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# CHESAPEAKE BAY INSTITUTE
## The Johns Hopkins University



# ATLAS OF SALINITY AND TEMPERATURE DISTRIBUTIONS IN CHESAPEAKE BAY 1952-1961 AND SEASONAL AVERAGES 1949-1961

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by E. D. Stroup
and R. J. Lynn

Graphical Summary Report 2

Reference 63-1 February 1963

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CHESAPEAKE BAY INSTITUTE
THE JOHNS HOPKINS UNIVERSITY

# ATLAS OF SALINITY AND TEMPERATURE DISTRIBUTIONS IN CHESAPEAKE BAY 1952 AND SEASONAL AVERAGES 1949-1961

GRAPHICAL SUMMARY REPORT 2

E. D. Stroup and R. J. Lynn

This report contains results of work carried out for the Office of Naval Research of the Navy Department under research project NR 083-016, Contract Nonr 248(20); the State of Maryland (Natural Resources Institute); and the Commonwealth of Virginia (Virginia Institute of Marine Sciences).

The preparation of this atlas was aided by funds supplied through Contract PH 86-62-79 with the U.S. Public Health Service, Department of Health, Education and Welfare.

Reference 63-1
February 1963

D. W. Pritchard
Director

## ACKNOWLEDGMENTS

The charts embodied in this report represent the combined effort of a number of the CBI staff. Special acknowledgment should be made to L. B. Brown, presently at Emertron, Inc., Silver Spring, Maryland, who did the painstaking calculations of area and volume of the Chesapeake Bay and its tributaries.

## INTRODUCTION

This atlas has two major parts. Part I is a graphical summary of salinity and temperature observations from sixteen Bay cruises conducted during the period 15 July 1952 to 1 August 1961. There are sixteen sets of charts, one set for each cruise. Part II is a graphical presentation of the seasonal salinity and temperature distributions for the Chesapeake Bay as averaged from twenty-four Bay cruises conducted during the period 1 July 1949 to 1 August 1961. There are four sets of charts, one set for each season.

### PART I

This atlas succeeds Graphical Summary Report I, Atlas of the Salinity and Temperature Distribution of Chesapeake Bay 1949-1951, by H. H. Whaley and T. C. Hopkins (1952) which covers Bay Cruises I through VIII. Bay Cruises IX, X, and XI do not contain enough information to permit meaningful contouring. The sixteen cruises summarized in this report are identified as Bay Cruises XII through XXVII. The salinity and temperature data, as well as other data when observed, are presented in tabular form in the following CBI reports:

| Bay Cruise | CBI Data Report |
|---|---|
| XII | 18 |
| XIII | 26 |
| XIV-XVII | 33-36 |
| XVIII-XXVII | 38-47 |

The methods of sampling and chemical analyses used are described in the data reports. The present graphical presentation, in which the observed distributions are smoothed to a certain extent, is intended to put this information into a form more useful to those interested in the physical and chemical hydrography of estuaries.

For each of the sixteen cruises, the atlas nominally contains (1) horizontal charts of salinity and temperature distributions at the 0, 10, 20, 30, 40, and 60-foot depth levels, (2) vertical salinity and temperature cross sections of the Bay at four locations, and (3) one vertical section along the main channel. The charts and sections for each cruise are grouped together; for certain cruises some sections or charts have been omitted because of insufficient data. The locations of the vertical sections, numbered II, IV, VI, X, and XIX, are shown on the first chart. The numerical-alphabetic designators at the tops of the sections represent the locations of stations. An explanation of the station designator symbols as well as a list of stations occupied during each cruise may be found in the individual CBI data reports.

The distributions of salinity and temperature are presented in the form of contours on all charts and sections except the charts for the 40-foot and 60-foot levels. On these latter charts selected observed values of salinity and temperature (rounded to the nearest tenth) were entered in place of drawing the contours. These exceptions were made because the 40-foot and 60-foot surfaces are small and broken, and usually the amount of data at these levels is insufficient for meaningful contouring.

In this report, locations of stations occupied during each cruise are shown in the first chart of each cruise set. Since the number of stations occupied varies greatly from one cruise to another, these station location charts can be used as a measure of the relative amount of information used in drawing the contours. For example, it can be seen in the station location chart for Bay Cruise XII that very few stations were occupied, so that the contours can be considered as only a very gross picture of the distributions.

The line across the northern part of the Bay in Bay Cruise XX was drawn to indicate that although stations were occupied north of the line, the data north of the line could not be considered synoptic with the data south of the line, because of a break in the time continuity of the cruise during a period of rapid change in conditions. There are no contours north of the line since too few data are available for meaningful contouring. A similar line was drawn in Bay Cruise XXII and the two parts of the Bay were contoured separately. A similar break occurred in Bay Cruise XIII, but since a number of stations were repeated, two complete sets of charts were made, one for February and one for March.

PART II

The seasonal average salinity and temperature distributions for the four seasons are presented in horizontal charts and vertical sections in the same manner as previously described for the individual Bay cruises. The seasonal averages have been computed from the 16 cruises presented in Part I of this report, together with the first eight Bay cruises as presented in Graphical Summary Report I. Division of the year into seasons was accomplished so as not to split any cruise into two seasons. The seasonal distribution of the cruises is shown in Figure 1. The length of each cruise is indicated by the length of the arc labelled with the number corresponding to that cruise.

It appeared that the most convenient method for constructing seasonal average charts was to use the temperature and salinity distribution charts already drawn up for the individual cruises. Use of the contoured distributions in constructing the seasonal averages (rather than averaging

observed data) avoids a difficulty that would otherwise arise due to the variable locations of station data taken at different times. A certain basic set of stations was occupied on a majority of the cruises, but there are a number of stations that were occupied on only a small number of cruises.

The seasonal average charts were formed in the following manner. A grid of points was made for the horizontal charts. Sixty-seven points were used in the grid, located so as to cover the Bay evenly. The grid was used as an overlay for each chart, and values of temperature and salinity at the grid points were tabulated for all cruises. This was accomplished for each depth level. Next, for each point the mean temperature and salinity were computed using data from all cruises within each season, and the mean values were replotted on charts. These charts were then contoured and are presented here. A like system was employed for the vertical sections.

## AREA AND VOLUME STATISTICS

The areas and volumes computed for the Chesapeake Bay and seven of its major tributaries are included in this atlas as Table I for the convenience of those interested in the Chesapeake Bay. The base lines used to define the Bay and each tributary are also given. In the area and volume computations the Chesapeake Bay was defined to include all tributaries and embayments shown on U.S. Coast & Geodetic Survey charts nos. 77 and 78. This excludes the Susquehanna River north of 39° 36' N. The areas were computed by planimetry. Depth contours were drawn on the charts at 10-foot intervals. The areas of the 0, 10, 20, 30, 40, 60, 80, 100 and 120-foot levels are given in Table I. The areas of every 10-foot level from the surface to the deepest point in the Bay were used for estimation of the volume of the Bay according to Simpson's rule.* The standard error of arithmetic mean of the planimetry is 0.1%. Considering all sources of error, the statistics are considered good to within $\pm$ 1%.

The actual area and volume of the Bay vary with the tide. The Coast & Geodetic Survey charts are drawn for mean low water. Since mean low water cannot exist everywhere at one time, the Bay under normal conditions always has a greater surface area and total volume than listed here. The actual values of surface area and total volume at any given time could be obtained from the tabulated values by adding some amount which is a function of the tide. For example, there is an addition of approximately 0.7% in volume at the phase of the tide when the least

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* Simpson's rule for computing the volume of an irregular solid can be found in most mathematical tables (see, for instance, Handbook of Chemistry and Physics, Chemical Rubber Publishing Co.).

amount of water is in the Bay, and an addition of approximately 2% in volume at the phase of the tide when the greatest amount of water is in the Bay. (These figures do not describe the volume changes due to unpredictable, wind-caused variations in water surface elevation, which can be considerably larger than the astronomical tide in Chesapeake Bay.)

## TABLE I

**Areas and Volumes at Mean Low Water, Computed from U.S. Coast & Geodetic Survey Charts 77 and 78.**

### Chesapeake Bay and Tributaries

| | Area | | | | Volume between Designated Level and Bottom | | |
|---|---|---|---|---|---|---|---|
| | $10^9 ft^2$ | $10^2 km^2$ | naut $mi^2$ | | $10^{10} ft^3$ | $km^3$ | % |
| surface | 120.5 | 112.0 | 3260 | surface | 260.7 | 73.8 | 100.0 |
| 10 ft | 79.0 | 73.4 | | 10 ft | 161.6 | 45.8 | 61.0 |
| 20 ft | 52.3 | 48.6 | | 20 ft | 97.7 | 27.7 | 37.5 |
| 30 ft | 33.7 | 31.3 | | 30 ft | 54.2 | 15.4 | 20.8 |
| 40 ft | 17.1 | 15.9 | | 40 ft | 29.7 | 8.4 | 11.4 |
| 60 ft | 4.9 | 4.6 | | 60 ft | 11.3 | 3.2 | 4.3 |
| 80 ft | 2.3 | 2.1 | | 80 ft | 4.6 | 1.3 | 1.8 |
| 100 ft | .8 | .8 | | 100 ft | 1.0 | .3 | .4 |
| 120 ft | .2 | .1 | | 120 ft | .2 | .06 | .1 |

### Primary Tributaries of the Chesapeake Bay

| | Surface Area | | Volume | |
|---|---|---|---|---|
| | $10^9 ft^2$ | $10^8 m^2$ | $10^{10} ft^3$ | $10^8 m^3$ |
| Chester | 1.55 | 1.44 | 1.96 | 5.56 |
| Choptank | 2.40 | 2.23 | 3.78 | 10.70 |
| James | 7.04 | 6.54 | 8.26 | 23.39 |
| Patuxent | 1.52 | 1.41 | 2.67 | 7.57 |
| Potomac | 13.75 | 12.78 | 25.72 | 72.83 |
| Rappahannock | 4.13 | 3.83 | 6.12 | 17.33 |
| York | 1.74 | 1.62 | 2.80 | 7.93 |
| TOTAL | 32.1 | 29.8 | 51.3 | 145.3 |
| % of total for Bay | 26.7% | | 19.7% | |

### Base line used to define the mouth of the Chesapeake Bay

| | |
|---|---|
| Cape Charles | (37° 07.4' N., 75° 57.2' W.) |
| to | |
| Smith Island | (37° 07.3' N., 75° 54.4' W.) |
| to | |
| Cape Henry | (36° 55.6' N., 76° 00.4' W.) |

### End points of base lines used to define river mouths of the primary tributaries

| | | |
|---|---|---|
| Chester | (39° 02.4' N, 76° 18.2' W.) | (39° 02.4' N, 76° 14.4' W.) |
| Choptank | (38° 40.2' N, 76° 20.4' W.) | (38° 37.8' N, 76° 17.5' W.) |
| James | (36° 00.1' N, 76° 18.4' W.) | (36° 59.1' N, 76° 18.2' W.) |
| Patuxent | (38° 21.8' N, 76° 23.2' W.) | (38° 17.3' N, 76° 22.4' W.) |
| Potomac | (38° 02.2' N, 76° 19.3' W.) | (37° 53.4' N, 76° 14.1' W.) |
| Rappahannock | (37° 36.7' N, 76. 16.8' W.) | (37° 33.5' N, 76° 17.9' W.) |
| York | (37° 15.0' N, 76° 22.6' W.) | (37° 14.1' N, 76° 23.2' W.) |

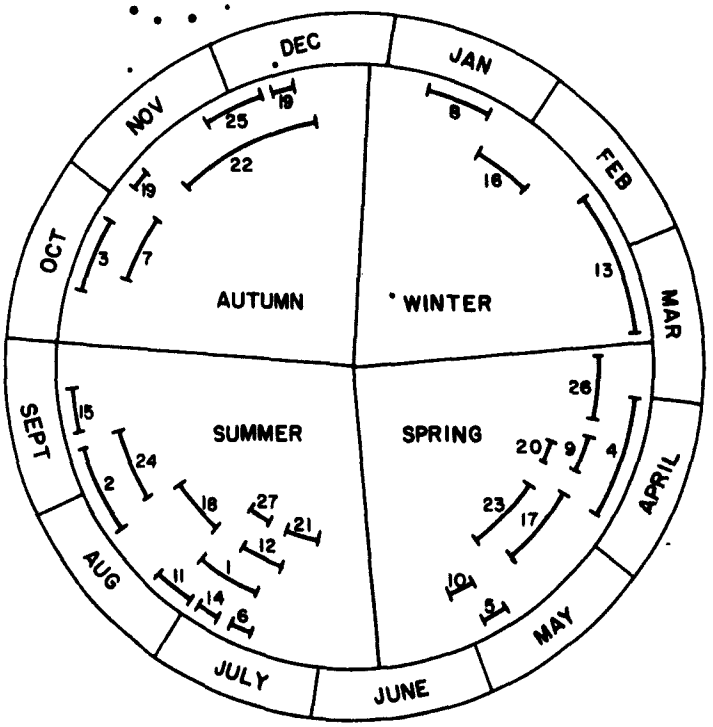
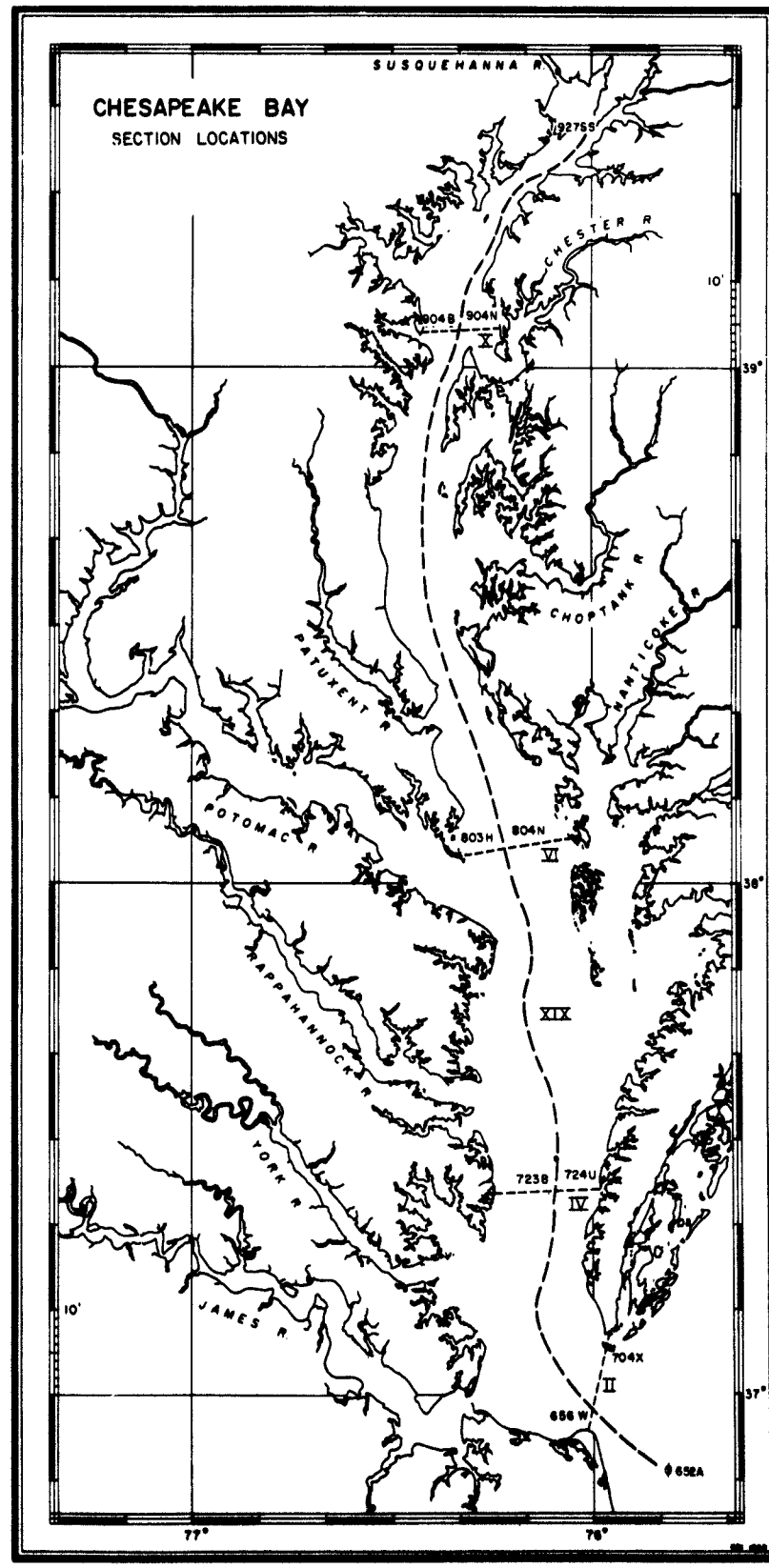
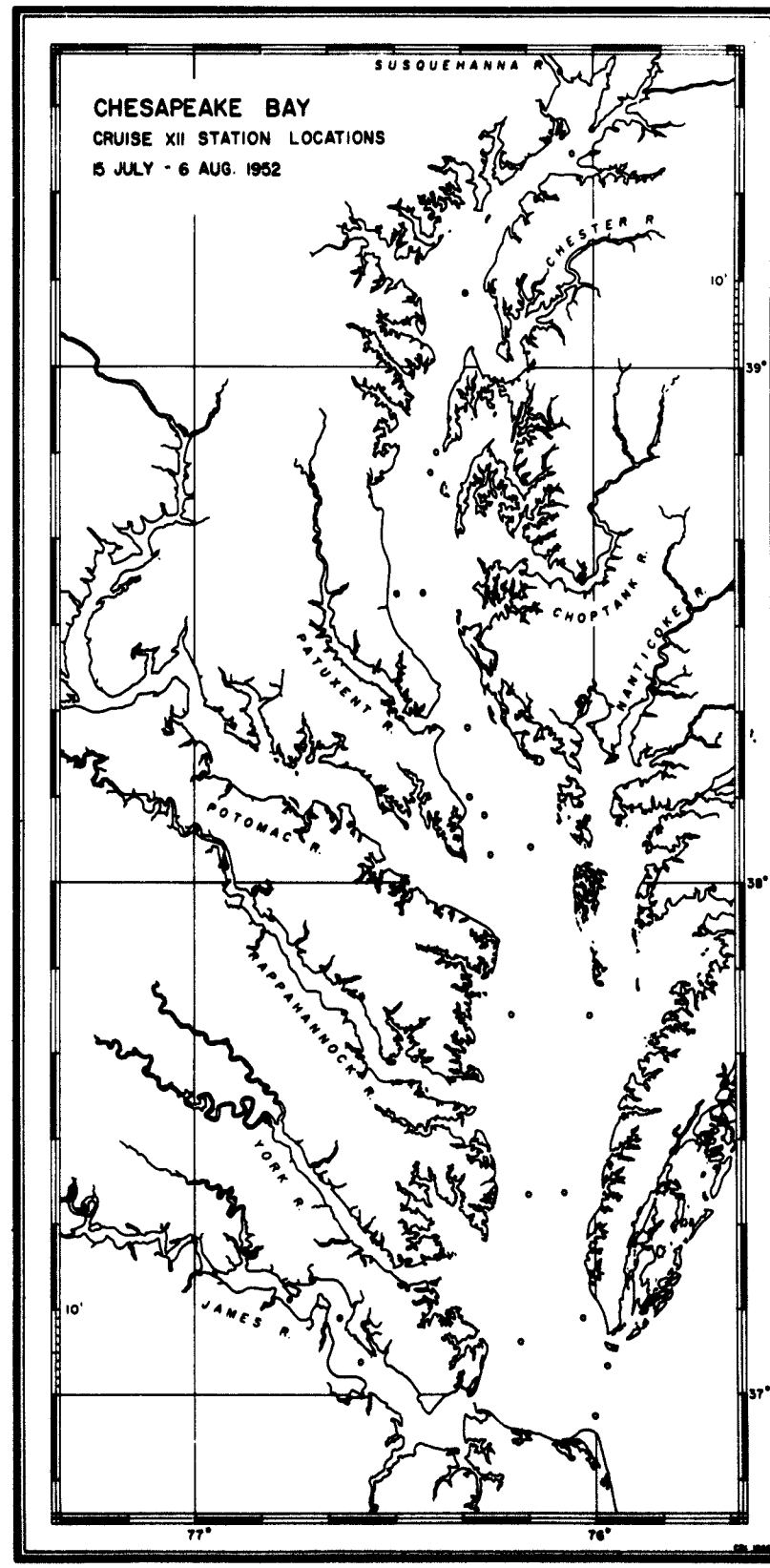
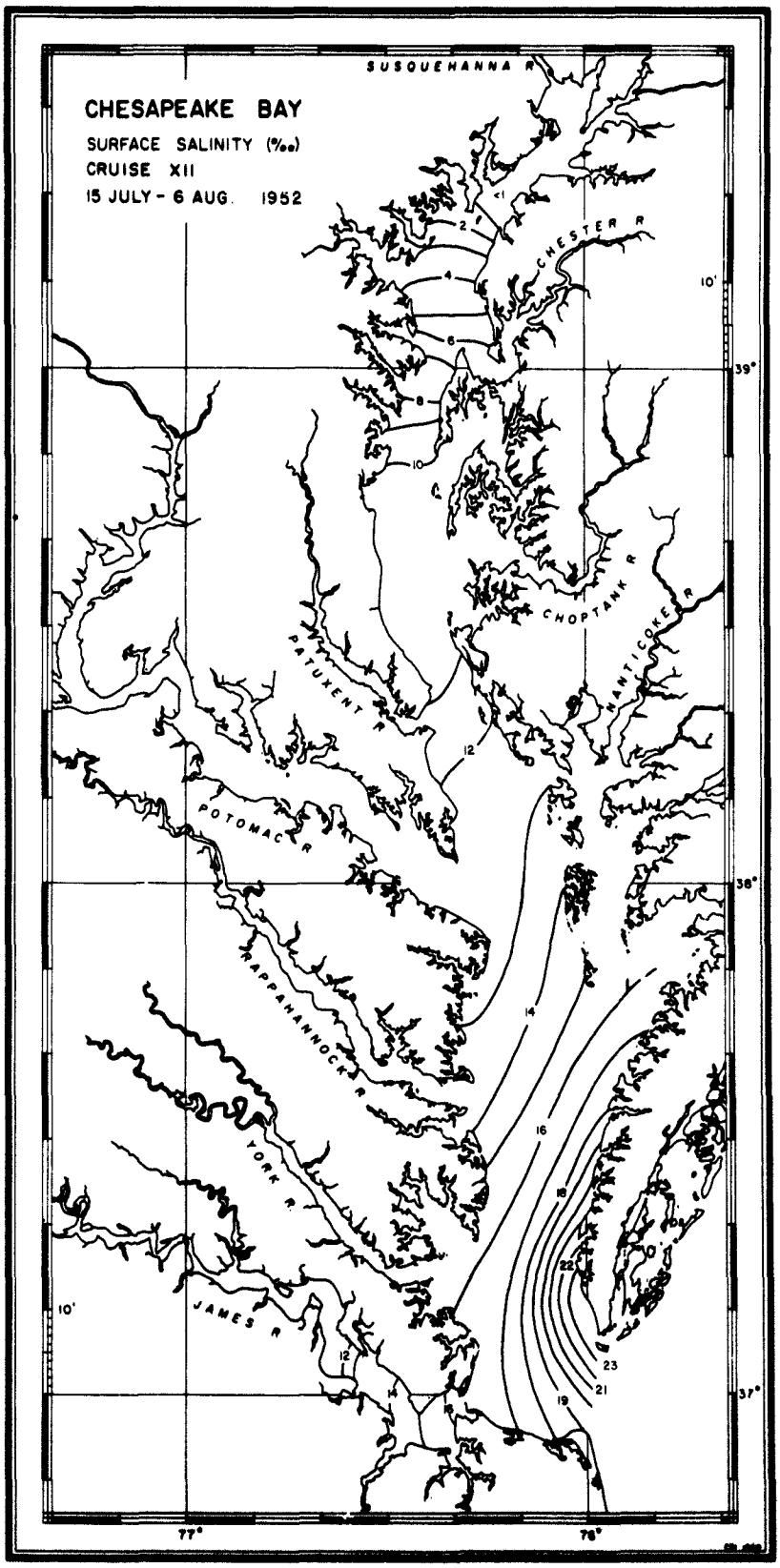
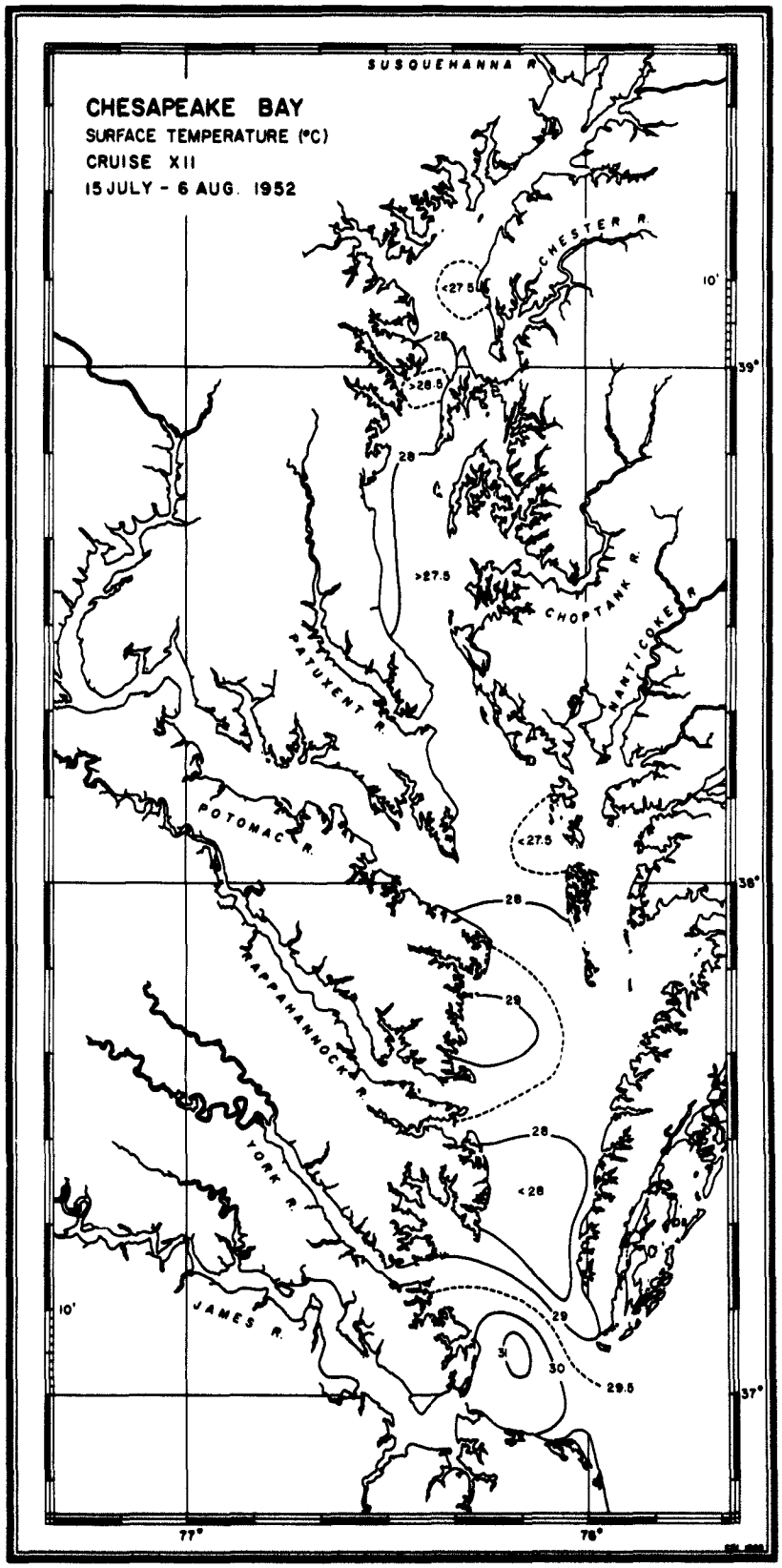


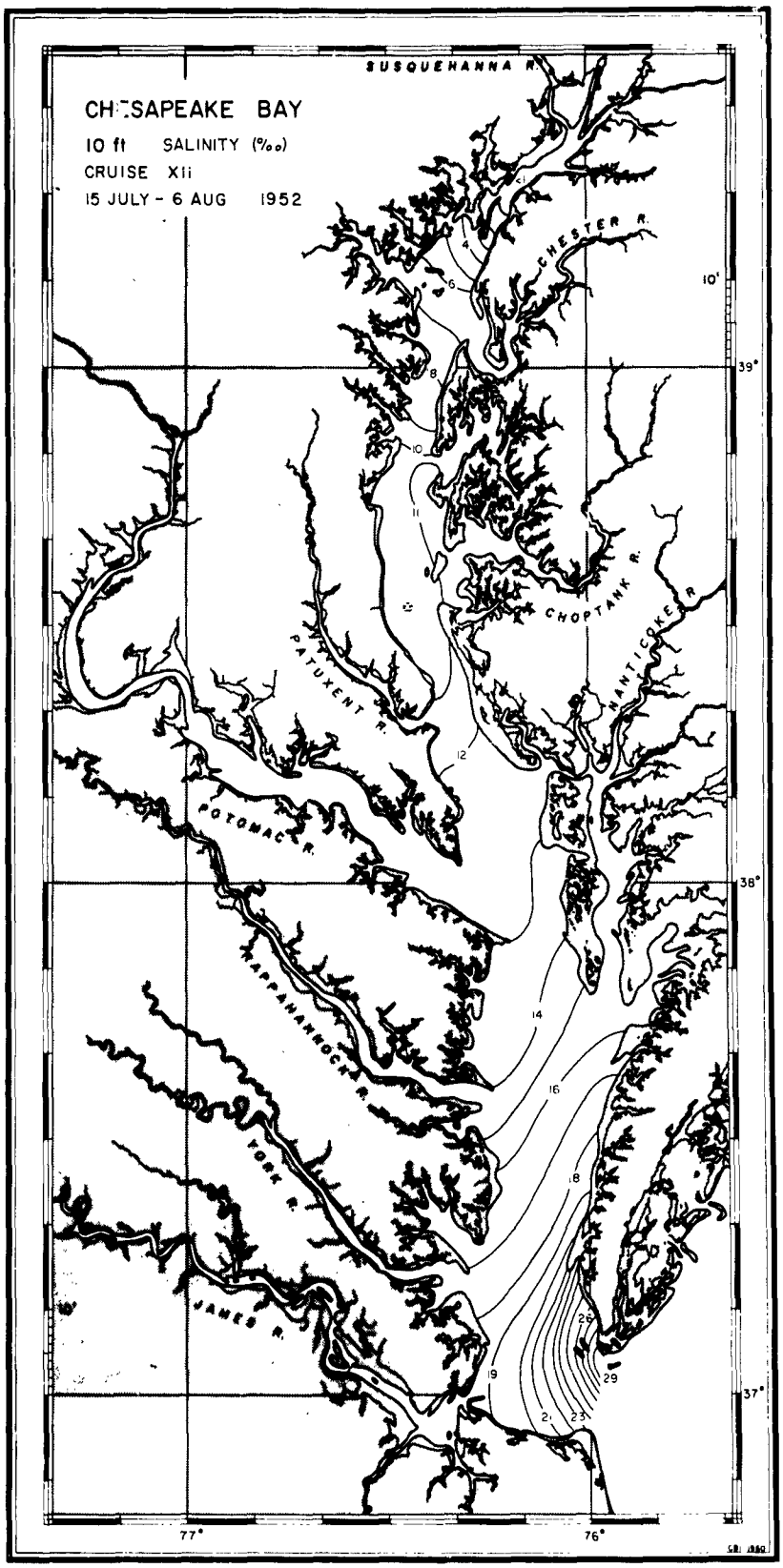

FIGURE 1. SEASONAL DISTRIBUTION OF BAY CRUISES 1 - 27.

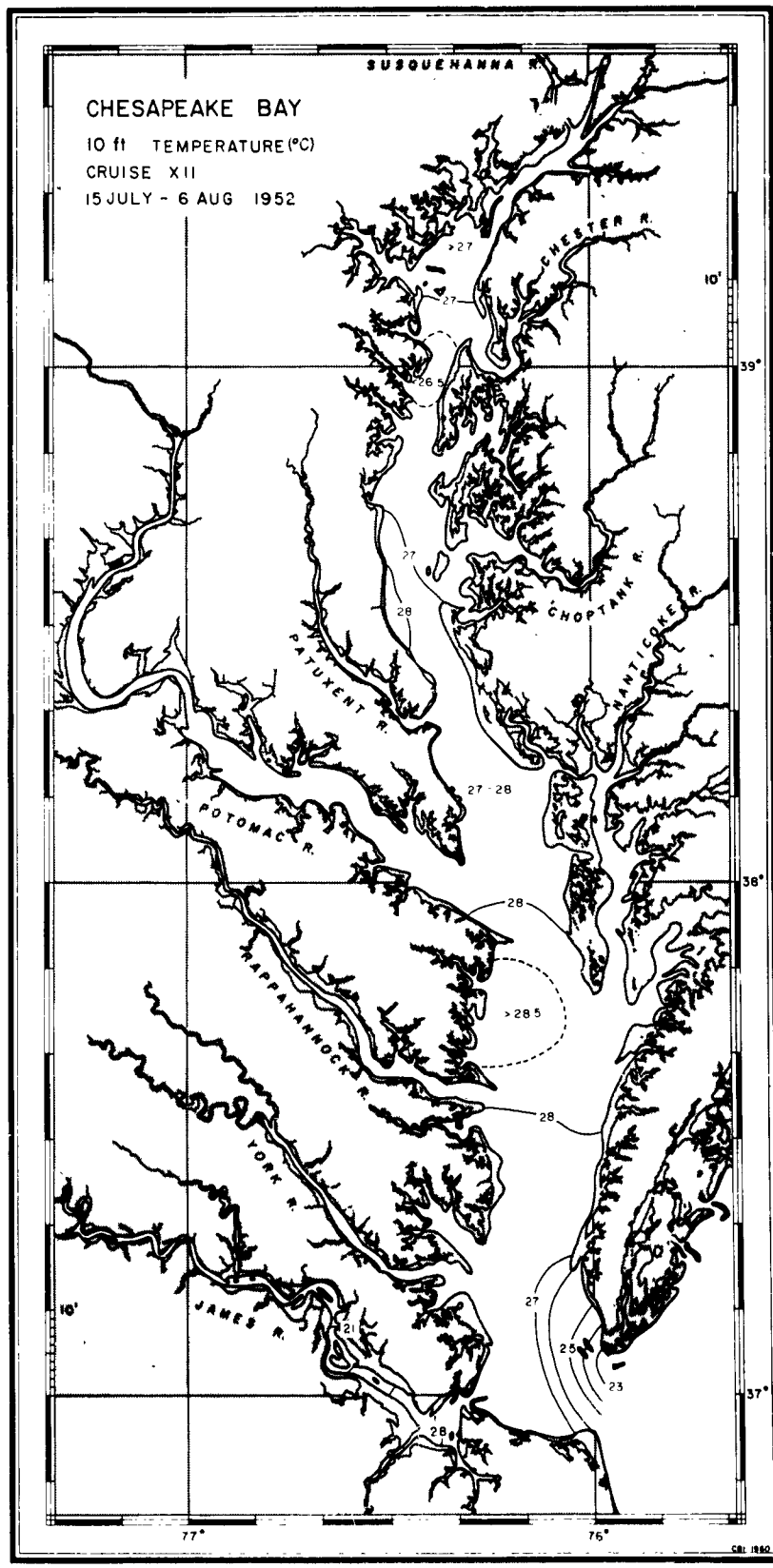

CHESAPEAKE BAY
SECTION LOCATIONS
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
804B
904N
803H
804N
723S
724U
704X
656W
652A
I
II
IV
VI
XIX
39°
38°
37°
77°
76°
10'

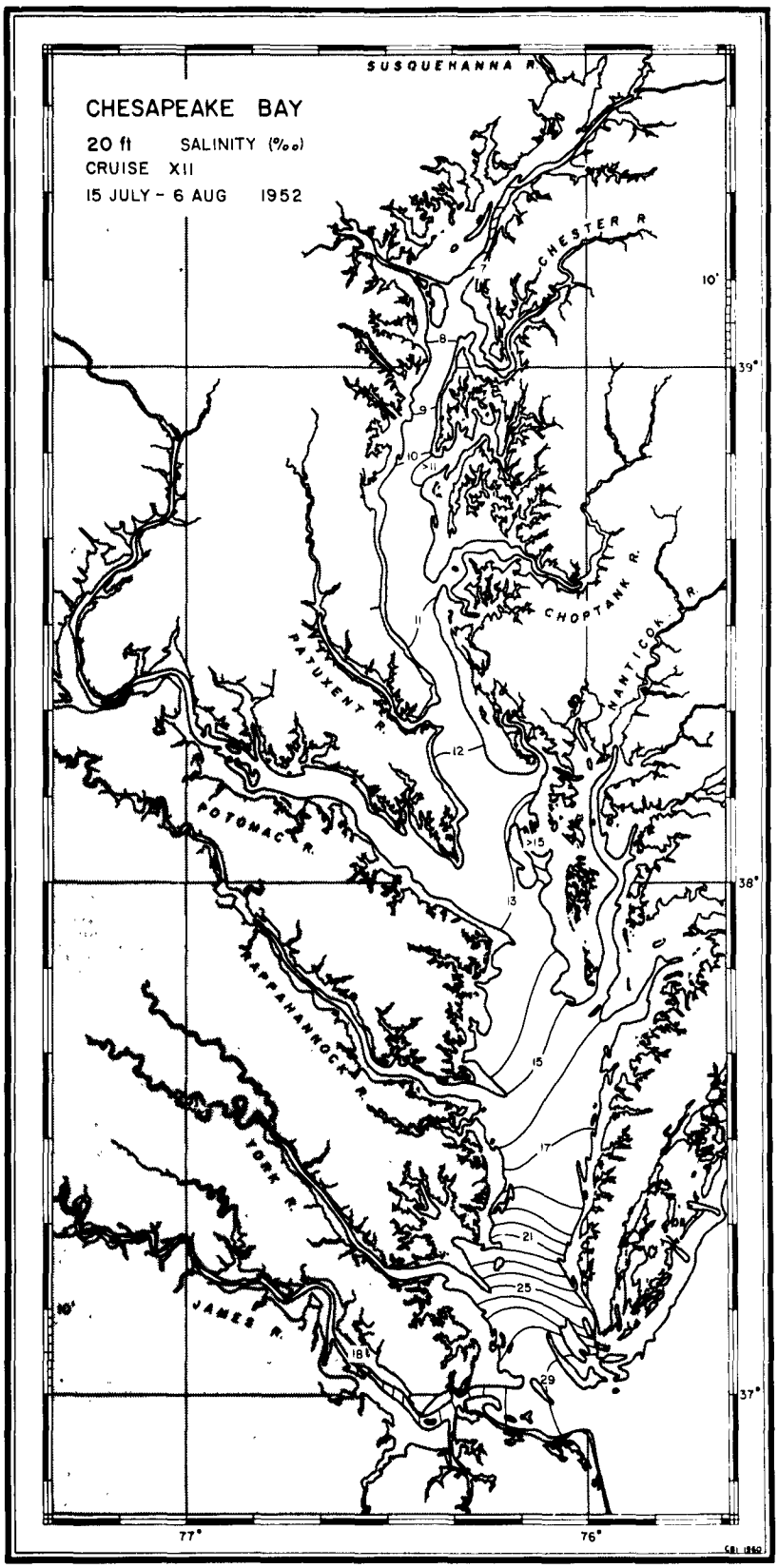

CHESAPEAKE BAY
CRUISE XII STATION LOCATIONS
15 JULY - 6 AUG. 1952
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
10'
77°
76°

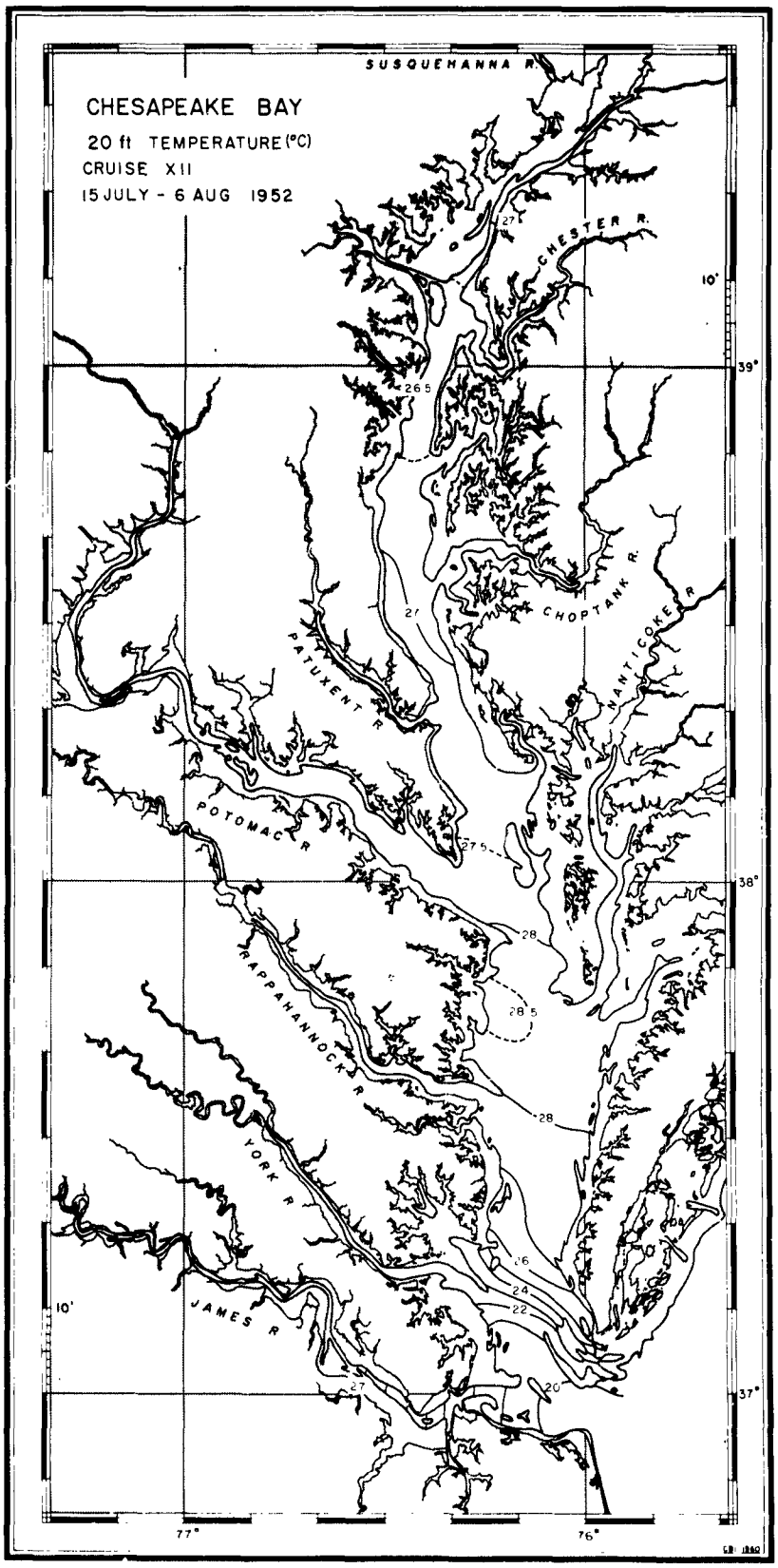

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XII
15 JULY - 6 AUG. 1952
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
<1
2
4
6
8
10
12
14
16
18
20
22
23
21
19
39°
38°
37°
10'
77°
76°

