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INSTITUT OcéANOGRAPHIQUE DE
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INSTITUTE OF OcéANOGRAPHY
DARTMOUTH, N.S.

ATLAS
of
OcéANOGRAPHIC SECTIONS
TEMPERATURE-SALINITY-DISSOLVED OXYGEN
NORTHWEST ATLANTIC OcéAN
NEWFOUNDLAND BASIN and GULF STREAM

FEBRUARY, 1962-JULY, 1964

by

C.R. MANN A.B. GRANT T.R. FOOTE

REPORT B.I.O. 65 - 16

NOVEMBER 1965

Programmed by
THE CANADIAN COMMITTEE ON OcéANOGRAPHY



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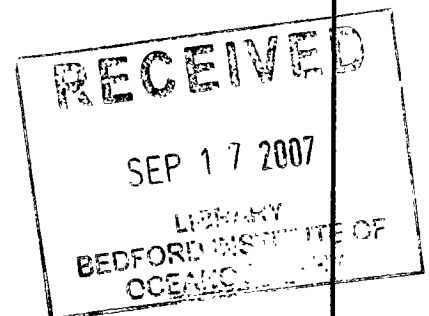
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P R E F A C E

Introduction:

This publication contains sections of temperature, salinity and dissolved oxygen content, which were prepared from data collected on several cruises by the Bedford Institute of Oceanography in the periods outlined in the Table of Contents.

The data were collected for studies of the properties and circulation of the Gulf Stream and the slope water off the Scotian Shelf and in the Newfoundland Basin of the North Atlantic Ocean. The atlas does not represent the entire data collection: continuous records of sea surface temperature and GEK records have been omitted. On many sections Bathythermograph data were obtained between stations and have been used to assist in drawing temperature contours near the surface.

General Layout:

The cruises on which the data were obtained are listed in the Table of Contents, together with the ship and the month and year that the data were collected. The cruise numbering system is not uniform because of a change in 1964. The data are tabulated in the Canadian Oceanographic Data Centre Record Series for 1964 and 1965. They can be obtained from the Data Centre by specifying the Cruise No., Ship, and Date.

Following the Table of Contents is a chart showing all the sections contained in the Atlas. The sections have been divided chronologically into four groups: pp. 1 – 15, pp. 16 – 19, pp. 20 – 34, pp. 35 – 51. Preceding each group is a chart showing the geographical positions of the sections making up the group and the positions of the oceanographic stations along the sections. The approximate position of a section is shown on each page on a small inset of the entire area.

In order to facilitate comparison, sections of temperature, salinity, and oxygen have been printed on the same page when possible. When separate pages have been necessary for each of these, the order temperature, salinity, oxygen, has been adhered to.

A vertical expansion of 500 was established for the earlier drawings to depths of 2500 metres (to p. 19) but this was altered to 250 when it became desirable to

show depths to 5000 metres and greater, and still maintain a reasonably sized drawing. For the sections on pp. 32 to 34 the size of the drawing has been doubled in order to show detail in this heterogeneous body of water while the vertical expansion of 250 is retained.

Temperatures:

All temperatures are expressed in degrees centigrade. Those on the surface were obtained by collecting a sample of water in a metal bucket and measuring its temperature with a mercury-in-glass thermometer accurate to $\pm 0.1^{\circ}\text{C}$. Sub-surface temperatures were measured with Richter and Wiese or Yoshino reversing thermometers. They are considered accurate to $\pm 0.02^{\circ}\text{C}$.

Salinities:

Salinity determinations were made with an N.I.O. conductive salinometer except for Cruise B-4, CSS BAFFIN, when an Auto-Lab inductive salinometer was used. Salinities, with the exception of those from stations 1 to 41 of cruise BIO-9-64, are expressed to 0.001 o/oo. They are considered accurate to ± 0.004 o/oo. Due to possible sample deterioration the salinities of the above stations (1 to 41) are expressed to 0.01 o/oo and are considered accurate to ± 0.02 o/oo.

Oxygen:

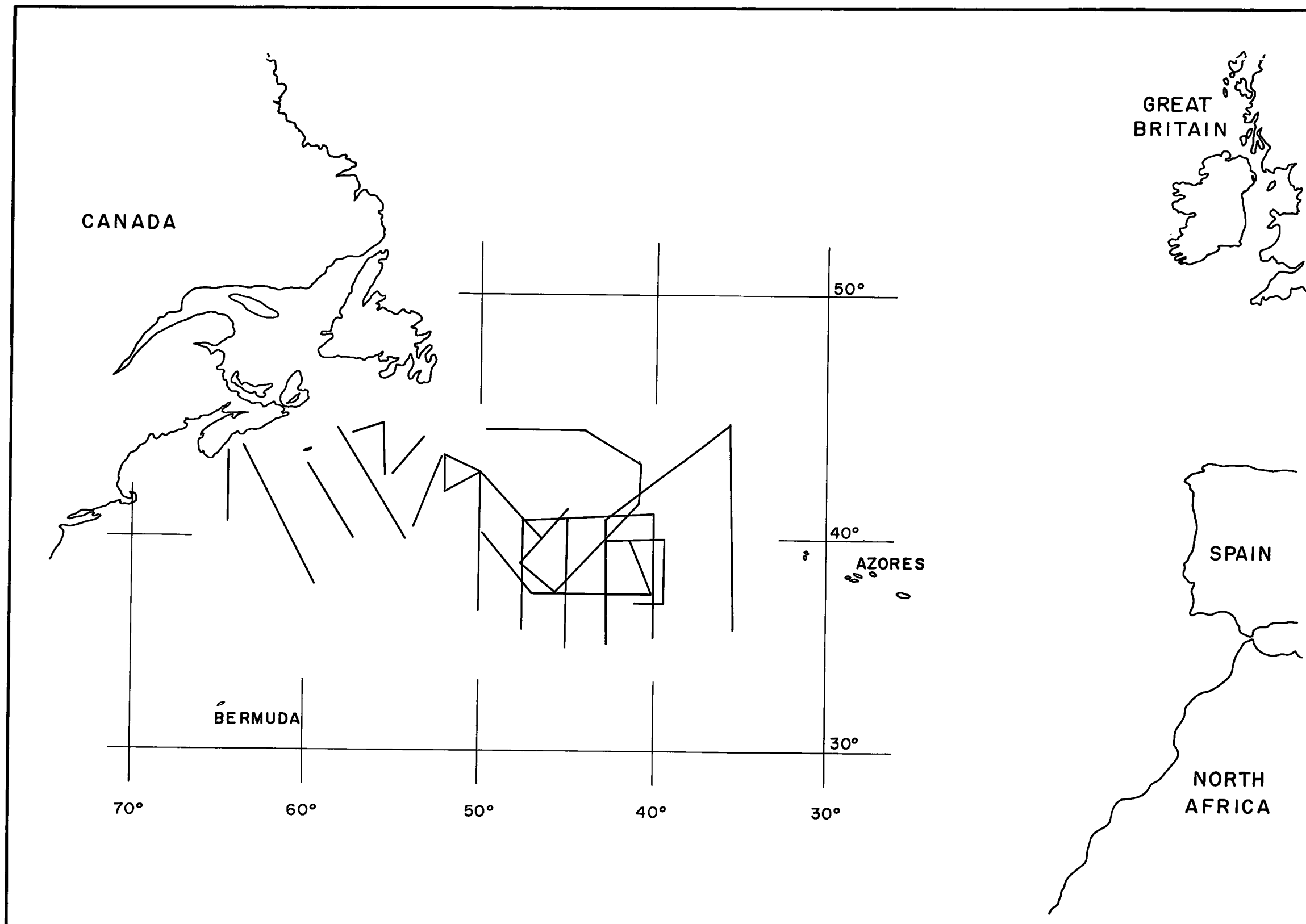
Dissolved oxygen content was determined by the modified Winkler Technique (F.R.B. Bulletin 125). On occasional stations, and on Cruise No. S-71 in particular, oxygen was not observed.

Bottom Profiles:

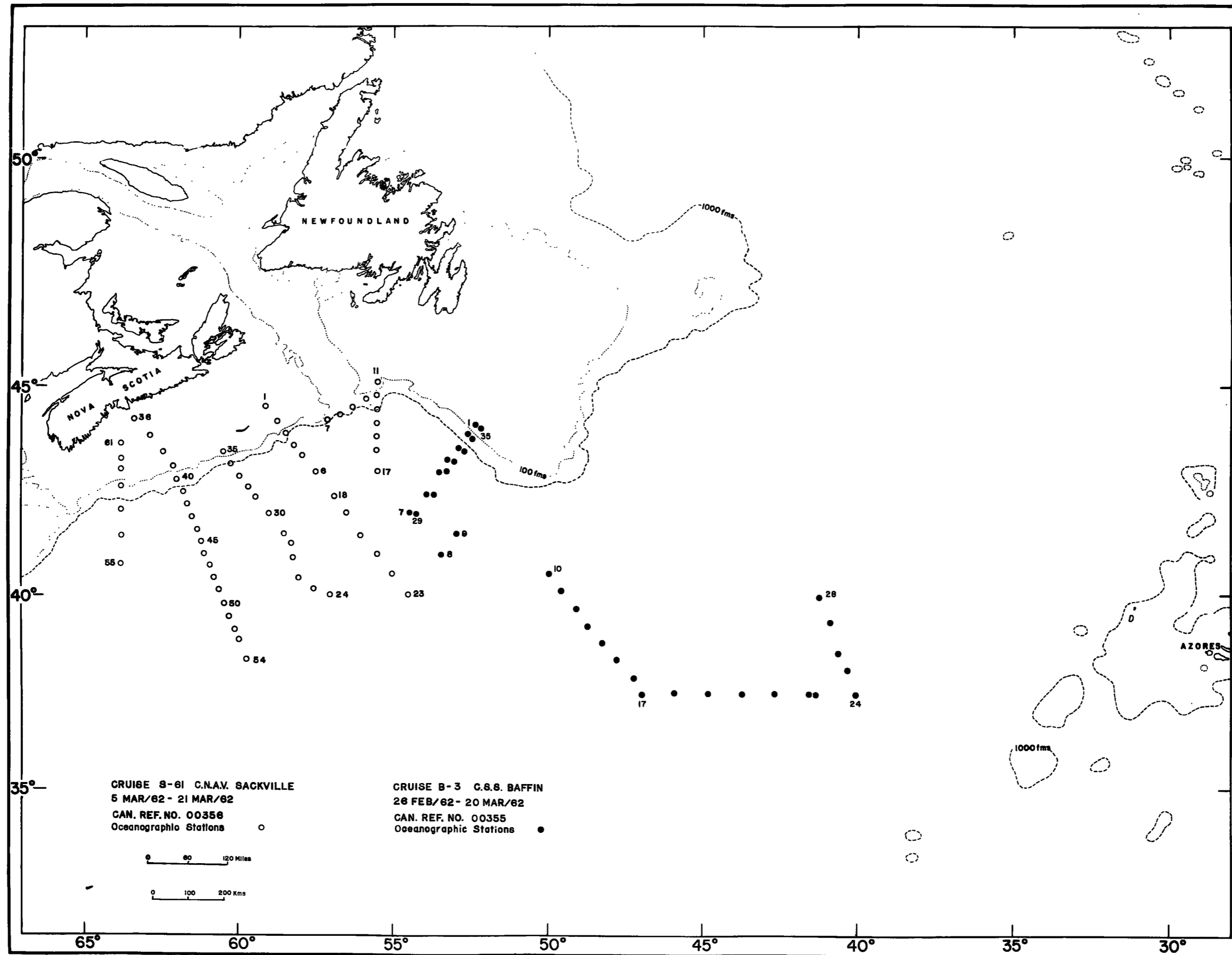
Bottom profiles have been drawn for cruises B-4 and BIO-9-64. On Cruise B-4 the contours were drawn using the depth at each station obtained from the ship's echo-sounder. They are only approximate. On Cruise BIO-9-64 the ocean bottom is shown in more detail. This was made possible by the continuous use of a Precision Graphic Recorder during the cruise. These soundings were corrected by an approximate sound velocity vs. depth curve but should not be considered precise at all positions.

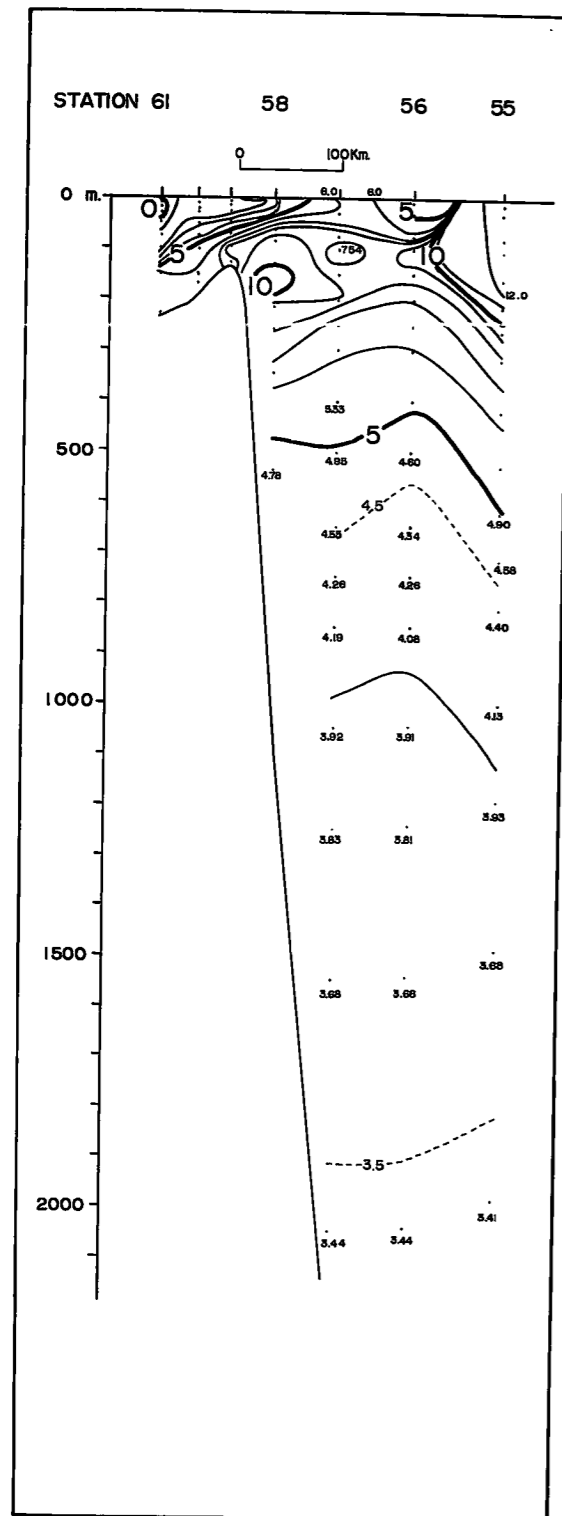
TABLE OF CONTENTS

<u>Page No.</u>	<u>Cruise No.</u>	<u>Ship</u>	<u>Date</u>
1 - 15	S - 61	CNAV SACKVILLE	March 1962
	B - 3	CSS BAFFIN	February and March 1962
16 - 19	S - 64	CNAV SACKVILLE	July and August 1962
20 - 34	B - 4	CSS BAFFIN	April and May 1963
	S - 71	CNAV SACKVILLE	April 1963
35 - 51	BIO - 9 - 64	CSS BAFFIN	June and July 1964

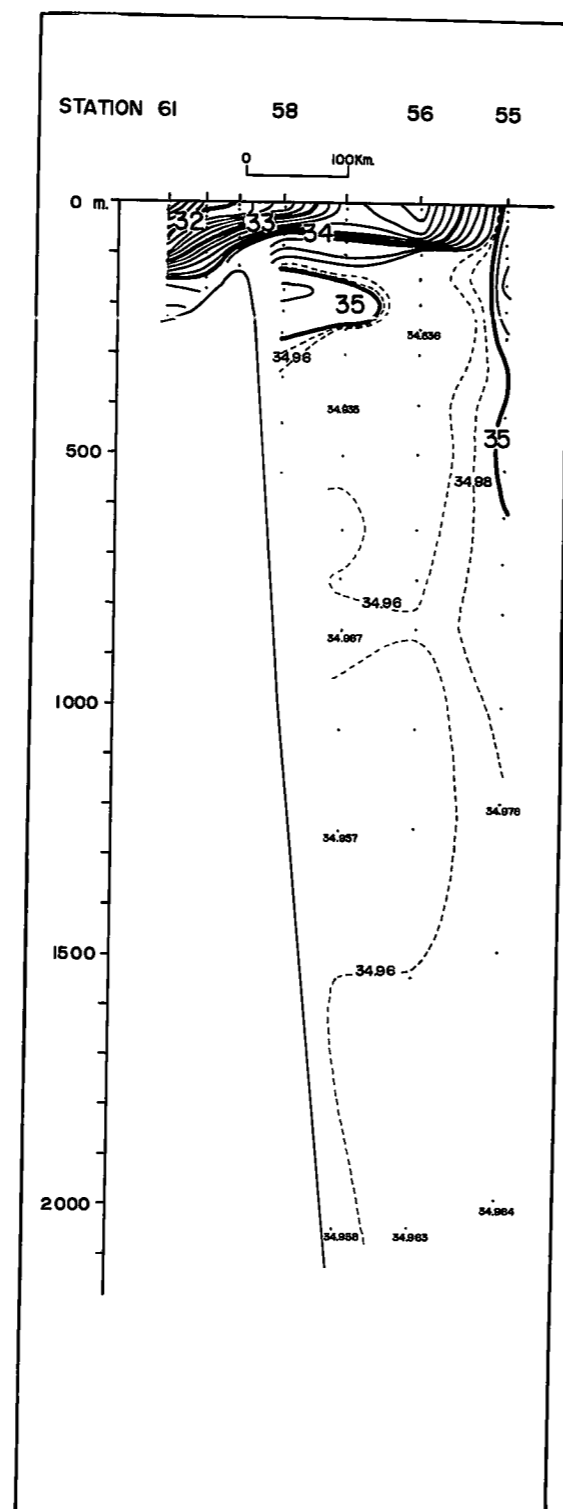


Oceanographic sections contained in the Atlas.

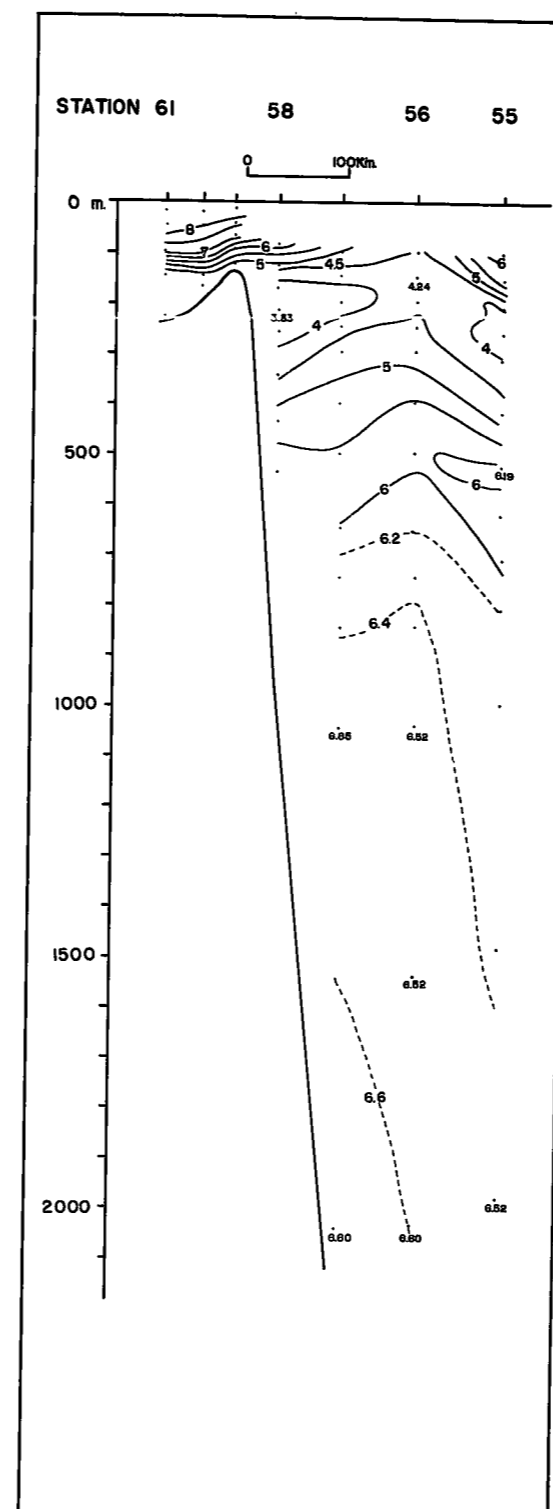




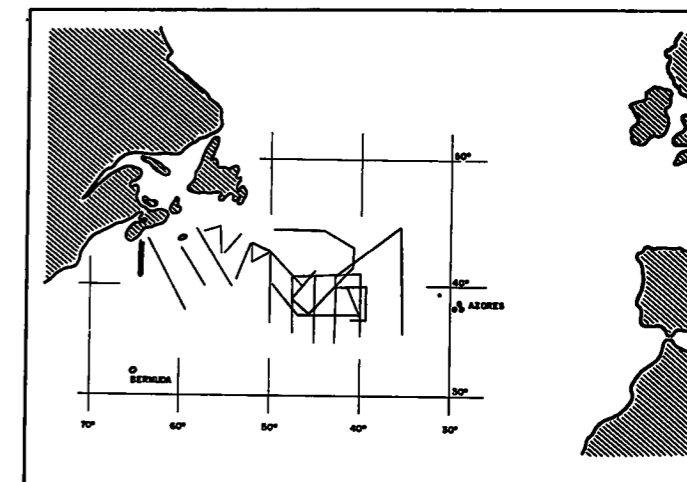
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SALINITY (‰)



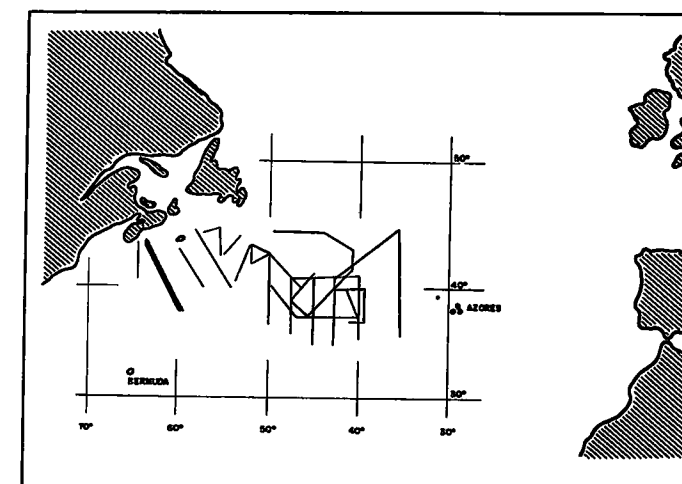
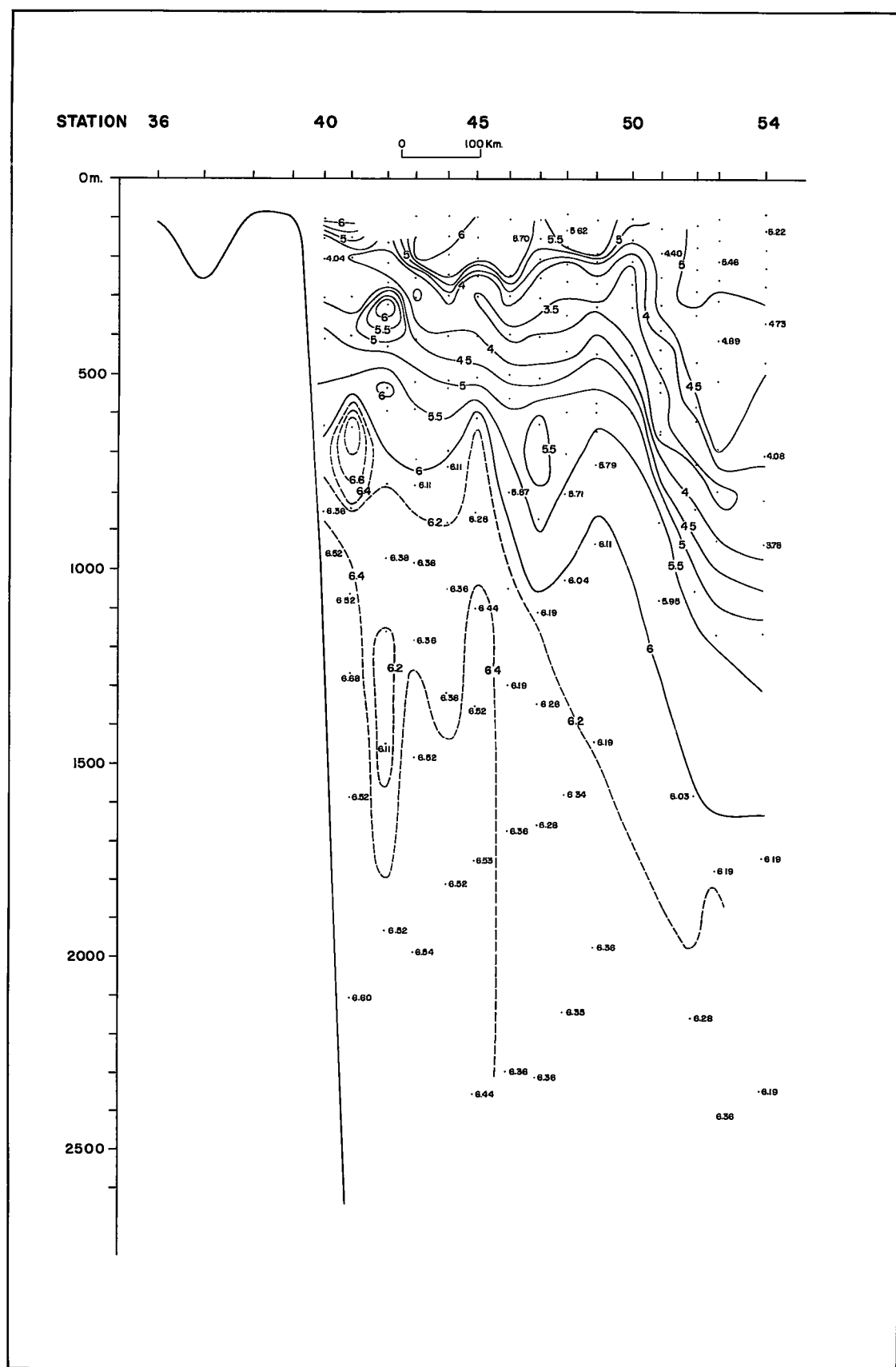
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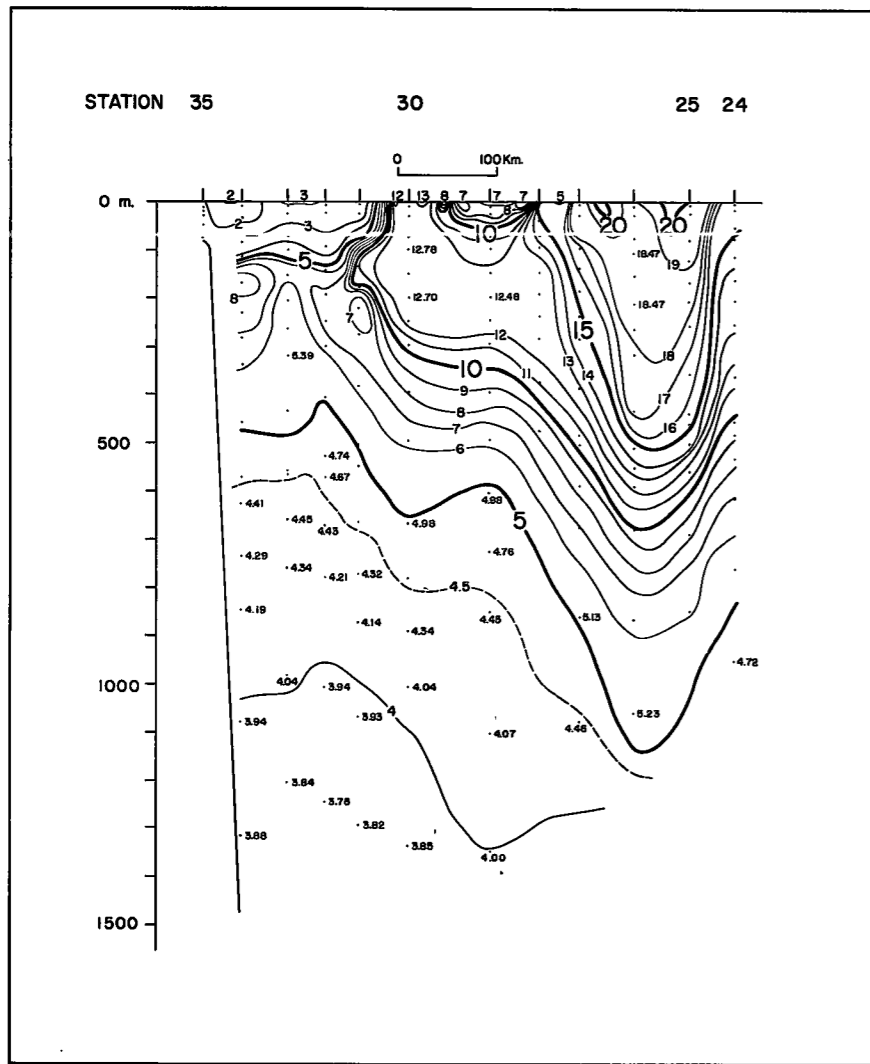
March 21, 1962

CNAV SACKVILLE

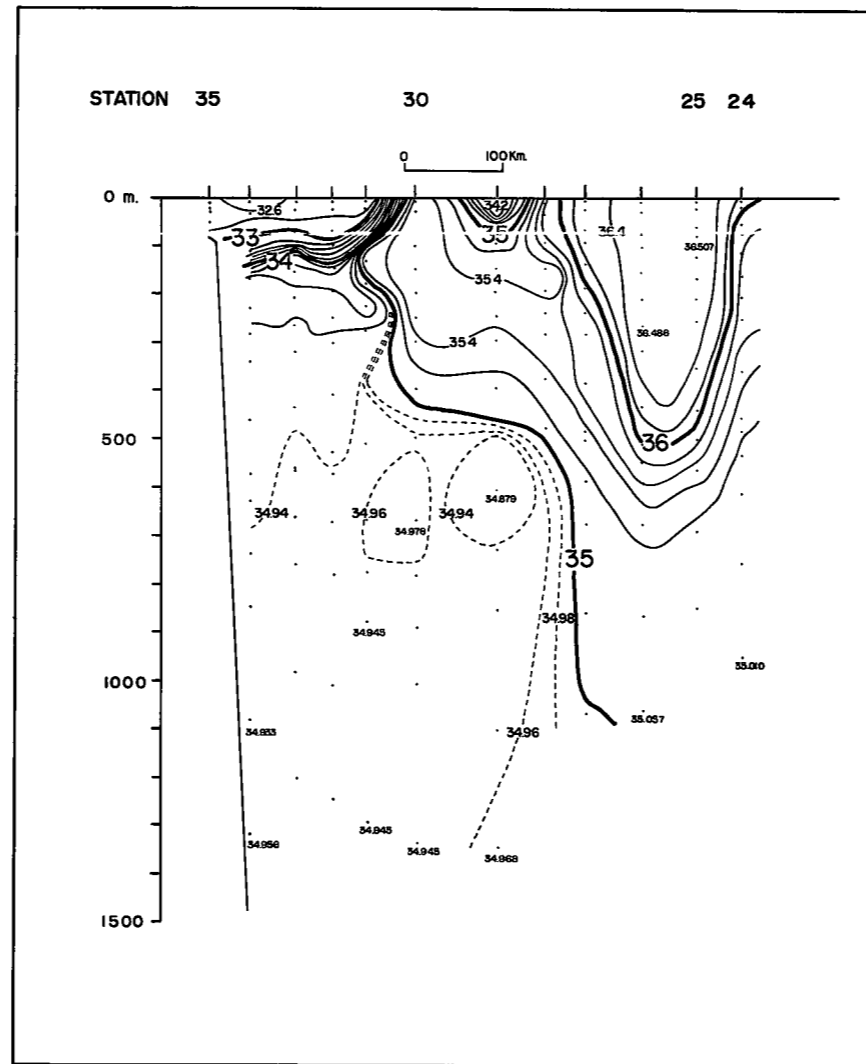
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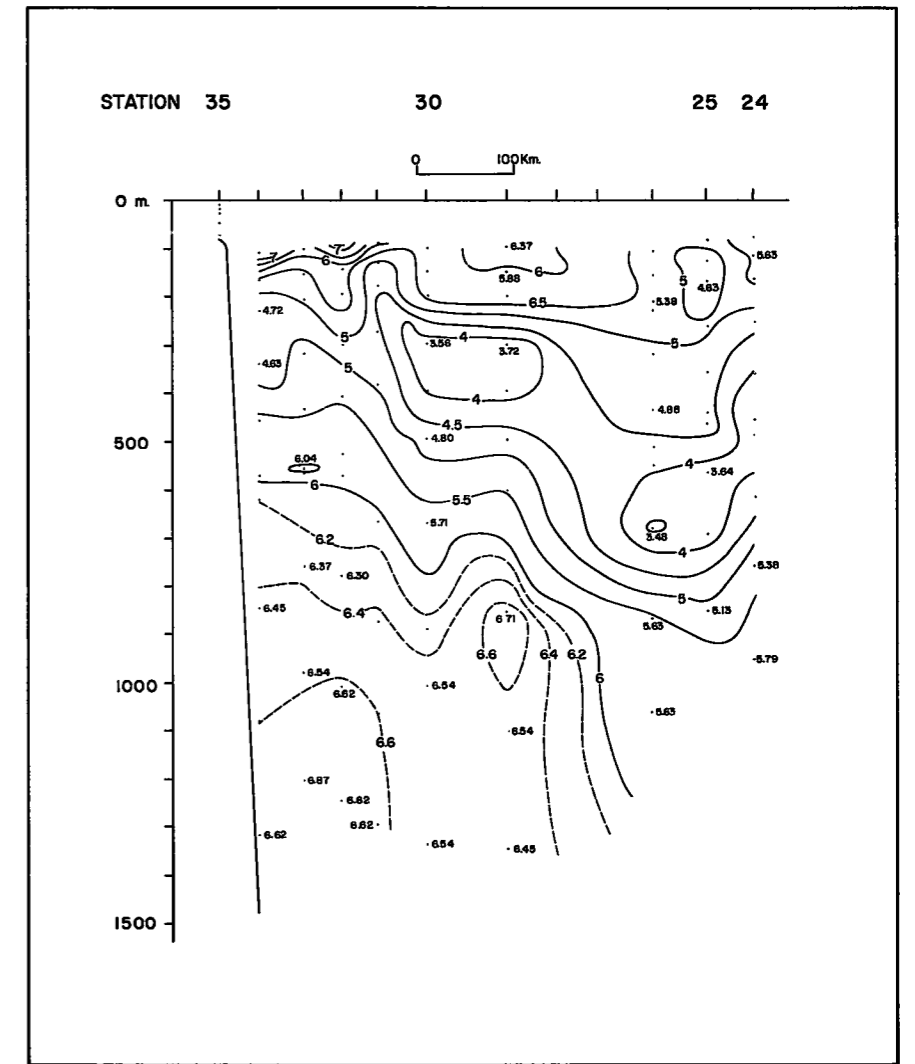
March 17 - March 20, 1962
 CNAV SACKVILLE
 Vertical Expansion 500



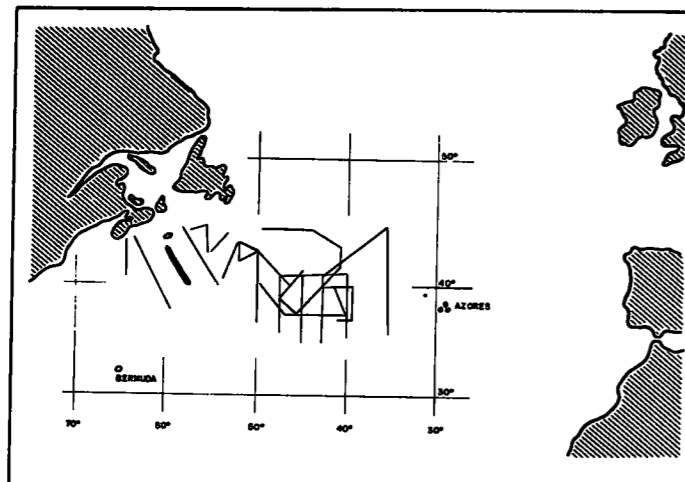
TEMPERATURE (°C)



SALINITY (‰)



OXYGEN (ml/L)

