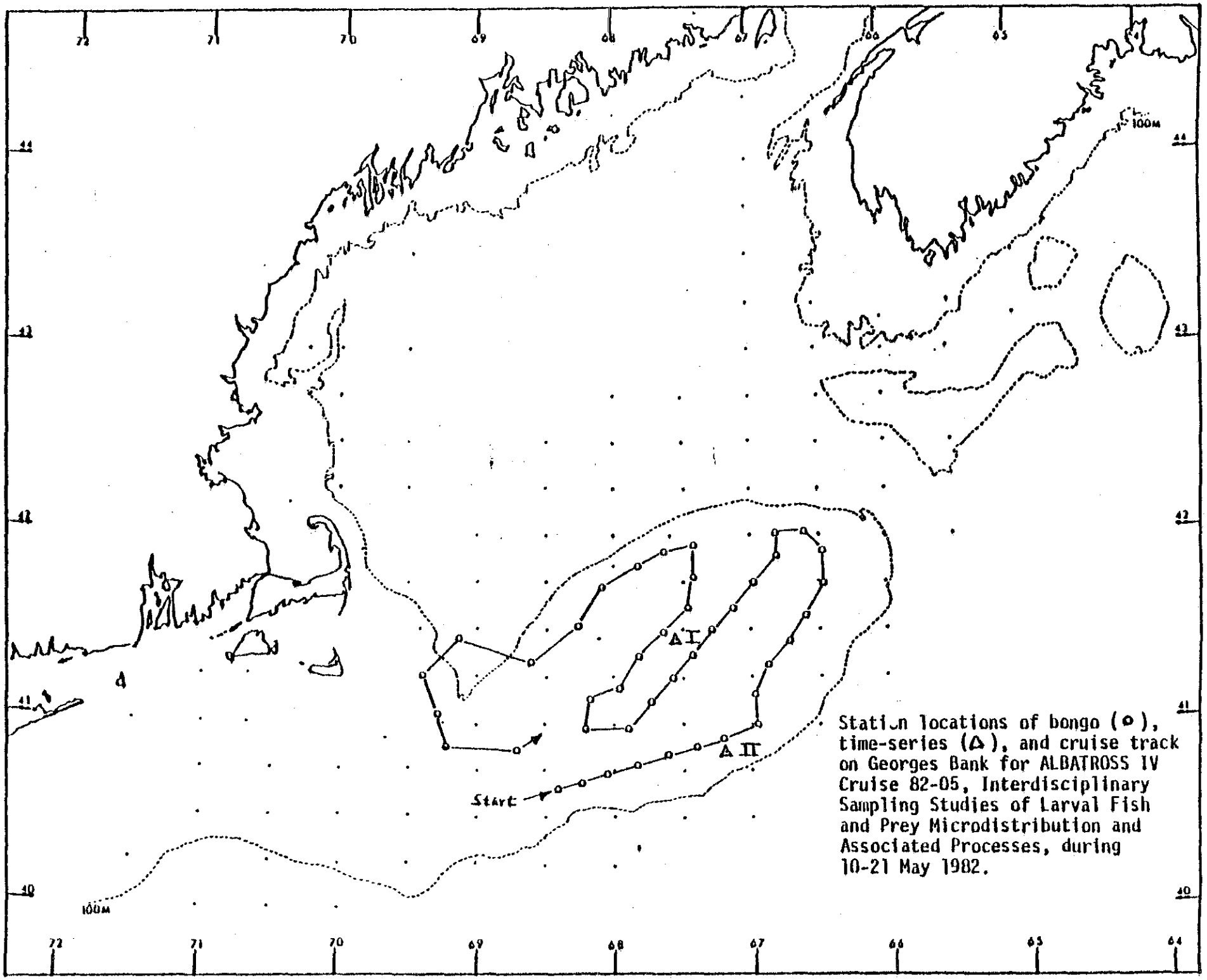
### National Marine Fisheries Service, NEFC, Narragansett, RI

John Green
Donna Busch
Jacquelyn Frisella
Joseph Kane

## DATA COLLECTED

| | I PT | TOTAL |
|---|---|---|
| .61 cm BONGO | | |
| .20 cm BONGO | | |
| .61 cm NEUSTON | | |
| .20 cm NEUSTON | | |
| HAEDRICH | | |
| XBT | 29 | 29 |
| BOTTLE CAST | 36 | 36 |
| STD CAST | 37 | 37 |
| CURRENT METER | | |

| | I PT | TOTAL |
|---|---|---|
| SALINITY SAMPLES | | |
| OXYGEN SAMPLES | | |
| NUTRIENT SAMPLES | | |
| CHLOROPHYLL SAMPLES | 236 | 236 |
| PRIMARY PRODUCTIVITY | | |
| DROGUES | | |
| SECCHI DISC | 6 | 6 |
| TRAWLS | | |
| FISH SAMPLES | | |
| WATER SAMPLES ANALYZED | 225 | 225 |
| PARTICLE SIZE | | |
| LIGHT METER PROFILE | 1 | 1 |




Station locations of bongo (o), time-series (Δ), and cruise track on Georges Bank for ALBATROSS IV Cruise 82-05, Interdisciplinary Sampling Studies of Larval Fish and Prey Microdistribution and Associated Processes, during 10-21 May 1982.

VESSEL Albatross IV CRUISE 82-06

DATES June 1-11 STATIONS 153

DAYS AT SEA 11

CRUISE OBJECTIVE

The objectives of the cruise were to: (1) determine the distribution and relative abundance of the sea scallop (*Placopecten magellanicus*); (2) collect biological samples; and (3) determine the distribution and relative abundance of fish eggs and larvae.

SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFC, Woods Hole, MA:

Charles Byrne, Chief Scientist
John Nicolas
Mark Costa
Suzanne Avtges
Robert Rak
Lorraine Belfiore

National Marine Fisheries Service, NEFC, Sandy Hook, NJ:

Vincent Zdanowicz
Donald McMillian
Doris Finan

National Marine Fisheries Service, NEFC, Milford, CT:

David Nelson

National Marine Fisheries Service, NEFC, Oxford, MD:

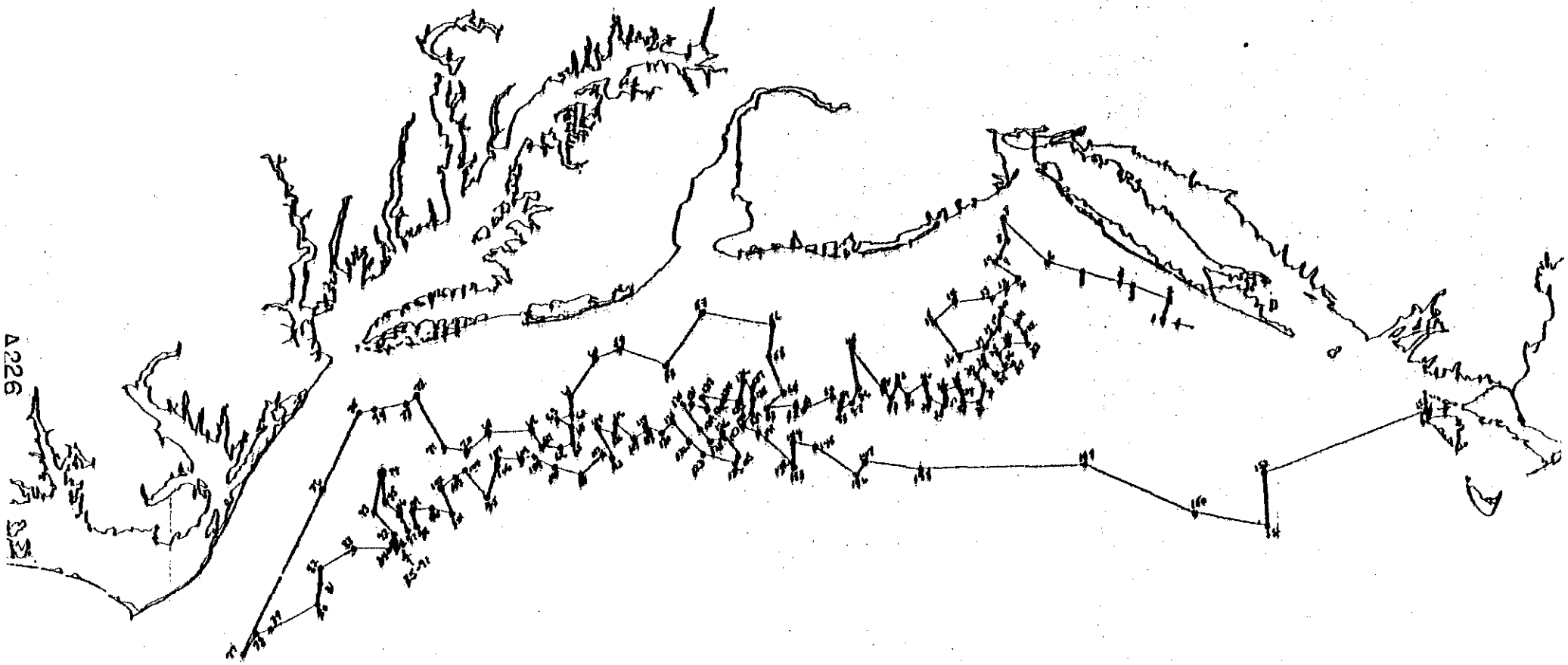
Austin Farley

Manomet Bird Observatory, Manomet, MA:

Greg Jay

DATA COLLECTED

| | I PT | II PT | TOTAL | | I PT | II PT | TOTAL |
|---|---|---|---|---|---|---|---|
| .61 cm BONGO | | | 38 | SALINITY SAMPLES | | | 38 |
| .20 cm BONGO | | | | OXYGEN SAMPLES | | | |
| .61 cm NEUSTON | | | | NUTRIENT SAMPLES | | | |
| .20 cm NEUSTON | | | | CHLOROPHYLL SAMPLES | | | |
| HAEDRICH | | | | PRIMARY PRODUCTIVITY | | | |
| XBT | | | 38 | DROGUES | | | |
| BOTTLE CAST | | | | SECCHI DISC | | | |
| CTD CAST | | | | TRAWLS | | | |
| CURRENT METERS | | | | FISH SAMPLES | | | |
| | | | | SCALLOP DREDGE | | | 153 |



Station locations and cruise track for R/V ALBATROSS IV Cruise 82-06 Sea Sea Scallop Survey, during 1-11 June 1982.

VESSEL ALBATROSS IV CRUISE 82-07

DATES 17 JUNE to 12 JULY

DAYS AT SEA 15 STATIONS 88

## CRUISE OBJECTIVE

There were three major purposes of the cruise. The first was to describe the physical and biological characteristics of the shelf water entrained by warm-core rings. The second was to determine the short-term variability within an entrainment feature. The third was to recover an array of moorings set during cruise ALBATROSS IV 82-04.

In addition to the major objectives, observations were made on the distribution and abundance of marine birds and mammals. Oceanographic data was also collected during an overflight by NASA, Wallops Island, Virginia.

## SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFC, Woods Hole, MA

Ronald Schlitz, Chief Scientist
David Mountain
Thomas Laughton
Steven Ramp
Edward Cohen
R. Gregory Lough
George Bolz
Harold Merry
Peter Donnelly
Philip LeBlanc

National Marine Fisheries Service, NEFC, Narragansett, RI

Amy Friedlander
Jacqueline Frisella

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

David Burdick

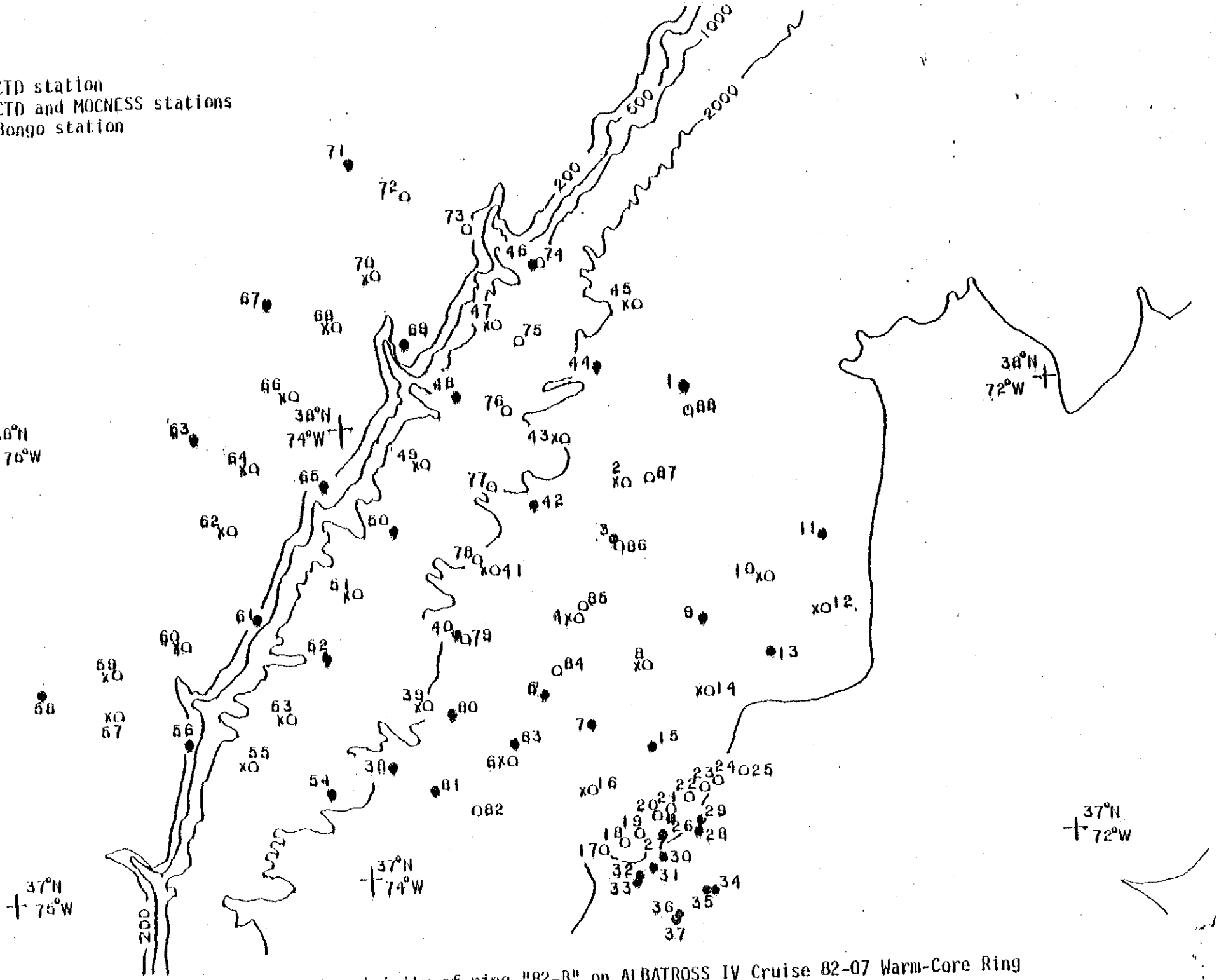
Manomet Bird Observatory, Manomet, MA

Susan Fitch

## DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | 33 |
| .20 cm BONGO | | | |
| .61 cm NEUTSON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | | | 135 |
| BOTTLE CAST | | | 92 |
| CTD CAST | | | 92 |
| CURRENT METERS | | | |
| BONGO HAULS | | | 28 |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | 1035 |
| OXYGEN SAMPLES | | | 900 |
| NUTRIENT SAMPLES | | | 1800 |
| CHLOROPHYLL SAMPLES | | | 1500 |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | | |
| FISH SAMPLES | | | |
| $O^{18}$ | | | 135 |




Stations occupied in the vicinity of ring "82-B" on ALBATROSS IV Cruise 82-07 Warm-Core Ring Study, during 17 June-2 July 1982.

| | | | |
|---|---|---|---|
| VESSEL | ALBATROSS IV | CRUISE | 82-08 |
| DATES | 12 to 23 JULY | PART | I |
| DAYS AT SEA | 11 | STATIONS | 214 |

CRUISE OBJECTIVE

The objectives of the cruise were to: (1) determine the distribution and relative abundance of the sea scallop, Placopecten magellanicus; (2) collect biological samples; and (3) determine the distribution and relative abundance of fish eggs and larvae.

SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFC, Woods Hole, MA

Linda Despres-Patanjo, Chief Scientist
Michael Fogarty
Loretta O'Brien
Jean Hopson
Alicia Kelly
Cynthia Demo
Robert Halpin

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

John Parotta
Donald McMillan

National Marine Fisheries Service, NEFC, Milford, CT

Dee Dee Tucker
Jose Pereira

University of Rhode Island, Kingston, RI

Margaret Carriero

Drew University, Madison, NJ

Carl Webster

Manomet Bird Observatory, Manomet, MA

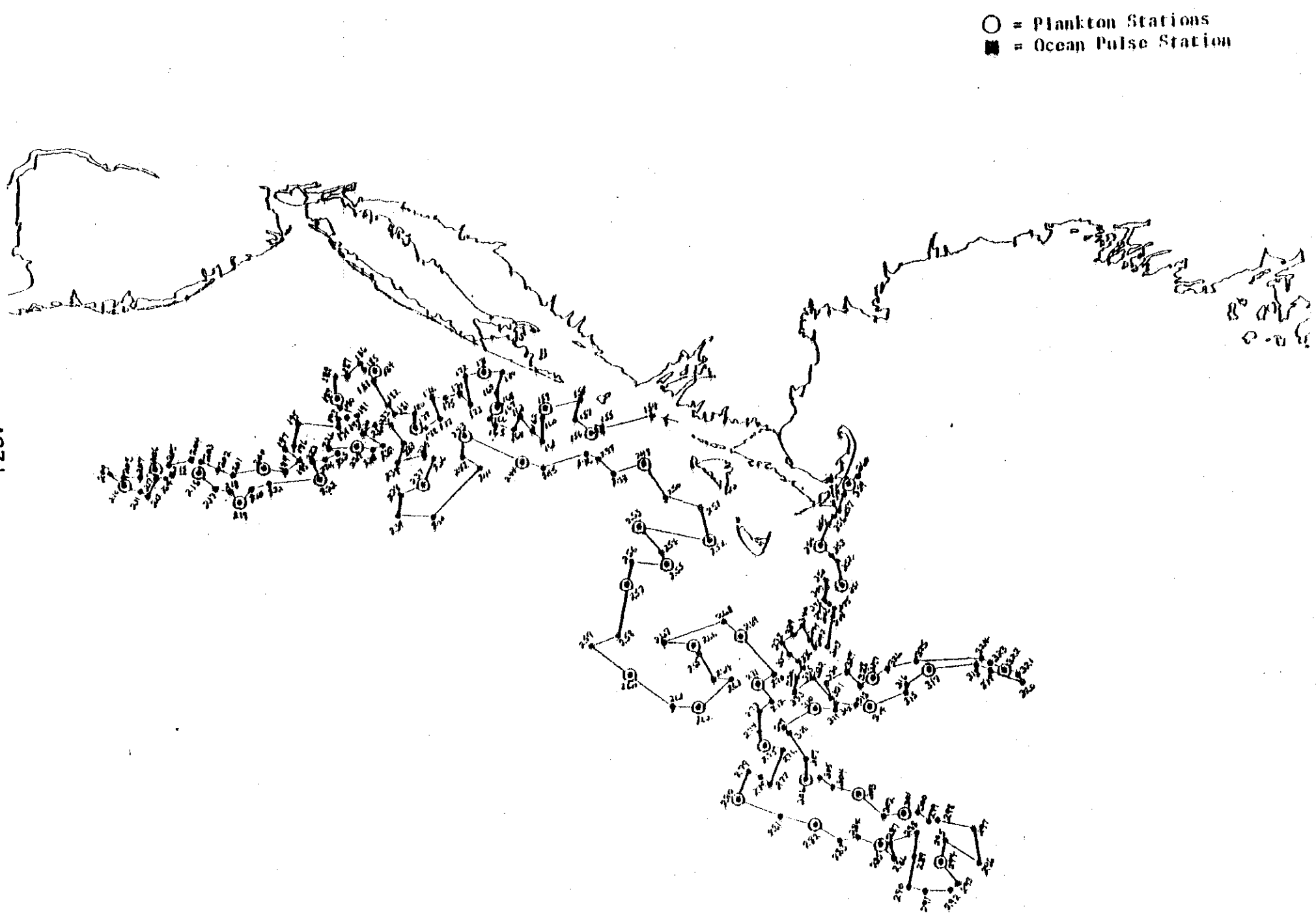
Julie Lundgren

-over-

## DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | 44 |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | | | 44 |
| BOTTLE CAST | | | |
| CTD CAST | | | |
| CURRENT METERS | | | |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | |
| OXYGEN SAMPLES | | | |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | | 214 |
| FISH SAMPLES | | | |




Station locations and cruise track for R/V ALBATROSS IV Cruise 82-08 (I) Sea Scallop Survey, during 12-23 July 1982.

VESSEL ALBATROSS IV | CRUISE 82-08

DATES 26 JULY to 6 AUGUST | PART II

DAYS AT SEA 12 | STATIONS 179

## CRUISE OBJECTIVE

The objectives of the cruise were to: (1) determine the distribution and relative abundance of the sea scallop, *Placopecten magellanicus*; (2) collect biological samples; and (3) determine the distribution and relative abundance of fish eggs and larvae.

## SCIENTIFIC PERSONNEL

### National Marine Fisheries Service, NEFC, Woods Hole, MA

Henry Jensen, Chief Scientist
Philip Chase
Ralph Mayo
Donald Mack
Teresa Etienne
Ira Palmer
Jacob Richardson

### National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Myron Silverman
Doris Finan
Ralph Bruno
Russel Terranova

### National Marine Fisheries Service, NEFC, Milford, CT

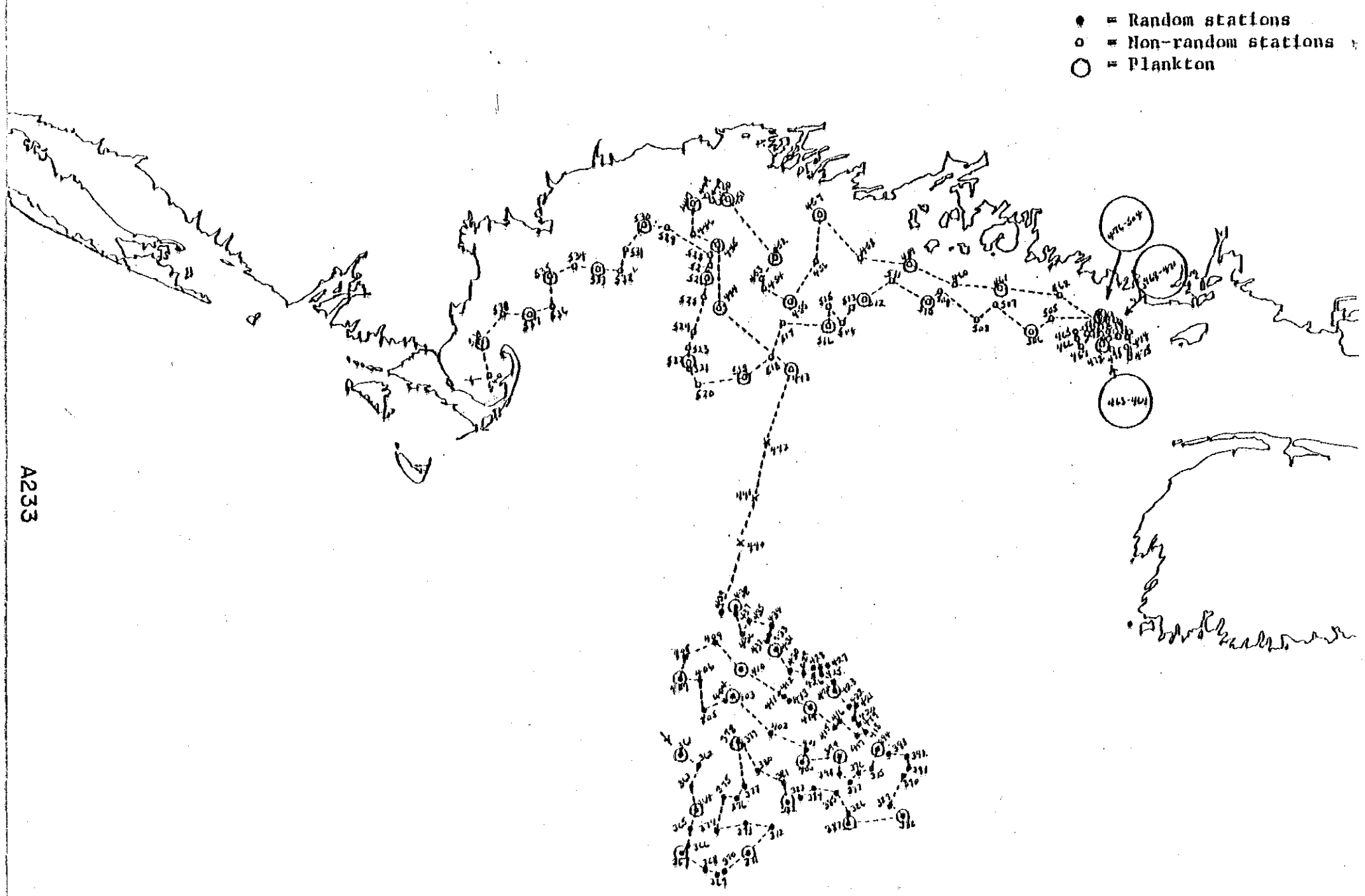
Beth Marks
Jose Pereira

### Manomet Bird Observatory, Manomet, MA

L. Kyle Jones

## DATA COLLECTED

| | I PT | II PT | TOTAL | | I PT | II PT | TOTAL |
|---|---|---|---|---|---|---|---|
| .61 cm BONGO | | | 44 | SALINITY SAMPLES | | | |
| .20 cm BONGO | | | | OXYGEN SAMPLES | | | |
| .61 cm NEUSTON | | | | NUTRIENT SAMPLES | | | |
| .20 cm NEUSTON | | | | CHLOROPHYLL SAMPLES | | | |
| HAEDRICH | | | | PRIMARY PRODUCTIVITY | | | |
| XBT | | | 44 | DROGUES | | | |
| BOTTLE CAST | | | | SECCHI DISC | | | |
| CTD CAST | | | | TRAWLS | | | 139 |
| CURRENT METERS | | | | FISH SAMPLES | | | |




Station locations and cruise track for R/V ALBATROSS IV Cruise 82-08 (II) Sea Scallop Survey, during 26 July-6 August 1982.

VESSEL ALBATROSS IV CRUISE 82-09

DATES AUG 9-20

DAYS AT SEA 12 STATIONS 32

CRUISE OBJECTIVE

The major purposes of the cruise were to determine the rate at which shelf water flows around a warm-core ring in an entrainment feature and to study the short-term variability of plankton within an entrainment feature. In addition, observations were made on the distribution and abundance of marine birds and mammals.

SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFC, Woods Hole, MA

Ronald Schlitz, Chief Scientist
David Mountain
Steven Ramp
Peter Donnelly
Cabell Davis
George Bolz
Philip LeBlanc
Catherine Jewell

National Marine Fisheries Service, NEFC, Narragansett, RI

Amy Friedlander
Jacquelyn Frisella
Bruce Burns

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Cynthia Muchant

Ministry of Agriculture & Fisheries, Wellington, New Zealand

Robert Mattlin

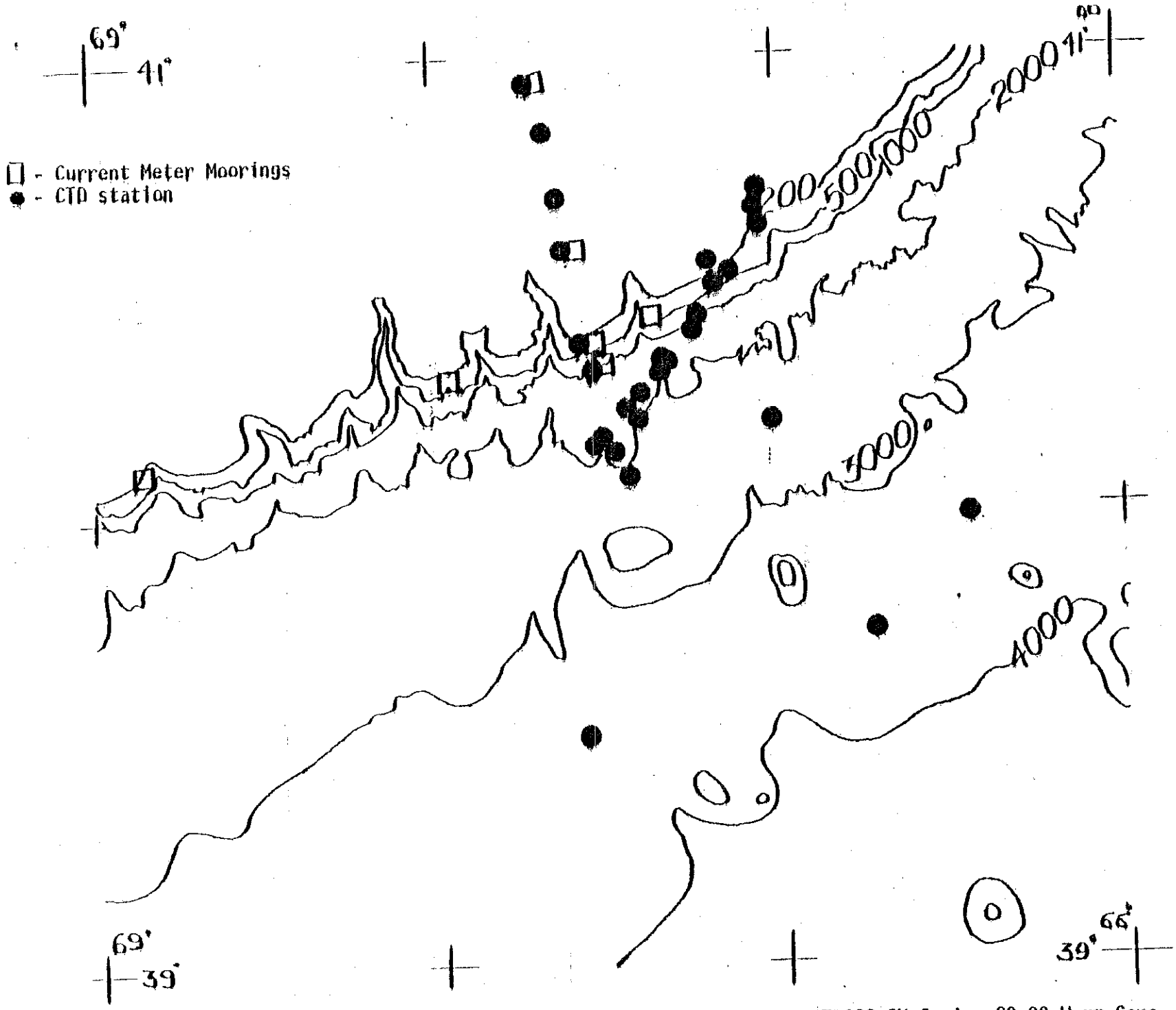
Manomet Bird Observatory, Manomet, MA

Susan Fitch

DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | | | 109 |
| BOTTLE CAST | | | |
| CTD CAST | | | 52 |
| CURRENT METERS | | | 9 |
| (SURFACE MOORINGS) | | | (7) |
| (SUBSURFACE " ) | | | (2) |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | 410 |
| OXYGEN SAMPLES | | | 300 |
| NUTRIENT SAMPLES | | | 600 |
| CHLOROPHYLL SAMPLES | | | 800 |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | 5 |
| SECCHI DISC | | | |
| TRAWLS | | | |
| FISH SAMPLES | | | |
| MOCNESS TOWS | | | 22 |
| ROSETTE CASTS | | | 32 |
| $O^{18}$ | | | 300 |




Stations occupied in the vicinity of ring "81-G" on ALBATROSS IV Cruise 82-09 Warm-Core Ring Study, during 9-20 August 1982.

VESSEL ALBATROSS IV | CRUISE 82-10

DATES AUG 23 - SEPT 3 | PART

DAYS AT SEA 11 | STATIONS 47

CRUISE OBJECTIVE

The survey is part of a continuing series that makes collections and measurements relative to assessing the health of the ocean's biota, especially fishery resources. Specific objectives were: 1) to collect select indicator species for examination of certain biochemical, physiological, pathological and chemical contamination variables that are related to the organisms' health; 2) to collect water samples from a wide range of locations to monitor nutrients, chlorophyll concentrations, phytoplankton community structure, and standard hydrographic variables (salinity, dissolved oxygen, temperature); and 3) to collect benthic samples for pathology monitoring, sediment analysis (physical and chemical), the presence of certain types of bacteria (*Vibrio* sp. and *Clostridium* sp.), and benthic community structure.

SCIENTIFIC PERSONNEL

National Ocean Survey, Oceanic and Atmospheric Services, Sandy Hook, NJ

Denise Hollomon, Chief Scientist

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Frank Steimle
David Radosh
Steven Fromm
Ralph Bruno
Cynthia Muchant
James Nickels
Kathleen Ingham

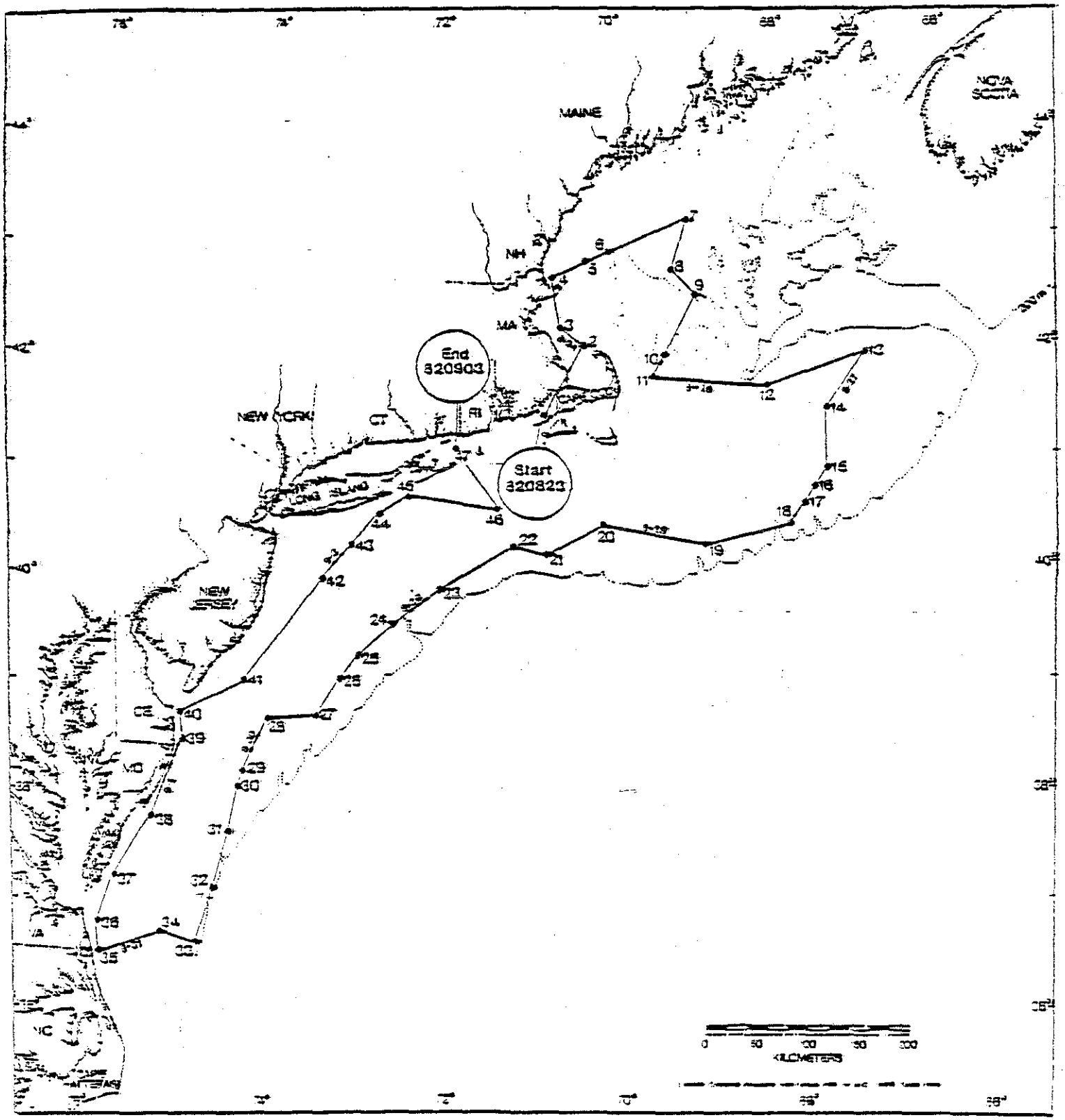
National Marine Fisheries Service, NEFC, Milford, CT

David Nelson
Dee Dee Tucker
Jennifer Houser
Diane Rusanowsky
Donna Luedke

DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | 44 |
| XBT | | | 44 |
| BOTTLE CASTS | | | |
| CTD CAST | | | |
| CURRENT METERS | | | |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | 356 |
| OXYGEN SAMPLES | | | 250 |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | 397 |
| PRIMARY PRODUCTIVITY | | | 18 |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | | 28 |
| FISH SAMPLES | | | YES |
| GRAB SAMPLES | | | 132 |
| SCALLOP DREDGES | | | 2 |




Cruise track and station locations for ALBATROSS IV Cruise 82-10 Northeast Monitoring Program, Biological Effects Survey, during 23 August-3 September 1982

| | | | |
|---|---|---|---|
| VESSEL | ALBATROSS IV | CRUISE | 82-11 |
| DATES | SEPT 13-OCT 1 | PART | I |
| DAYS AT SEA | 18 | STATIONS | 160 |

CRUISE OBJECTIVE

The objectives of the cruise were to: (1) determine the autumn distribution and relative abundance of fish species, (2) collect biological samples for studies of age and growth relationships, fecundity, maturity and food habits, (3) make pathological observations, (4) collect hydrographic and meteorological samples and data, and (5) collect ichthyoplankton and zooplankton.

SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFC, Woods Hole, MA

Linda Despres-Patanjo, Chief Scientist
Donald Flescher
Eva Montiero
William Michaels
Alicia Kelly
Eileen Klopfer
Gary Shepherd

National Marine Fisheries Service, NEFC, Narragansett, RI

Jacqueline Anderson

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Donald McMillan

Royal Ontario Museum, Toronto, Ontario, Canada

Margaret Walters

American Museum of Natural History, New York, NY

Norma Feinberg

North Carolina Division of Marine Fisheries, Moorehead City, NC

Steven Ross

Virginia Institute of Marine Science, Gloucester Point, VA

Dennis Thoney

Manomet Bird Observatory, Manomet, MA

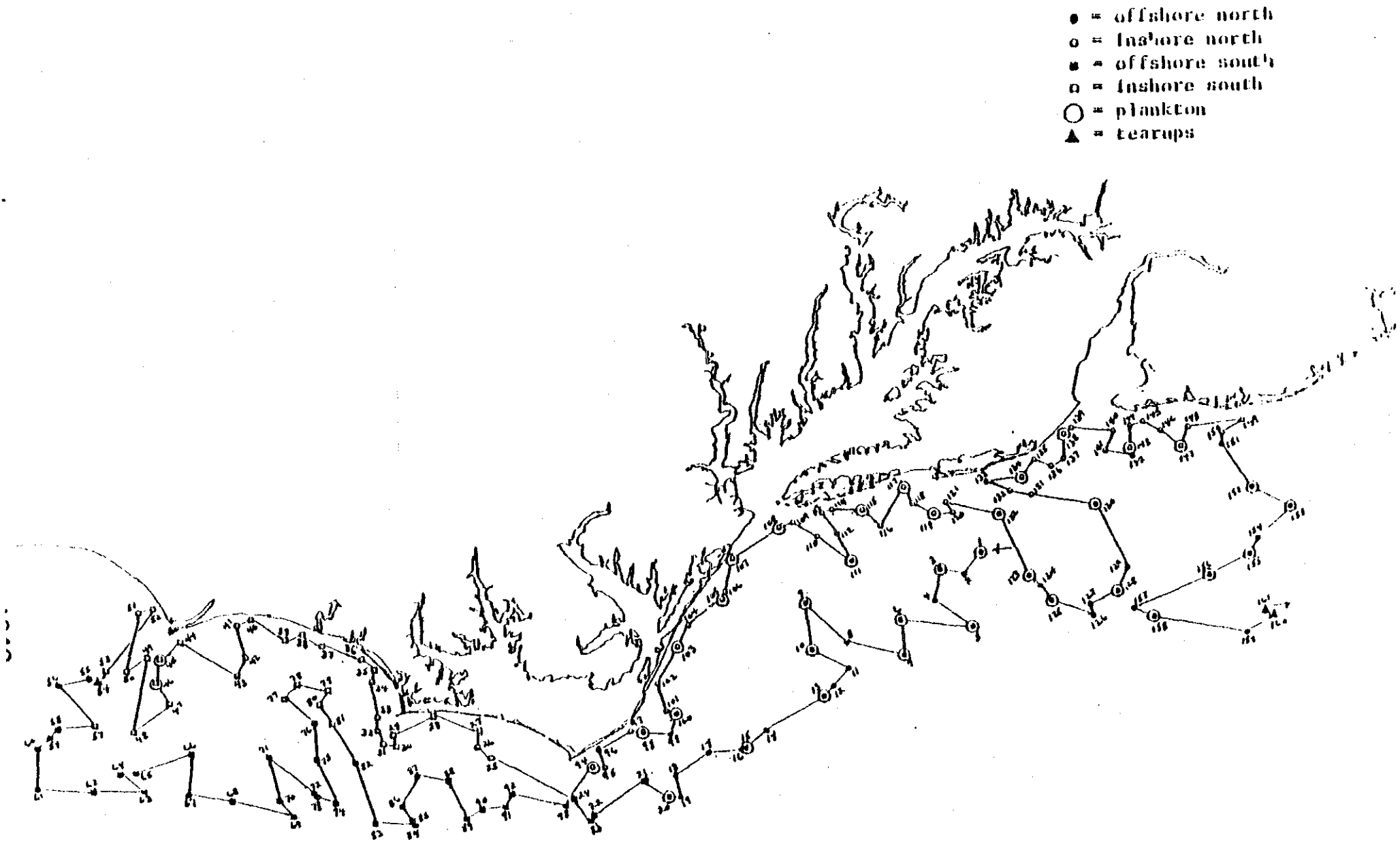
Julie Lundren

-over-

## DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | 37 |
| .20 cm BONGO | | | 37 |
| .61 cm NEUSTON | | | 37 |
| .20 cm NEUSTON | | | 37 |
| HAEDRICH | | | |
| XBT | | | 151 |
| BOTTLE CAST | | | |
| CTD CAST | | | |
| CURRENT METERS | | | |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | 160 |
| OXYGEN SAMPLES | | | |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | | |
| FISH SAMPLES | | | |




Station locations and cruise track for ALBATROSS IV Cruise 82-11 (I) Autumn Bottom Trawl Survey, during 13 September-1 October 1982.

VESSEL ALBATROSS IV | CRUISE 82-11

DATES October 4-15, 1982 | PART II

DAYS AT SEA 11 | STATIONS 103

## CRUISE OBJECTIVE

The objectives of the cruise were to: (1) determine the fall distribution and relative abundance of fish species, (2) collect biological samples for studies of age and growth relationships, fecundity, maturity and food habits, (3) make pathological observations on various species of fish, (4) collect hydrographic and meteorological samples and data, and (5) collect samples of ichthyoplankton and zooplankton. In addition, a fishing power experiment was conducted to compare the fishing power of the ALBATROSS IV and the DELAWARE II during paired tows.

## SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFC, Woods Hole, MA

Malcolm Silverman, Chief Scientist
Margaret McBride
Gordon Waring
Rose Concha
James Myette
Robert Halpin
DiJohn McGruder
Susan Avtges
Isiah McFadden

National Marine Fisheries Service, NEFC, Milford, CT

Andrew Hebert
David Nelson

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Myron Silverman
John Ziskowski

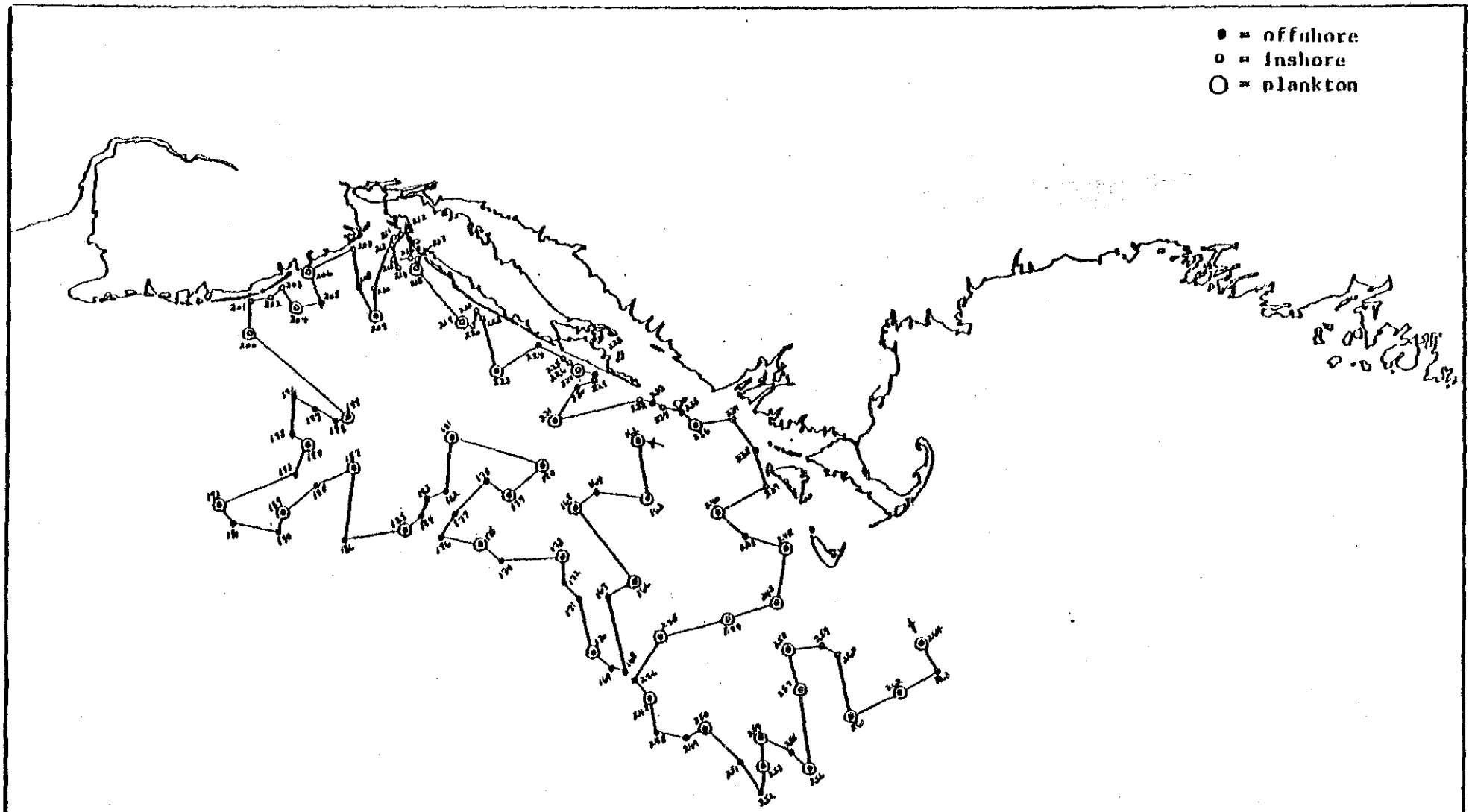
Manomet Bird Observatory, Manomet, MA

Scott Marion

## DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | 41 |
| .20 cm BONGO | | | 41 |
| .61 cm NEUSTON | | | 41 |
| .20 cm NEUSTON | | | 41 |
| HAEDRICH | | | |
| XBT | | | 41 |
| BOTTLE CAST | | | |
| CTD CAST | | | |
| CURRENT METERS | | | |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | |
| OXYGEN SAMPLES | | | |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | | 103 |
| FISH SAMPLES | | | YES |




Station locations and cruise track for ALBATROSS IV Cruise 82-11 (II) Autumn Bottom Trawl Survey, during 4-15 October 1982.

VESSEL ALBATROSS IV | CRUISE 82-11

DATES 18-29 OCT | PART III

DAYS AT SEA 11 | STATIONS 95

CRUISE OBJECTIVE

The objectives of the cruise were to: (1) determine the fall distribution and relative abundance of fish species, (2) collect biological samples for studies of age and growth relationships, fecundity, maturity, and food habits, (3) make pathological observations on various species of fish, (4) collect hydrographic and meteorological samples and data, and (5) collect samples of ichthyoplankton and zooplankton. In addition, a fishing power experiment was conducted to compare the fishing power of the ALBATROSS IV and the DELAWARE II during paired tows.

SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFC, Woods Hole, MA

Thomas Azarovitz, Chief Scientist
Frank Almeida
Loretta O'Brien
Thurston Burns
Ambrose Jearld

National Marine Fisheries Service, NEFC, Oxford, MD

Sharon McLean

National Marine Fisheries Service, NEFC, Milford, CT

Dean Perry
Beth Marks

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Doris Finan

National Marine Fisheries Service, NEFC, Narragansett, RI

Raymond Maurer

National Marine Fisheries Service, NEFC, Rockland, ME

Peter Marckoon

Tufts University, Jamaica Plain, MA

Linda Salerno

Instituto National de Investigacao des Pescas, Lisbon, Portugal

Fatima Cardador

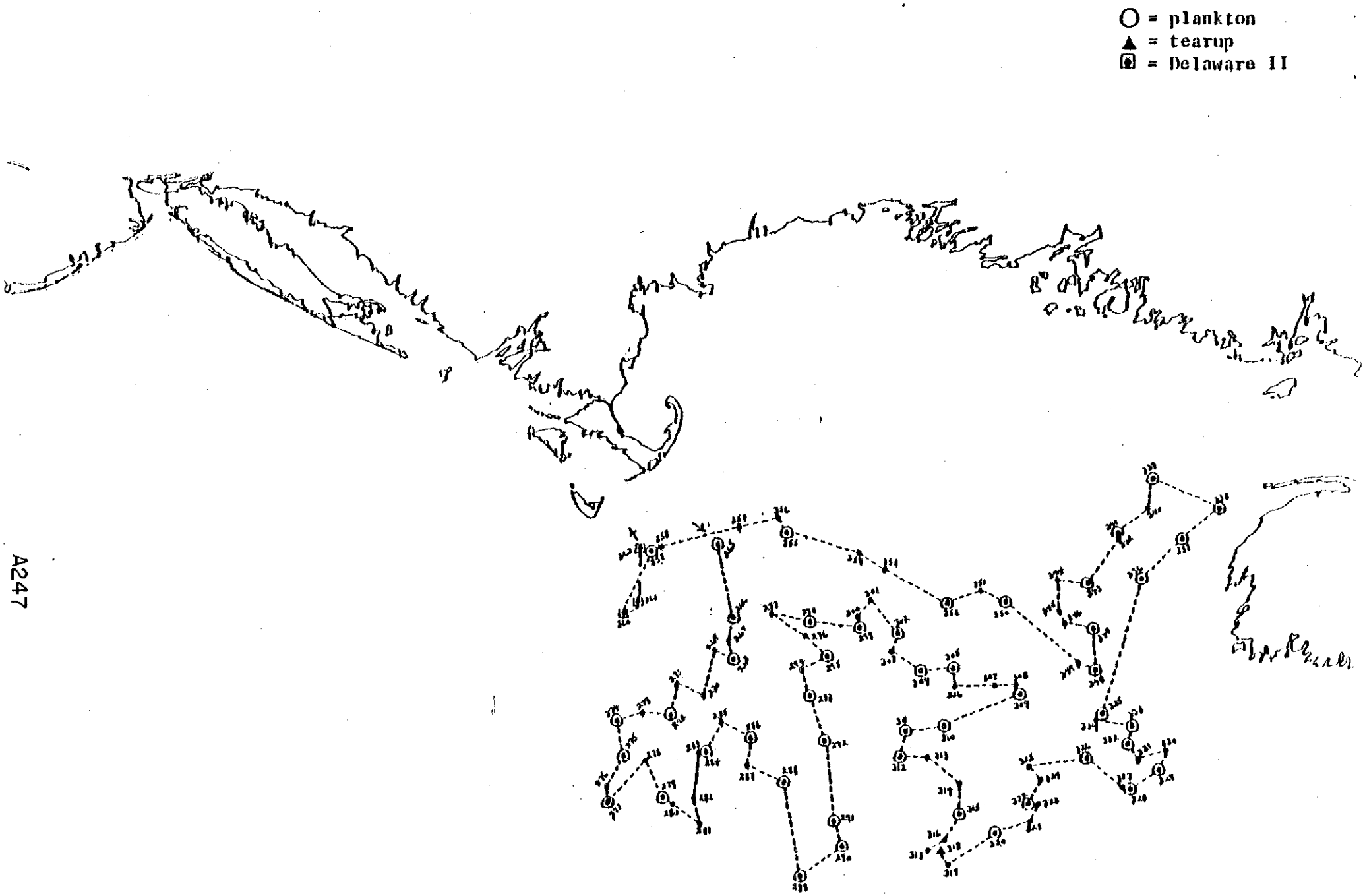
Manomet Bird Observatory, Manomet, MA

Michael Payne

## DATA COLLECTED

| | I PT | II PT | TOTAL | | I PT | II PT | TOTAL |
|---|---|---|---|---|---|---|---|
| .61 cm BONGO | | | 47 | SALINITY SAMPLES | | | |
| .20 cm BONGO | | | | OXYGEN SAMPLES | | | |
| .61 cm NEUSTON | | | | NUTRIENT SAMPLES | | | |
| .20 cm NEUSTON | | | | CHLOROPHYLL SAMPLES | | | |
| HAEDRICH | | | | PRIMARY PRODUCTIVITY | | | |
| XBT | | | 95 | DROGUES | | | |
| BOTTLE CAST | | | | SECCHI DISC | | | |
| CTD CAST | | | | TRAWLS | | | 95* |
| CURRENT METERS | | | | FISH SAMPLES | | | YES |

*First 49 stations were compared tows with DELAWARE II 82-07.




Station locations and cruise track for ALBATROSS IV Cruise 82-11 (III) Autumn Bottom Trawl Survey, during 18-29 October 1982.

VESSEL ALBATROSS IV | CRUISE 82-11

DATES Nov 1-12, 1982 | PART IV

DAYS AT SEA 12 | STATIONS 87

CRUISE OBJECTIVE

The objectives of the cruise were to: (1) determine the fall distribution and relative abundance of fish species, (2) collect biological samples for studies of age and growth relationships, fecundity, maturity and food habits, (3) make pathological observations on various species of fish, (4) collect hydrographic and meteorological samples and data, and (5) collect samples of ichthyoplankton and zooplankton.

SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFC, Woods Hole, MA

Henry W. Jensen, Chief Scientist
Ralph Mayo
Andrew Thoms
John Ropes
Harold Foster
Rose Concha
Patricia Hersey
Donna White
James Myette

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Peter Berrien

National Marine Fisheries Service, NEFC, Narragansett, RI

Joseph Kane

University of Massachusetts, Amherst, MA

John Burnett

Virginia Institute of Marine Sciences, Gloucester Point, VA

Michael Armstrong

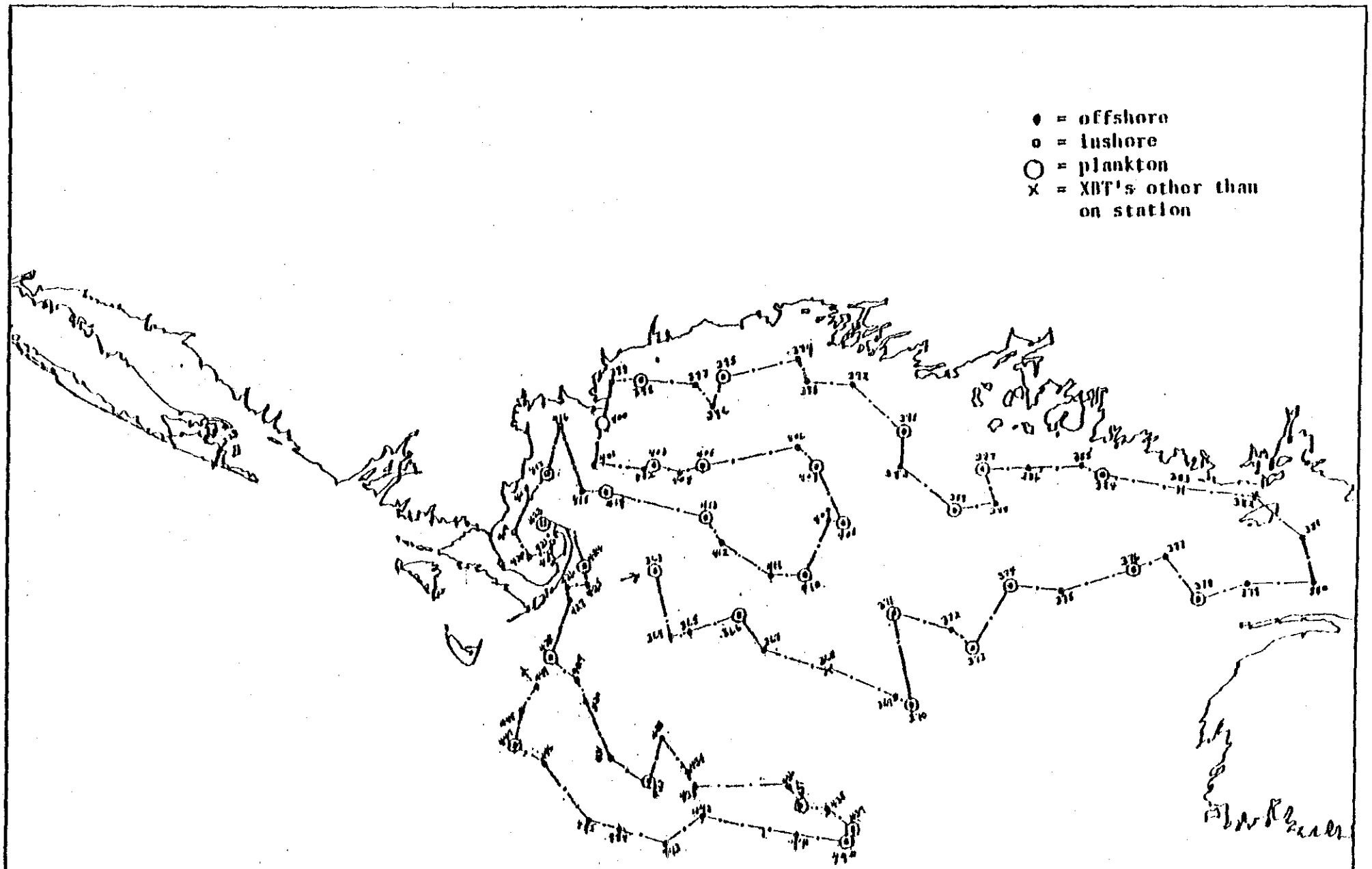
Manomet Bird Observatory, Manomet, MA

Lawrence Selzer

## DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | 31 |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | | | 31 |
| BOTTLE CAST | | | |
| CTD CAST | | | |
| CURRENT METERS | | | |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | |
| OXYGEN SAMPLES | | | |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | | 87 |
| FISH SAMPLES | | | YES |




Station locations and cruise track for ALBATROSS IV Cruise 82-11 (IV) Autumn Bottom Trawl Survey, during 1-12 November 1982.