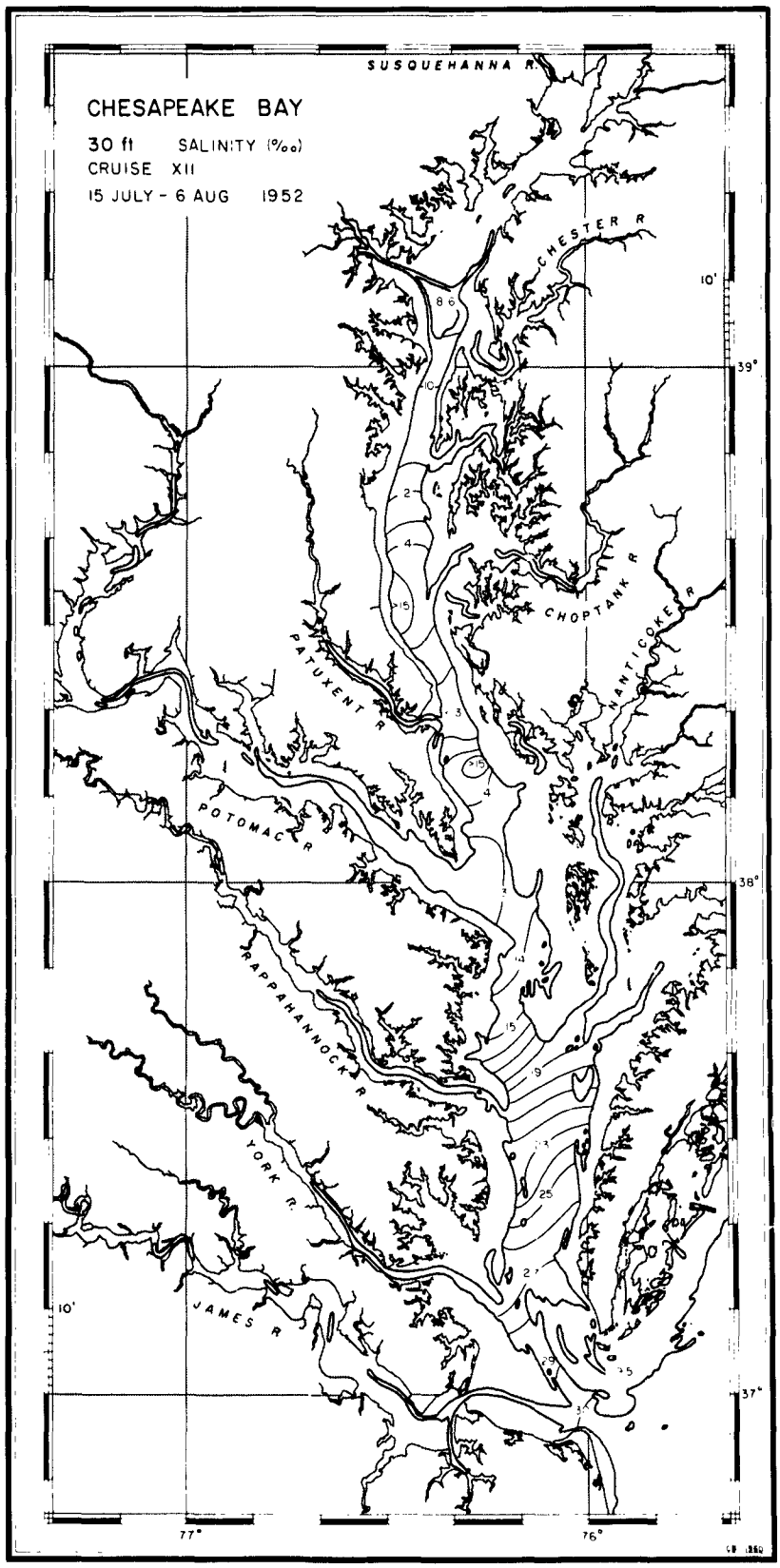

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XII
15 JULY - 6 AUG. 1952
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
<27.5
28
>28.5
>27.5
<27.5
29
<28
30
29.5
39°
38°
37°
10'
77°
76°

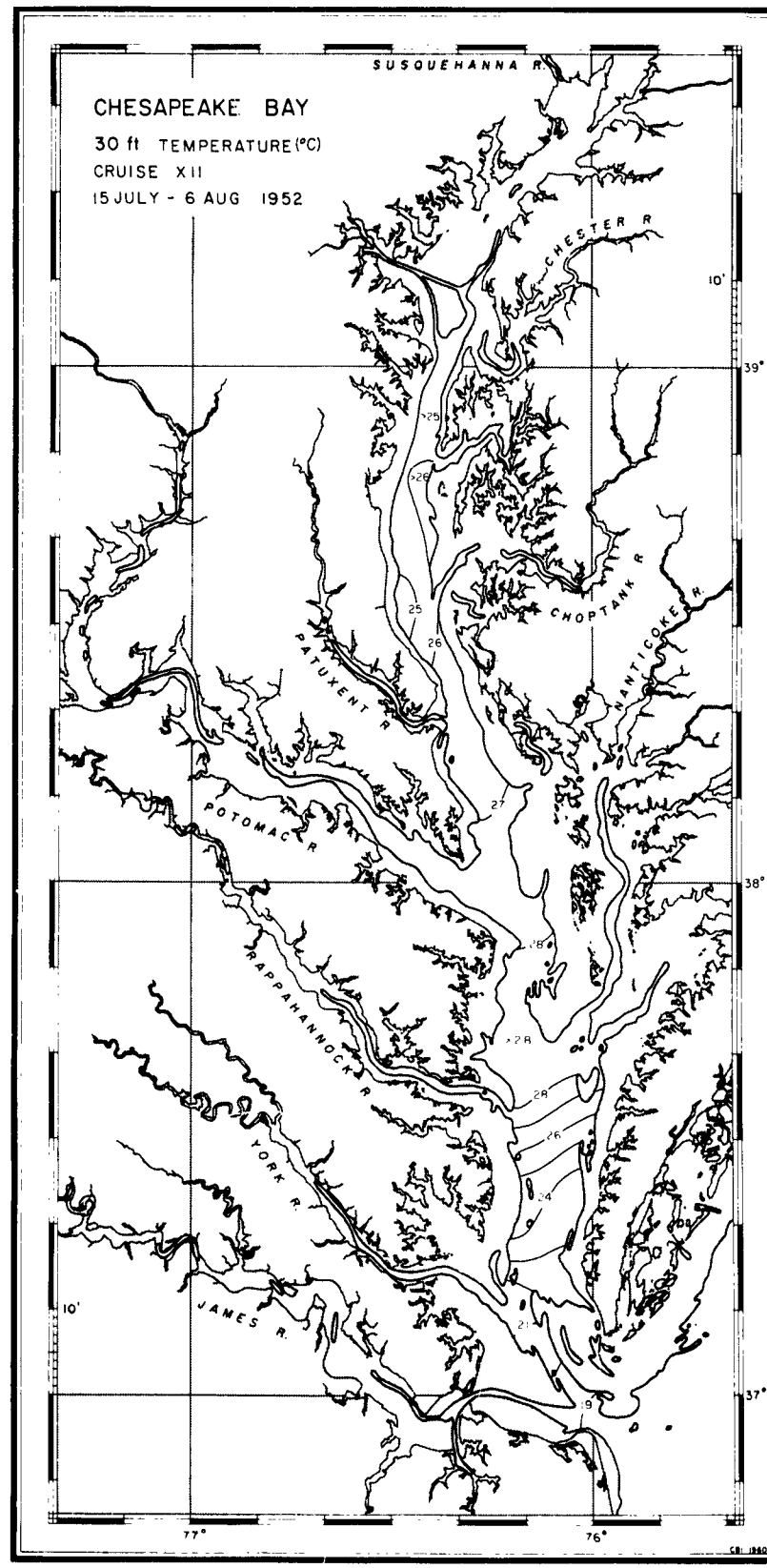

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XII
15 JULY - 6 AUG 1952
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

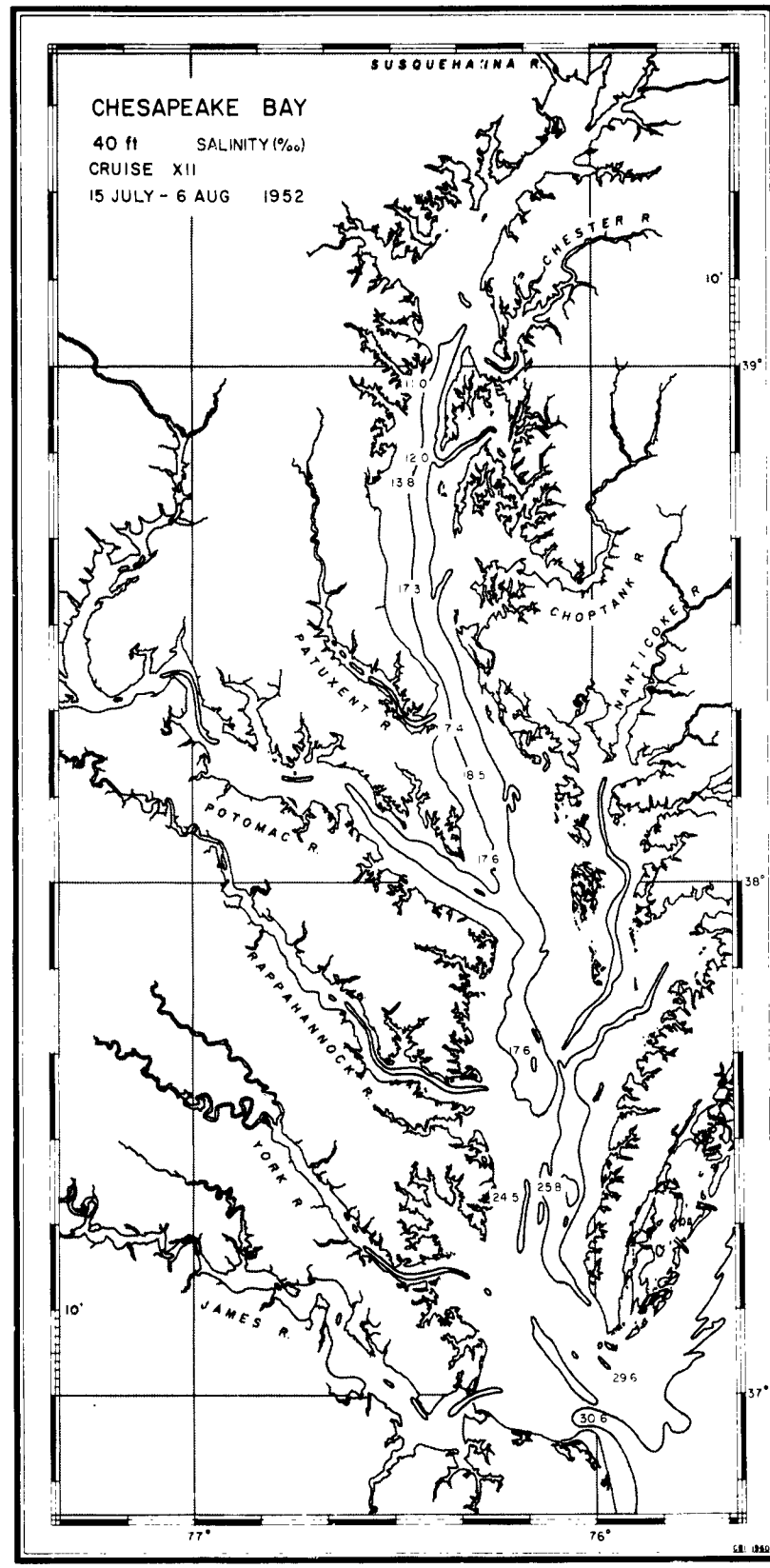

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
CRUISE XII
15 JULY - 6 AUG 1952
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
>27
27
26.5
28
27-28
>28.5
21
25
23
10'
39°
38°
37°
77°
76°

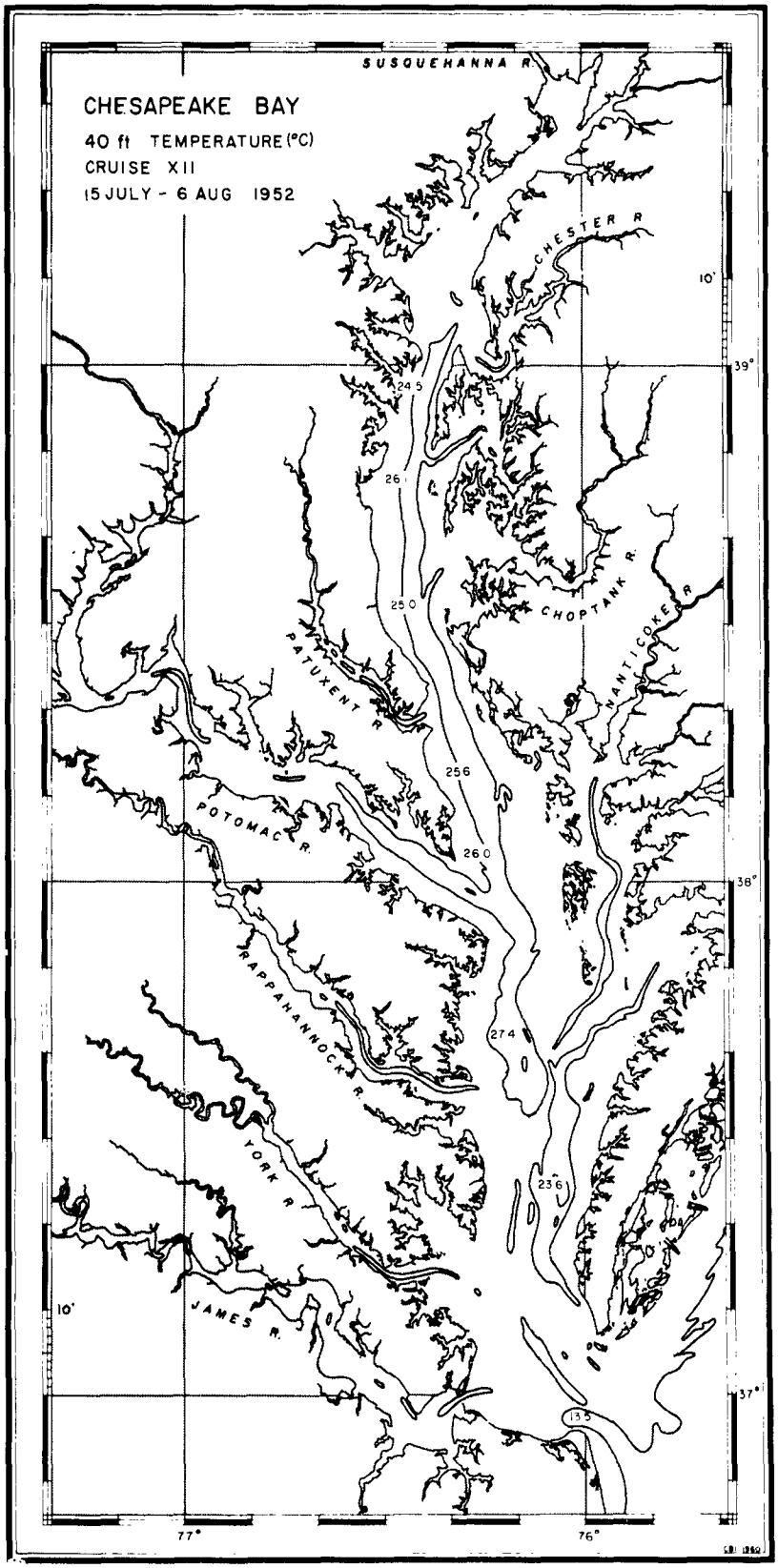

CHESAPEAKE BAY
20 ft SALINITY (‰)
CRUISE XII
15 JULY - 6 AUG 1952
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

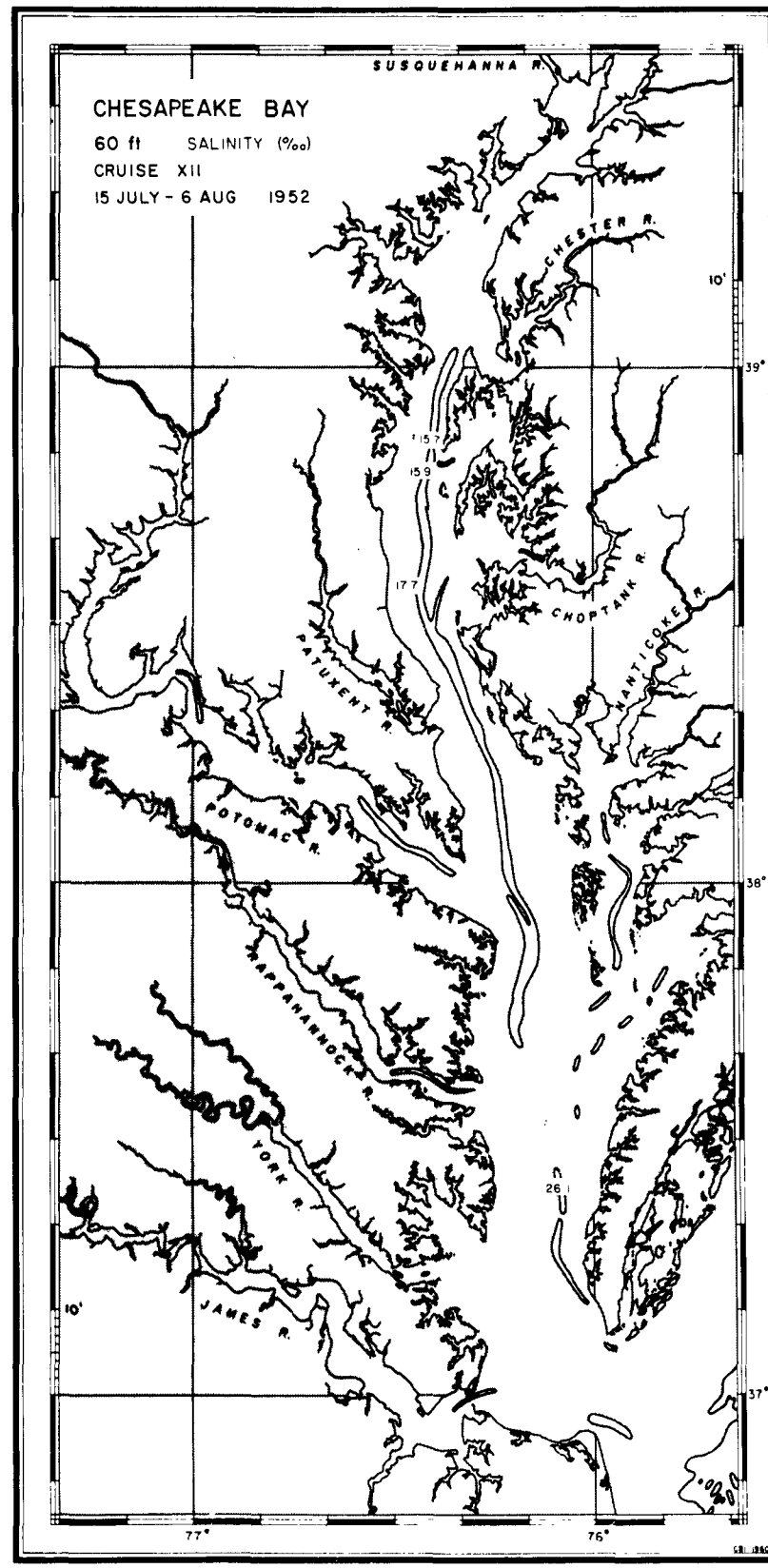

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
CRUISE XII
15 JULY - 6 AUG 1952
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

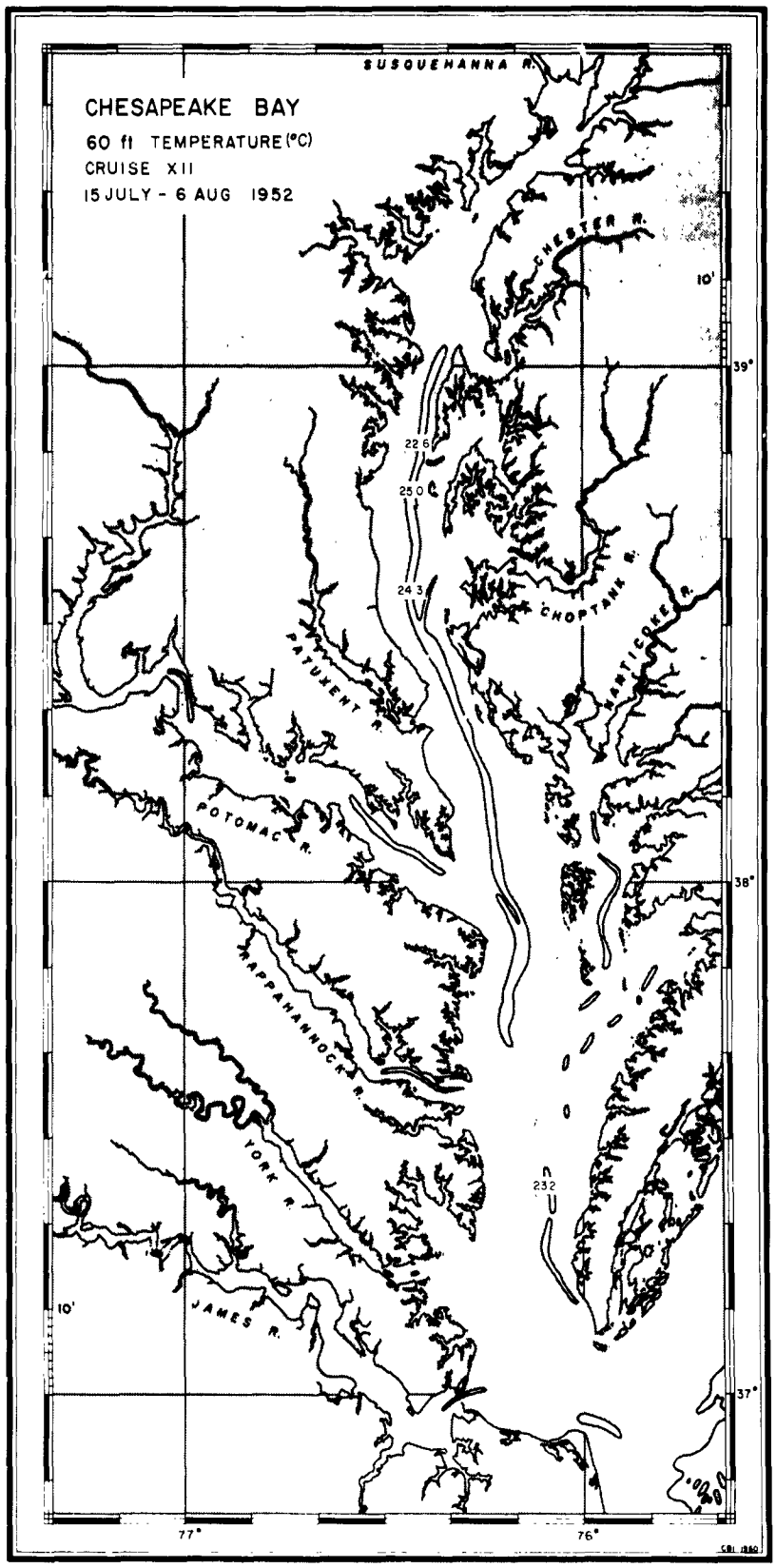

CHESAPEAKE BAY
30 ft SALINITY (‰)
CRUISE XII
15 JULY - 6 AUG 1952
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

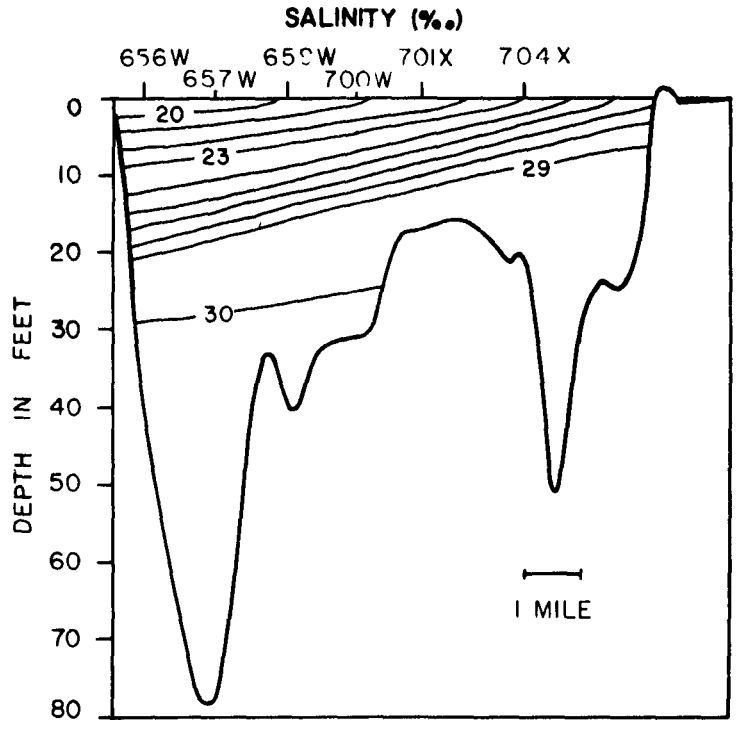

CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XII
15 JULY - 6 AUG 1952
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°
25
26
27
28

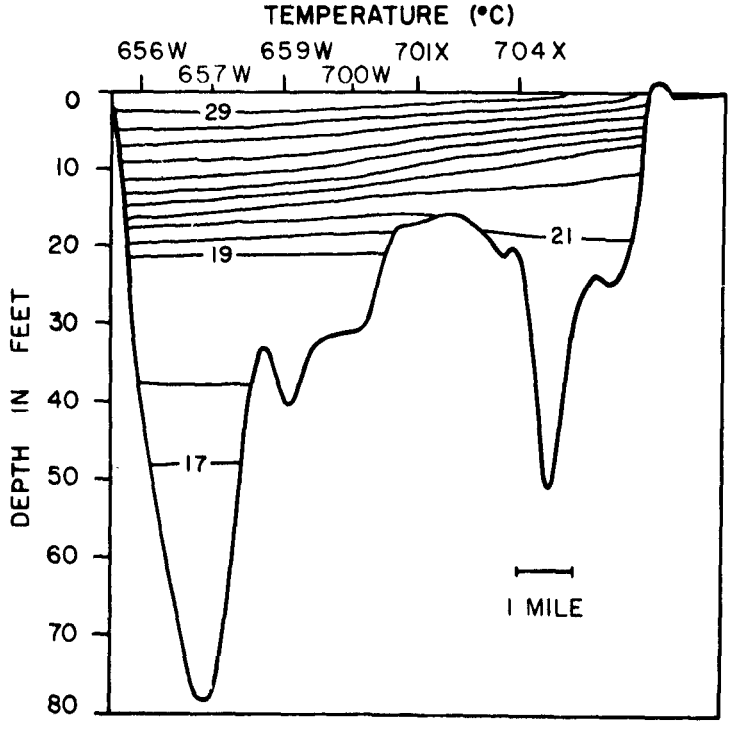

CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XII
15 JULY - 6 AUG 1952
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
11.0
12.0
13.8
17.3
18.5
17.6
24.5
25.8
29.6
30.6
39°
38°
37°
77°
76°

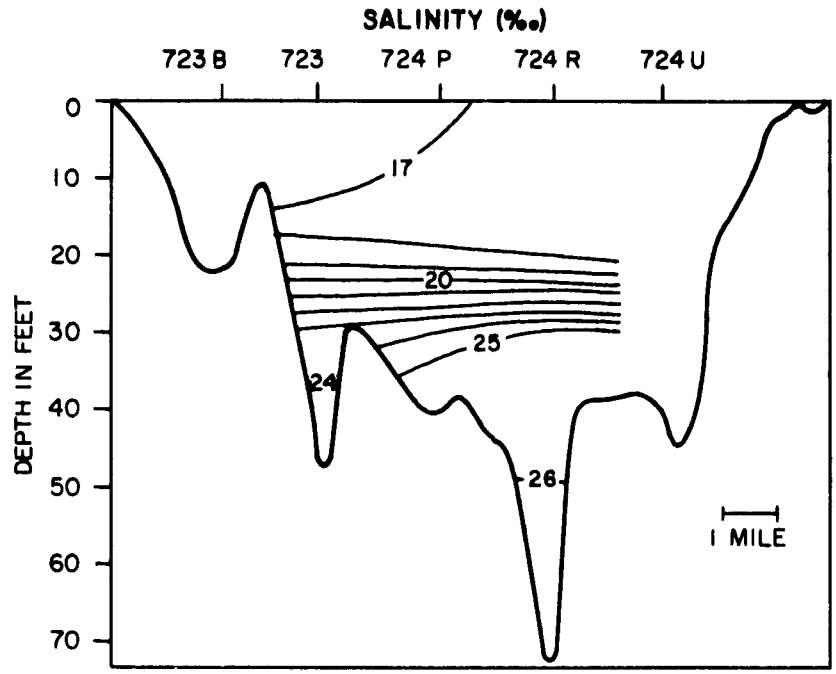

CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
CRUISE XII
15 JULY - 6 AUG 1952
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
24.5
25.0
25.6
26.0
27.4
23.6
13.5
39°
38°
37°
10'
77°
76°

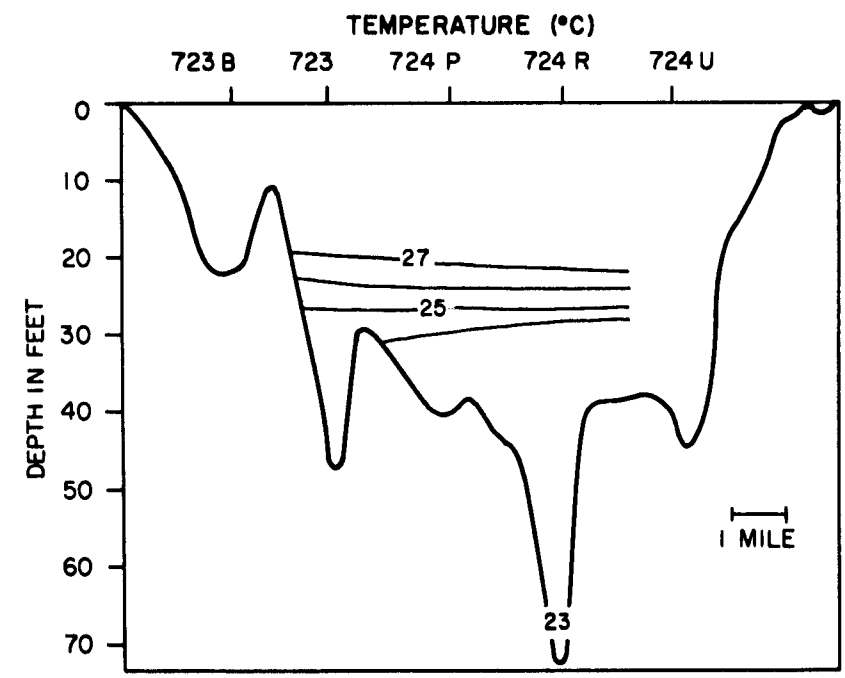

CHESAPEAKE BAY
60 ft SALINITY (‰)
CRUISE XII
15 JULY - 6 AUG 1952
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
MANTICOKE R.
157
159
177
261
10'
39°
38°
37°
77°
76°

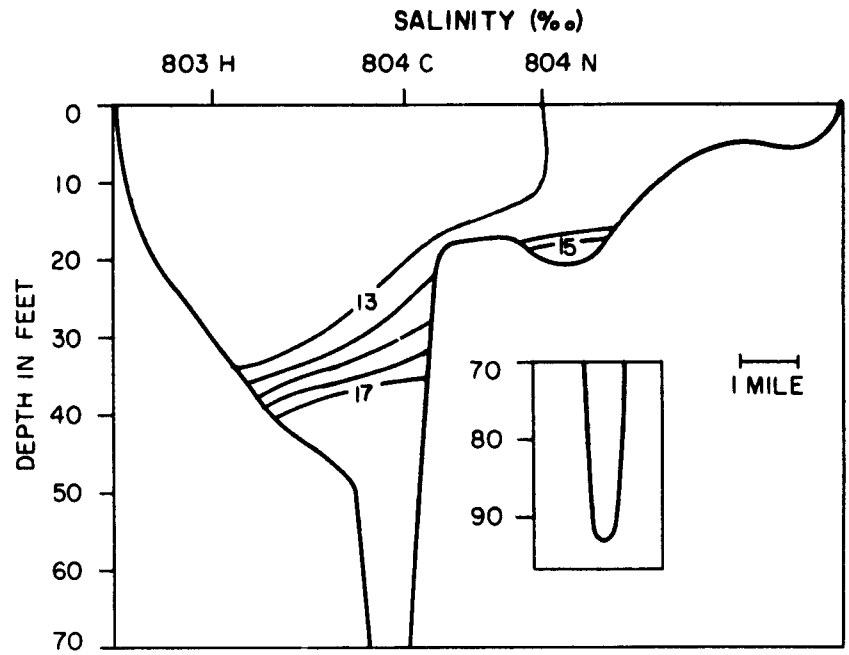

CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
CRUISE XII
15 JULY - 6 AUG 1952
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
22.6
25.0
24.3
23.2
39°
38°
37°
10'
77°
76°

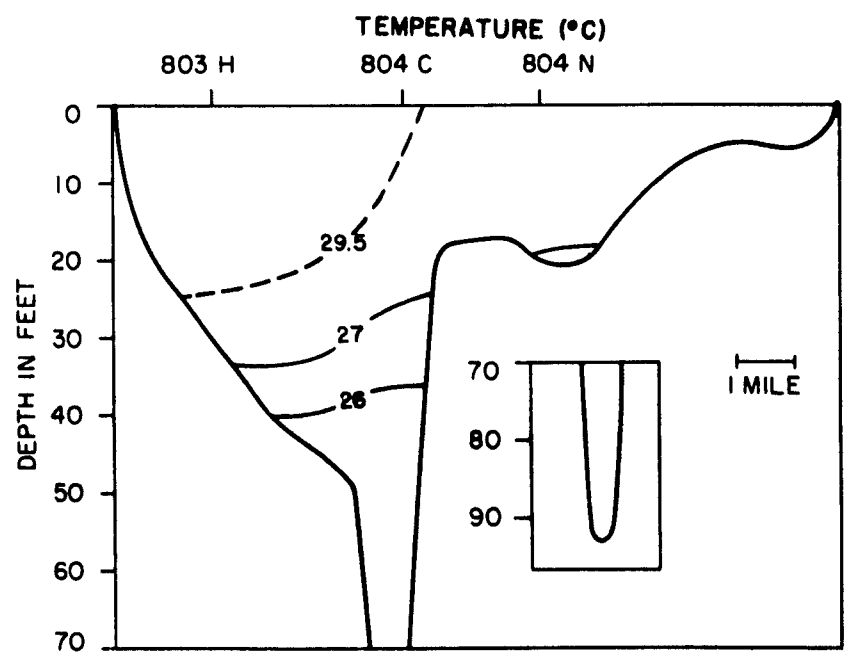

SALINITY (‰)
656W
657W
659W
700W
701X
704X
0
10
20
30
40
50
60
70
80
DEPTH IN FEET
20
23
29
30
1 MILE


TEMPERATURE (°C)
656W
657W
659W
700W
701X
704X
0
10
20
30
40
50
60
70
80
DEPTH IN FEET
29
21
19
17
1 MILE


SALINITY (‰)
723 B
723
724 P
724 R
724 U
0
10
20
30
40
50
60
70
DEPTH IN FEET
17
20
25
24
26
1 MILE

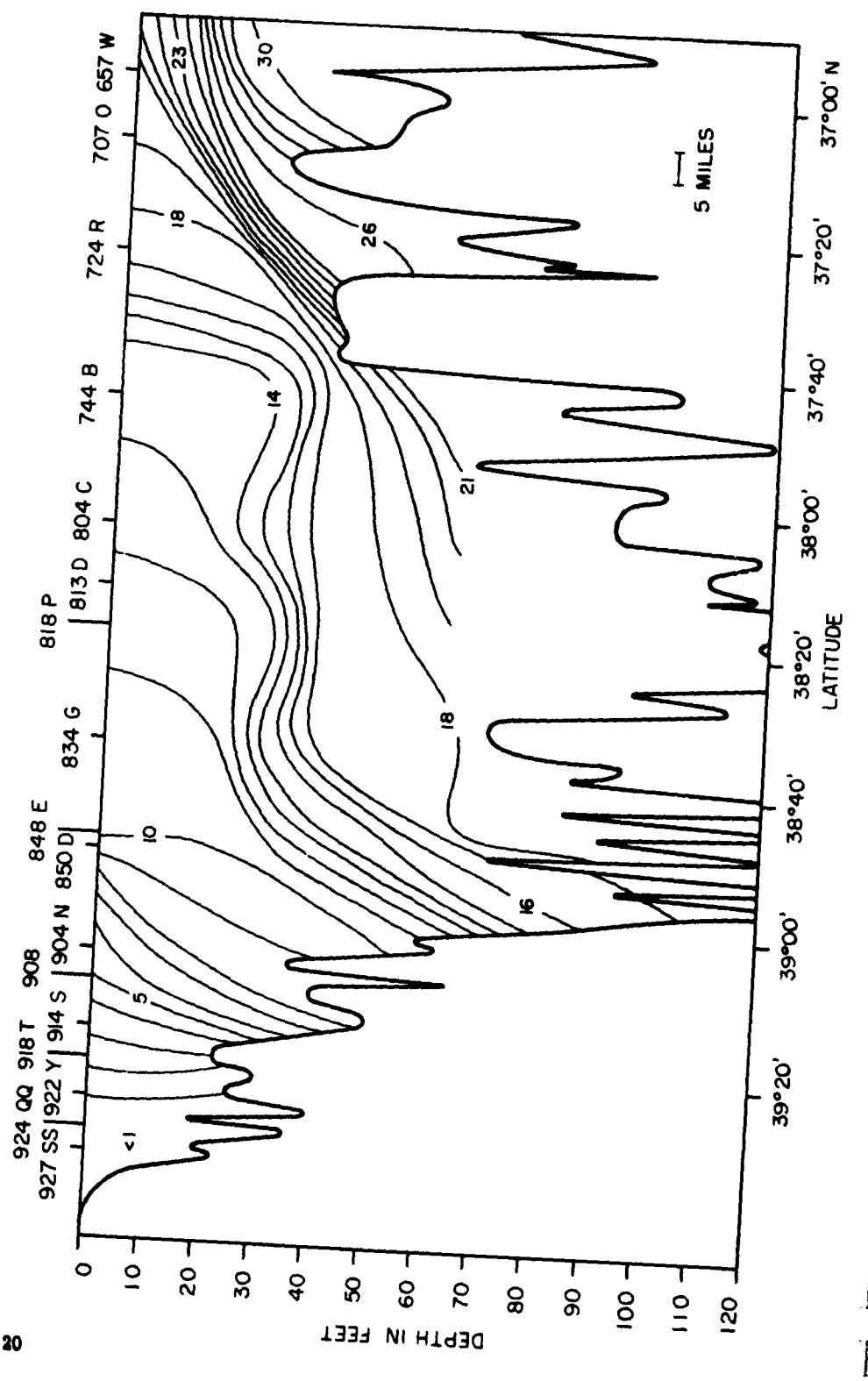

TEMPERATURE (°C)
723 B
723
724 P
724 R
724 U
0
10
20
30
40
50
60
70
DEPTH IN FEET
27
25
23
1 MILE


SALINITY (‰)
803 H
804 C
804 N
0
10
20
30
40
50
60
70
DEPTH IN FEET
13
15
17
70
80
90
1 MILE


TEMPERATURE (°C)
803 H
804 C
804 N
0
10
20
30
40
50
60
70
DEPTH IN FEET
29.5
27
26
70
80
90
1 MILE

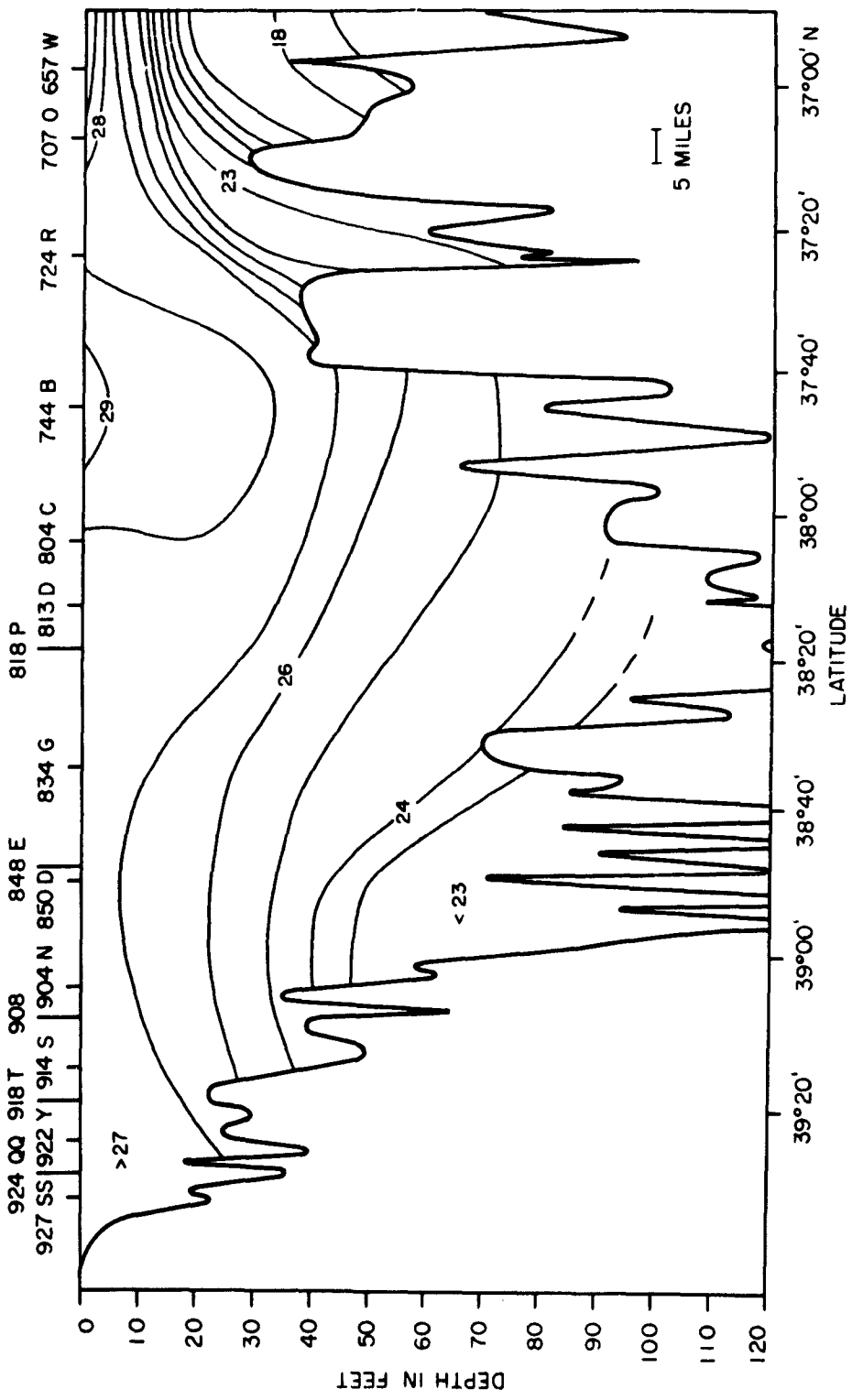
SECTIONS OMITTED
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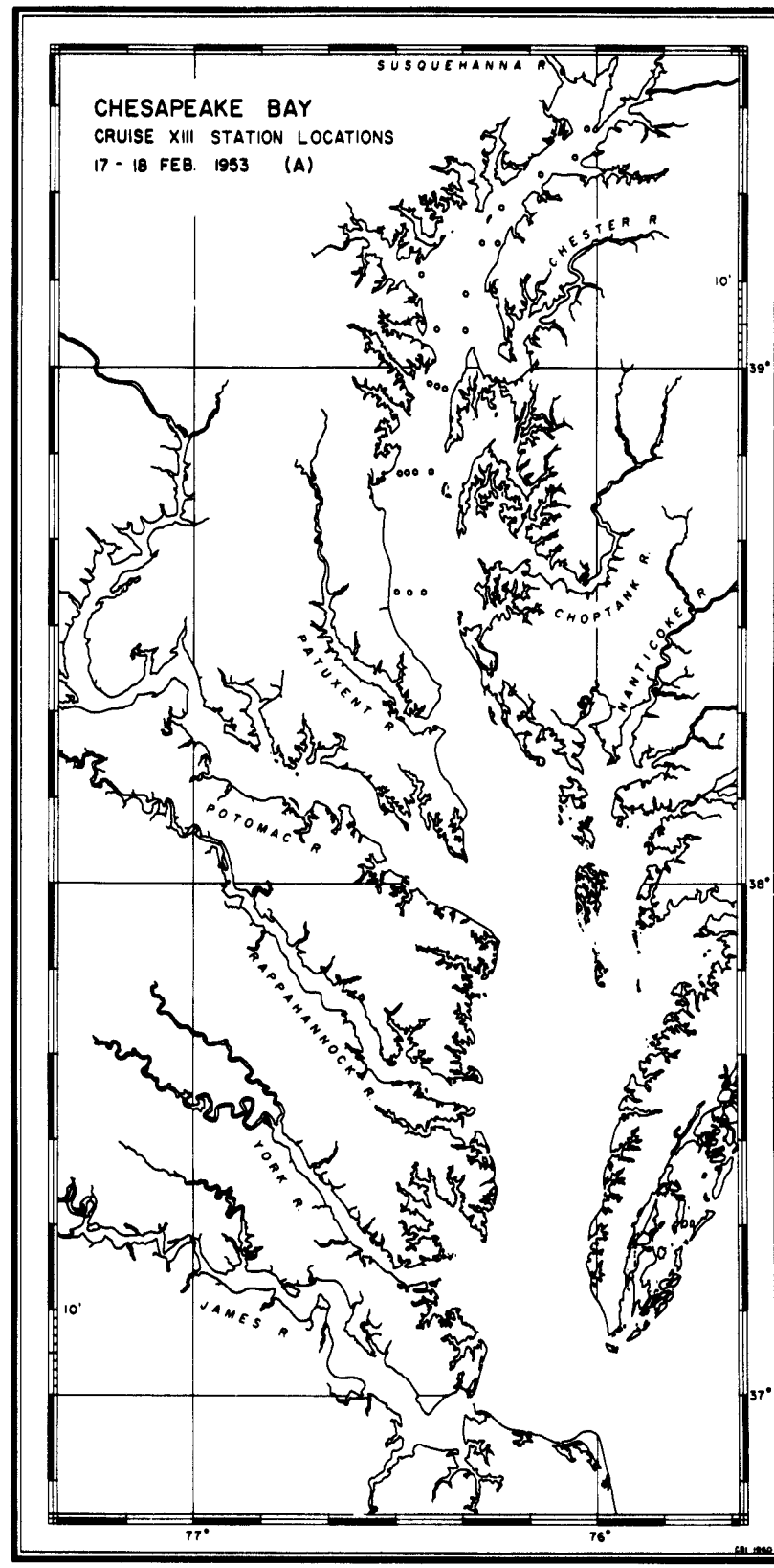
CRUISE XII 15 JULY - 6 AUG 1952 SECTION XIX