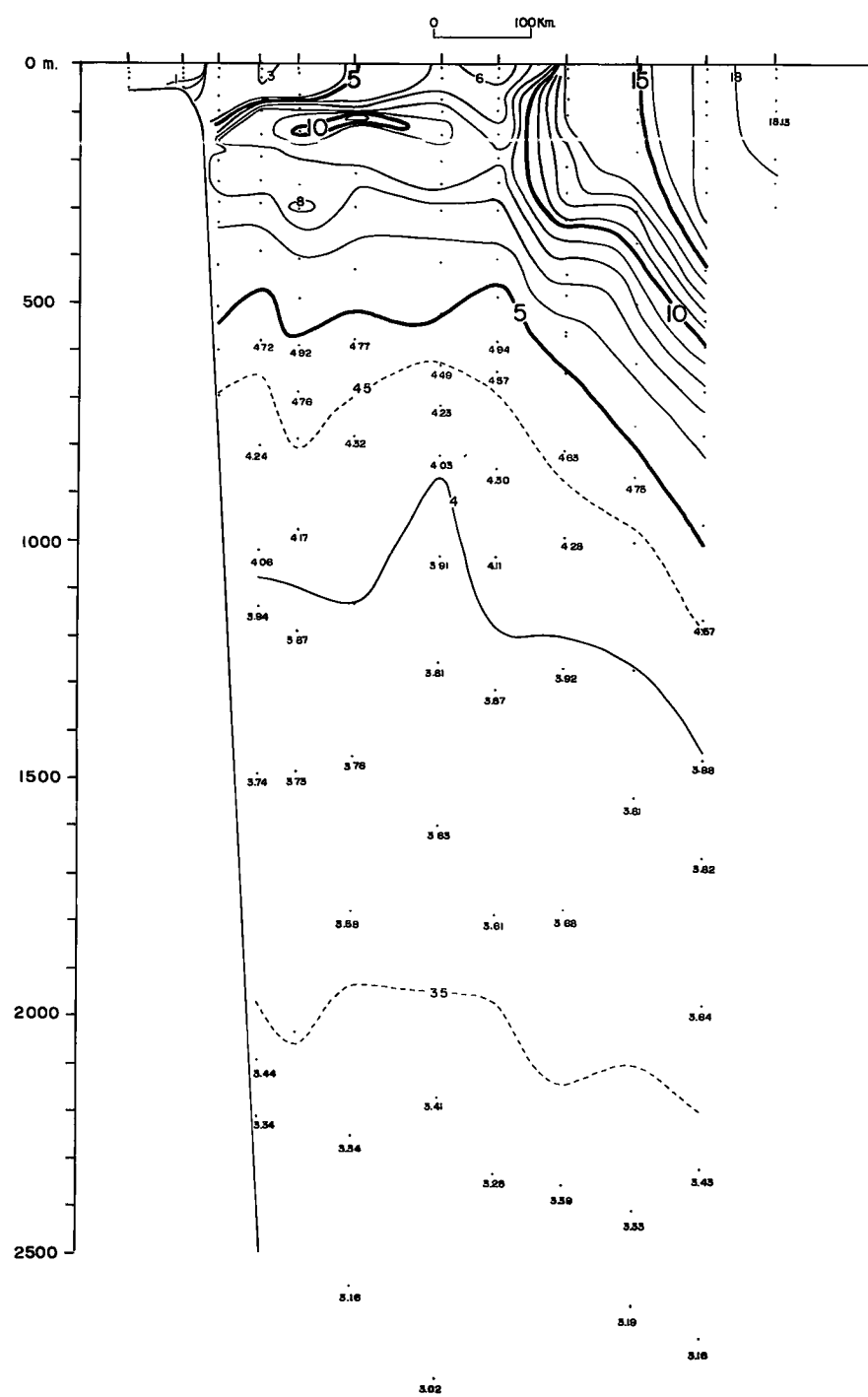


March 11 - March 14, 1962

CNAV SACKVILLE

Vertical Expansion 500

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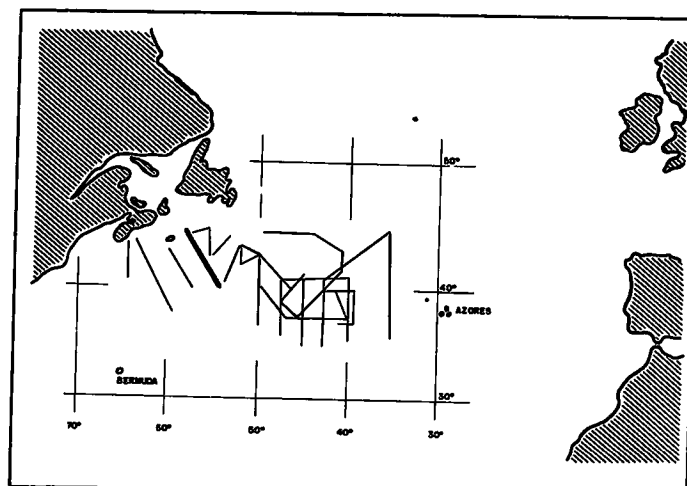


TEMPERATURE (°C)

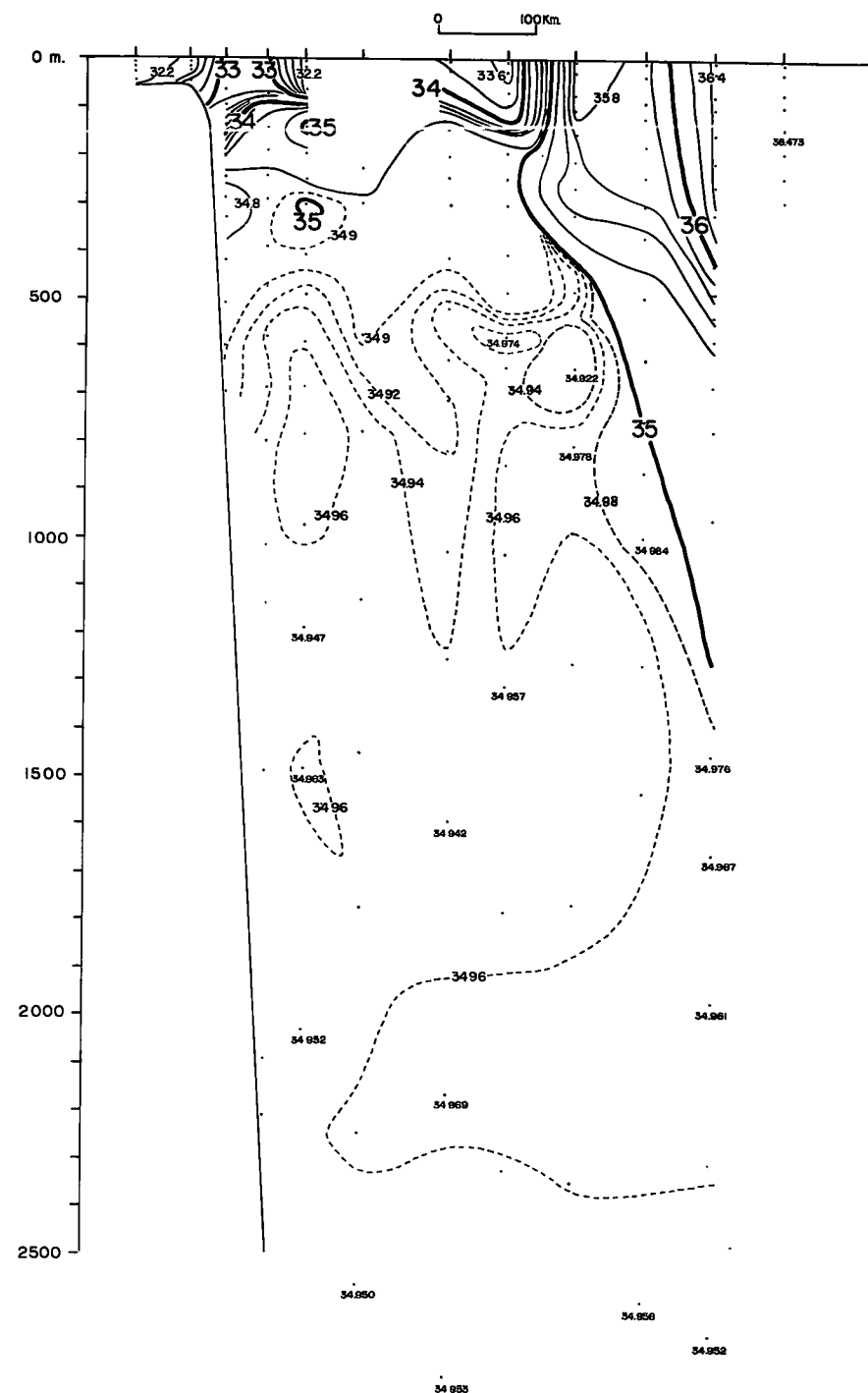
March 6 - March 11, 1962

CNAV SACKVILLE

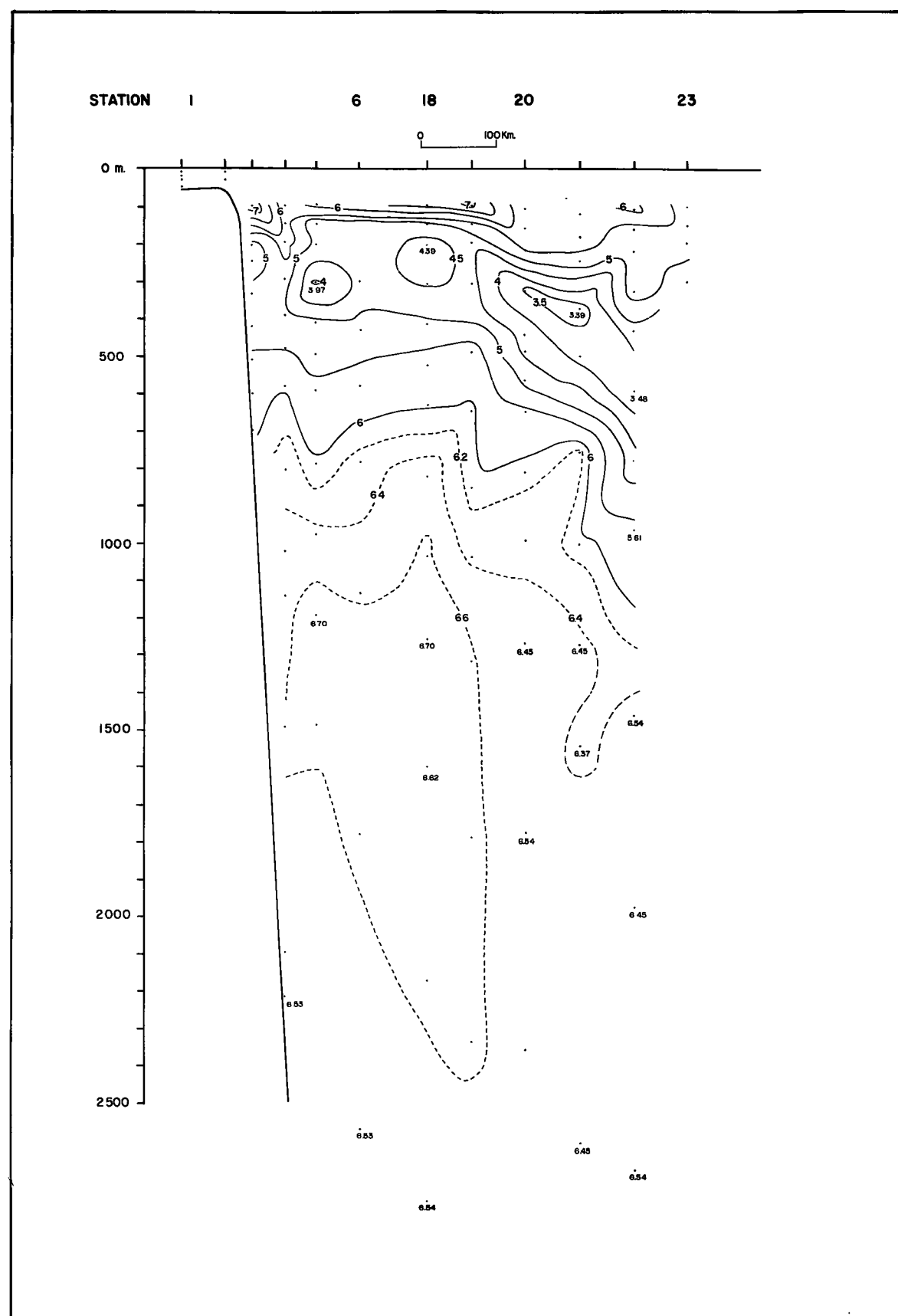
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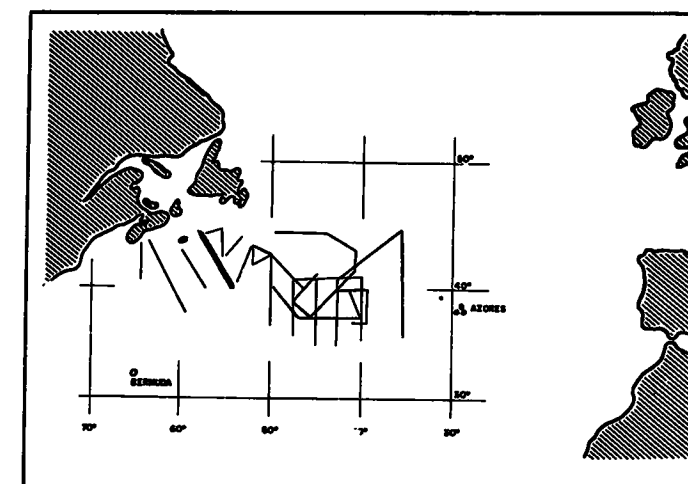
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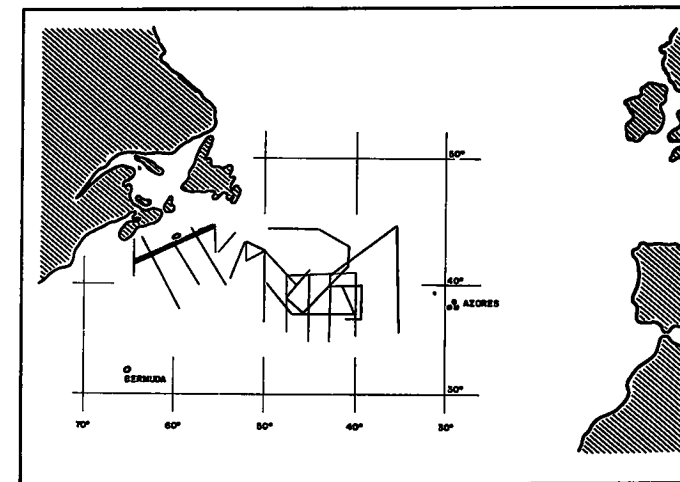
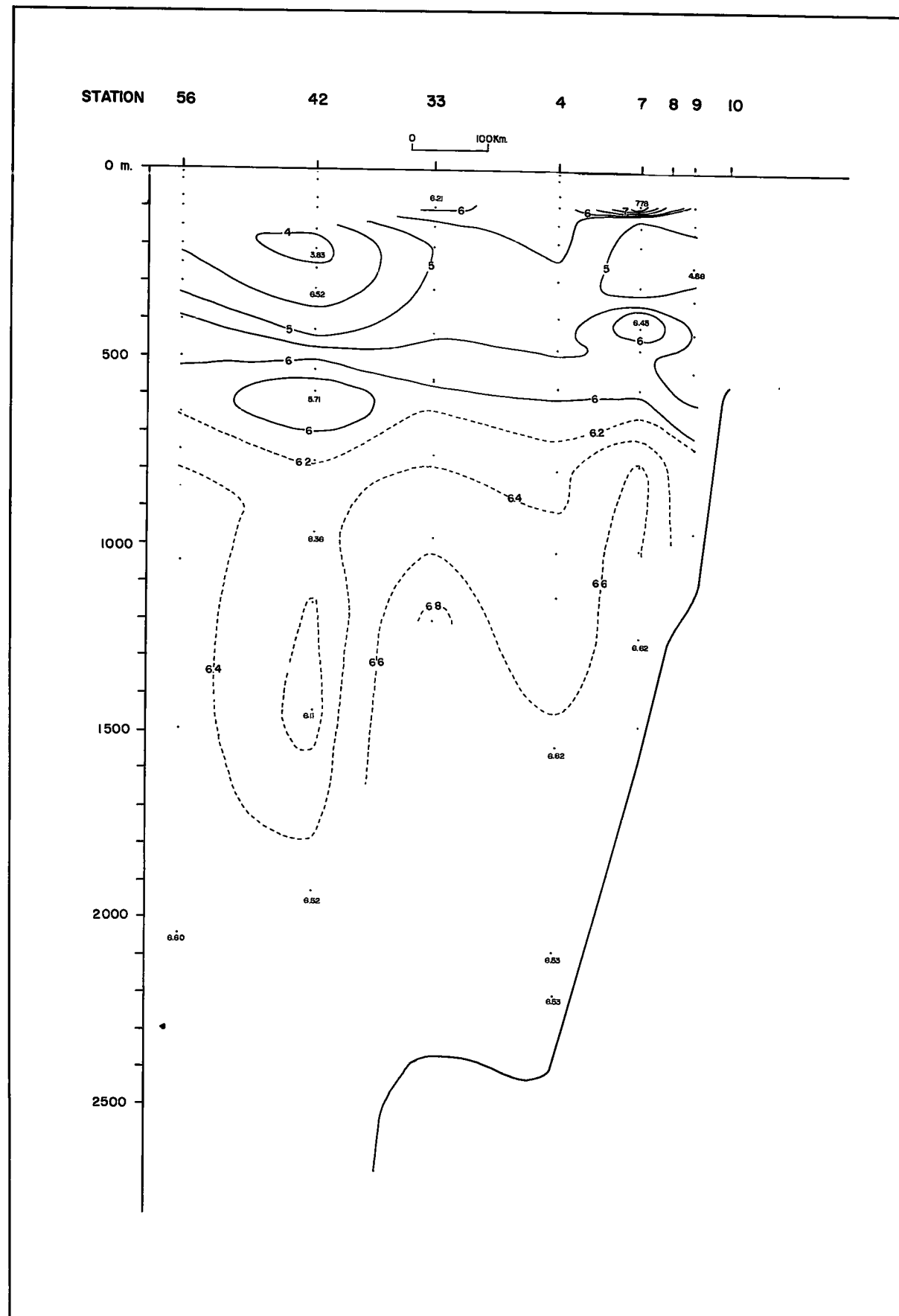
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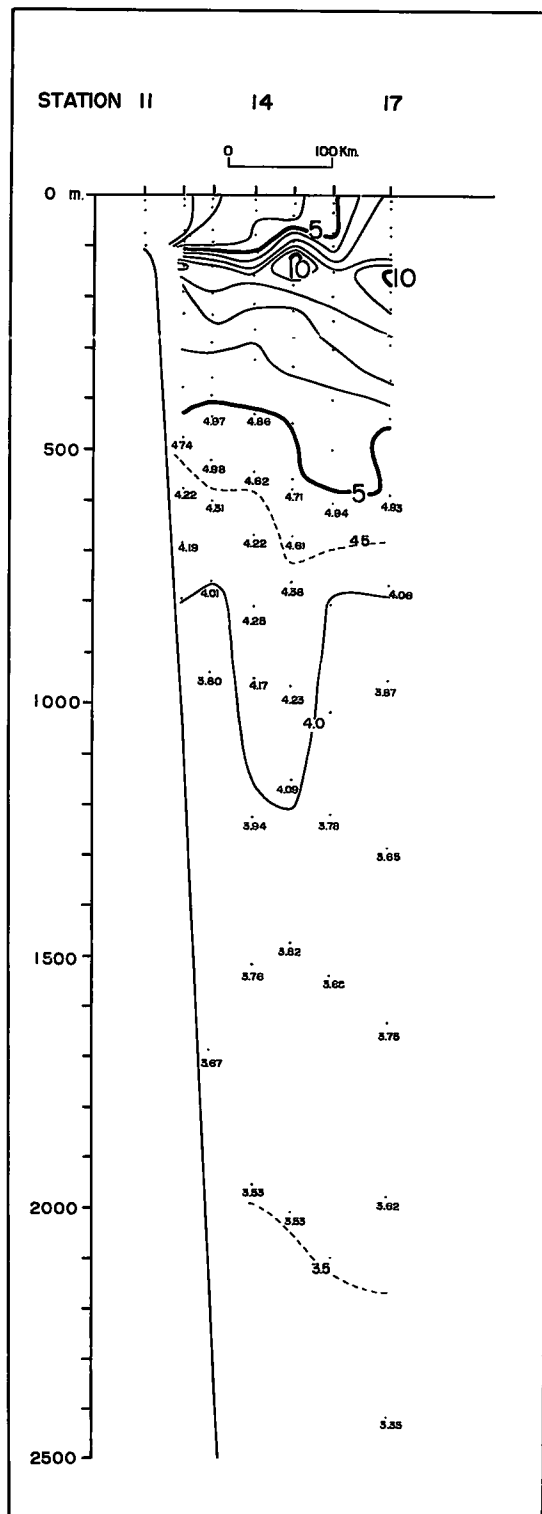
March 6 - March 11, 1962

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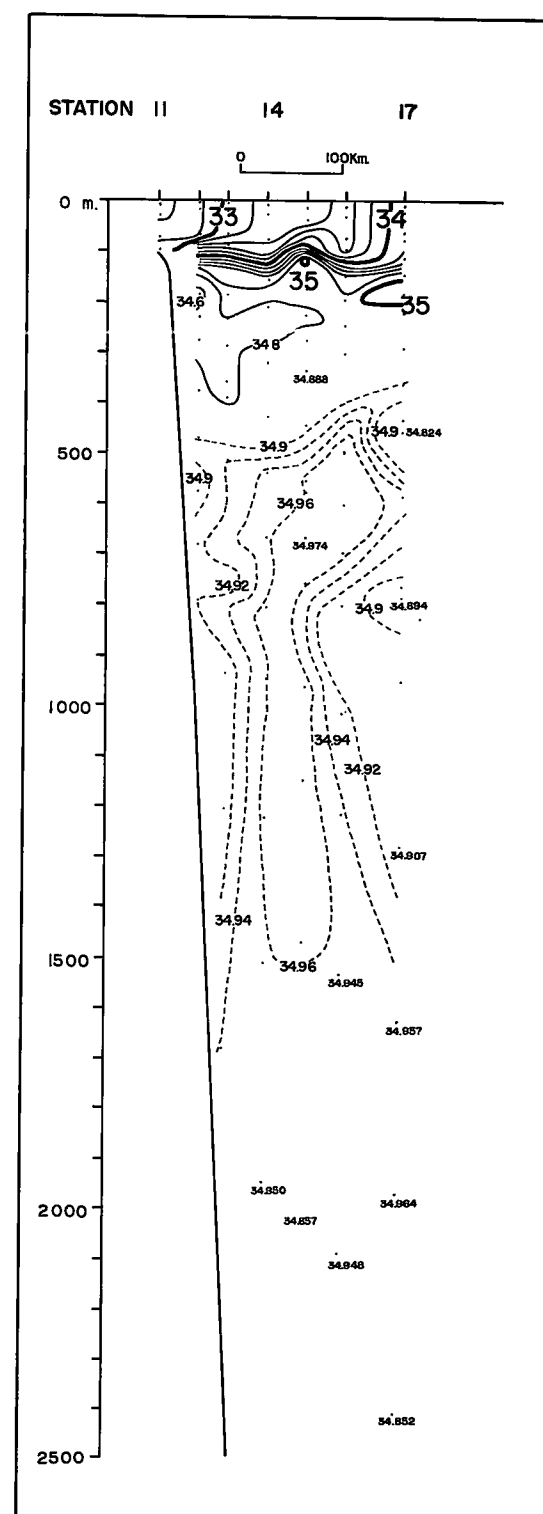
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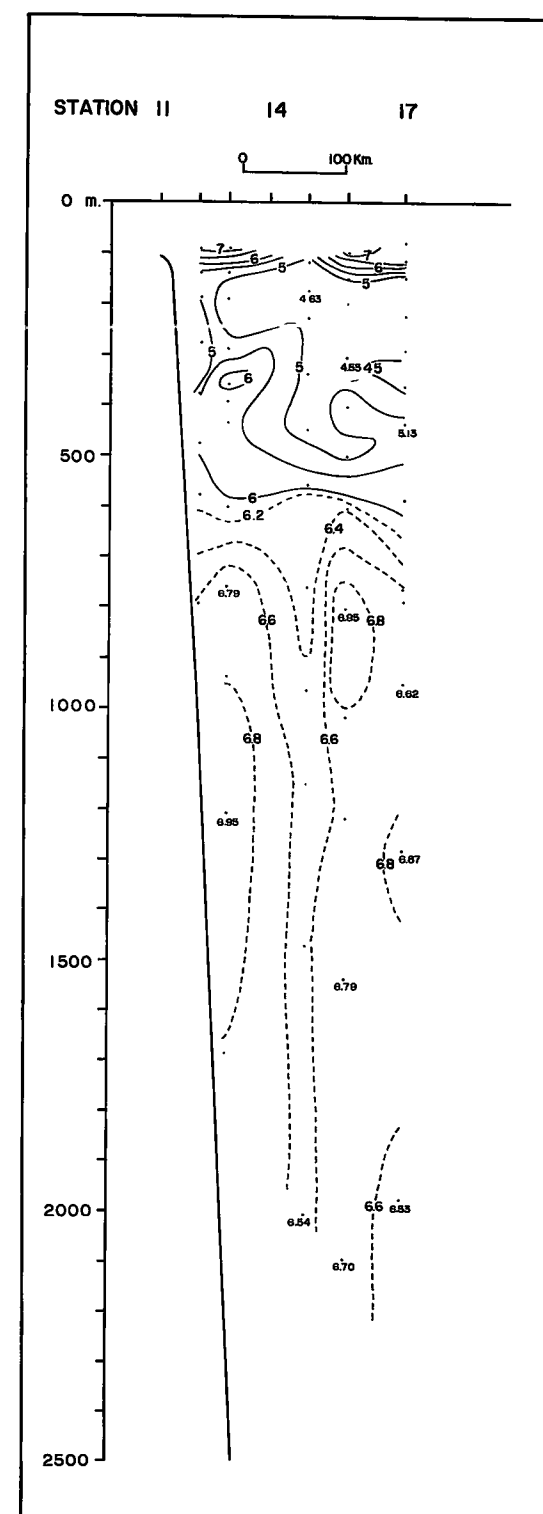
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 Vertical Expansion 500



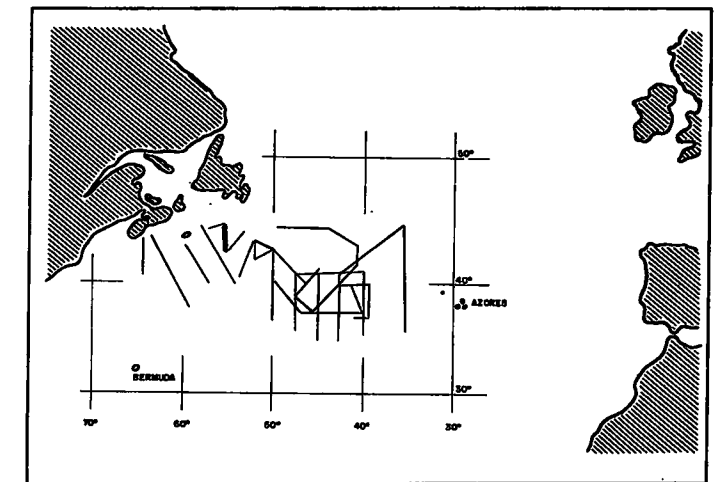
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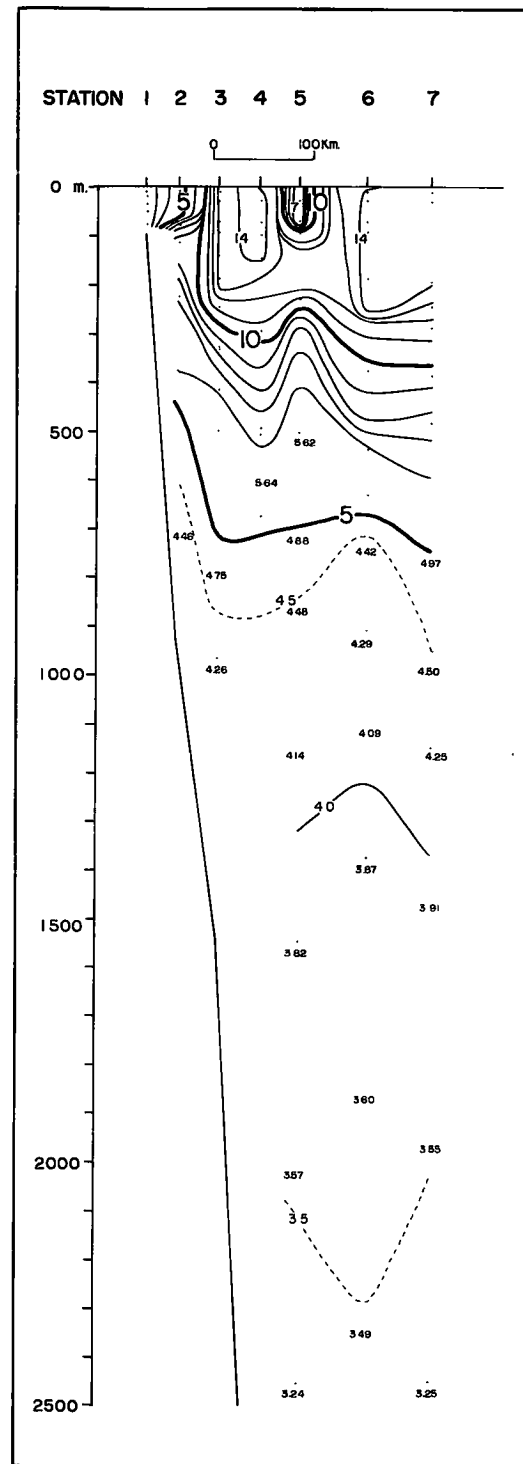
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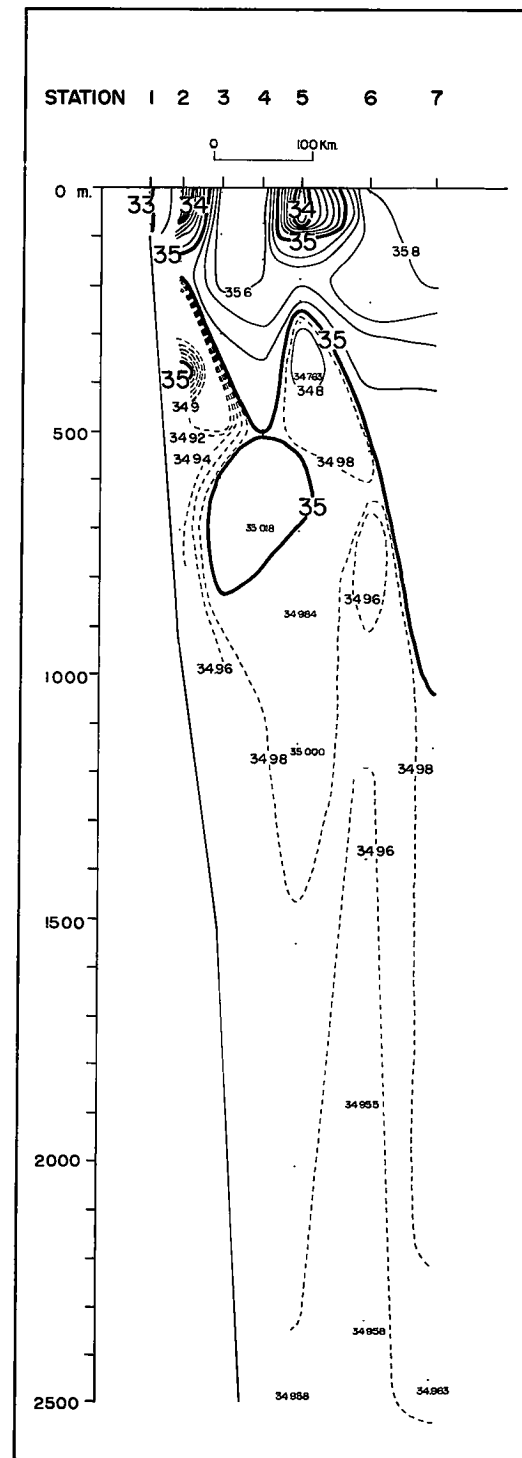
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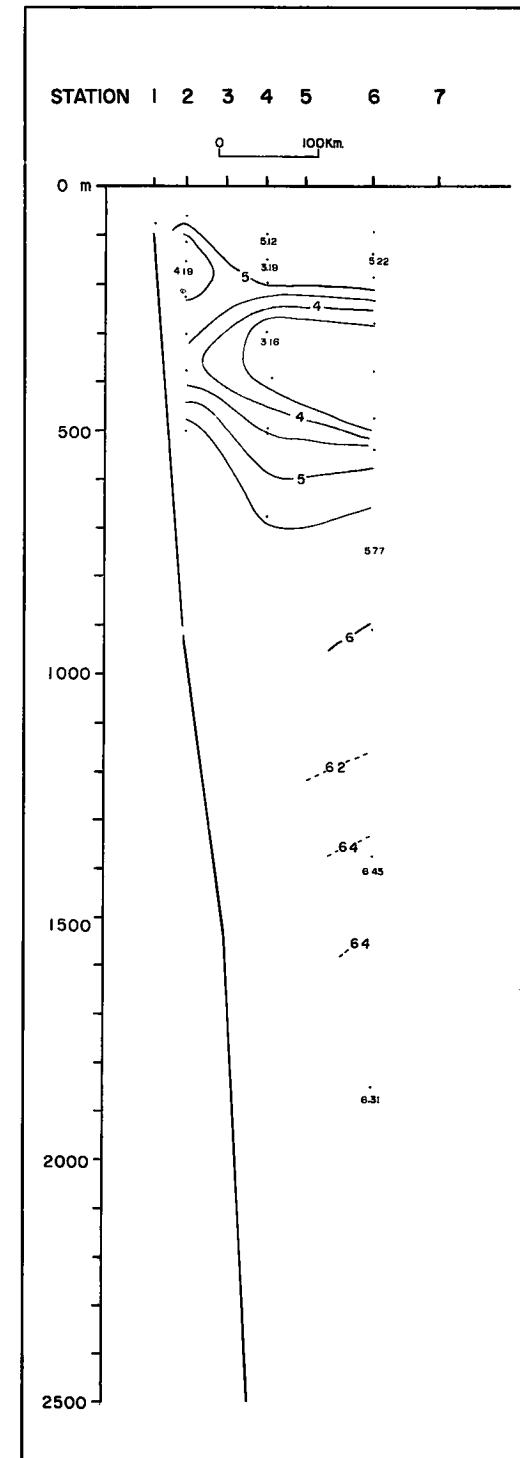
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 CNAV SACKVILLE
 Vertical Expansion 500



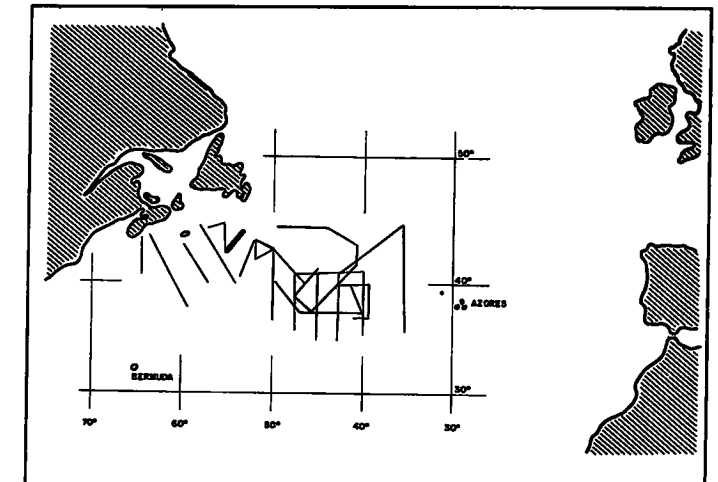
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SALINITY (‰)



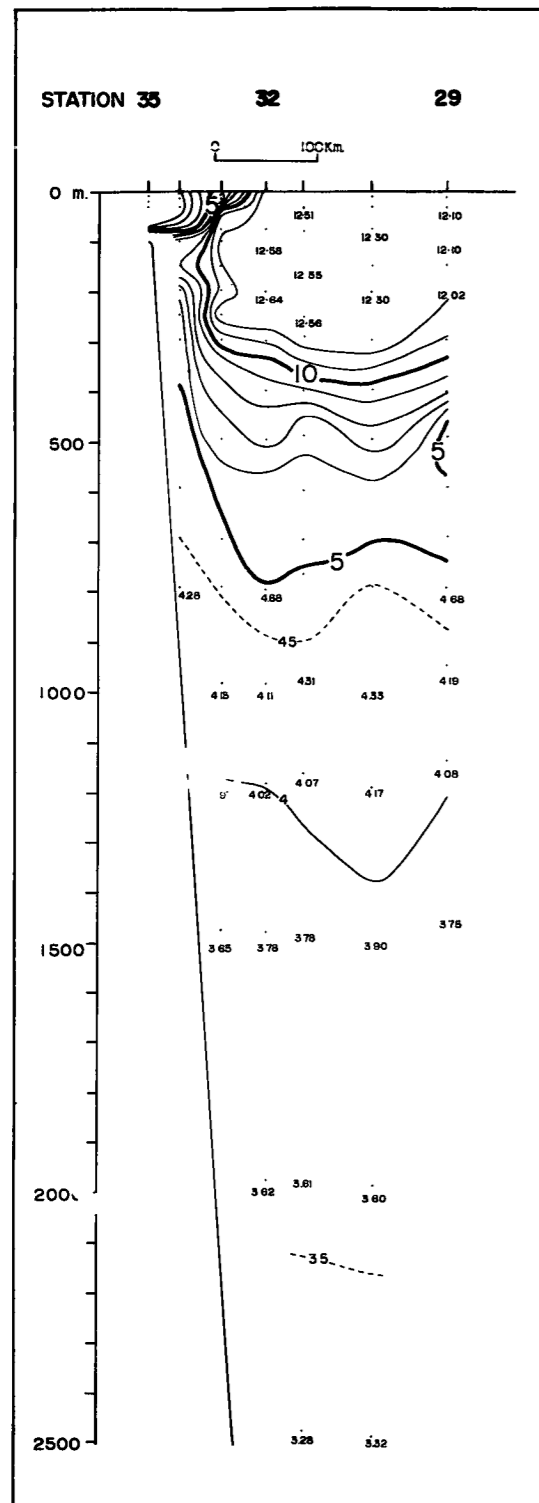
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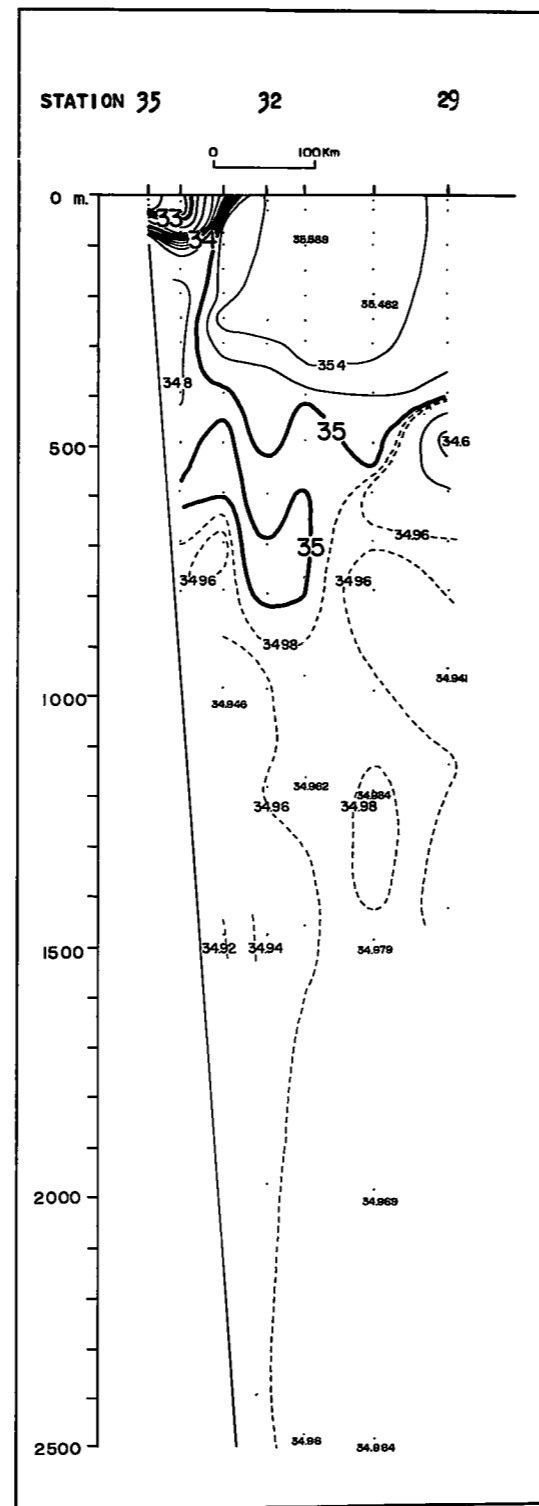
February 28 - March 1, 1962