VESSEL ALBATROSS IV | CRUISE 82-12

DATES Nov. 15-24; Nov. 29-Dec. 10, 1982 | PART I, II

DAYS AT SEA 11; 11 | STATIONS 110

## CRUISE OBJECTIVE

The survey is part of a continuing series that makes collections and measurements relative to assessing the health of the ocean's biota, especially fishery resources. Specific objectives were: 1) to collect select indicator species for examination of certain biochemical, physiological, pathological, and chemical contamination variables that are related to the organisms' health; 2) to collect water samples from a wide range of locations to monitor nutrients, chlorophyll concentration, phytoplankton community structure, and standard hydrographic variables (salinity, dissolved oxygen, temperature); and 3) to collect benthic samples for pathology monitoring, sediment analysis (physical and chemical), the presence of certain types of bacteria (*Vibrio* sp. and *Clostridium* sp.), and benthic community structure.

## SCIENTIFIC PERSONNEL

### National Marine Fisheries Service, NEFC, Sandy Hook, NJ

| | |
|---|---|
| Frank Steimle, Chief Scientist | Part I |
| David Radosh, Chief Scientist | Part II |
| Russell Terranova | Parts I and II |
| Vincent Zdanowicz | Part II |

### National Marine Fisheries Service, NEFC, Milford, CT

| | |
|---|---|
| Frederick Thurberg | Part I |
| Jose Pereira | Parts I and II |
| DeeDee Tucker | Part I |
| Lisa Tettlebach | Part I |
| Andrew Hebert | Parts I and II |
| David Nelson | Part II |
| Diane Rusanowsky | Part II |

### National Marine Fisheries Service, NEFC, Oxford, MD

| | |
|---|---|
| Austin Farley | Part I |
| Jay Lewis | Part II |
| Mark Galasso | Part II |

### National Marine Fisheries Service, NEFC, Woods Hole, MA

| | |
|---|---|
| William Michaels | Part II |
| Philip LeBlanc | Part II |
| Wendell Hahm | Part II |

Drew University, Madison, NJ

| | |
|---|---|
| Vicky Kasper | Part I |

Rutgers Univesity, Newark, NJ

| | |
|---|---|
| Ann Cali | Part II |

Manomet Bird Observatory, Manomet, MA

| | |
|---|---|
| Scott Marion | Parts I and II |

Darien High School, Darien, CT

| | |
|---|---|
| Charles Weaver | Part I |
| John Quirk | Part I |

## DATA COLLECTED

1. Obtained from water samples:

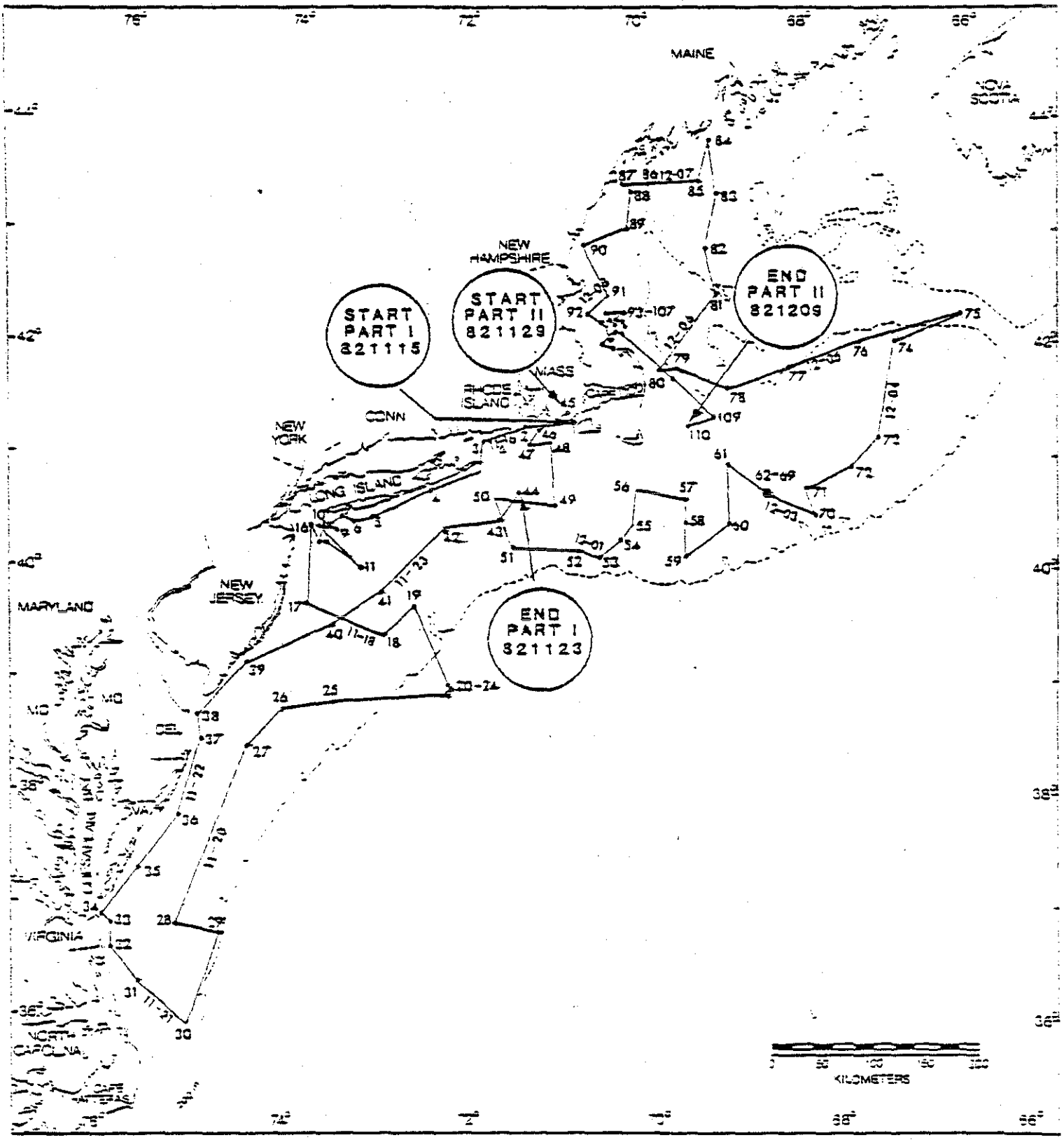
   14 salinity samples at 14 stations
   14 dissolved oxygen samples at 14 stations

2. Obtained from grab samples:

   11 samples for bacteriology
   337 sediment cores for trace metals at 87 stations
   337 sediment cores for grain size analysis at 87 stations
   40 samples for hydrocarbon analysis at 8 stations
   63 samples for dinoflagellate cyst survey
   165 benthic macrofauna samples at 27 stations
   18 secondary productivity samples at 3 stations
   5 benthic crustacea samples for pathology
   15 samples for Acanthamoeba culture

3. Obtained from 56 trawls and 9 scallop dredges:

   480 fish samples for stomach content analysis
   356 tissue specimens for trace metal analysis
   36 rock crabs for pathology at 2 stations
   213 yellowtail and winter flounder for pathology
   83 winter flounder for physiology and biochemistry
   64 yellowtail flounder for physiology and biochemistry
   114 windowpane flounder for physiology and biochemistry
   202 scallops for physiology, biochemistry, pathology and chemistry




Cruise track and station locations for R/V ALBATROSS IV Cruise 82-12 (I-II) Northeast Monitoring Program, Biological Effects Survey, during 15 November-10 December 1982.

VESSEL DELAWARE II | CRUISE 82-01 (I-II)

DATES 18-29 January; 1-12 February | PARTS I, II

DAYS AT SEA | STATIONS 300

## Cruise Objective

The objectives of the cruise were: (1) to determine the seasonal distribution and relative abundance of fish species with particular reference to Atlantic herring; (2) to collect biological samples; (3) to collect hydrographical and meteorological samples and data; and, (4) to collect hydroacoustic data, using both standard and color depth sounding instruments, with the aim of developing hydroacoustic survey techniques for Atlantic herring.

## Scientific Personnel

Part I: 18-29 January 1982.

National Marine Fisheries Service, NEFC, Woods Hole, MA

Charles Byrne, Chief Scientist
Dennis Hansford
Andrew Thoms
Danielle Winborne
Eileen Klopfer
James Crossen (18-21 January 1982)
Gary Shepherd (21-29 January 1982)
Adam Green (21-29 January 1982)

C.S. Draper Laboratory, Massachusetts Institute of Technology, Cambridge, MA

John Suomala (18-21 January 1982)
Carmen Martorella (18-21 January 1982)

Ohio State University, Columbus, OH

Cynthia Tomcko

University of New Hampshire, Durham, NH

Paul Andrews (21-29 January 1982)

Fairfield University, Fairfield, CT

John Trautman (21-29 January 1982)

Part II: 1-12 February 1982.

National Marine Fisheries Service, NEFC, Woods Hole, MA

Henry Jensen, Chief Scientist
Loretta O'Brien
John Nicolas
James Kirkley
Carl Harrison
Jacob Richardson

Eastern Nazarene College, Wollaston, MA

Carol Hirschman
Alison Branigan

College of the Atlantic, Bar Harbor, ME

Margaret Blanding

Southhampton College, Southhampton, NY

Steven Moreno

DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | 62 | 76 | 138 |
| BOTTLE CAST | | | |
| CTD CAST | | | |
| CURRENT METERS | | | |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | 62 | 76 | 138 |
| OXYGEN SAMPLES | | | |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | YES | YES | |
| FISH SAMPLES | YES | YES | |

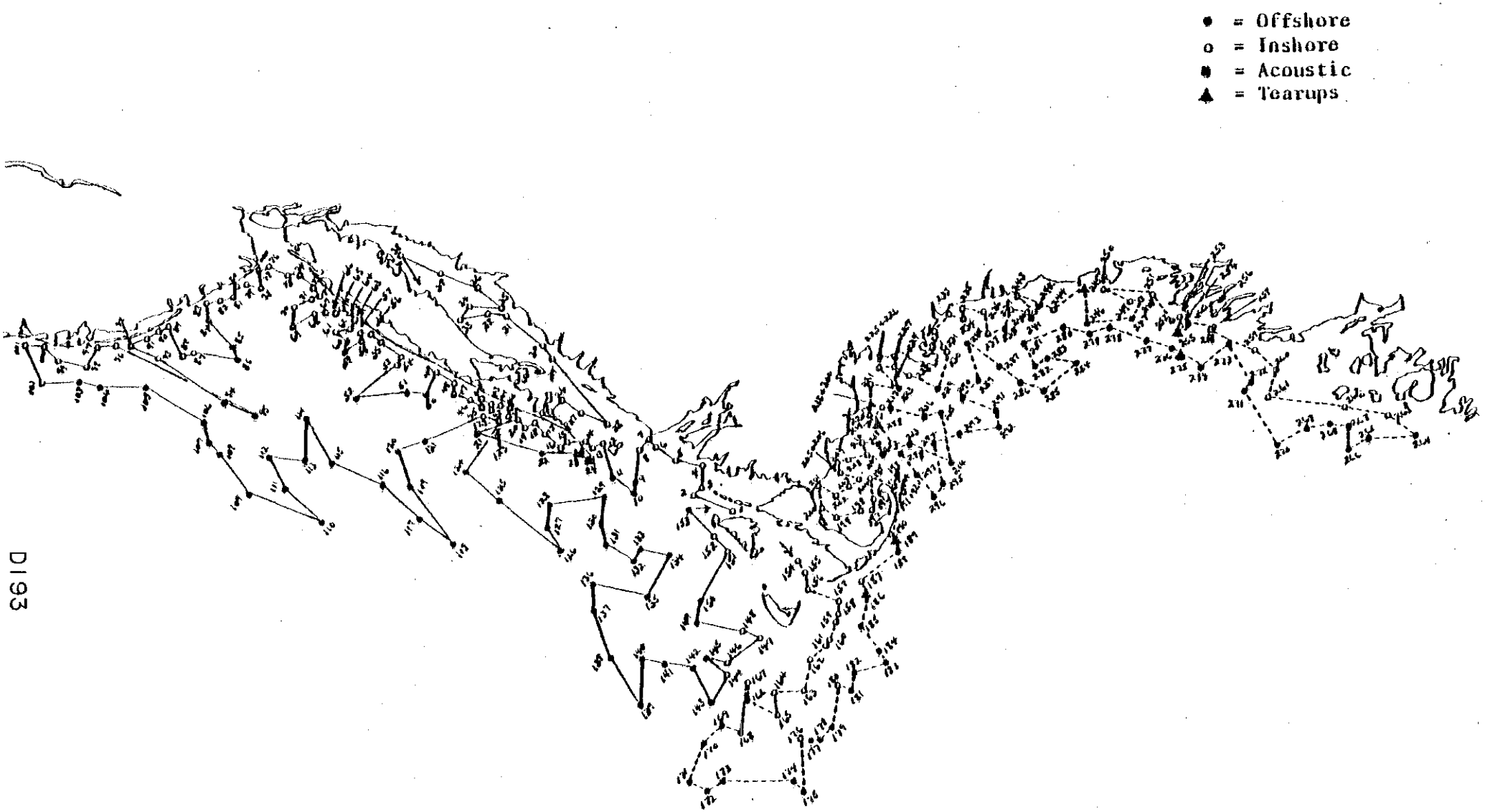



Figure 1. Station locations for DELAWARE II Cruise 82-01 (I-II) Trawl Survey for Atlantic Herring, during 28 January-12 February 1982.

| | |
|---|---|
| VESSEL DELAWARE II | CRUISE 82-02 (I) |
| DATES 8-26 March | PART I |
| DAYS AT SEA 19 | STATIONS 172 |

Cruise Objective

The objectives of the cruise were: (1) to determine the spring distribution and relative abundance of fish species; (2) to make observations on, and collect biological samples from various species of fish for studies of age and growth relationships, fecundity, maturity, food habits, and pathology; (3) to collect hydrographic and meteorological samples and data; and (4) to collect ichthyoplankton and zooplankton.

Scientific Personnel

National Marine Fisheries Service, NEFC, Woods Hole, MA

Henry Jensen, Chief Scientist
Donald Flescher
Harold Foster
Carl Harrison
Michael Campbell
*Robert Halpin

National Oceanic Service, NEFC, Woods Hole, MA

Ellen McDougal

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

*Doris Finan
**Donald McMillian

National Marine Fisheries Service, NEFC, Hampton, VA

*Richard Denzler
**Anthony Silvia

National Marine Fisheries Service, NEFC, Narragansett, RI

**Carolyn Griswold

Virginia Institute of Marine Science, Gloucester Point, VA

*Gene Burreson
**Joseph Sypek

*Debarked on 19 March
**Embarked on 20 March

## DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | YES | | |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | | | |
| BOTTLE CAST | 150 | | |
| CTD CAST | | | |
| CURRENT METERS | | | |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | |
| OXYGEN SAMPLES | | | |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | 171 | | |
| FISH SAMPLES | YES | | |
| PLANKTON | YES | | |

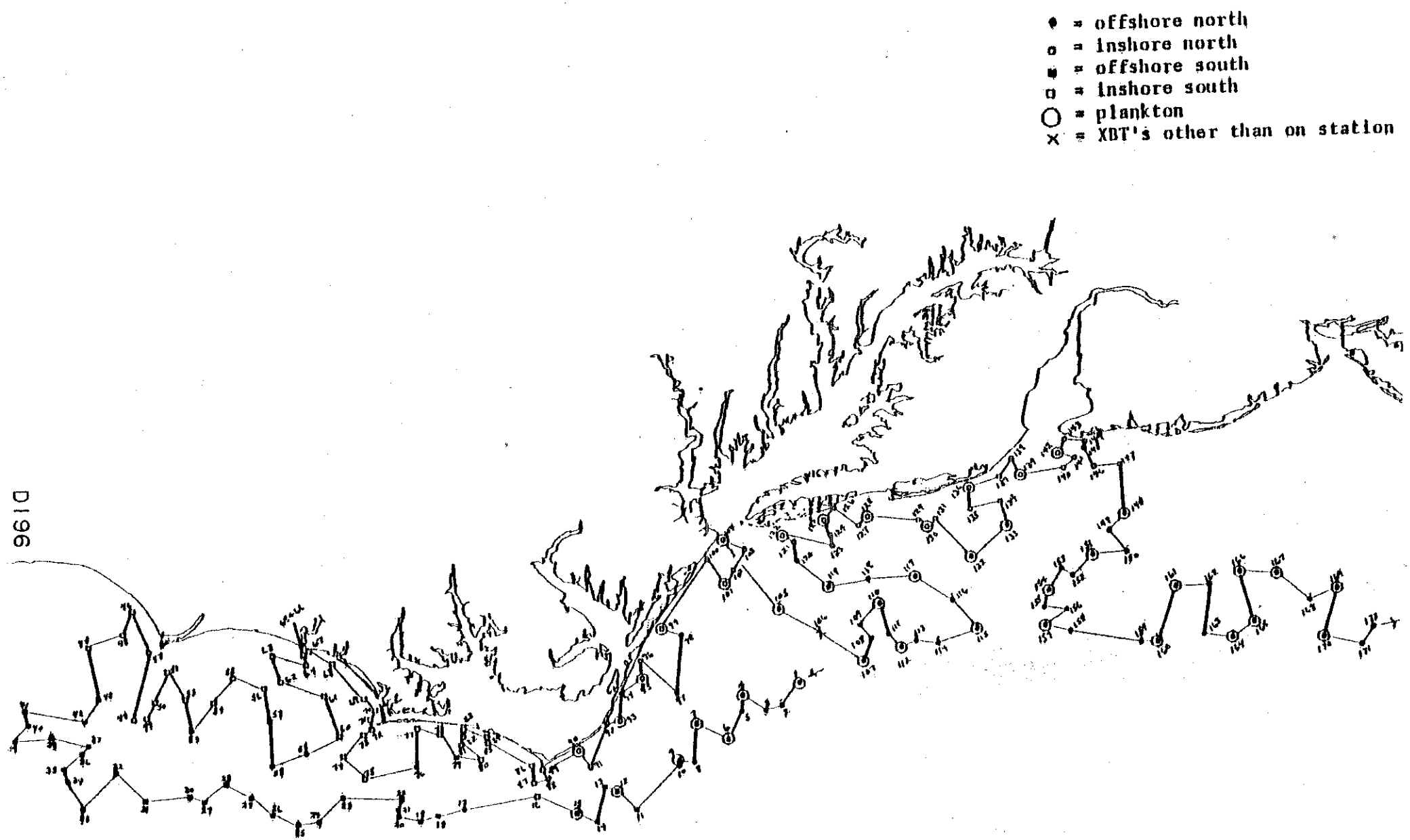



Figure 1. Station locations for DELAWARE II Cruise 82-02 (I) Spring Bottom Trawl Survey, during 8-26 March 1982.

| | |
|---|---|
| VESSEL DELAWARE II | CRUISE 82-02 |
| DATES 30 March - 8 April | PART II |
| DAYS AT SEA 10 | STATIONS 56 |

Cruise Objective

The objectives of the cruise were to: (1) determine the spring distribution and relative abundance of fish species, (2) collect biological samples for studies of age and growth relationships, fecundity, maturity, and food habits, (3) make pathological observations, (4) collect hydrographic and meteorological samples and data, and (5) collect ichthyoplankton and zooplankton.

Scientific Personnel

National Marine Fisheries Service, NEFC, Woods Hole, MA

Linda Despres-Patanjo, Chief Scientist
William Michaels
Elizabeth Bevacqua
Eva Montiero
Frank Almeida

National Marine Fisheries Service, NEFC, Gloucester, MA

Barbara Claflin

National Marine Fisheries Service, NEFC, Narragansett, RI

Jerome Prezioso

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

John Ziskowski
Myron Silverman

Virginia Institute of Marine Sciences, Gloucester Point, VA

James Colvocoresses

## DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | YES | |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | | 58 | 58 |
| BOTTLE CAST | | | |
| CTD CAST | | | |
| CURRENT METERS | | | |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | YES | |
| OXYGEN SAMPLES | | | |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | 56 | |
| FISH SAMPLES | | YES | |
| PLANKTON | | YES | |

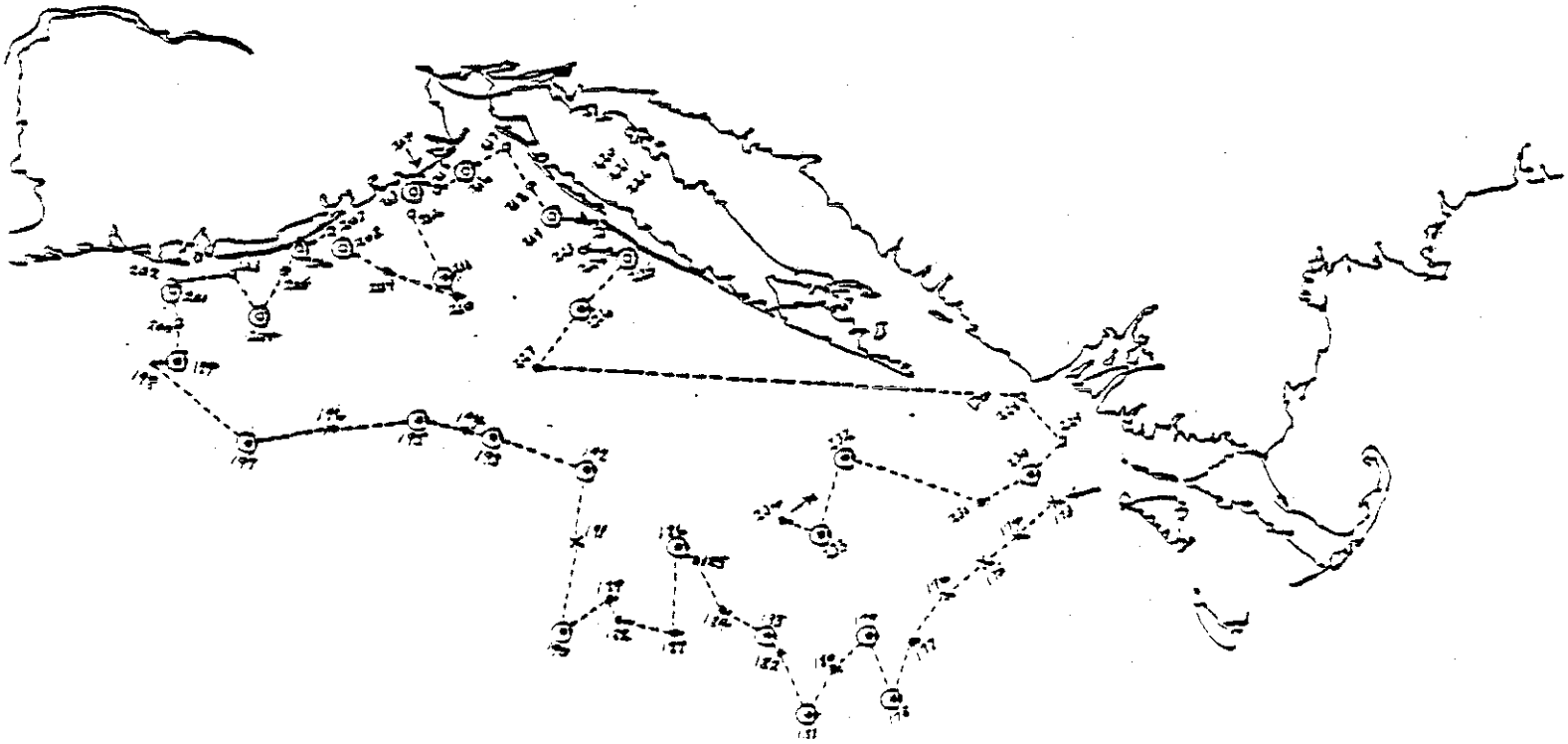


Figure 1. Station locations and cruise track for DELAWARE II Cruise 82-02 (II) Spring Bottom Trawl Survey, during 30 March-8 April 1982.

VESSEL DELAWARE II | CRUISE 82-02

DATES 12-23 April | PART III

DAYS AT SEA | STATIONS 108

## Cruise Objective

The objectives of the cruise were to: (1) determine the spring distribution and relative abundance of fish species, (2) collect biological samples for studies of age and growth relationships, fecundity, maturity, and food habits, (3) make pathological observations, (4) collect hydrographic and meteorological samples and data, and (5) collect ichthyoplankton and zooplankton.

## Scientific Personnel

National Marine Fisheries Service, NEFC, Woods Hole, MA

Malcolm Silverman, Chief Scientist
Andrew Thoms
Thomas Morris
Loretta O'Brien
Patricia Hersey
Robert Halpin

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

John Ziskowski
Alice Wells

National Marine Fisheries Service, NEFC, Gloucester, MA

Katherine Wiggin

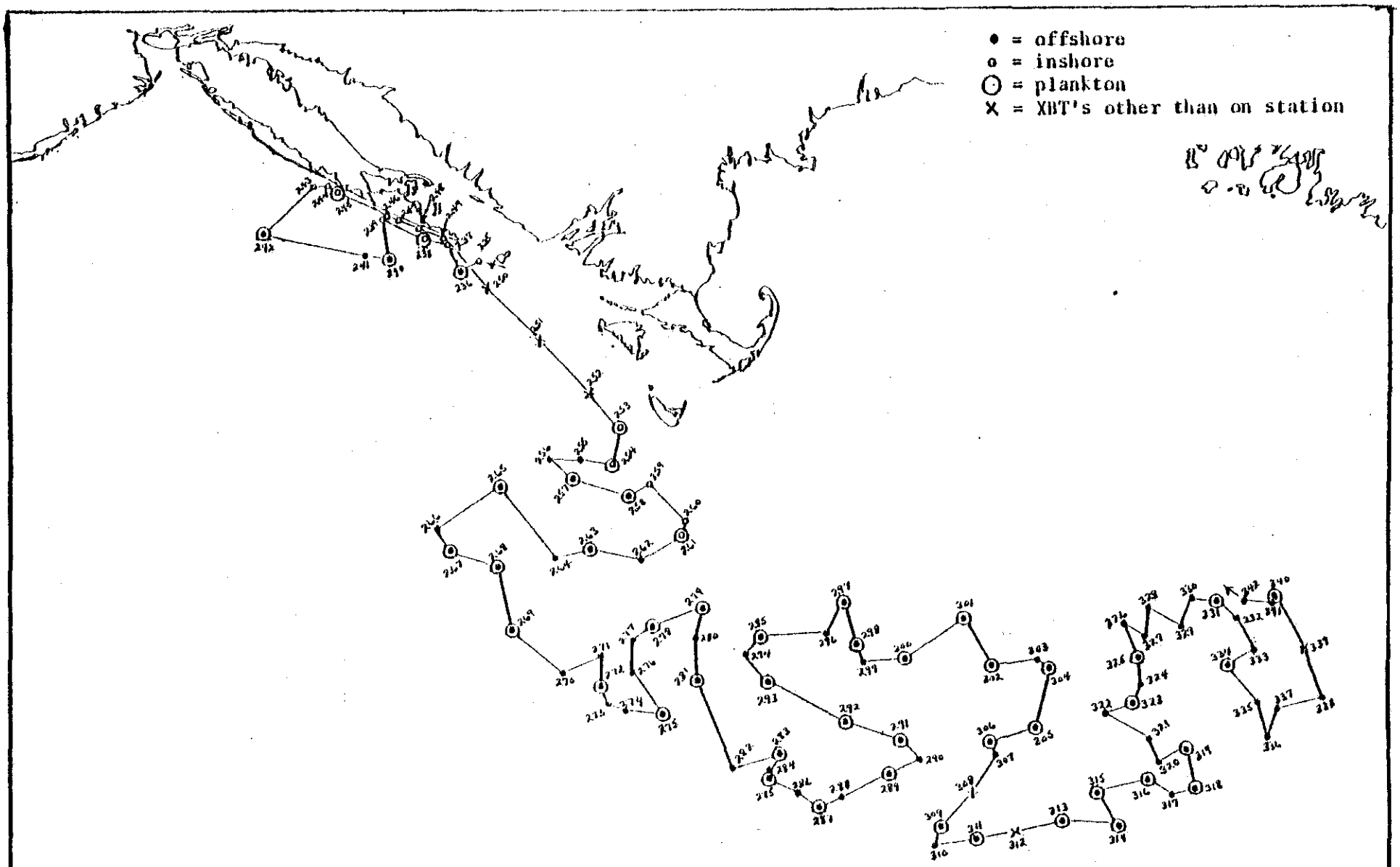
Fairfield University, Fairfield, CT

John Trautman

## DATA COLLECTED

| | III PT | TOTAL | | III PT | TOTAL |
|---|---|---|---|---|---|
| .61 cm BONGO | | | SALINITY SAMPLES | | 114* |
| .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 | 108 | |
| CURRENT METERS | | | FISH SAMPLES | YES | |

*Surface only.