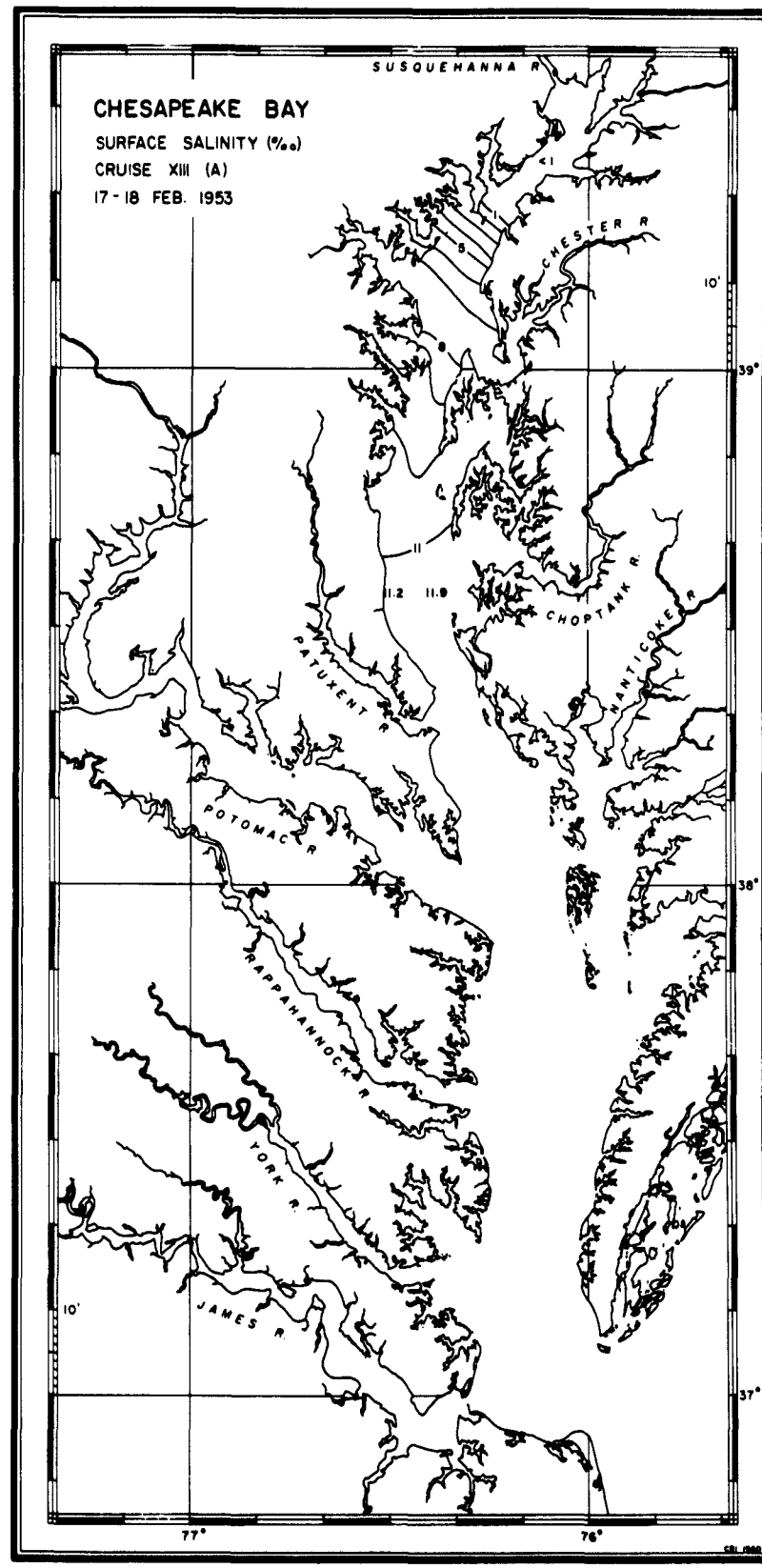


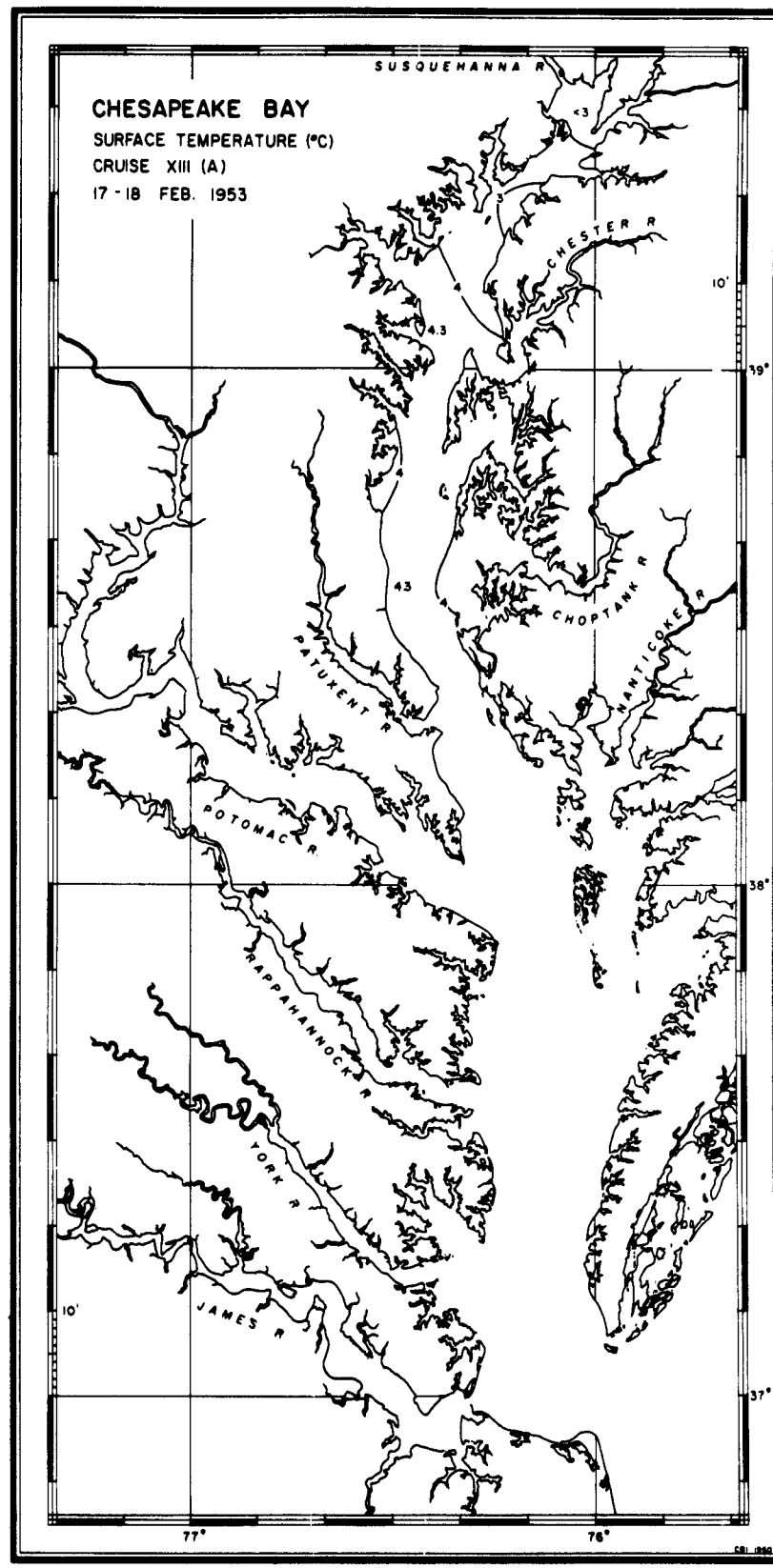
CRUISE XII 15 JULY - 6 AUG 1952 SECTION XIX

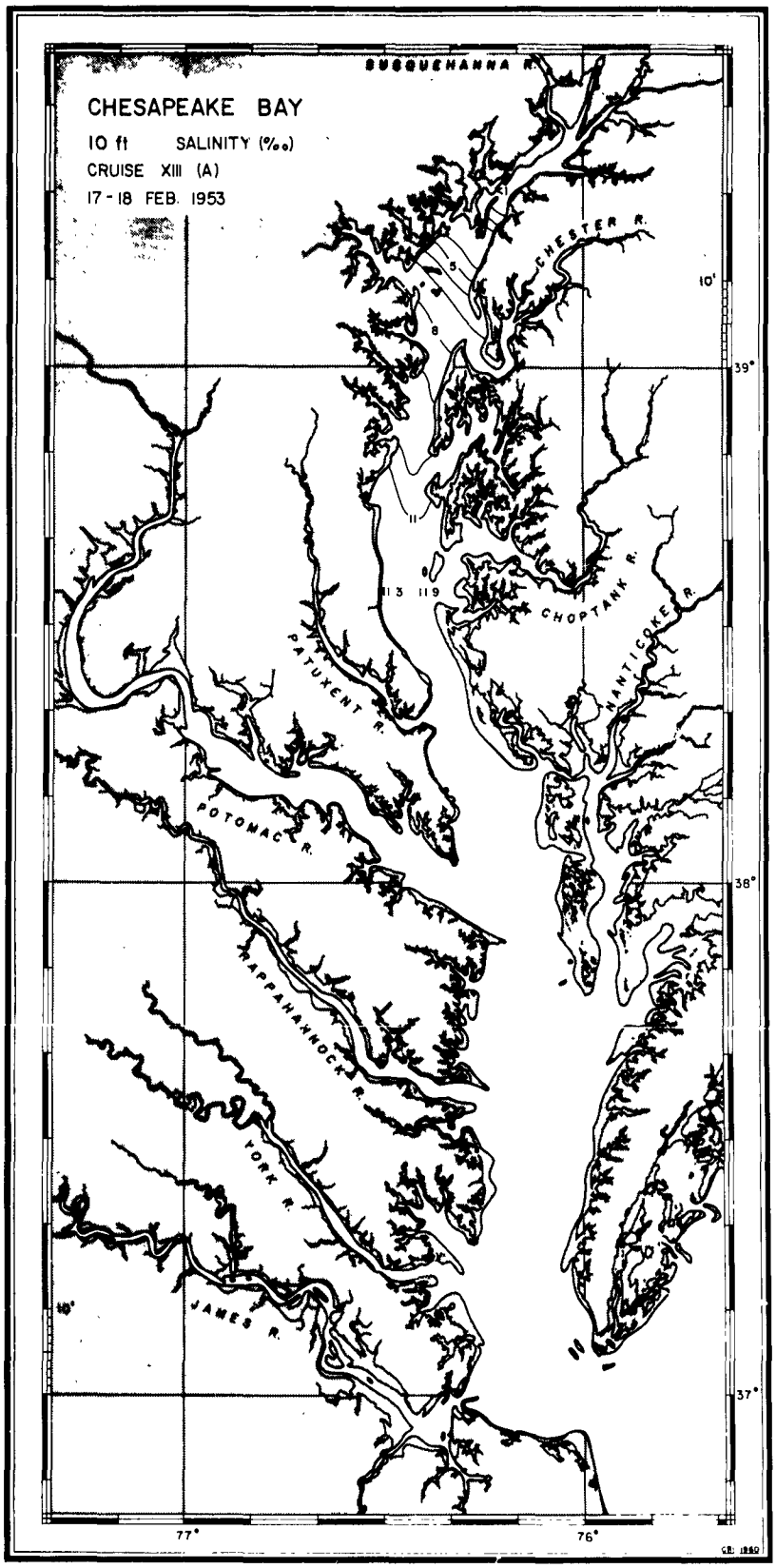
TEMPERATURE (°C)

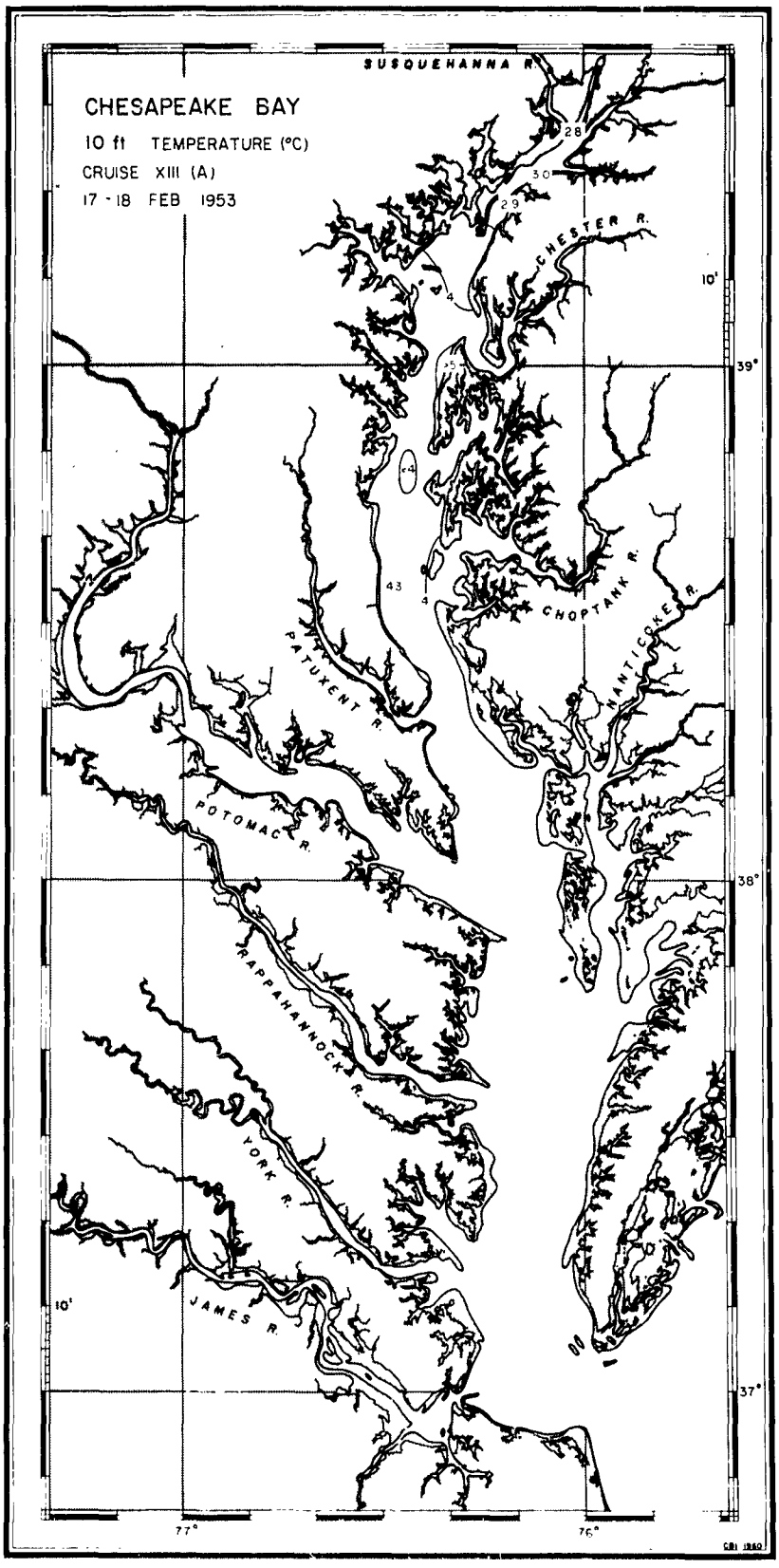


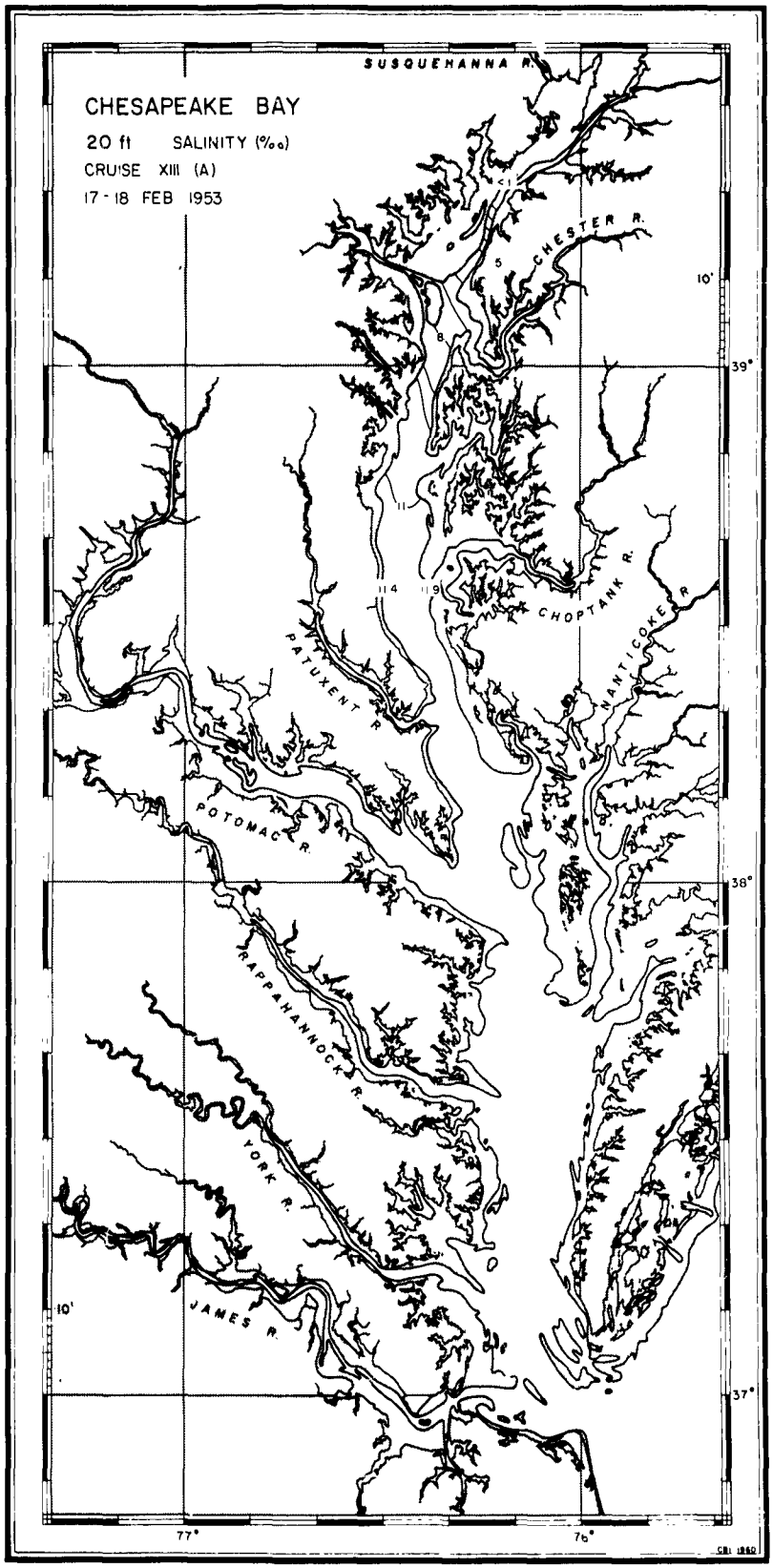

CHESAPEAKE BAY
CRUISE XIII STATION LOCATIONS
17 - 18 FEB. 1953 (A)
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
39°
38°
37°
10'
77°
76°

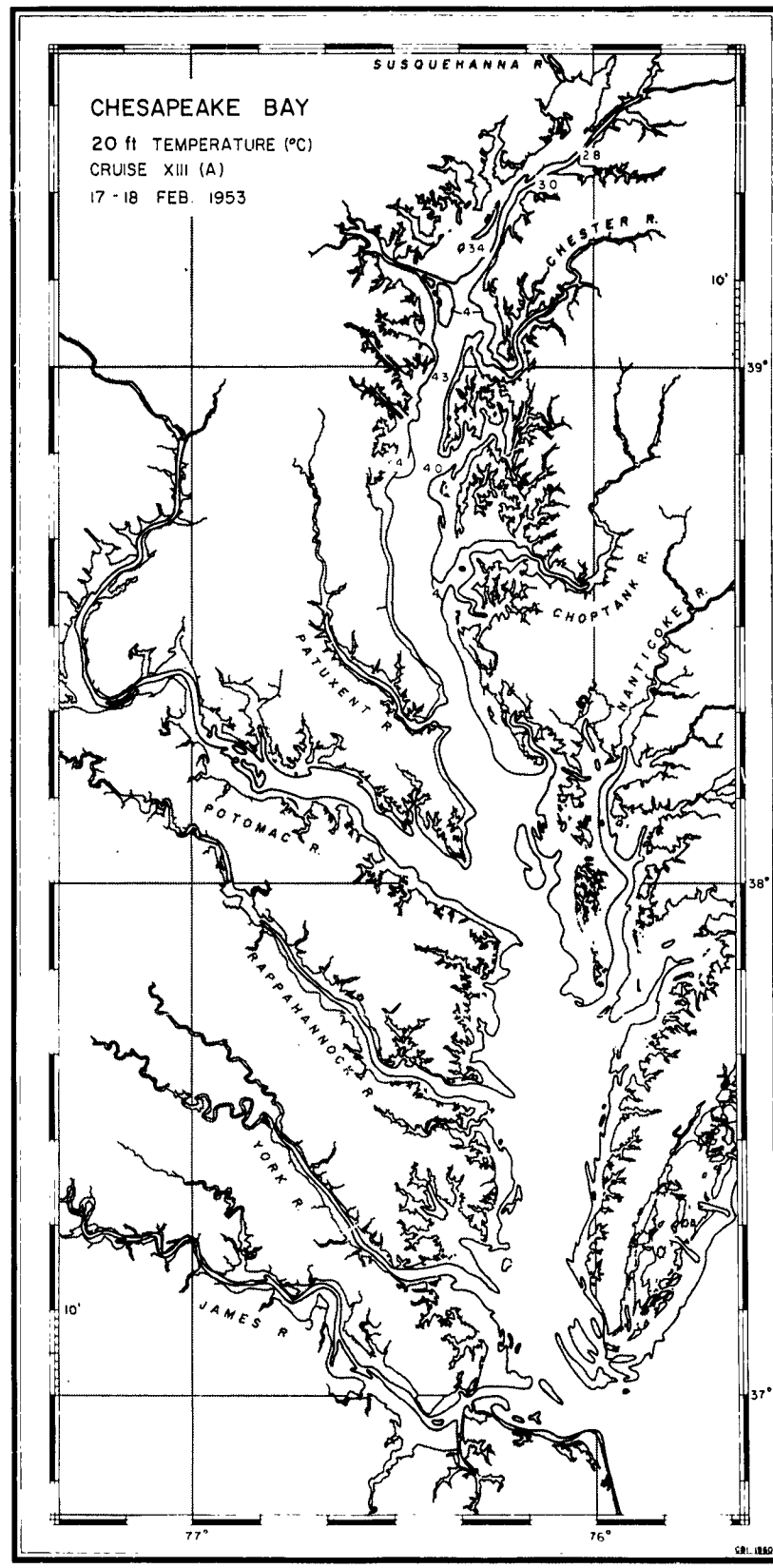

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XIII (A)
17 - 18 FEB. 1953
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
NANTICOKE R
11.2
11.9
39°
38°
37°
10'
77°
76°

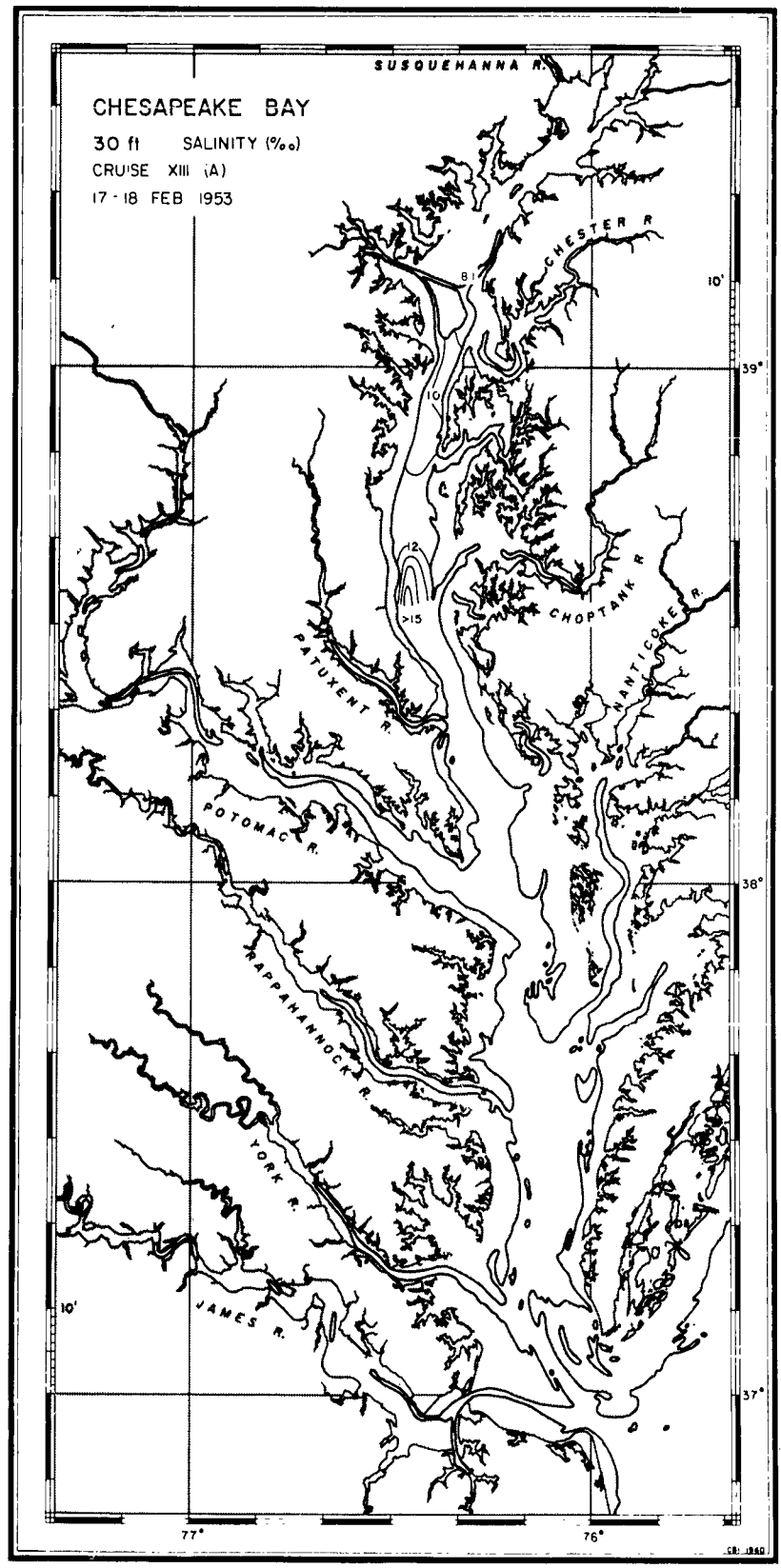

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XIII (A)
17 - 18 FEB. 1953
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
NANTICOKE R
<3
3
4
4.3
43
10'
39°
38°
37°
77°
76°

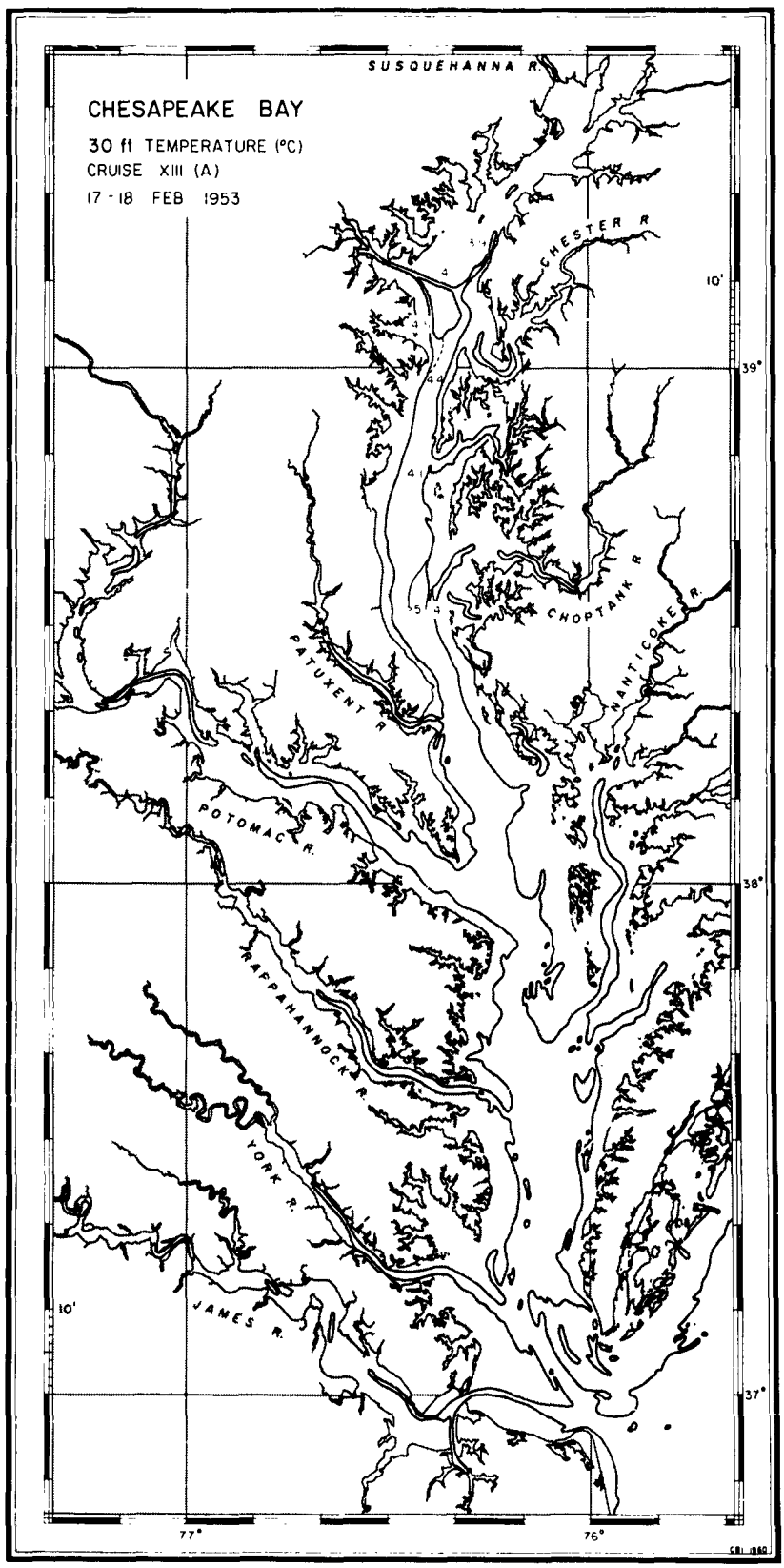

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XIII (A)
17 - 18 FEB. 1953
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°

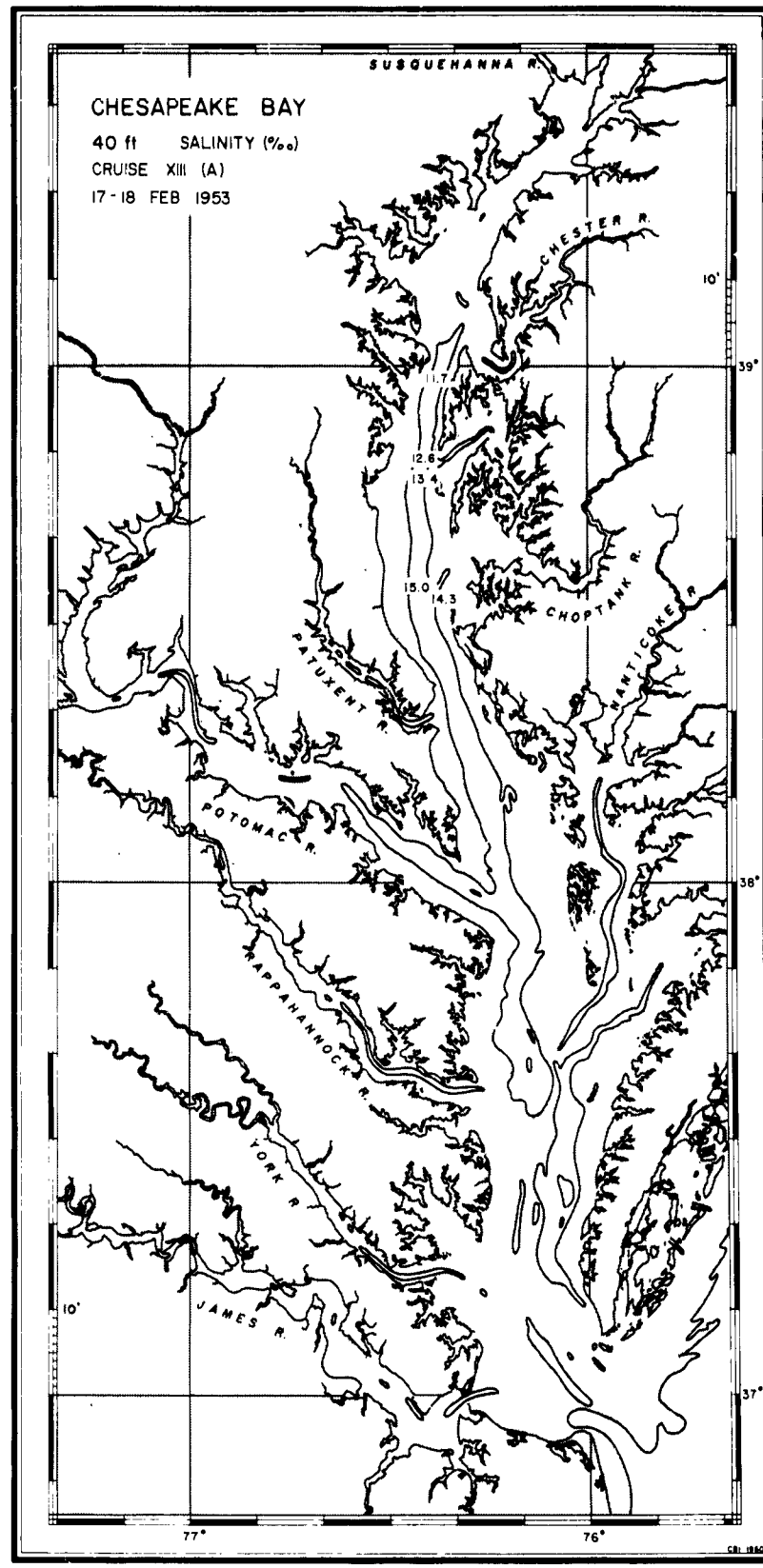

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
CRUISE XIII (A)
17 - 18 FEB 1953
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

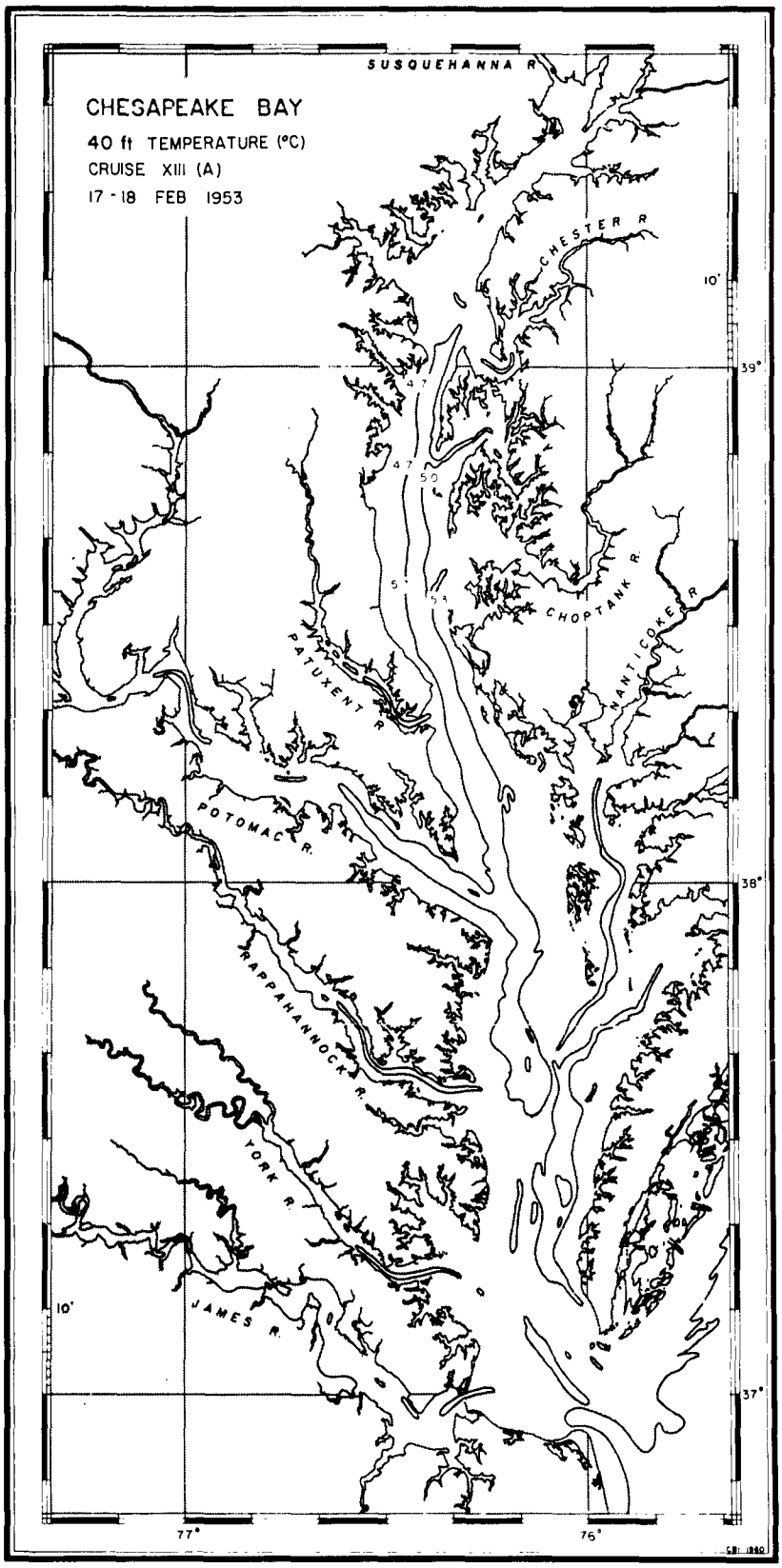

CHESAPEAKE BAY
20 ft SALINITY (‰)
CRUISE XIII (A)
17 - 18 FEB 1953
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
10'
77°
76°