CSS BAFFIN

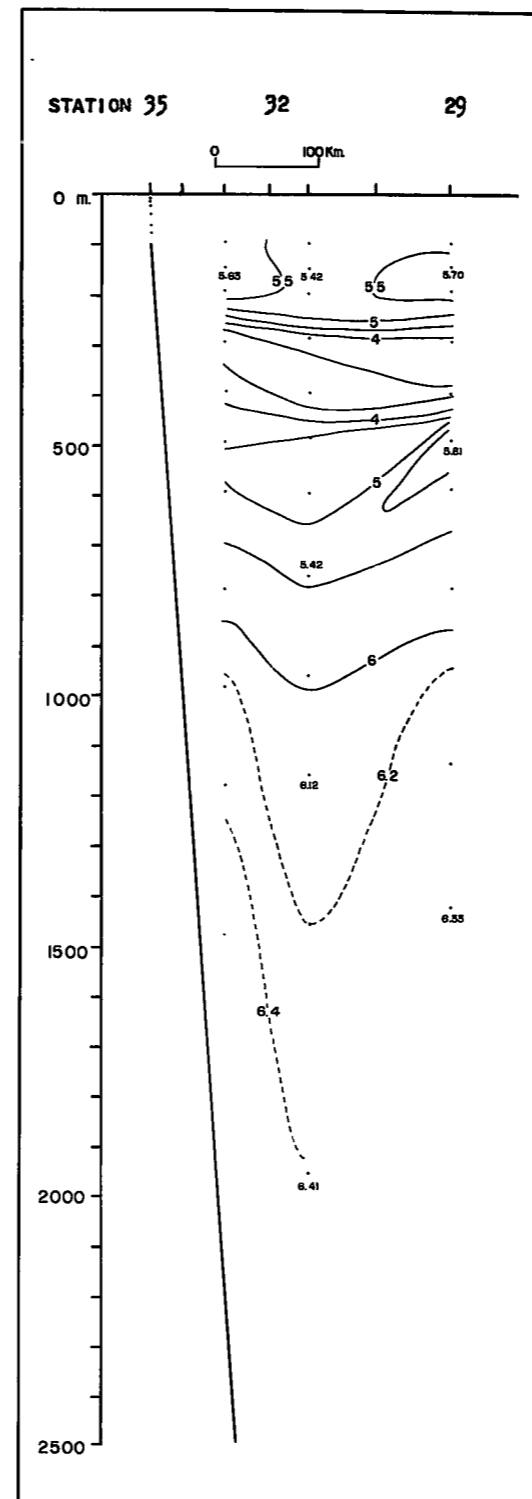
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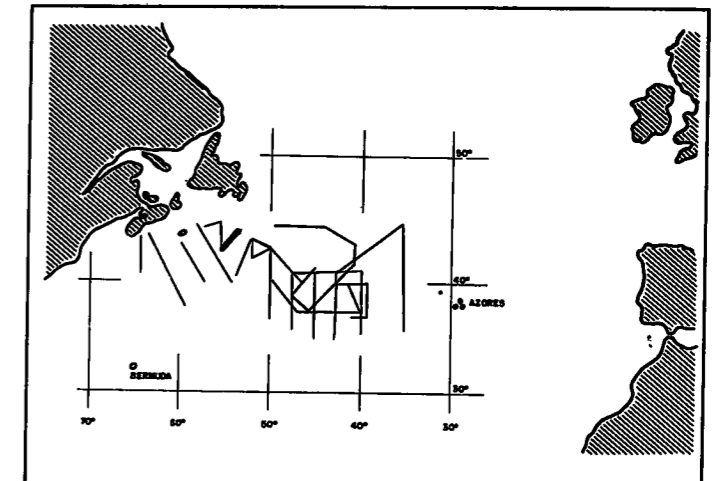
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SALINITY (‰)



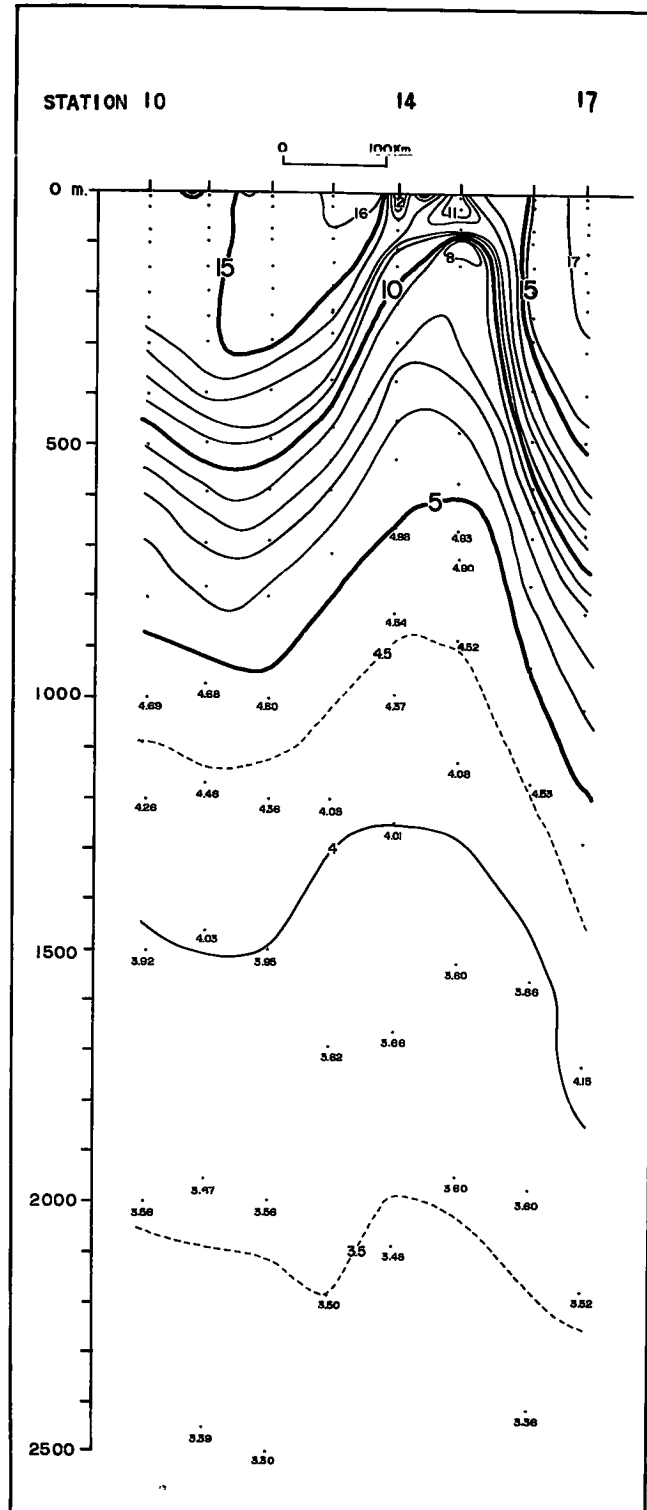
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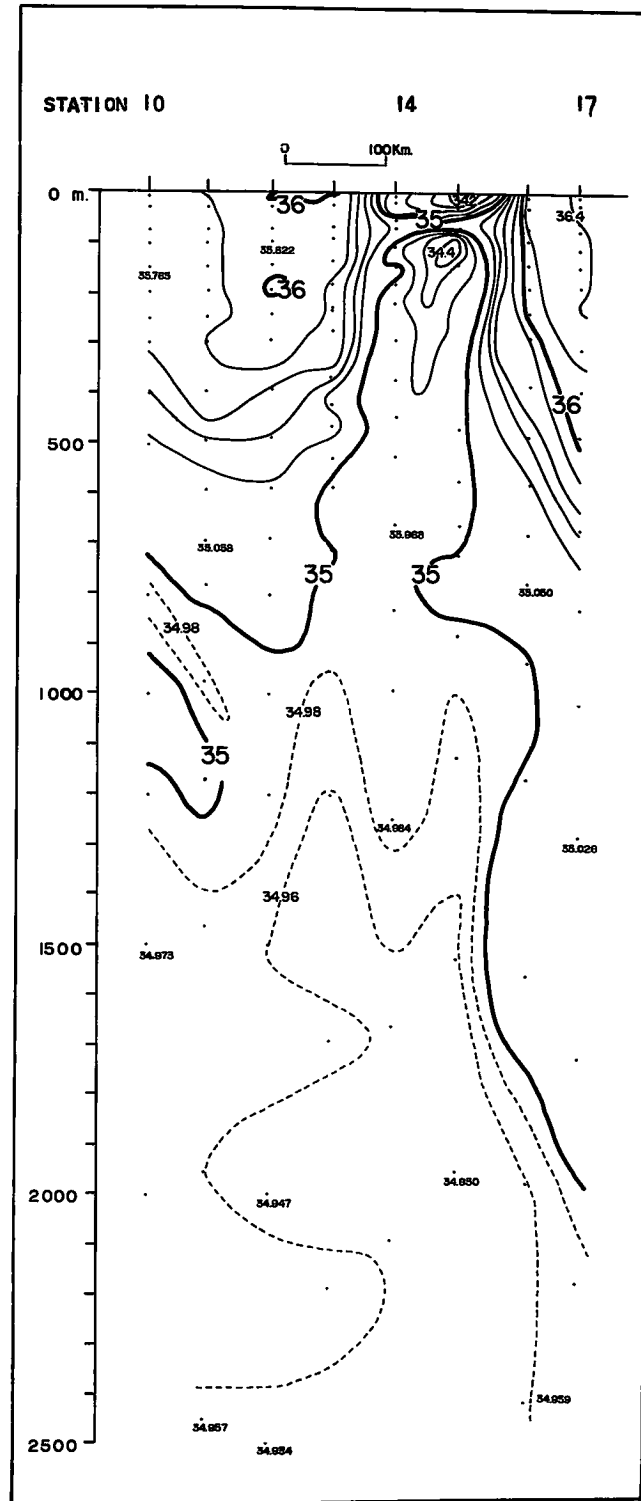
March 17 - March 19, 1962

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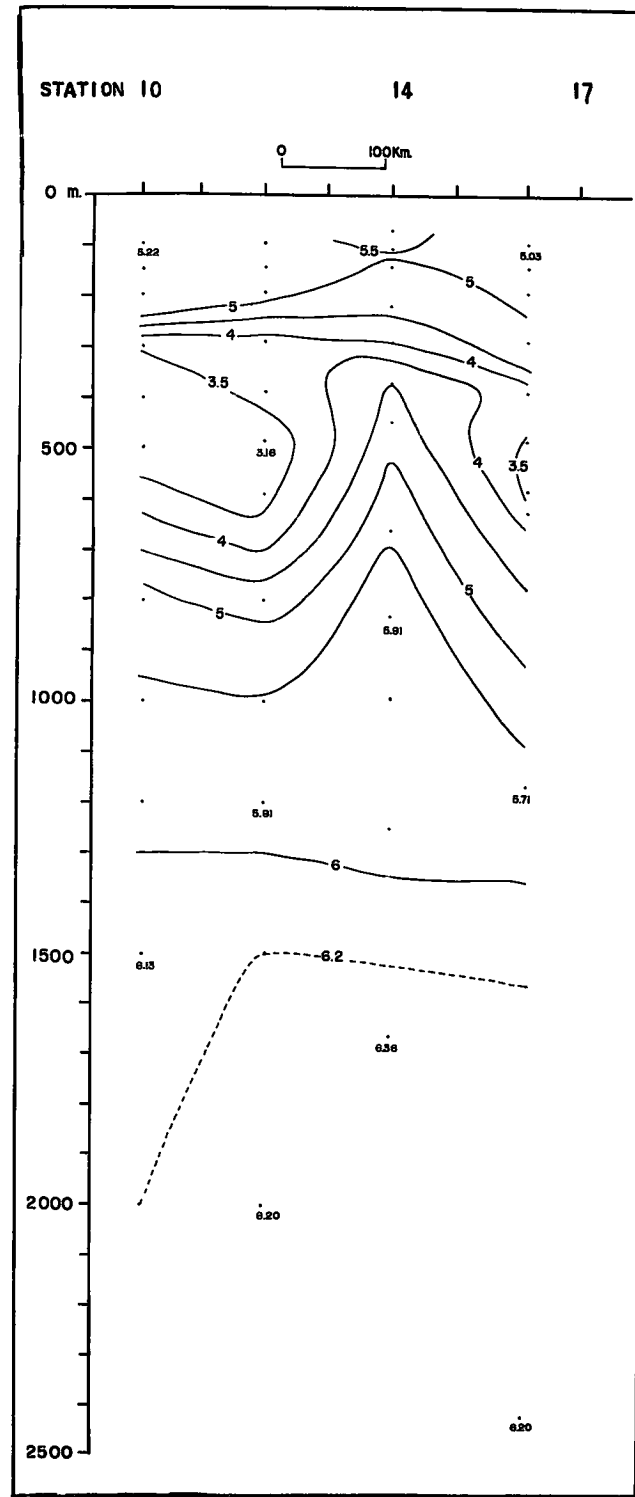
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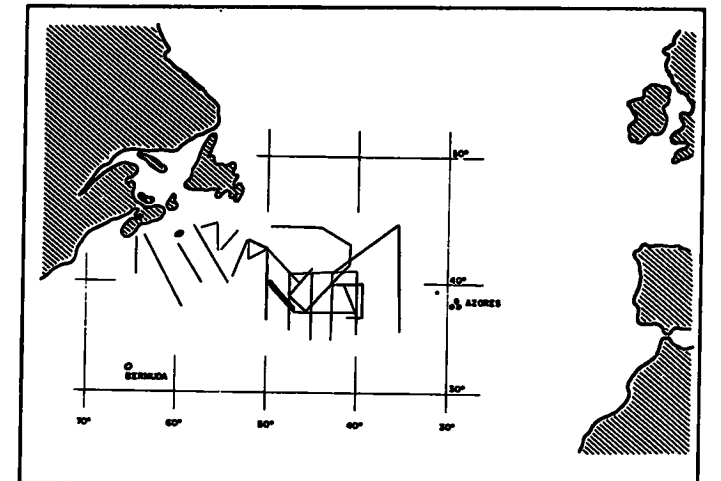
TEMPERATURE (°C)



SALINITY (‰)



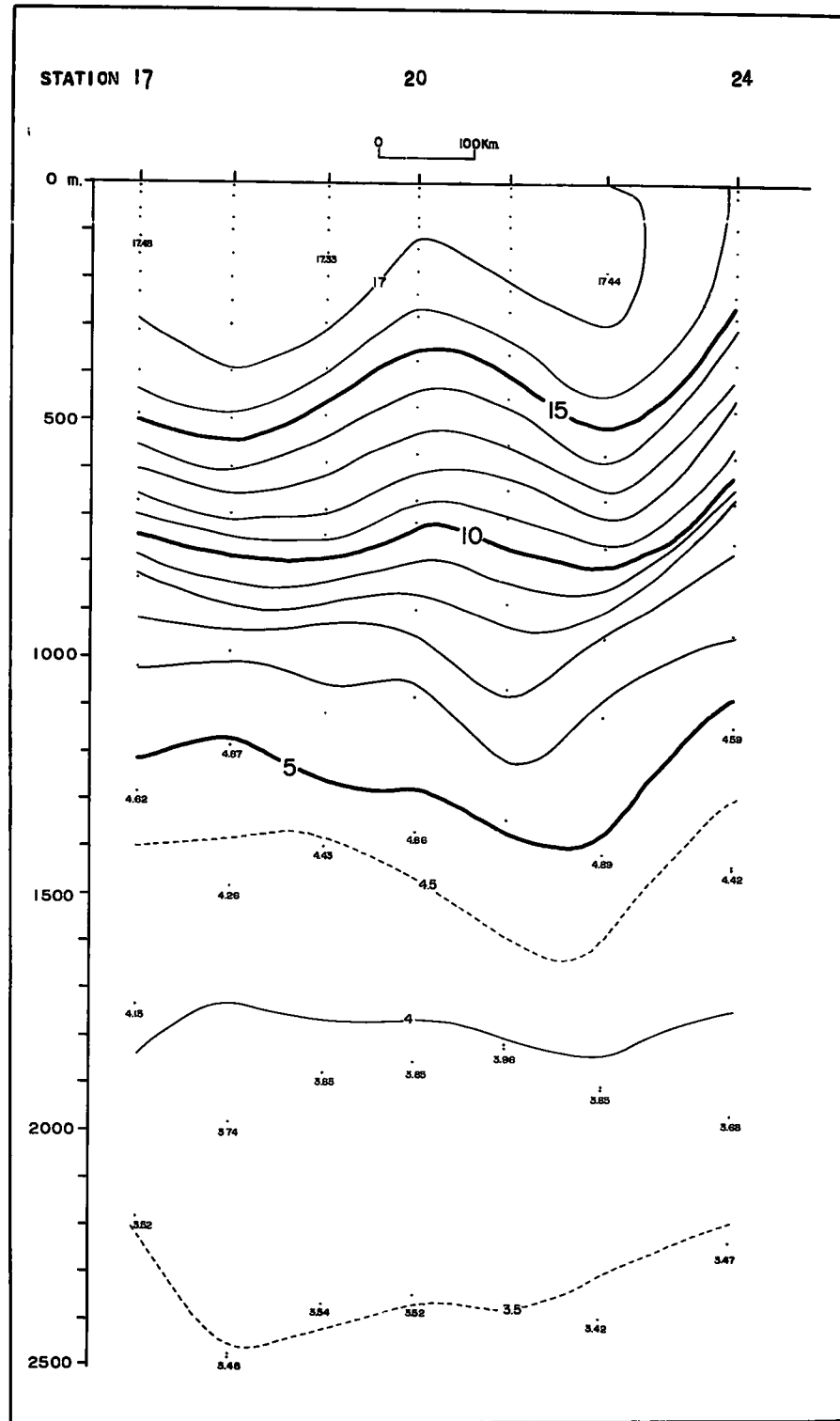
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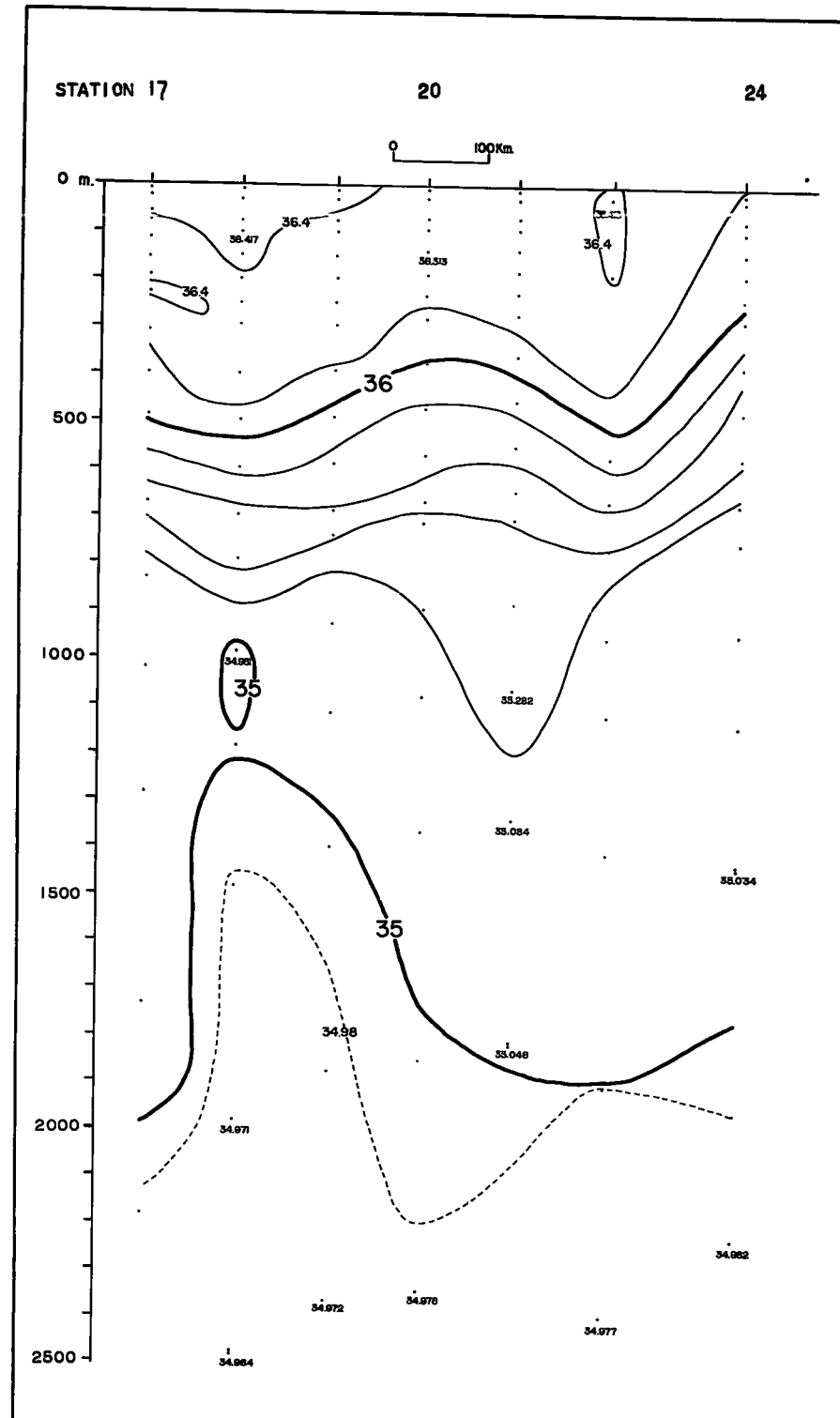
March 4 - March 6, 1962

CSS BAFFIN

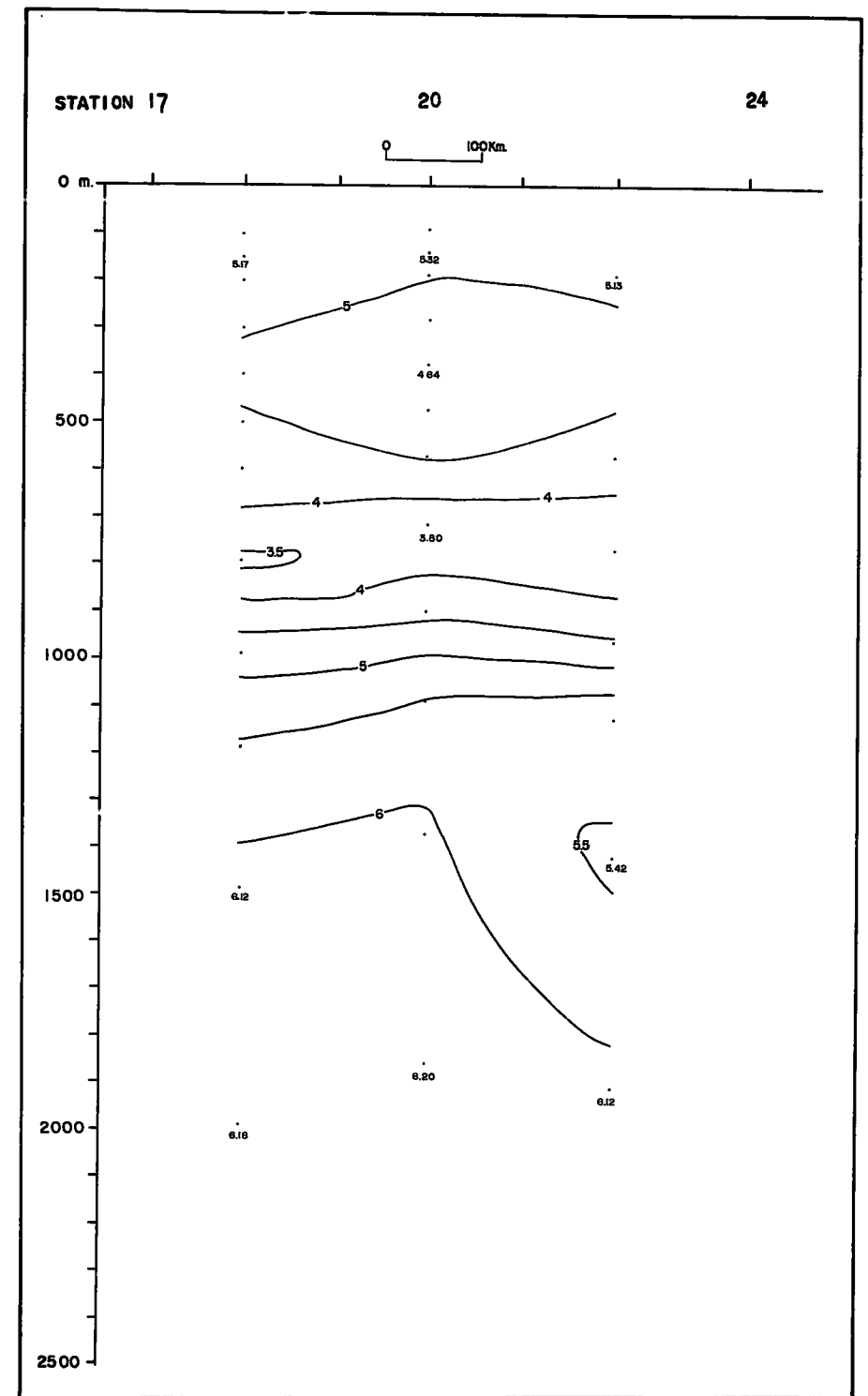
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TEMPERATURE (°C)

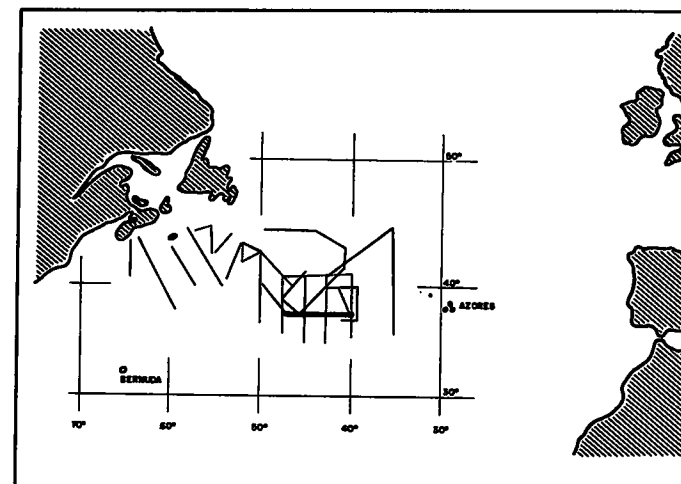


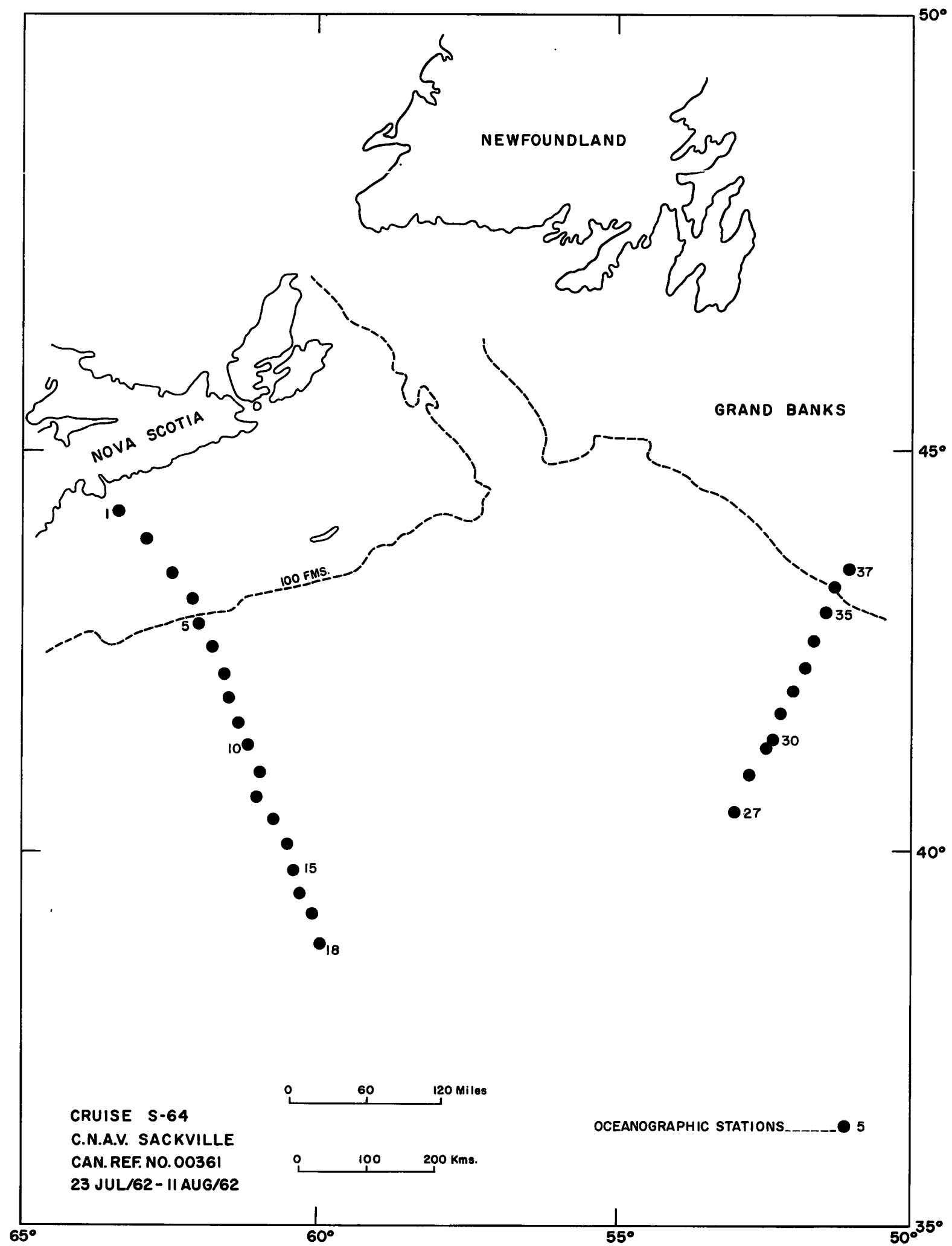
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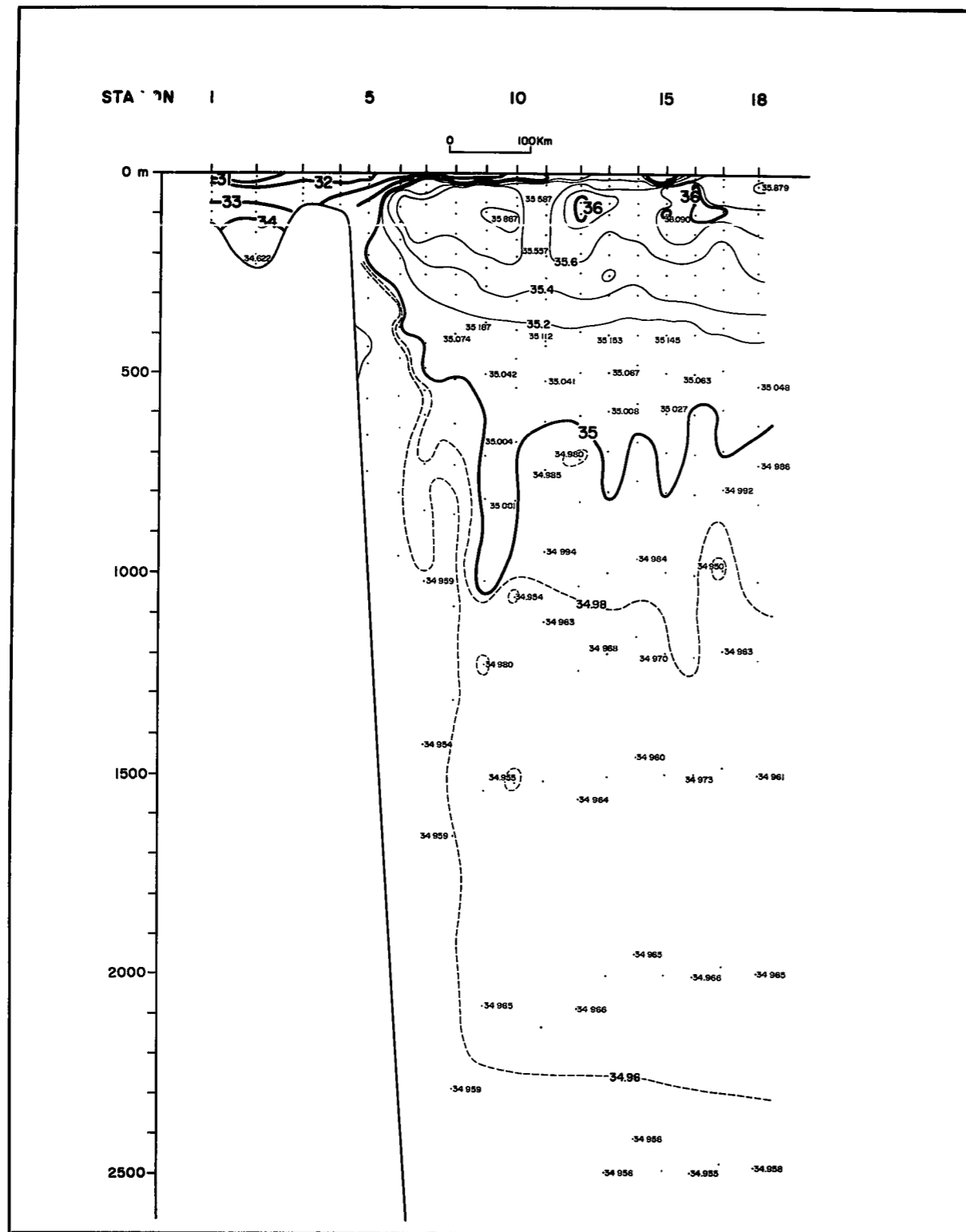


OXYGEN (ml/L)

March 7 - March 10, 1962
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 Vertical Expansion 500





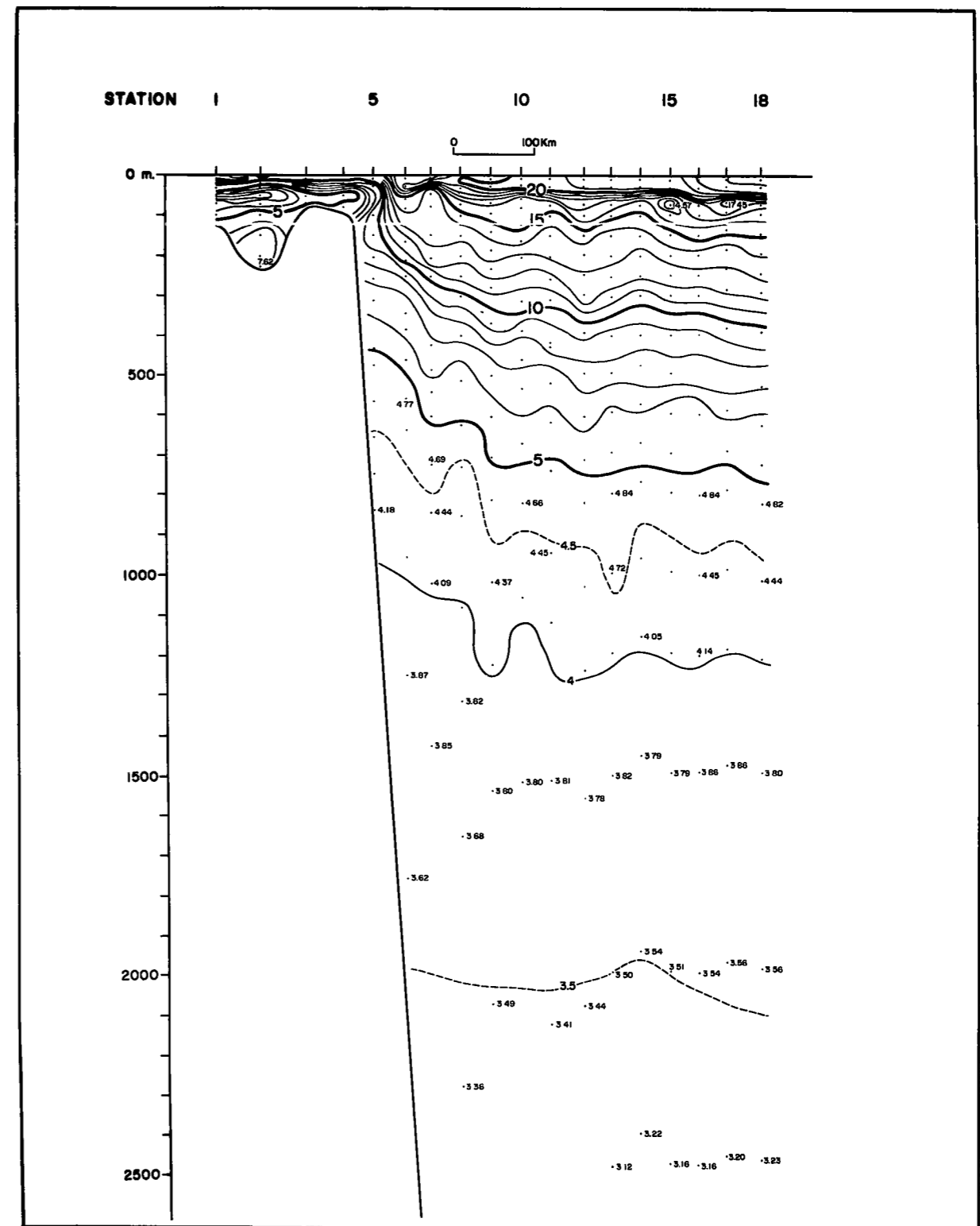
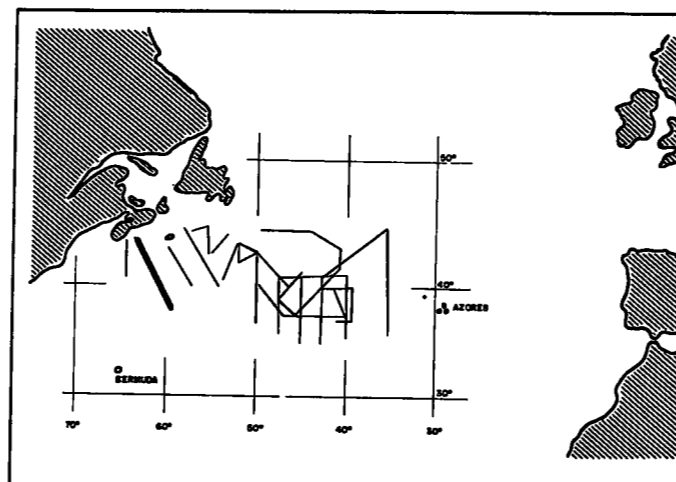