Station locations for DELAWARE II Cruise 82-02 (III) Spring Bottom Trawl Survey, during 12-23 April 1982.

VESSEL DELAWARE II | CRUISE 82-02

DATES 27 April - 8 May | PART IV

DAYS AT SEA 13 | STATIONS 99

## Cruise Objective

The objectives of the cruise were to: (1) determine the spring distribution and relative abundance of fish species, (2) collect biological samples for studies of age and growth relationships, fecundity, maturity, and food habits, (3) make pathological observations, (4) collect hydrographic and meteorological samples and data, and (5) collect ichthyoplankton and zooplankton.

## Scientific Personnel

### National Marine Fisheries Service, NEFC, Woods Hole, MA

Charles Byrne, Chief Scientist
Donald Flescher
Ralph Mayo
Ray Bowman
John Nicolas
Sherry Sass
Gary Shepherd

### National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Myron Silverman
Donald McMillian

### Tufts University, Boston, MA

Ann Charles

## DATA COLLECTED

| | IV PT | TOTAL |
|---|---|---|
| .61 cm BONGO | YES | |
| .20 cm BONGO | | |
| .61 cm NEUSTON | | |
| .20 cm NEUSTON | | |
| HAEDRICH | | |
| XBT | | |
| BOTTLE CAST | | |
| CTD CAST | | |
| CURRENT METERS | | |

| | IV PT | TOTAL |
|---|---|---|
| SALINITY SAMPLES* | 99 | 99 |
| OXYGEN SAMPLES | | |
| NUTRIENT SAMPLES | | |
| CHLOROPHYLL SAMPLES | | |
| PRIMARY PRODUCTIVITY | | |
| DROGUES | | |
| SECCHI DISC | | |
| TRAWLS | 150 | 150 |
| FISH SAMPLES | YES | |
| PLANKTON | YES | |

*Surface only.

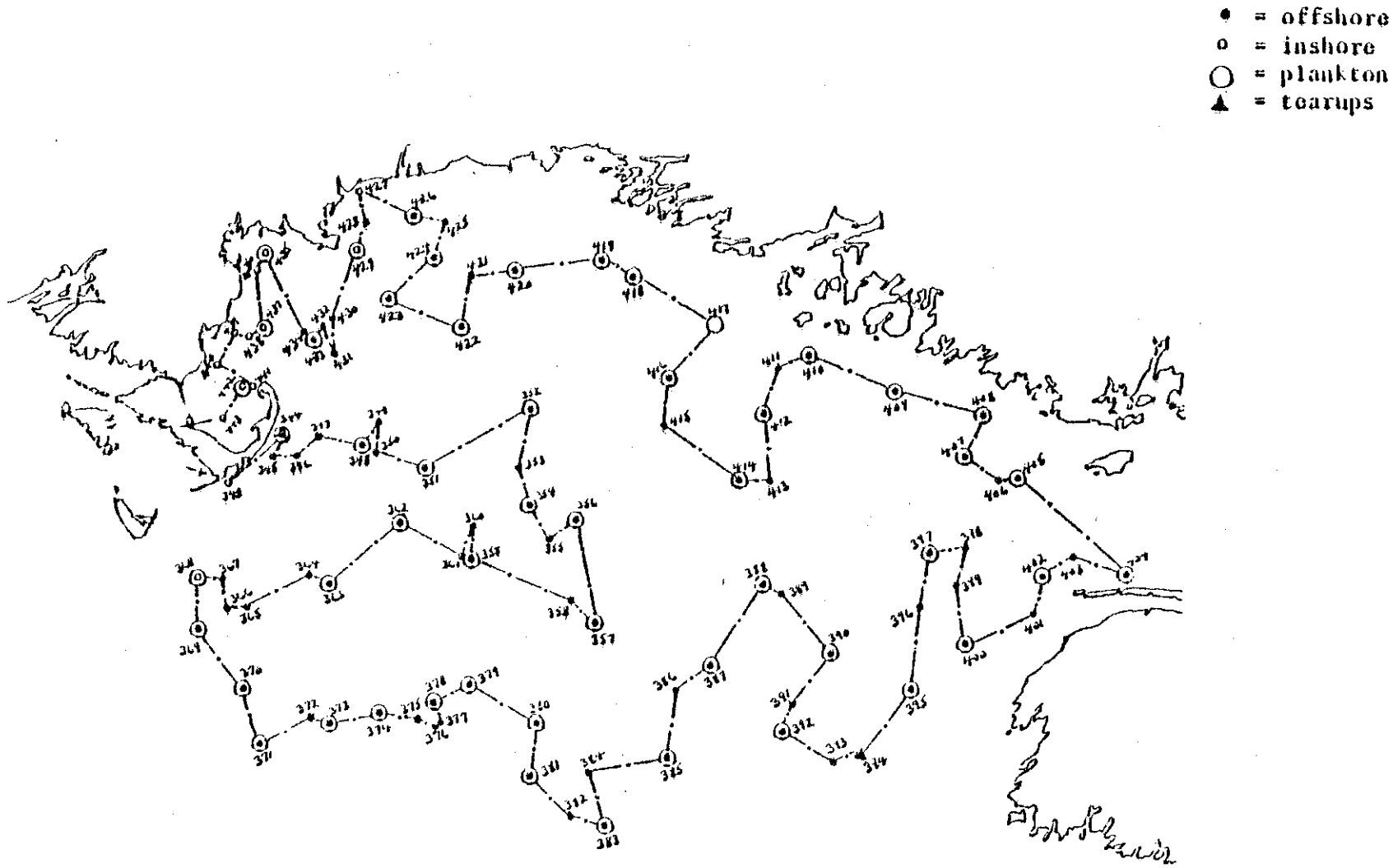



Figure 1. Station locations and cruise track for R/V DELAWARE II Cruise 82-02 (IV) Spring Bottom Trawl Survey, during 27 April-8 May 1982.

VESSEL Delaware II | CRUISE 82-03

DATES May 17-28; June 1-11 | PART I, II

DAYS AT SEA 12; 11 | STATIONS 65; 37

## CRUISE OBJECTIVE

This cruise is one of a series of MARMAP I 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. Marine birds were collected for food habits analysis and morphological and physiological studies. In addition, a hydrographic transect was run along a northeast to southwest axis in the northeast peak (Figure 1) to supplement existing data on water circulation.

## SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFC, Sandy Hook, NJ:

John Sibunka, Chief Scientist Parts I, II
John Parrotta, Parts I, II
Cynthia Muchant, Parts I, II
Thomas Finneran, Part I
David Burdick, Part I
James Nickels, Part II
Kathleen Workman, Part II

National Marine Fisheries Service, NEFC, Woods Hole, MA:

Catherine Jewell, Parts I, II
Robert Halpin, Parts I, II
Thomas Laughton, Part I
Dana Densmore, Part I
Daniel Patanjo, Part I

Darien High School, Darien, CT:

Patricia Richter, Part II

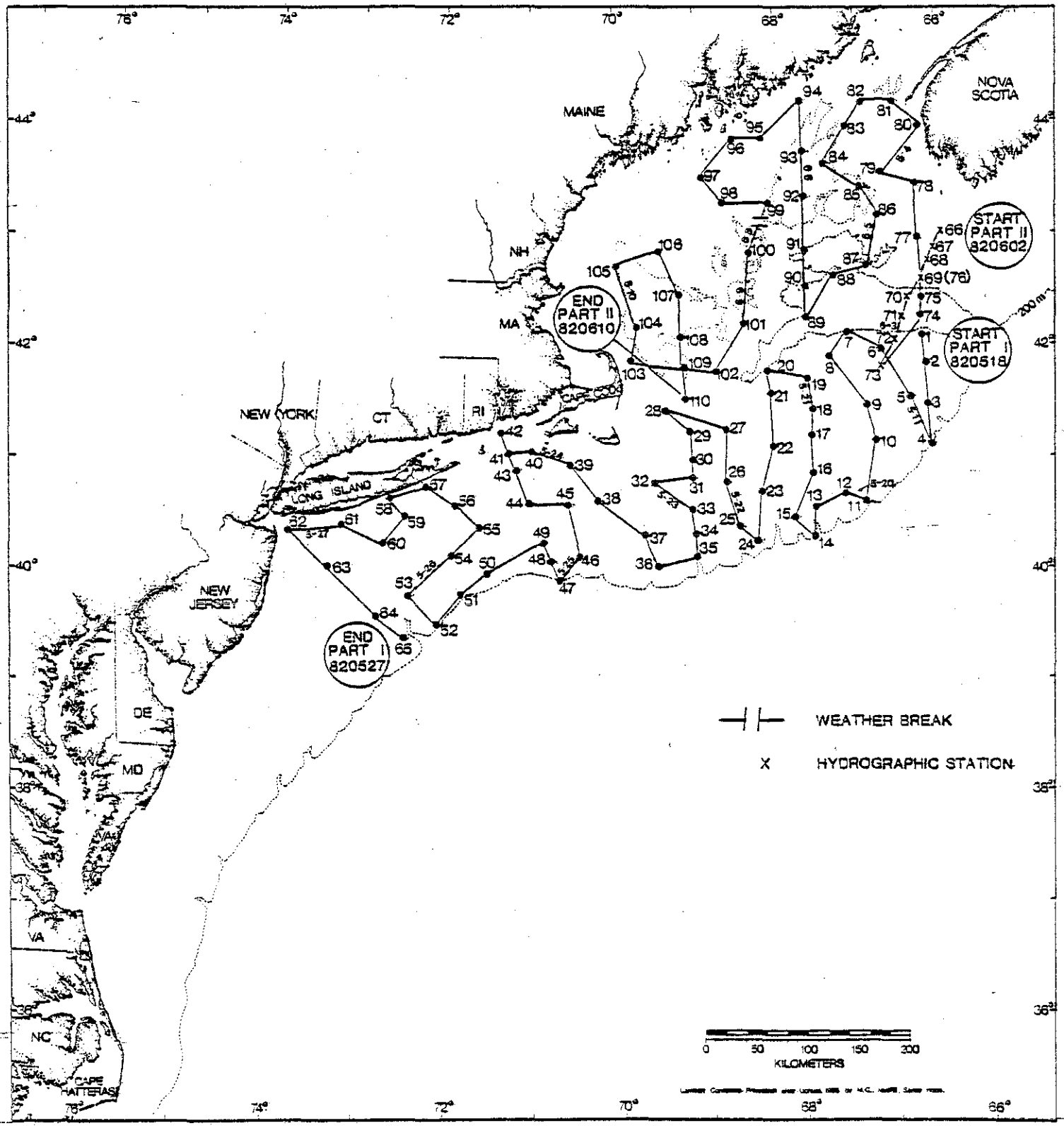
Manomet Bird Observatory, Manomet, MA:

Kevin Powers, Part I (departed vessel 25 June)
Edward Backus, Part II

## DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 m BONGO | 65 | 37 | 102 |
| .20 m BONGO | 35 | 19 | 54 |
| .61 m NEUSTON | | | |
| .5 m NEUSTON | 65 | 37 | 102 |
| HAEDRICH | 21 | 9 | 30 |
| XBT | 4 | 13 | 17 |
| BOTTLE CAST | 66 | 45 | 111 |
| CTD CAST | | | |
| CURRENT METERS | | | |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | 684 | 551 | 1235 |
| OXYGEN SAMPLES | 287 | 284 | 571 |
| NUTRIENT SAMPLES | 232 | 128 | 360 |
| CHLOROPHYLL SAMPLES | 627 | 477 | 1104 |
| PRIMARY PRODUCTIVITY | 17 | 11 | 28 |
| DROGUES | | | |
| SECCHI DISC | 35 | 24 | 59 |
| TRAWLS | | | |
| FISH SAMPLES | | | |
| $H_2{}^{18}O$ SAMPLES | 684 | 551 | 1235 |




Station locations numbered consecutively for R/V DELAWARE II Cruise 82-03 (I-II), MARMAP I: Ichthyoplankton-Zooplankton, Oceanographic and Primary Productivity Survey, during 17 May-11 June 1982.

VESSEL DELAWARE II | CRUISE 82-04

DATES June 20-July 13, 1982 | PARTS I, II, III

DAYS AT SEA | STATIONS

CRUISE OBJECTIVE

The cruise will be divided into three parts: Part I will be done on the Georgia/Florida scallop grounds and Parts II and III will be conducted in the deep reef areas of Florida, Georgia, South Carolina, and North Carolina.

Part I: A six- or eight-foot scallop dredge will be deployed from the stern of the vessel and retrieved in a similar manner. Sample depths will range from 15 to 40 fathoms along preselected transects and at preselected specific sampling sites. Biological, meteorological, and environmental data will be obtained at each sample site including catch data and a hydrocast.

Parts II and III. On bottom and off bottom longlines will be joined and fished in depths at 50 to 250 fathoms. Fishing depth and area will be somewhat dependent on the location of the Gulf stream axis. Acoustic transects will be run prior to fishing in order to identify "good" fishing areas. Acoustic transects will be run in preselected blocks and "good" fish signs noted. The Loran plotter will plot the entire acoustic run and potential fishing sites. The fishing sites can then be returned to for deployment of sampling gear. Hydrographic data will be obtained from preselected sites which may require vessel stoppage for the hydrocast.

Personnel List (Scientific);

Part I: 15-27 June 1982.

| Name | Title | Organization |
|---|---|---|
| E. J. Gutherz | Chief Scientist | NMFS, SEFC, Pascagoula, MS |
| Anthony Reisinger | Marine Biologist | University of Georgia Sea Grant, Brunswick, GA |
| Joaqin Rivers | Marine Biologist | University of Georgia Sea Grant, Brunswick, GA |
| William Anderson | Marine Biologist | South Carolina Marine Resources, Charleston, SC |
| Cary Burns | Marine Biologist | Florida Department of Natural Resources, St. Petersburg, FL |
| William Lyons | Marine Biologist | Florida Department of Natural Resources, St. Petersburg, FL |
| Anthony Gruber | Marine Biologist | Hampton Institute, Hampton, VA |
| Norman Blake | Research Associate | University of Southern Florida, Tampa, FL |
| Bruce Barber | Student Volunteer | University of Southern Florida, Tampa, FL |

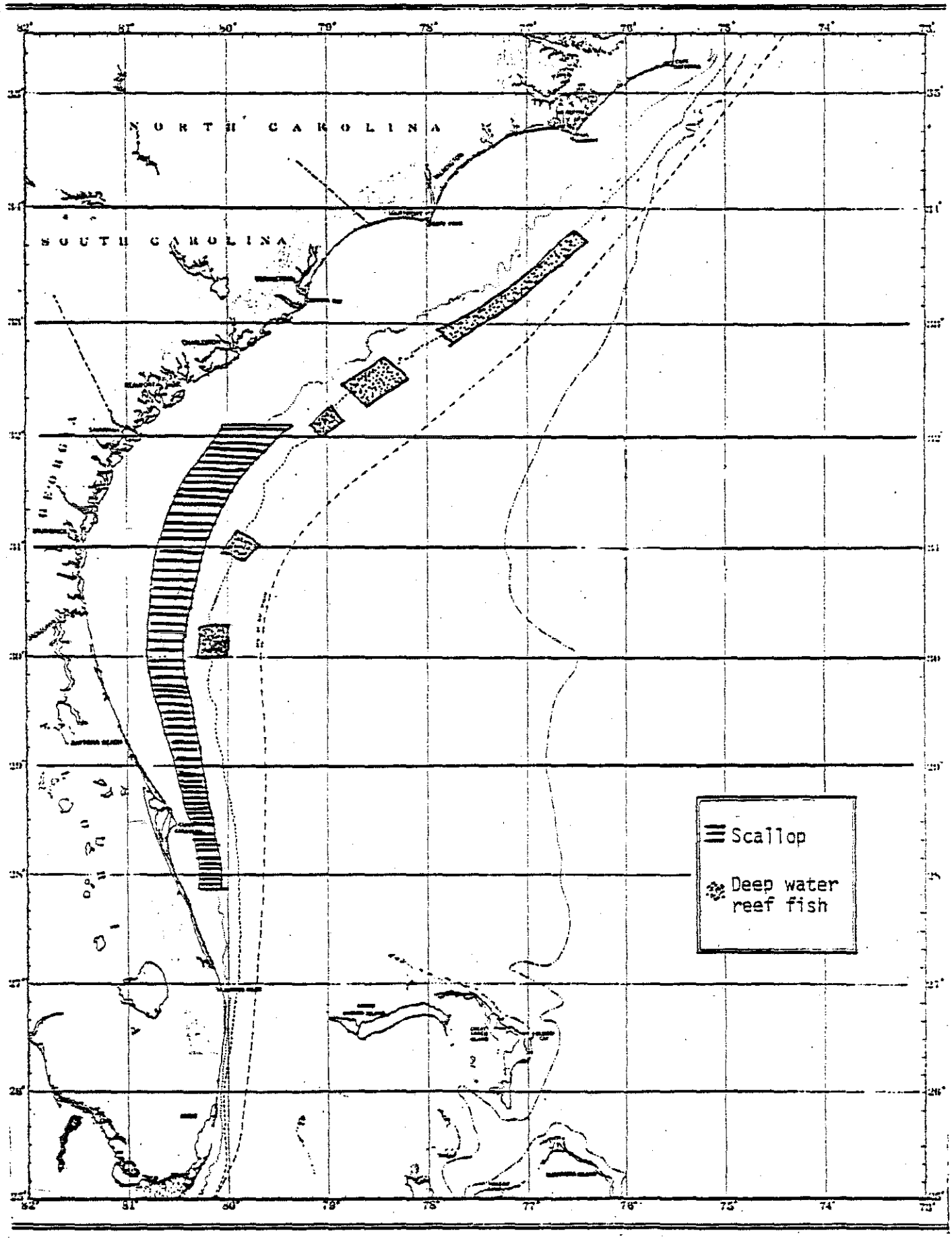
Part II: 28 June-5 July 1982.

| Name | Title | Organization |
|---|---|---|
| E. J. Gutherz | Chief Scientist | NMFS, SEFC, Pascagoula, MS |
| James Quinn | Marine Biologist | Florida Department of Natural Resources, St. Petersburg, FL |
| Lewis Bullock | Marine Biologist | Florida Department of Natural Resources, St. Petersburg, FL |
| Robert Lowe | Marine Biologist | South Carolina Marine Resources, Charleston, SC |
| Douglas Oakley | Marine Biologist | South Carolina Marine Resources, Charleston, SC |
| Christopher Moore | Marine Biologist | University of Florida, Gainesville, FL |
| Anthony Gruber | Marine Biologist | Hampton Institute, Hampton, VA |
| Joseph Hightower | Student Volunteer | University of Georgia Sea Grant, Athens, GA |
| Michael Harris | Student Volunteer | University of Georgia Sea Grant, Athens, GA |
| Barry Moser | Student Volunteer | University of Georgia Sea Grant, Athens, GA |

Part III: 6-13 July 1982.

| Name | Title | Organization |
|---|---|---|
| E. J. Gutherz | Chief Scientist | NMFS, SEFC, Pascagoula, MS |
| John Merriner | Marine Biologist | NMFS, SEFC, Beaufort, NC |
| Gary Grossman | Research Associate | University of Georgia Sea Grant, Athens, GA |
| Robert Lowe | Marine Biologist | South Carolina Marine Resources, Charleston, SC |
| Glenn Ulrich | Marine Biologist | South Carolina Marine Resources, Charleston, SC |
| Douglas Oakley | Marine Biologist | South Carolina Marine Resources, Charleston, SC |
| Sherry Eperly Ross | Marine Biologist | North Carolina Department of Natural Resources, Morehead City, NC |
| William Link | Marine Biologist | University of North Carolina Institute of Marine Science, Morehead City, NC |
| Anthony Gruber | Marine Biologist | Hampton Institute, Hampton, VA |
| Gordon Rogers | Student Volunteer | University of Georgia Sea Grant, Athens, GA |
| Stuart Katz | Student Volunteer | University of Georgia Sea Grant, Athens, GA |

*This cruise data is Southeast Fisheries Center.




General area of study for DELAWARE II Cruise 82-04 (I-III) Sea Scallop and Deep Water Reef Fish Survey (SEAMAP), during 15 June-16 July 1982.

VESSEL DELAWARE II | CRUISE 82-05

DATES 22 JULY | PART I

DAYS AT SEA 1 | STATIONS 2 trial

CRUISE OBJECTIVE

A GEAR SHAKEDOWN CRUISE.

SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFC, Woods Hole, MA

Charles Byrne, Chief Scientist
Andrew Thoms
Malcolm Silverman
Mark Matulaitis
David Pyoas
Robert Halpin

National Marine Fisheries Service, NEFC, Cape May, NJ

Walter Makowski

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Michael Fahay (25 July-4 August)
Donald McMillan (04 August-12 August)

Fairfield University, Fairfield, CT

John Trautman

Hampton Institute, Hampton, VA

John McRoy

DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | | | |
| BOTTLE CAST | | | |
| CTD CAST | | | |
| CURRENT METERS | | | |

TESTED GEAR

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | |
| OXYGEN SAMPLES | | | |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | | |
| FISH SAMPLES | | | |

VESSEL DELAWARE II | CRUISE 82-05

DATES 26 July to 12 August | PART II

DAYS AT SEA 18 | STATIONS 273

## CRUISE OBJECTIVE

The objectives of the cruise were to: (1) investigate the distribution and relative abundance of the surf clam (*Spisula solidissima*), ocean quahog (*Arctica islandica*), and other mollusks; (2) collect biological samples and data relative to assessment needs; (3) make collections for interested scientists from other institutions and NMFS laboratories; and (4) monitor meteorological and hydrographical conditions during the survey.

## SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFC, Woods Hole, MA

Charles Byrne, Chief Scientist
Andrew Thoms
Malcolm Silverman
Mark Matulaitis
David Pyoas
Robert Halpin

National Marine Fisheries Service, NEFC, Cape May, NJ

Walter Makowski

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Michael Fahay (25 July-4 August)
Donald McMillan (04 August-12 August)

Fairfield University, Fairfield, CT

John Trautman

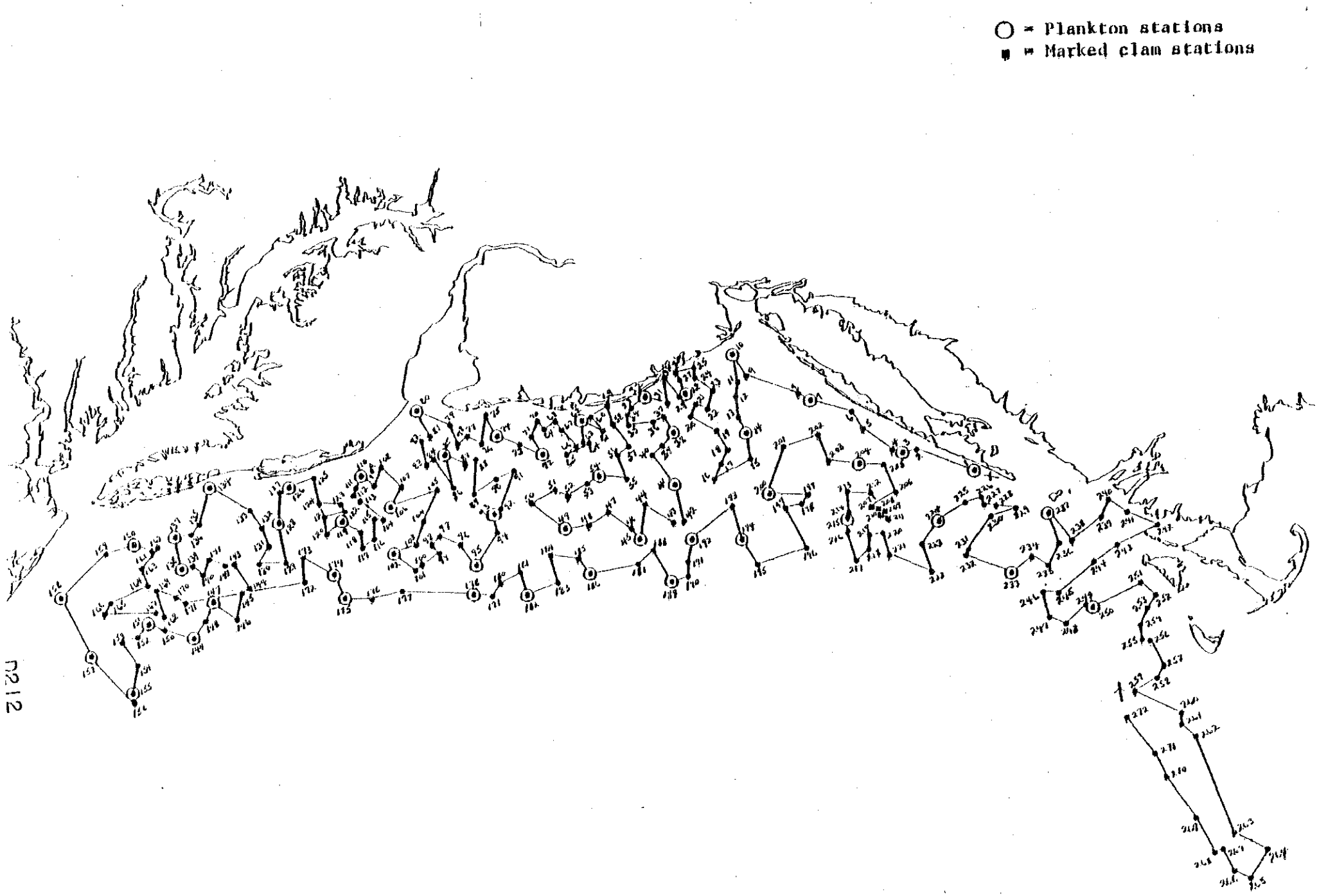
Hampston Institute, Hampton, VA

John McRoy

## DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | | | |
| BOTTLE CAST | | | 56 |
| CTD CAST | | | |
| CURRENT METERS | | | |
| BONGO TOW | | | 48 |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | 56 |
| OXYGEN SAMPLES | | | |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCI DISC | | | |
| TRAWLS | | | |
| FISH SAMPLES | | | |

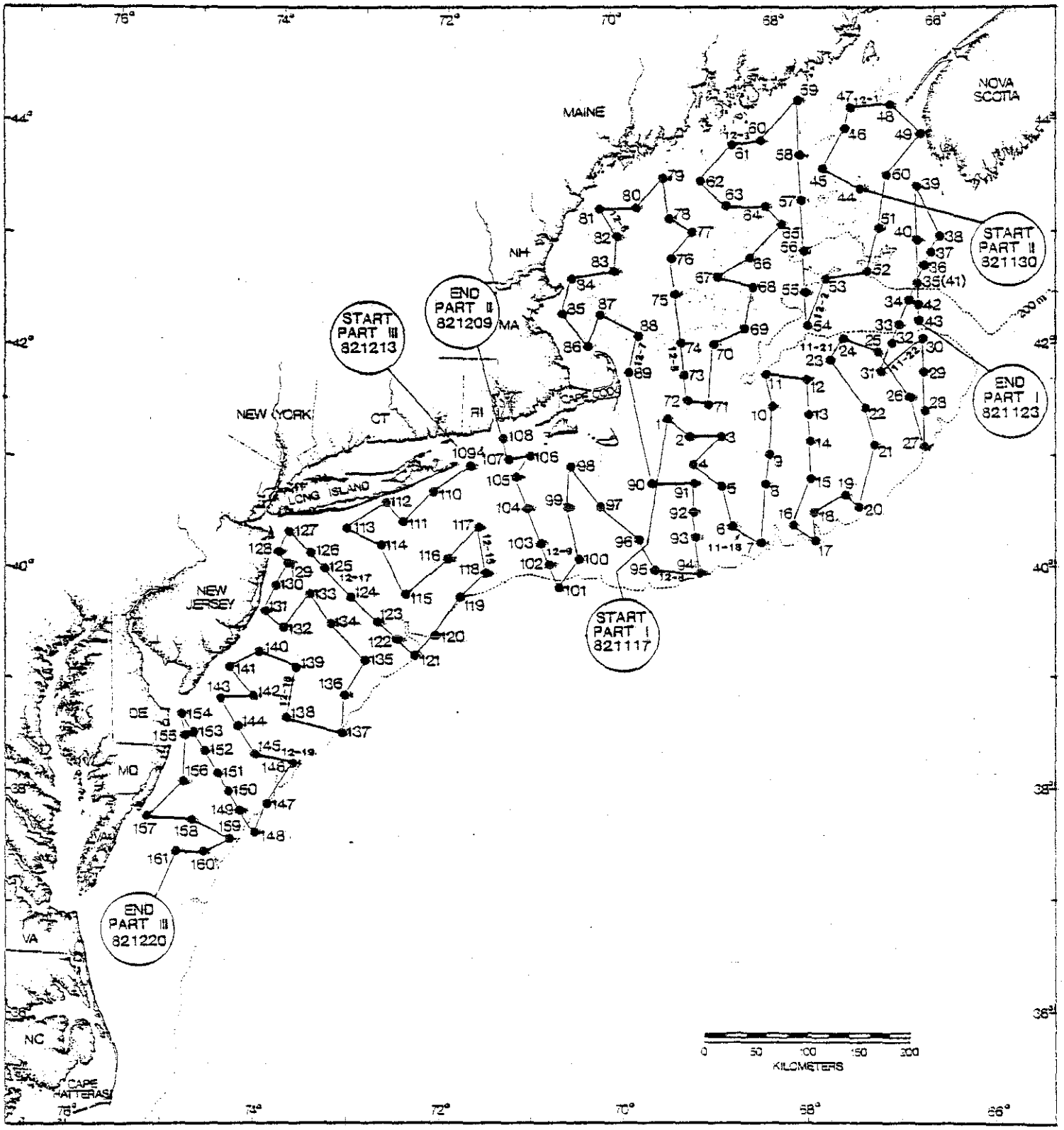



Station locations and cruise track for R/V DELAWARE II Cruise 82-05 (I-II) Shellfish Resource Survey, during 22 July-12 August 1982.