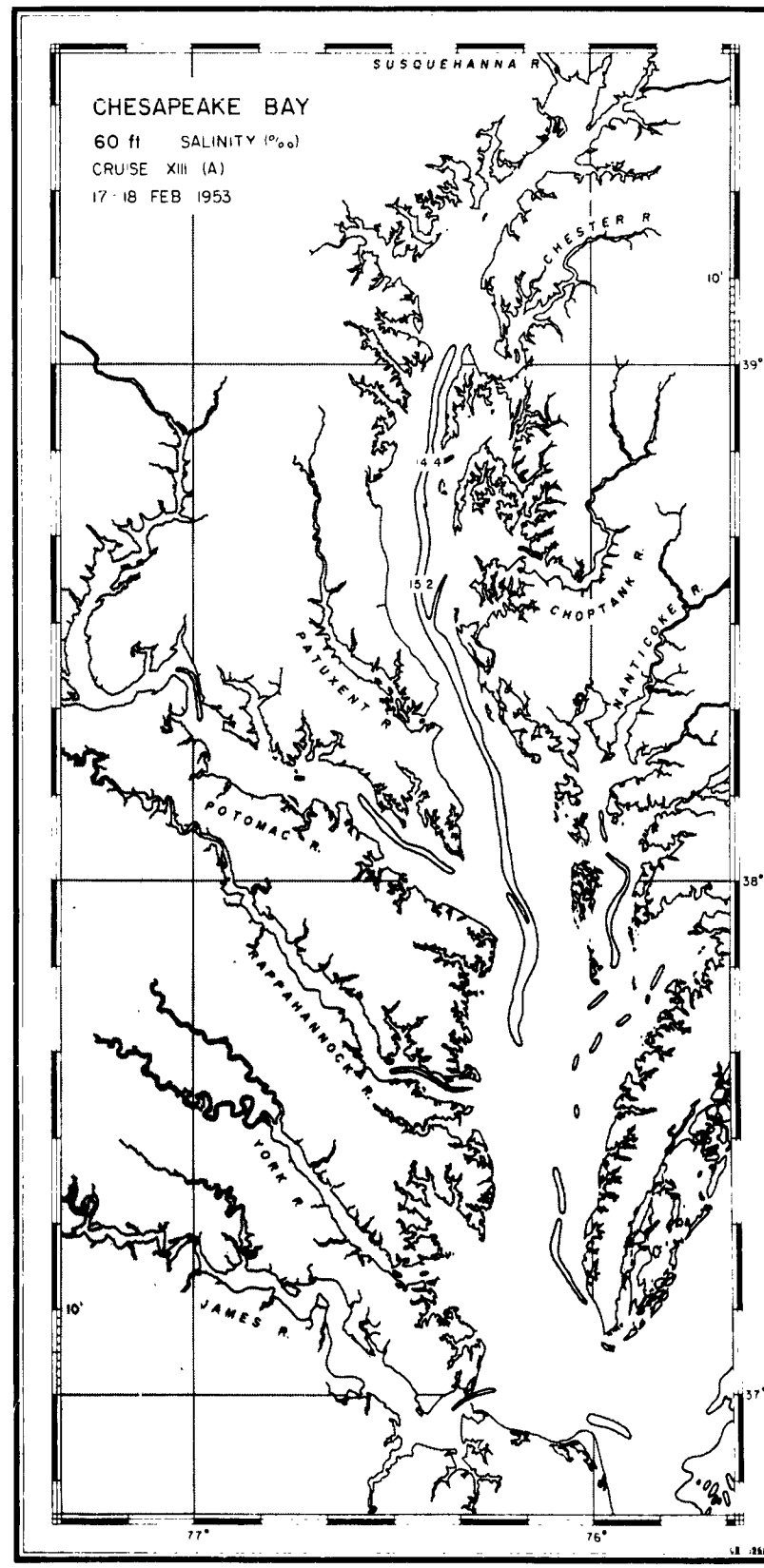

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
CRUISE XIII (A)
17 - 18 FEB. 1953
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
28
30
34
43
40
39°
38°
37°
10'
77°
76°

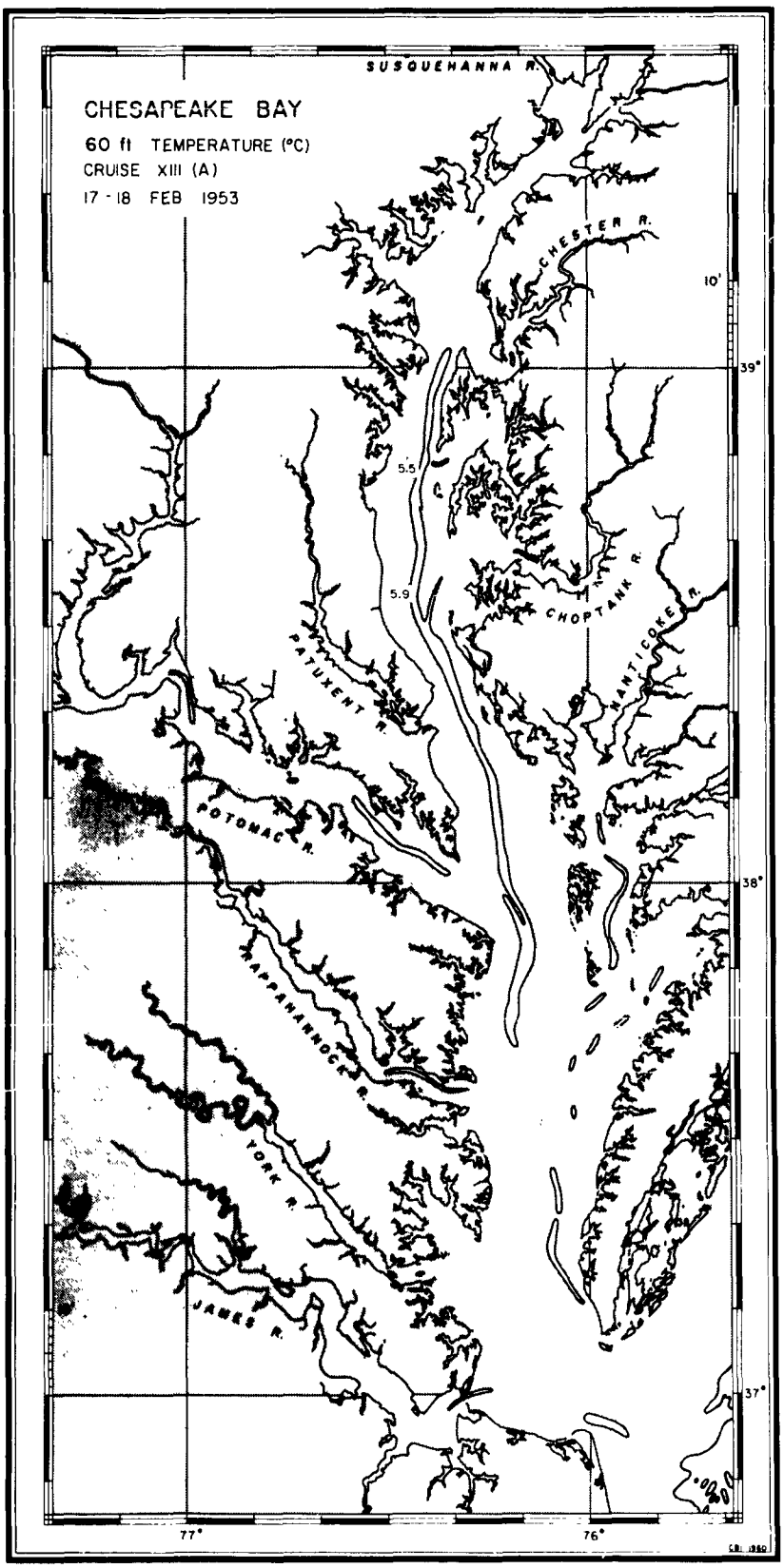

CHESAPEAKE BAY
30 ft SALINITY (‰)
CRUISE XIII (A)
17 - 18 FEB 1953
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
8
10
12
>15
39°
38°
37°
10'
77°
76°


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XIII (A)
17 - 18 FEB 1953
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
10'
39°
38°
37°
77°
76°


CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XIII (A)
17 - 18 FEB 1953
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
11.7
12.6
13.4
15.0
14.3
39°
38°
37°
10°
77°
76°

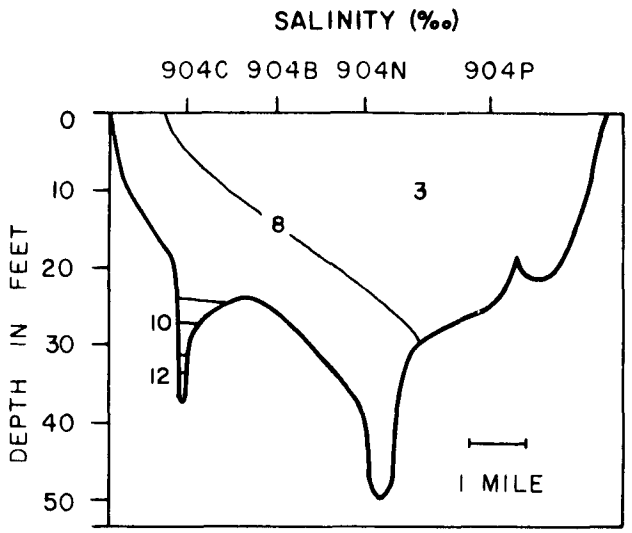

CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
CRUISE XIII (A)
17 - 18 FEB 1953
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°

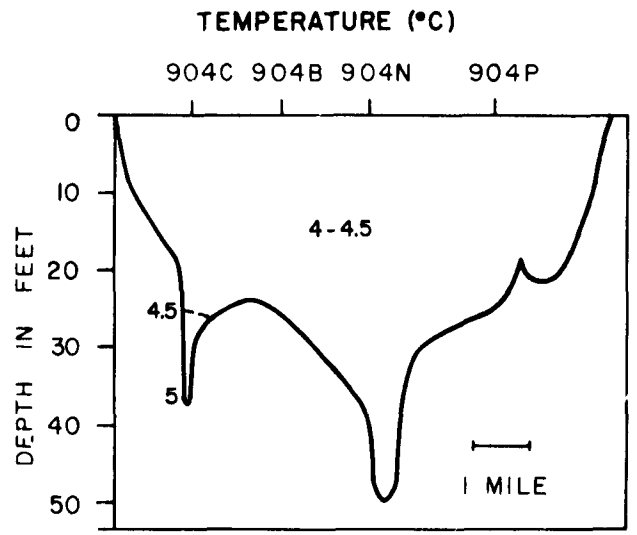

CHESAPEAKE BAY
60 ft SALINITY (‰)
CRUISE XIII (A)
17 - 18 FEB 1953
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°
44
52


CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
CRUISE XIII (A)
17 - 18 FEB 1953
SUSQUEHANNA R.
CHESTER R.
10'
39°
5.5
5.9
CHOPTANK R.
PATUXENT R.
NANTICOKE R.
POTOMAC R.
38°
RAPPAHANNOCK R.
YORK R.
JAMES R.
37°
77°
76°

SECTIONS OMITTED
INSUFFICIENT DATA

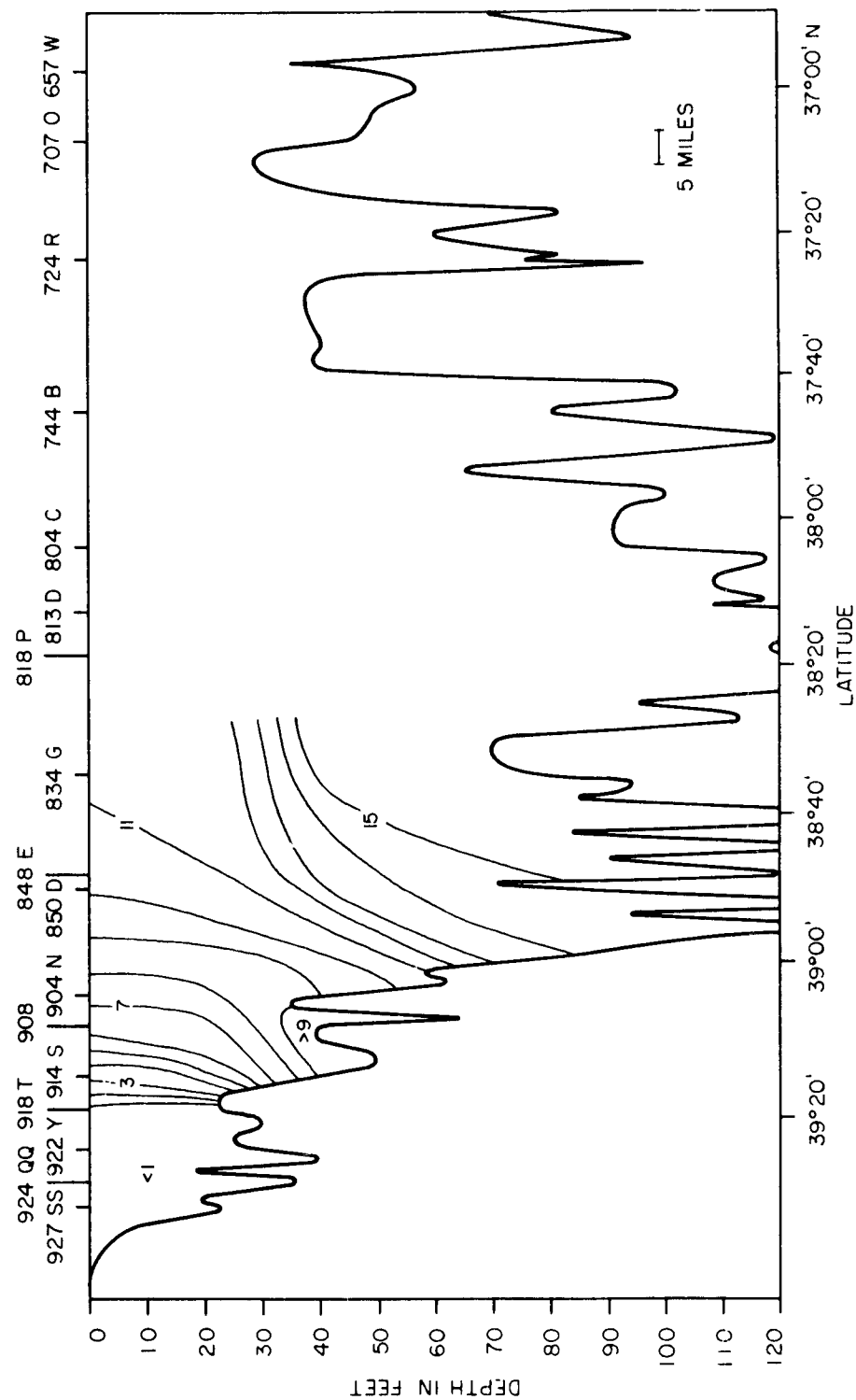
CRUISE XIII 17 - 18 FEBRUARY 1953 SECTION X



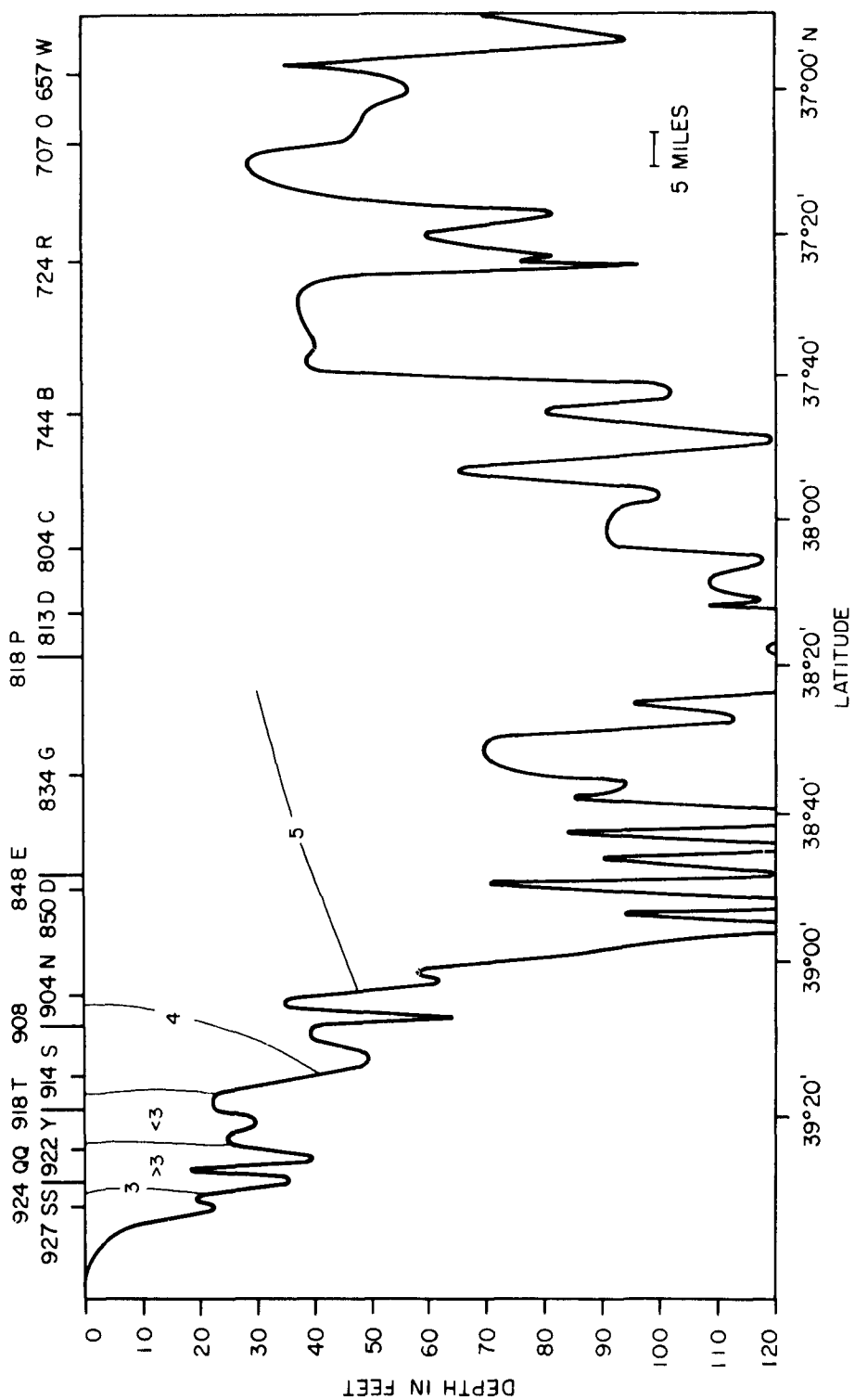
CRUISE XIII 17 - 18 FEBRUARY 1953 SECTION XIX

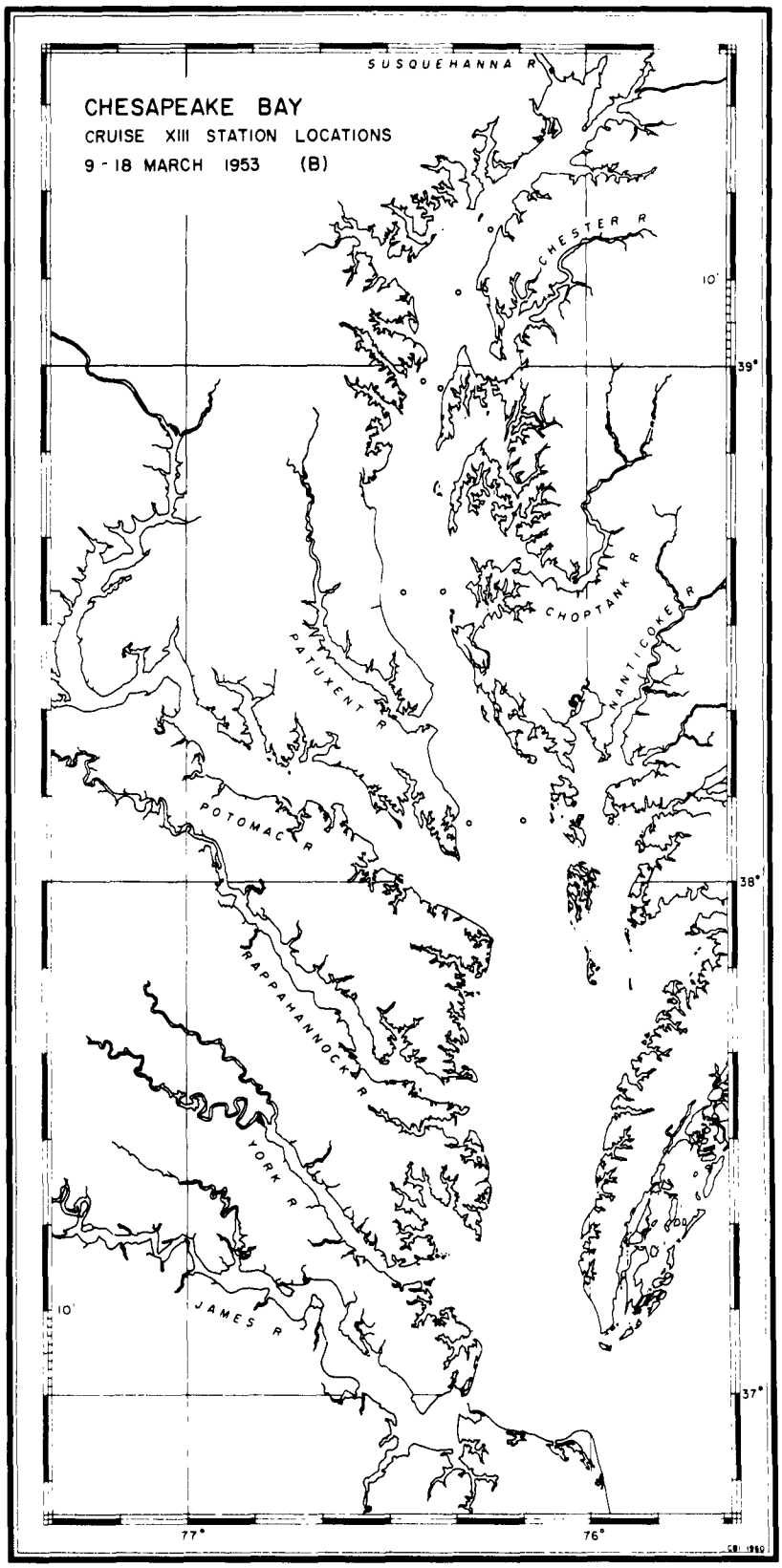
SALINITY (‰)

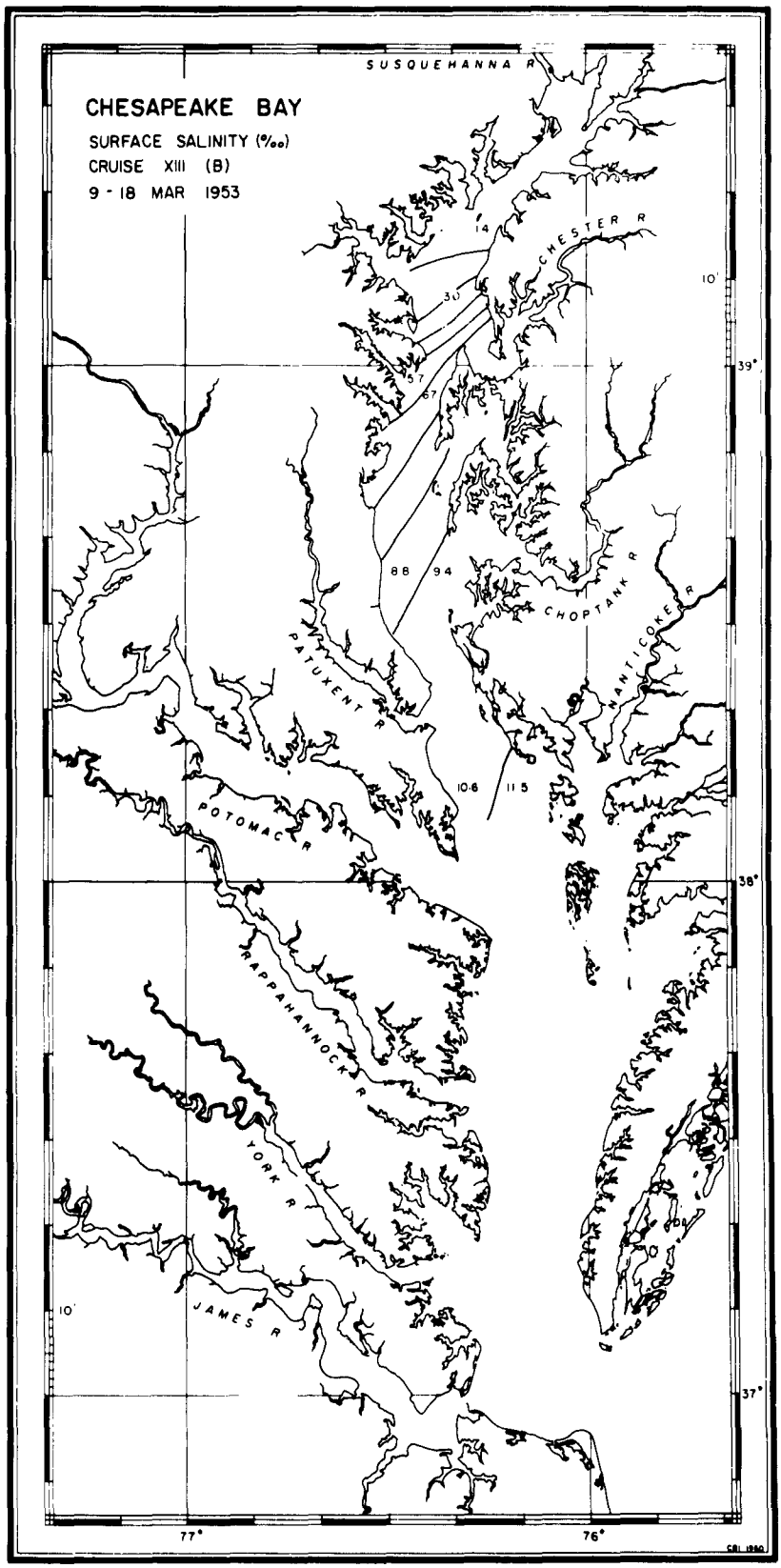


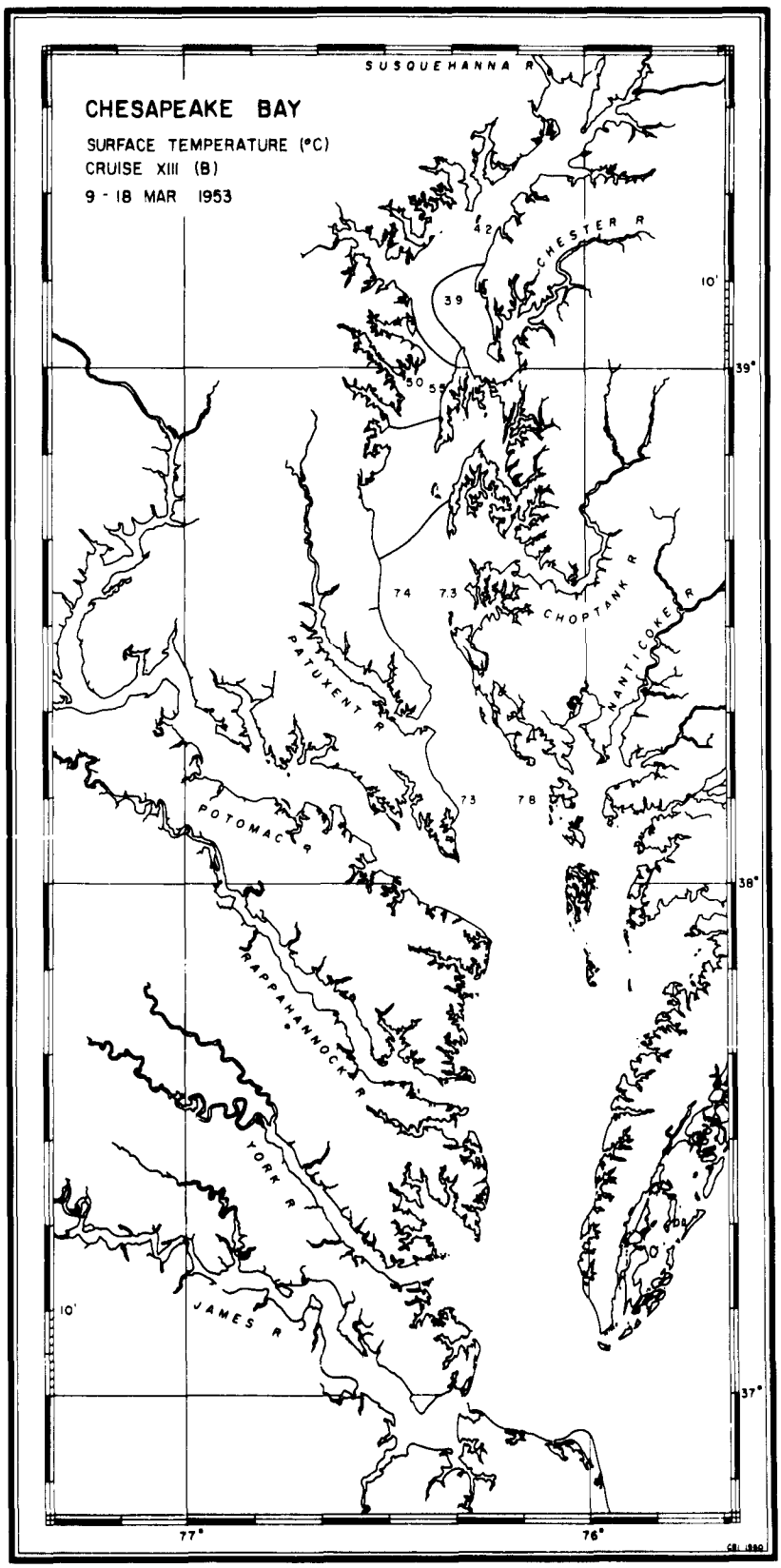
CRUISE XIII 17 - 18 FEBRUARY 1953 SECTION XIX

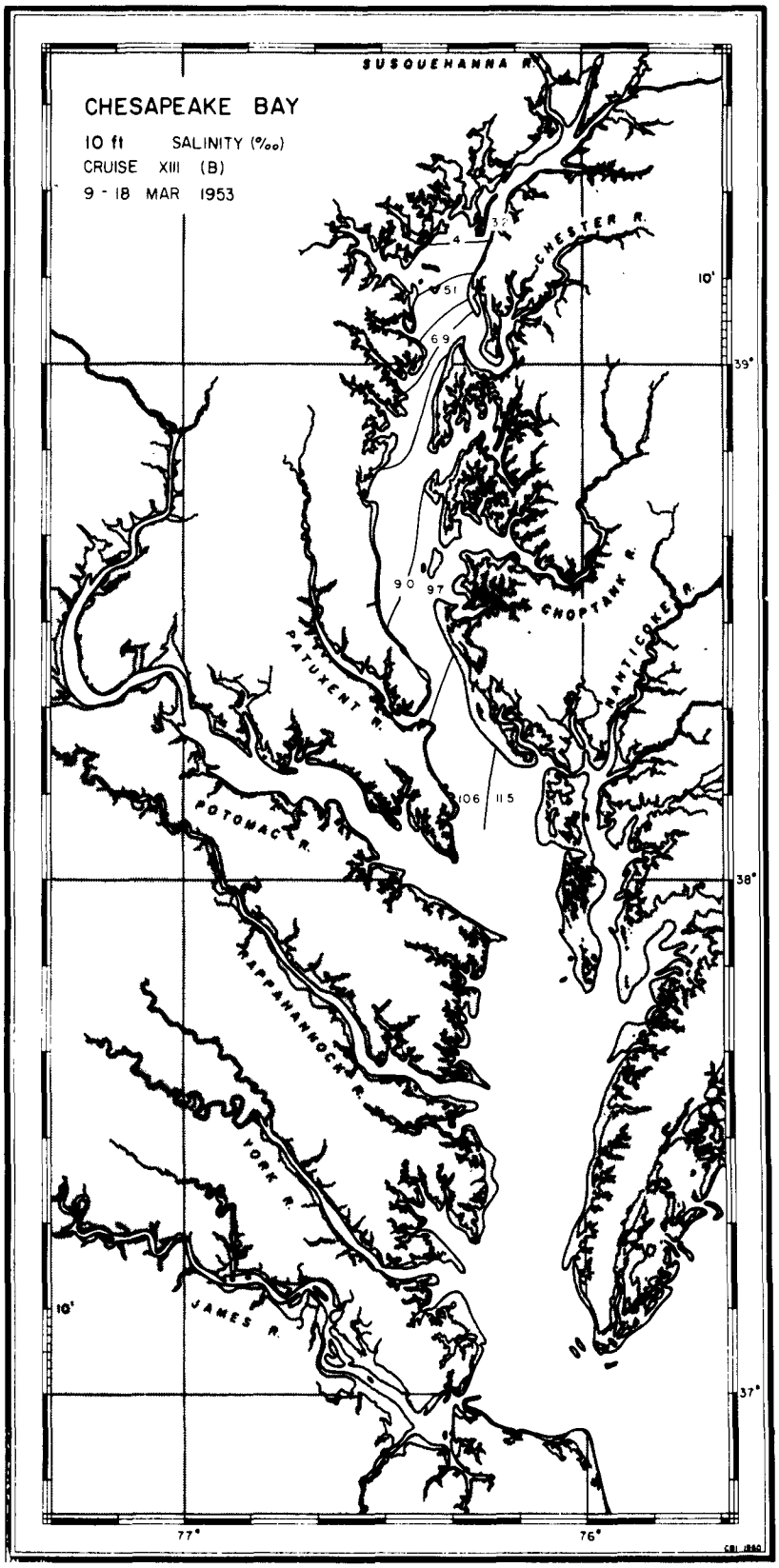
TEMPERATURE (°C)

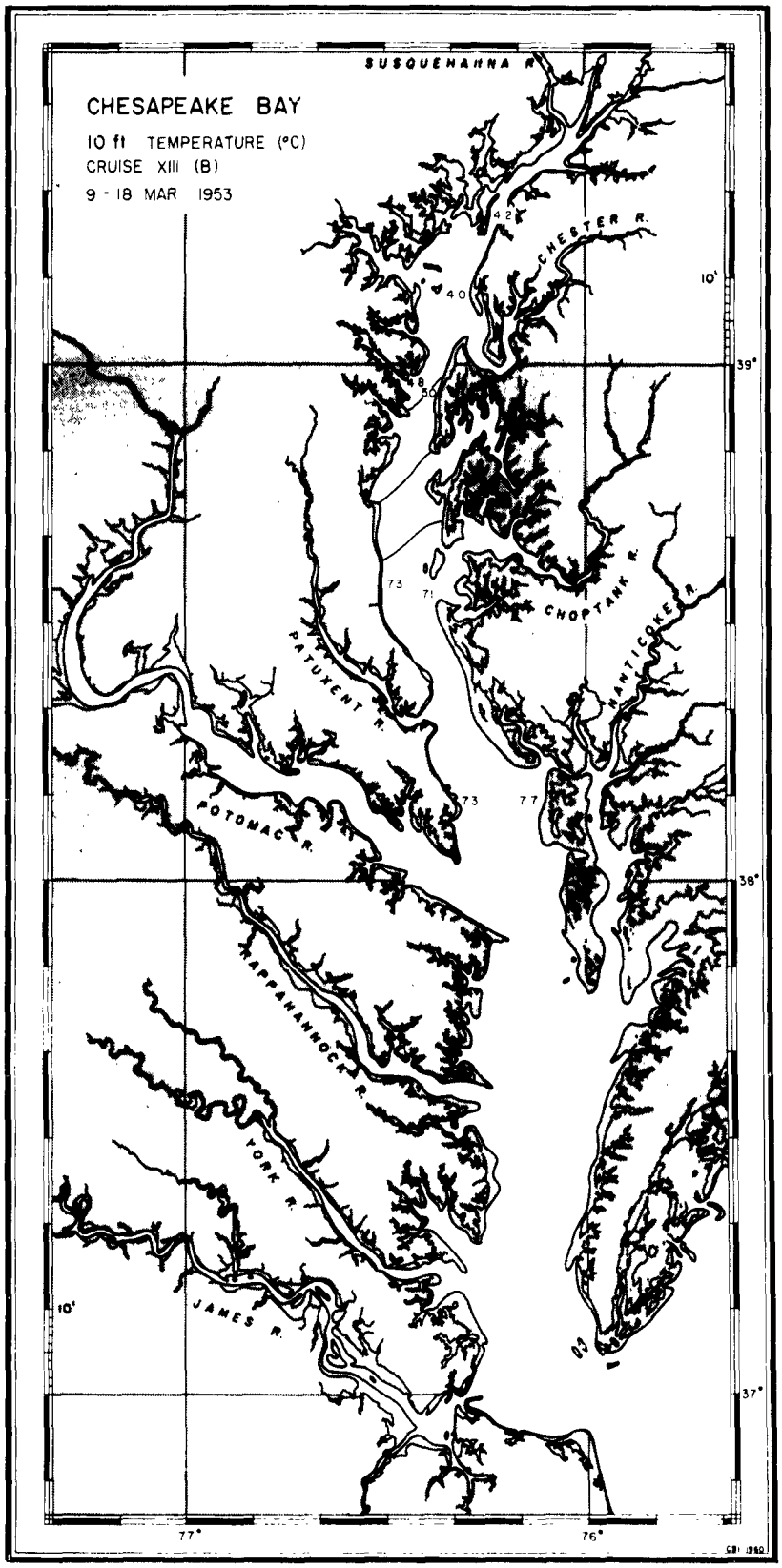


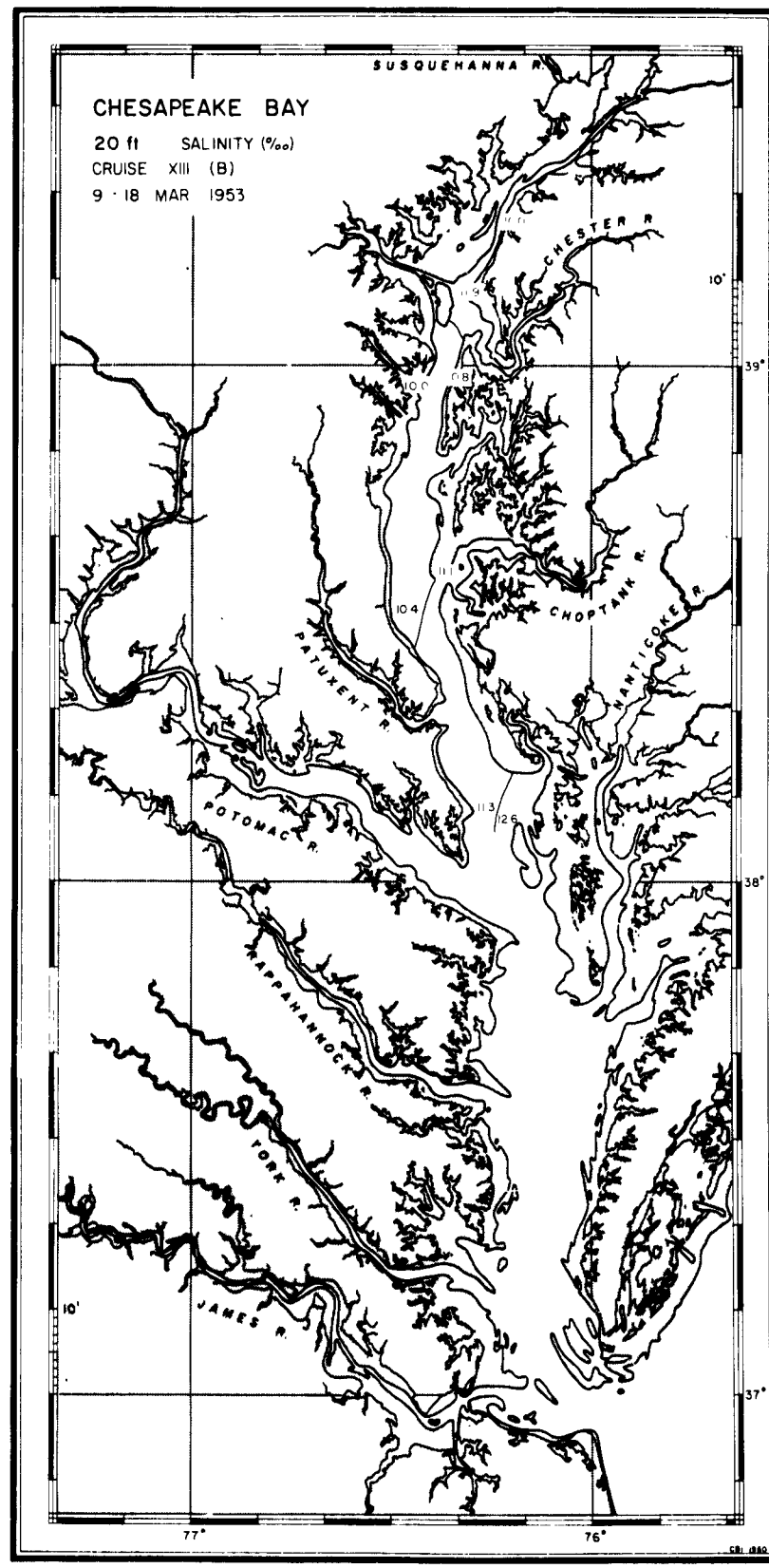

CHESAPEAKE BAY
CRUISE XIII STATION LOCATIONS
9 - 18 MARCH 1953 (B)
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

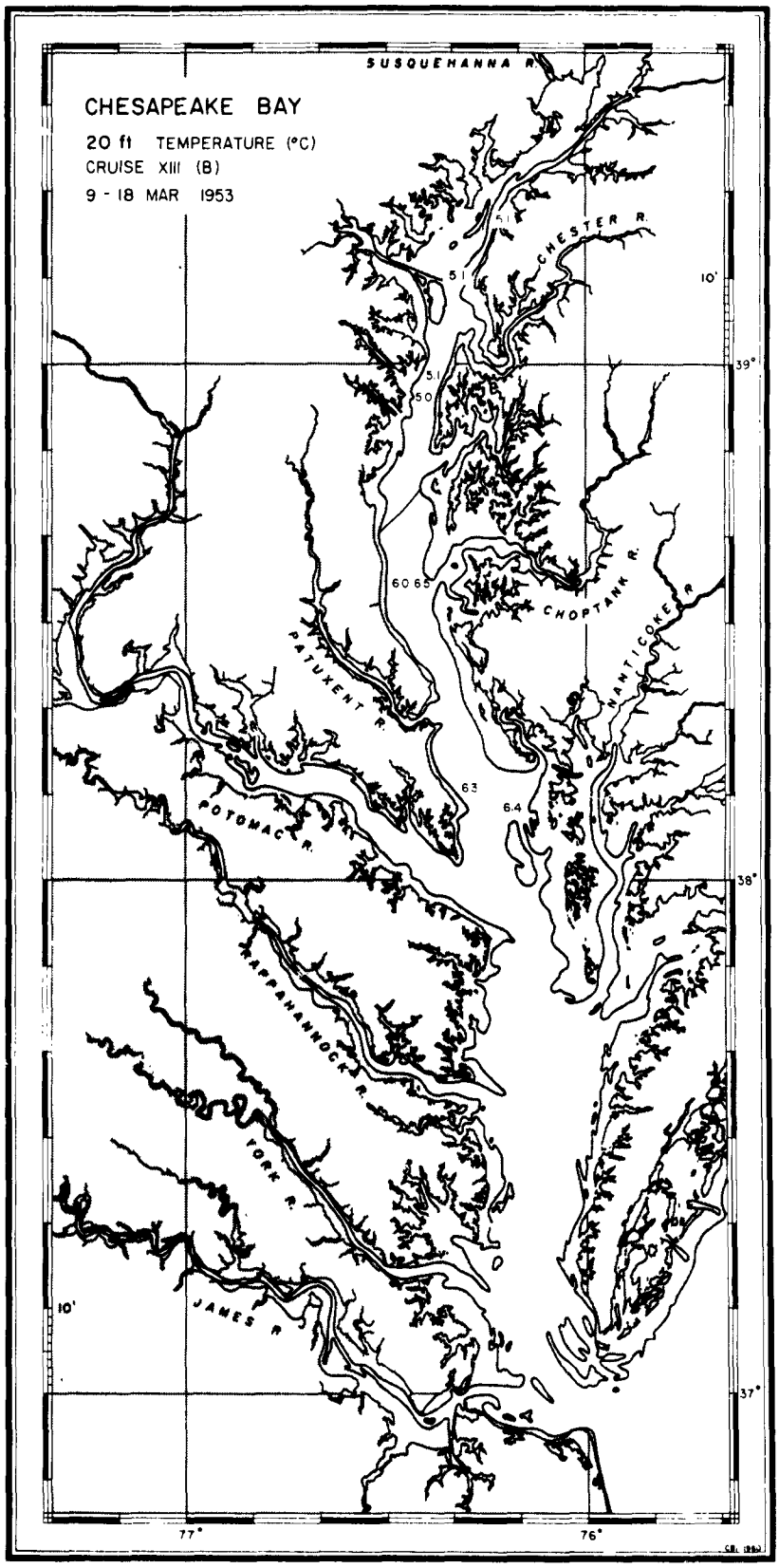

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XIII (B)
9 - 18 MAR 1953
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
MANTICOKE R
14
30
57
67
88
94
106
115
10'
39°
38°
37°
77°
76°