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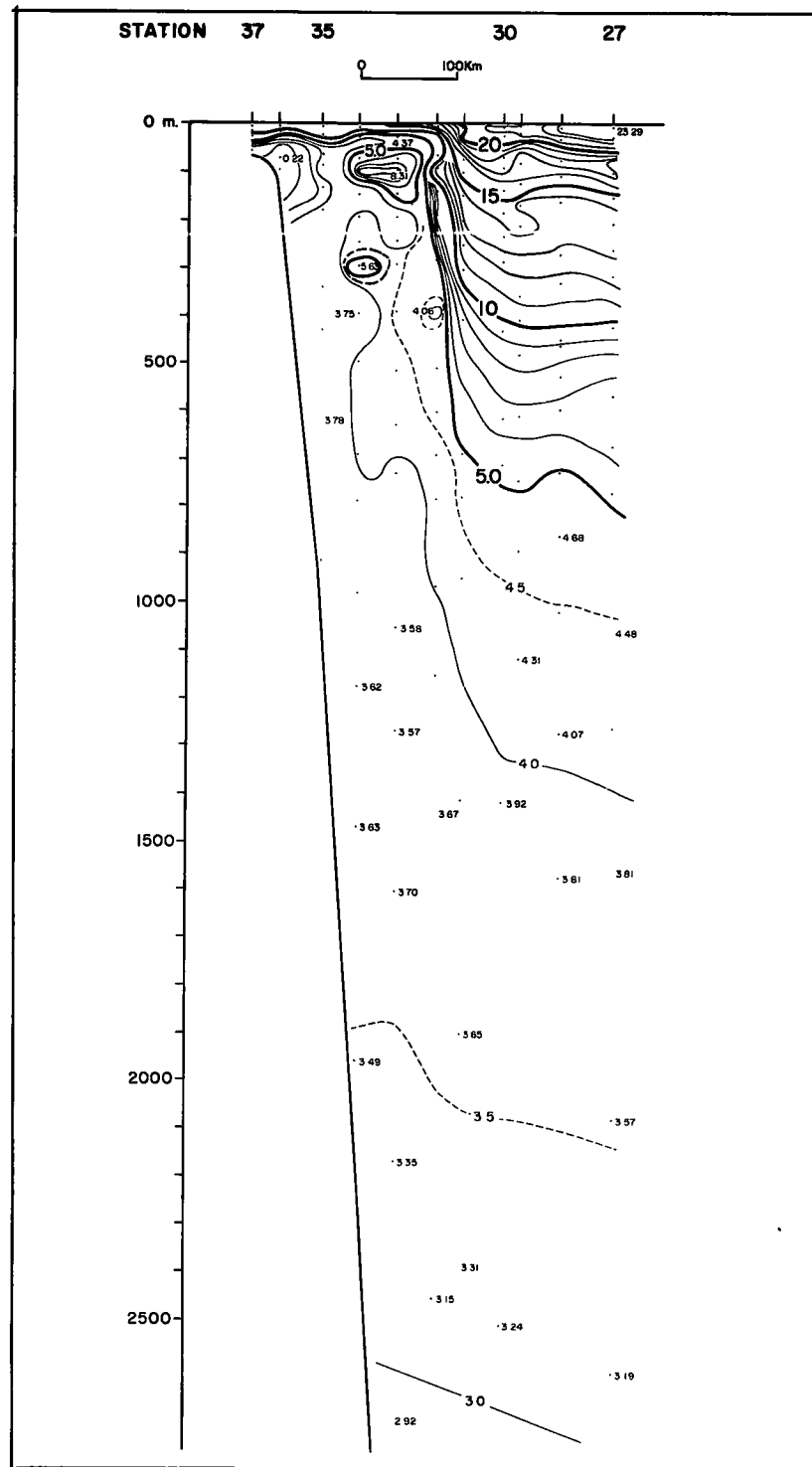
July 23 - July 26, 1962

CNAV SACKVILLE

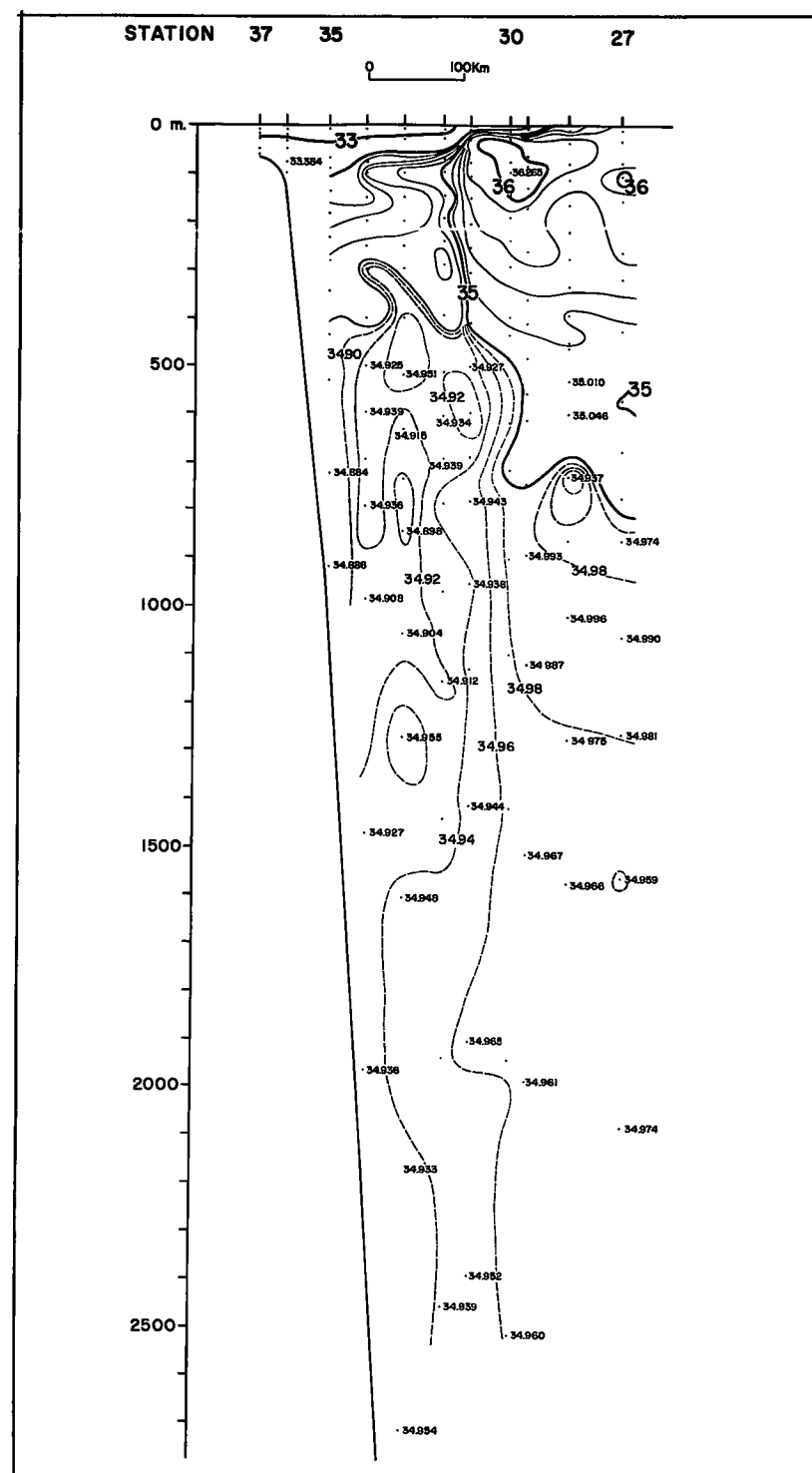
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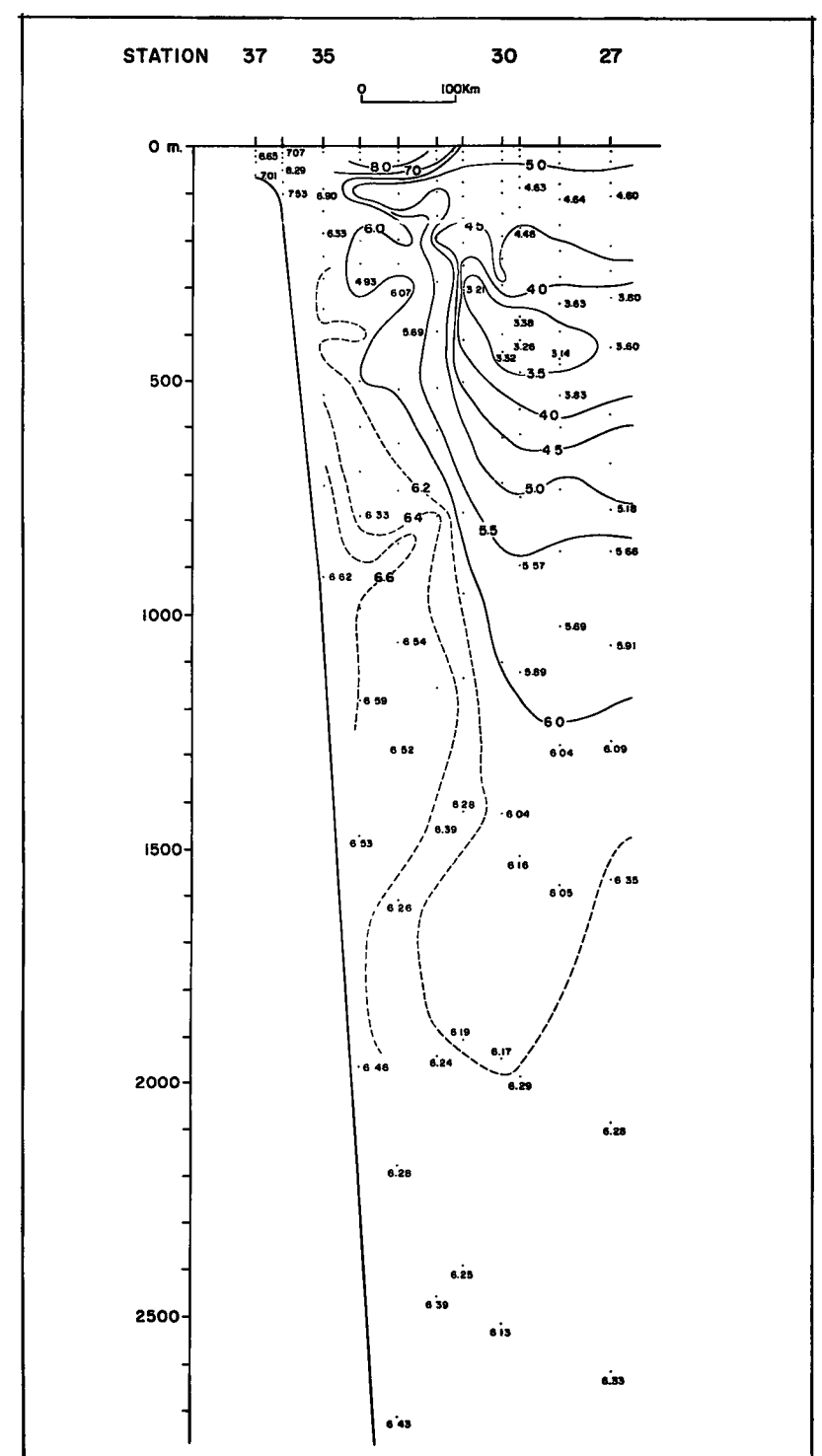
SALINITY (‰)



TEMPERATURE (°C)

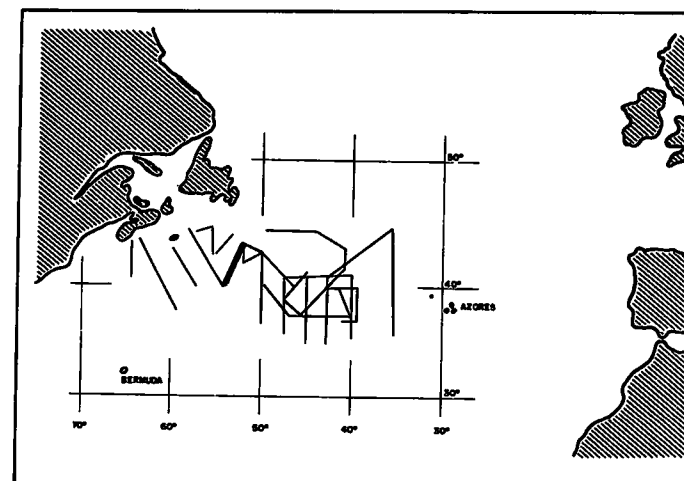


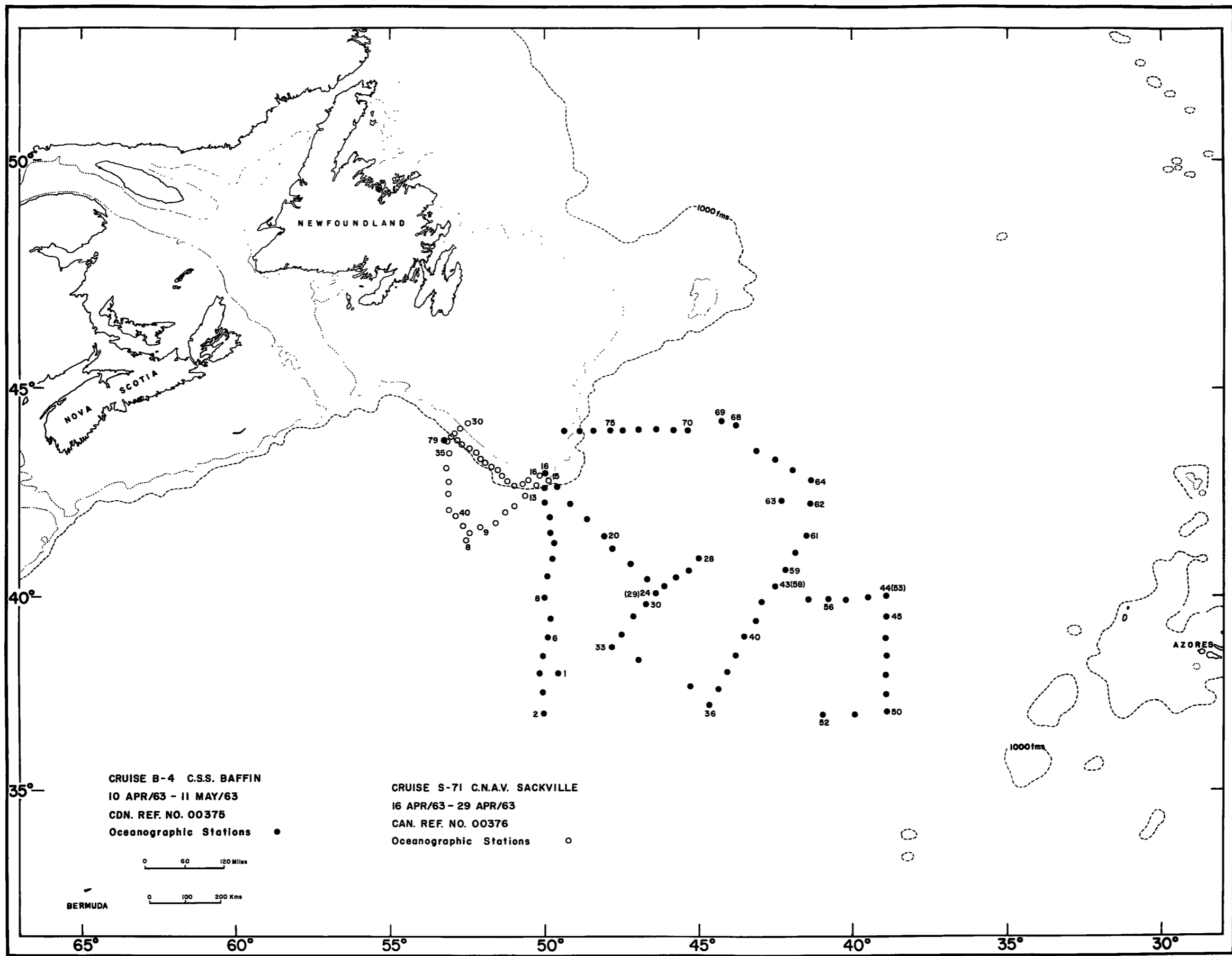
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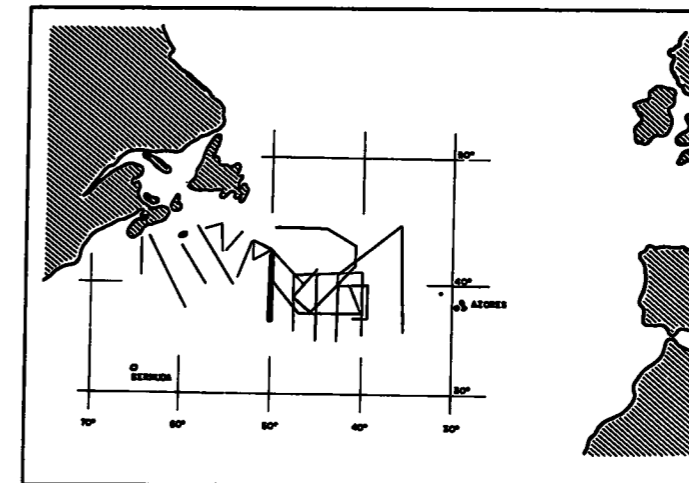
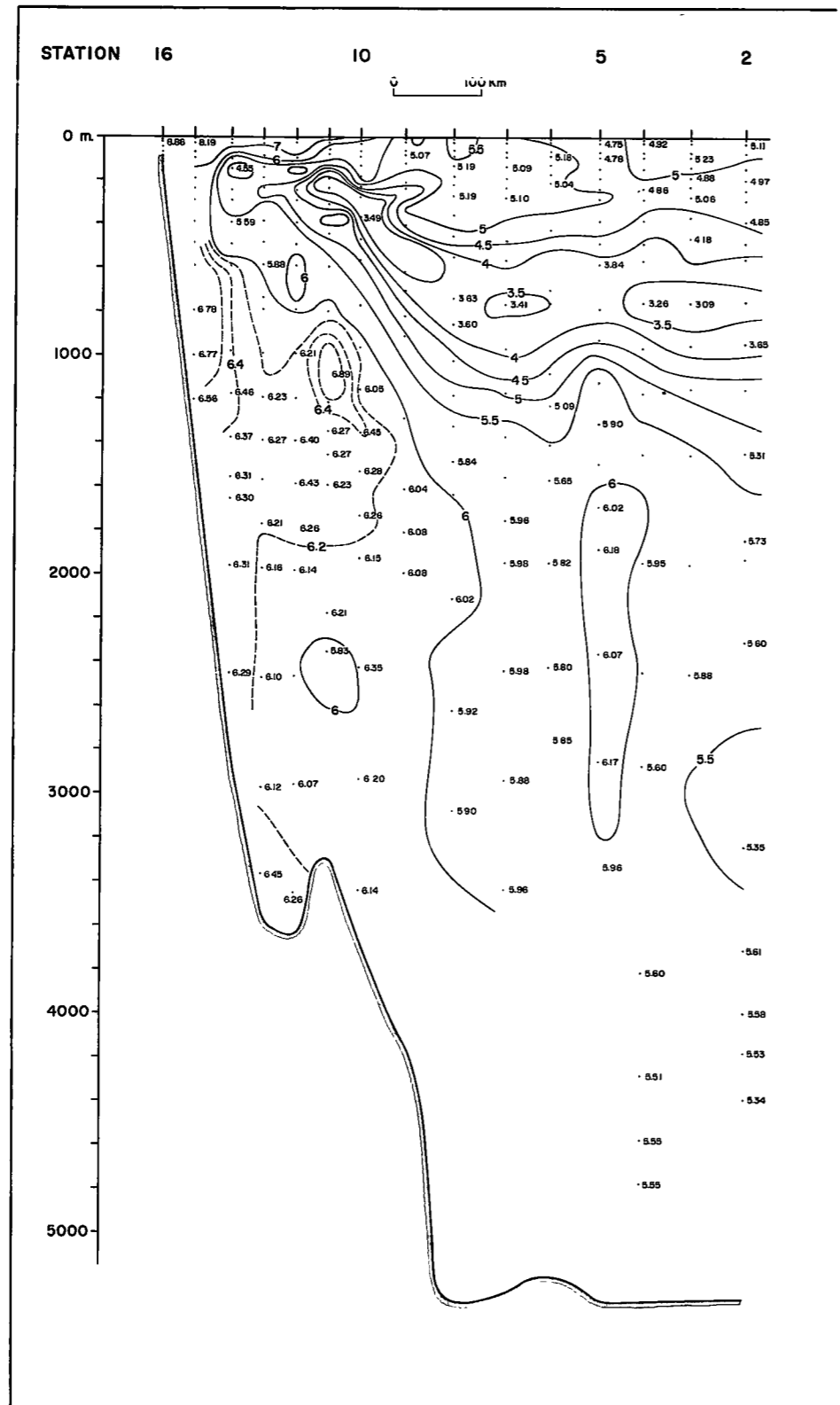


OXYGEN (ml/L)

August 1 - August 2, 1962
 CNAV SACKVILLE
 Vertical Expansion 500



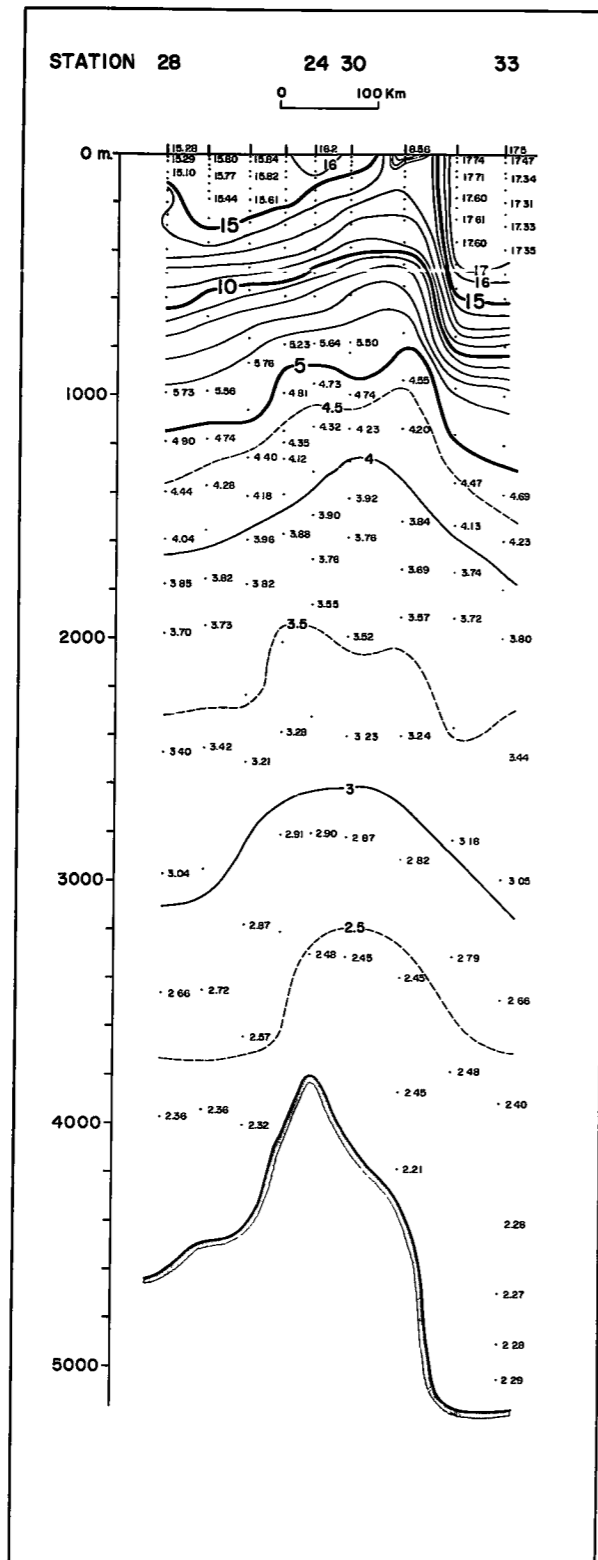




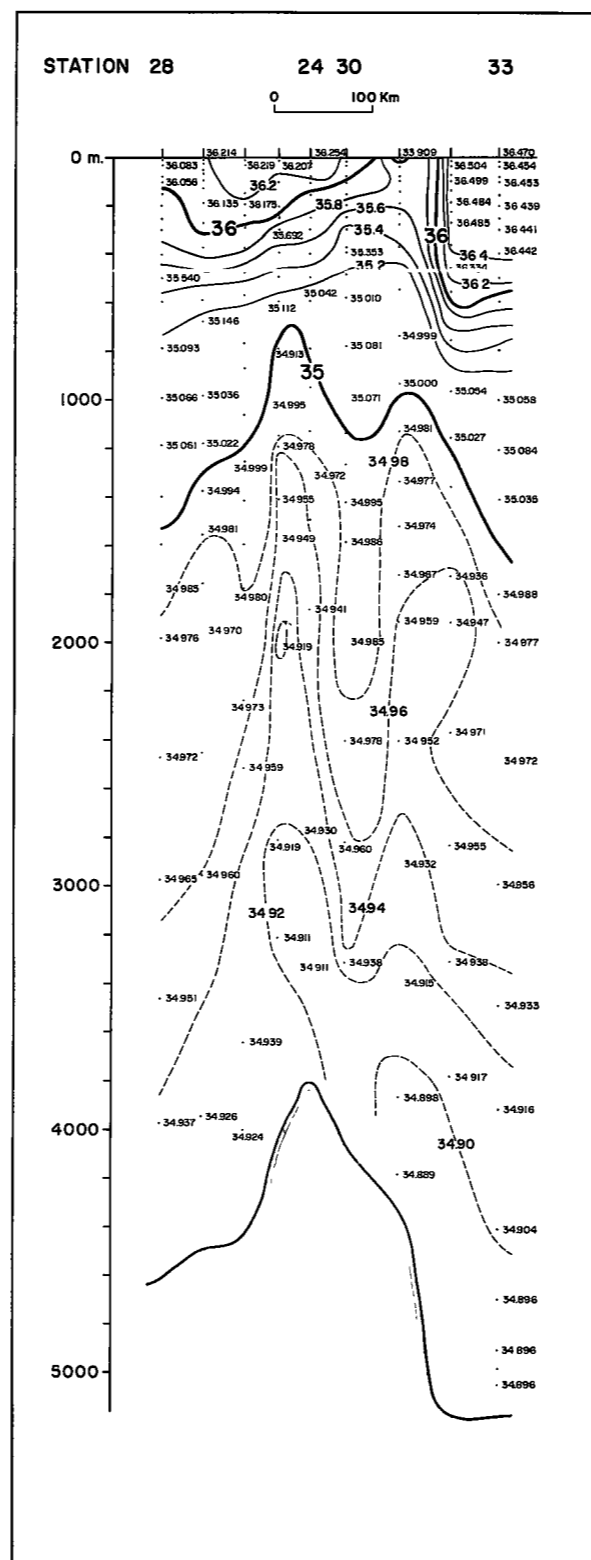
April 14 - April 18, 1963

CSS BAFFIN

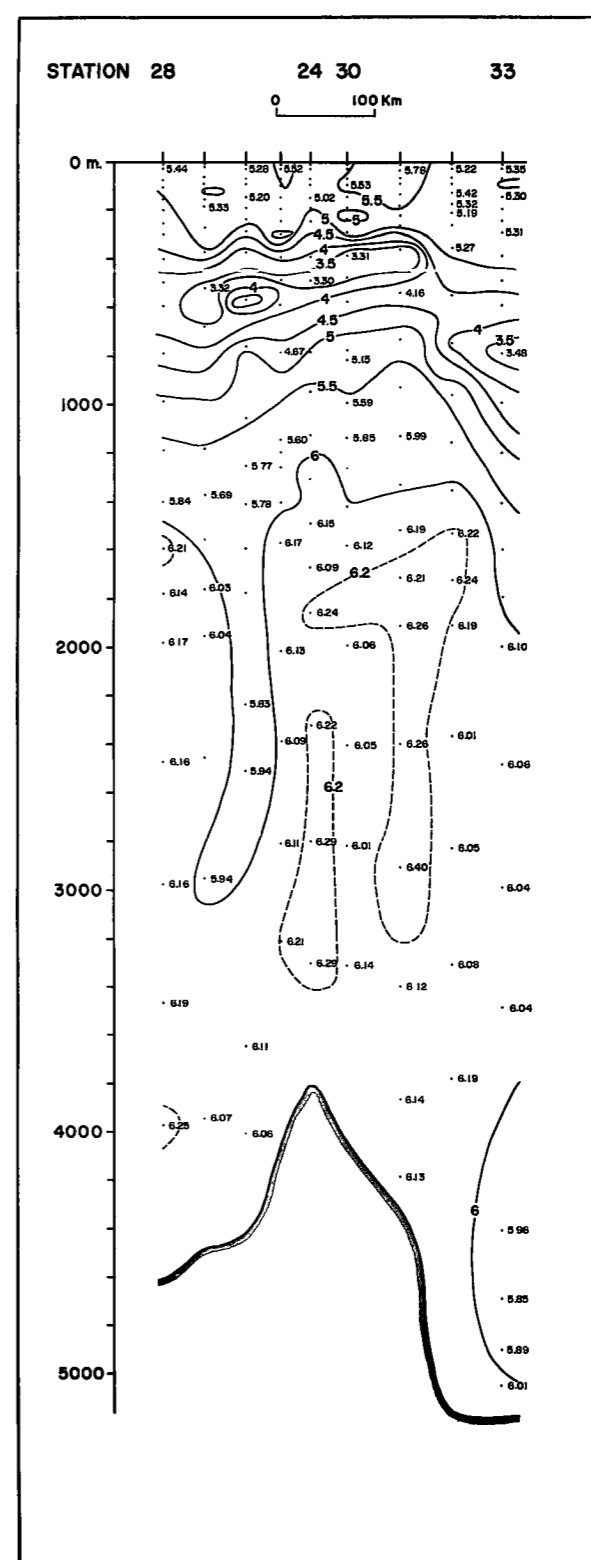
Vertical Expansion 250



TEMPERATURE (°C)

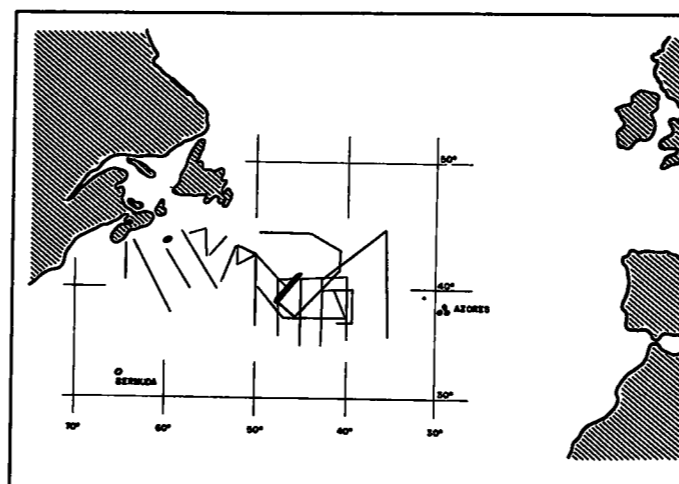


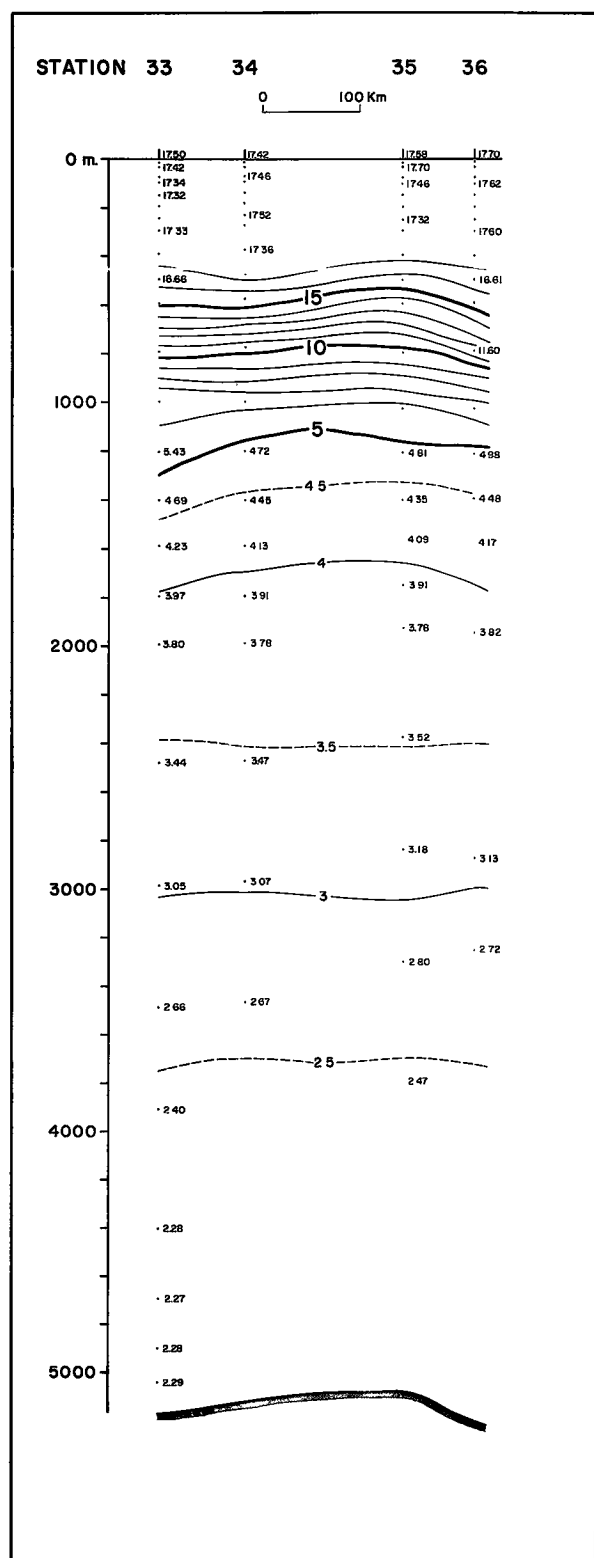
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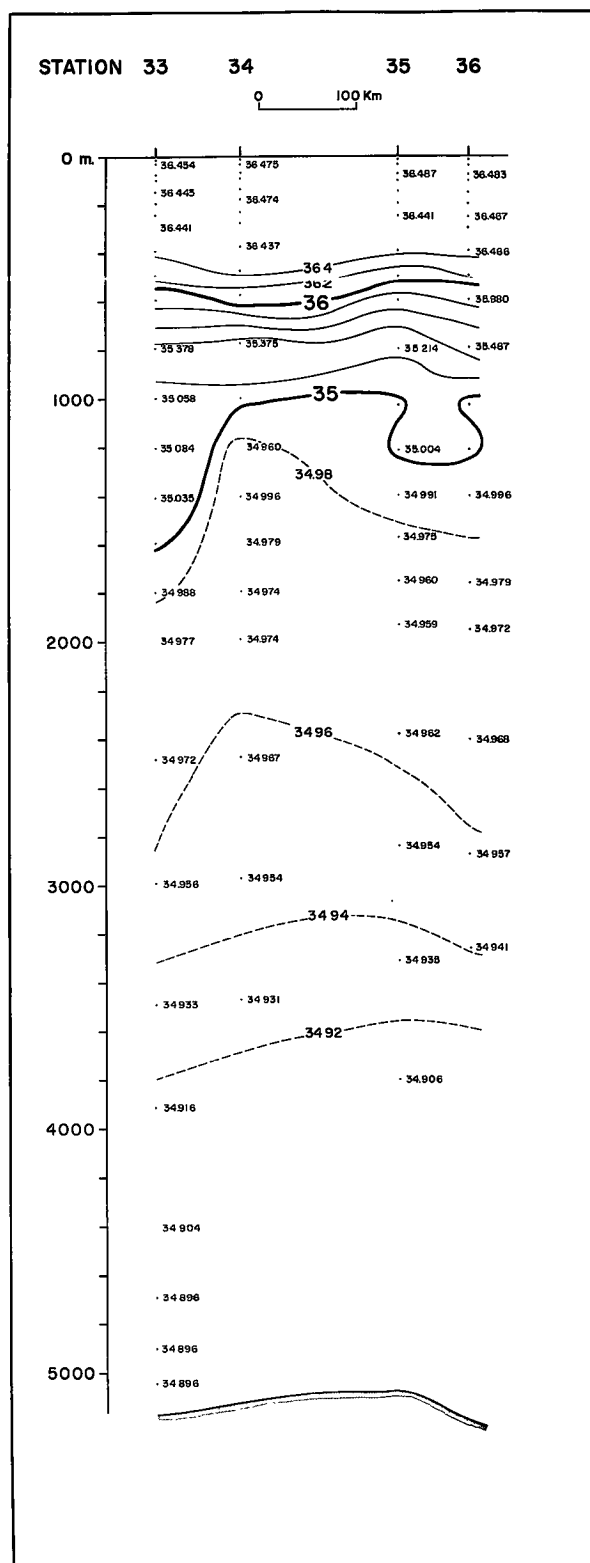
OXYGEN (ml/L)