## DATA COLLECTED

| | Part I | Part II | Part III | Total |
|---|---|---|---|---|
| Sea days | 10 | 12 | 10 | 32 |
| Plankton/hydrograhic stations | 35 | 65 | 53 | 153 |
| Hydrographic stations | 8 | 0 | 0 | 8 |
| Primary productivity stations | 8 | 15 | 13 | 36 |
| 0.61-meter bongo tows (.505/ .333-millimeter) | 35 | 65 | 52 | 152 |
| 0.20-meter bongo tows (.253/ .165-millimeter) | 8 | 12 | 8 | 28 |
| 0.20-meter bongo tows (.165/ .053-millimeter) | 8 | 15 | 13 | 36 |
| 0.5 x 1-meter neuston tows | 35 | 65 | 52 | 152 |
| Haedrich neuston tows | 11 | 19 | 15 | 45 |
| Weather observations | 43 | 65 | 53 | 161 |
| Hydrocasts | *44 | 65 | 53 | 162 |
| Number of Niskin bottles | 481 | 782 | 502 | 1765 |
| Bottles with reversing thermometers | 459 | 745 | 456 | 1660 |
| Salinity samples | 481 | 663 | 501 | 1645 |
| $H_2{}^{18}O$ samples | 481 | 663 | 501 | 1645 |
| Chlorophyll samples | 434 | 684 | 444 | 1562 |
| Dissolved oxygen samples | 284 | 295 | 210 | 789 |
| Phytoplankton samples (M-C) | 36 | 48 | 54 | 138 |
| Samples for *Ceratium tripos* | 19 | 48 | 30 | 97 |
| Surface temperature observations | 43 | 65 | 53 | 161 |
| Secchi disc observations | 12 | 21 | 16 | 49 |
| XBT drops | 10 | 27 | 10 | 47 |
| Marine mammal sightings | 54 | 2 | 1 | 57 |
| Number of bird species sighted | 13 | 20 | 14 | 21 |

*Two casts on one station.




Station locations numbered consecutively for R/V DELAWARE II Cruise 82-09 (I-III). MARMAP I: Ichthyoplankton-Zooplankton, Oceanographic and Primary Productivity Survey, during 15 November-22 December 1982.

VESSEL DELAWARE II | CRUISE 82-05

DATES Aug. 17 - Sept. 3 | PART III

DAYS AT SEA 13 | STATIONS 116

## CRUISE OBJECTIVE

The objectives of the cruise were to: (1) investigate the distribution and relative abundance of currently unexploited mollusks from the offshore areas of Georges Bank and the Scotian Shelf; (2) collect biological samples and data relative to assessment needs: (3) make collections for interested scientists from other institutions and NMFS laboratories; (4) monitor meteorological and hydrographical conditions; and (5) initiate age and growth studies of populations of offshore ocean quahog by marking of approximately 20,000 specimens.

## SCIENTIFIC PERSONNEL

### National Marine Fisheries Service, NEFC, Woods Hole, MA

Andrew Thoms, Co-Chief Scientist
*Thomas Azarovitz
Roger Clifford
*Steven Murawski
Mark Matulaitis

*Boarded the vessel in Halifax, Nova Scotia, Canada

### Fisheries & Oceans Canada, Halifax, Nova Scotia, Canada

Terrance Rowell, Co-Chief Scientist
David Chaisson
Thomas McLean
Jo Ann Bryon
Allison Edwards
Thomas Martin

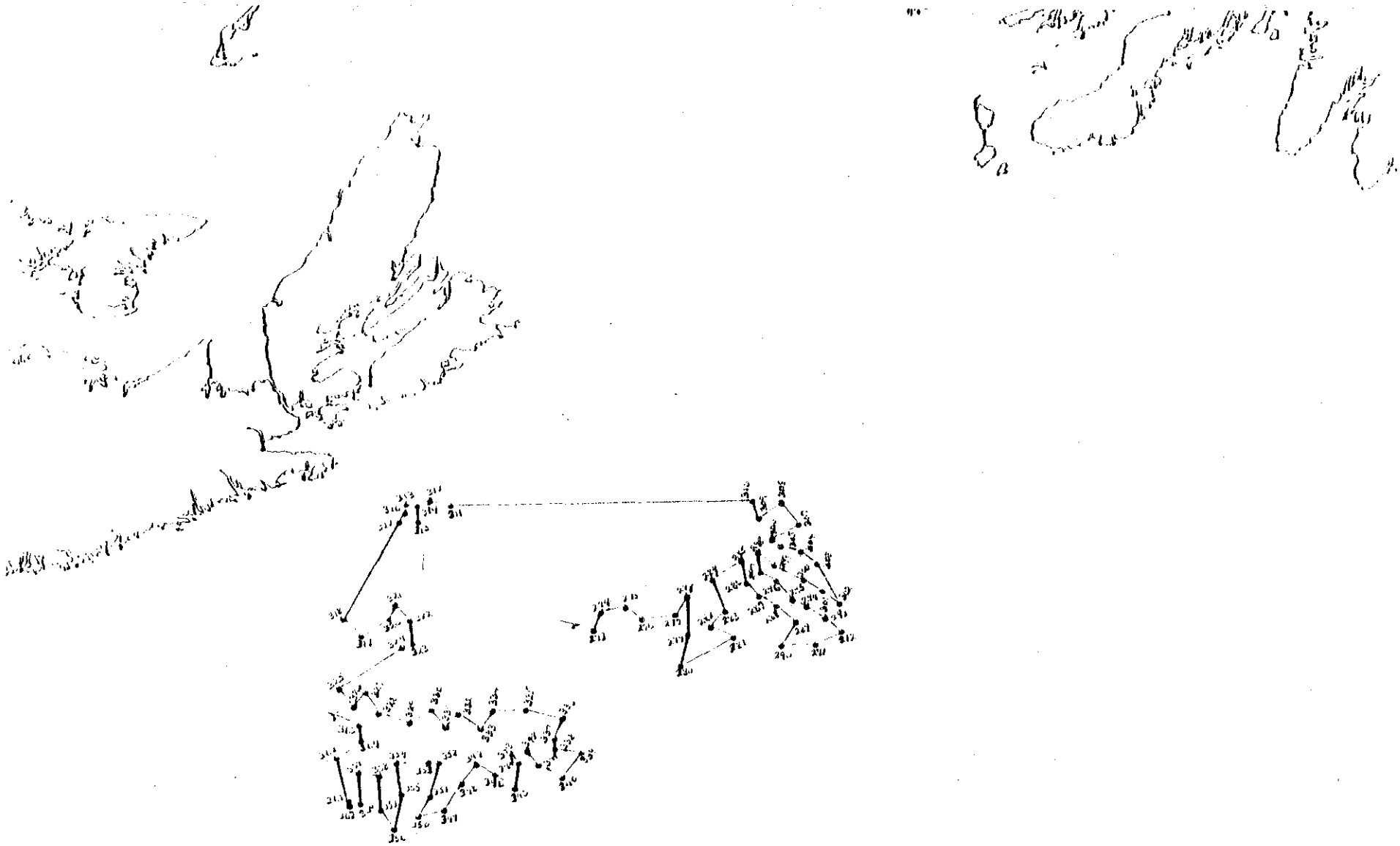
### Fairfield University, Fairfield, CT

John Trautman

## DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | | | 13 |
| BOTTLE CAST | | | |
| CTD CAST | | | |
| CURRENT METERS | | | |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | 13 |
| OXYGEN SAMPLES | | | |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | | |
| FISH SAMPLES | | | |
| QUAHOG DREDGE | | | 116 |



Station locations and cruise track for R/V DELAWARE II Cruise 82-05 (III) Shellfish Resource Assessment Survey, during 17 August-3 September 1982.

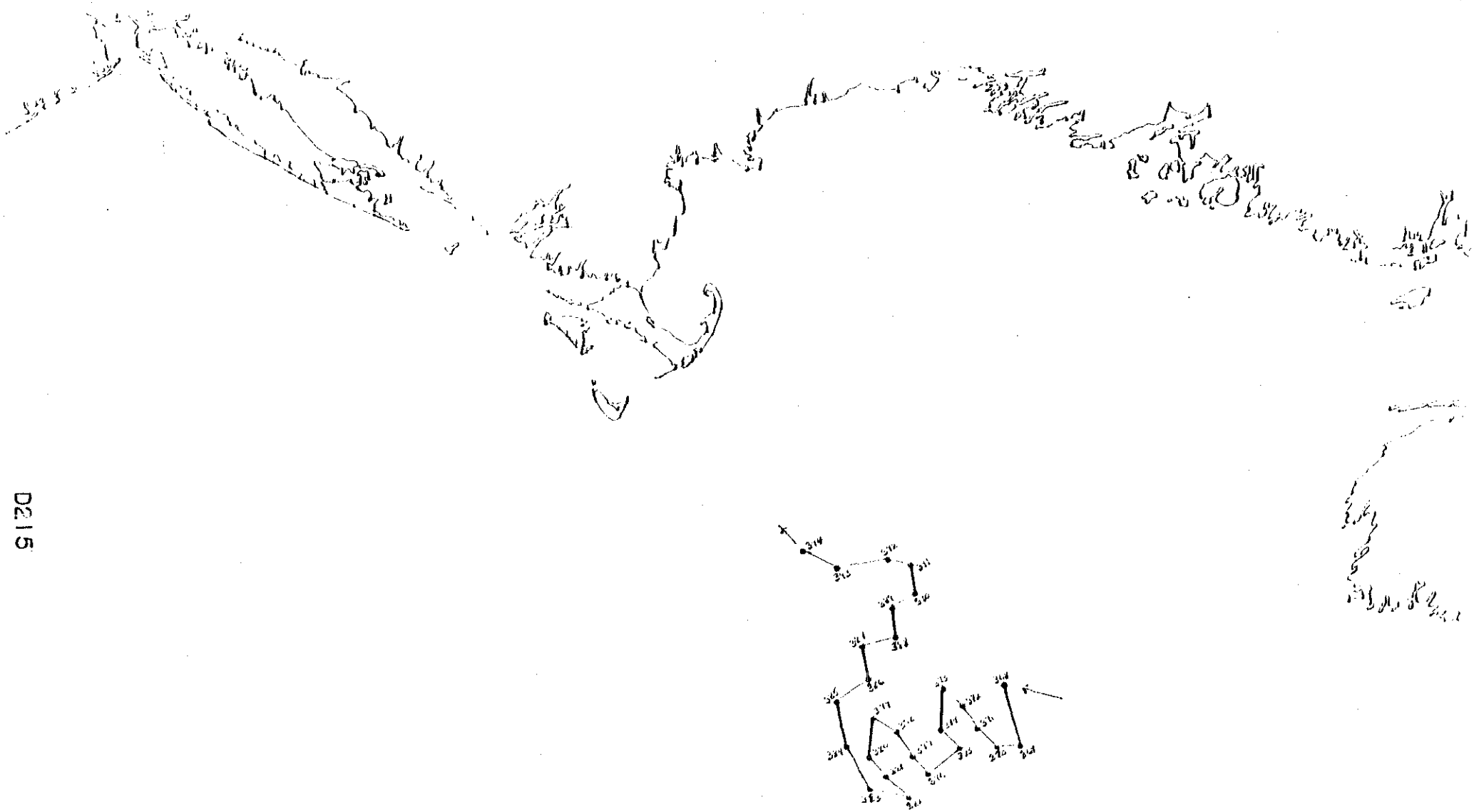


Figure 1 (continued). Station locations and cruise track for R/V DELAWARE II Cruise 82-05 (III) Shellfish Resource Assessment Survey, during 17 August-3 September 1982.

VESSEL DELAWARE II | CRUISE 82-06

DATES SEPTEMBER 8-17 | PART I

DAYS AT SEA 9 | STATIONS 191

CRUISE OBJECTIVE

The objectives of the cruise were to: (1) conduct annual monitoring of contaminants in sediments and contaminant effects on benthic macrofauna at 44 standard monitoring sites in the New York Bight; (2) sample sediments and macrofauna intensively in the dumpsite area, to dfine better the influences of the various waste sources and to delimit areas of altered fauna; (3) compare seabed oxygen consumption (SOC) at standard MESA stations in the Bight apex to rates measured in 1974-75; (4) sample for sediments, macrofauna and SOC at three stations in Buzzards Bay, to search for gradients in polychlorinated biphenyls (PCB) concentrations and effects; (5) characterize sediments, sediment contaminants and macrofauna of Massachusetts Bay; and (6) sample sediments and macrofauna of the Ocean Pulse station in Narragansett Bay.

SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Robert Reid, Chief Scientist
David Radosh
Steven Fromm
Vincent Zdanowicz
William Phoel
Peter Kube
Steven Spina
Kevin Gashlin

National Marine Fisheries Service, NEFC, Milford, CT

John Graikoski

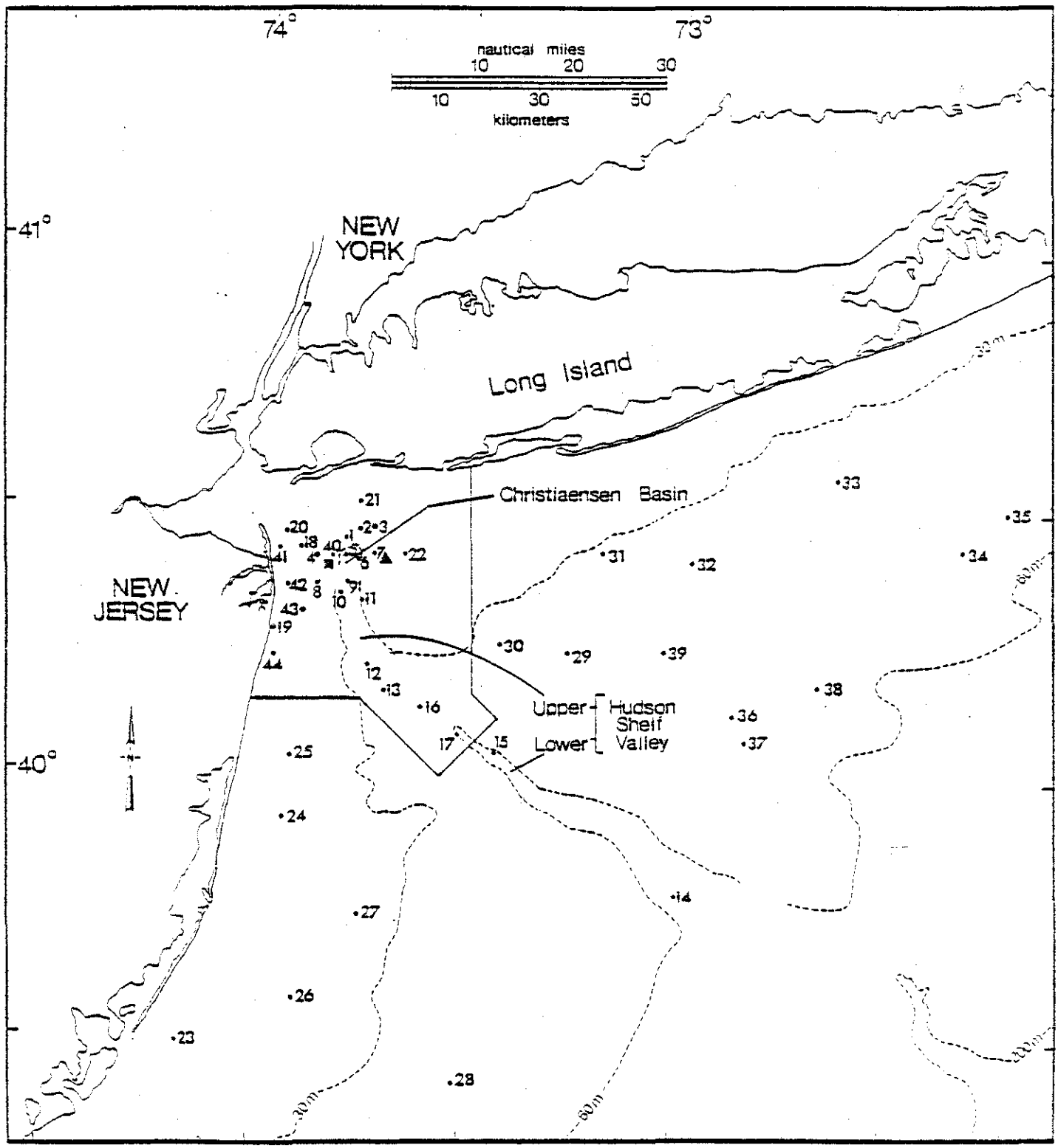
DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | | | |
| BOTTLE CAST | | | |
| CTD CAST | | | |
| CURRENT METERS | | | |

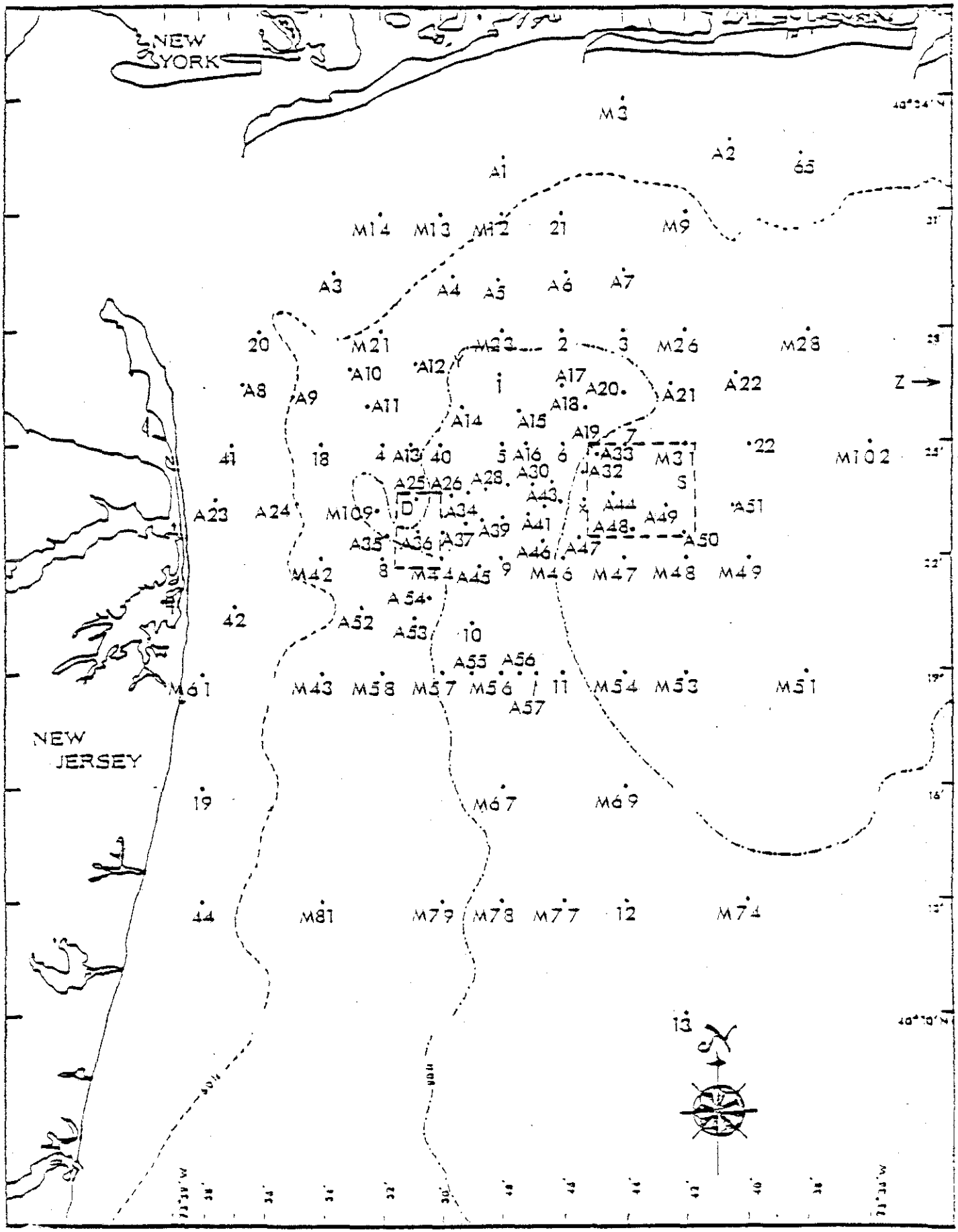
| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES[1] | | | 77 |
| OXYGEN SAMPLES[1] | | | 77 |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | | |
| FISH SAMPLES | | | |
| PATMATMAT MULT. CORER | | | ? |

*See also DELAWARE II 82-06 PART II

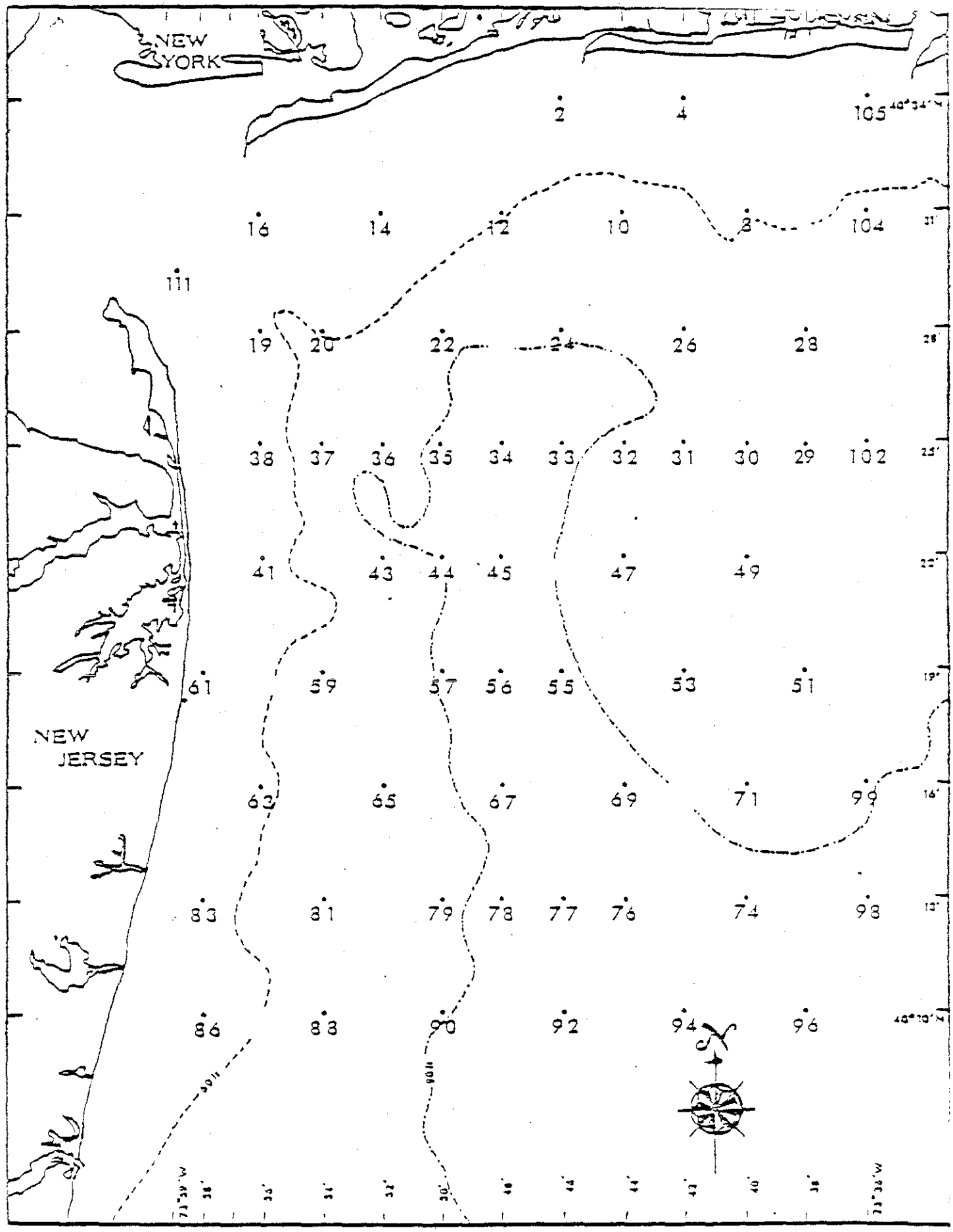
[1]Bottom only.




Standard benthic grab stations occupied in New York Bight on DELAWARE II Cruise 82-06 (I) Northeast Monitoring Program-Sediment Quality Monitoring Survey and Warm-Core Ring Study, during 8 to 17 September 1982.