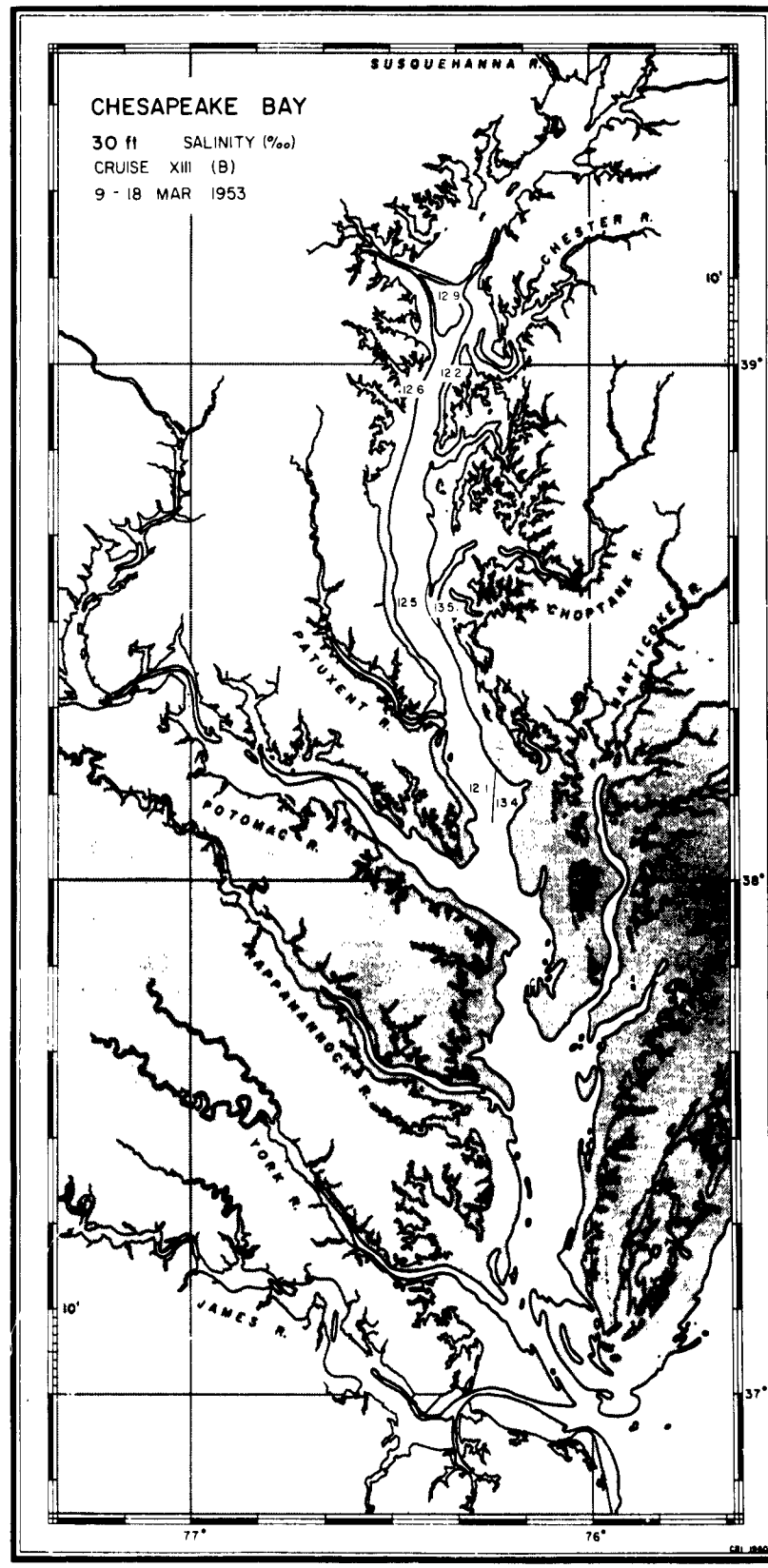

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XIII (B)
9 - 18 MAR 1953
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
42
39
30
74
73
78
10'
39°
38°
37°
77°
76°

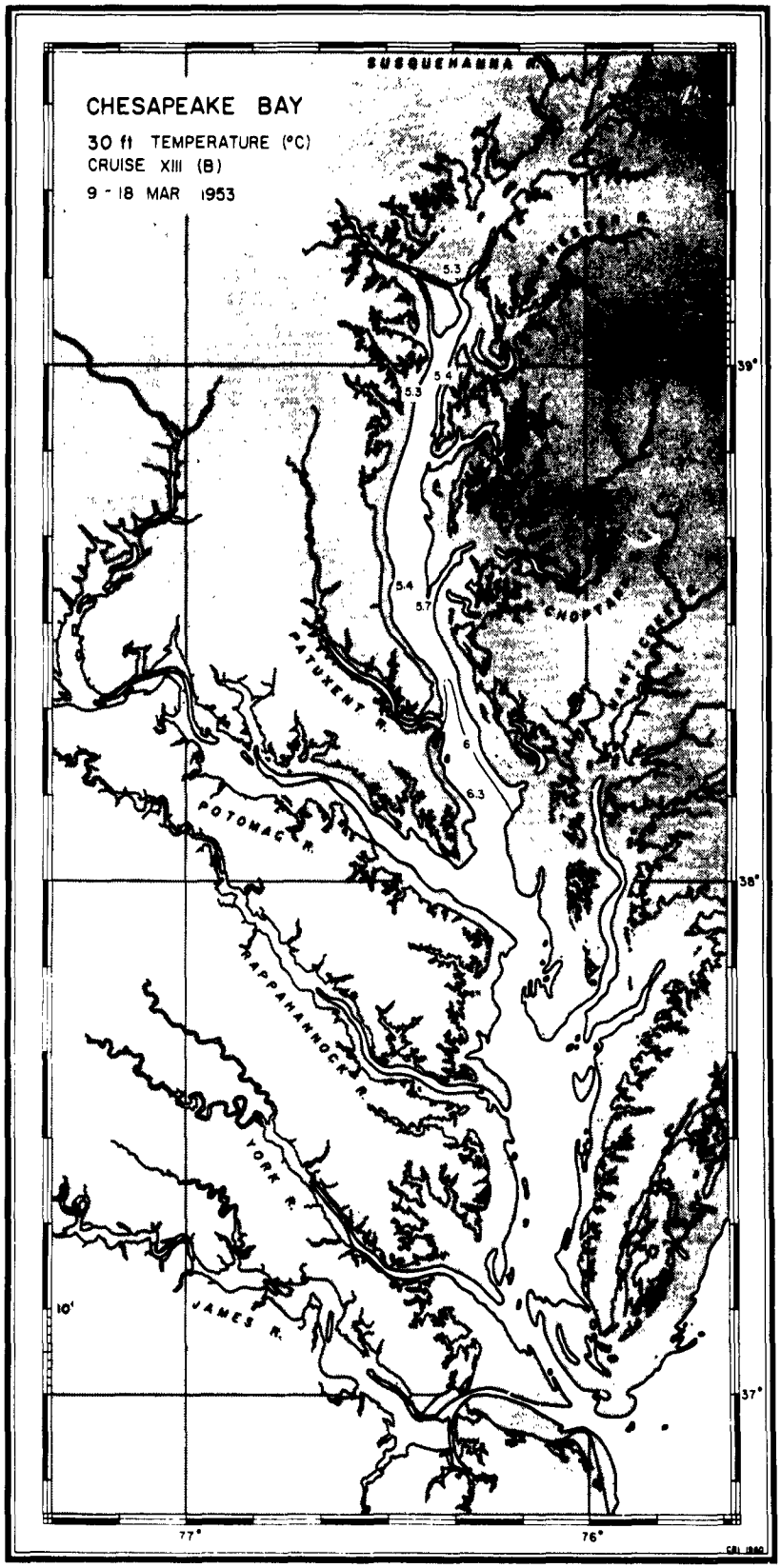

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XIII (B)
9 - 18 MAR 1953
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
4
32
51
69
90
97
106
115
10'
39°
38°
37°
77°
76°

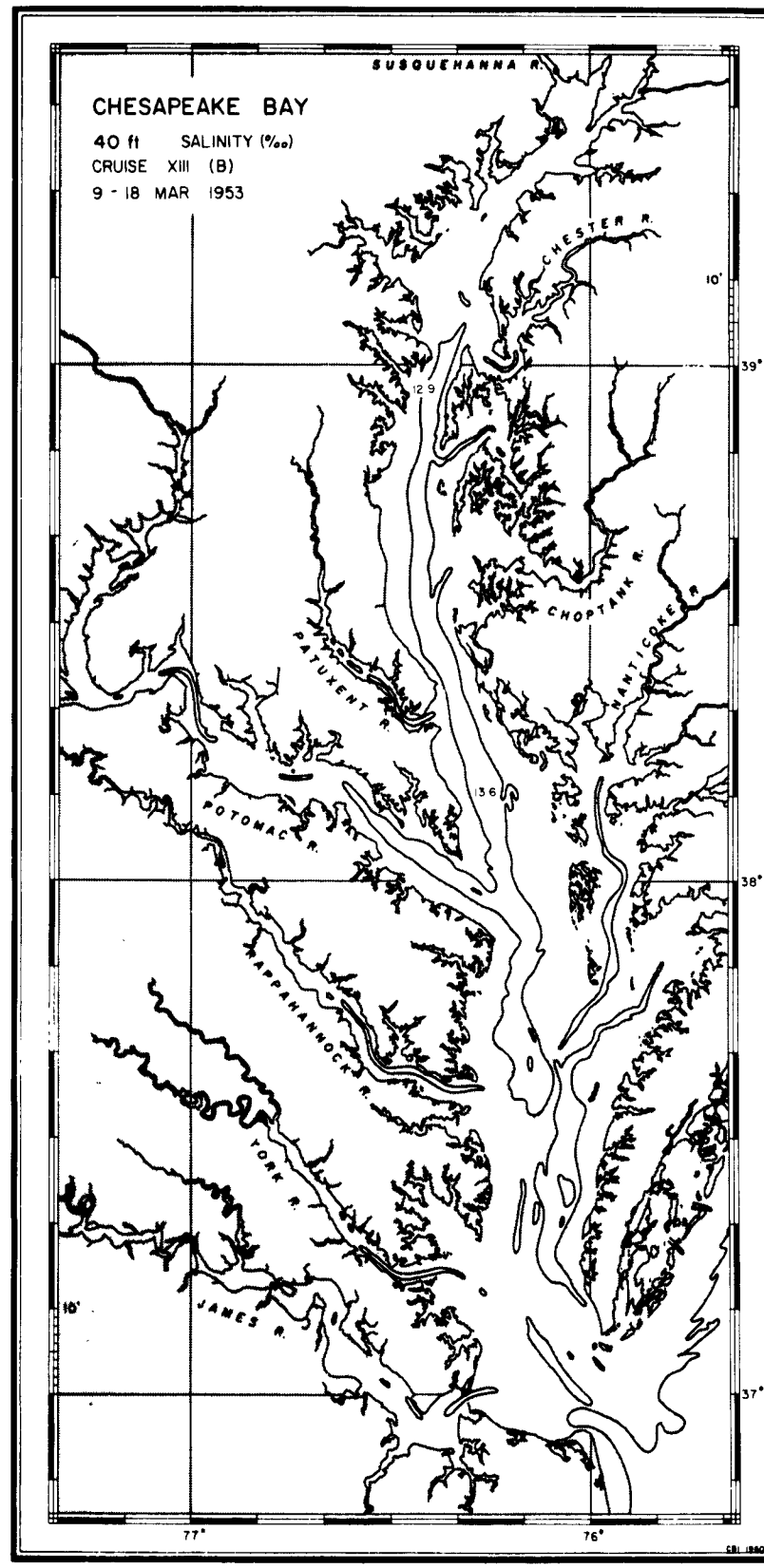

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
CRUISE XIII (B)
9 - 18 MAR 1953
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
42
40
10'
39°
38°
37°
77°
76°

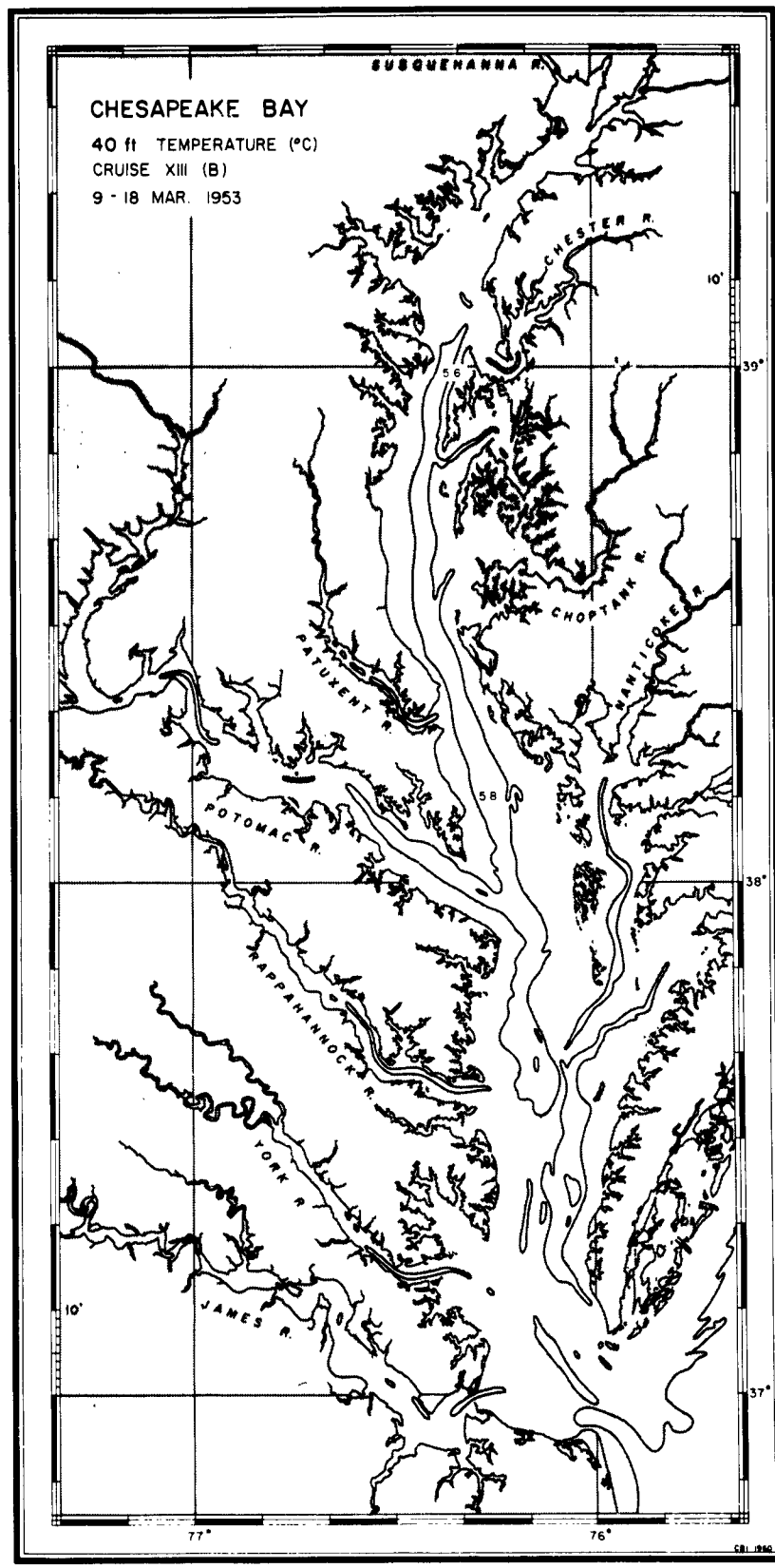

CHESAPEAKE BAY
20 ft SALINITY (‰)
CRUISE XIII (B)
9 - 18 MAR 1953
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°


CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
CRUISE XIII (B)
9 - 18 MAR 1953
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
MANTICOKE R.
39°
38°
37°
77°
76°


CHESAPEAKE BAY
30 ft SALINITY (‰)
CRUISE XIII (B)
9 - 18 MAR 1953
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
12 9
12 2
12 6
12 5
13 5
12 1
13 4
39°
38°
37°
10'
10'
77°
76°


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XIII (B)
9 - 18 MAR 1953
SUSQUEHANNA R.
5.3
5.4
5.3
5.4
5.7
6
6.3
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

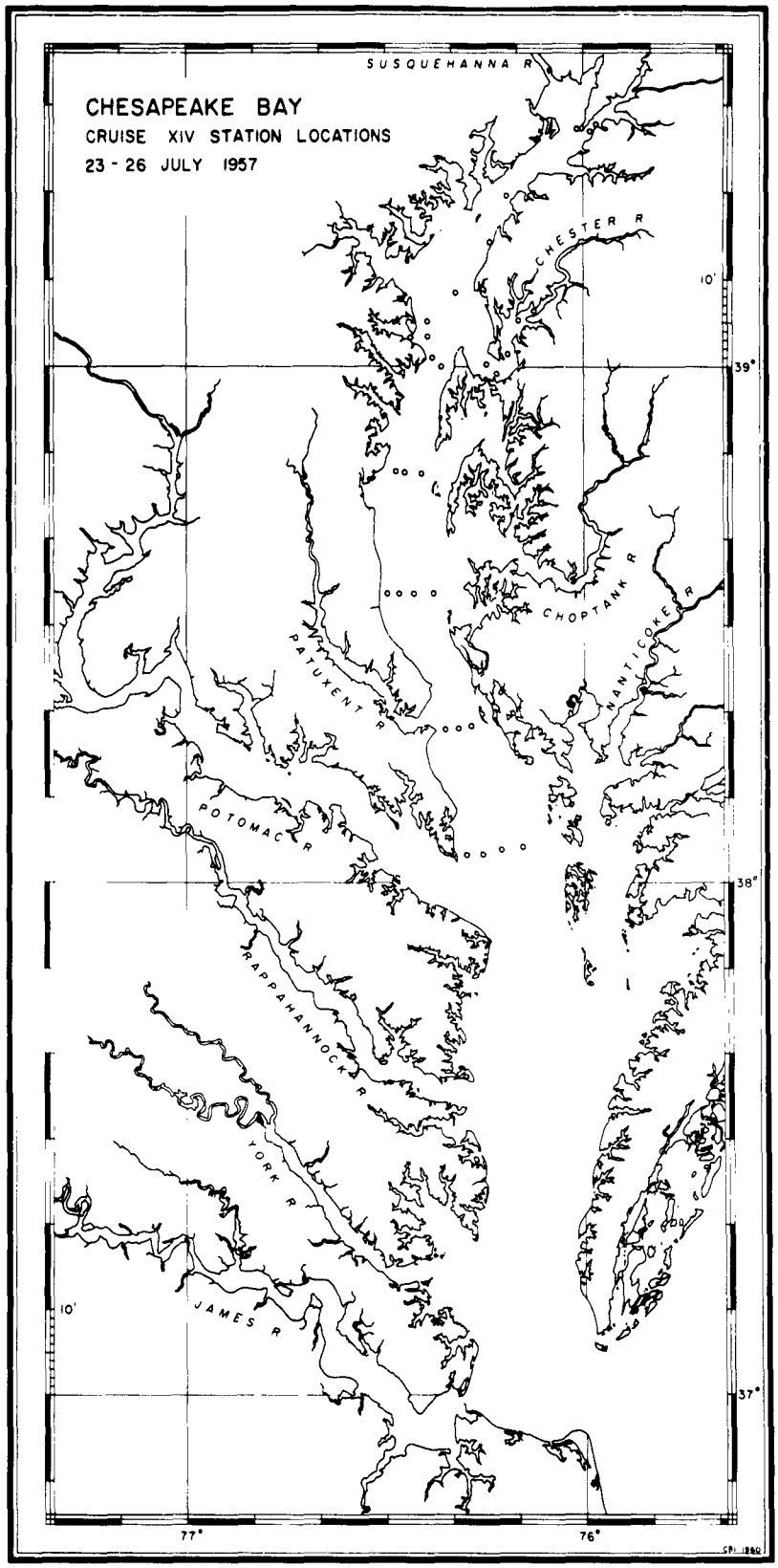

CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XIII (B)
9 - 18 MAR 1953
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
12.9
13.6
10'
39°
38°
37°
10'
77°
76°

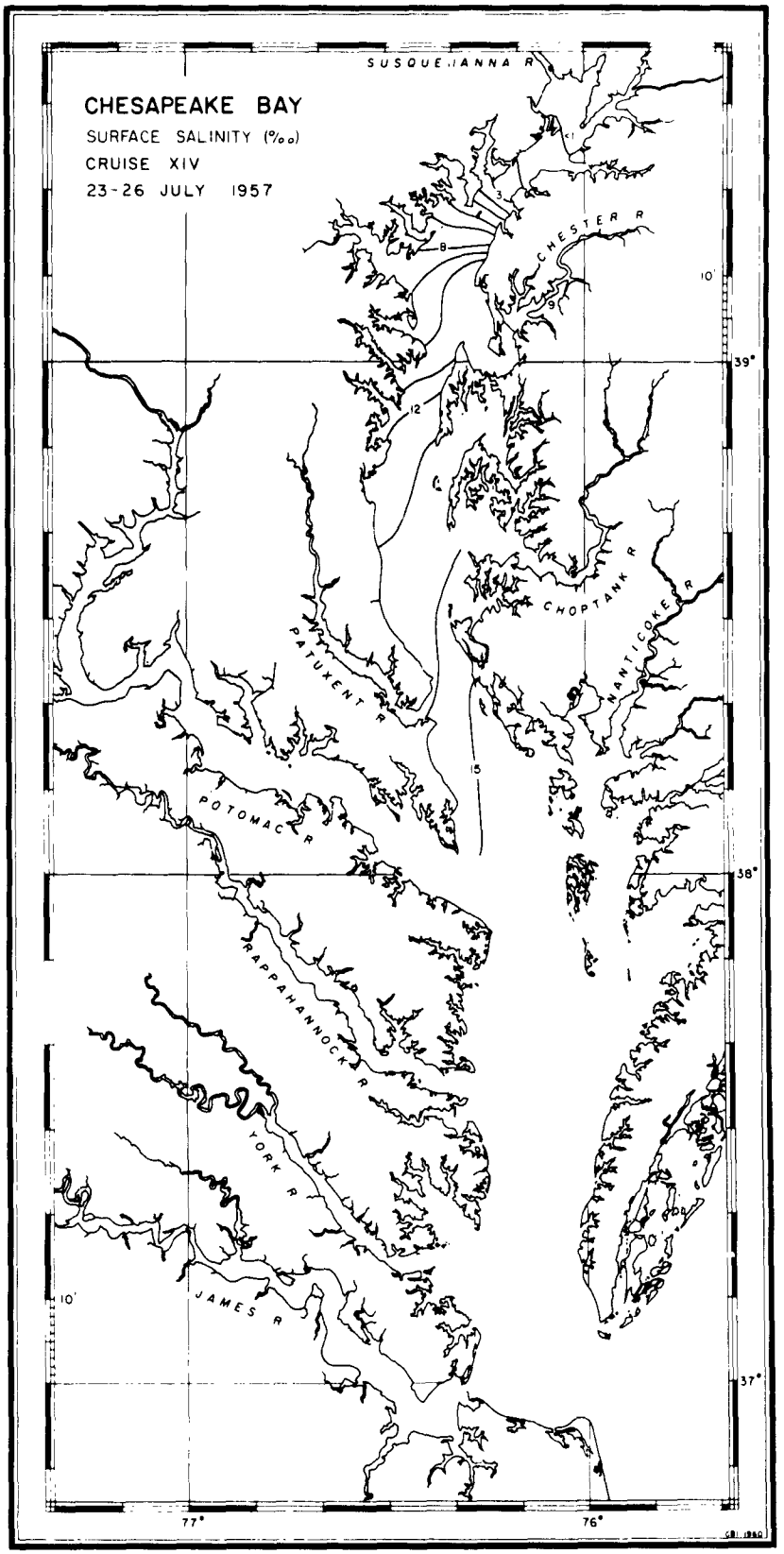

CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
CRUISE XIII (B)
9 - 18 MAR. 1953
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
56
58
10'
39°
38°
37°
77°
76°

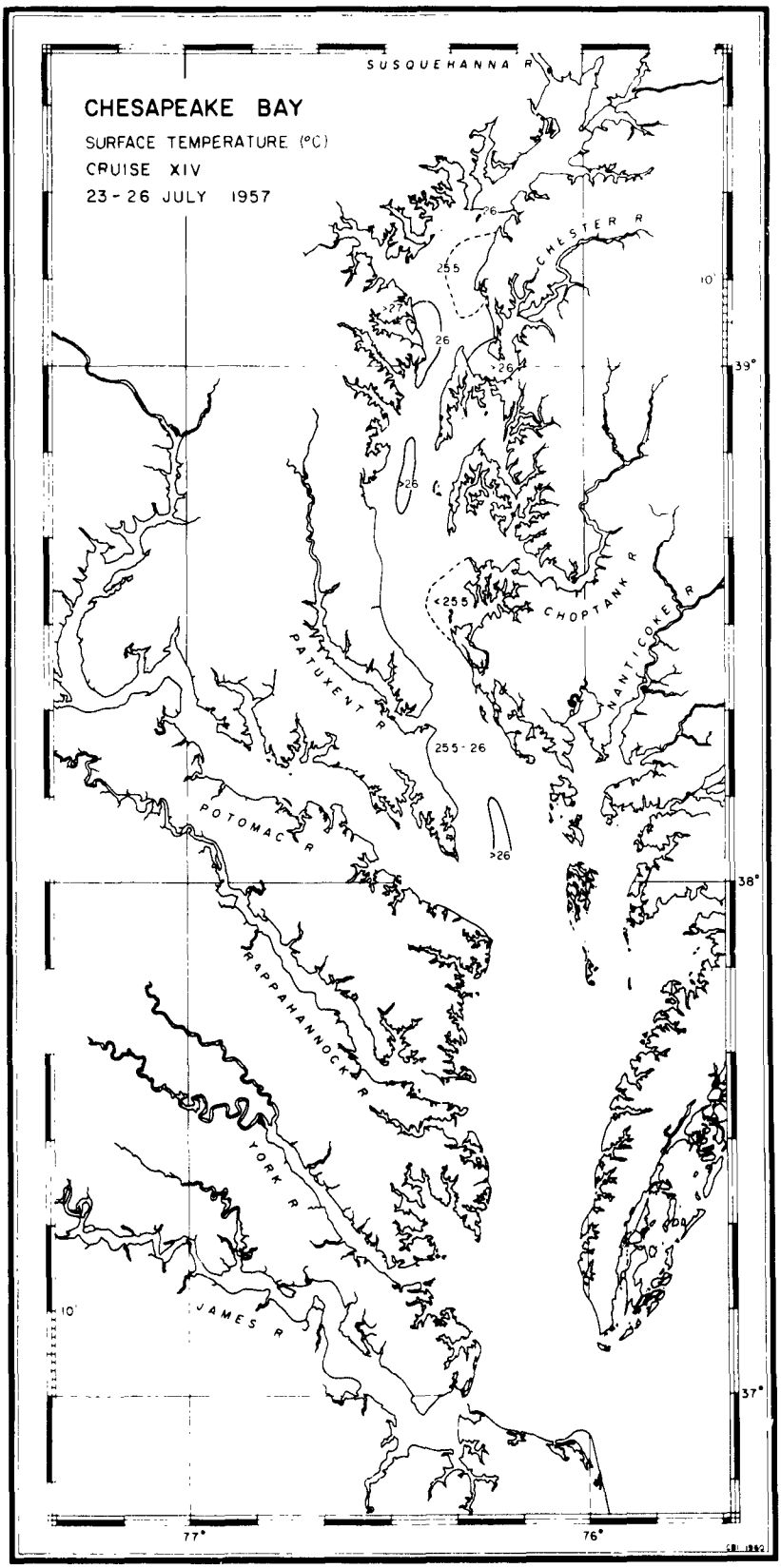
60 FT LEVEL OMITTED

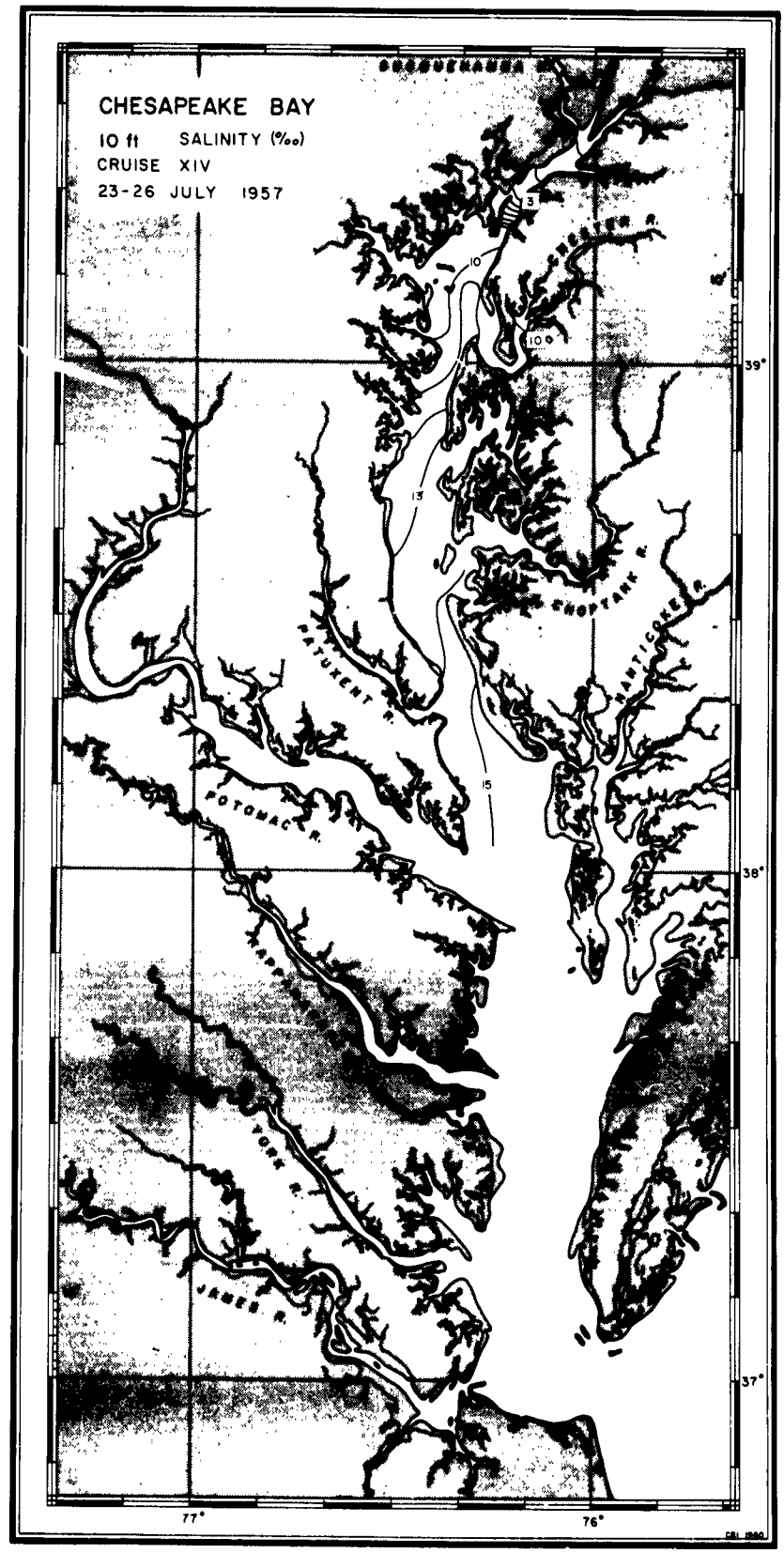
INSUFFICIENT DATA

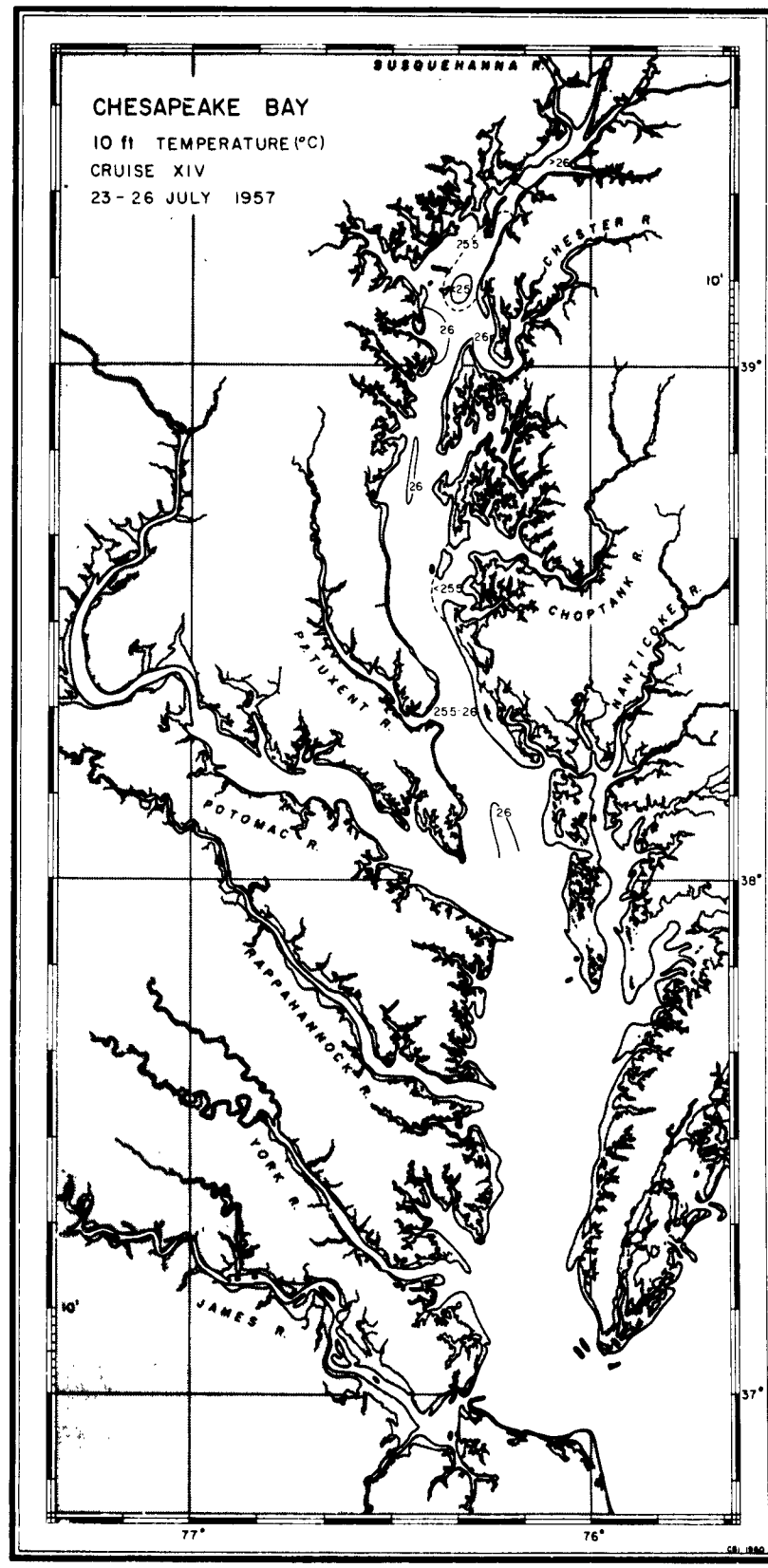
SECTIONS OMITTED
INSUFFICIENT DATA

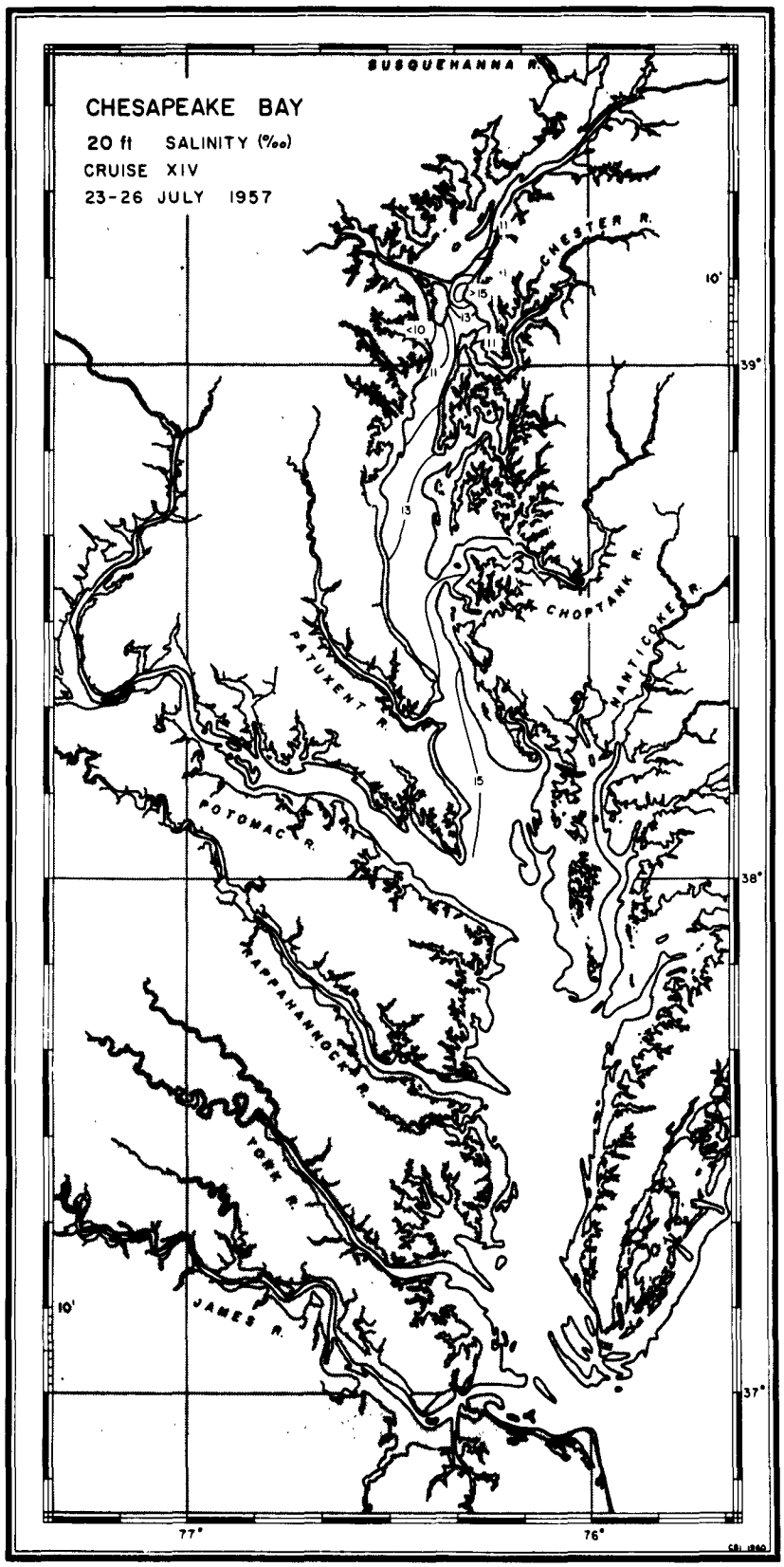

CHESAPEAKE BAY
CRUISE XIV STATION LOCATIONS
23 - 26 JULY 1957
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

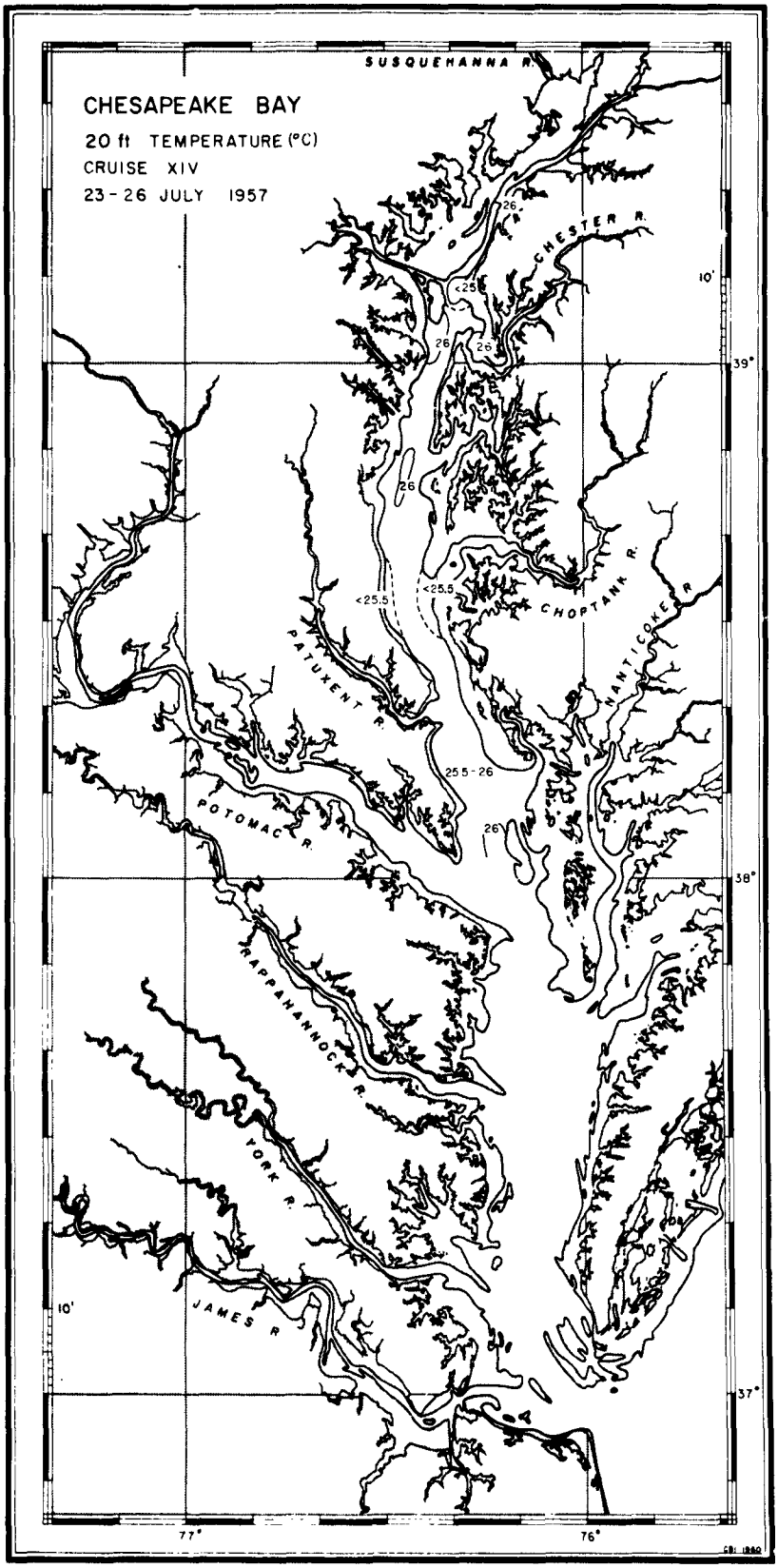

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XIV
23-26 JULY 1957
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