April 20 - April 22, 1963
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 Vertical Expansion 250

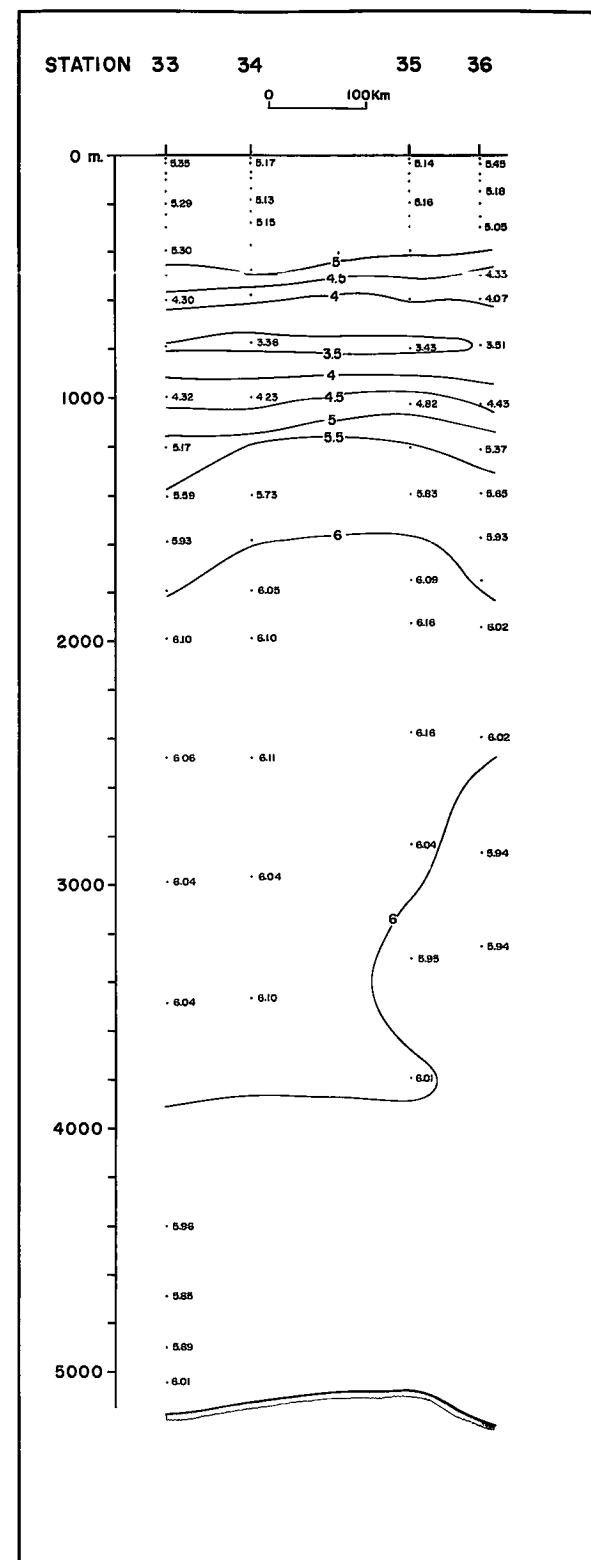




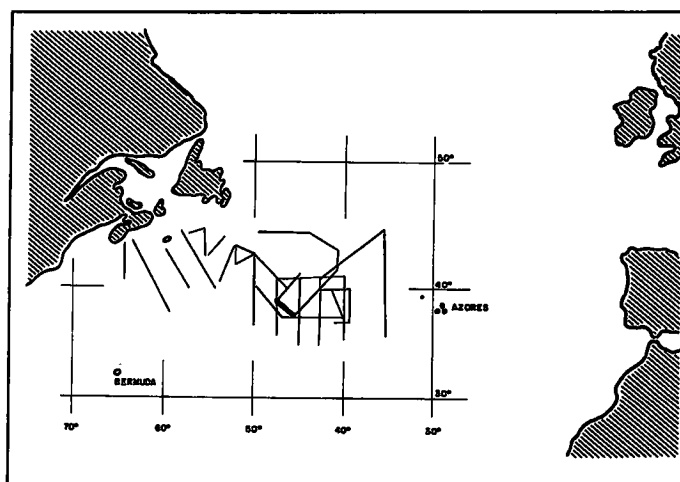
TEMPERATURE (°C)



SALINITY (‰)



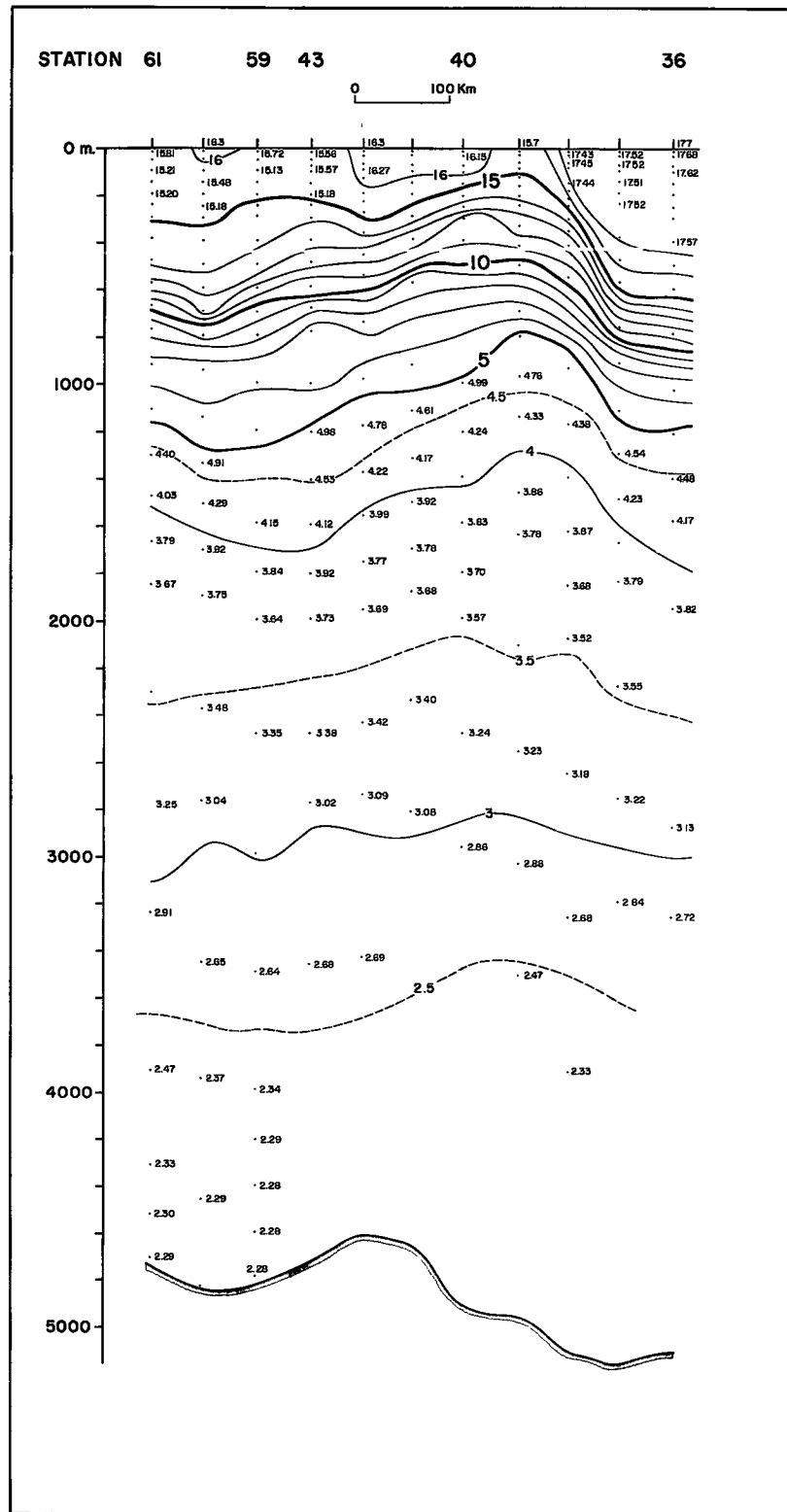
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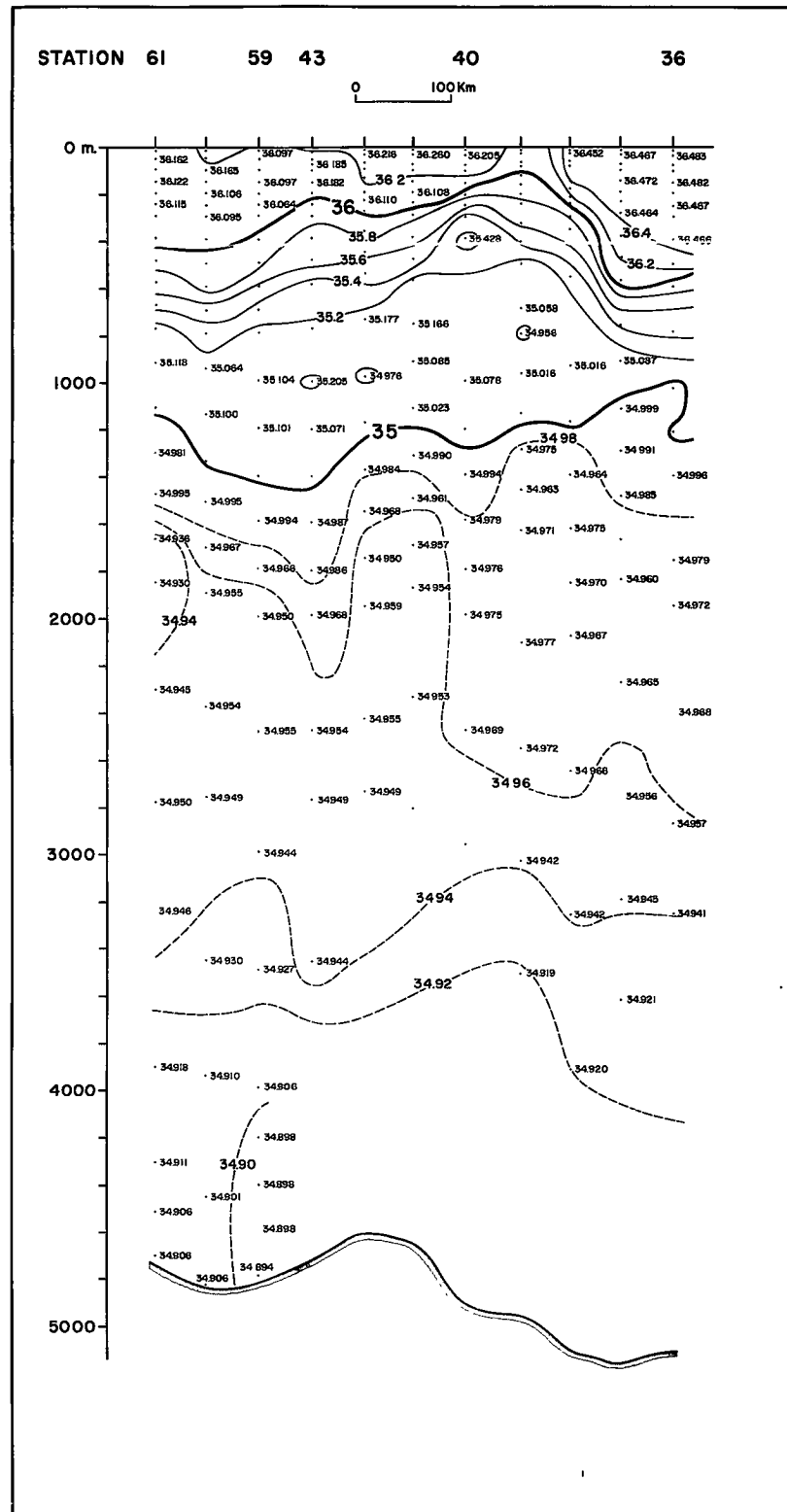
April 22 - April 24, 1963

CSS BAFFIN

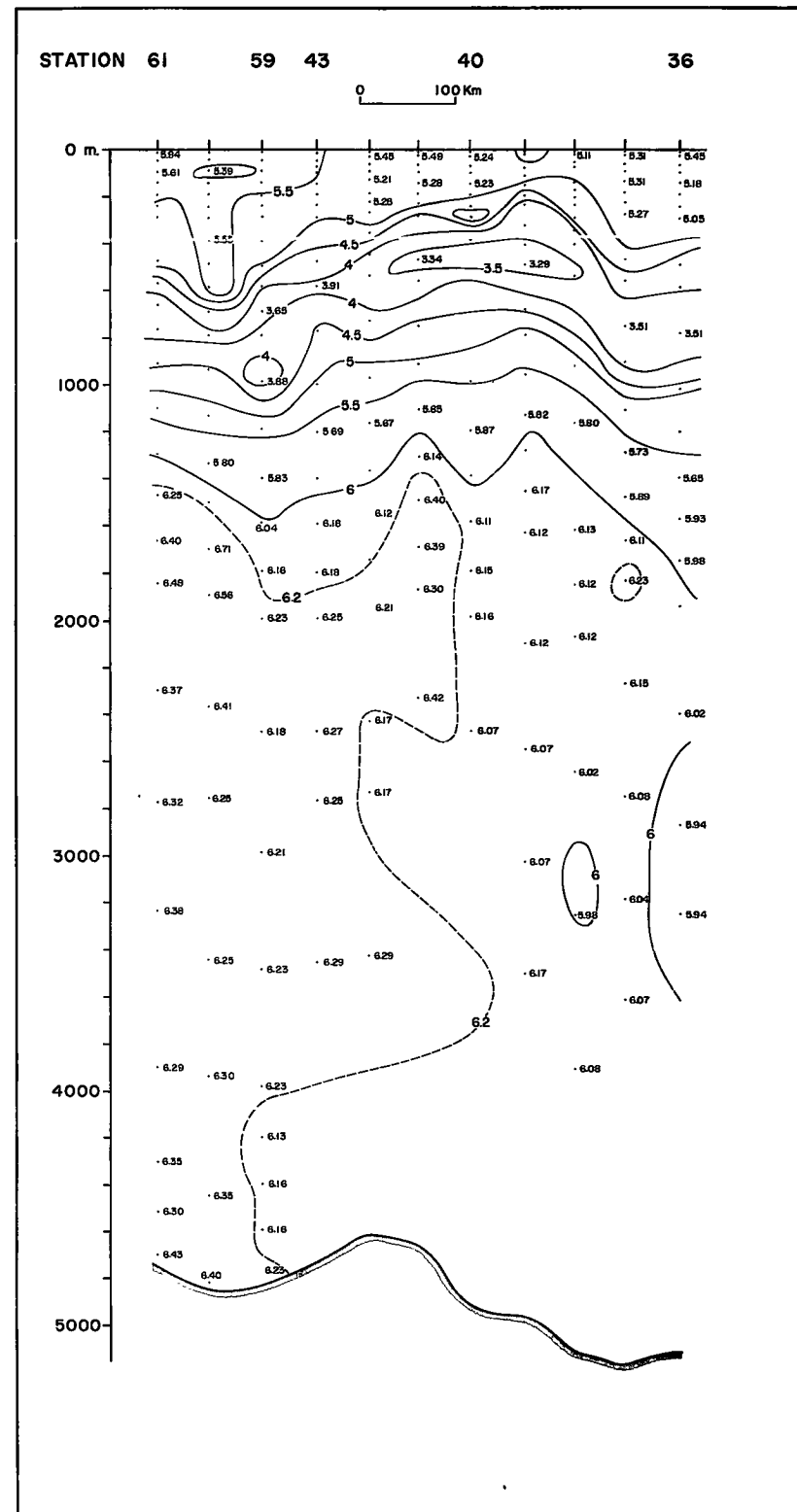
Vertical Expansion 250



TEMPERATURE (°C)

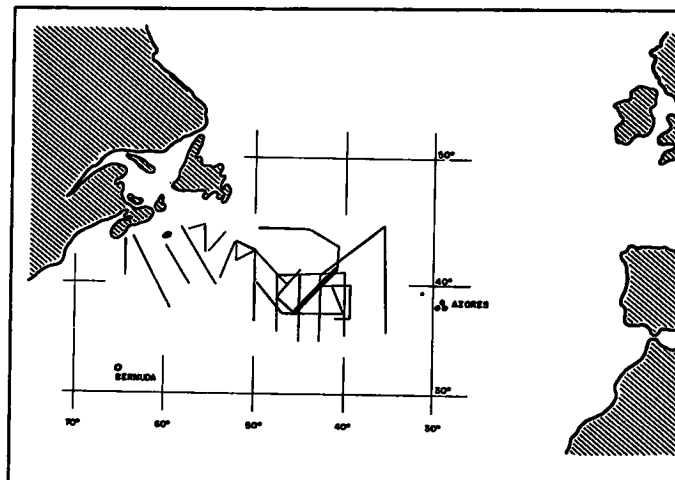


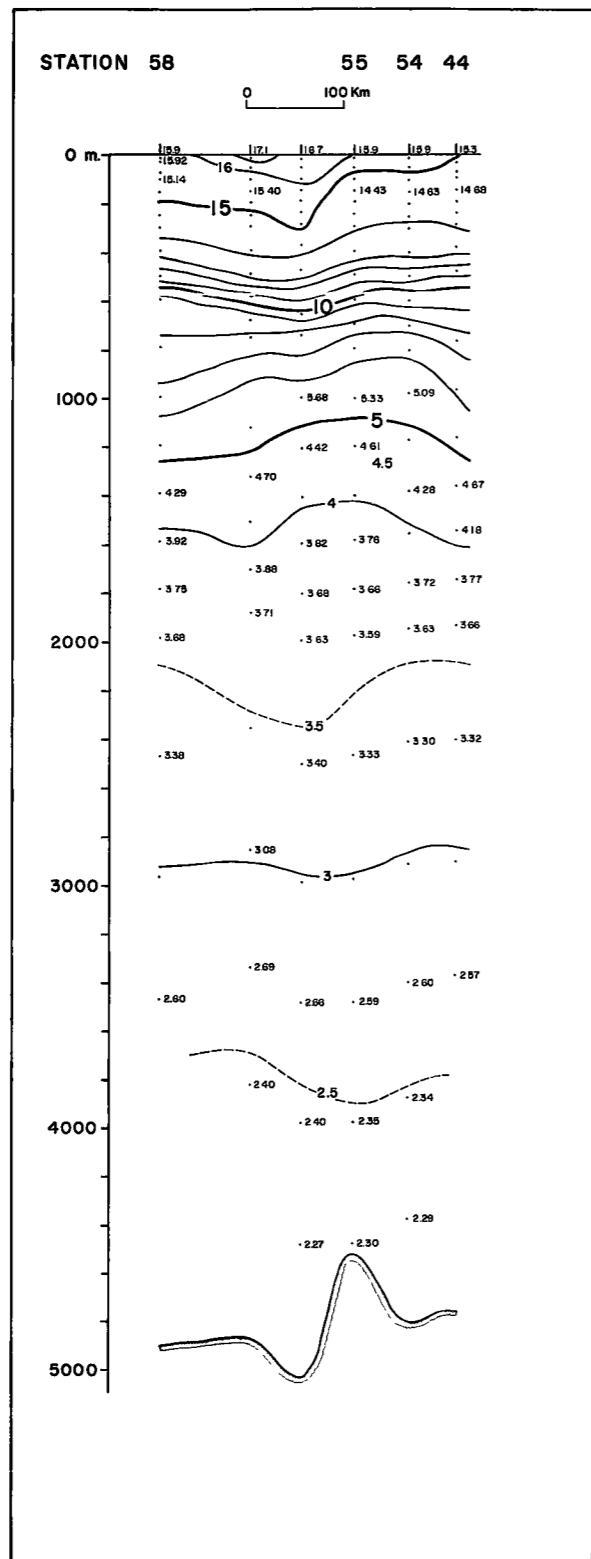
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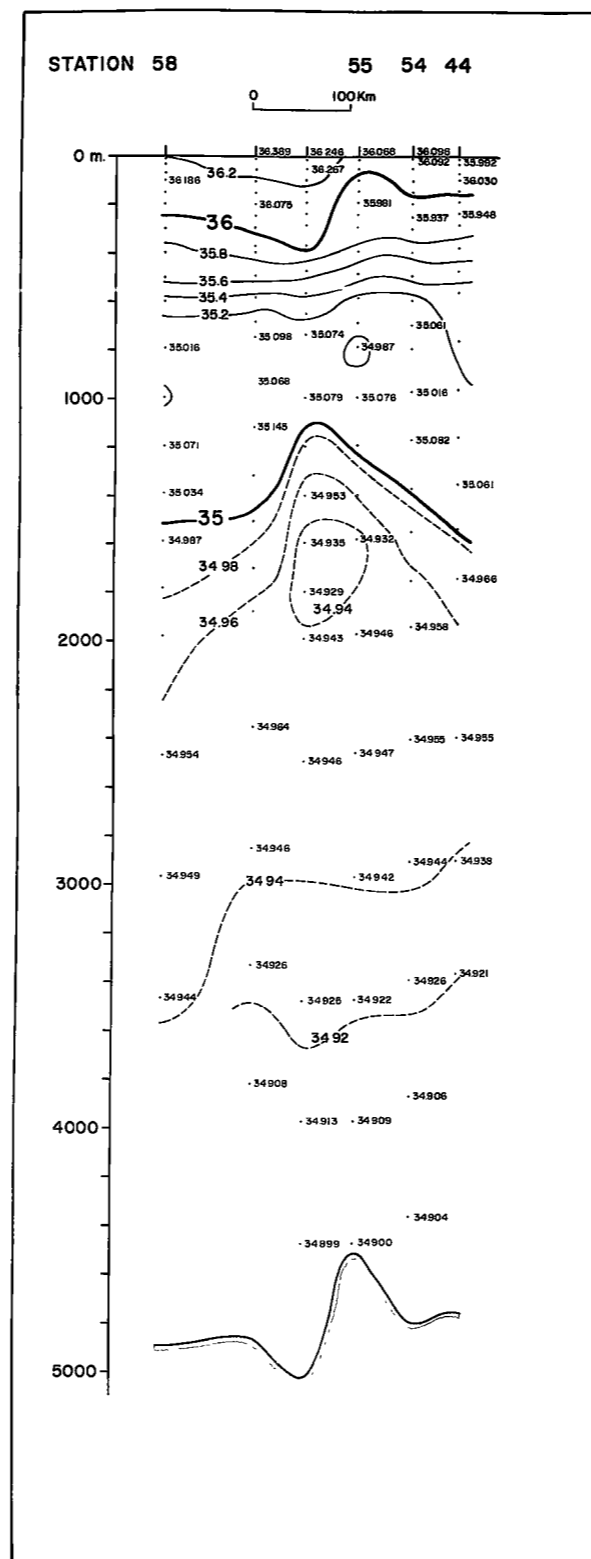
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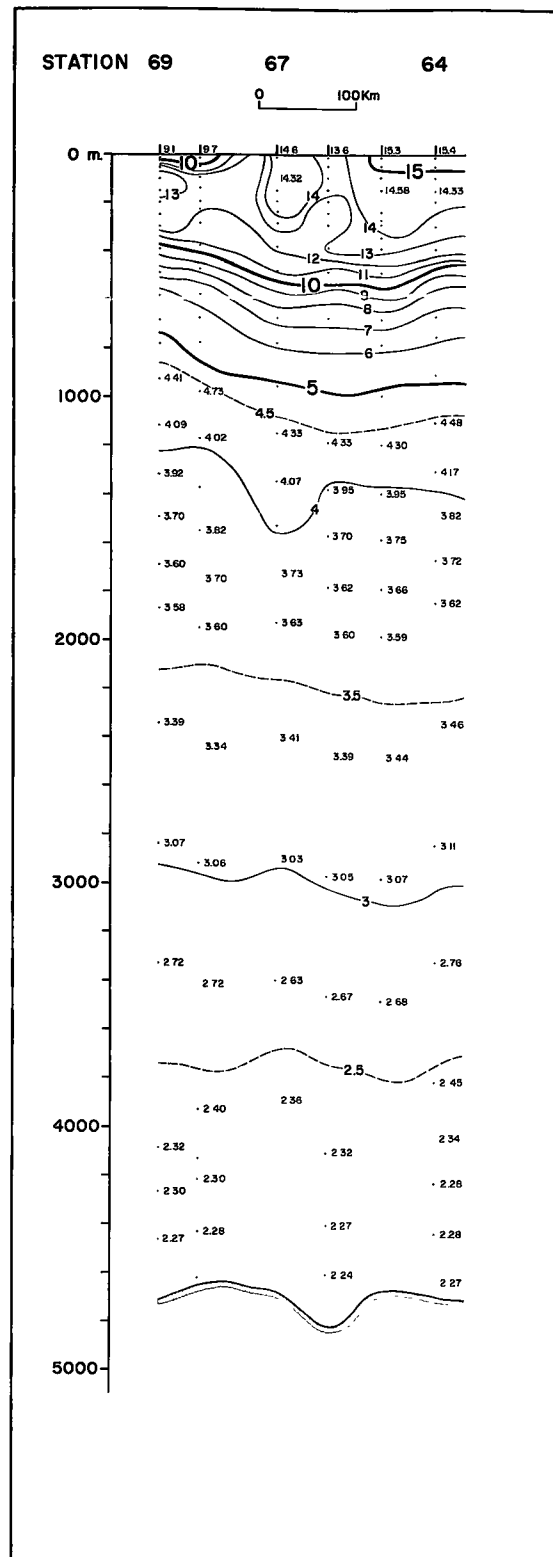
April 24 - May 3, 1963
 CSS BAFFIN
 Vertical Expansion 250



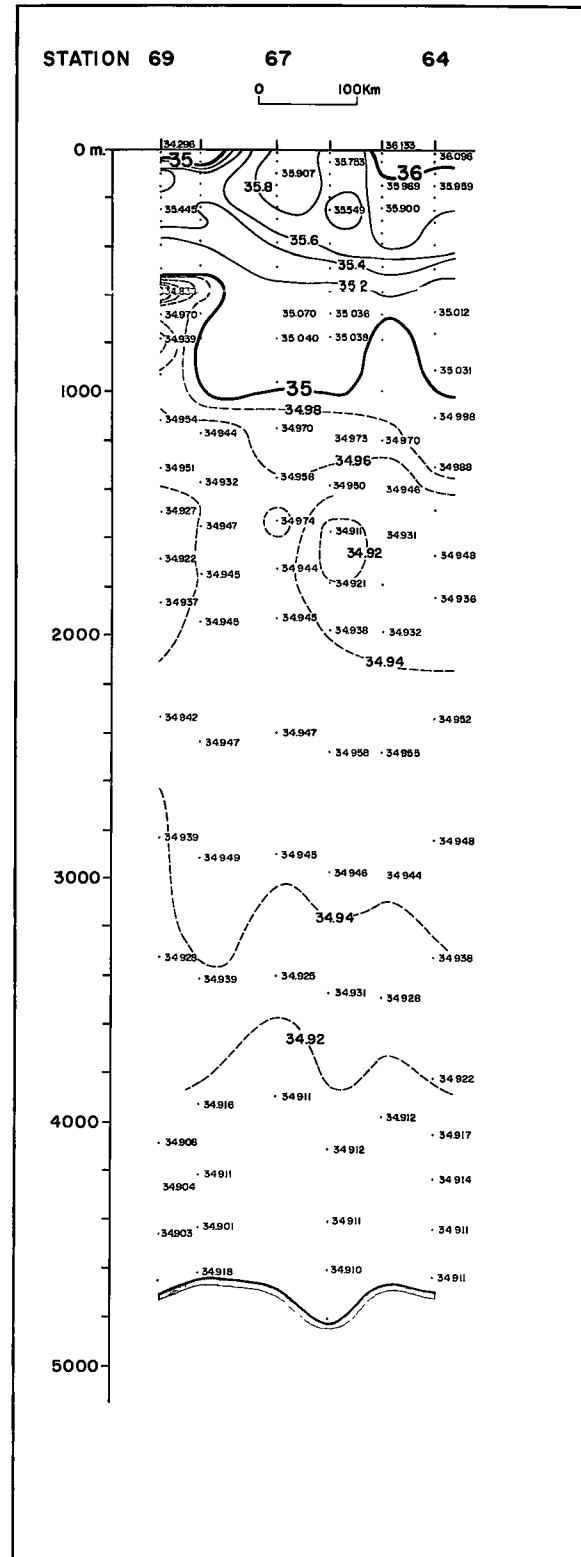


TEMPERATURE (°C)

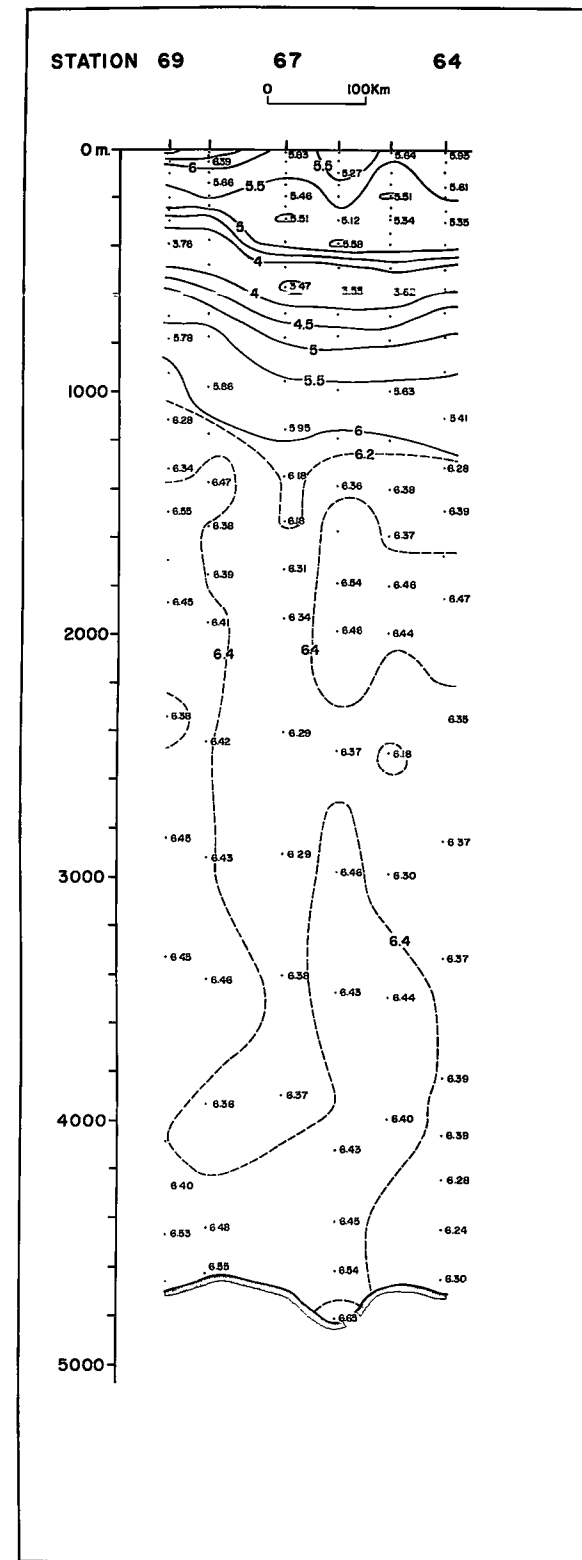




TEMPERATURE (°C)

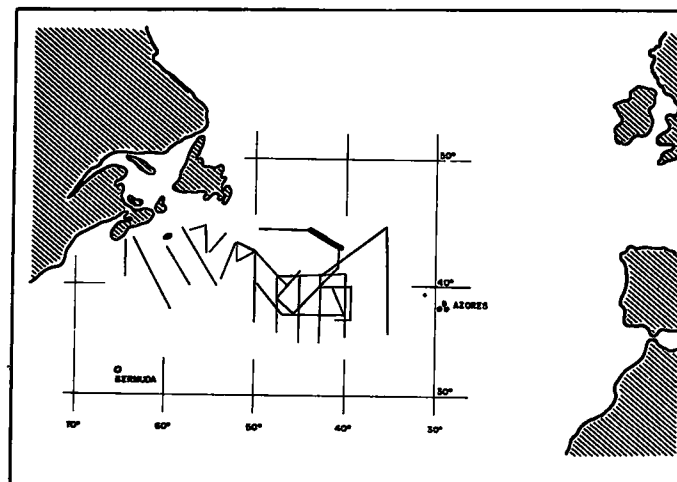


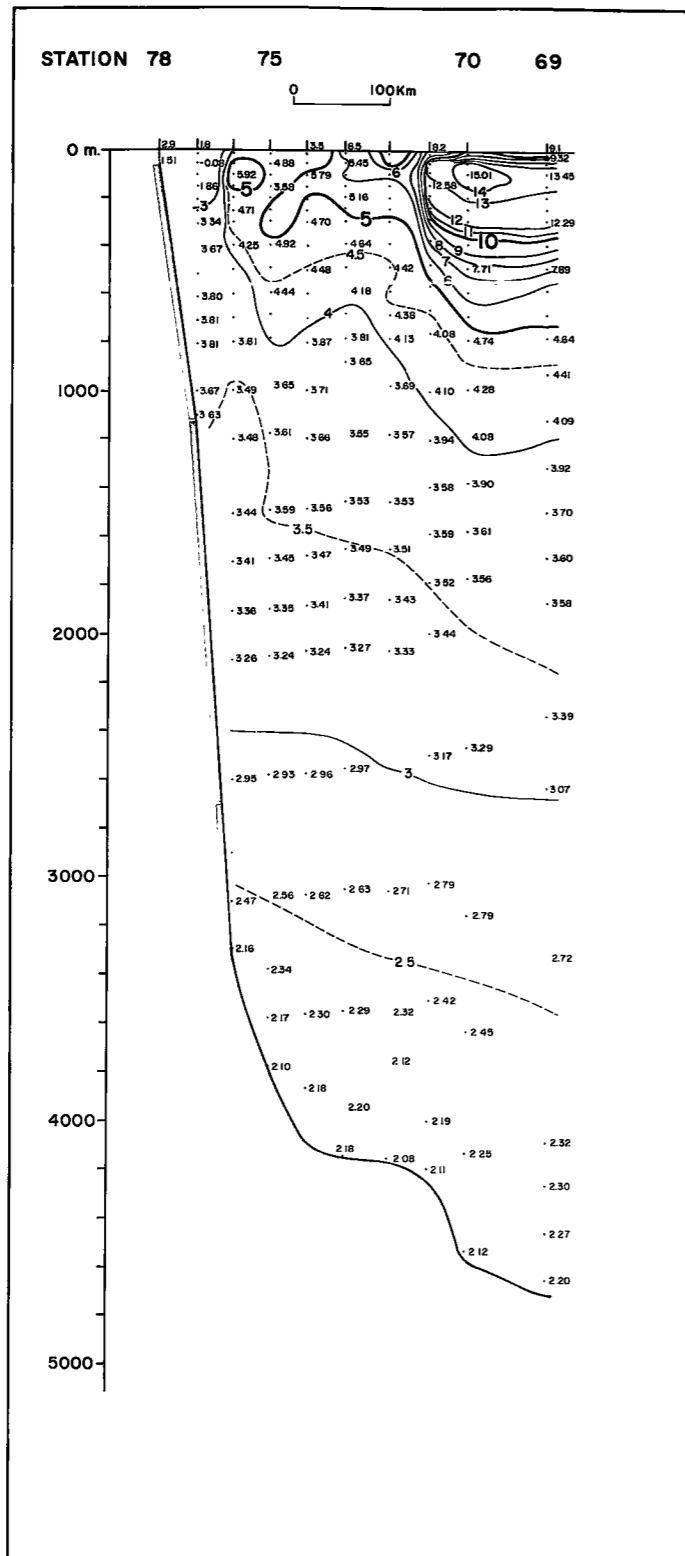
SALINITY (‰)



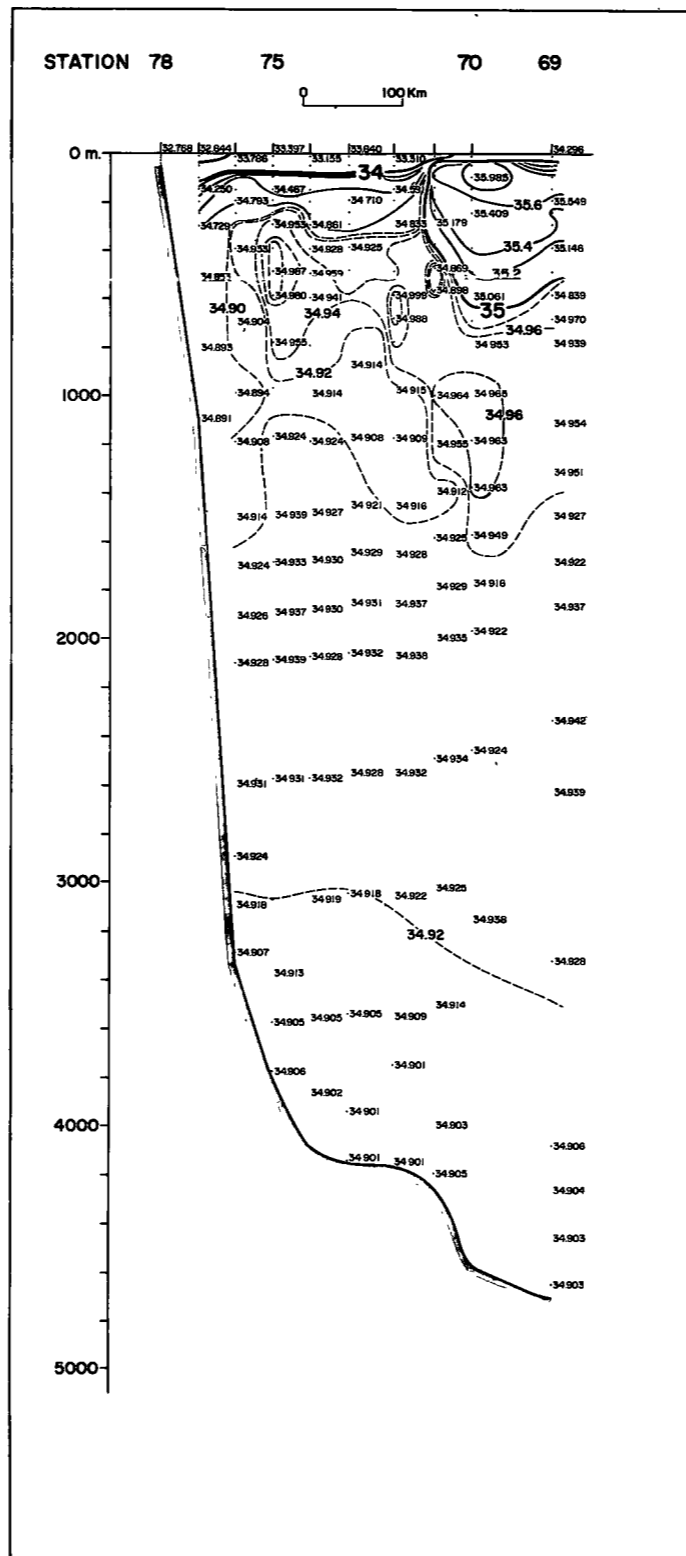
OXYGEN (ml/L)