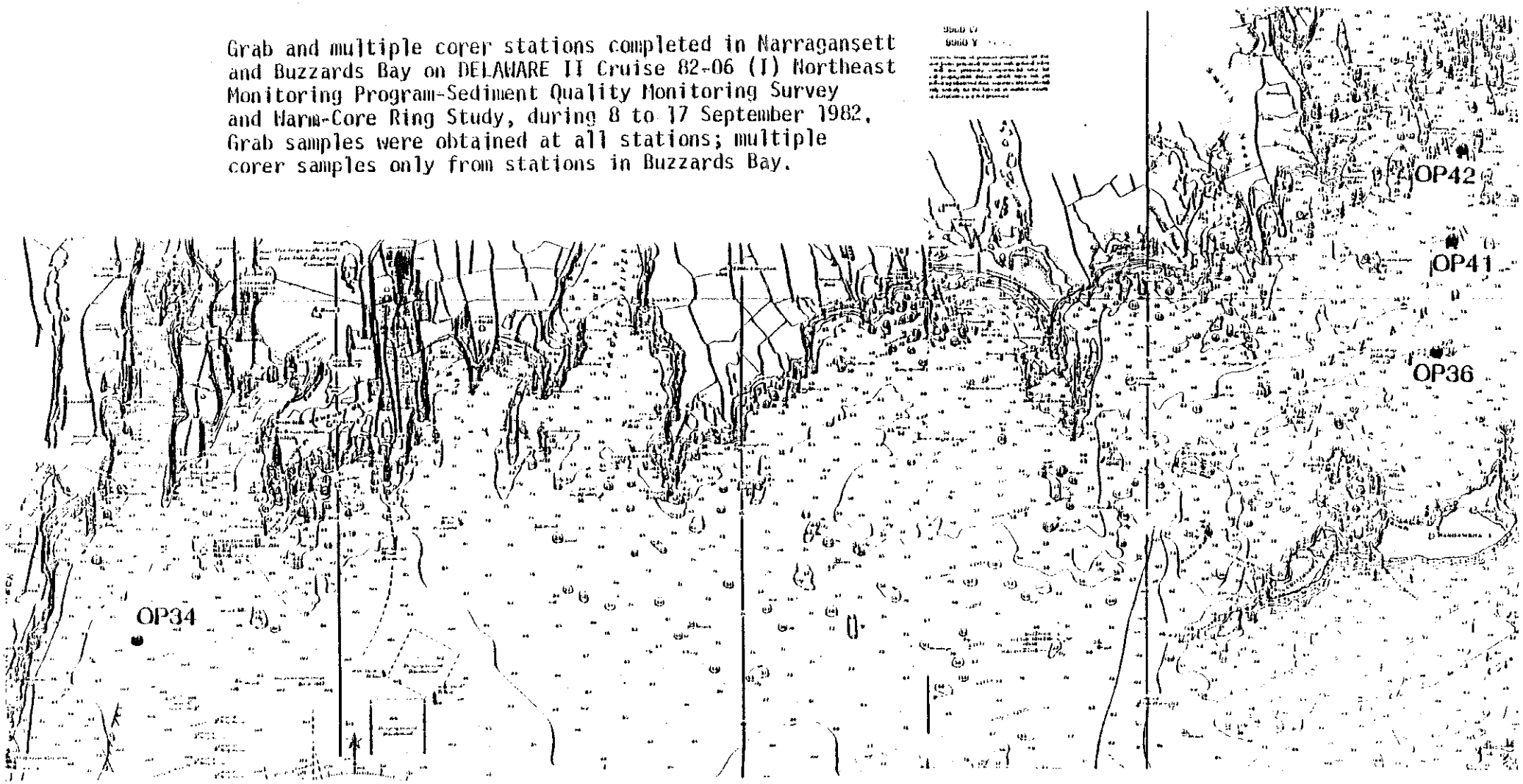


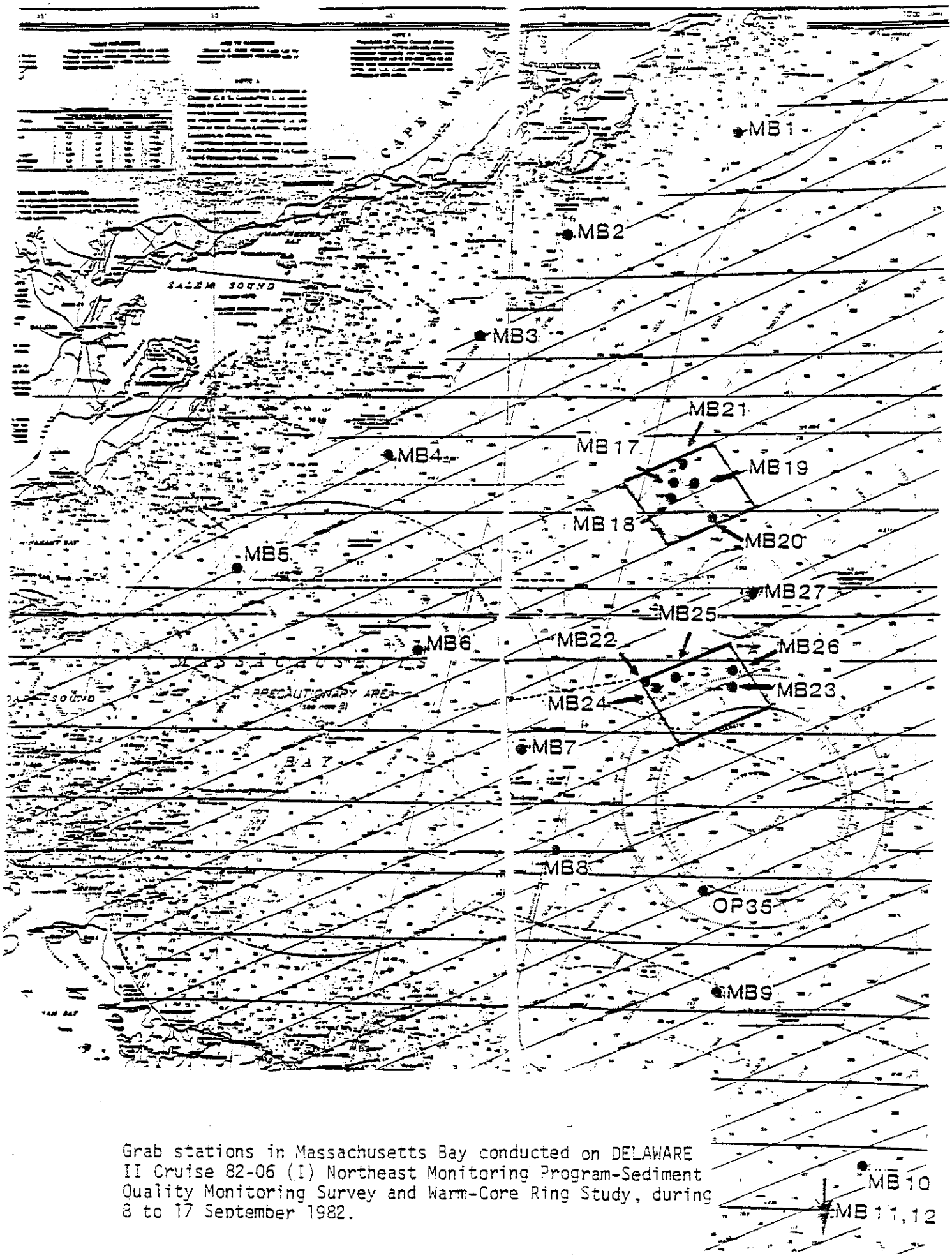

Additional grab stations occupied in vicinity of dredged material (D) and sewage sludge (S) dumpsites in New York Bight. "M" indicates standard MESA stations, "A" indicates other added stations, and X, Y and Z are EPA + secondary productions on DELAWARE II Cruise 82-06 (I) Northeast Monitoring Program-Sediment Quality Monitoring Survey and Warm-Core Ring Study, during 8 to 17 September 1982.




Seabed oxygen consumption stations in New York Bight. Station numbers are standard MESA designations on DELAWARE II Cruise 82-06 (I) Northeast Monitoring Program-Sediment Quality Monitoring Survey and Warm-Core Ring Study, during 8 to 17 September 1982.

Grab and multiple corer stations completed in Narragansett and Buzzards Bay on DELAWARE II Cruise 82-06 (I) Northeast Monitoring Program-Sediment Quality Monitoring Survey and Warm-Core Ring Study, during 8 to 17 September 1982. Grab samples were obtained at all stations; multiple corer samples only from stations in Buzzards Bay.






Grab stations in Massachusetts Bay conducted on DELAWARE II Cruise 82-06 (I) Northeast Monitoring Program-Sediment Quality Monitoring Survey and Warm-Core Ring Study, during 8 to 17 September 1982.

VESSEL DELAWARE II | CRUISE 82-06

DATES 22 to 28 SEPTEMBER | PART II

DAYS AT SEA 6 | STATIONS 38

## CRUISE OBJECTIVE

The primary cruise objective was to recover seven surface and two subsurface current meter moorings deployed during Cruise AL IV 82-09 whose positions are given in Table 1. A secondary objective was to take measurements across the shelf/slope front with the conductivity-temperature-depth (CTD) system and the opening and closing bongo nets. In addition, any entrainment of shelf water, either by warm core rings or any other phenomena, which happened to be occurring near the area of operations would also be investigated, if time permitted. Observations were also made on the distribution and abundance of marine birds and mammals along the cruise track.

## SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFC, Woods Hole, MA

Steven R. Ramp, Chief Scientist
David G. Mountain
Ronald J. Schlitz
Cabell Davis
Thomas Morris
Brisdell Hunte

National Marine Fisheries Service, NMFS, Narragansett, RI

Amy Friedlander

National Marine Fisheries Service, NEFC, Sandy Hook, NJ

Cynthia Muchant
Kathleen Ingham

Manomet Bird Observator, Manomet, MA

P. Michael Payne

## DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | 29 |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | | | 38 |
| BOTTLE CAST | | | 26 |
| CTD CAST | | | 29 |
| CURRENT METERS | | | 11 |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | 288 |
| OXYGEN SAMPLES | | | 288 |
| NUTRIENT SAMPLES | | | 288 |
| CHLOROPHYLL SAMPLES | | | 288 |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | | |
| FISH SAMPLES | | | |
| $O^{18}$ | | | 288 |

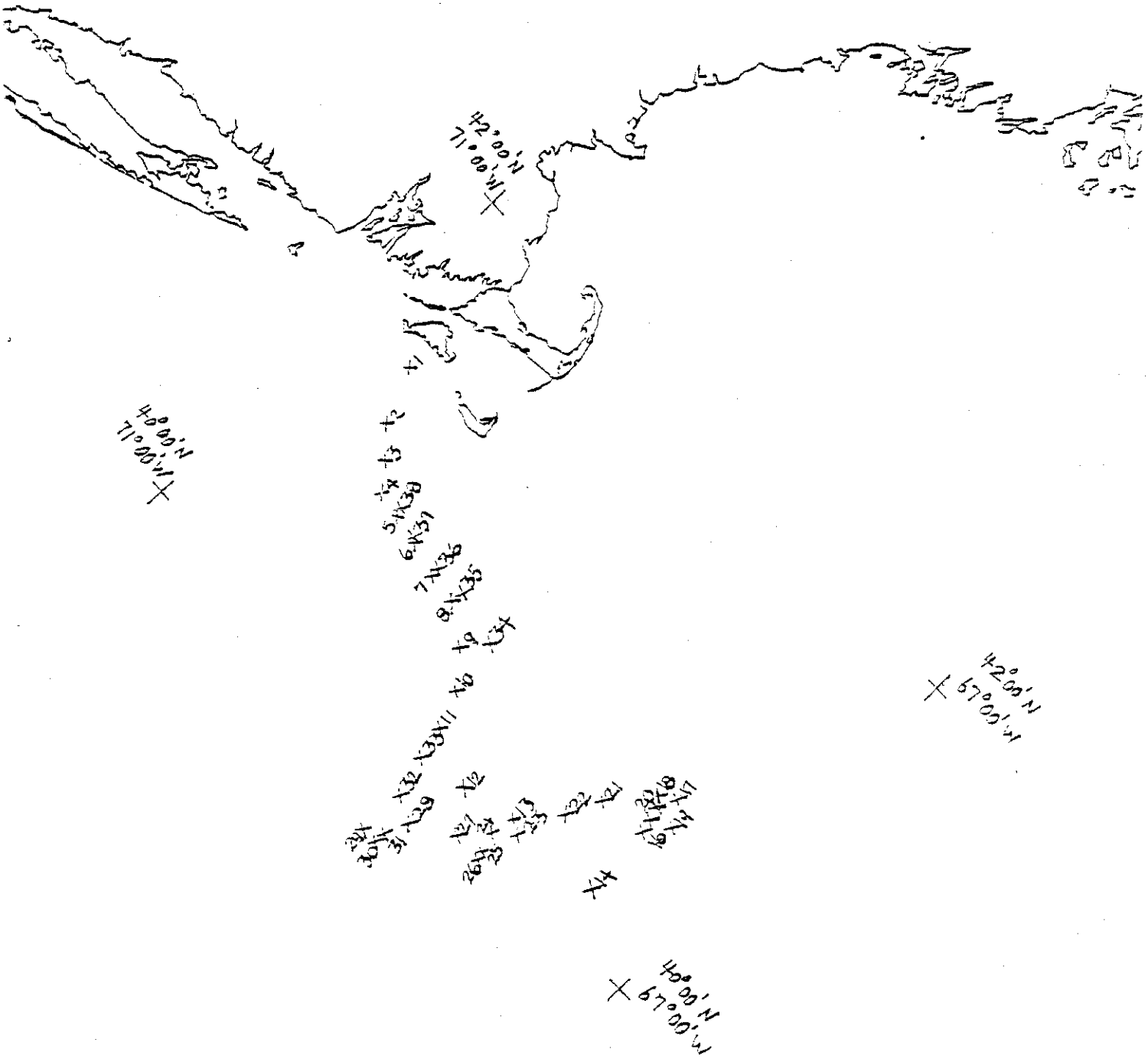
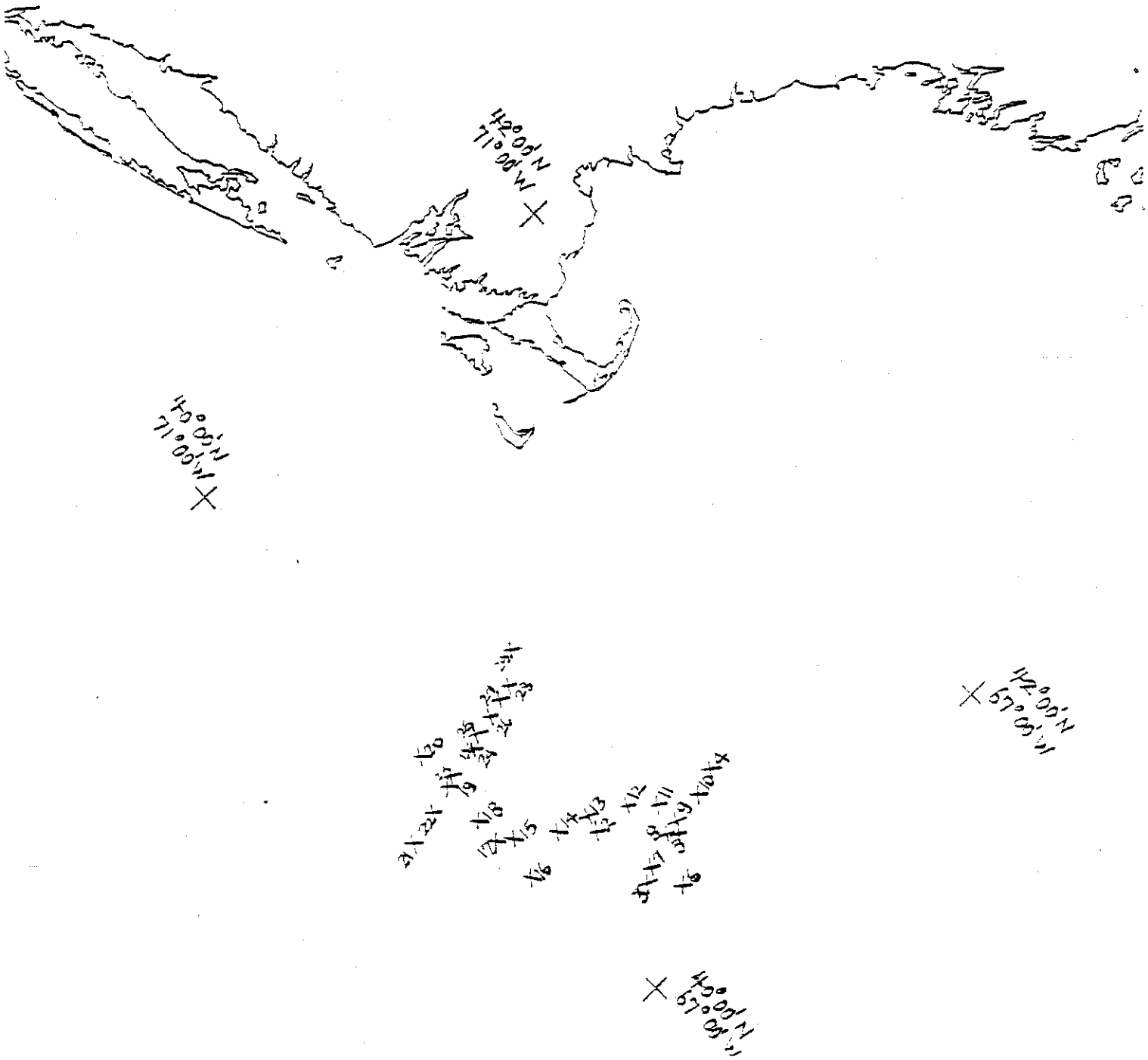



Figure 2. Positions of XBT and surface salinity stations occupied on DELAWARE II Cruise 82-06 (II), during 22-28 September 1982.




Positions of CTD and bongo stations occupied on DELAWARE II Cruise 82-06 (II), during 22-28 September 1982.

VESSEL DELAWARE II | CRUISE 82-07

DATES October 4-15, 1982 | PART I

DAYS AT SEA 11 | STATIONS 95

## CRUISE OBJECTIVE

The purposes of the cruise were to: (1) study the relative fishing power of the R/V DELAWARE II and R/V ALBATROSS IV, and (2) to collect data on food habits to verify the current protocol for sampling stomachs of fish.

## SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFC, Woods Hole, MA

Charles Byrne, Chief Scientist
Roger Clifford
John Nicolas
Brenda Fields
Bridget O'Brien

National Marine Fisheries Service, National Systematics, Washington, DC

Ruth Gibbons

Little Harbor Laboratory, Guilford, CT

Paul Yushak

Virginia Institute of Marine Science, Gloucester Point, VA

Michael Armstrong

Marine Biological Laboratory, Woods Hole, MA

Jayne Michaud

University of Rhode Island, Narragansett, RI

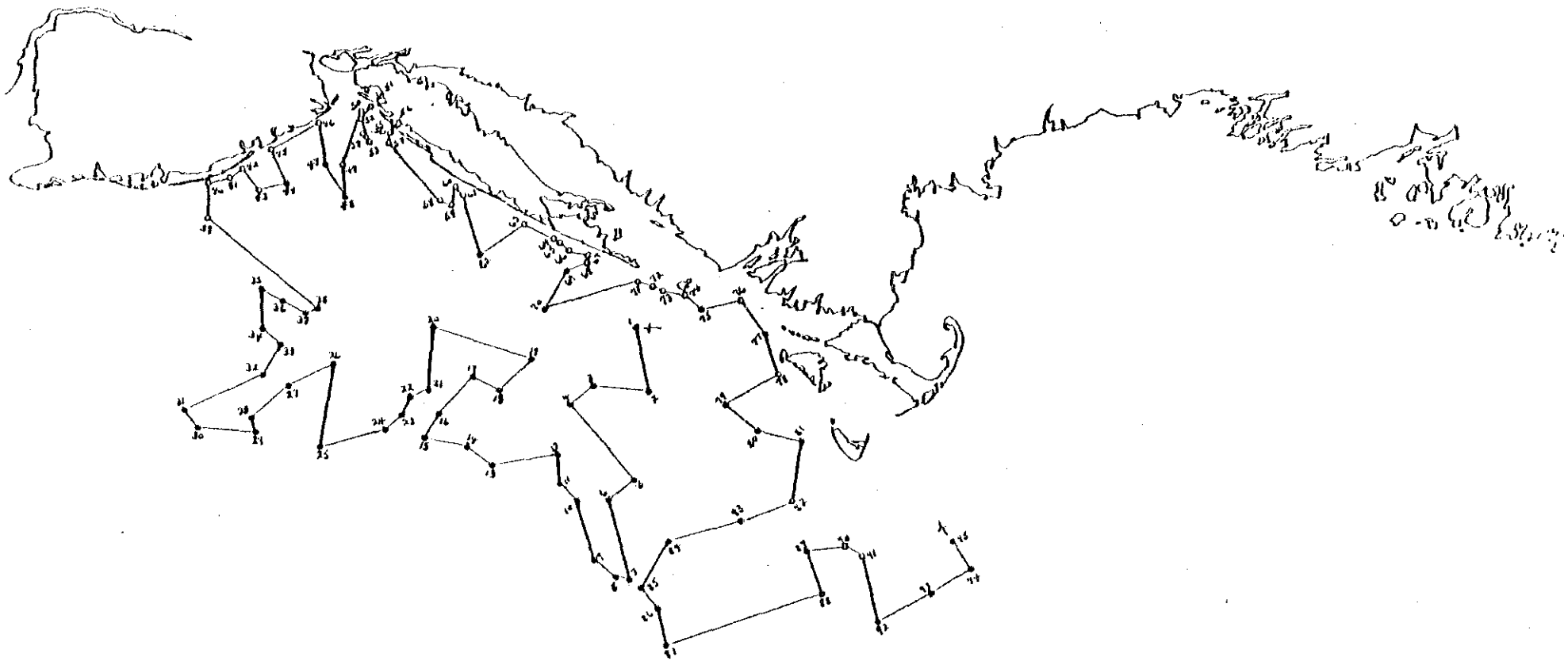
Walter Berry

## DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | | | |
| BOTTLE CAST | | | |
| CTD CAST | | | |
| CURRENT METERS | | | |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | |
| OXYGEN SAMPLES | | | |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | | 95 |
| FISH SAMPLES | | | YES |

• = offshore
o = inshore



Station locations and cruise track for R/V DELAWARE II Cruise 82-07 (I) Gear Testing, during 4-15 October 1982.

VESSEL DELAWARE II | CRUISE 82-07

DATES October 18-29, 1982 | PART II

DAYS AT SEA 11 | STATIONS 75

CRUISE OBJECTIVE

The purposes of the cruise were to: (1) study the relative fishing power of the R/V DELAWARE II and R/V ALBATROSS IV, (2) determine the size, type, and quantity of food consumed by specific species of fish, and (3) do bottom trawl survey stations.

SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFC, Woods Hole, MA

Linda Despres-Patanjo, Chief Scientist
Ray Bowman
Thomas Morris
Edward Cohen
Donald Flescher
Joan Palmer
Roberta Bruce-Delaney
Dennis Hansford

University of Rhode Island, Narragansett, RI

Paul Joyce

Bedford Institute of Oceanography, Dartmouth, NS, Canada

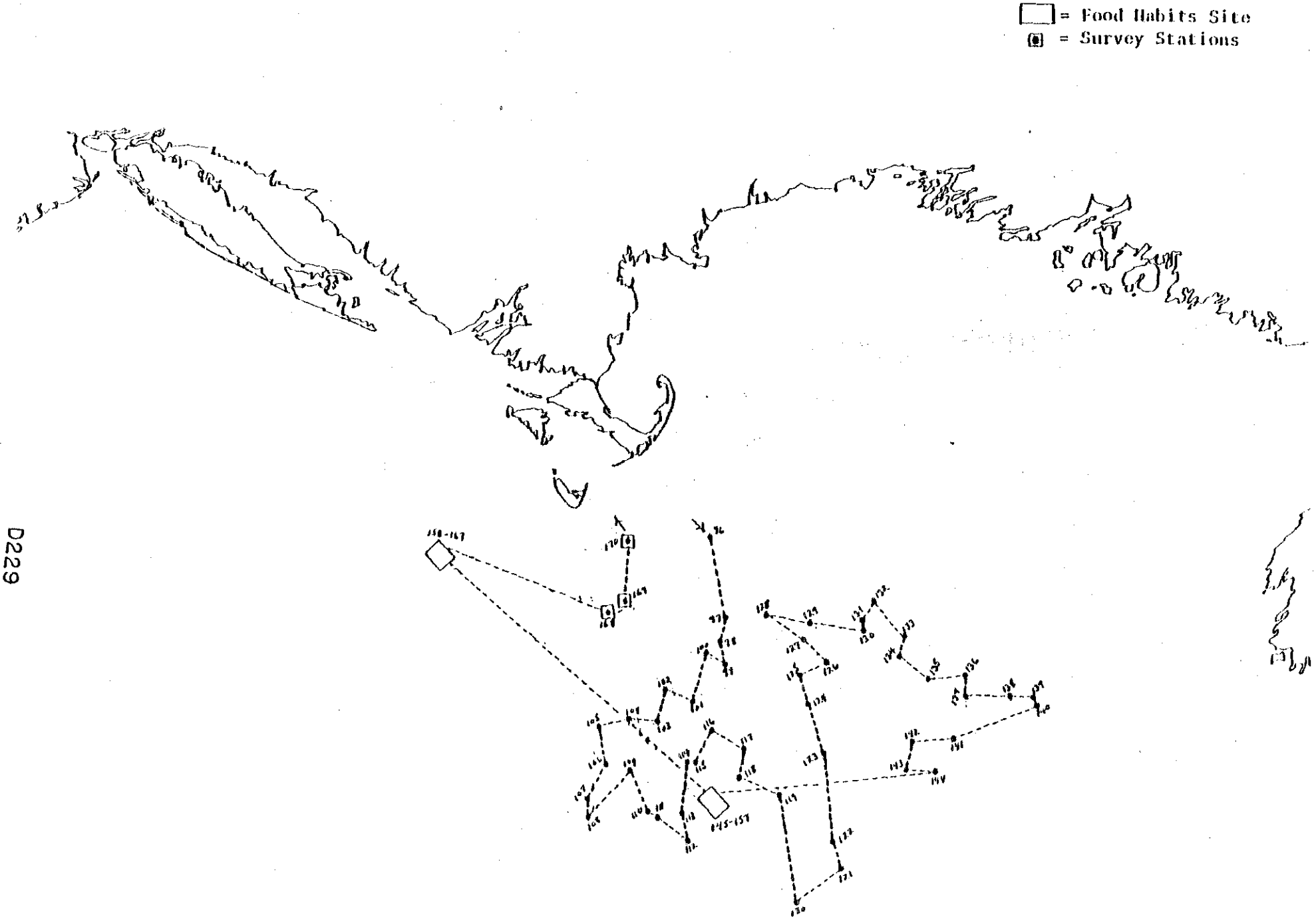
Diane Beanlands

DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | | | 8 |
| BOTTLE CAST | | | |
| CTD CAST | | | |
| CURRENT METERS | | | |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | |
| OXYGEN SAMPLES | | | |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | | 75* |
| FISH SAMPLES | | | YES |

*Transducer monitored 34 trawl stations
*49 stations were compared tows with ALBATROSS IV 82-11




Station locations and cruise track for DELAWARE II Cruise 82-07 (II) Gear Testing, during 18-29 October 1982.

VESSEL DELAWARE II | CRUISE 82-09

DATES Nov. 15-24; Nov. 29-Dec. 10; Dec. 13-22 | PARTS I, II, III

DAYS AT SEA 10;12;10 | STATIONS 161

## CRUISE OBJECTIVE

This cruise is one of a series of MARMAP I 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. Marine birds were collected for food habits analysis and morphological and physiological studies. In addition, a hydrographic transect was run along a northeast to southwest axis in the northeast peak (Figure 1) to supplement existing data on water circulation.

## SCIENTIFIC PERSONNEL

Part I: 15-24 November 1982
Part II: 29 November-10 December 1982
Part III: 13-22 December 1982

### National Marine Fisheries Service, NEFC, Sandy Hook, NJ

| | |
|---|---|
| John Sibunka, Chief Scientist | Parts I, II, III |
| Thomas Finneran | Parts I, II, III |
| Cynthia Muchant | Parts I, II, III |
| Kathleen Ingham | Parts I, II, III |
| Ellen Johnson | Parts II, III |

### National Marine Fisheries Service, NEFC, Woods Hole, MA

| | |
|---|---|
| Robert Halpin | Part I |
| Steven Ramp | Part I |
| Daniel Patanjo* | Parts I, II, III |
| Benjamin Marshall** | Parts I, II |
| Brisdell Hunte | Parts I, III |
| Dana Densmore | Parts II, III |

*Departed vessel on 16 November.
**Benjamin Marshall replaced Daniel Patanjo on 16 November to complete Part I of survey.

### National Marine Fisheries Service, NEFC, Narragansett, RI

| | |
|---|---|
| Patricia Michelik | Part I |
| Carolyn Griswold | Part II |
| Joseph Kane | Part III |

### Manomet Bird Observator, Manomet, MA

| | |
|---|---|
| Michael Payne | Part I |
| Lawrence Selzer | Parts II, III |

VESSEL ADMIRAL ARCISZEWSKI

DATES
I 21 Jan-2 Feb.
II 2-20 Feb.
III 20 Feb.-8 March
IV 10-29 March
V 29 March -16 April

DAYS AT SEA 88

CRUISE 82-01

PARTS I, II, III, IV, V

STATIONS

## Cruise Objective

The objectives of the cruise were to: (1) ascertain the distribution and behavioral aspects and age composition of the mackerel stock over-wintering in the Georges Bank-Cape Hatteras area, with emphasis on locating major concentrations and identifying age-specific distribution patterns, (2) obtain catch-per-unit-effort data for use in evaluating relative stock abundance between different areas and for comparison with previous years, (3) collect appropriate biological samples for studies of age and growth, sexual maturity, meristic characters, blood parasites and disease, cytology-cytogenetics, and feeding habits, (4) estimate acoustically the density of mackerel concentrations and determine the statistical precision of these estimates, and (5) monitor the by-catch of other species caught in association with mackerel and collect relevant biological data from those species.