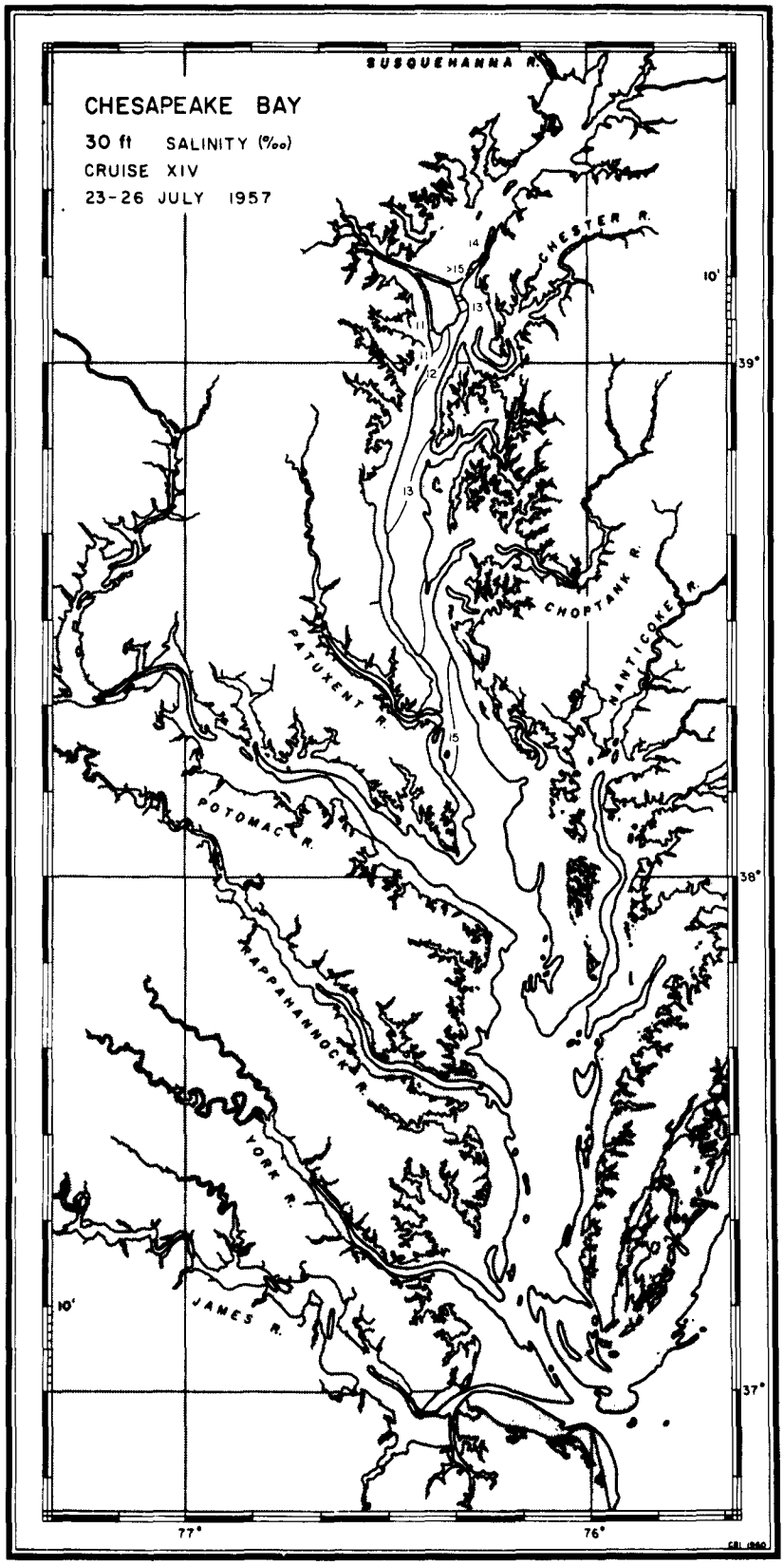

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XIV
23 - 26 JULY 1957
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
<25.5
25.5
25.5 - 26
>26
26
39°
38°
37°
77°
76°

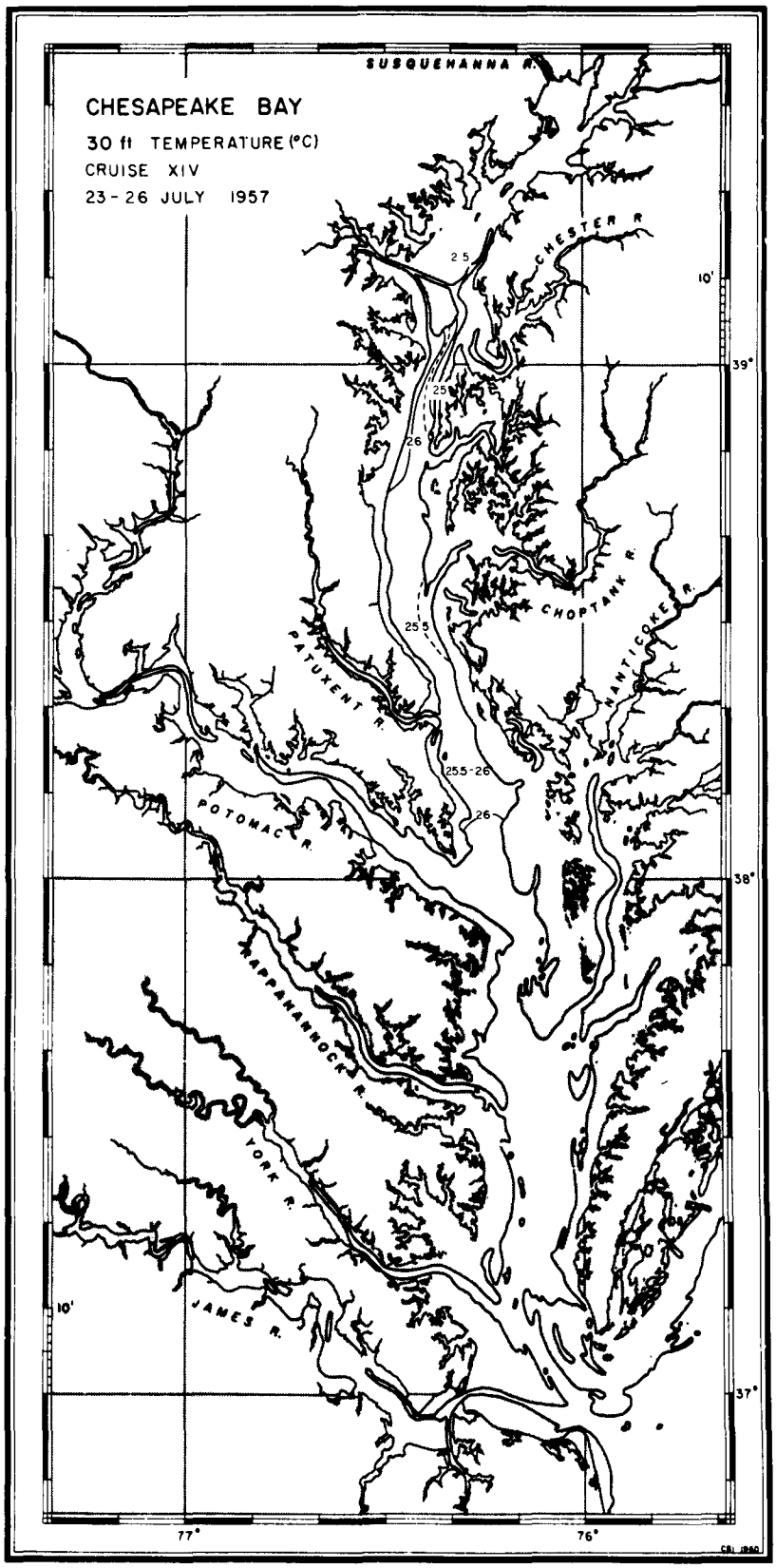

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XIV
23-26 JULY 1957
3
10
100
13
15
39°
38°
37°
77°
76°
POTOMAC R.
PATUXENT R.
YORK R.
JAMES R.

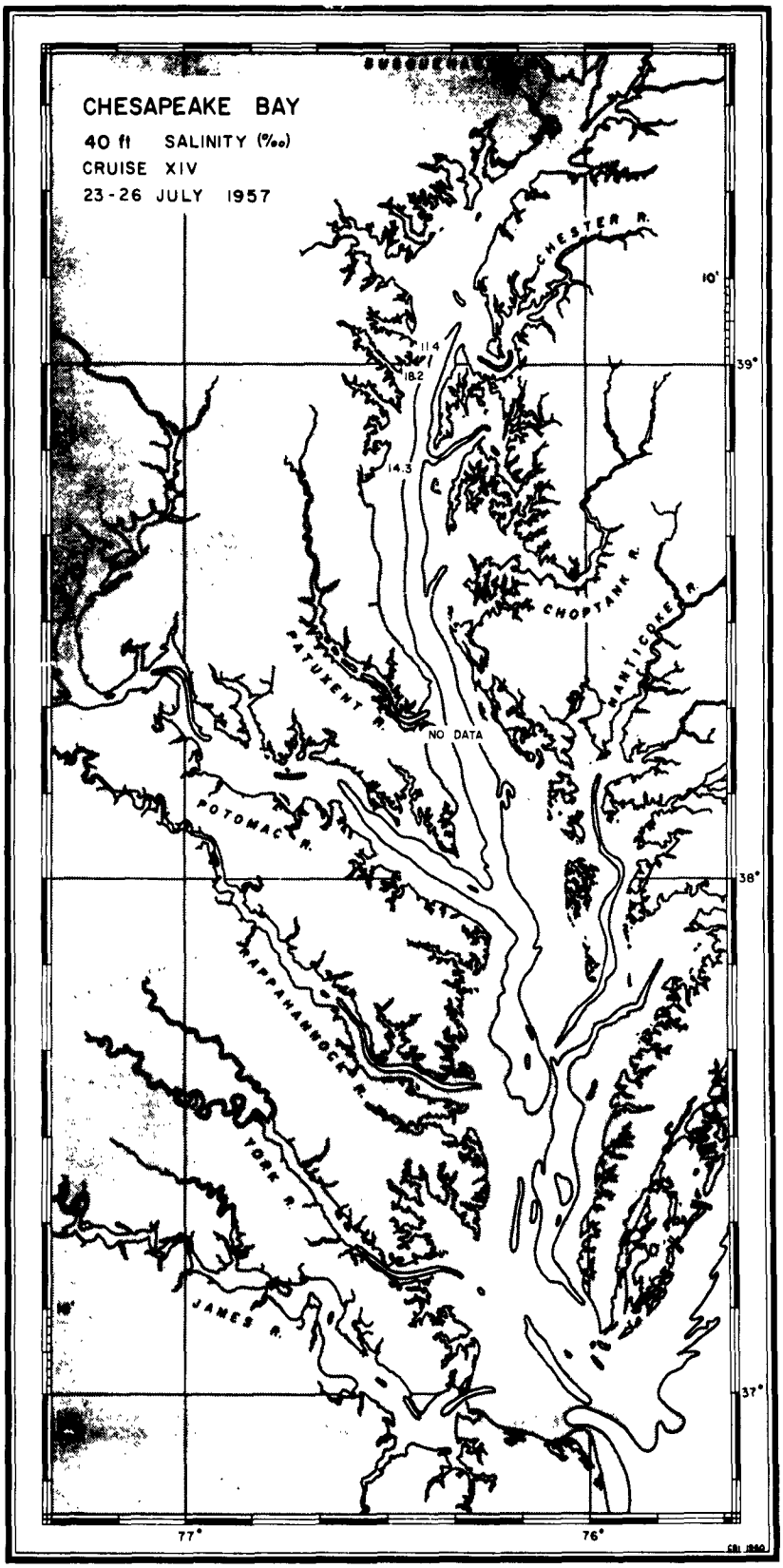

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
CRUISE XIV
23 - 26 JULY 1957
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTIETAM R.
<25
25
26
255
255-26
10'
39°
38°
37°
77°
76°

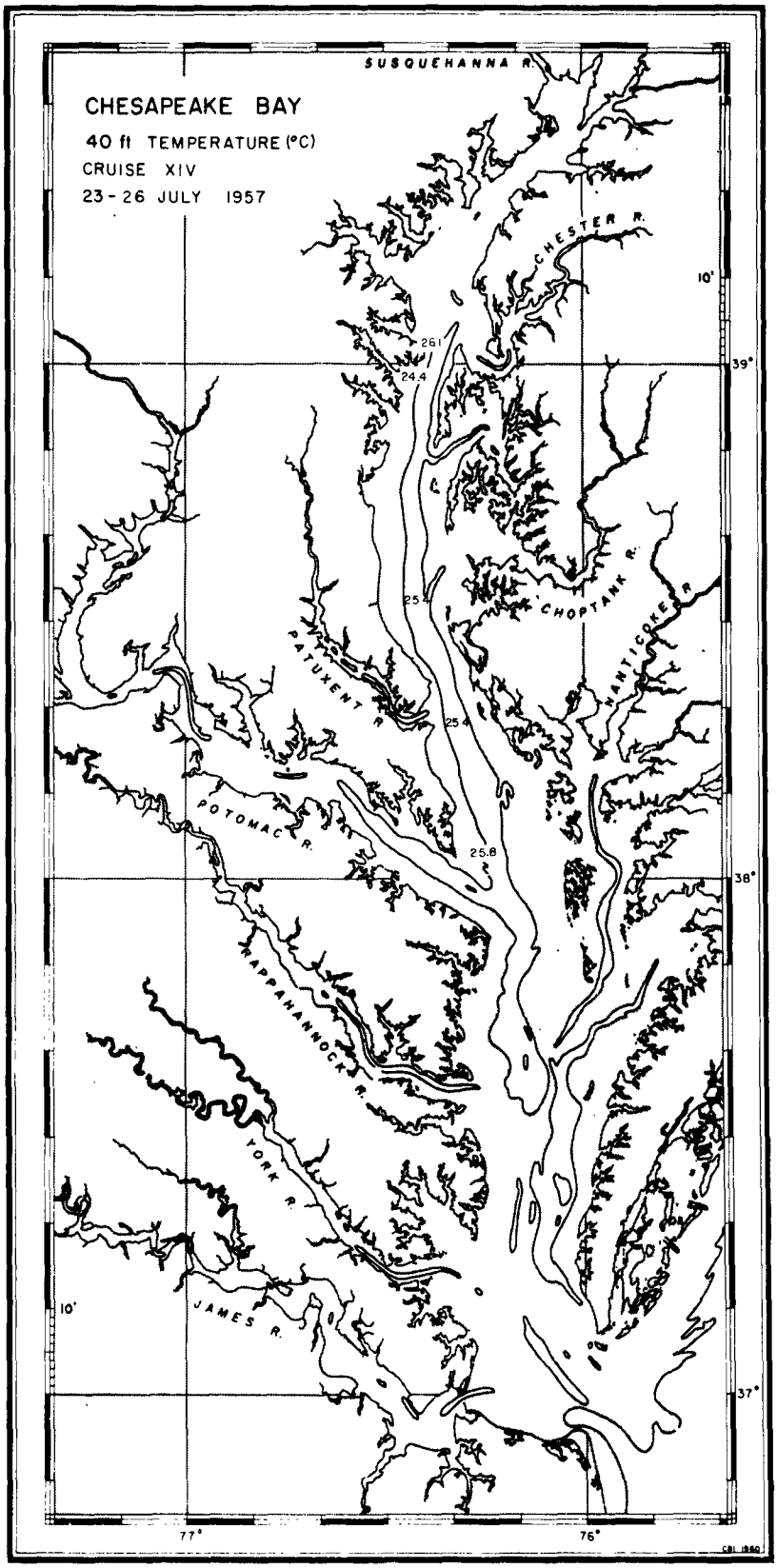

CHESAPEAKE BAY
20 ft SALINITY (‰)
CRUISE XIV
23-26 JULY 1957
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°


CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
CRUISE XIV
23 - 26 JULY 1957
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
<25
25.5
25.5-26
26
39°
38°
37°
10'
77°
76°

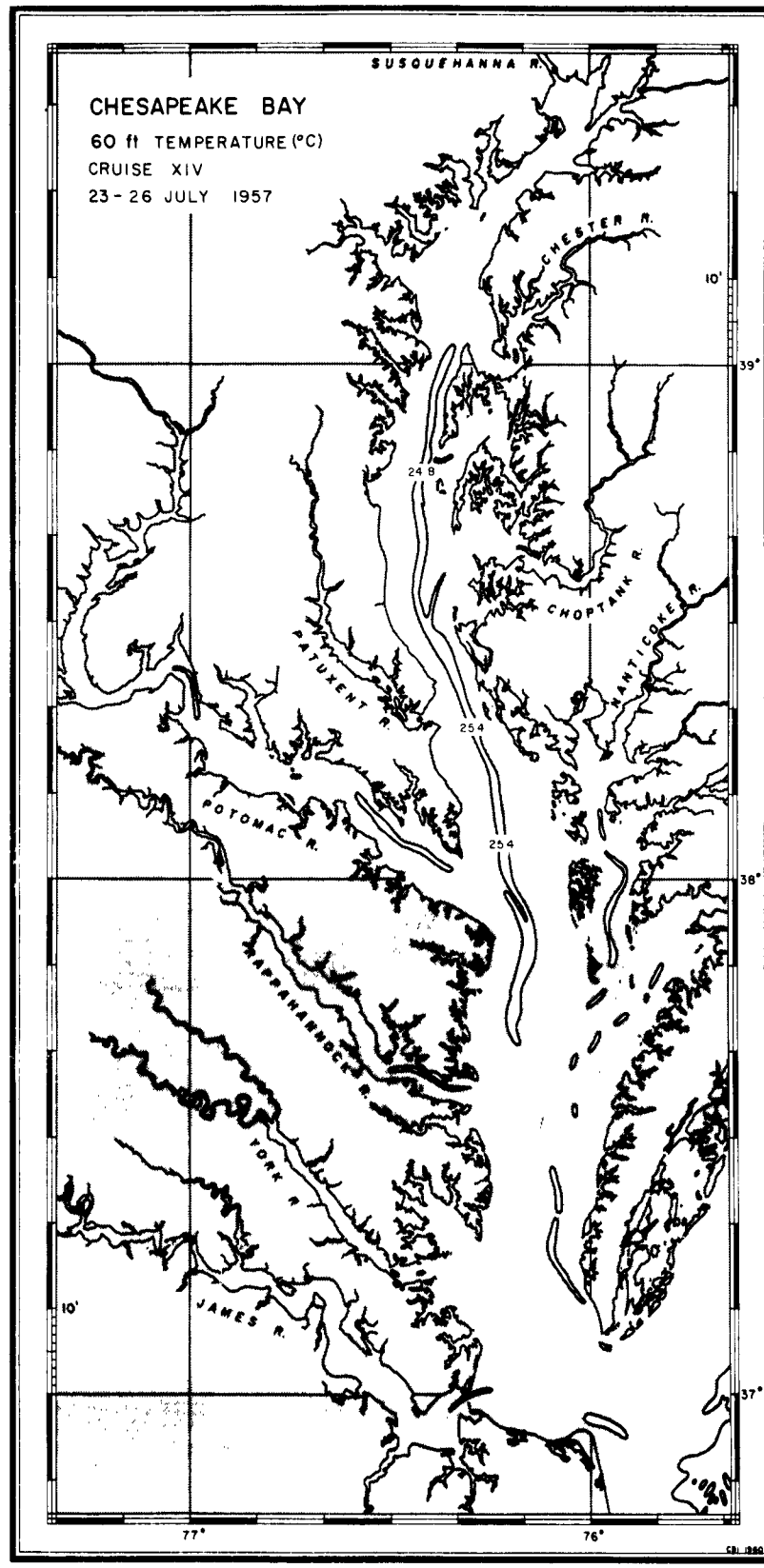

CHESAPEAKE BAY
30 ft SALINITY (‰)
CRUISE XIV
23-26 JULY 1957
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°
10'


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XIV
23 - 26 JULY 1957
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
25
25.5
26
25.5-26
39°
38°
37°
10'
77°
76°


CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XIV
23-26 JULY 1957
CHESTER R.
10'
39°
11.4
18.2
14.3
CHOPTANK R.
MANTICOKE R.
PATUXENT R.
NO DATA
POTOMAC R.
38°
RAPPAHANNOCK R.
YORK R.
JAMES R.
37°
77°
76°

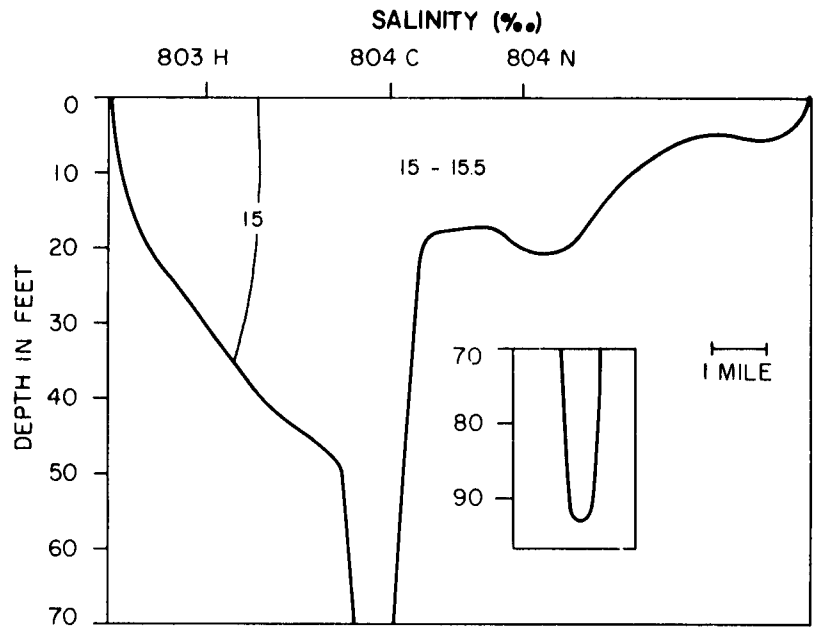

CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
CRUISE XIV
23 - 26 JULY 1957
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
26.1
24.4
25.4
25.4
25.8
39°
38°
37°
10°
10°
77°
76°

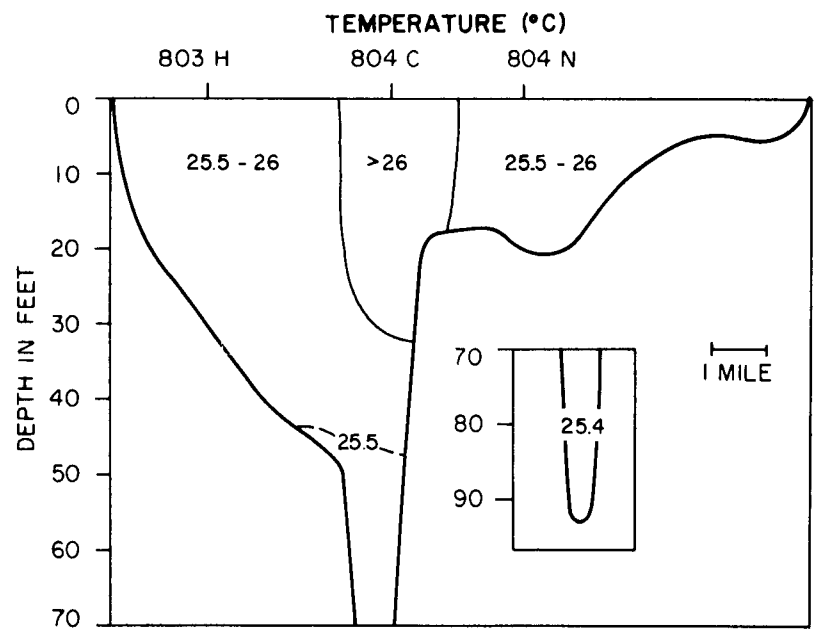
60 FT LEVEL OMITTED
INSUFFICIENT DATA


CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
CRUISE XIV
23 - 26 JULY 1957
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
24.8
25.4
25.4
10'
39°
38°
37°
77°
76°

SECTIONS OMITTED
INSUFFICIENT DATA

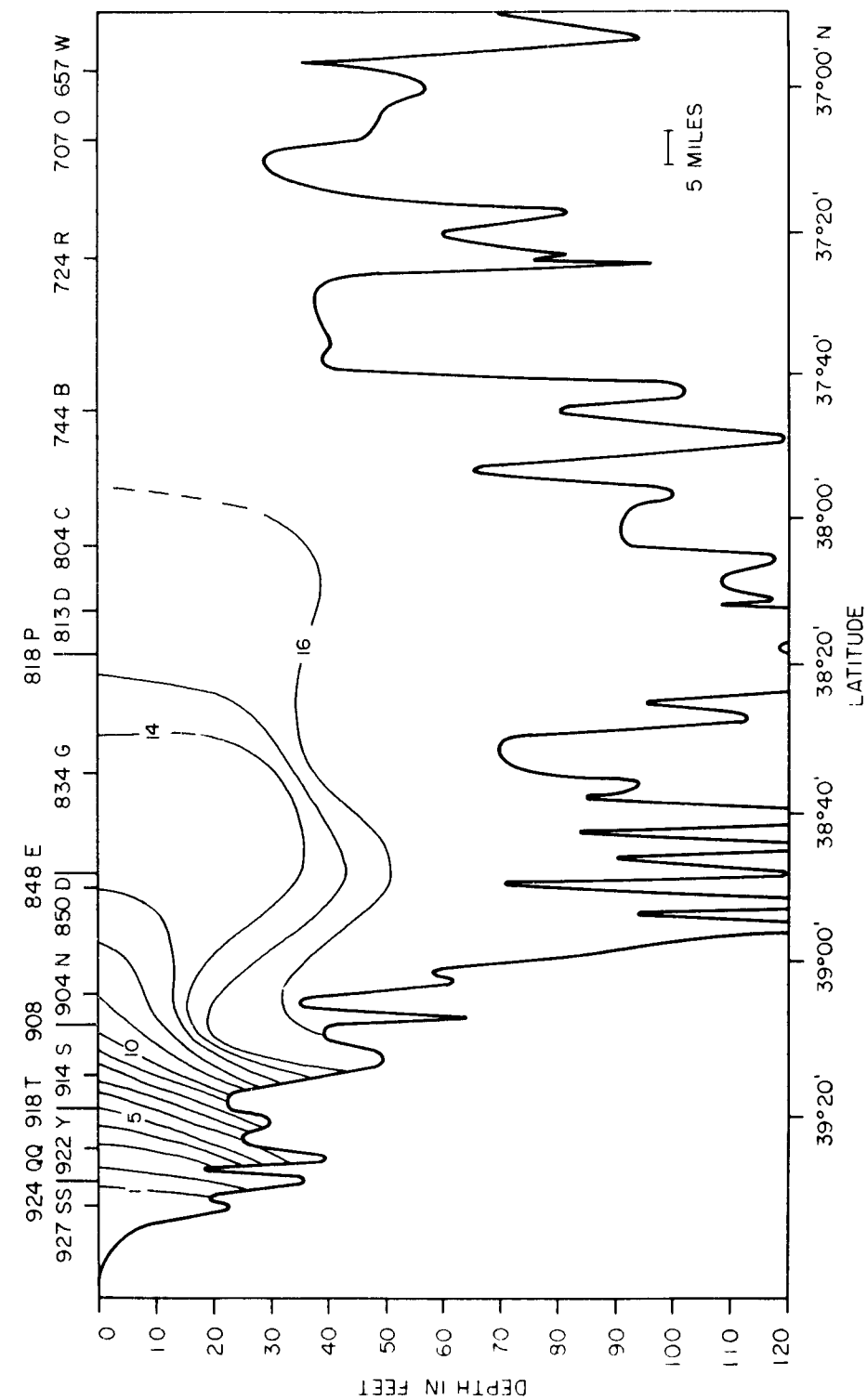
CRUISE XIV 23 - 26 JULY 1957 SECTION VI



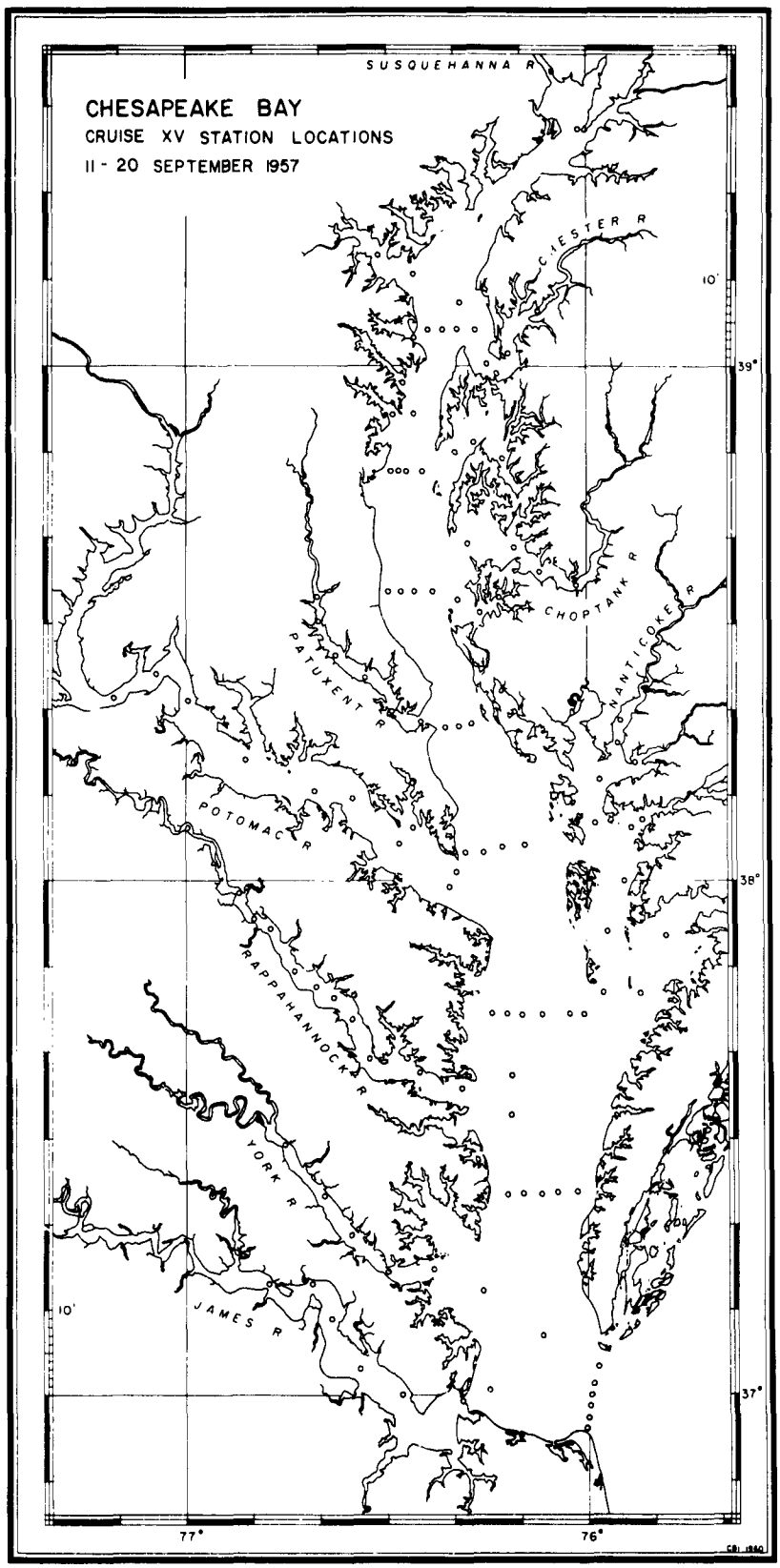
CRUISE XIV 23 - 26 JULY 1957 SECTION XIX

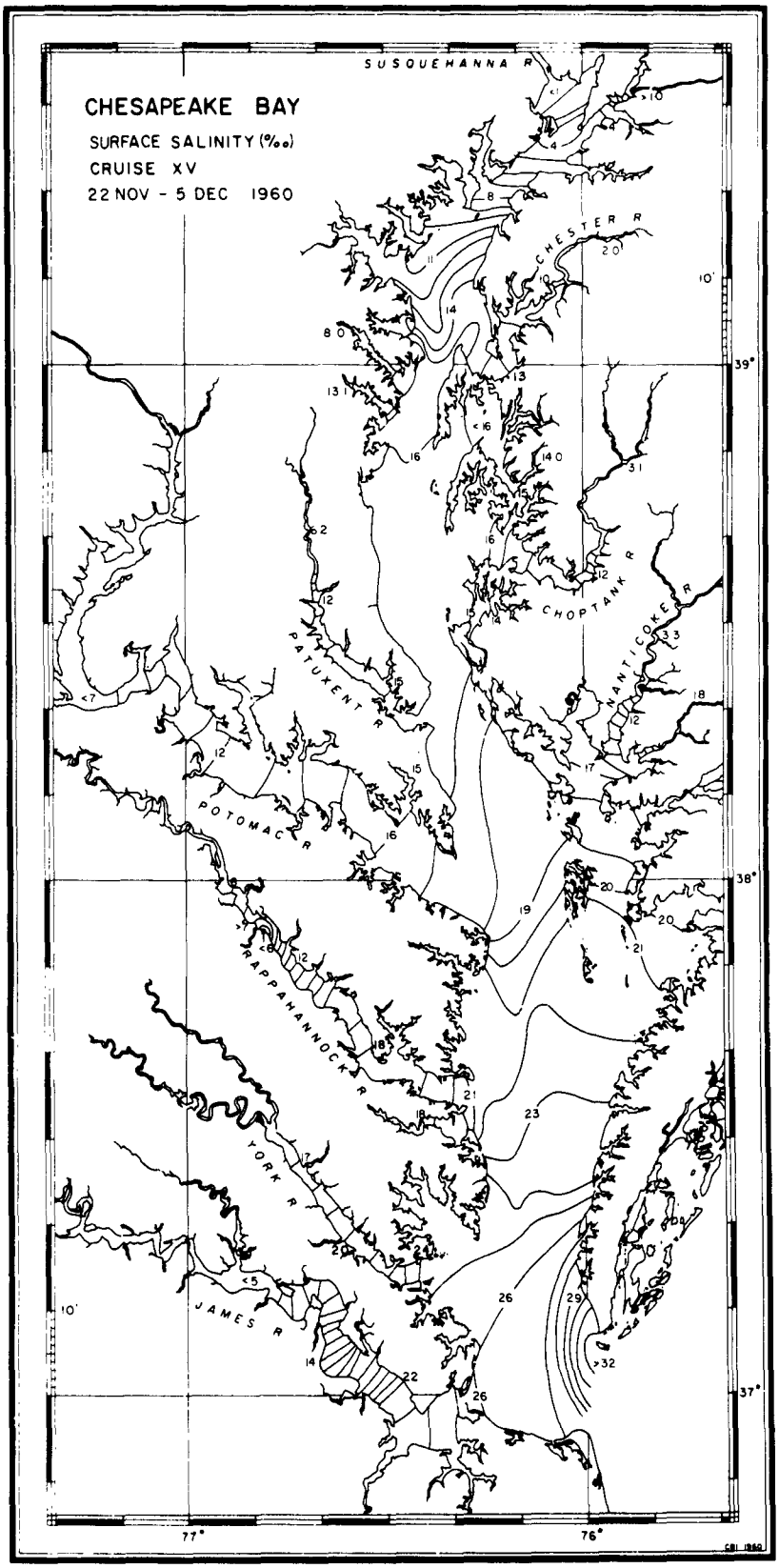
SALINITY (‰)

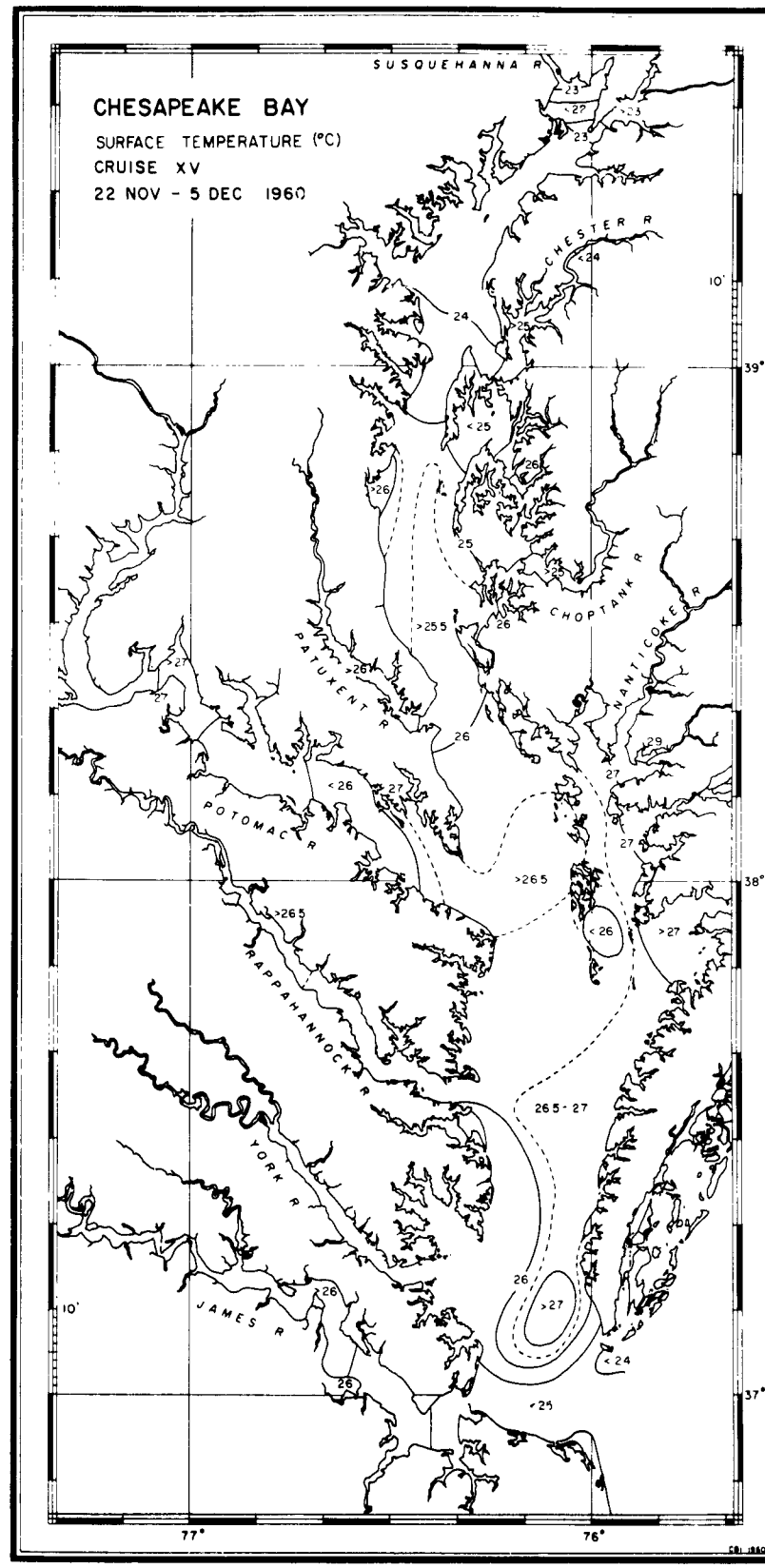


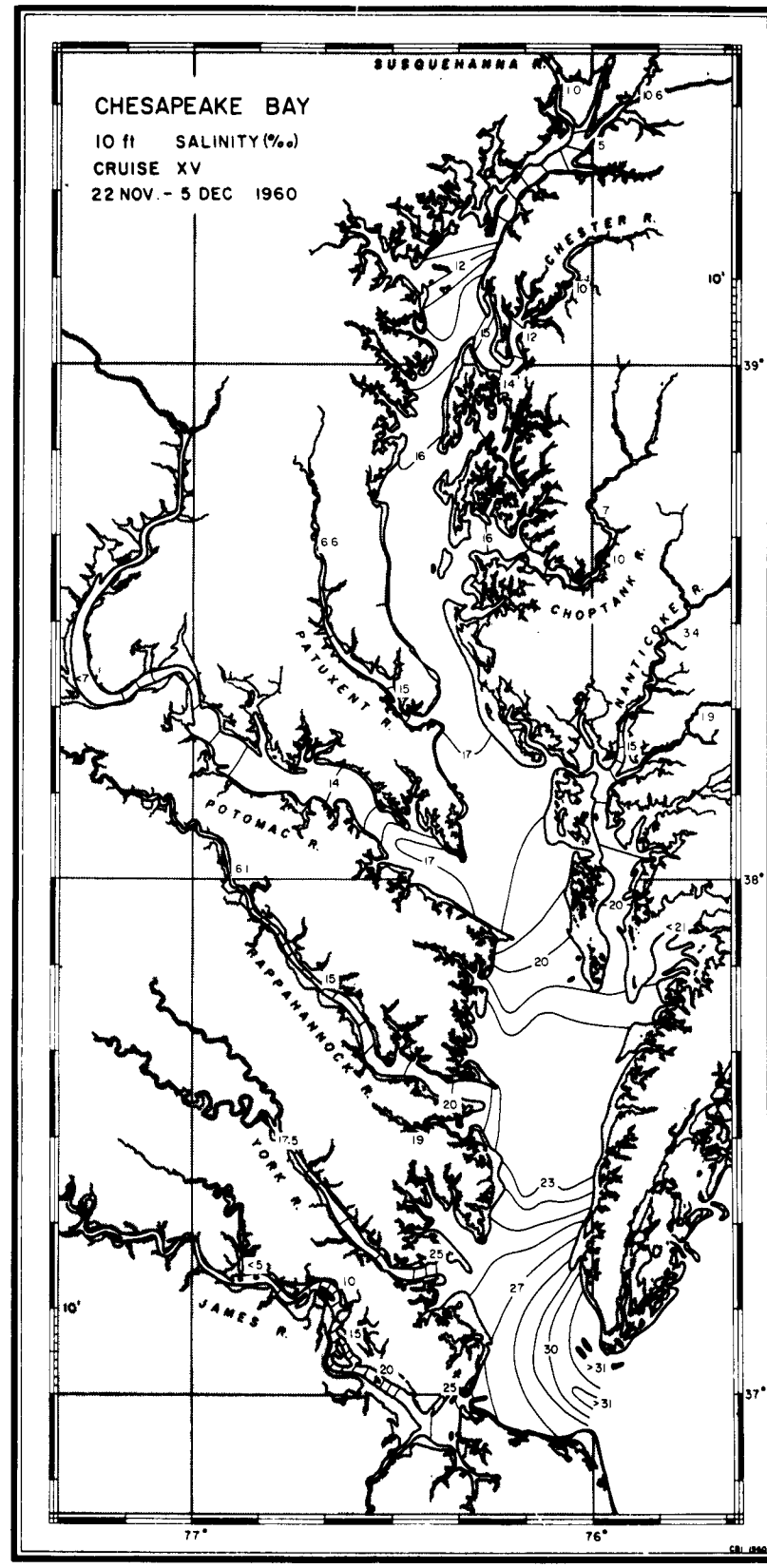
CRUISE XIV 23 - 26 JULY 1957 SECTION XIX