May 4 - May 6, 1963
 CSS BAFFIN
 Vertical Expansion 250

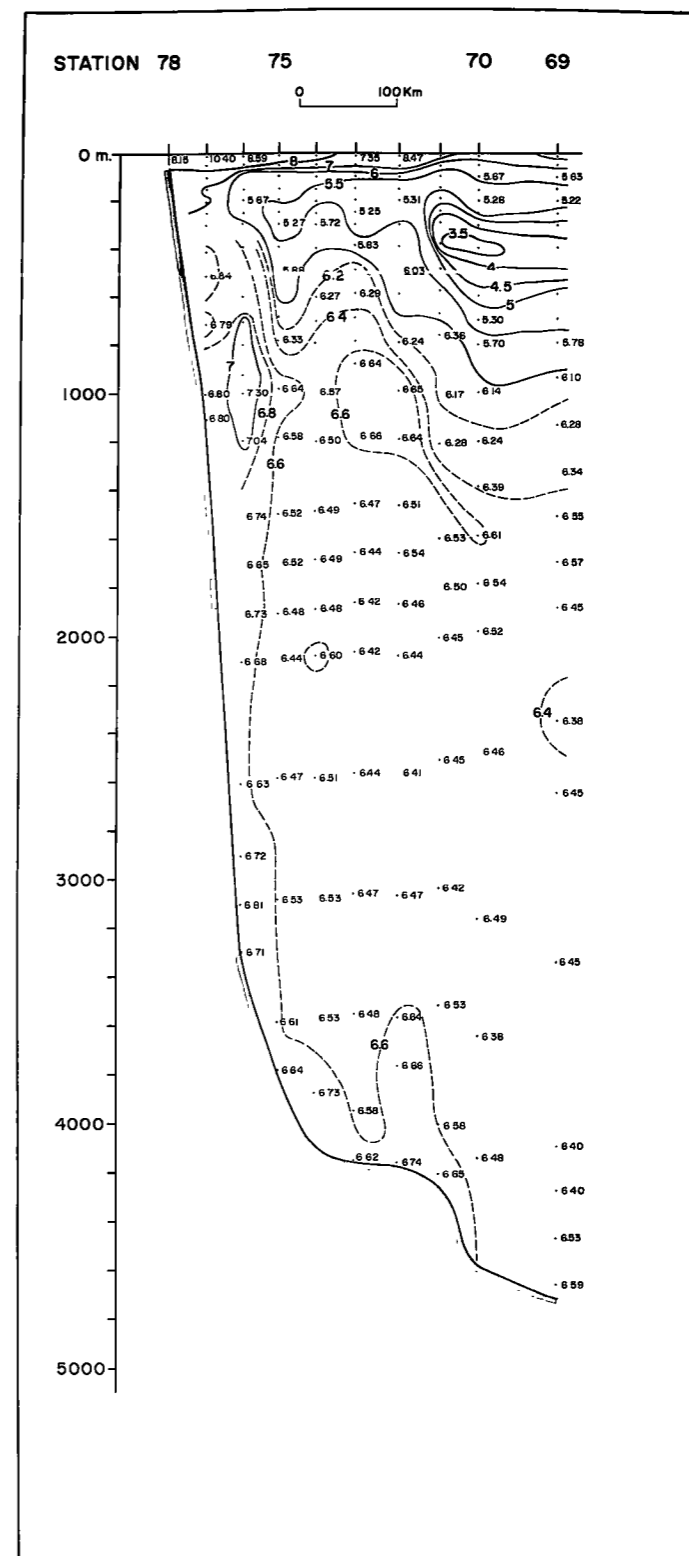




TEMPERATURE (°C)

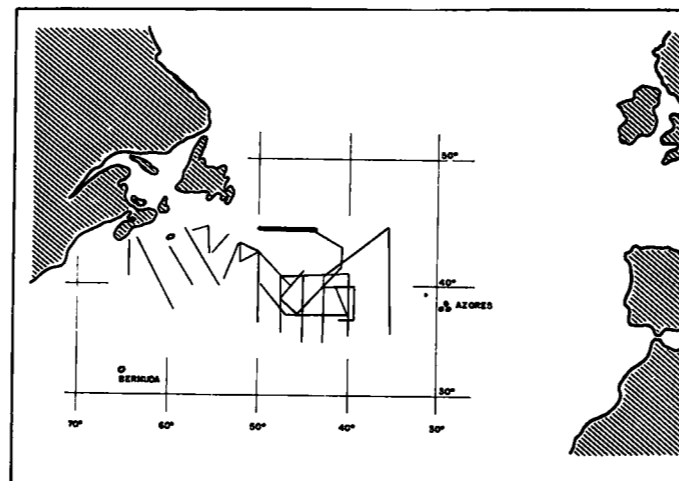


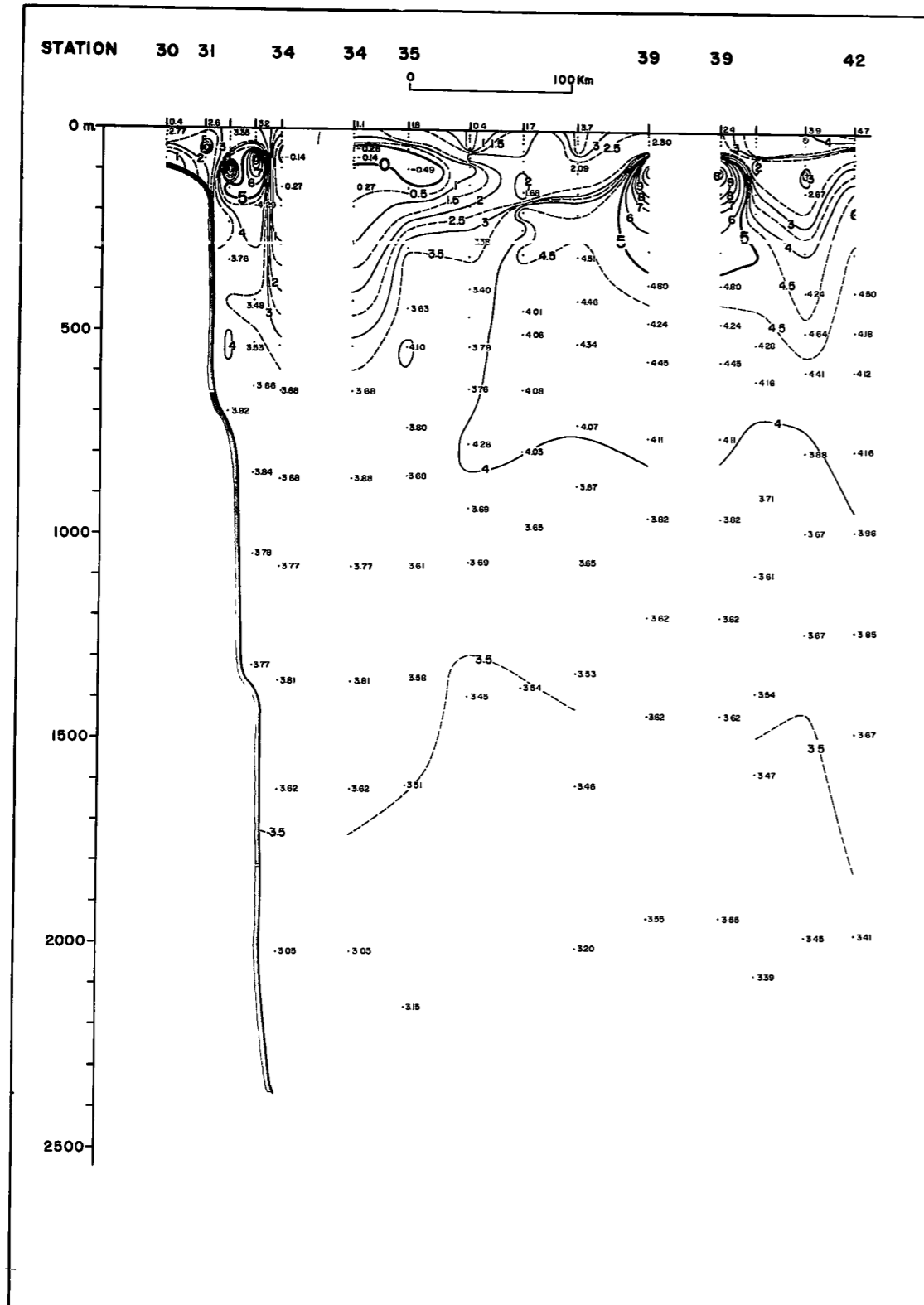
SALINITY (‰)



OXYGEN (ml/L)

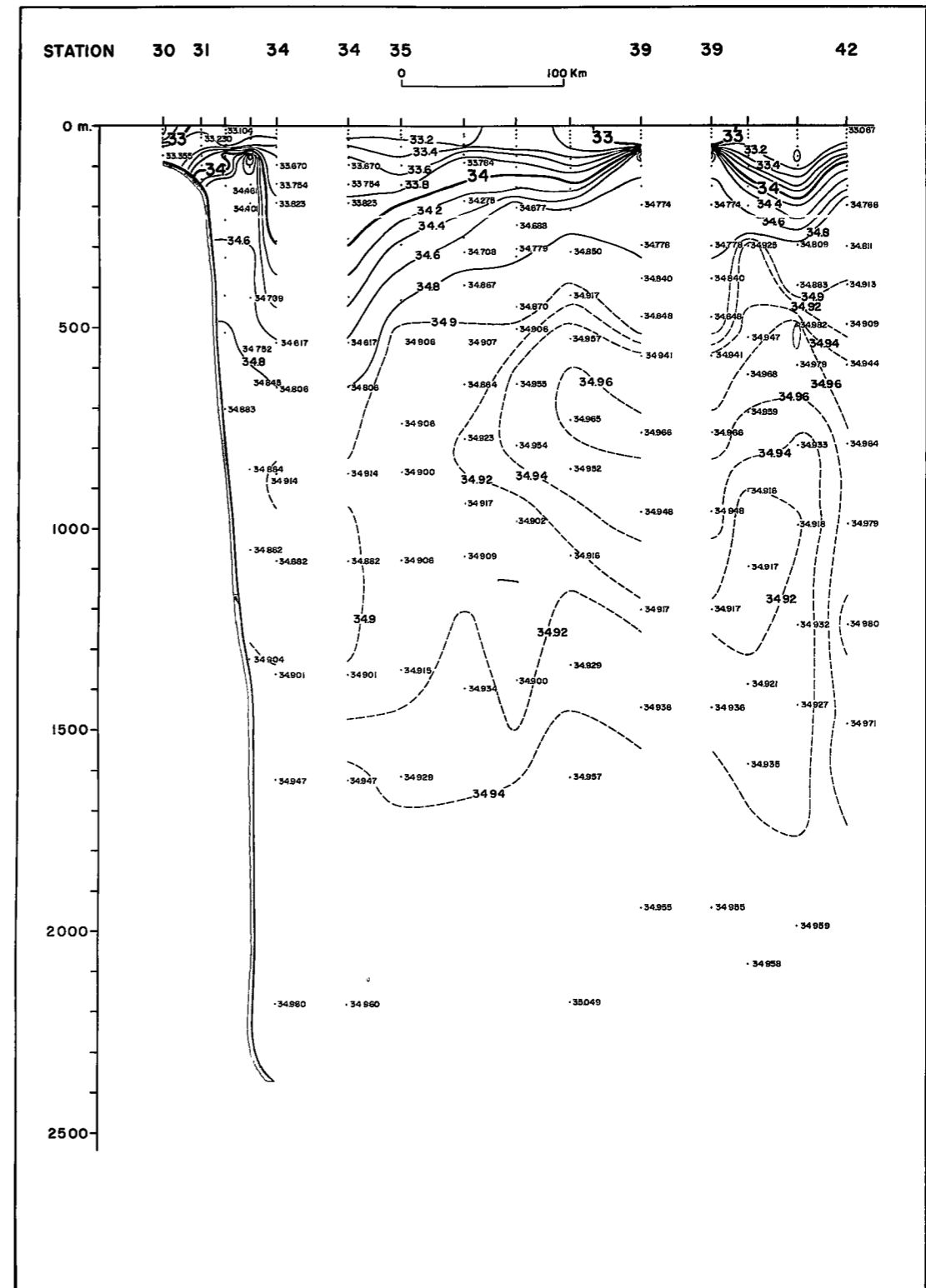
May 6 - May 9, 1963
 CSS BAFFIN
 Vertical Expansion 250



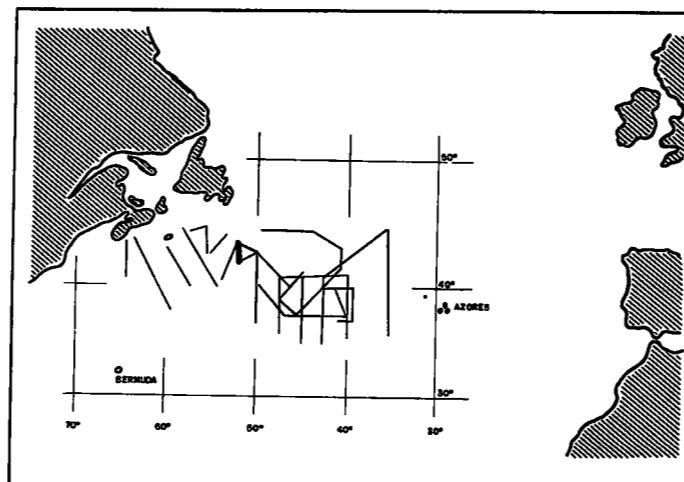


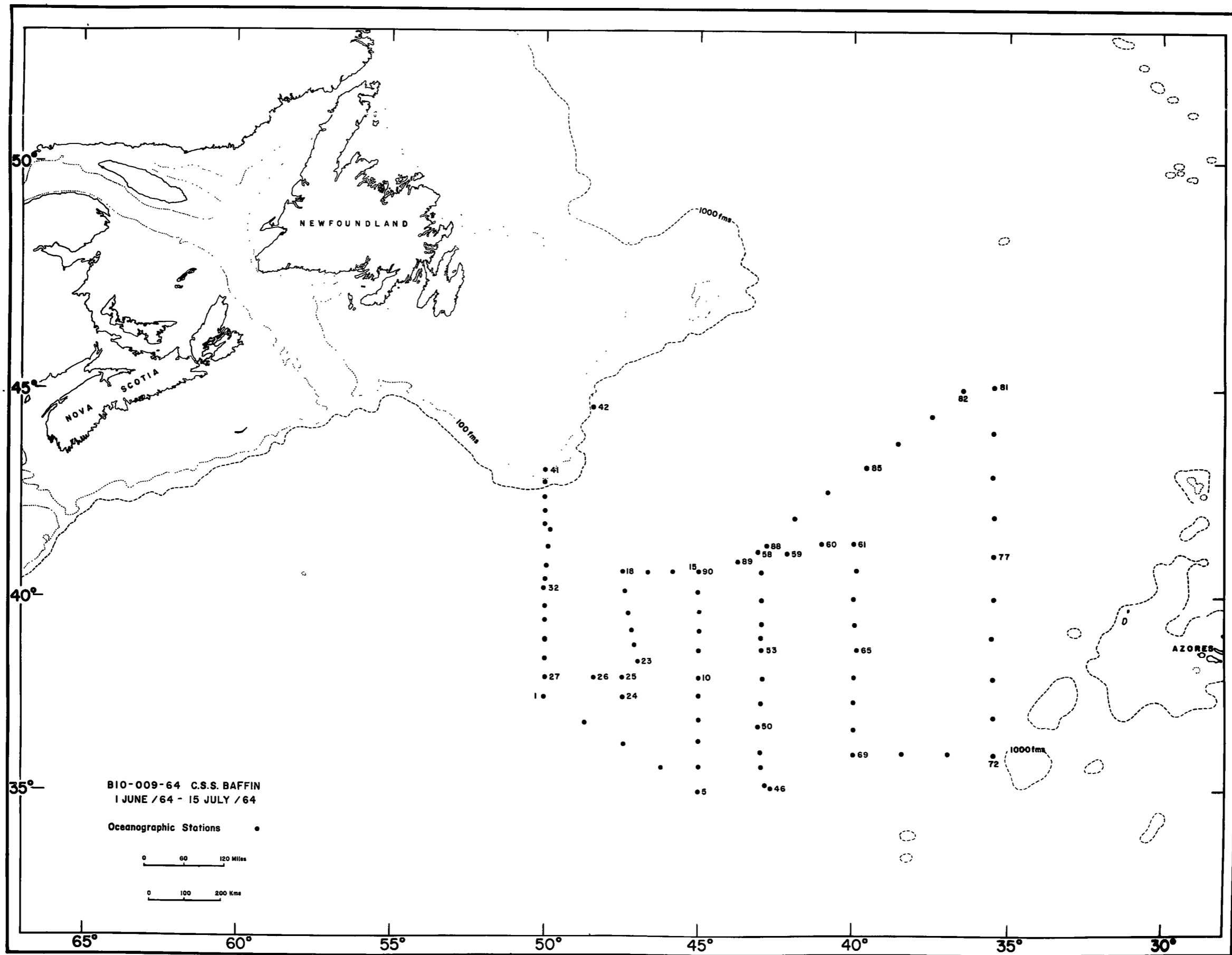
TEMPERATURE (°C)

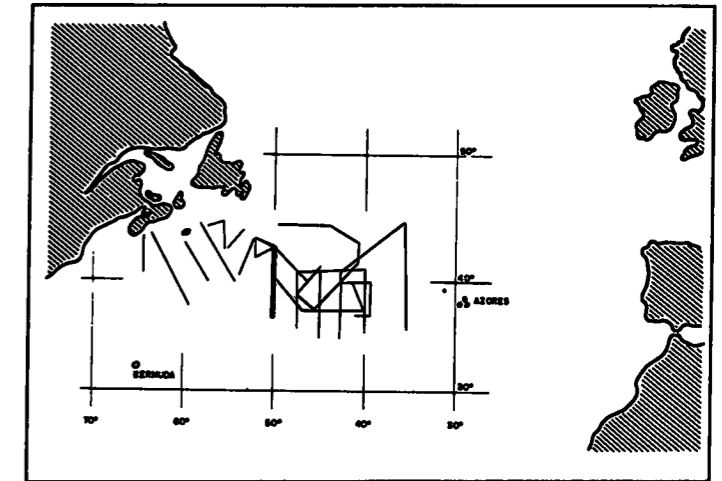
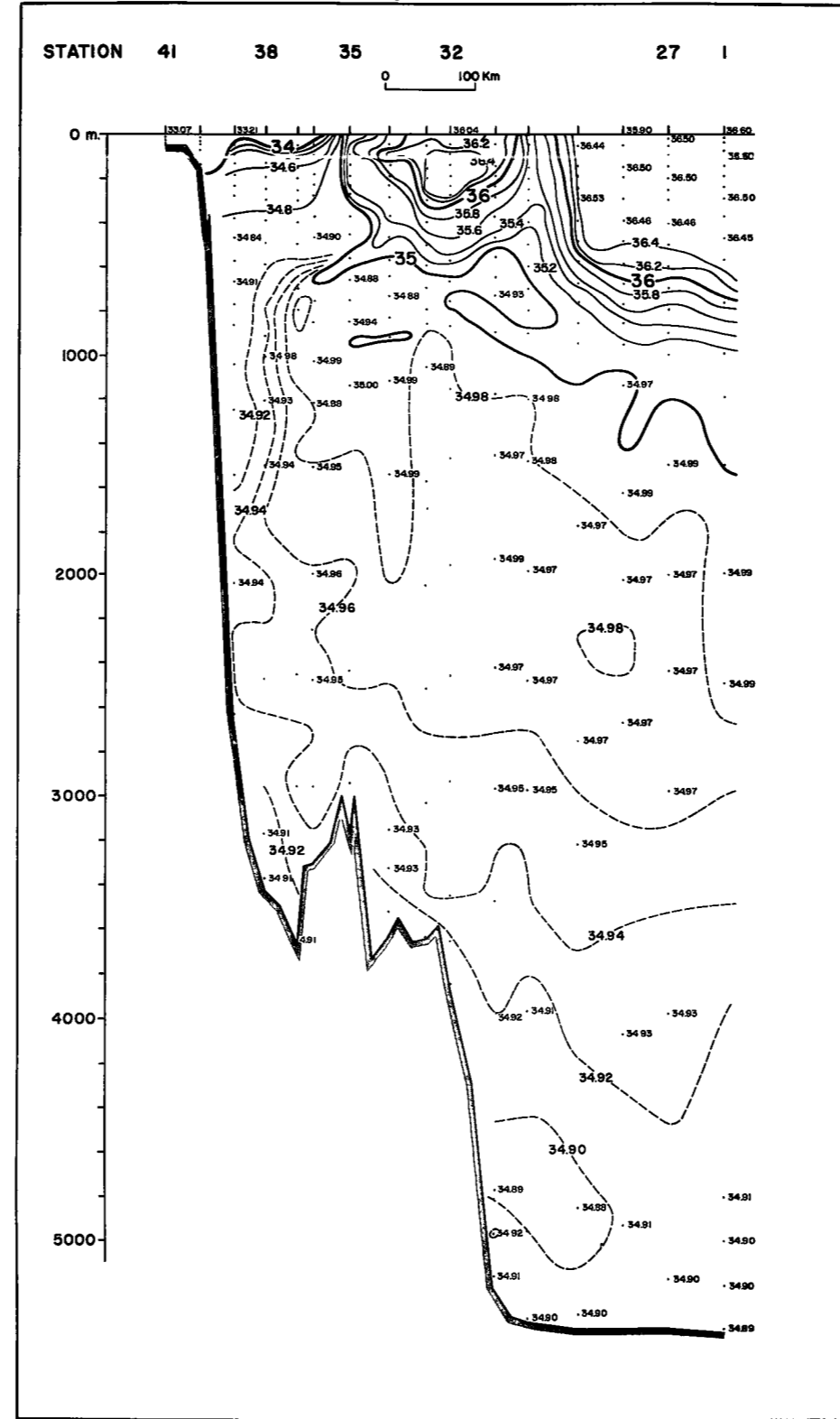
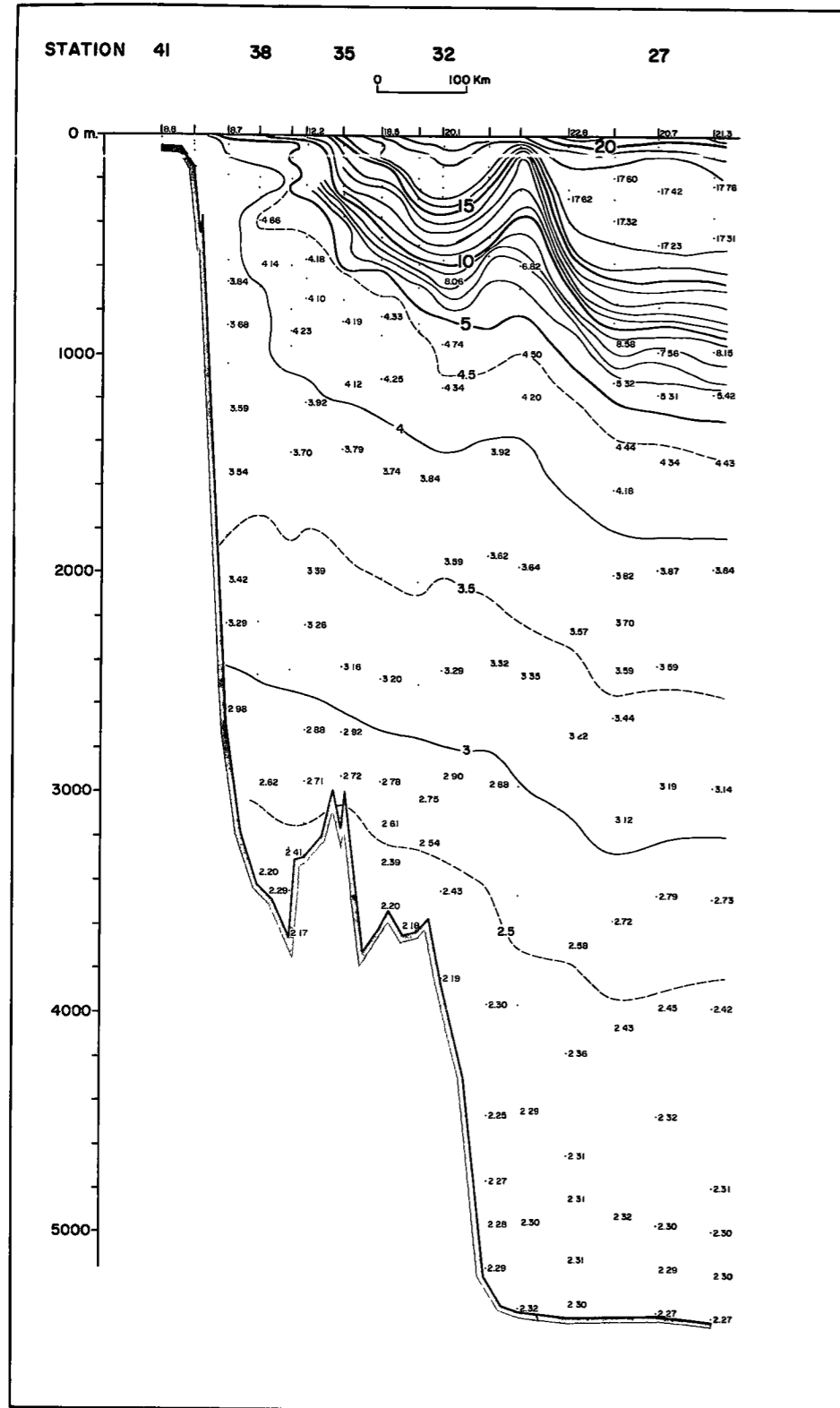
April 24 - April 27, 1963
 CNAV SACKVILLE
 Vertical Expansion 250



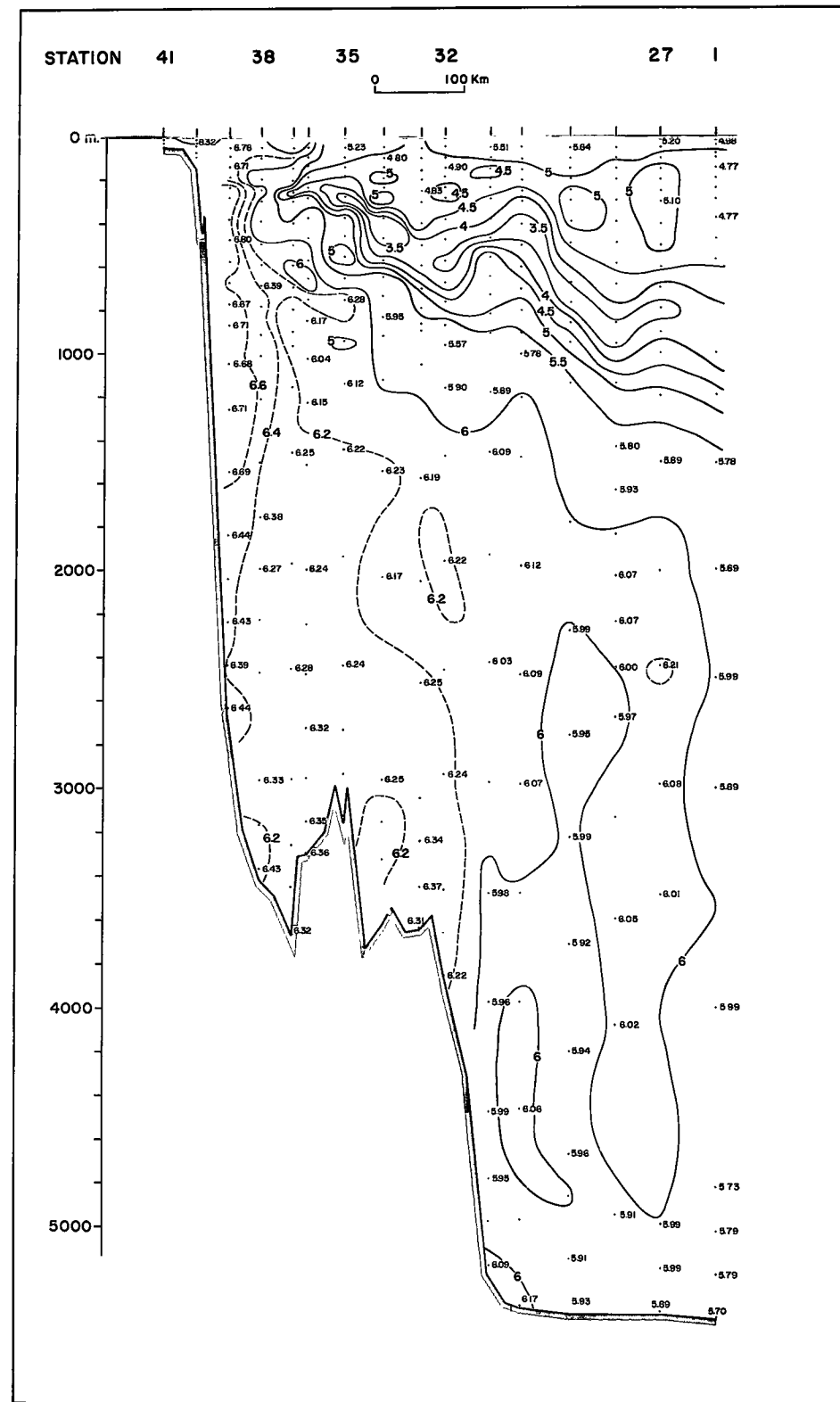
SALINITY (‰)



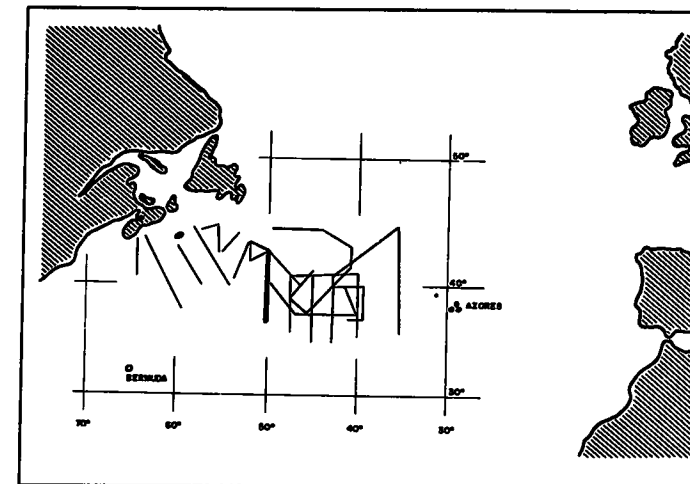




June 4 - June 17, 1964
 CSS BAFFIN
 Vertical Expansion 250



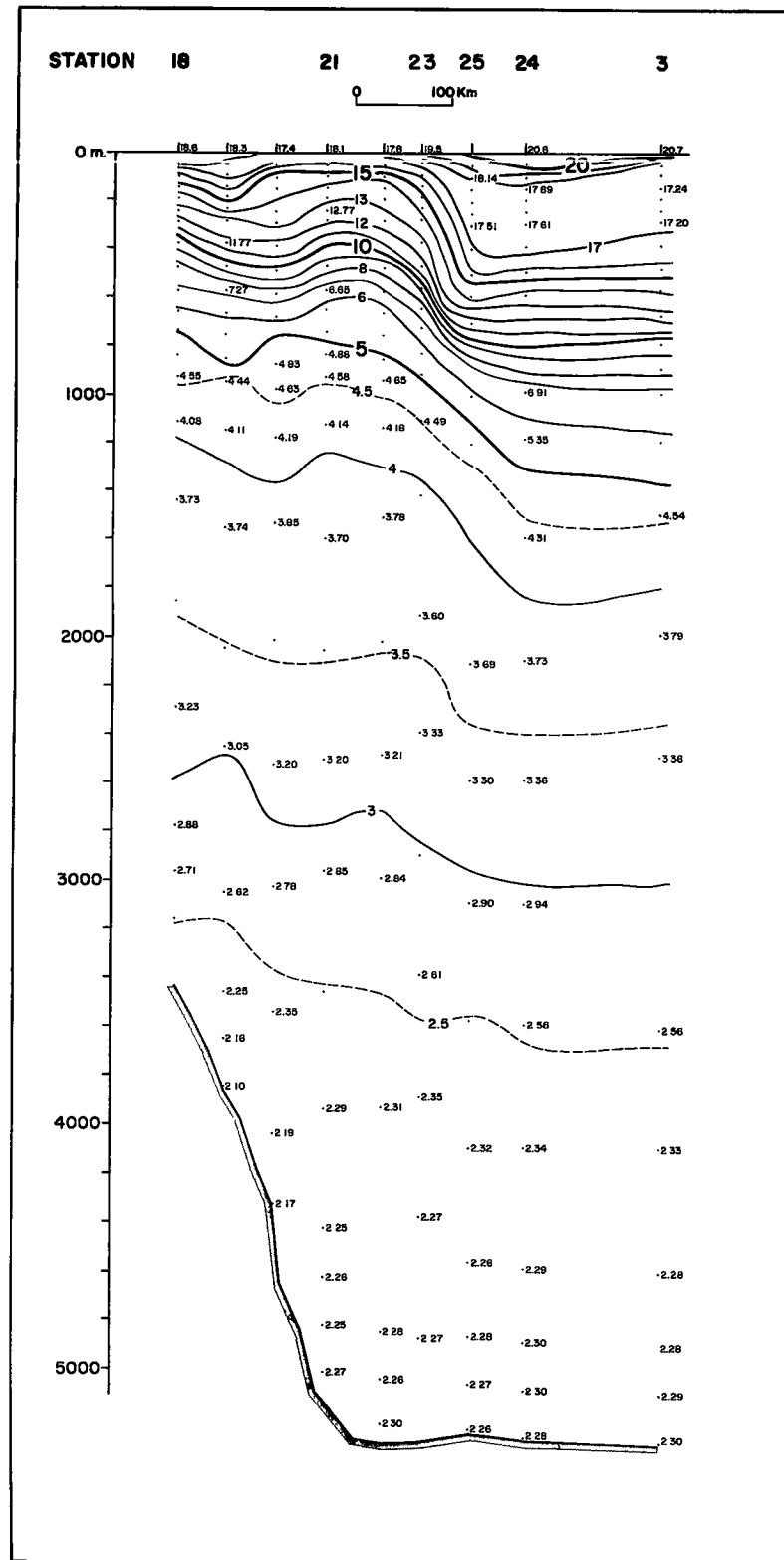
OXYGEN (mL/L)



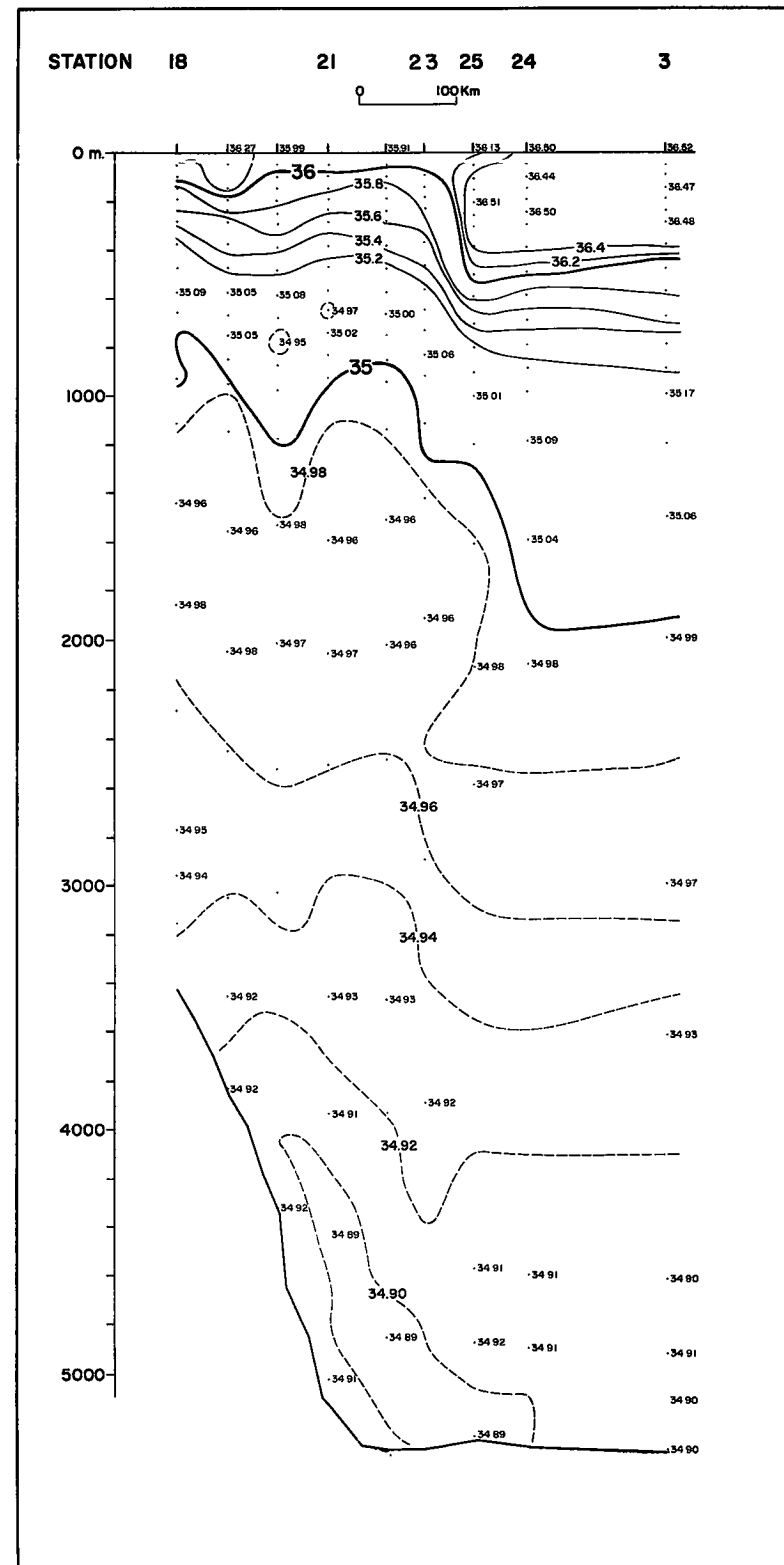
June 4 - June 17, 1964

CSS BAFFIN

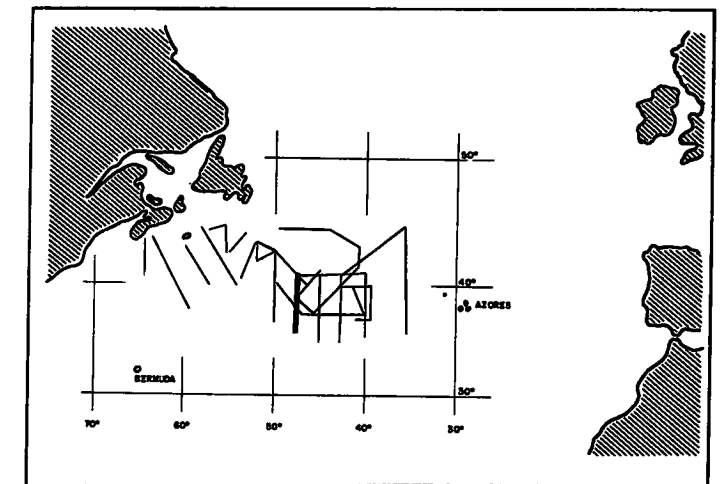
Vertical Expansion 250



TEMPERATURE (°C)