## Scientific Personnel

ADMIRAL ARCISZEWSKI

Part I: 21 January-2 February 1982
Part II: 2-20 February 1982
Part III; 20 February-8 March 1982
Part IV: 10-29 March 1982
Part V: 29 March-16 April 1982

GRYF, Szczecin, Poland

| | |
|---|---|
| Olgierd Rzewuski, Co-Chief Scientist | Parts I-V |

National Marine Fisheries Service, NEFC, Woods Hole, MA

| | |
|---|---|
| Emory Anderson, Co-Chief Scientist | Part I |
| Robert Rak | Part I |
| William Overholtz, Co-Chief Scientist | Part II |
| Gordon Waring, Co-Chief Scientist | Parts III, V |
| Andrew Thoms | Part III |
| Thomas Azarovitz, Co-Chief Scientist | Part IV |
| John Nicolas | Part IV |

National Marine Fisheries Service, NEFC, Milford, CT

| | |
|---|---|
| Andrew Hebert | Parts II, III |
| James Hughes | Part IV |
| Dean Perry | Part V |

National Marine Fisheries Service, NEFC, Oxford, MD

| | |
|---|---|
| Sharon MacLean | Part IV |
| Austin Farley | Part V |

National Marine Fisheries Service, NEFC, Cape May, NJ

| | |
|---|---|
| Patricia Heying | Part IV |

National Marine Fisheries Service, NER, Gloucester, MA

| | |
|---|---|
| Patricia Gerrior | Part II |

Charles Stark Draper Laboratory, Cambridge, MA

| | |
|---|---|
| William De Russo | Part II |

DATA COLLECTED

| | I PT | II PT | TOTAL | | I PT | II PT | TOTAL |
|---|---|---|---|---|---|---|---|
| .61 cm BONGO | | | | SALINITY SAMPLES | | | |
| .20 cm BONGO | | | | OXYGEN SAMPLES | | | |
| .61 cm NEUSTON | | | | NUTRIENT SAMPLES | | | |
| .20 cm NEUSTON | | | | CHLOROPHYLL SAMPLES | | | |
| HAEDRICH | | | | PRIMARY PRODUCTIVITY | | | |
| XBT | | | YES | DROGUES | | | |
| BOTTLE CAST | | | | SECCHI DISC | | | |
| CTD CAST | | | | TRAWLS | | | 174 |
| CURRENT METERS | | | | FISH SAMPLES | | | YES |

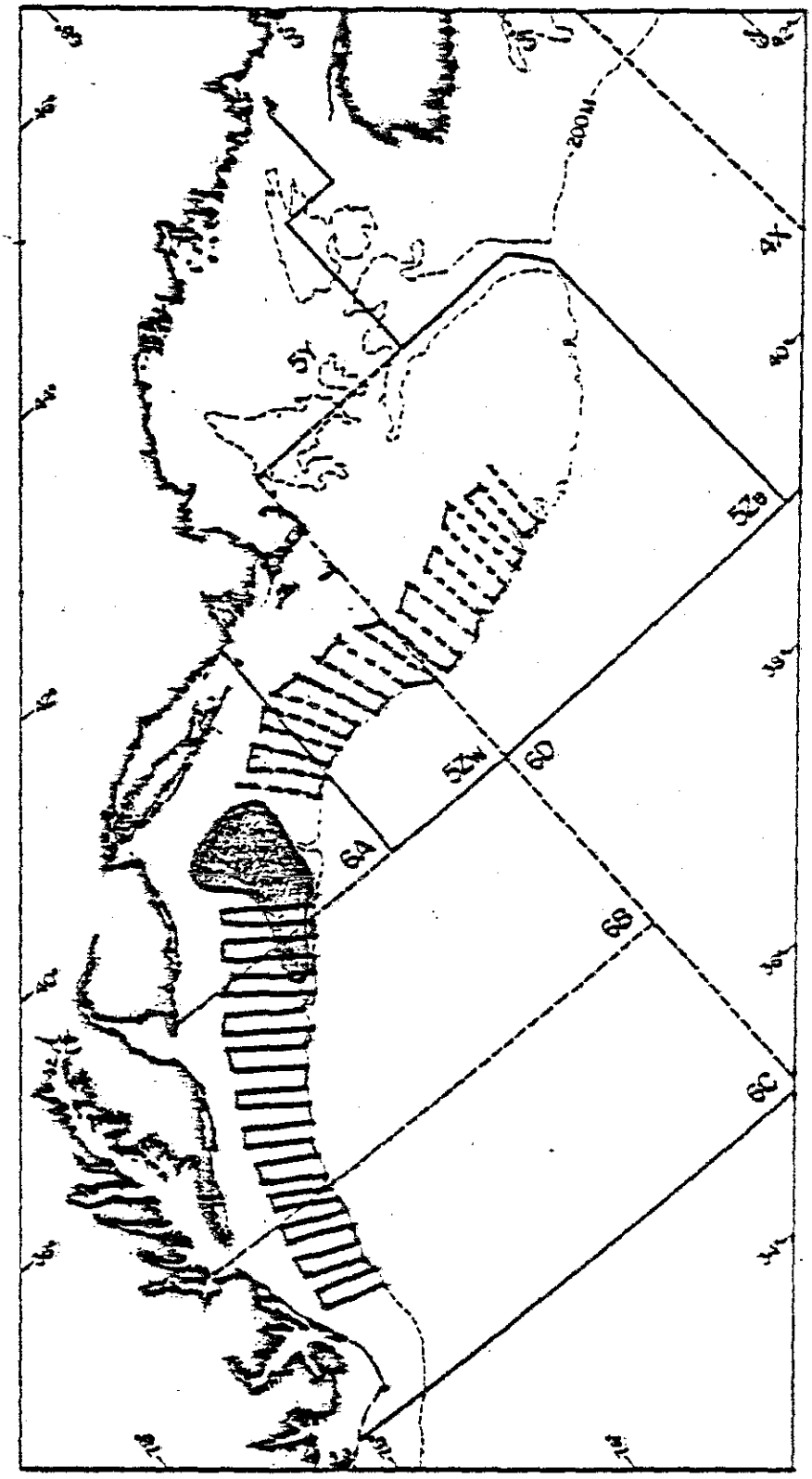



Figure 1. Area of work for Polish M/T's ADMIRAL ARCISZEWSKI Cruise 82-01 (I-V) and KANARYJKA Cruise 82-01 (I-II) Atlantic Mackerel Survey, during 21 January-16 April 1982. Shaded area depicts where virtually all trawling was done by both vessels. Search transects are indicated for both vessels (solid line--ADMIRAL ARCISZEWSKI; dashed line--KANARYJKA).

VESSEL KAIYO-MARU | CRUISE 82-01

DATES 16 January - 5 February | PART I

DAYS AT SEA | STATIONS 41

## Cruise Objective

The objectives of the joint Japan-USA-Canada squid research cruise were to collect field data on the spatial and temporal distribution of: (1) Rhyncoteuthion larvae and (2) spawning adults of the squid, *Illex illecebrosus*, in offshore areas, and (3) to obtain oceanographic data related to these distributions.

## Scientific Personnel

Tokai Regional Fisheries Research Laboratory, Tokyo, Japan

Takehiko Kawakami, Chief Scientist
Eiighi Fujii
Yoichi Sato

Far Seas Fisheries Research Laboratory, Shimizu, Japan

Hiroshi Hatanaka

Seikai Regional Fisheries Research Laboratory, Nagasaki, Japan

Kazuhisa Tamai

National Marine Fisheries Service, NEFC, Woods Hole, MA

Anne Lange, Co-Chief Scientist
Joan Palmer

Fisheries and Oceans Canada, Halifax, NS, Canada

James Young
David Chaisson

## DATA COLLECTED

| | I PT | TOTAL |
|---|---|---|
| .61 cm BONGO TOWS | 63 | 63 |
| .20 cm BONGO | | |
| .61 cm NEUSTON | | |
| .20 cm NEUSTON | | |
| HAEDRICH | | |
| XBT | YES | |
| BOTTLE CAST | | |
| CTD CAST | | |
| CURRENT METERS | | |

| | 1 PT | TOTAL |
|---|---|---|
| SALINITY SAMPLES | YES | |
| OXYGEN SAMPLES | YES | |
| NUTRIENT SAMPLES | | |
| CHLOROPHYLL SAMPLES | | |
| PRIMARY PRODUCTIVITY | | |
| DROGUES | | |
| SECCHI DISC | YES | |
| TRAWLS KTM | | |
| FISH SAMPLES | | |
| PLANKTON | YES | |
| MIDWATER TRAWLS | 22 | 22 |
| SQUID JIGGING SETS | 14 | 14 |
| OCEANOGRAPHIC CASTS | 44 | 44 |

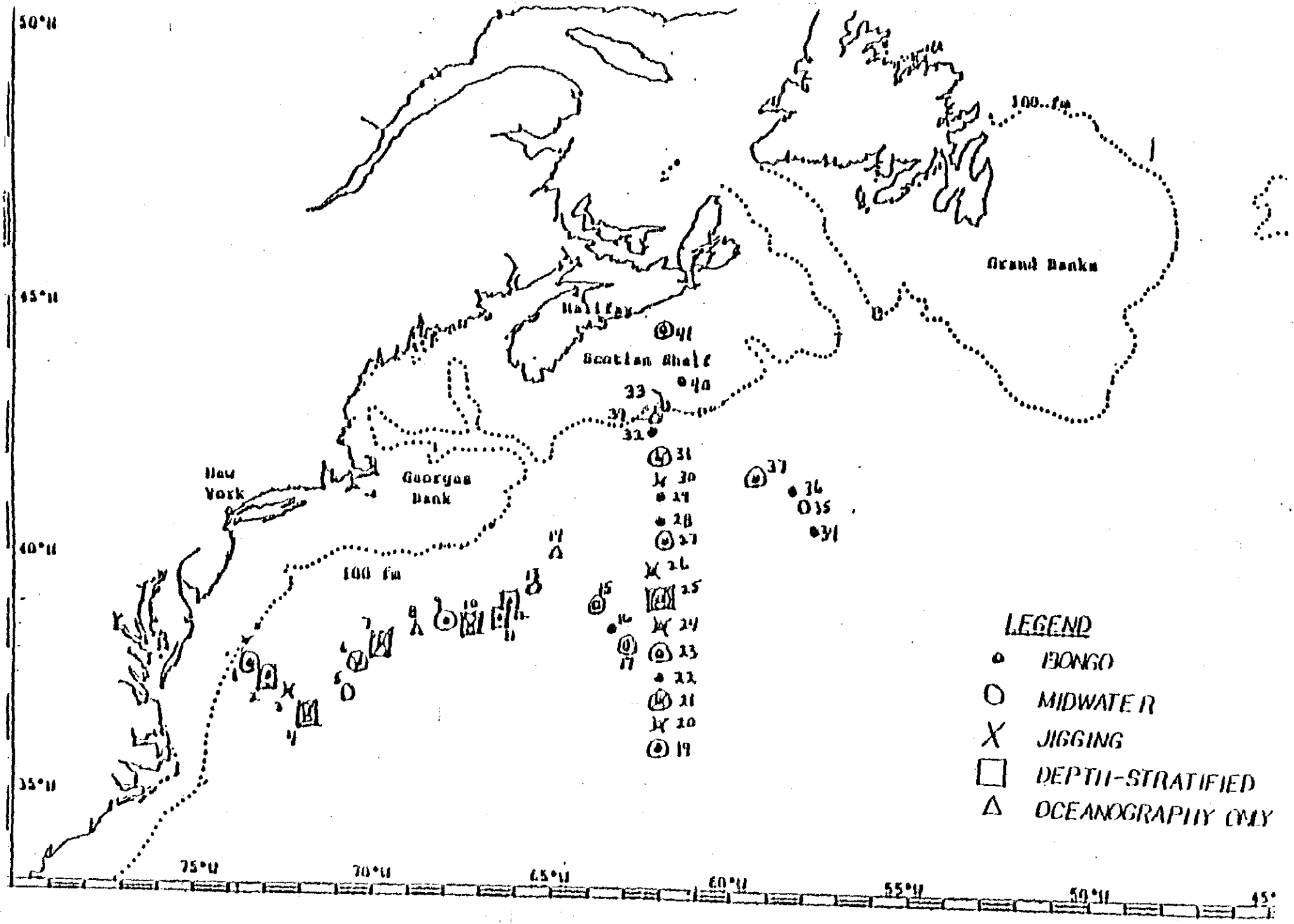



Figure 1. Station locations and cruise track for R/V KAIYO-MARU Cruise 82-01 (1) Squid Survey, during 16 January-6 February 1982.

A0295

| | |
|---|---|
| VESSEL KAIYO-MARU | CRUISE 82-01 |
| DATES 11 FEB - 5 MARCH | PART II |
| DAYS AT SEA 23 | STATIONS 41 |

## Cruise Objective

The objectives of the joint Japan-USA-Canada squid research cruise were to collect field data on the spatial and temporal distribution of: (1) Rhyncoteuthion larvae, (2) spawning adults of the squid *Illex illecebrosus* in offshore areas, and (3) to obtain oceanographic data related to these distributions.

## Scientific Personnel

Tokai Regional Fisheries Research Laboratory, Tokyo, Japan

Takehiko Kawakami, Chief Scientist
Eiighi Fujii
Yoichi Sato

Far Seas Fisheries Research Laboratory, Shimizu, Japan

Hiroshi Hatanaka

Seikai Regional Fisheries Research Laboratory, Nagasaki, Japan

Kazuhisa Tamai

Smithsonian Institute, Washington, DC, USA

Michael Sweeney

National Marine Fisheries Service, NEFC, Narragansett, RI USA

Jerome Prezioso

Fisheries and Oceans Canada, Halifax, NS, Canada

Tissa Amaratunga
Thomas McClane

## DATA COLLECTED

| | II PT | TOTAL |
|---|---|---|
| .61 cm BONGO | | |
| .20 cm BONGO | | |
| .61 cm NEUSTON | | |
| .20 cm NEUSTON | | |
| HAEDRICH | | |
| XBT | 45 | 45 |
| BOTTLE CAST | 44 | 44 |
| CTD CAST | | |
| CURRENT METERS | | |
| SQUID JIGGING | 1 | 1 |

| | II PT | TOTAL |
|---|---|---|
| SALINITY SAMPLES | YES | |
| OXYGEN SAMPLES | YES | |
| NUTRIENT SAMPLES | | |
| CHLOROPHYLL SAMPLES | | |
| PRIMARY PRODUCTIVITY | | |
| DROGUES | | |
| SECCHI DISC | | |
| TRAWLS | | |
| FISH SAMPLES | | |
| 0.70 meter BONGO TOWS | 28 | 28 |
| RTM TOWS | 17 | 17 |
| RTM w/o/o mechanism | 9 | 9 |
| KMT TOWS | 16 | 16 |
| PHYTOPLANKTON SAMPLES (MC) | 6 | 6 |

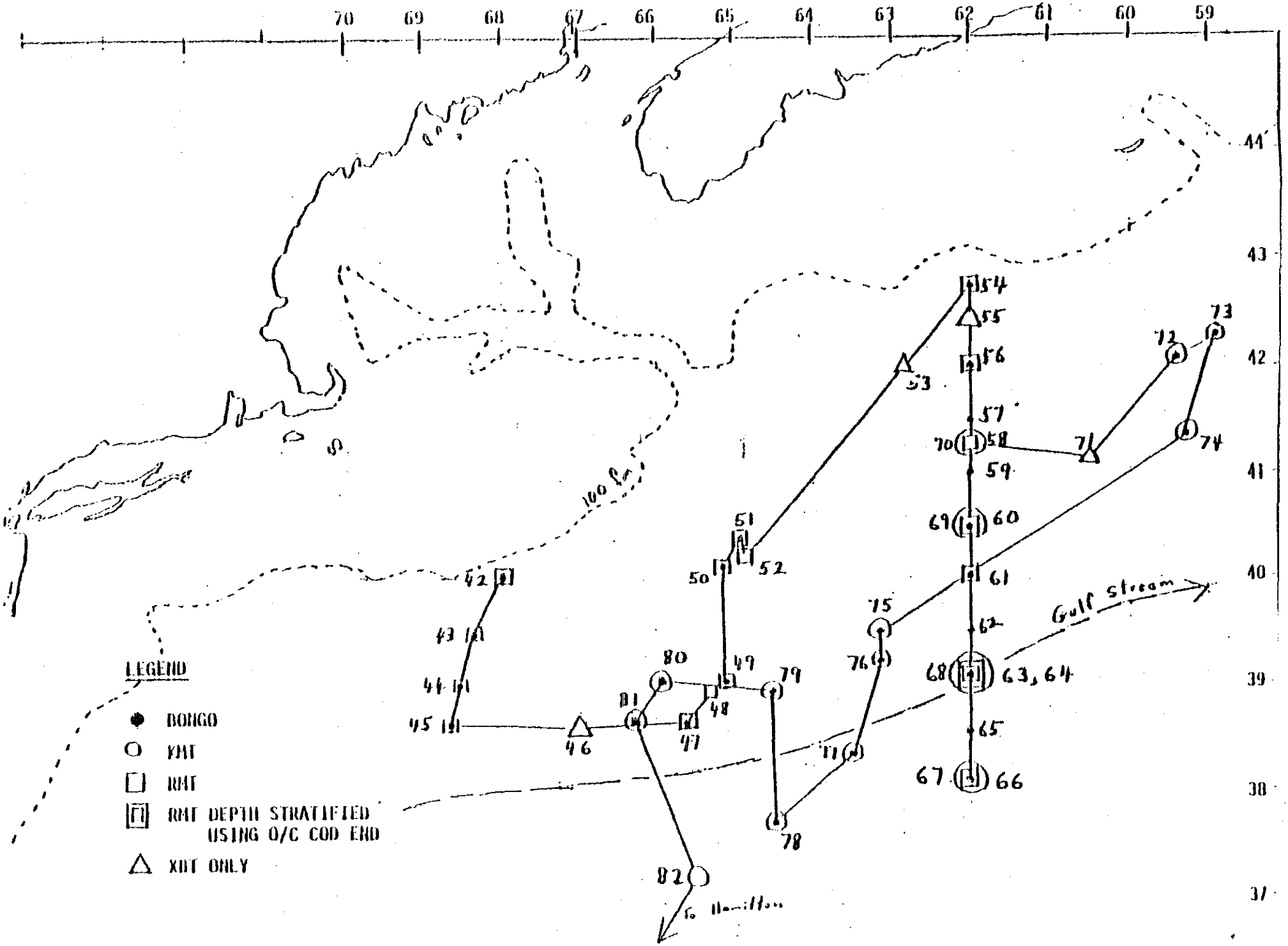



Figure 1. Station locations and cruise track for R/V KAIYO-MARU Cruise 82-01 (II) Squid Survey, during 11 February-5 March 1982

A0298

VESSEL KANARYJKA | CRUISE 82-01

DATES I - 26 Feb.-15 Mar.
II - 17 Mar.-16 Apr. | PARTS I, II

DAYS AT SEA | STATIONS

## Cruise Objective

The objectives of the cruise were to: (1) ascertain the distribution and behavioral aspects and age composition of the mackerel stock overwintering in the Georges Bank-Cape Hatteras area, with emphasis on locating major concentrations and identifying age-specific distribution patterns, (2) obtain catch-per-unit-effort data for use in evaluating relative stock abundance between different areas and for comparison with previous years, (3) collect appropriate biological samples for studies of age and growth, sexual maturity, meristic characters, blood parasites and disease, cytology-cytogenetics, and feeding habits, (4) estimate acoustically the density of mackerel concentrations and determine the statistical precision of these estimates, and (5) monitor the by-catch of other species caught in association with mackerel and collect relevant biological data from those species.

## Scientific Personnel

KANARYJKA

Part I: 26 February-15 March 1982
Part II: 17 March-16 April 1982

GRYF, Szczecin, Poland

| | |
|---|---|
| Maciej Silksi, Co-Chief Scientist | Parts I, II |

Sea Fisheries Institute, (Morski Instytut Rybacki), Gdynia, Poland

| | |
|---|---|
| Miroslaw Mucha | Parts I, II |
| Romuald Pactwa | Parts I, II |

National Marine Fisheries Service, NEFC, Woods Hole, MA

| | |
|---|---|
| Dennis Hansford, Co-Chief Scientist | Part II |

National Marine Fisheries Service, Foreign Fisheries Observer Office, Otis AFB, MA

| | |
|---|---|
| Paul Jones, Co-Chief Scientist | Part I |

## DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | |
| .20 cm BONGO | | | |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | | | YES |
| BOTTLE CAST | | | |
| CTD CAST | | | |
| CURRENT METERS | | | |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | |
| OXYGEN SAMPLES | | | |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | | 74 |
| FISH SAMPLES | | | YES |

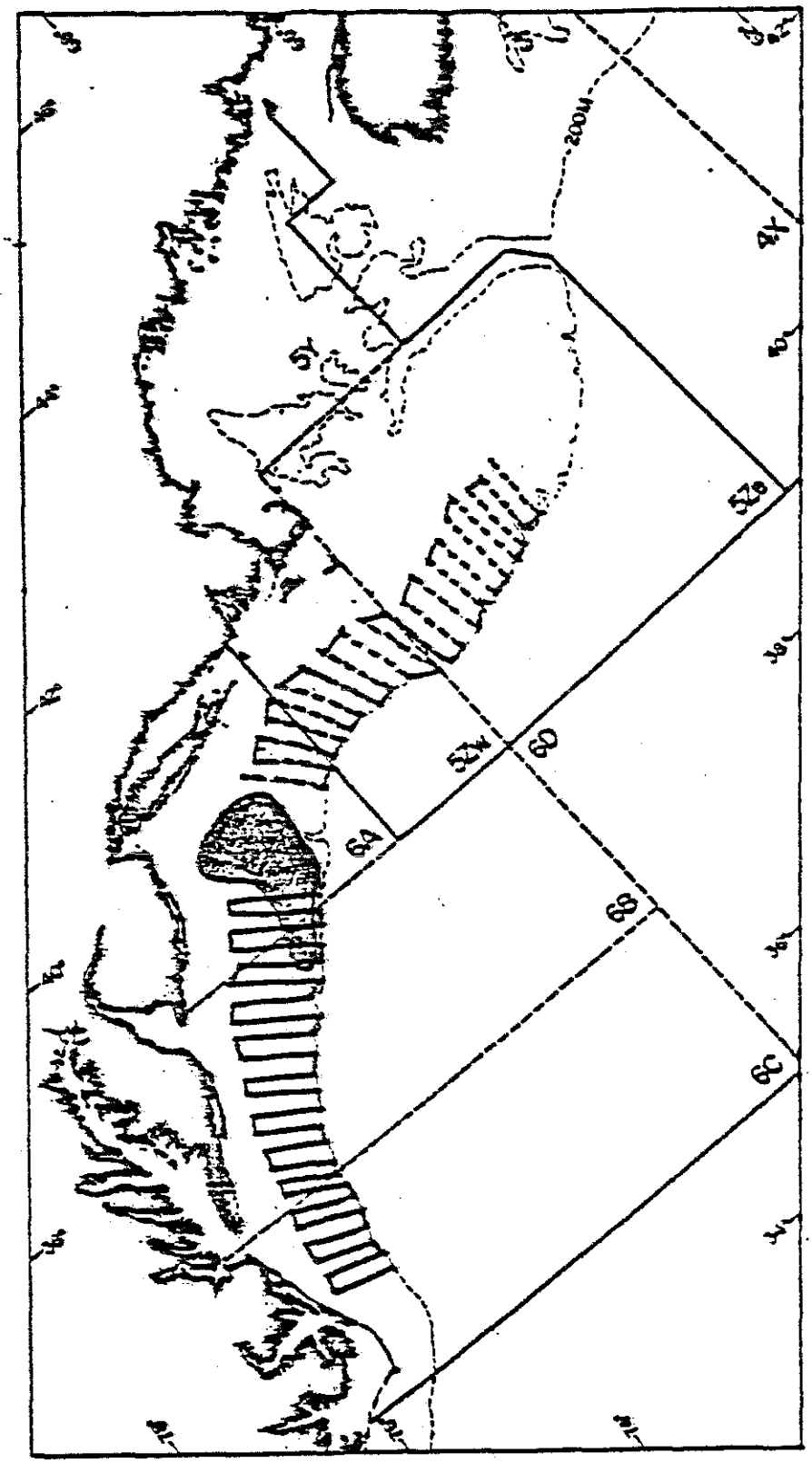



Figure 1. Area of work for Polish M/T's ADMIRAL ARCISZEWSKI Cruise 82-01 (I-V) and KANARYJKA Cruise 82-01 (I-II) Atlantic Mackerel Survey, during 21 January-16 April 1982. Shaded area depicts where virtually all trawling was done by both vessels. Search transects are indicated for both vessels (solid line--ADMIRAL ARCISZEWSKI; dashed line--KANARYJKA).

VESSEL KIYO-MARU (Japanese) CRUISE 82-01

DATES AUG 26 - SEPT 26

DAYS AT SEA 30 STATIONS 118

## CRUISE OBJECTIVE

The objectives of the joint USA-Japan squid research cruise were to use the vessel's squid jigging equipment to: (1) collect data on the late summer distribution of *Illex illecebrosus*, (2) provide samples for sex/maturity, length frequency, and food habit studies, and (3) provide peripheral information associated with concentrations of *Illex illecebrosus*, such as temperature, depth, plankton, etc.

## SCIENTIFIC PERSONNEL

National Marine Fisheries Service, NEFC, Woods Hole, MA

Dennis Hansford, Chief Scientist
Jacob Richardson (26 August-9 September)
John Trautman (10-26 September)

Atlantic Resource Development Corporation, Inc., Newport, RI

David Kolator (26 August-9 September)

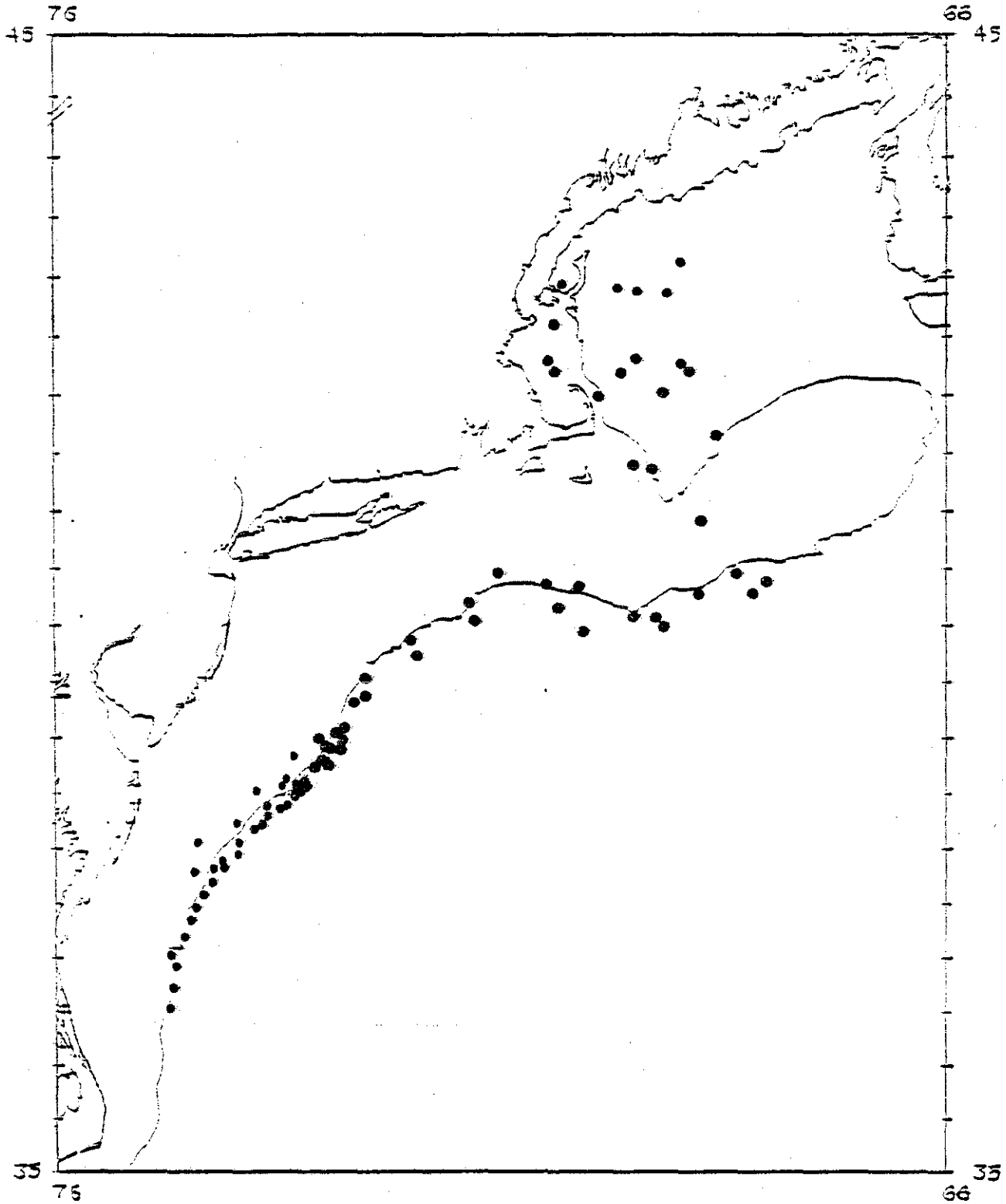
Development Sciences, Inc., Orleans, MA

Jerry Quigley (10-26 September)

## DATA COLLECTED

| | I PT | II PT | TOTAL |
|---|---|---|---|
| .61 cm BONGO | | | 105 |
| .20 cm BONGO | | | 105 |
| .61 cm NEUSTON | | | |
| .20 cm NEUSTON | | | |
| HAEDRICH | | | |
| XBT | | | 93 |
| BOTTLE CAST | | | |
| CTD CAST | | | |
| CURRENT METERS | | | |

| | I PT | II PT | TOTAL |
|---|---|---|---|
| SALINITY SAMPLES | | | |
| OXYGEN SAMPLES | | | |
| NUTRIENT SAMPLES | | | |
| CHLOROPHYLL SAMPLES | | | |
| PRIMARY PRODUCTIVITY | | | |
| DROGUES | | | |
| SECCHI DISC | | | |
| TRAWLS | | | |
| FISH SAMPLES | | | |
| SQUID JIGGING SETS | | | 98 |




Station locations of F/V KIYO MARU Cruise 82-01 Squid Survey, during 26 August-26 September 1982.