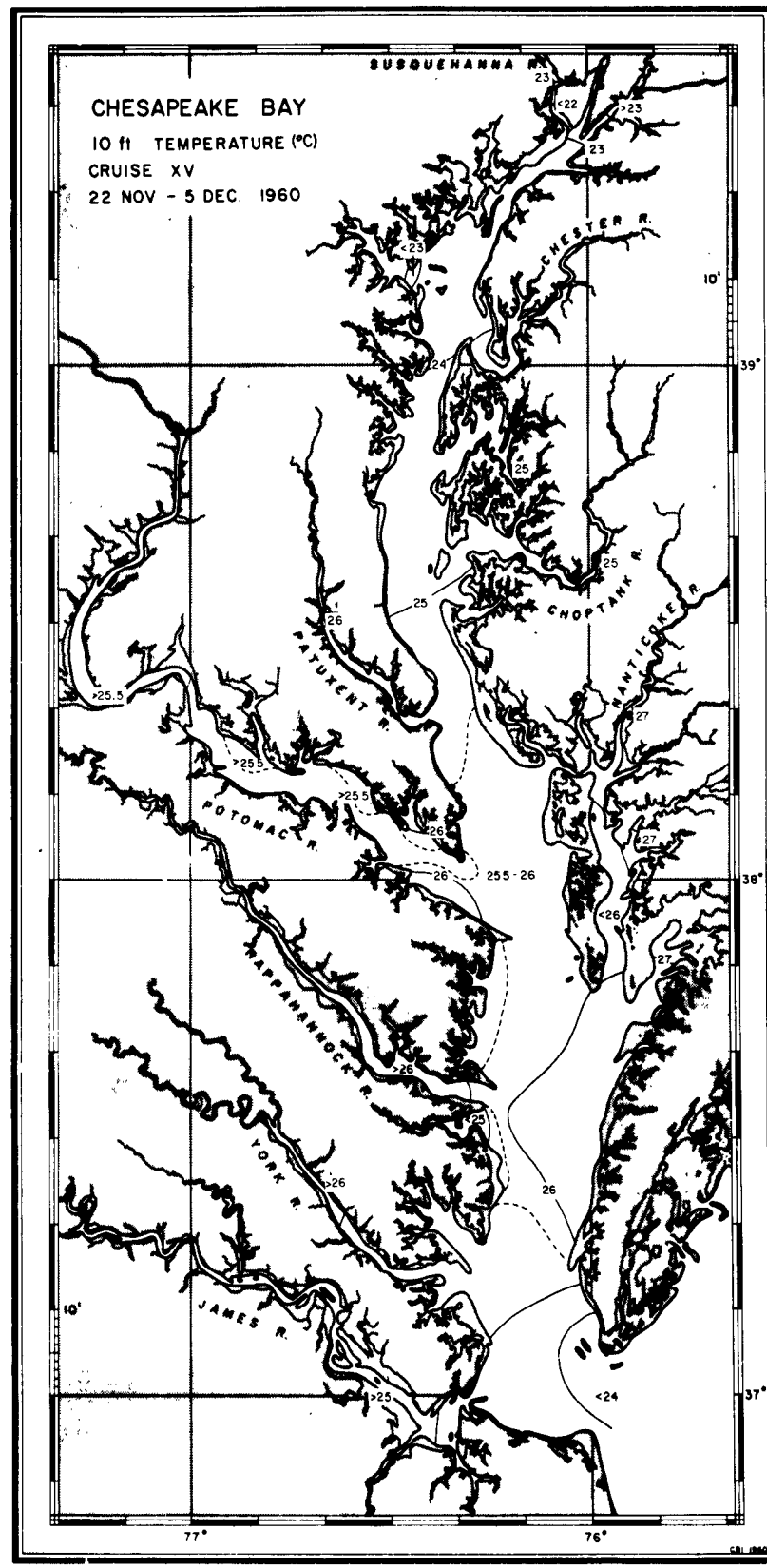
TEMPERATURE (°C)

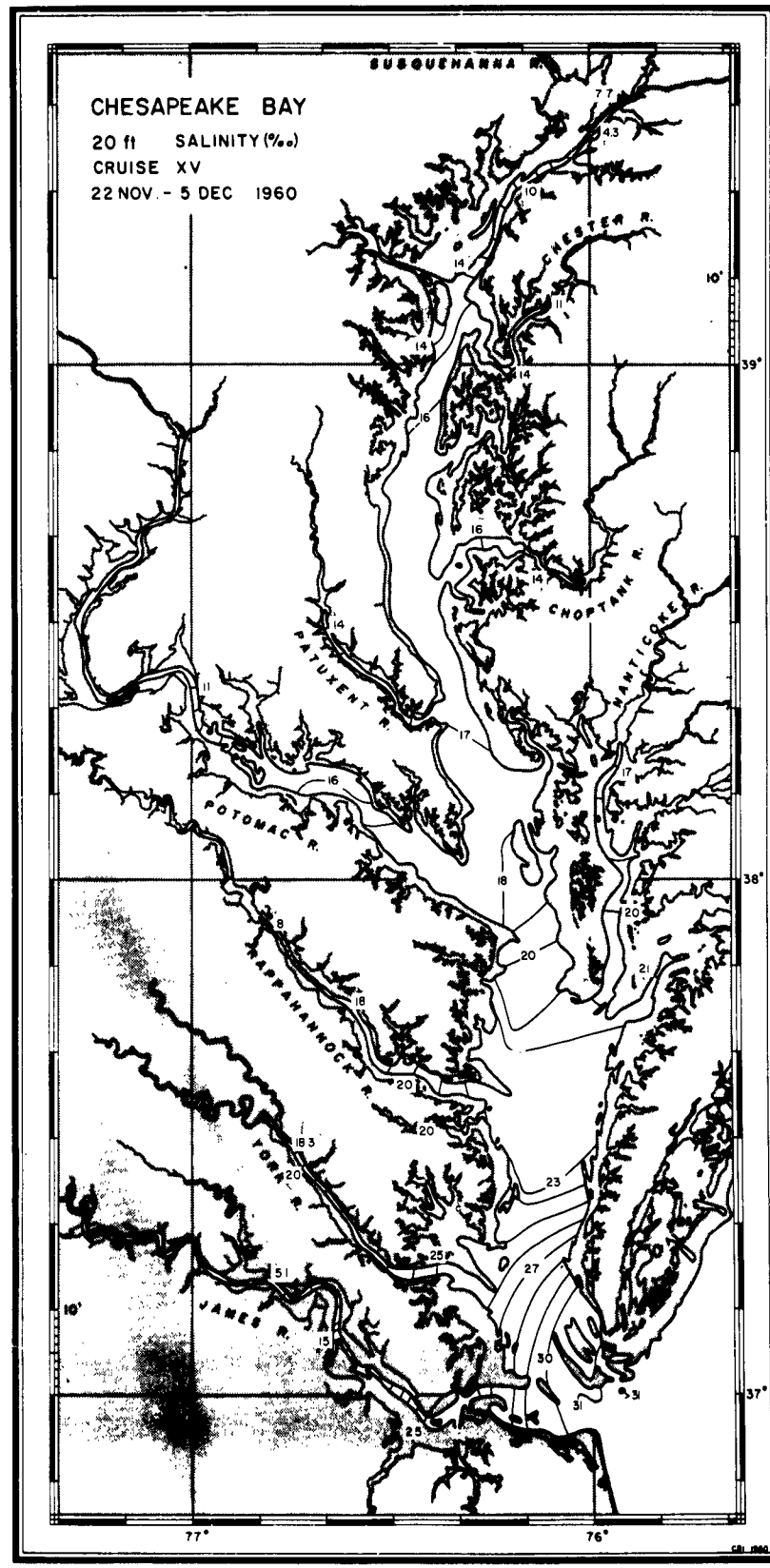

CHESAPEAKE BAY
CRUISE XV STATION LOCATIONS
11 - 20 SEPTEMBER 1957
SUSQUEHANNA R
C.ESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
10'
77°
76°

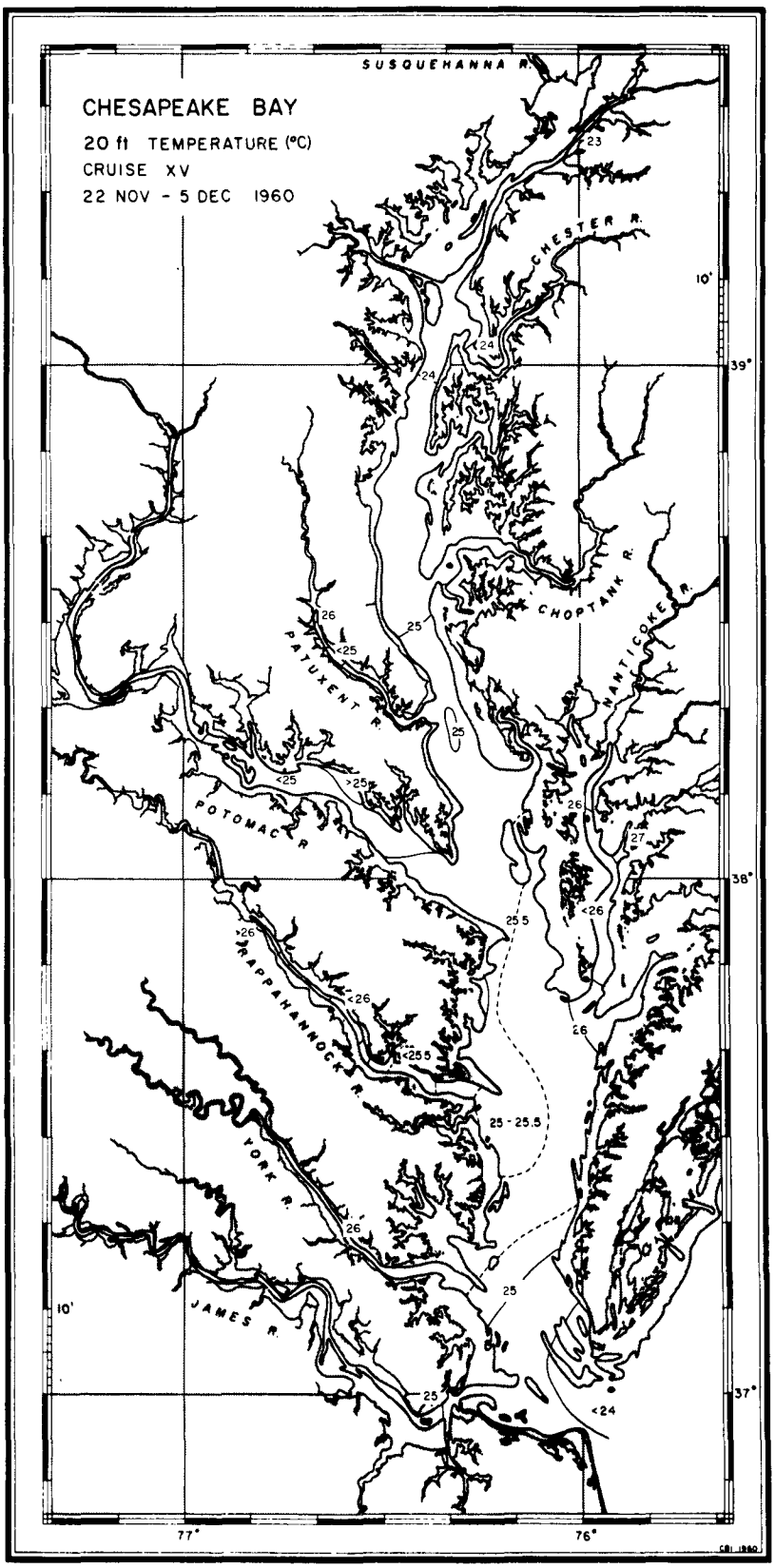

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XV
22 NOV - 5 DEC 1960
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

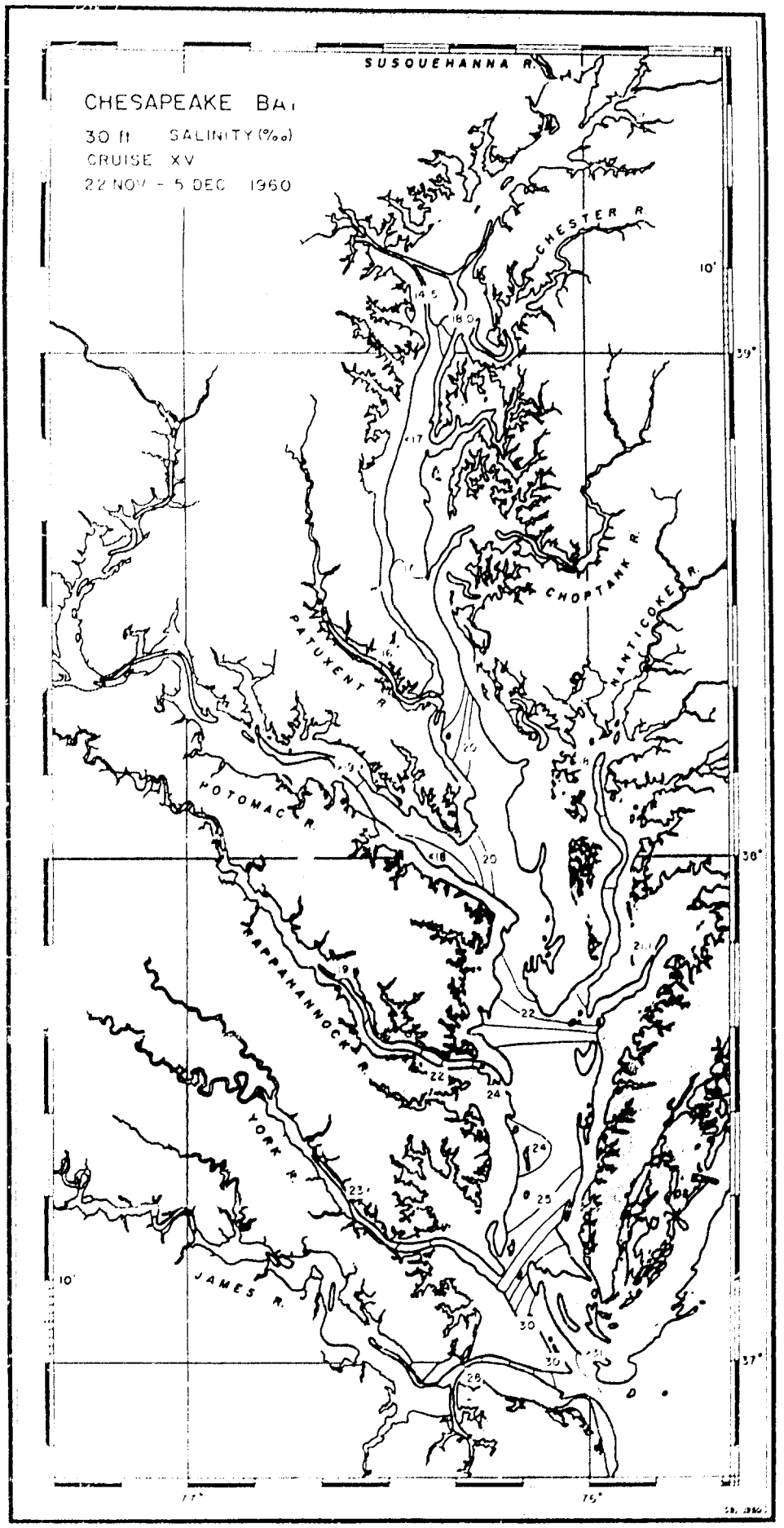

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XV
22 NOV - 5 DEC 1960
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
MANTICOKE R
39°
38°
37°
77°
76°
10'

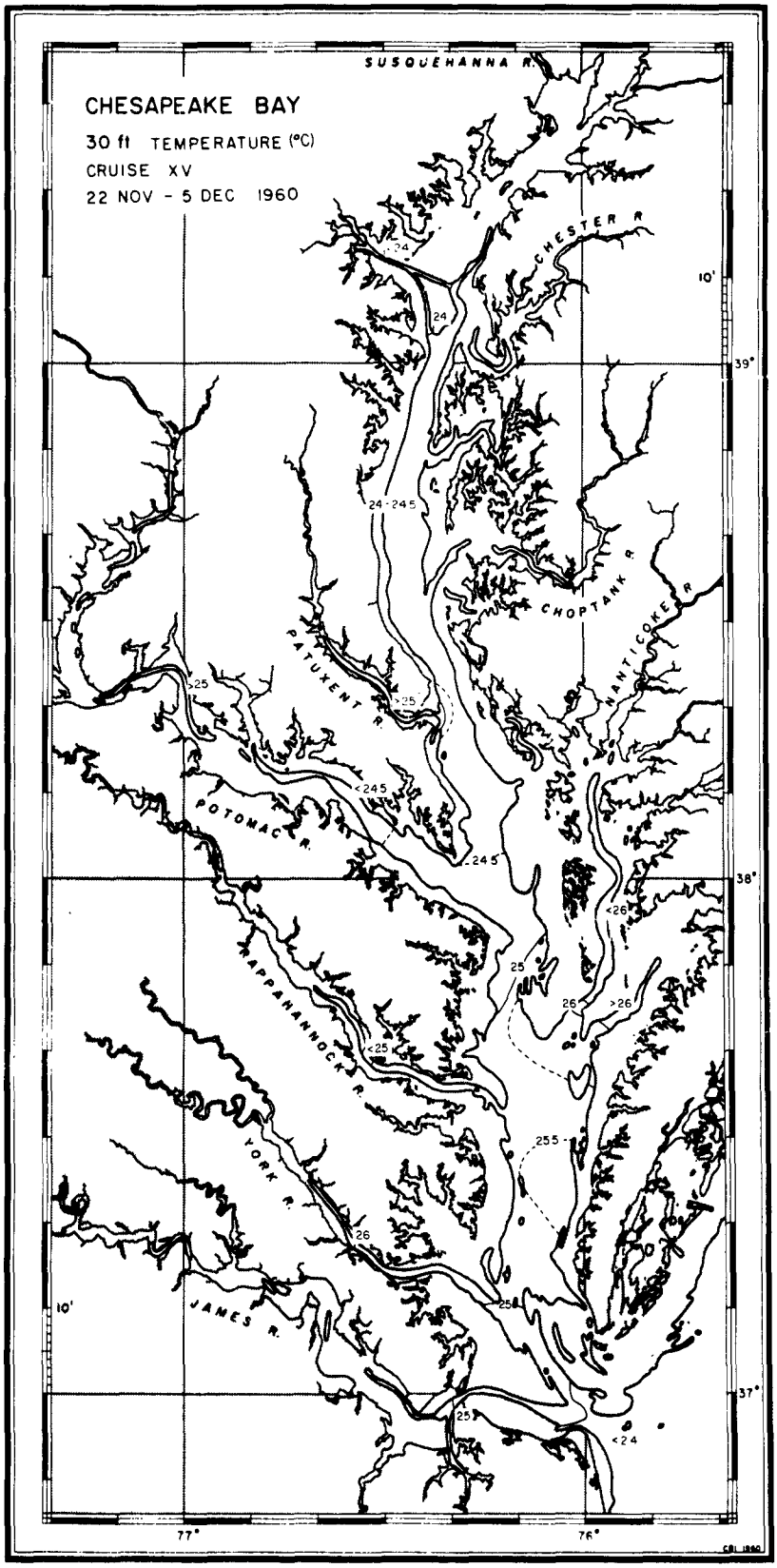

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XV
22 NOV. - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

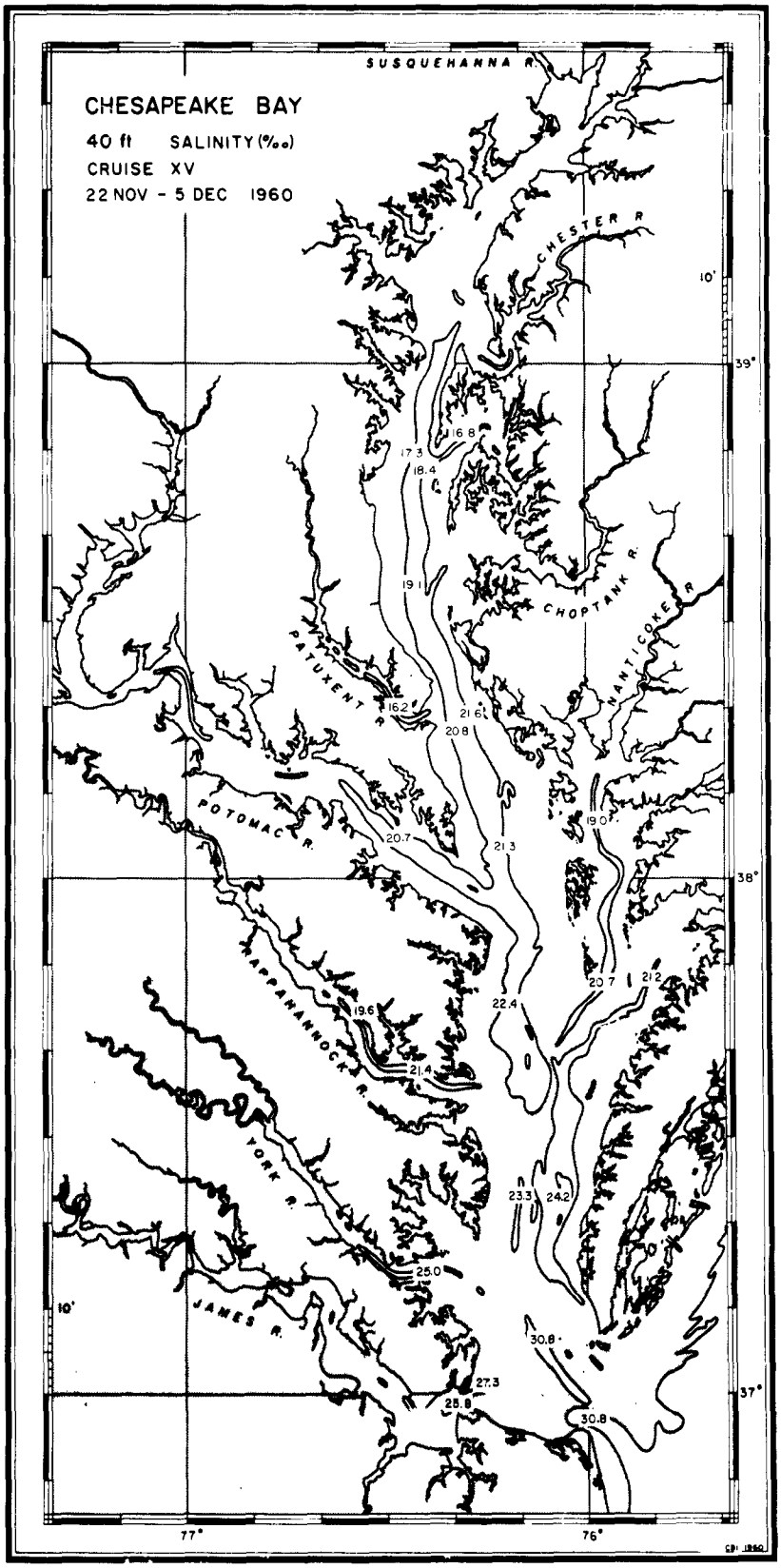

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
CRUISE XV
22 NOV - 5 DEC. 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

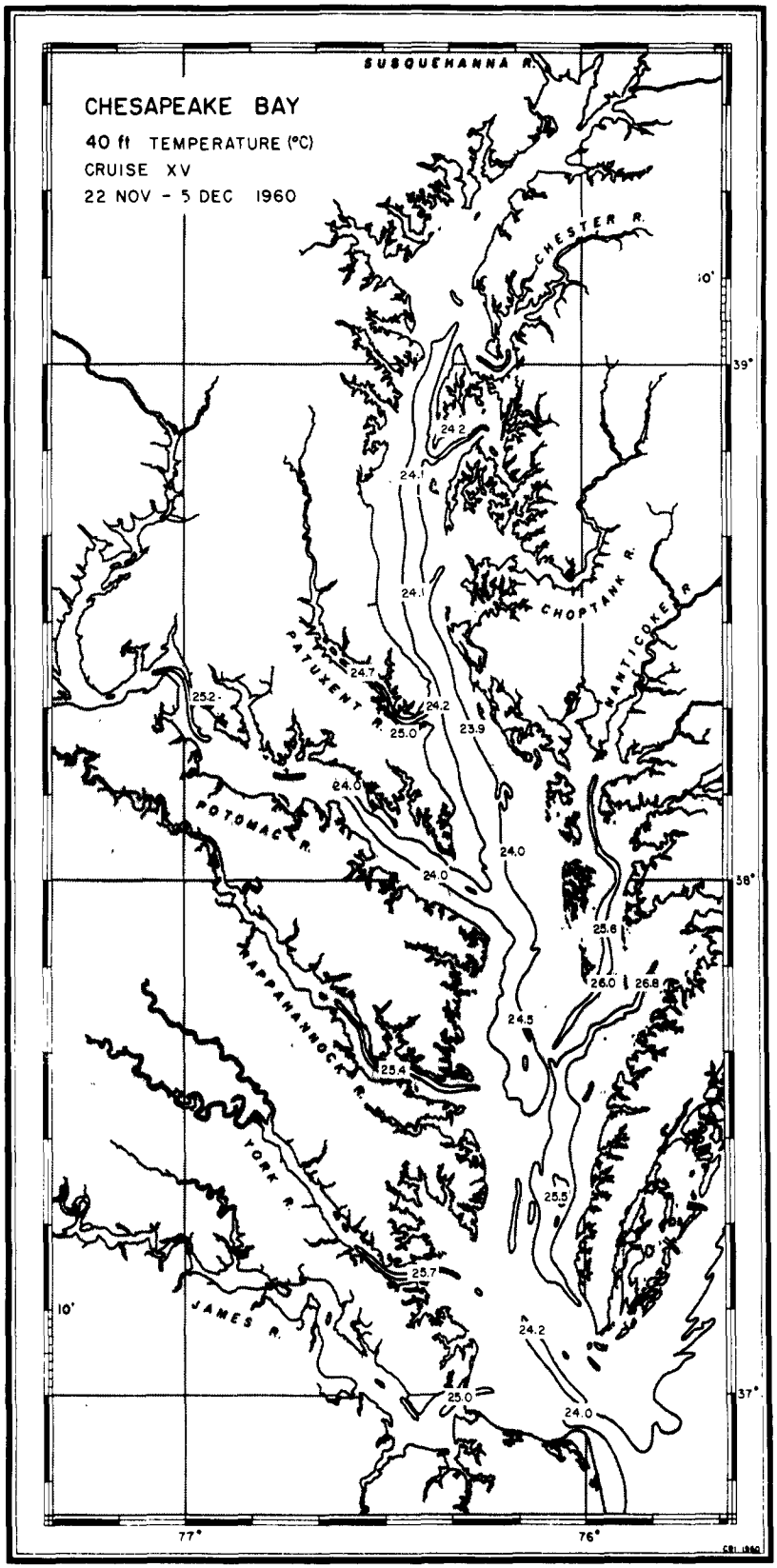

CHESAPEAKE BAY
20 ft SALINITY (‰)
CRUISE XV
22 NOV. - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

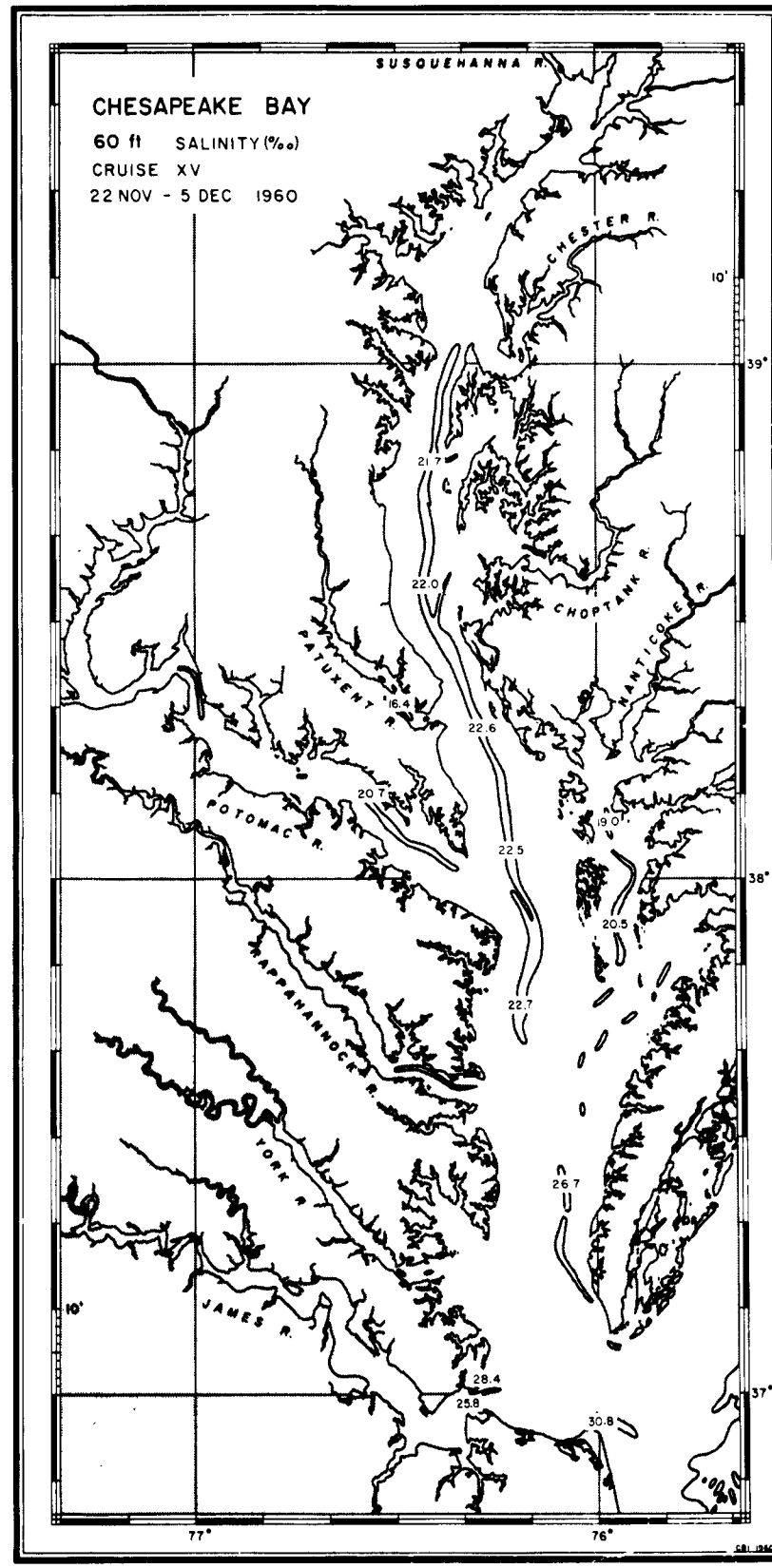

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
CRUISE XV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
MANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
23
24
25
26
27
<25
>25
25.5
<26
<25.5
25 - 25.5
<24
10'
39°
38°
37°
77°
76°

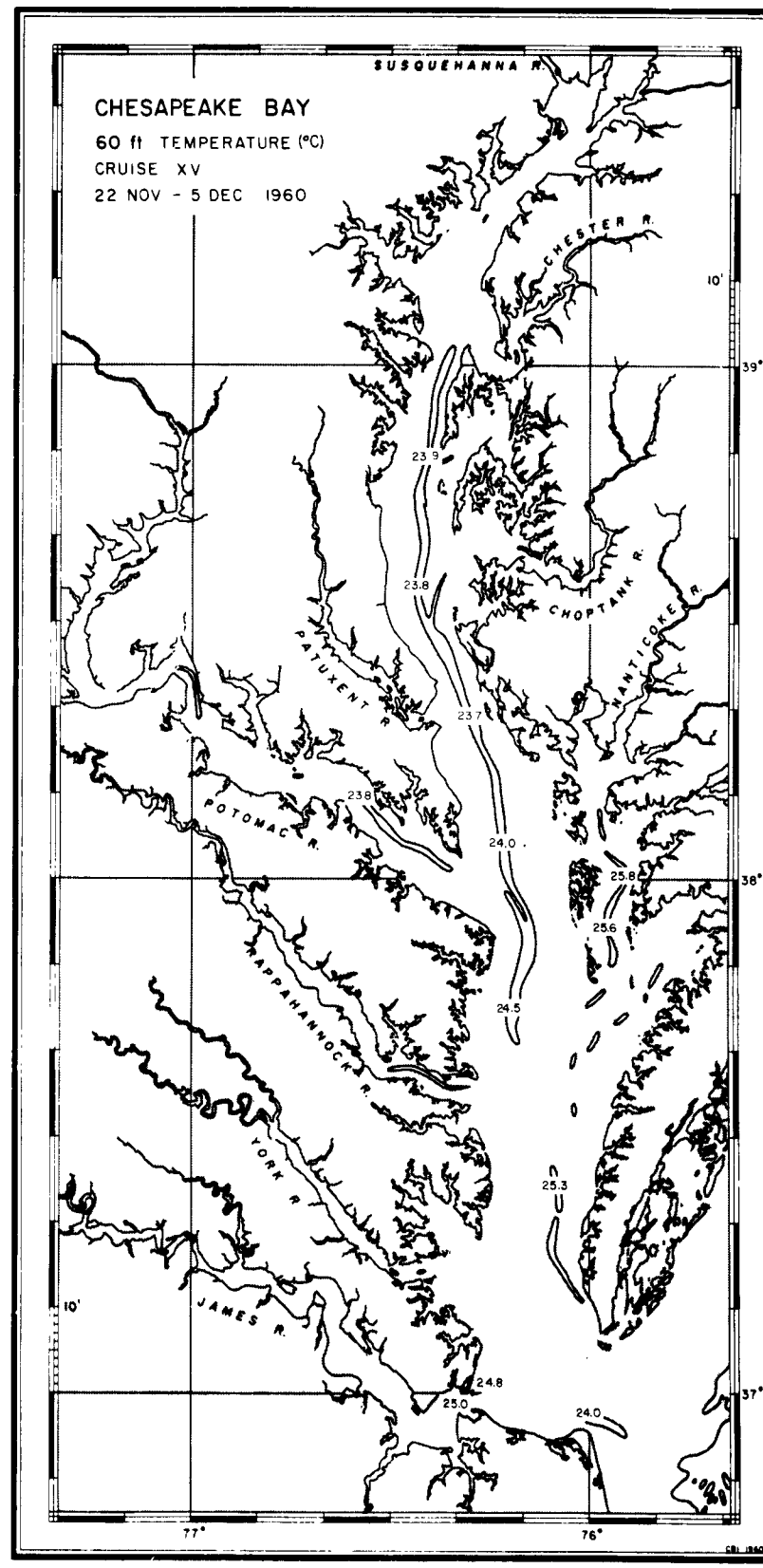

CHESAPEAKE BAY
30 ft SALINITY (‰)
CRUISE XV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
HANTICOKE R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
75°

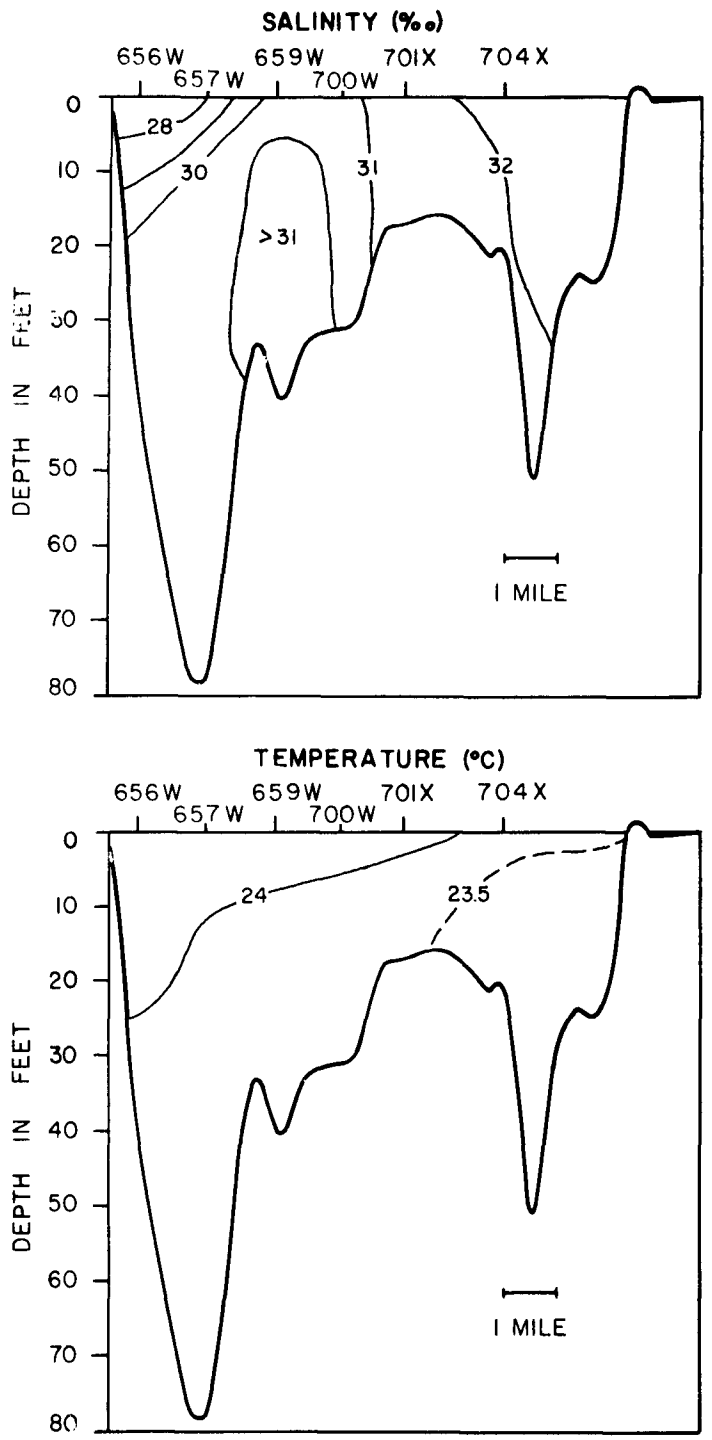

CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
<24
24
24-24.5
<24.5
>25
<25
25
25-25.5
<25.5
26
>26
<26
25.8
10'
39°
38°
37°
77°
76°


CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
16.8
17.3
18.4
19.1
16.2
21.6
20.8
20.7
21.3
19.0
19.6
21.4
22.4
20.7
21.2
23.3
24.2
25.0
30.8
27.3
28.8
30.8
39°
38°
37°
10'
77°
76°

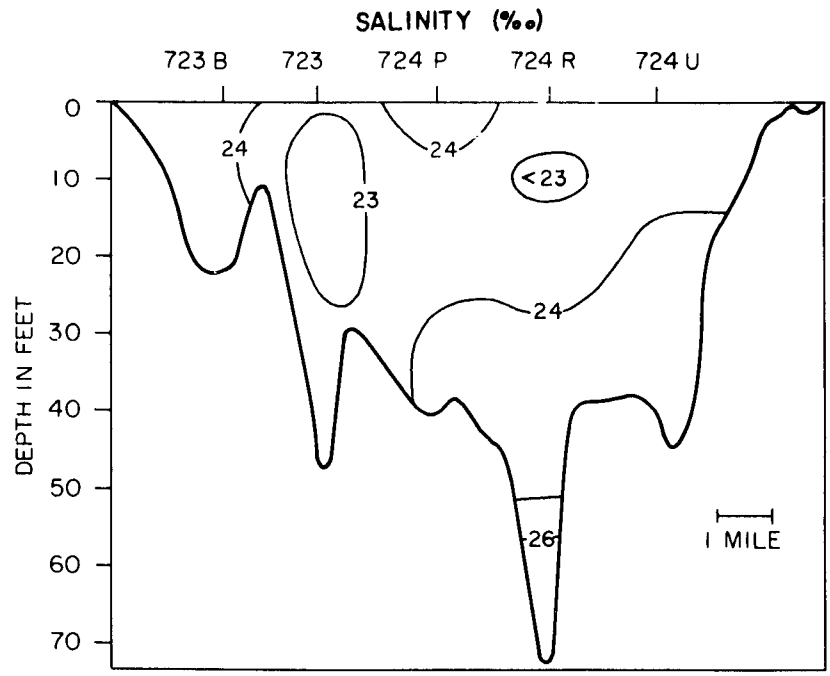

CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
CRUISE XV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
MANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
24.2
24.1
24.1
24.7
25.2
25.0
24.2
23.9
24.0
24.0
24.0
25.6
26.0
26.8
24.5
25.4
25.5
25.7
24.2
25.0
24.0
39°
38°
37°
10'
10'
77°
76°