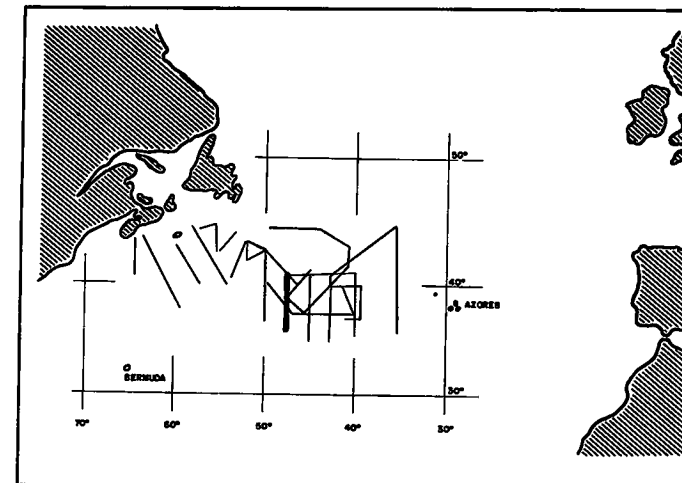
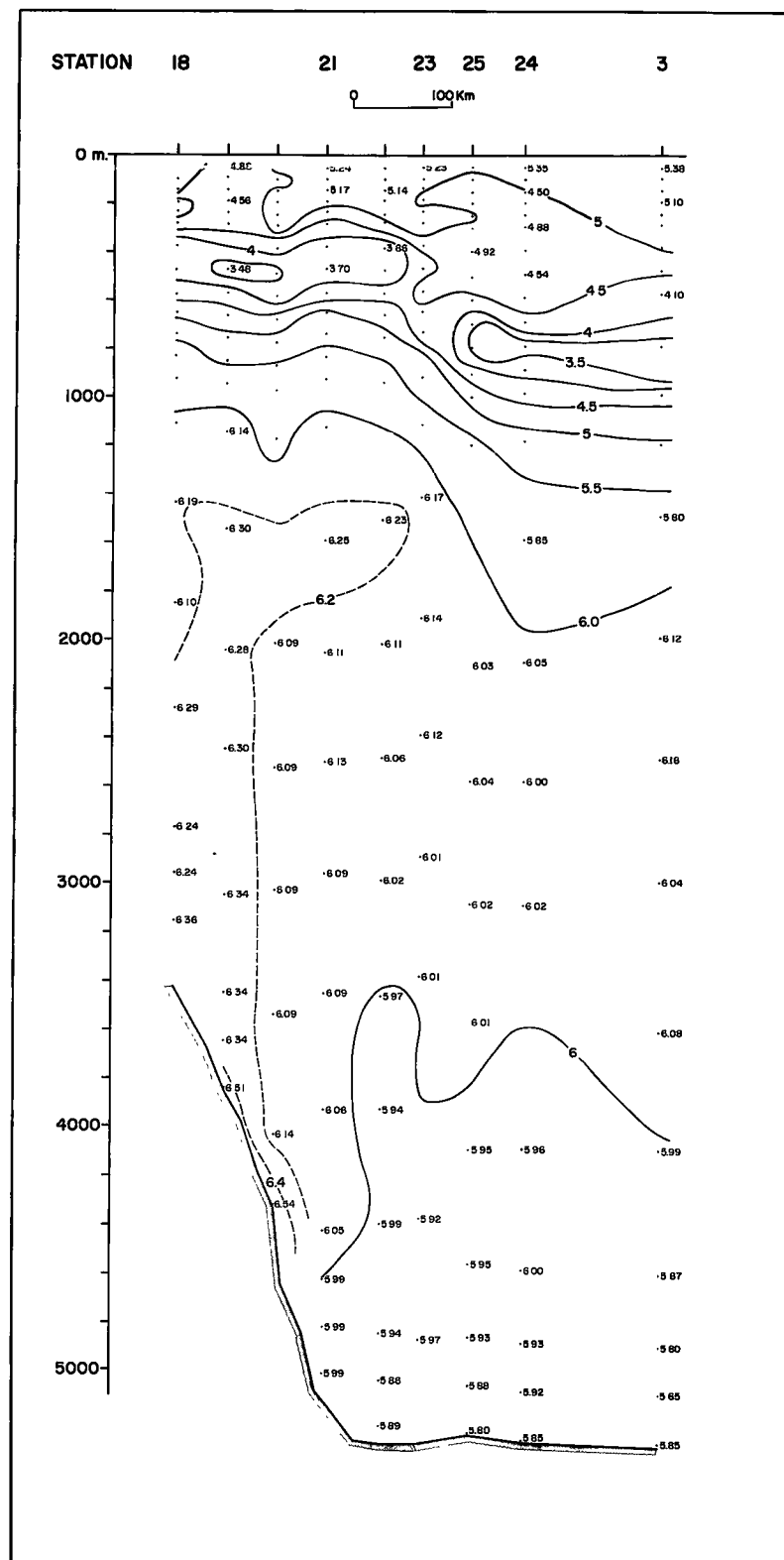
SALINITY (‰)



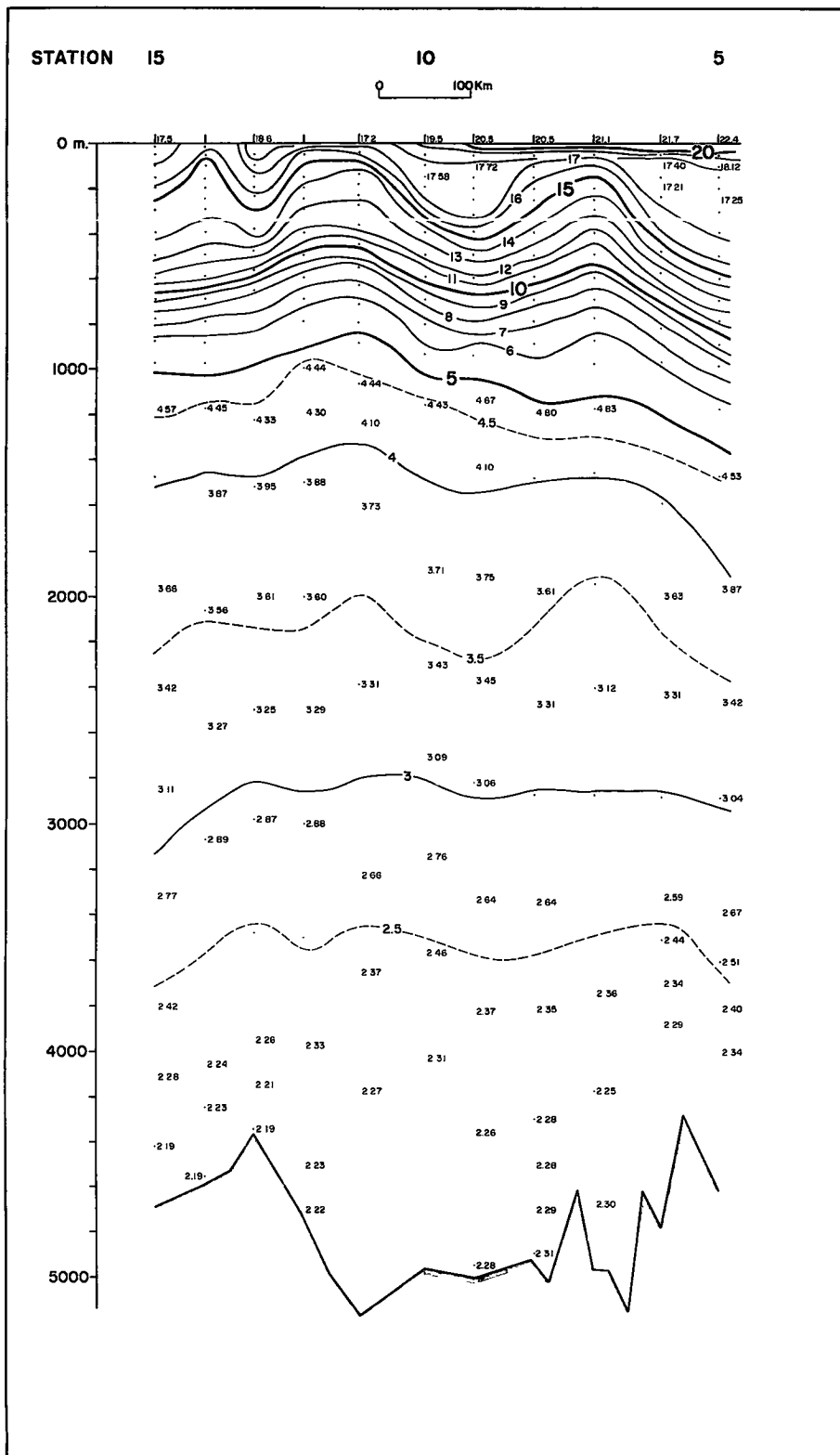
June 5 - June 12, 1964

CSS BAFFIN

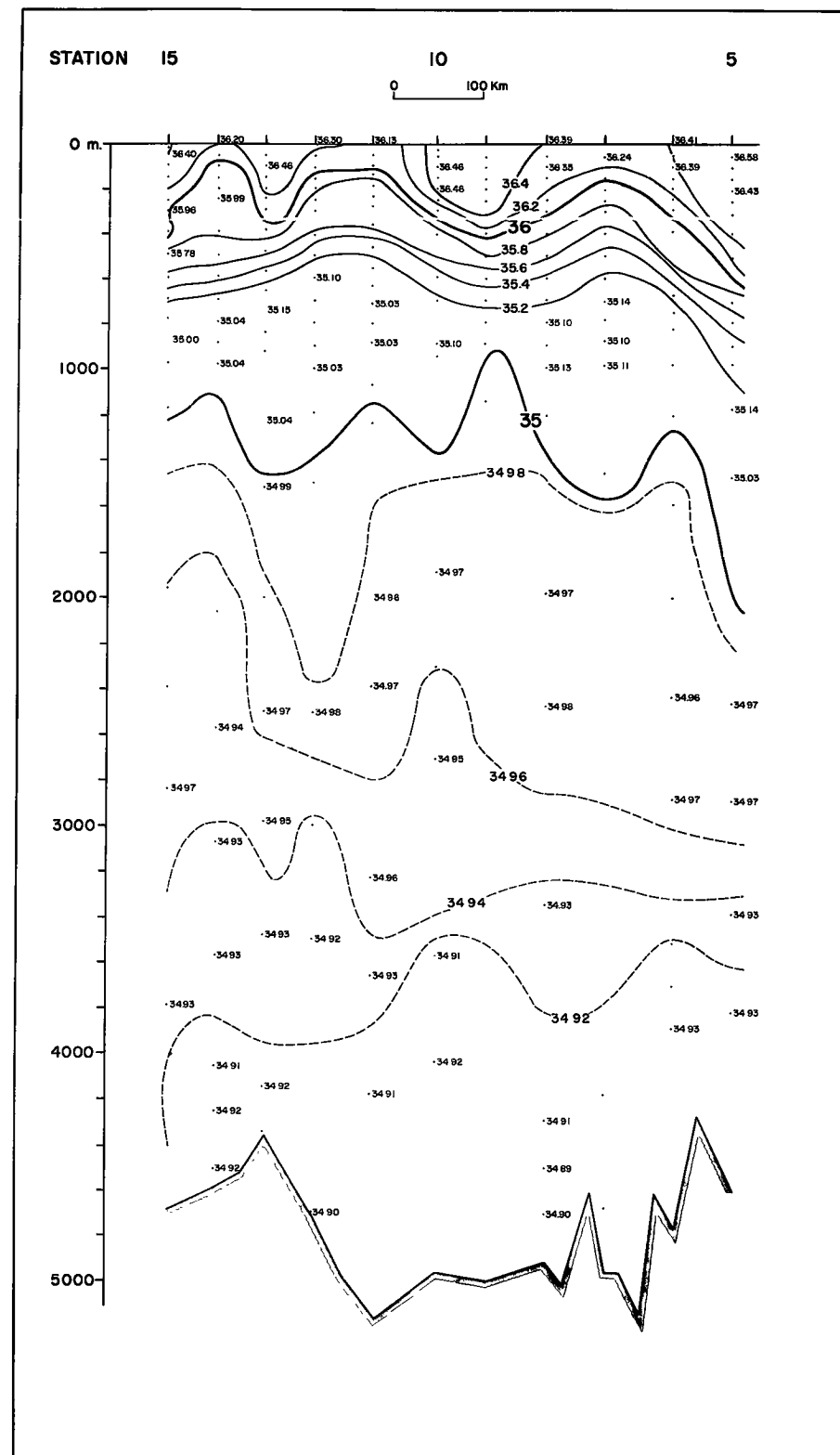
Vertical Expansion 250



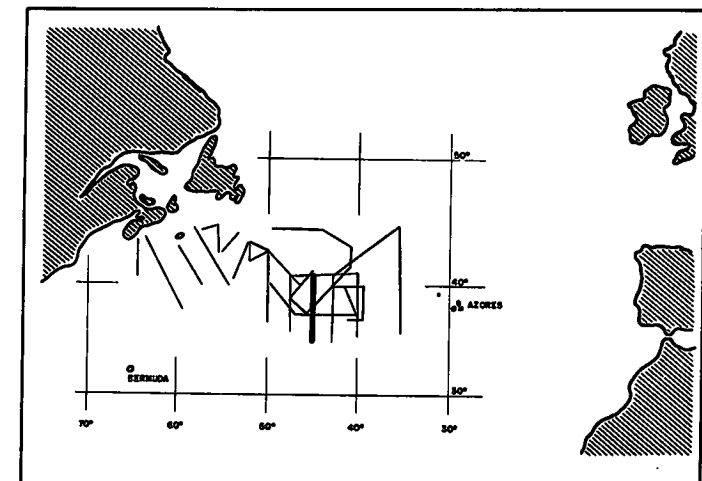
June 5 - June 12, 1964
 CSS BAFFIN
 Vertical Expansion 250



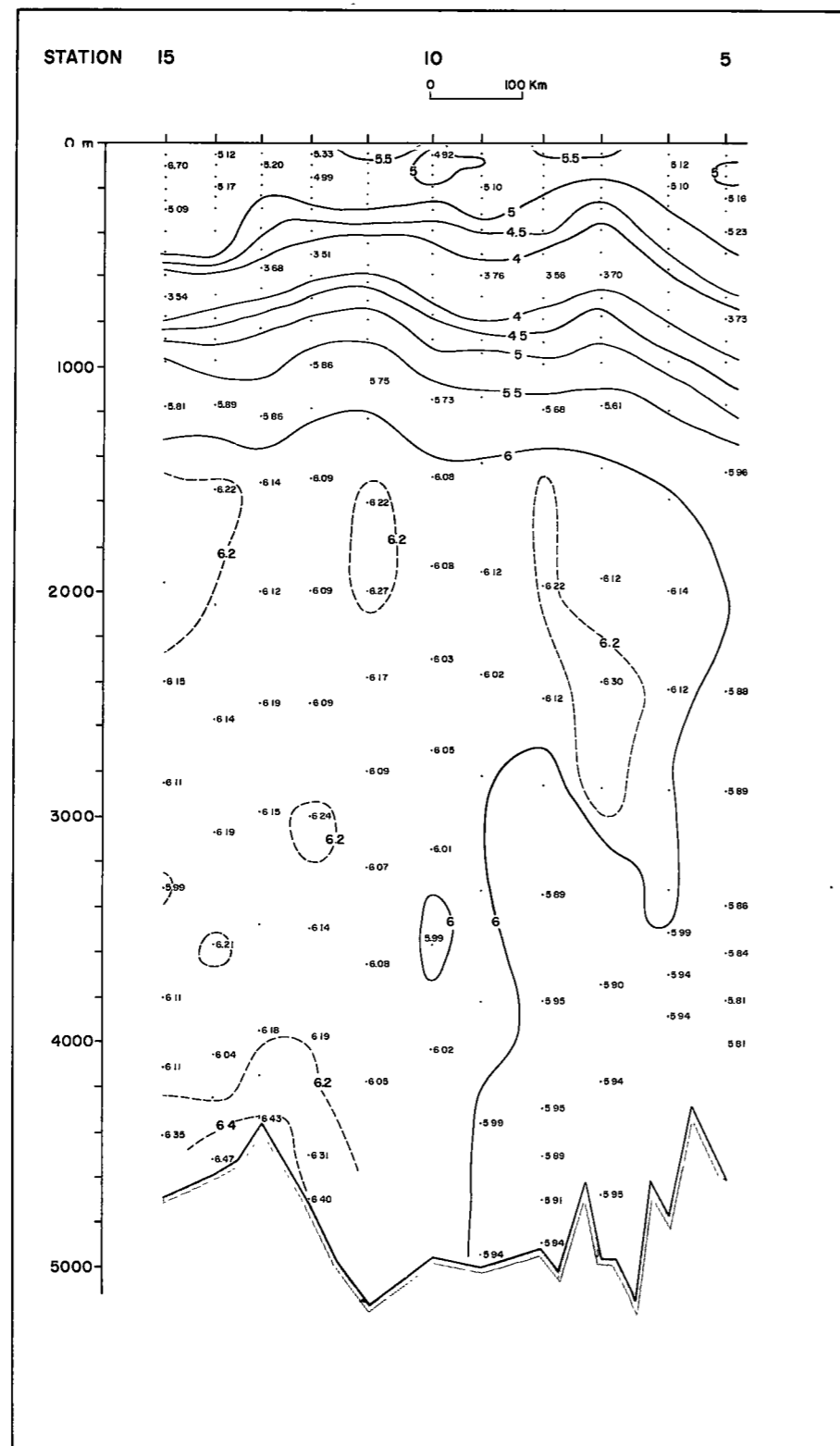
TEMPERATURE (°C)



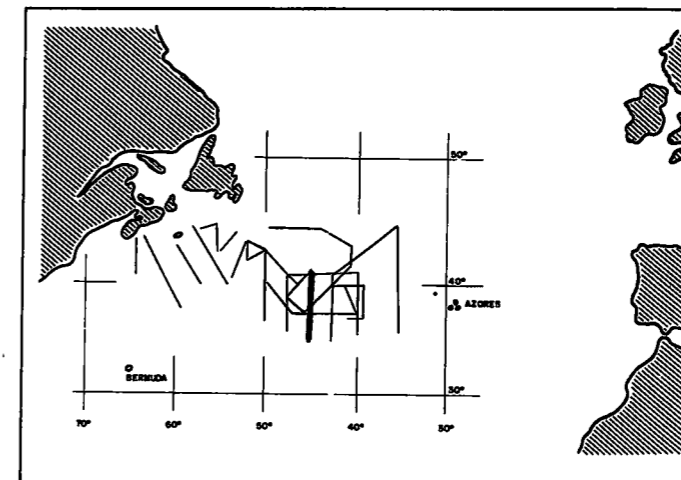
SALINITY (‰)



June 6 - June 9, 1964
 CSS BAFFIN
 Vertical Expansion 250



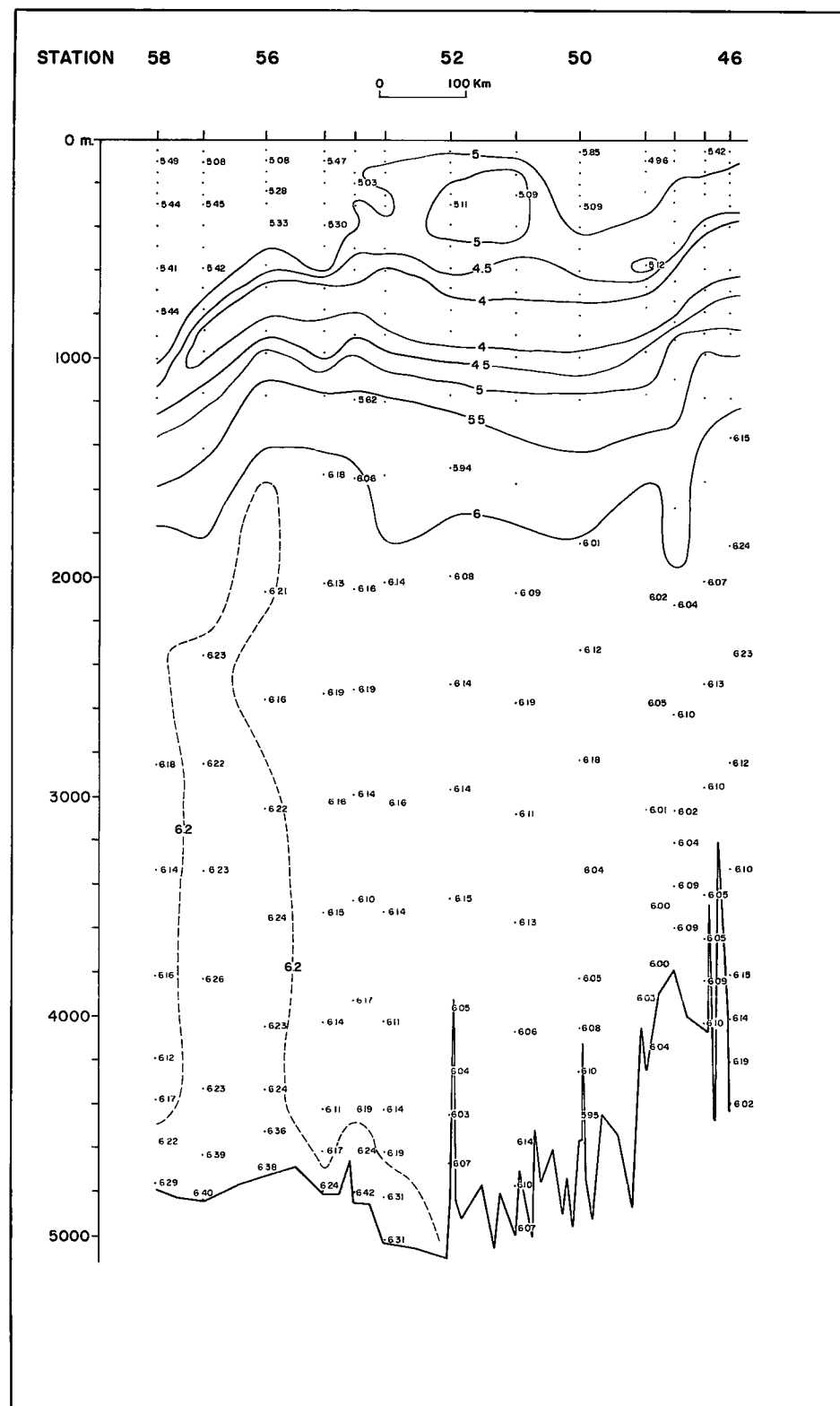
OXYGEN (ml/L)



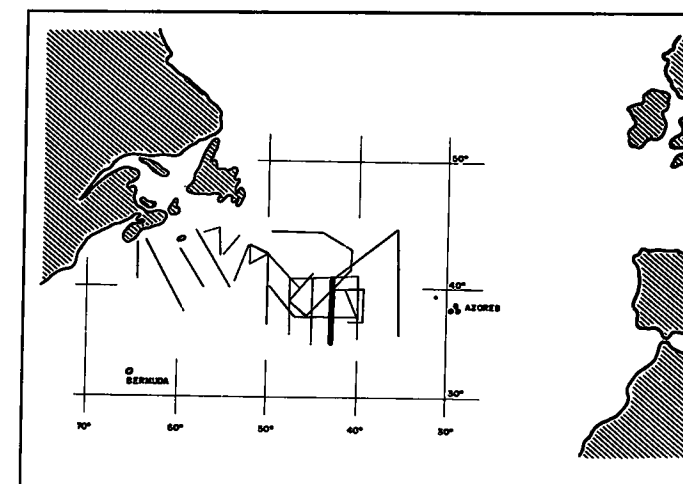
June 6 - June 9, 1964

CSS BAFFIN

Vertical Expansion 250



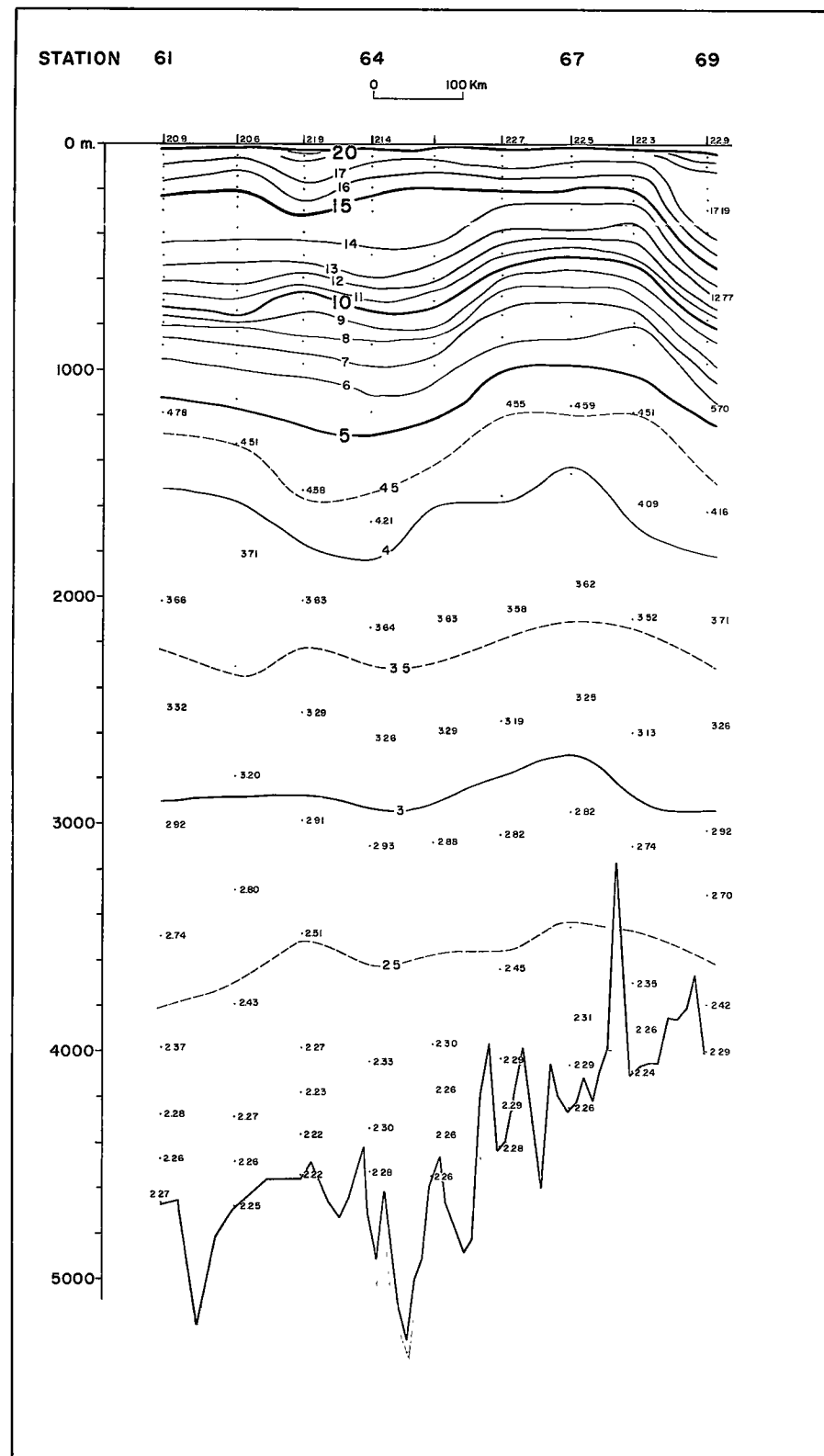
OXYGEN (ml/L)



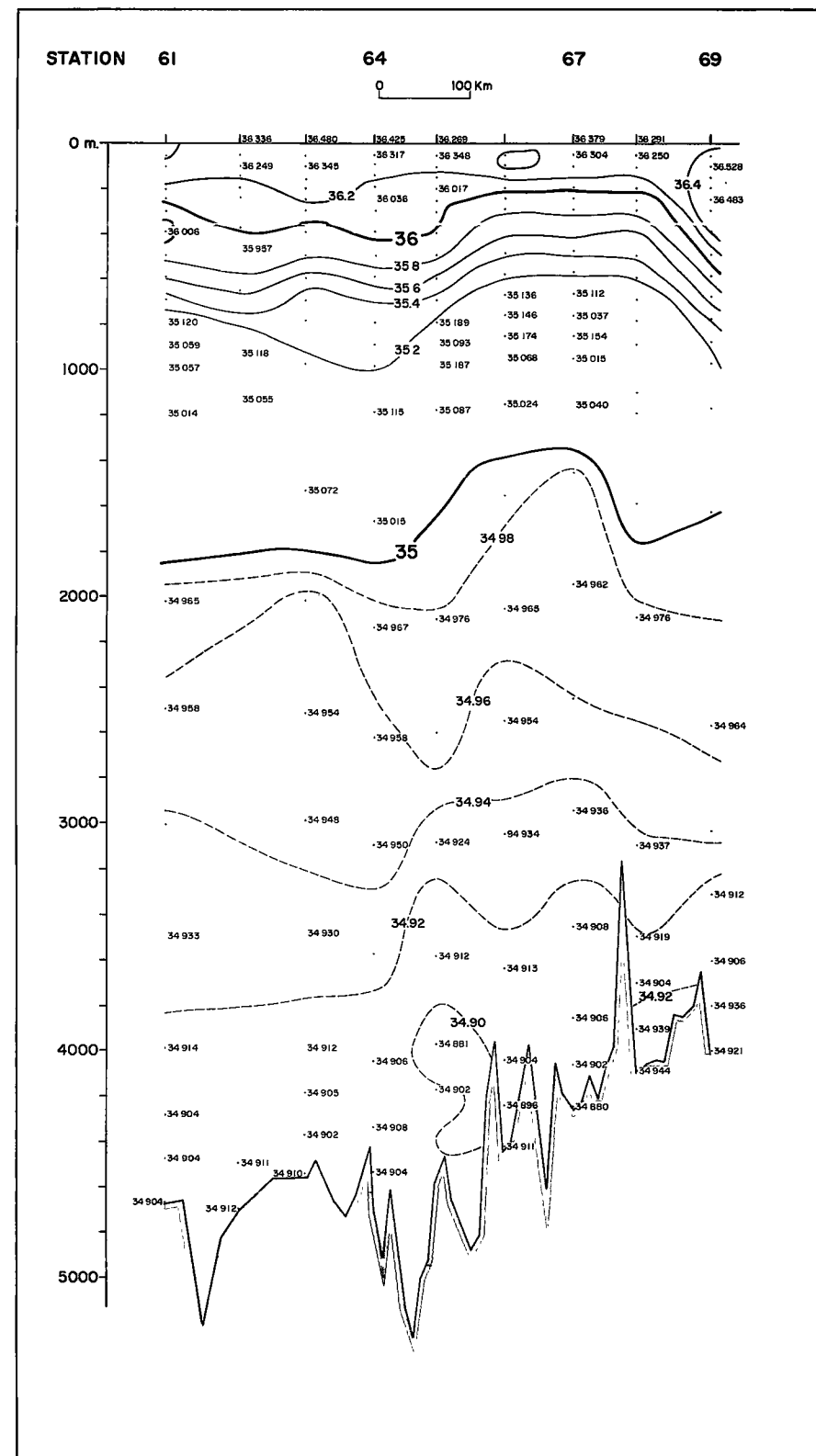
June 28 - July 1, 1964

CSS BAFFIN

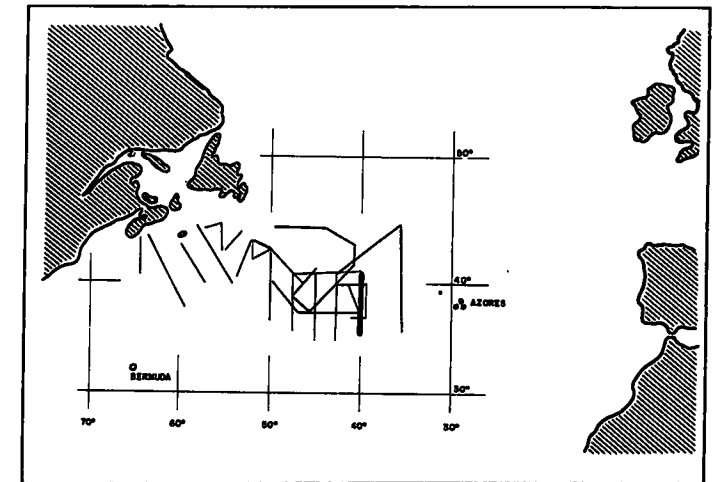
Vertical Expansion 250



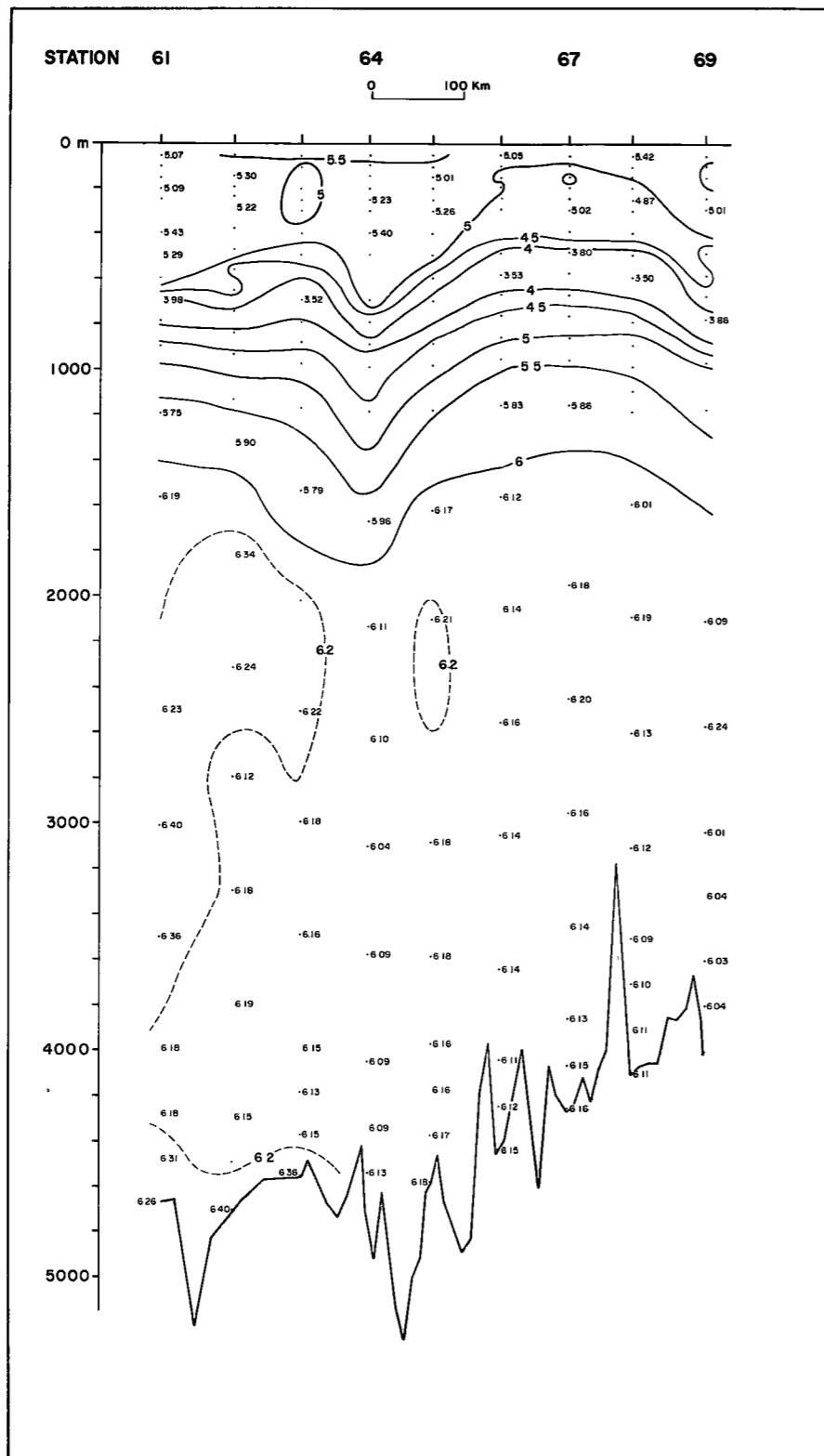
TEMPERATURE ($^{\circ}\text{C}$)