MARMAP SURVEY FY 83/REVISED FEBRUARY 1983

Plankton/Hydro Stations Mid-Atlantic

| | Sta. # | Lat. N | Long. W | Depth (m) |
|---|---|---|---|---|
| | 1 | 35°16' | 75°14' | 28 |
| | 2 | 35°28' | 75°15' | 27 |
| | 3 | 35°41' | 74°58' | 52H |
| | 4 | 35°51' | 75°29' | 18 |
| | 5 | 36°15' | 75°32' | 24 |
| | 6 | 36°23 | 75°15' | 34 |
| | 7 | 36°09' | 75°06' | 36H |
| | 8 | 36°16' | 74°46' | 355H |
| | 9 | 36°39' | 74°52' | 47H |
| | 10 | 36°43' | 75°22' | 20 |
| | 11 | 36°33' | 75°47' | 18 |
| Trans. A | 12 | 36°57' | 75°48' | 11H |
| | 13 | 36°55' | 75°33' | 20 |
| | 14 | 36°53 | 75°19' | 29H |
| | 15 | 36°51' | 75°04' | 36 |
| | 16 | 36°49' | 74°50' | 49H |
| | 17 | 36°46' | 74°35' | 1207 |
| | 19 | 37°13' | 74°45' | 67H |
| | 20 | 37°18' | 75°09' | 26 |
| | 21 | 37°15' | 75°40' | 12 |
| | 22 | 37°37' | 75°19' | 18 |
| | 23 | 37°48' | 75°17' | 18 |
| | 24 | 37°31' | 74°57' | 33 |
| | 25 | 37°31' | 74°39' | 60 |
| | 26 | 37°38' | 74°21' | 97H |
| | 27 | 37°48' | 74°46' | 40 |
| | 28 | 38°10' | 74°54' | 18 |
| Trans. B | 29 | 38°45' | 74°57' | 18 |
| | 30 | 38°35' | 74°48' | 26H |
| | 31 | 38°25' | 74°39' | 29 |
| | 32 | 38°14' | 74°31' | 42H |
| | 33 | 38°04' | 74°22' | 47 |
| | 34 | 37°51' | 74°11' | 126H |
| | 35 | 37°41' | 74°03' | 1170 |
| | 37 | 37°59' | 73°58' | 135H |
| | 38 | 38°21' | 73°39' | 122H |
| | 39 | 38°25' | 74°07' | 53 |
| | 40 | 38°40' | 74°19' | 42 |
| | 41 | 38°55' | 74°33' | 20 |

| | Sta. # | Lat. N | Long. W | Depth (m) |
|---|---|---|---|---|
| | 42 | 39°14' | 74°26' | 15 |
| | 43 | 39°21' | 74°06' | 22 |
| | 44 | 38°57' | 74°07' | 40 |
| | 184* | 38°34' | 74°53' | 22W |
| | 185 | 39°55' | 73°56' | 20 |
| | 186 | 39°52' | 73°33' | 33 |
| | 187 | 40°15' | 73°54' | 22 |
| | 45 | 38°45' | 73°45' | 49 |
| | 46 | 38°39' | 73°09' | 174H |
| | 47 | 38°59' | 73°08' | 82H |
| | 49 | 39°17' | 72°51' | 78H |
| | 50 | 39°12' | 73°39' | 43 |
| | 51 | 39°39' | 73°23' | 33 |
| | 52 | 39°34' | 73°49' | 20 |
| | 53 | 39°43' | 74°03' | 13 |
| | 54 | 40°07' | 73°48' | 27 |
| Trans. C | 55 | 40°26' | 73°50' | 24 |
| | 56 | 40°16' | 73°36' | 24H |
| | 57 | 40°06' | 73°23' | 38 |
| | 58 | 39°52' | 73°05' | 67H |
| | 59 | 39°39' | 72°46' | 70 |
| | 60 | 39°28' | 72°33' | 102H |
| | 61 | 39°18' | 72°19' | 223 |
| | 64 | 39°33' | 72°07' | 200H |
| | 65 | 39°51' | 72°27' | 70 |
| | 66 | 40°19' | 72°43' | 49 |
| | 67 | 40°28' | 73°13' | 28 |
| | 68 | 40°44' | 72°40' | 24 |
| | 69 | 40°34' | 72°28' | 41 |
| | 70 | 40°14' | 71°57' | 66 |
| | 71 | 39°52' | 71°49' | 168H |
| | 72 | 40°04' | 71°30' | 91H |
| | 73 | 40°31' | 71°36' | 75 |
| | 74 | 40°49' | 72°08' | 38 |
| | 75 | 41°04' | 71°42' | 47 |
| Trans. D | 76 | 41°20' | 71°21' | 29H |
| | 77 | 41°09' | 71°15' | 37 |
| | 78 | 40°58' | 71°10' | 49H |

H = Haedrich neuston tow
W = Hydro cast
* = No bongo/neuston tow

| Sta. # | Lat. N | Long. W | Depth (m) |
|---|---|---|---|
| 79 | 40°41' | 71°02' | 62 |
| 80 | 40°21' | 70°51' | 98H |
| 81 | 40°10' | 70°46' | 132 |
| 82 | 39°59' | 70°40' | 322H |
| 85 | 40°13' | 70°25' | 108H |
| 86 | 40°42' | 70°35' | 58 |
| 87 | 41°10' | 71°00' | 35 |
| 88 | 41°03' | 70°33' | 44 |

MARMAP SURVEY FY 83/REVISED FEBRUARY 1983

Plankton/Hydro Stations New England

| | Sta. # | Lat. N | Long. W | Depth (m) |
|---|---|---|---|---|
| | 89 | 40°41' | 70°11' | 48 |
| | 90 | 40°24' | 69°42' | 69 |
| | 91 | 40°08' | 69°34' | 63H |
| | 93 | 40°53' | 69°34' | 40 |
| | 94 | 41°32' | 69°26' | 64 |
| | 95 | 41°58' | 69°50' | 84 |
| | 96 | 42°15' | 69°43' | 236 |
| | 97 | 42°06' | 70°20' | 62 |
| | 188 | 42°26' | 70°09' | 73 |
| | 98 | 42°26 | 70°38' | 77 |
| | 99 | 42°48' | 70°32' | 100 |
| | 100 | 42°50 | 70°00' | 179 |
| | 101 | 43°08' | 69°58' | 155 |
| | 102 | 43°24 | 70°12' | 110 |
| | 103 | 43°20' | 69°41' | 192 |
| Trans. E | 104 | 43°40' | 69°22' | 88H |
| | 183 | 43°17' | 69°20' | 155 |
| | 105 | 42°58' | 69°17' | 181 |
| | 106 | 42°35' | 69°14' | 219H |
| | 107 | 42°11' | 69°12' | 192 |
| | 108 | 41°54' | 69°10' | 216H |
| | 109 | 41°39' | 69°09' | 170 |
| | 110 | 41°20' | 69°07' | 160H |
| | 111 | 41°04' | 69°06' | 86 |
| | 112 | 40°55' | 69°06' | 73H |
| | 113 | 40°39' | 69°05' | 71 |
| | 114 | 40°25' | 69°03' | 84H |
| | 115 | 40°05' | 69°01' | 329 |
| | 117 | 40°29' | 68°37' | 88H |
| | 118 | 40°20' | 68°21' | 120H |
| | 119 | 40°31' | 67°56' | 89 |
| | 120 | 40°48' | 68°17' | 37 |
| | 121 | 40°51' | 68°44' | 64 |
| | 122 | 41°20 | 68°42 | 73 |
| | 123 | 41°11' | 68°08' | 30 |
| | 124 | 41°37' | 68°06' | 29 |
| | 125 | 41°52' | 68°11' | 168 |
| | 126 | 41°37' | 68°53' | 119 |
| | 127 | 41°59' | 68°39' | 168 |
| | 128 | 42°10' | 68°48' | 183 |
| | 129 | 42°19' | 68°27' | 195 |
| | 130 | 42°40' | 68°19' | 207 |
| | 131 | 42°45' | 68°46' | 196 |
| | 132 | 42°55' | 68°22' | 155 |
| | 133 | 43°12' | 67°59' | 194 |
| | 134 | 43°23' | 68°08' | 198 |
| | 135 | 43°22' | 68°41' | 132 |
| | 136 | 43°08' | 69°01' | 163 |
| | 137 | 43°37' | 68°56' | 110 |
| | 138 | 43°58' | 68°35' | 66 |
| | 140 | 43°58' | 68°11' | 110 |
| Trans. F | 141 | 44°20' | 67°43' | 83 |
| | 142 | 43°49' | 67°43' | 225H |
| | 182 | 43°24' | 67°43' | 238H |
| | 143 | 42°59' | 67°42' | 185 |
| | 144 | 42°36' | 67°42' | 201H |
| | 145 | 42°18' | 67°42' | 229 |
| | 146 | 41°48' | 67°42' | 33H |
| | 147 | 41°30' | 67°41' | 35 |
| | 148 | 41°16' | 67°41' | 40H |
| | 149 | 40°56' | 67°41' | 68 |
| | 150 | 40°37' | 67°41' | 78H |
| | 151 | 40°22' | 67°40' | 800 |
| | 153 | 40°46' | 67°19' | 93H |
| | 154 | 40°40' | 67°05' | 125H |

H = Haedrich neuston tow

| | Sta. # | Lat. N | Long. W | Depth (m) |
|---|---|---|---|---|
| | 155 | 41°13' | 66°56' | 70 |
| | 157 | 41°33' | 67°01' | 60 |
| | 158 | 41°36' | 66°31' | 79 |
| | 159 | 42°02' | 66°50' | 65 |
| | 160 | 41°59' | 67°24' | 27 |
| | 161 | 42°11' | 67°15' | 183 |
| | 162 | 42°43' | 67°28' | 210 |
| | 163 | 42°46' | 66°58' | 158 |
| | 164 | 43°12' | 66°48' | 132 |
| | 165 | 43°35' | 66°44' | 110 |
| | 166 | 43°30' | 67°00' | 195 |
| | 167 | 43°42' | 67°26' | 210 |
| | 168 | 44°02' | 67°10' | 135 |
| | 169 | 44°16' | 67°07' | 155 |
| | 170 | 44°16' | 66°36' | 201 |
| | 181 | 44°00' | 66°12' | 22 |
| Trans. G | 171 | 43°32' | 66°20' | 64 |
| | 172 | 43°01' | 66°20' | 102H |
| | 173 | 42°39' | 66°20' | 110 |
| | 174 | 42°28' | 66°20' | 243H |
| | 175 | 42°17' | 66°20' | 234 |
| | 176 | 42°09' | 66°20' | 188H |
| | 177 | 41°52' | 66°20' | 80 |
| | 178 | 41°30' | 66°20' | 86H |
| | 179 | 41°10' | 66°19' | 155 |
| | 189 | 42°49' | 66°20' | 60 |
| | 190 | 43°17' | 66°20' | 70 |

H = Haedrich neuston tow

MARMAP STATIONS, BY LONGITUDE

| MARMAP STA. # | Longitude W. | Latitude N. | MARMAP STA. # | Longitude W. | Latitude N. |
|---|---|---|---|---|---|
| 183 | 65°23' | 42°14' | 124 | 68°09' | 41°36' |
| 185 | 65°26' | 43°06' | 125 | 68°11' | 41°52' |
| 182 | 65°49' | 41°54' | 140 | 68°11' | 43°58' |
| 184 | 65°51' | 42°39' | 120 | 68°17' | 40°48' |
| 181 | 65°55' | 41°39' | 139 | 68°17' | 44°01' |
| 179 | 66°19' | 41°10' | 130 | 68°19' | 42°40' |
| 180 | 66°19' | 40°54' | 118 | 68°21' | 40°20' |
| 177 | 66°20' | 41°52' | 132 | 68°22' | 42°55' |
| 178 | 66°20' | 41°30' | 129 | 68°27' | 42°19' |
| 176 | 66°20' | 42°09' | 138 | 68°35' | 43°58' |
| 175 | 66°20' | 42°17' | 117 | 68°37' | 40°29' |
| 174 | 66°20' | 42°28' | 127 | 68°39' | 41°59' |
| 173 | 66°20' | 42°39' | 135 | 68°41' | 43°22' |
| 172 | 66°20' | 43°01' | 122 | 68°42' | 41°20' |
| 171 | 66°20' | 43°32' | 121 | 68°44' | 40°51' |
| 158 | 66°31' | 41°36' | 131 | 68°46' | 42°45' |
| 170 | 66°36' | 44°16' | 128 | 68°48' | 42°10' |
| 165 | 66°44' | 43°35' | 126 | 68°53' | 41°37' |
| 164 | 66°48' | 43°12' | 137 | 68°56' | 43°37' |
| 159 | 66°50' | 42°02' | 116 | 69°00' | 39°52' |
| 155 | 66°56' | 41°13' | 115 | 69°01' | 40°05' |
| 163 | 66°58' | 42°46' | 136 | 69°01' | 43°08' |
| 166 | 67°00' | 43°30' | 114 | 69°03' | 40°25' |
| 157 | 67°01' | 41°33' | 113 | 69°05' | 40°39' |
| 154 | 67°05' | 40°40' | 111 | 69°06' | 41°04' |
| 169 | 67°07' | 44°16' | 112 | 69°06' | 40°55' |
| 168 | 67°10' | 44°02' | 110 | 69°07' | 41°20' |
| 161 | 67°15' | 42°11' | 109 | 69°09' | 41°39' |
| 153 | 67°19' | 40°46' | 108 | 69°10 | 41°54' |
| 160 | 67°24' | 41°59' | 107 | 69°12' | 42°11' |
| 167 | 67°26' | 43°42' | 92 | 69°14' | 40°37' |
| 162 | 67°28' | 42°43' | 106 | 69°14' | 42°35' |
| 156 | 67°33' | 41°18' | 105 | 69°18' | 43°06' |
| 151 | 67°40' | 40°22' | 104 | 69°22' | 43°40' |
| 152 | 67°40' | 40°05' | 94 | 69°26' | 41°32' |
| 147 | 67°41' | 41°30' | 91 | 69°34' | 40°08' |
| 148 | 67°41' | 41°16' | 93 | 69°34' | 40°53' |
| 149 | 67°41' | 40°56' | 103 | 69°42' | 43°20' |
| 150 | 67°41' | 40°37' | 90 | 69°42' | 40°24' |
| 143 | 67°42' | 42°59' | 96 | 69°43' | 42°15' |
| 144 | 67°42' | 42°36' | 96 | 69°50' | 41°58' |
| 145 | 67°42' | 42°18' | 101 | 69°58' | 43°08' |
| 146 | 67°42' | 41°48' | 100 | 70°00' | 42°50' |
| 141 | 67°43' | 44°20' | 89 | 70°11' | 40°41' |
| 142 | 67°43' | 43°49' | 102 | 70°12' | 43°24' |
| 119 | 67°56' | 40°31' | 97 | 70°20' | 42°06' |
| 133 | 67°59' | 43°12' | 85 | 70°25' | 40°13' |
| 123 | 68°08' | 41°11' | 84 | 70°30' | 39°37' |
| 134 | 68°08' | 43°23' | 99 | 70°32' | 42°48' |

| MARMAP STA. # | Longitude W. | Latitude N. |
|---|---|---|
| 88 | 70°33' | 41°03' |
| 83 | 70°35' | 39°48' |
| 86 | 70°35' | 40°42' |
| 98 | 70°38' | 42°26' |
| 82 | 70°40' | 39°59' |
| 81 | 70°46' | 40°10' |
| 80 | 70°51' | 40°21' |
| 87 | 71°00' | 41°10' |
| 79 | 71°02' | 40°41' |
| 78 | 71°10' | 40°58' |
| 77 | 71°15' | 41°09' |
| 76 | 71°21' | 41°20' |
| 72 | 71°30' | 40°04' |
| 73 | 71°36' | 40°31' |
| 75 | 71°42' | 41°04' |
| 71 | 71°49' | 39°52' |
| 63 | 71°57' | 39°02' |
| 70 | 71°57' | 40°14' |
| 64 | 72°07' | 39°33' |
| 74 | 72°08' | 40°49' |
| 62 | 72°08' | 39°10' |
| 67 | 72°13' | 40°28' |
| 61 | 72°19' | 39°18' |
| 69 | 72°23' | 40°34' |
| 65 | 72°27' | 39°51' |
| 60 | 72°33' | 39°28' |
| 68 | 72°40' | 40°44' |
| 66 | 72°43' | 40°19' |
| 59 | 72°46' | 39°39' |
| 48 | 72°48' | 38°58' |
| 49 | 72°51' | 39°17' |
| 58 | 73°05' | 39°52' |
| 47 | 73°08' | 38°59' |
| 46 | 73°09' | 38°39' |
| 51 | 73°23' | 39°39' |
| 57 | 73°23' | 40°06' |
| 56 | 73°36' | 40°16' |
| 50 | 73°39' | 39°12' |
| 38 | 73°39' | 38°21' |
| 45 | 73°45' | 38°45' |
| 54 | 73°48' | 40°07' |
| 52 | 73°49' | 39°34' |
| 55 | 73°50' | 40°25' |
| 36 | 73°50' | 37°25' |
| 37 | 73°58' | 37°59' |
| 35 | 74°03' | 37°41' |
| 53 | 74°03' | 39°43' |
| 43 | 74°06' | 39°21' |
| 39 | 74°07' | 38°25' |
| 44 | 74°07' | 38°57' |
| 34 | 74°11' | 37°51' |
| 40 | 74°19' | 38°40' |
| 18 | 74°20' | 36°44' |
| 26 | 74°21' | 37°33' |
| 33 | 74°22' | 38°04' |
| 42 | 74°25' | 39°14' |
| 32 | 74°31' | 38°14' |
| 17 | 74°35' | 36°46' |
| 41 | 74°37' | 38°55' |
| 31 | 74°39' | 38°25' |
| 25 | 74°39' | 37°31' |
| 19 | 74°45' | 37°13' |
| 27 | 74°46' | 37°48' |
| 8 | 74°46' | 36°16' |
| 30 | 74°48' | 38°35' |
| 16 | 74°50' | 36°49' |
| 9 | 74°52' | 36°39' |
| 28 | 74°54' | 38°10' |
| 24 | 74°57' | 37°31' |
| 29 | 74°57' | 38°45' |
| 3 | 74°58' | 35°41' |
| 15 | 75°04' | 36°51' |
| 7 | 75°06' | 36°09' |
| 20 | 75°09' | 37°18' |
| 1 | 75°14' | 35°16' |
| 6 | 75°15' | 36°23' |
| 2 | 75°15' | 35°28' |
| 23 | 75°17' | 37°48' |
| 14 | 75°19' | 36°53' |
| 22 | 75°19' | 37°37' |
| 10 | 75°22' | 36°43' |
| 4 | 75°29' | 35°51' |
| 5 | 75°32' | 36°15' |
| 13 | 75°33' | 36°55' |
| 21 | 75°40' | 37°15' |
| 11 | 75°47' | 36°33' |
| 12 | 75°48' | 36°57' |

MARMAP STATIONS, BY LATITUDE

| Sta. # | Latitude N. | Longitude W. | Sta.# | Latitude N. | Longitude W. |
|---|---|---|---|---|---|
| 1 | 35°16' | 75°14' | 61 | 39°18' | 72°19' |
| 2 | 35°28' | 75°15' | 43 | 39°21' | 74°06' |
| 3 | 35°41' | 74°58' | 60 | 39°28' | 72°33' |
| 4 | 35°51' | 75°29' | 64 | 39°33' | 72°07' |
| 7 | 36°09' | 75°06' | 52 | 39°34' | 73°49' |
| 5 | 36°15' | 75°32' | 84 | 39°37' | 70°30' |
| 8 | 36°16' | 74°46' | 51 | 39°39' | 73°23' |
| 6 | 36°23' | 75°15' | 59 | 39°39' | 72°46' |
| 11 | 36°33' | 75°47' | 53 | 39°43' | 74°03' |
| 9 | 36°39' | 74°52' | 83 | 39°48' | 70°35' |
| 10 | 36°43' | 75°22' | 65 | 39°51' | 72°27' |
| 18 | 36°44' | 74°20' | 58 | 39°52' | 73°05' |
| 17 | 36°46' | 74°35' | 71 | 39°52' | 71°49' |
| 16 | 36°49' | 74°50' | 116 | 39°52' | 69°00' |
| 15 | 36°51' | 75°04' | 82 | 39°59' | 70°40' |
| 14 | 36°53' | 75°19' | 72 | 40°04' | 71°30' |
| 13 | 36°55' | 75°33' | 152 | 40°05' | 67°40' |
| 12 | 36°57' | 75°48' | 115 | 40°05' | 69°01' |
| 19 | 37°13' | 74°45' | 57 | 40°06' | 73°23' |
| 21 | 37°15' | 75°40' | 54 | 40°07' | 73°48' |
| 20 | 37°18' | 75°09' | 91 | 40°08' | 69°34' |
| 36 | 37°25' | 73°50' | 81 | 40°10' | 70°46' |
| 24 | 37°31' | 74°57' | 85 | 40°13' | 70°25' |
| 25 | 37°31' | 74°39' | 70 | 40°14' | 71°57' |
| 26 | 37°33' | 74°21' | 56 | 40°16' | 73°36' |
| 22 | 37°37' | 75°19' | 66 | 40°19' | 72°43' |
| 35 | 37°41' | 74°03' | 118 | 40°20' | 68°21' |
| 23 | 37°48' | 75°17' | 80 | 40°21' | 70°51' |
| 27 | 37°48' | 74°46' | 151 | 40°22' | 67°40' |
| 34 | 37°51' | 74°11' | 90 | 40°24' | 69°42' |
| 37 | 37°59' | 73°58' | 55 | 40°25' | 73°50' |
| 33 | 38°04' | 74°22' | 114 | 40°25' | 69°03' |
| 28 | 38°10' | 74°54' | 67 | 40°28' | 73°13' |
| 32 | 38°14' | 74°31' | 117 | 40°29' | 68°37' |
| 38 | 38°21' | 73°39' | 73 | 40°31' | 71°36' |
| 31 | 38°25' | 74°39' | 119 | 40°31' | 67°56' |
| 39 | 38°25' | 74°07' | 69 | 40°34' | 72°23' |
| 30 | 38°35' | 74°48' | 92 | 40°37' | 69°14' |
| 46 | 38°39' | 73°09' | 150 | 40°37' | 67°41' |
| 40 | 38°40' | 74°19' | 113 | 40°39' | 69°05' |
| 29 | 38°45' | 74°57' | 154 | 40°40' | 67°05' |
| 45 | 38°45' | 73°45' | 79 | 40°41' | 71°02' |
| 41 | 38°55' | 74°37' | 89 | 40°41' | 70°11' |
| 44 | 38°57' | 74°07' | 86 | 40°42' | 70°35' |
| 48 | 38°58' | 72°48' | 68 | 40°44' | 72°40' |
| 47 | 38°59' | 73°08' | 153 | 40°46' | 67°19' |
| 63 | 39°02' | 71°57' | 120 | 40°48' | 68°17' |
| 62 | 39°10' | 72°08' | 74 | 40°49' | 72°08' |
| 50 | 39°12' | 73°39' | 121 | 40°51' | 68°44' |
| 42 | 39°14' | 74°25' | 93 | 40°53' | 69°34' |
| 49 | 39°17' | 72°51' | | | |

MARMAP STATIONS, BY LATITUDE (cont'd)

| Sta. # | Latitude N. | Longitude W. |
|---|---|---|
| 180 | 40°54' | 66°19' |
| 112 | 40°55' | 69°06' |
| 149 | 40°56' | 67°41' |
| 78 | 40°58' | 71°10' |
| 88 | 41°03' | 70°33' |
| 75 | 41°04' | 71°42' |
| 111 | 41°04' | 69°06' |
| 77 | 41°09' | 71°15' |
| 179 | 41°10' | 66°19' |
| 87 | 41°10' | 71°00' |
| 123 | 41°11' | 68°08' |
| 155 | 41°13' | 66°56' |
| 148 | 41°16' | 67°41' |
| 156 | 41°18' | 67°33' |
| 76 | 41°20' | 71°21' |
| 110 | 41°20' | 69°07' |
| 122 | 41°20' | 68°42' |
| 147 | 41°30' | 67°41' |
| 178 | 41°30' | 66°20' |
| 94 | 41°32' | 69°26' |
| 157 | 41°33' | 67°01' |
| 124 | 41°36' | 68°09' |
| 158 | 41°36' | 66°31' |
| 126 | 41°37' | 68°53' |
| 181 | 41°39' | 65°55' |
| 109 | 41°39' | 69°09' |
| 146 | 41°48' | 67°42' |
| 177 | 41°52' | 66°20' |
| 125 | 41°52' | 68°11' |
| 182 | 41°54' | 65°49' |
| 108 | 41°54' | 69°10' |
| 95 | 41°58' | 69°50' |
| 127 | 41°59' | 68°39' |
| 160 | 41°59' | 67°24' |
| 159 | 42°02' | 66°50' |
| 97 | 42°06' | 70°20' |
| 176 | 42°09' | 66°20' |
| 128 | 42°10' | 68°48' |
| 161 | 42°11' | 67°15' |
| 107 | 42°11' | 69°12' |
| 183 | 42°14' | 65°23' |
| 96 | 42°15' | 69°43' |
| 175 | 42°17' | 66°20' |
| 145 | 42°18' | 67°42' |
| 129 | 42°19' | 68°27' |
| 98 | 42°26' | 70°38' |
| 174 | 42°28' | 66°20' |
| 106 | 42°35' | 69°14' |
| 144 | 42°36' | 67°42' |
| 184 | 42°39' | 65°51' |
| 173 | 42°39' | 66°20' |
| 130 | 42°40' | 68°19' |
| 162 | 42°43' | 67°28' |
| 131 | 42°45' | 68°46' |
| 163 | 42°46' | 66°58' |
| 99 | 42°48' | 70°32' |
| 100 | 42°50' | 70°00' |
| 132 | 42°55' | 68°22' |
| 143 | 42°59' | 67°42' |
| 172 | 43°01' | 66°20' |
| 105 | 43°06' | 69°18' |
| 185 | 43°06' | 65°26' |
| 101 | 43°08' | 69°58' |
| 136 | 43°08' | 69°01' |
| 133 | 43°12' | 67°59' |
| 164 | 43°12' | 66°48' |
| 103 | 43°20' | 69°41' |
| 135 | 43°22' | 68°41' |
| 134 | 43°23' | 68°08' |
| 102 | 43°24' | 70°12' |
| 166 | 43°30' | 67°00' |
| 171 | 43°32' | 66°20' |
| 165 | 43°35' | 66°44' |
| 137 | 43°37' | 68°56' |
| 104 | 43°40' | 69°22' |
| 167 | 43°42' | 67°26' |
| 142 | 43°49' | 67°43' |
| 138 | 43°58' | 68°35' |
| 140 | 43°58' | 68°11' |
| 139 | 44°01' | 68°17' |
| 168 | 44°02' | 67°10' |
| 169 | 44°16' | 67°07' |
| 170 | 44°16' | 66°36' |
| 141 | 44°20' | 67°43' |