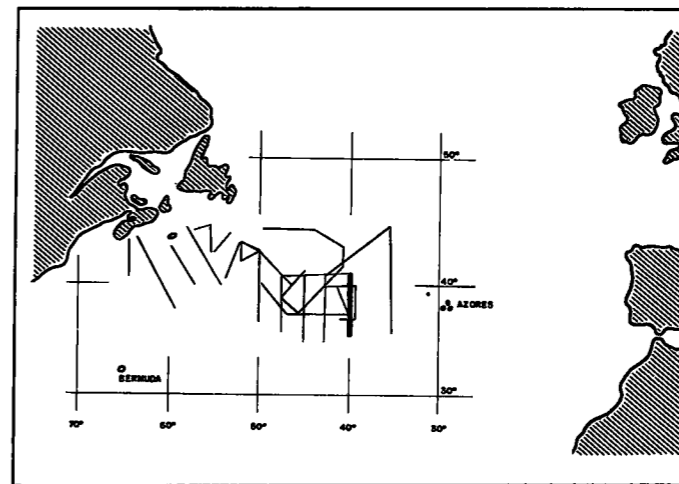
SALINITY ($^{\circ}/\text{oo}$)



July 2 - July 5, 1964
 CSS BAFFIN
 Vertical Expansion 250



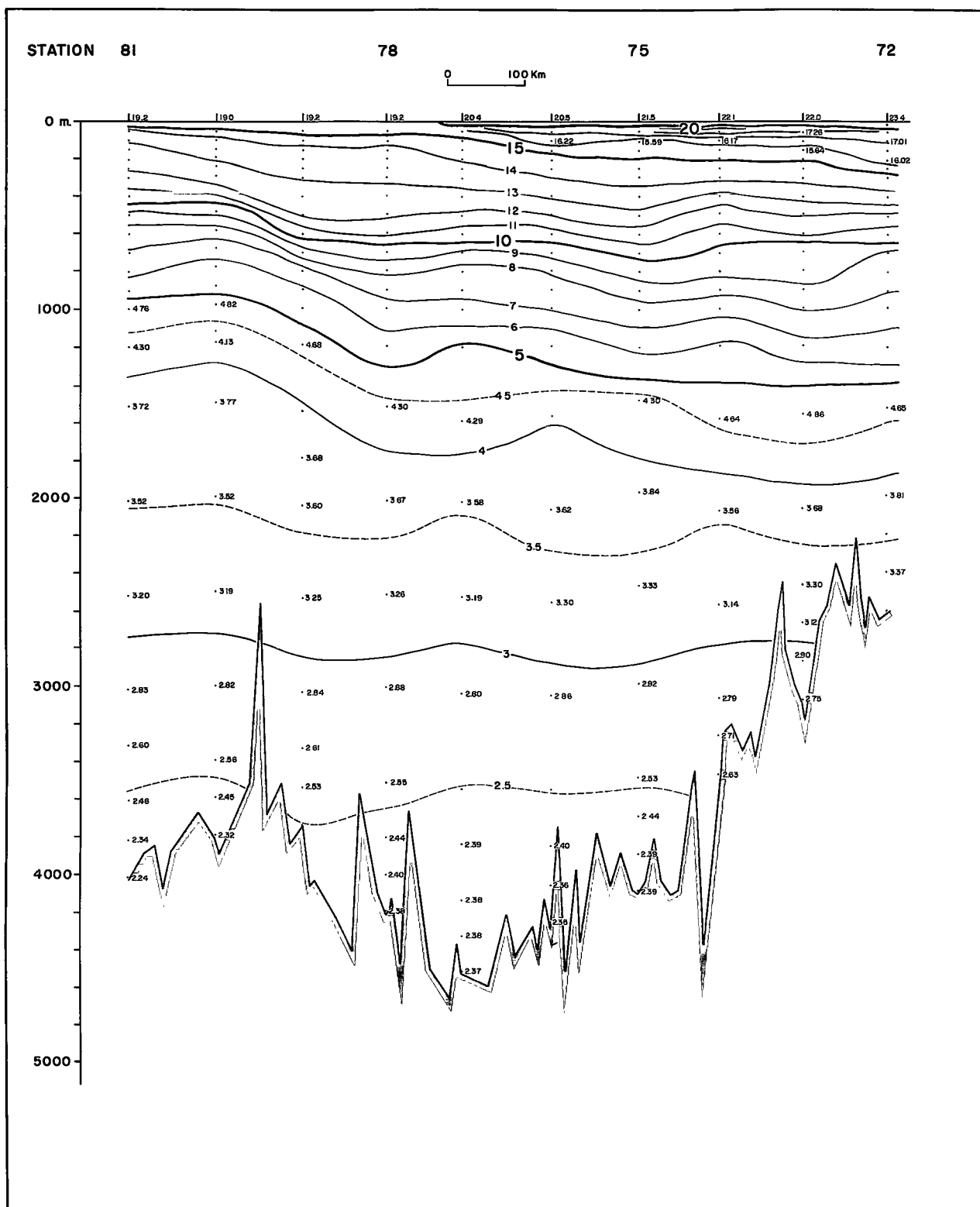
OXYGEN (ml/L)



July 2 - July 5, 1964

CSS BAFFIN

Vertical Expansion 250

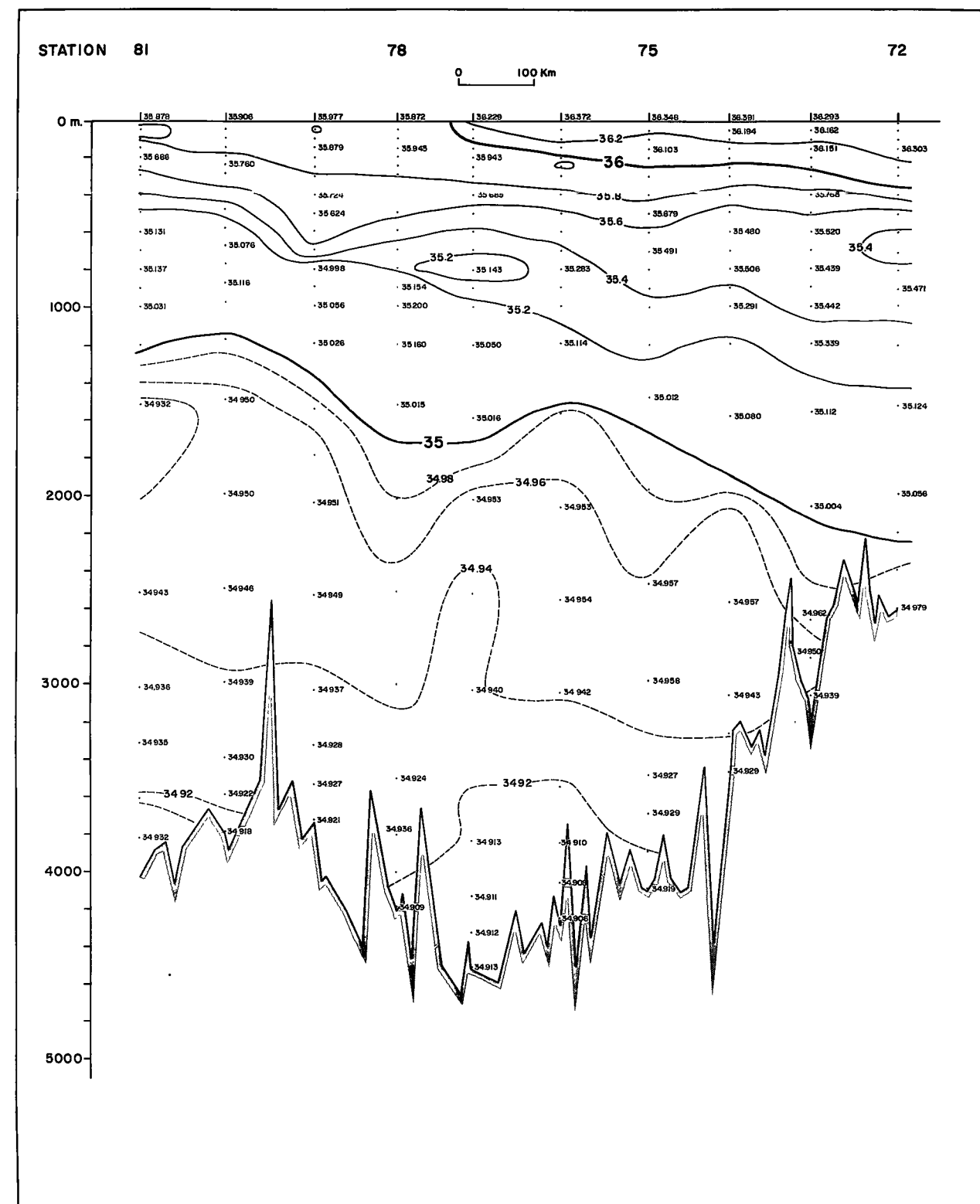


TEMPERATURE (°C)

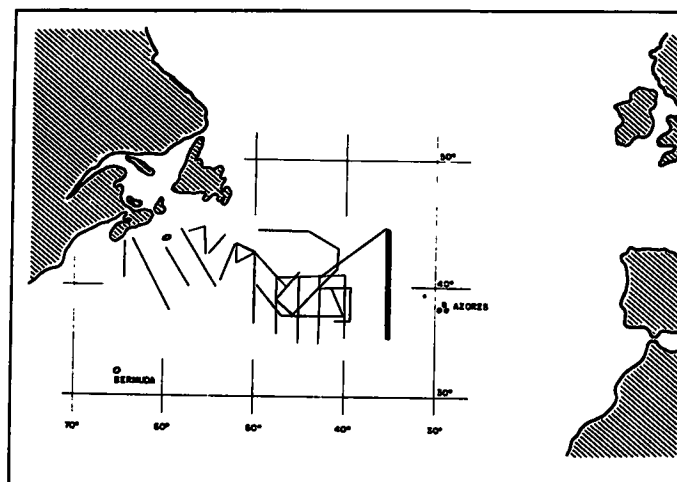
June 6 - June 9, 1964

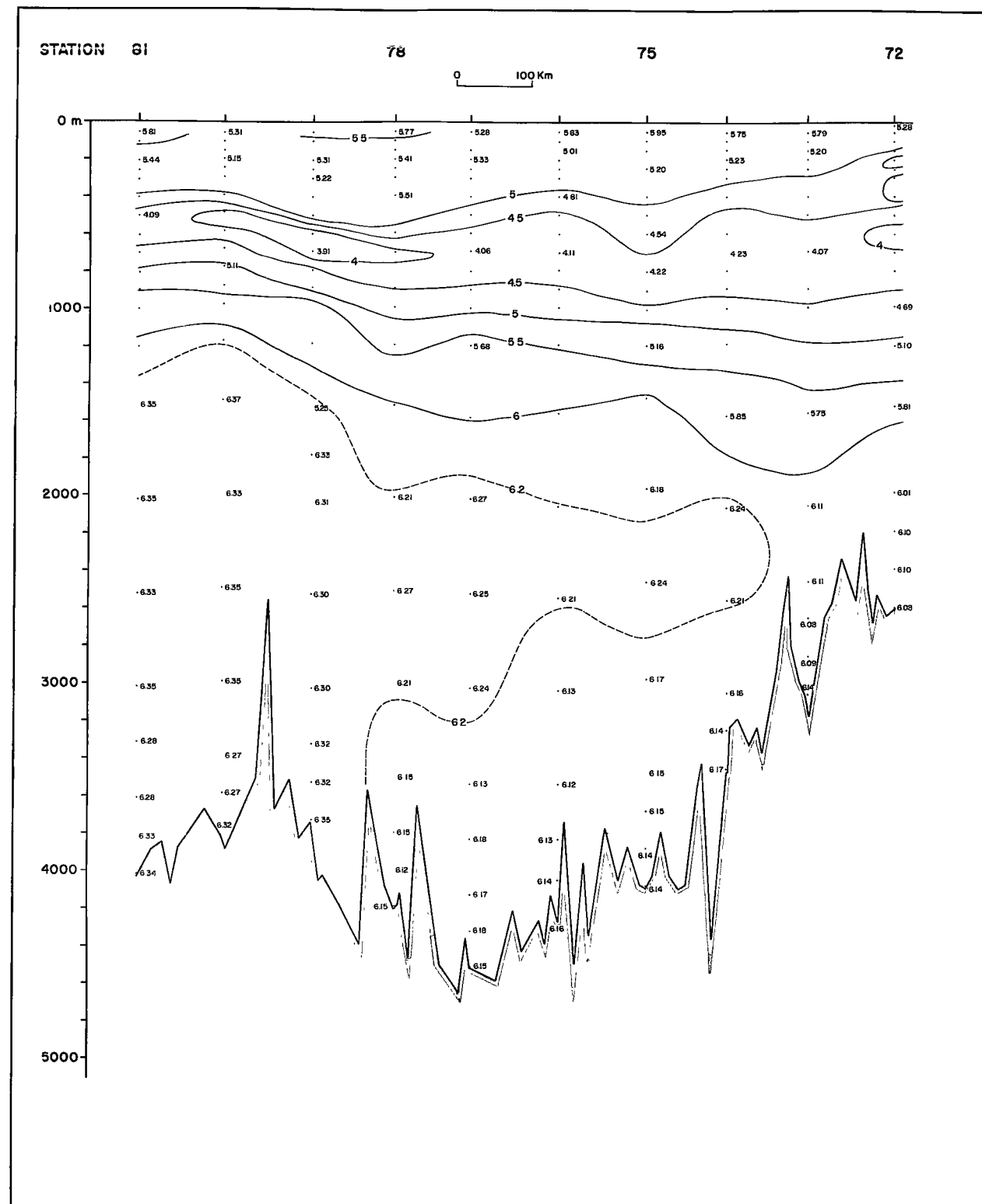
CSS BAFFIN

Vertical Expansion 250

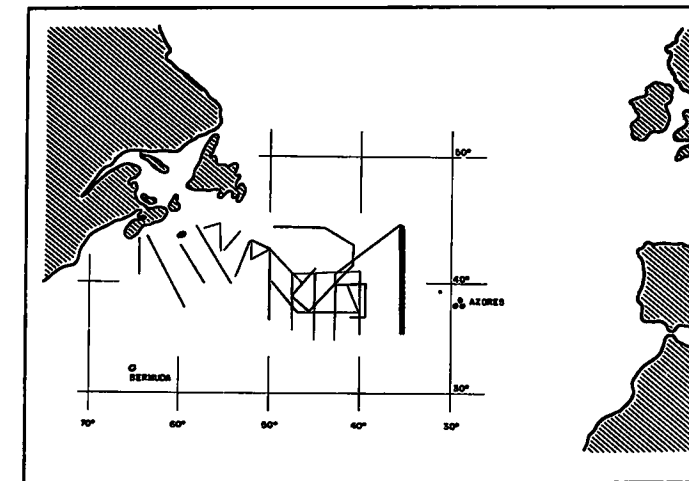


SALINITY (‰)





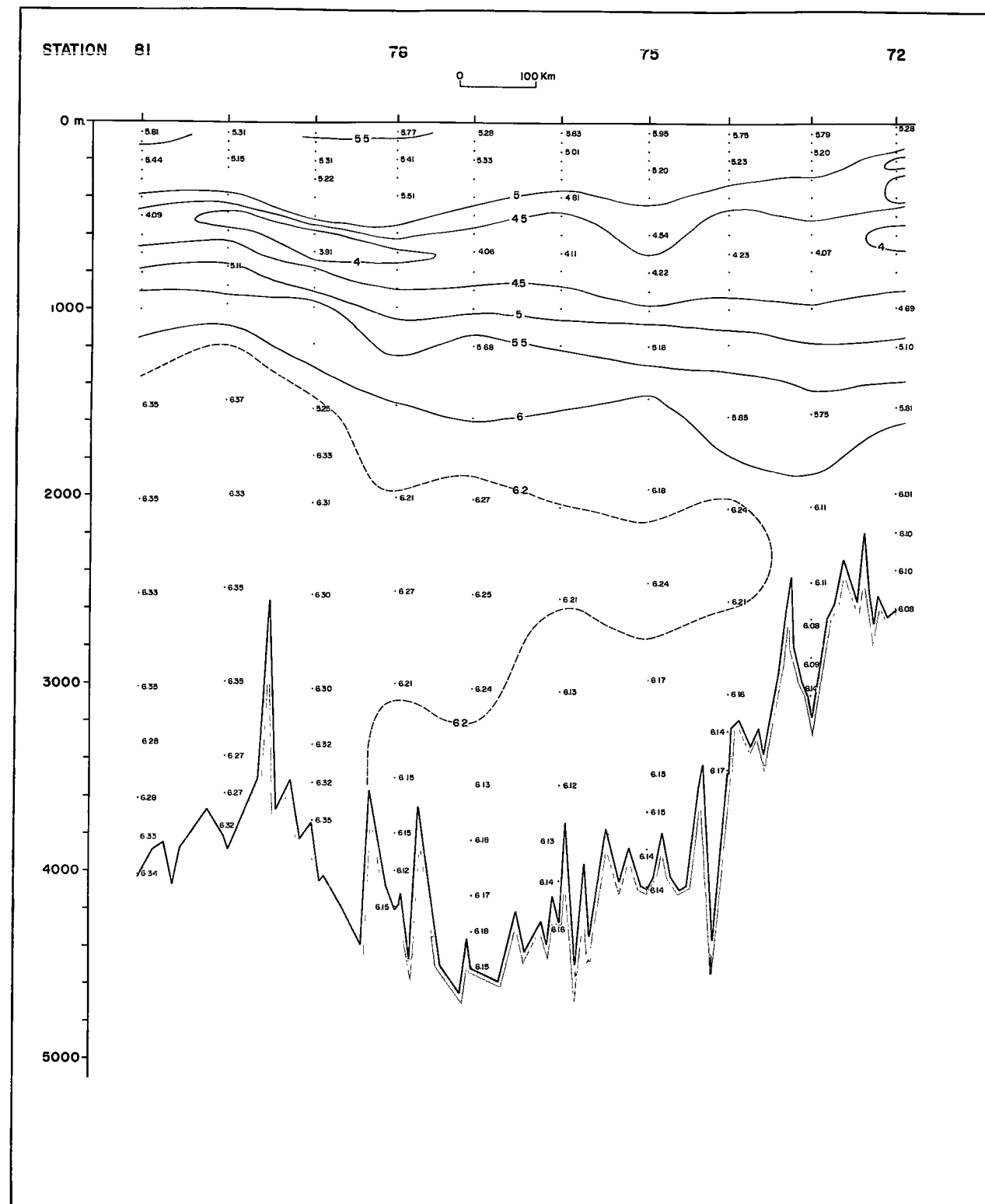
OXYGEN (ml/L)



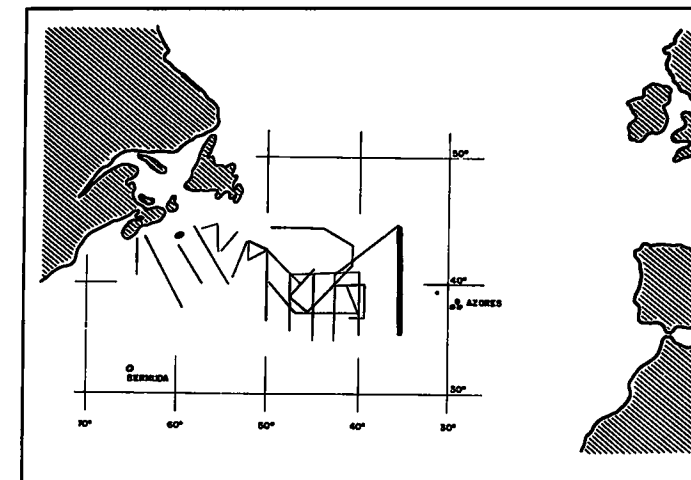
June 6 - June 9, 1964

CSS BAFFIN

Vertical Expansion 250



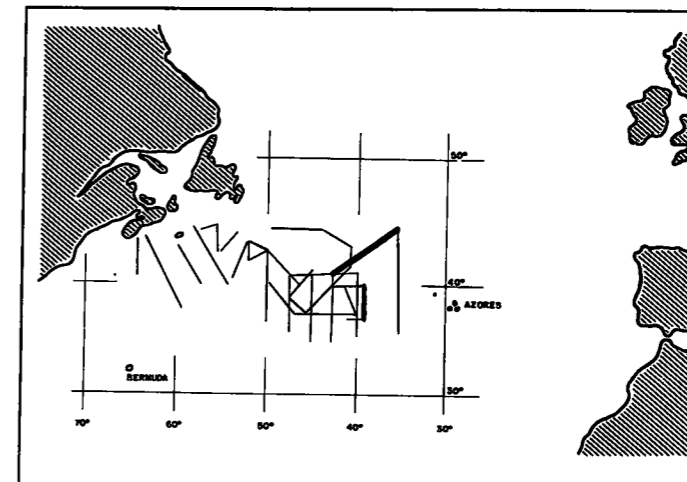
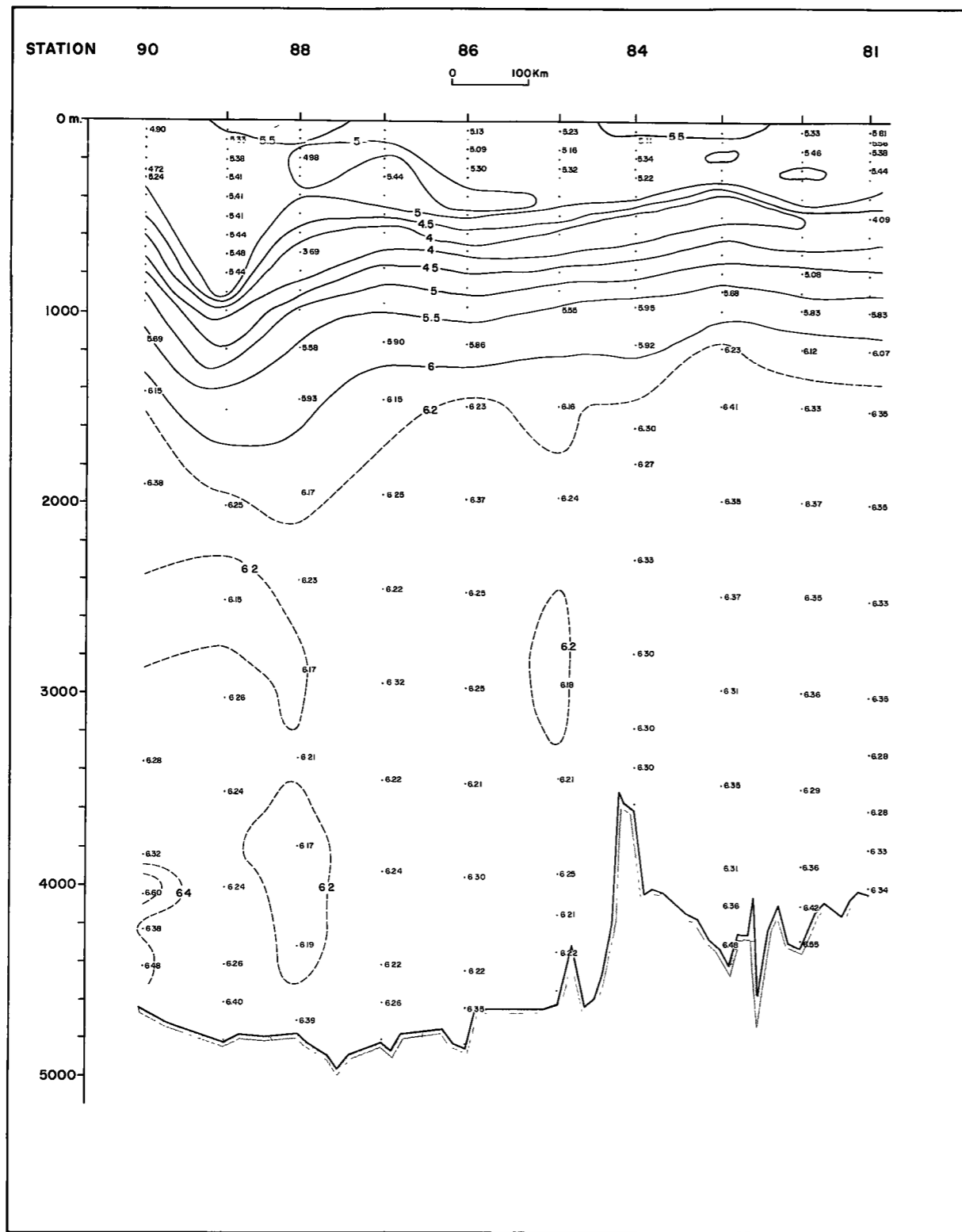
OXYGEN (ml/L)



June 6 - June 9, 1964

CSS BAFFIN

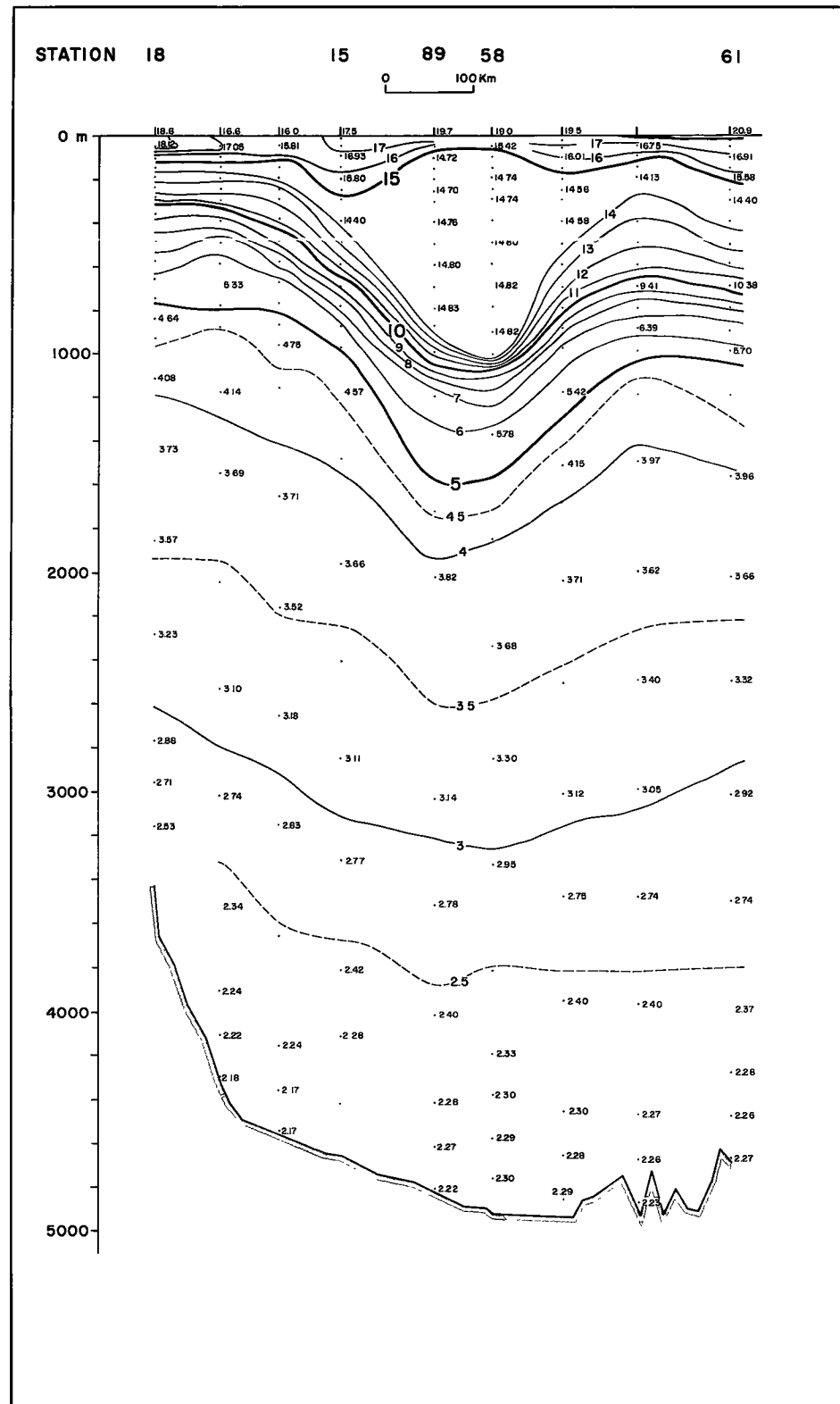
Vertical Expansion 250



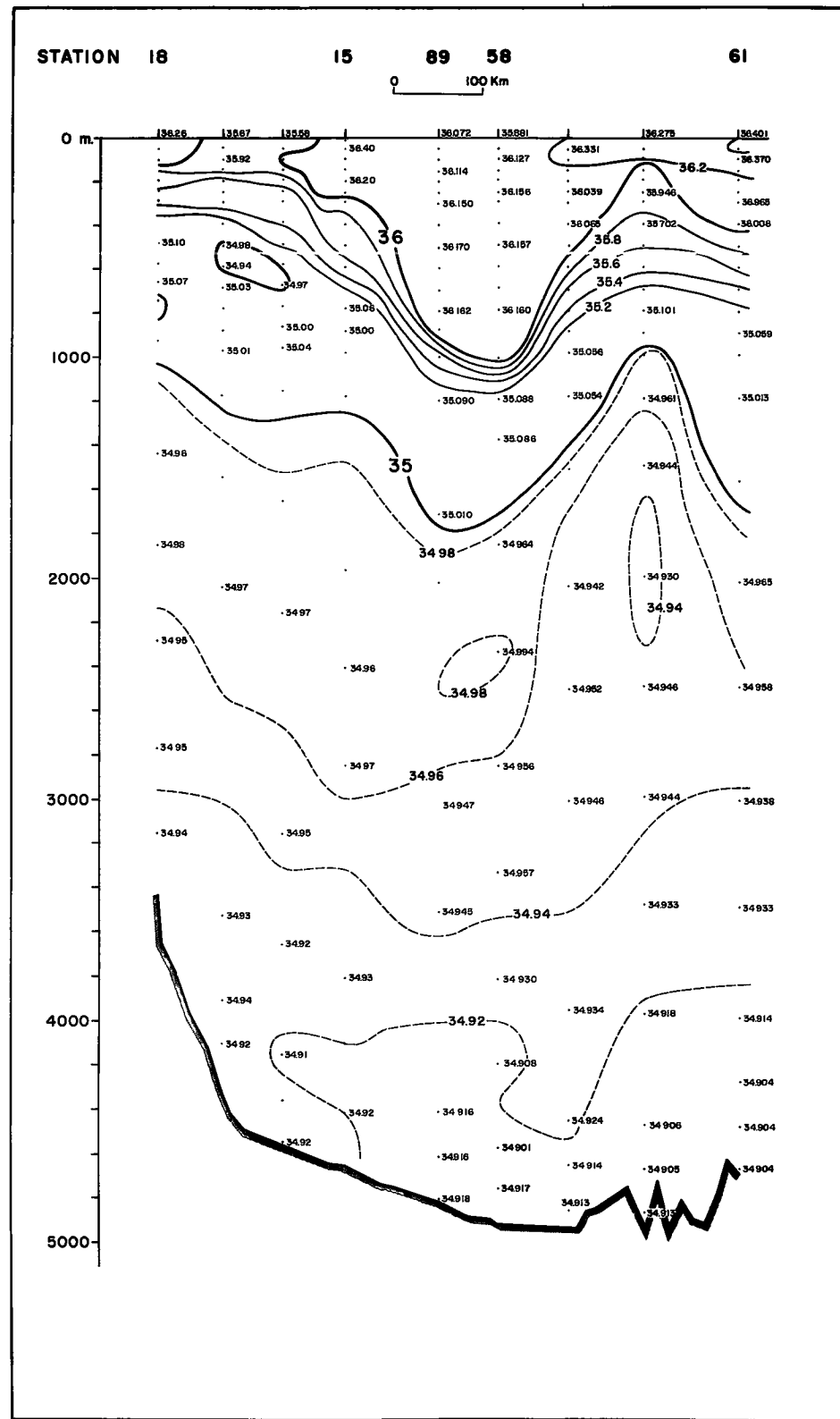
July 9 - July 12, 1964

CSS BAFFIN

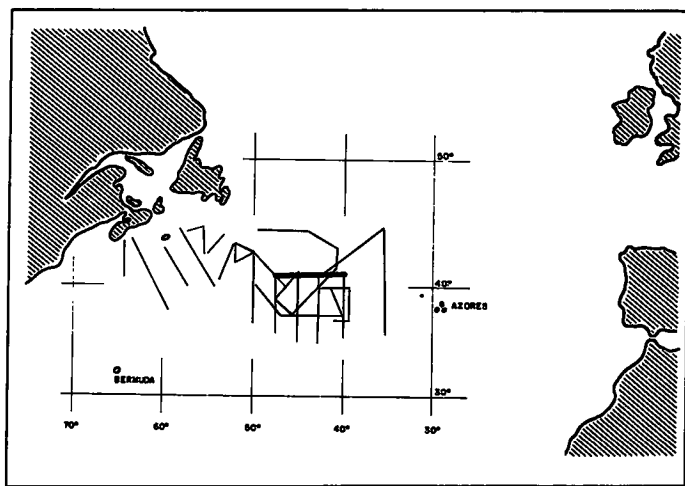
Vertical Expansion 250



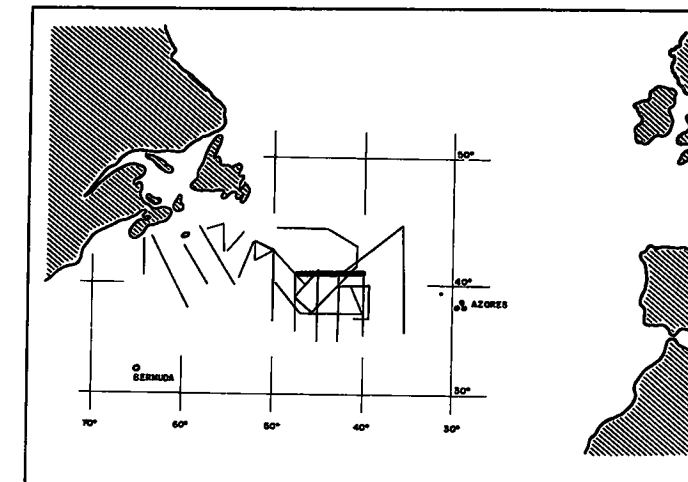
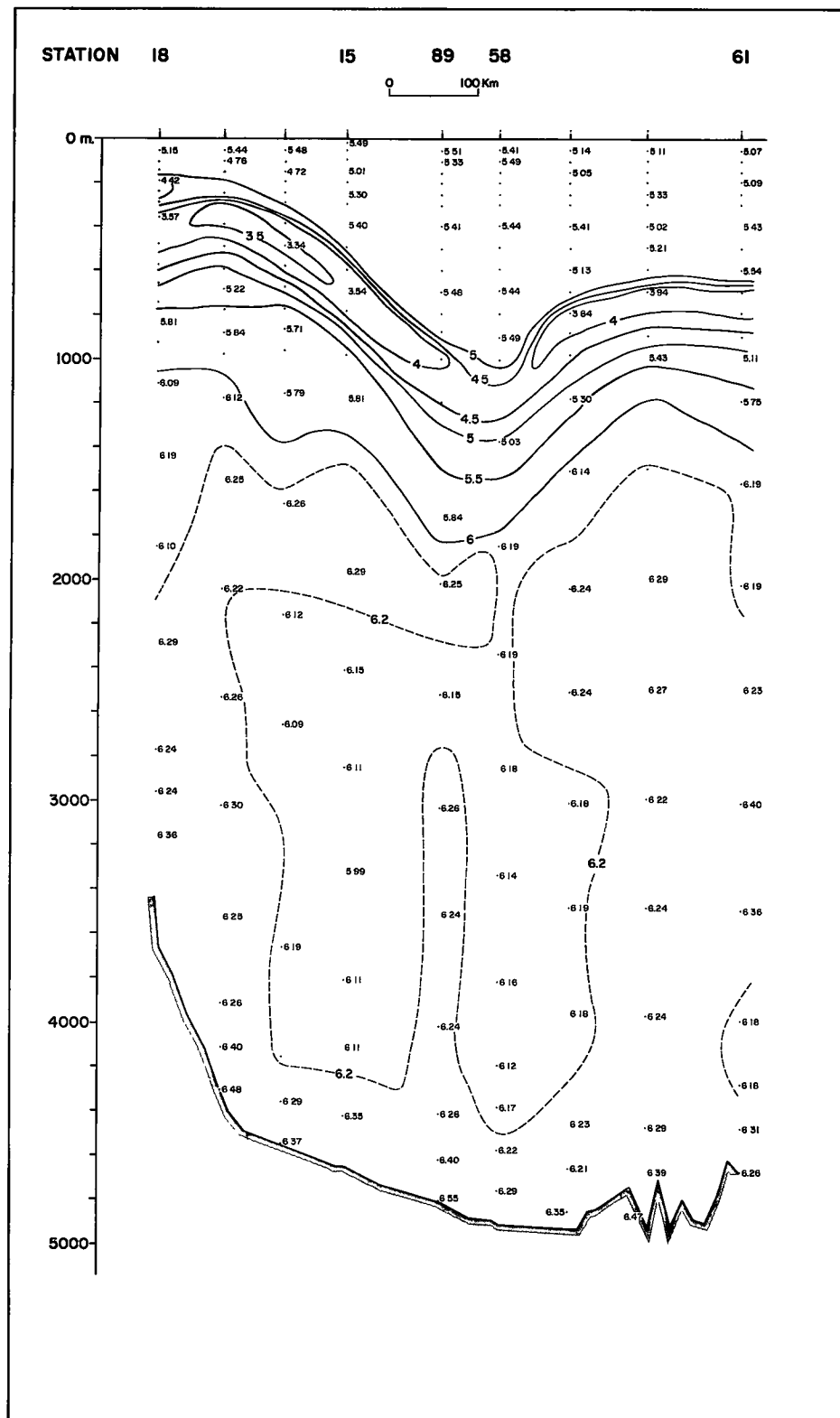
TEMPERATURE (°C)



SALINITY (‰)



June 10 - July 2, 1964
 CS3 BAFFIN
 Vertical Expansion 250



June 10 - July 2, 1964
 CSS BAFFIN
 Vertical Expansion 250