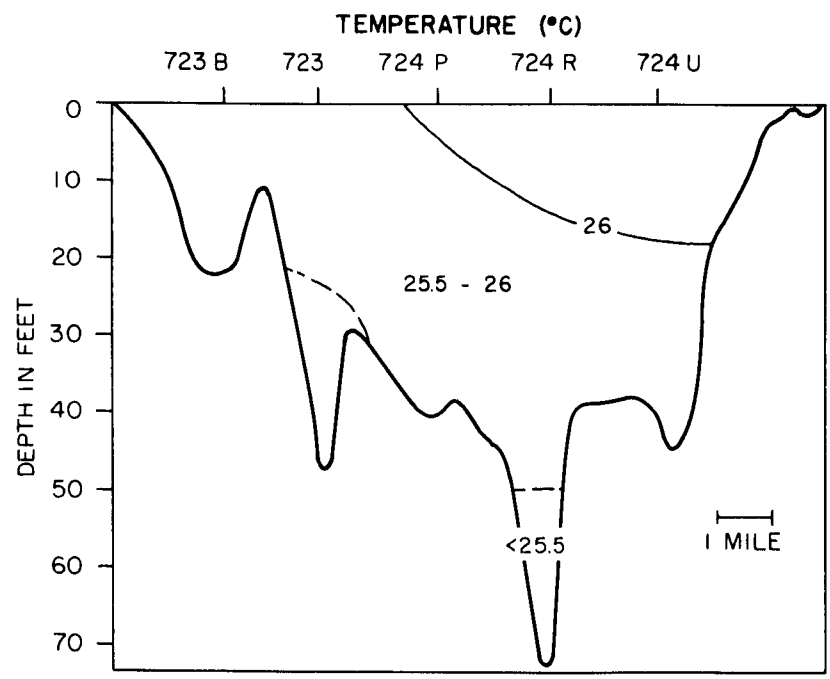

CHESAPEAKE BAY
60 ft SALINITY (‰)
CRUISE XV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
21.7
22.0
16.4
22.6
20.7
19.0
22.5
20.5
22.7
26.7
28.4
25.8
30.8
39°
38°
37°
10'
77°
76°

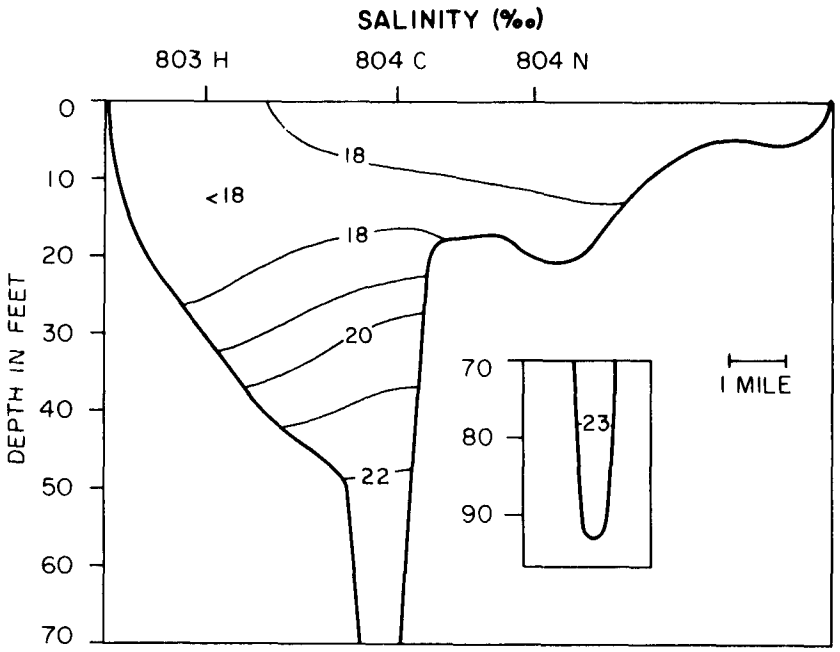

CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
CRUISE XV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
23.9
23.8
23.7
23.8
24.0
24.5
25.8
25.6
25.3
24.8
25.0
24.0
10'
39°
38°
37°
77°
76°

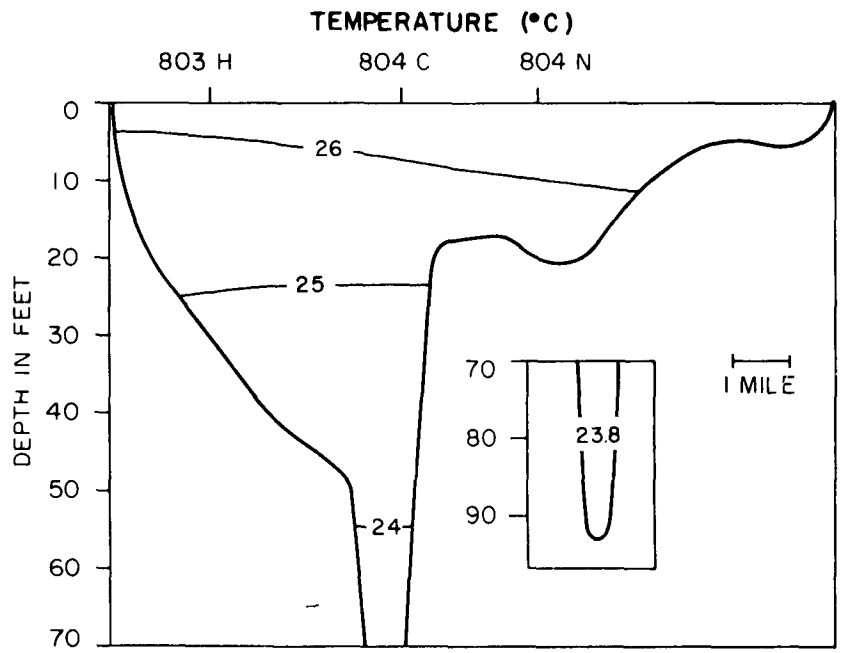

SALINITY (‰)
656W
657W
659W
700W
701X
704X
0
10
20
30
40
50
60
70
80
28
30
31
32
>31
DEPTH IN FEET
1 MILE
TEMPERATURE (°C)
656W
657W
659W
700W
701X
704X
24
23.5
DEPTH IN FEET
1 MILE

CRUISE XV 11 - 20 SEPTEMBER 1957 SECTION IV

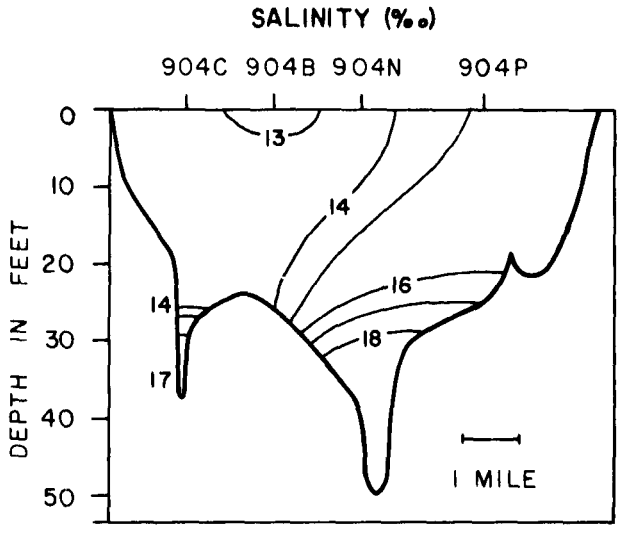


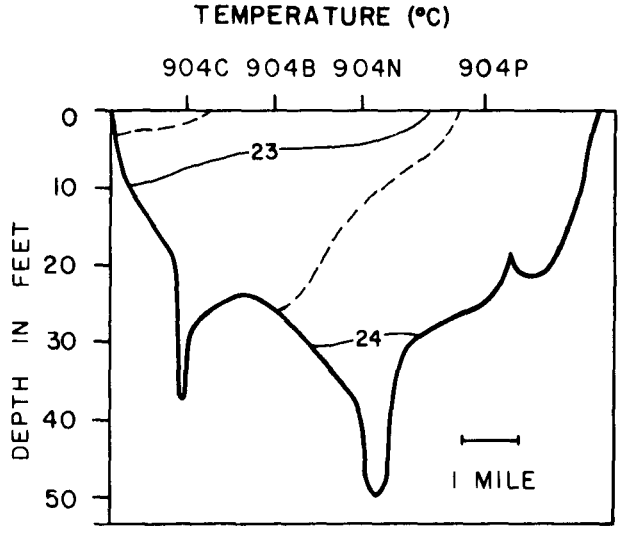




SALINITY (‰)
803 H
804 C
804 N
0
10
20
30
40
50
60
70
DEPTH IN FEET
18
<18
18
20
22
70
80
90
23
1 MILE


TEMPERATURE (°C)
803 H
804 C
804 N
0
10
20
30
40
50
60
70
DEPTH IN FEET
26
25
24
70
80
90
23.8
1 MILE

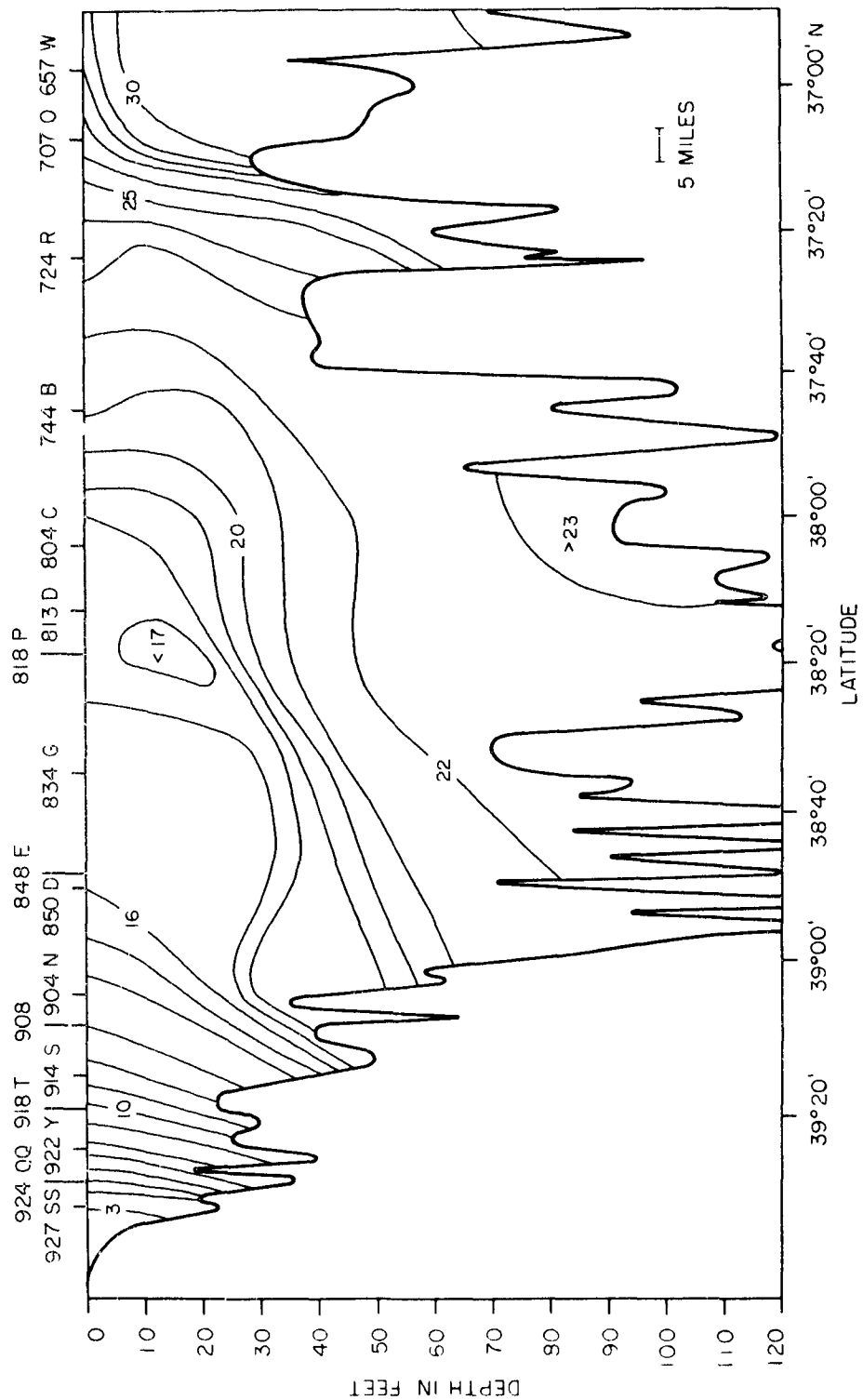
CRUISE XV 11 - 20 SEPTEMBER 1957 SECTION X



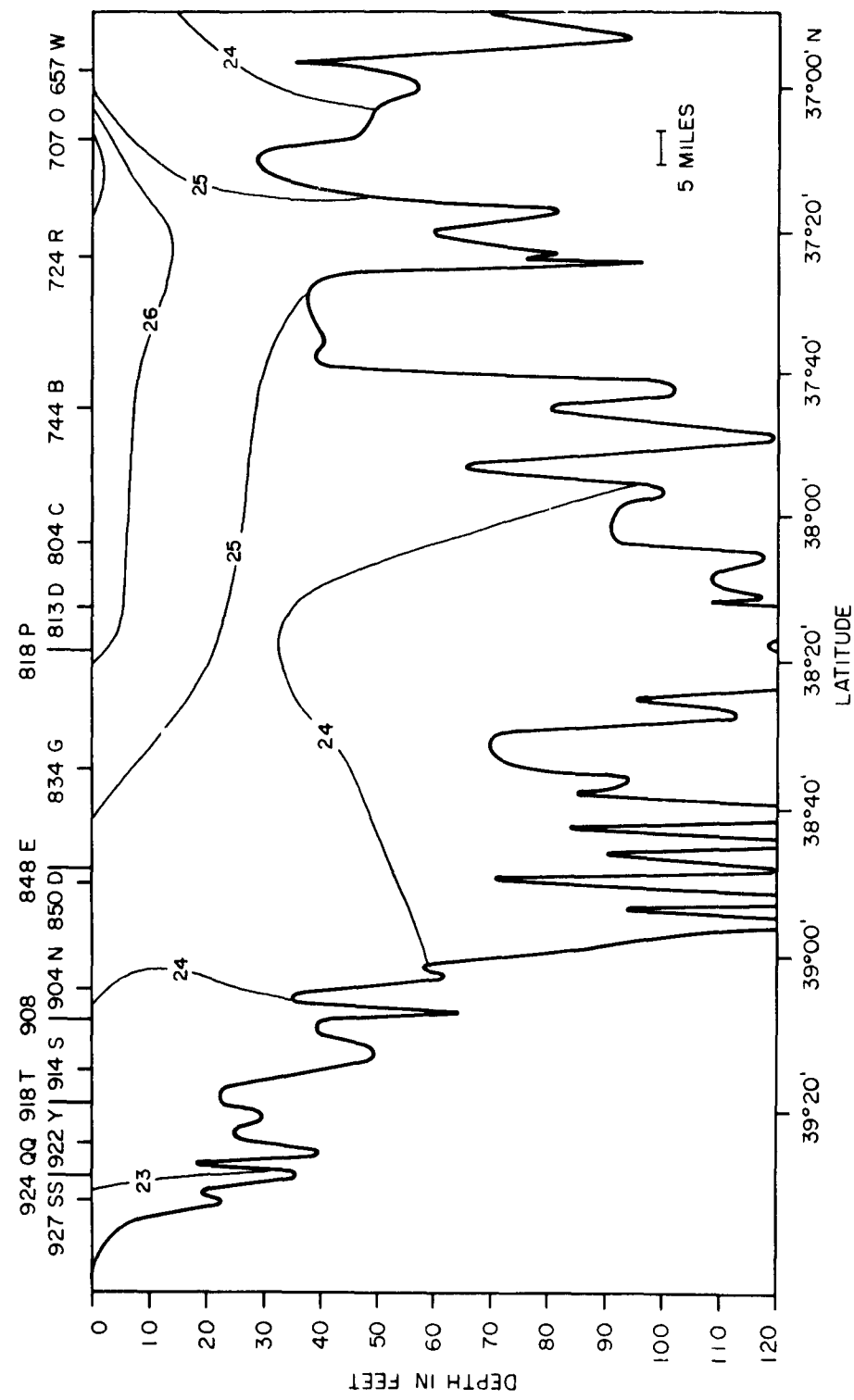
CRUISE XV 11 - 20 SEPTEMBER 1957 SECTION XIX

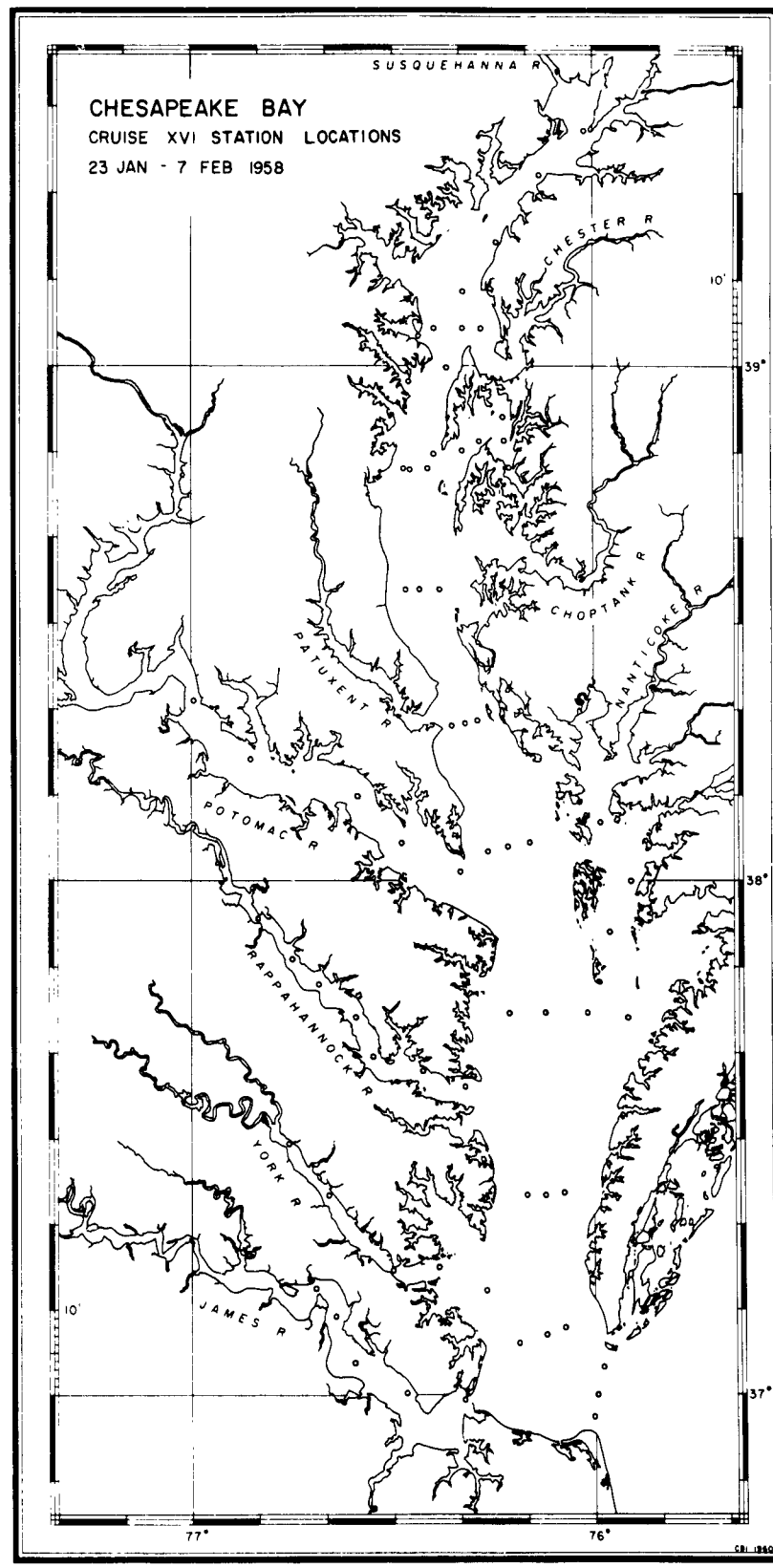
SALINITY (‰)

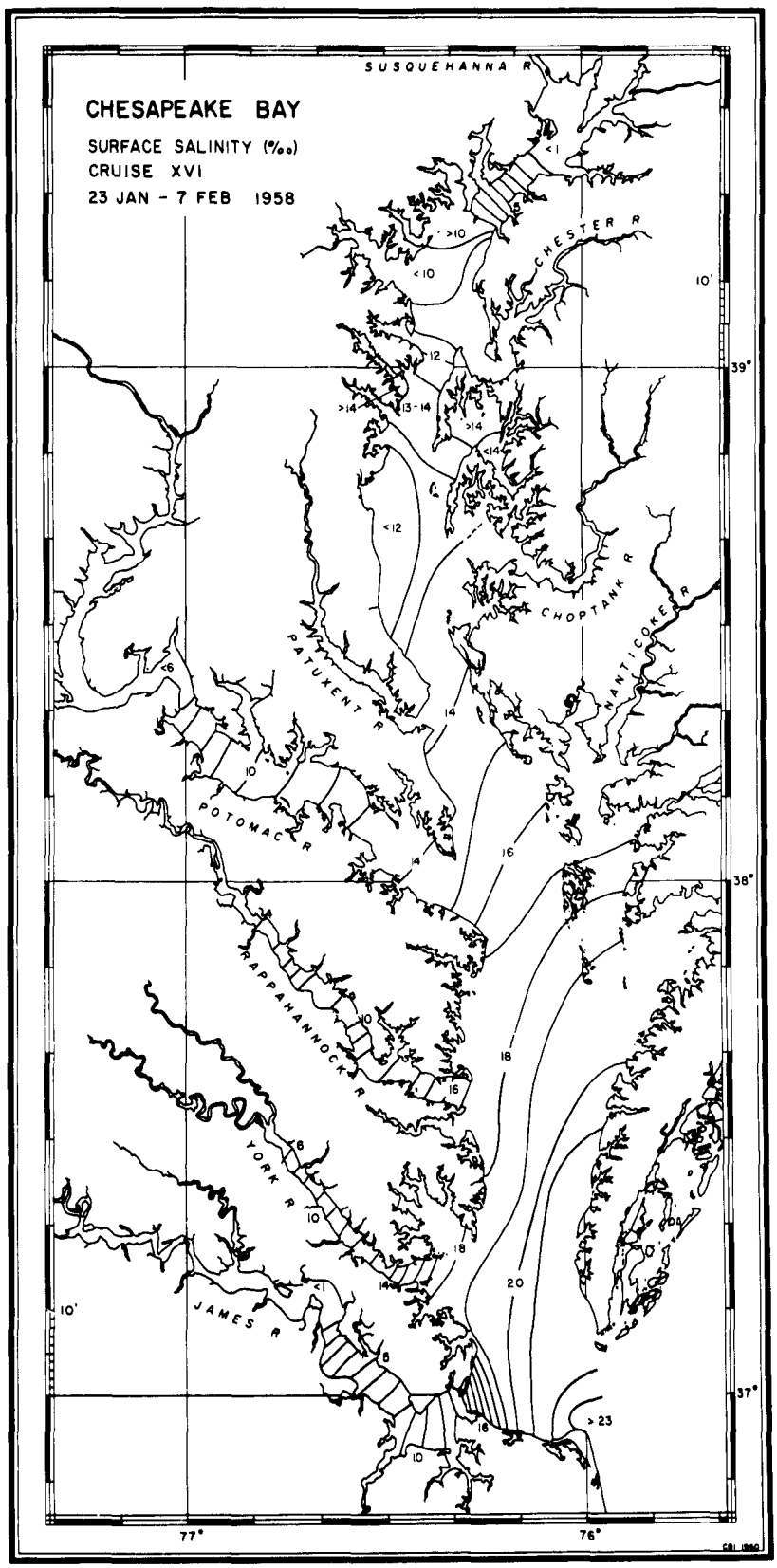


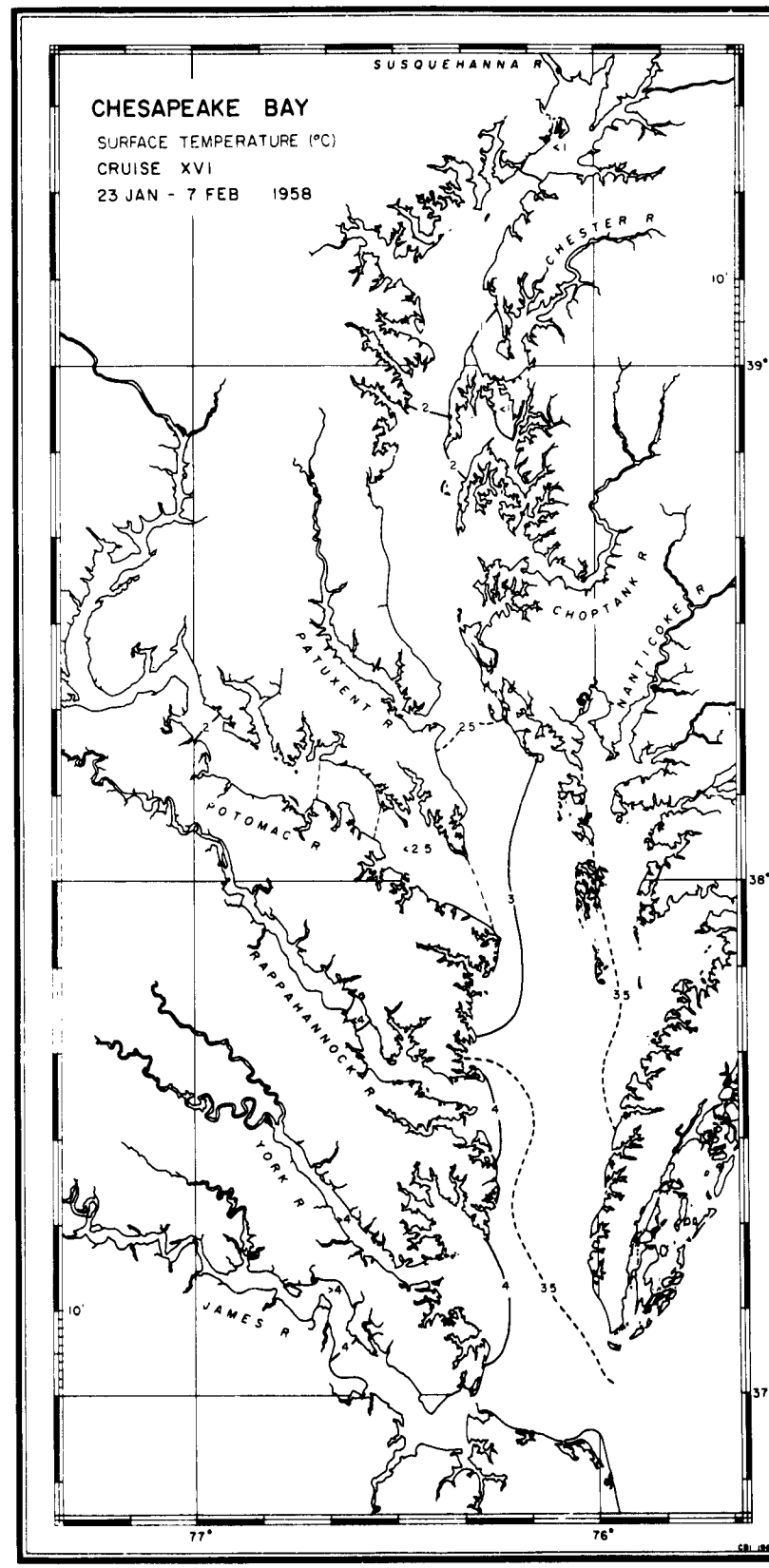
CRUISE XV 11 - 20 SEPTEMBER 1957 SECTION XIX

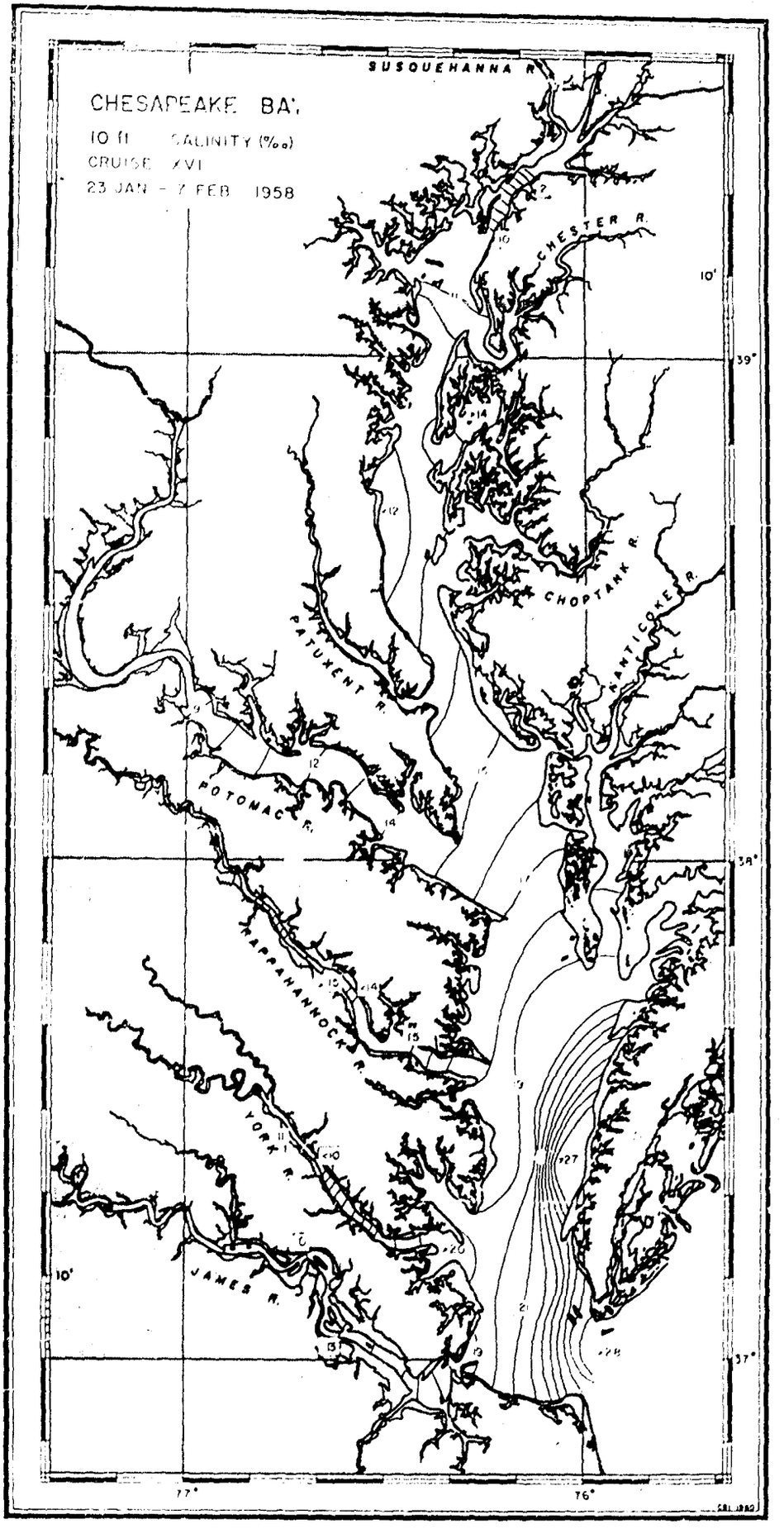
TEMPERATURE (°C)

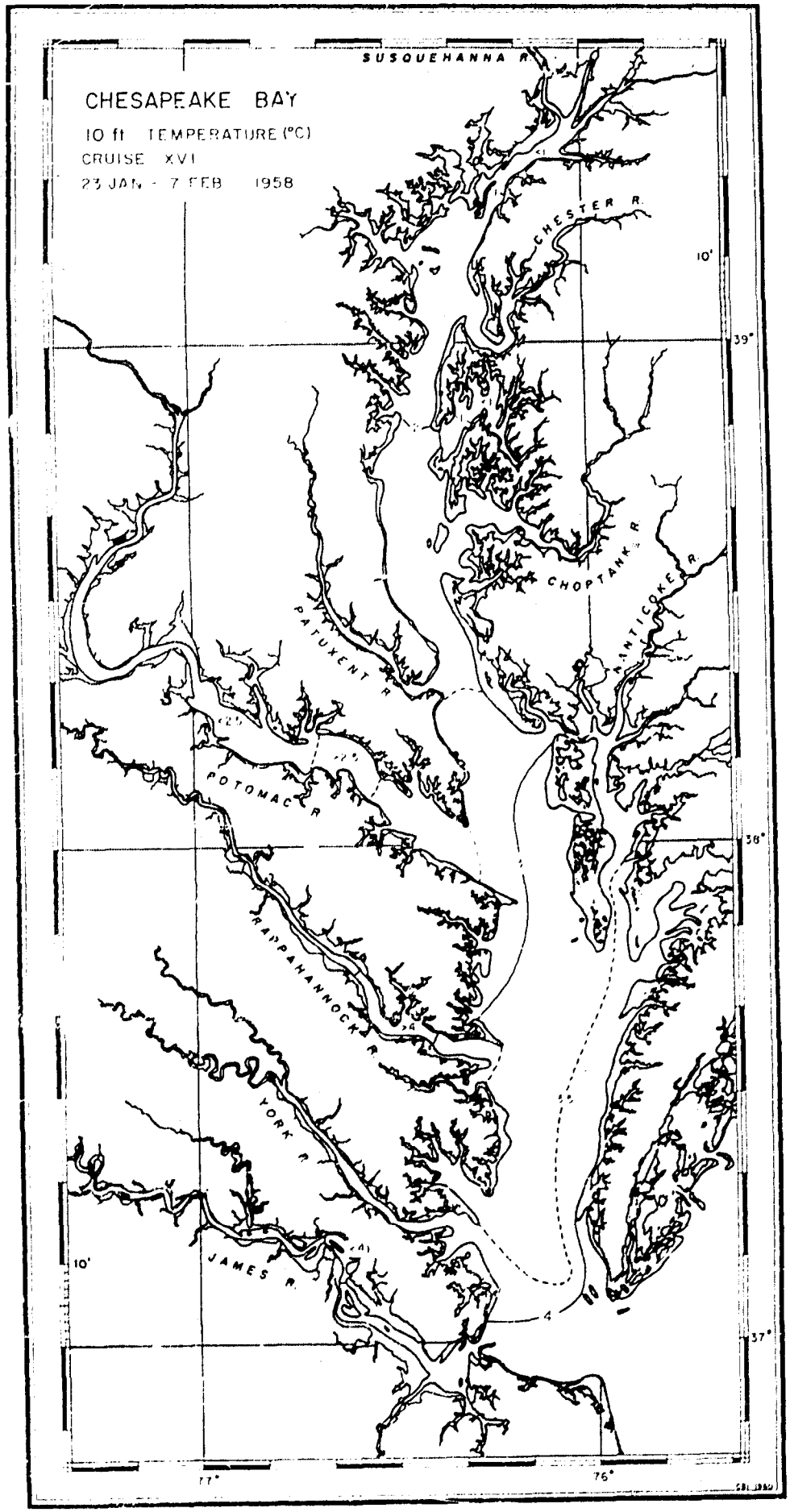


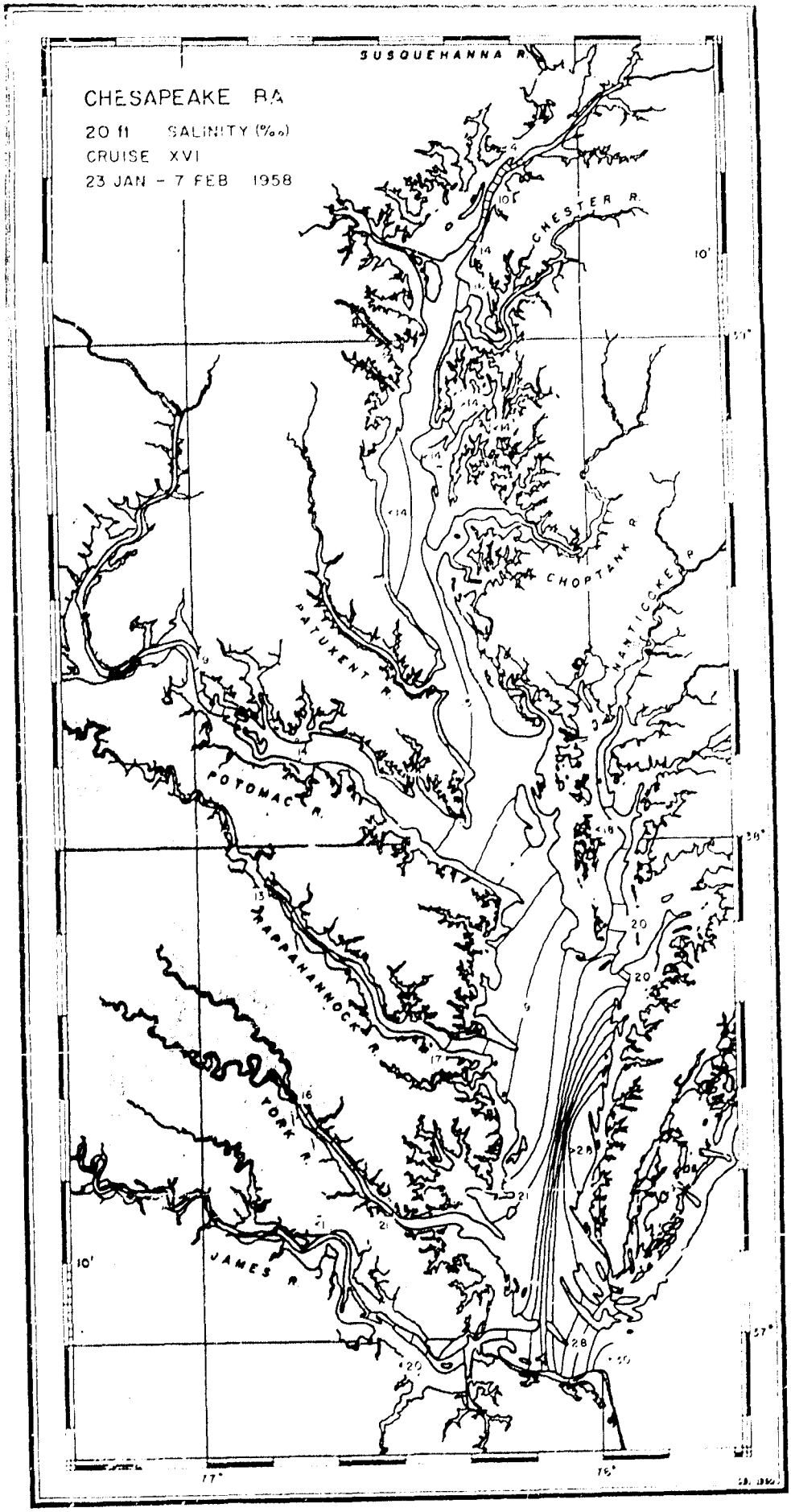

CHESAPEAKE BAY
CRUISE XVI STATION LOCATIONS
23 JAN - 7 FEB 1958
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°
10'

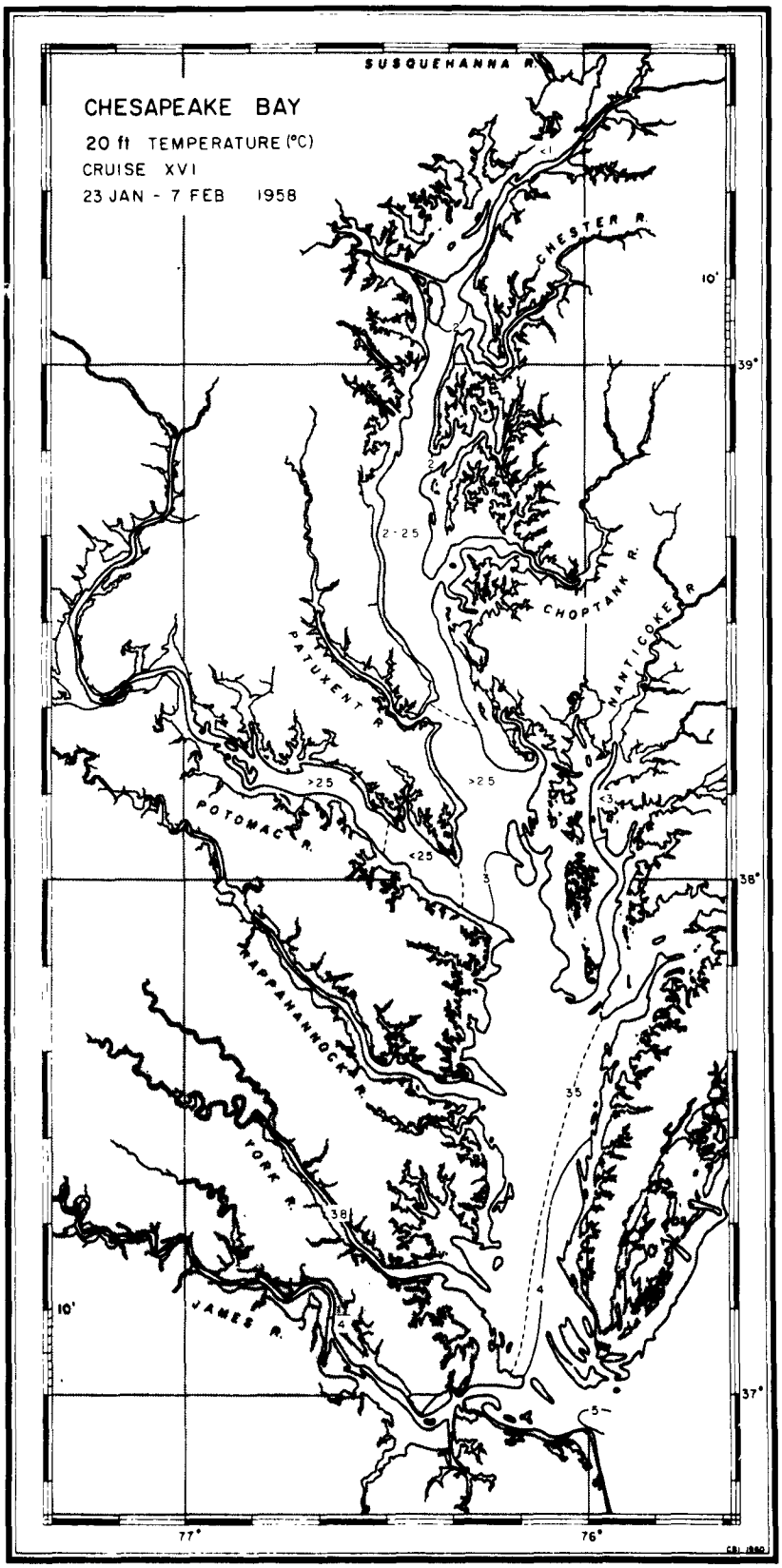

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XVI
23 JAN - 7 FEB 1958
SUSQUEHANNA R
CHESTER R
PATUXENT R
CHOPTANK R
NANTICOKE R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

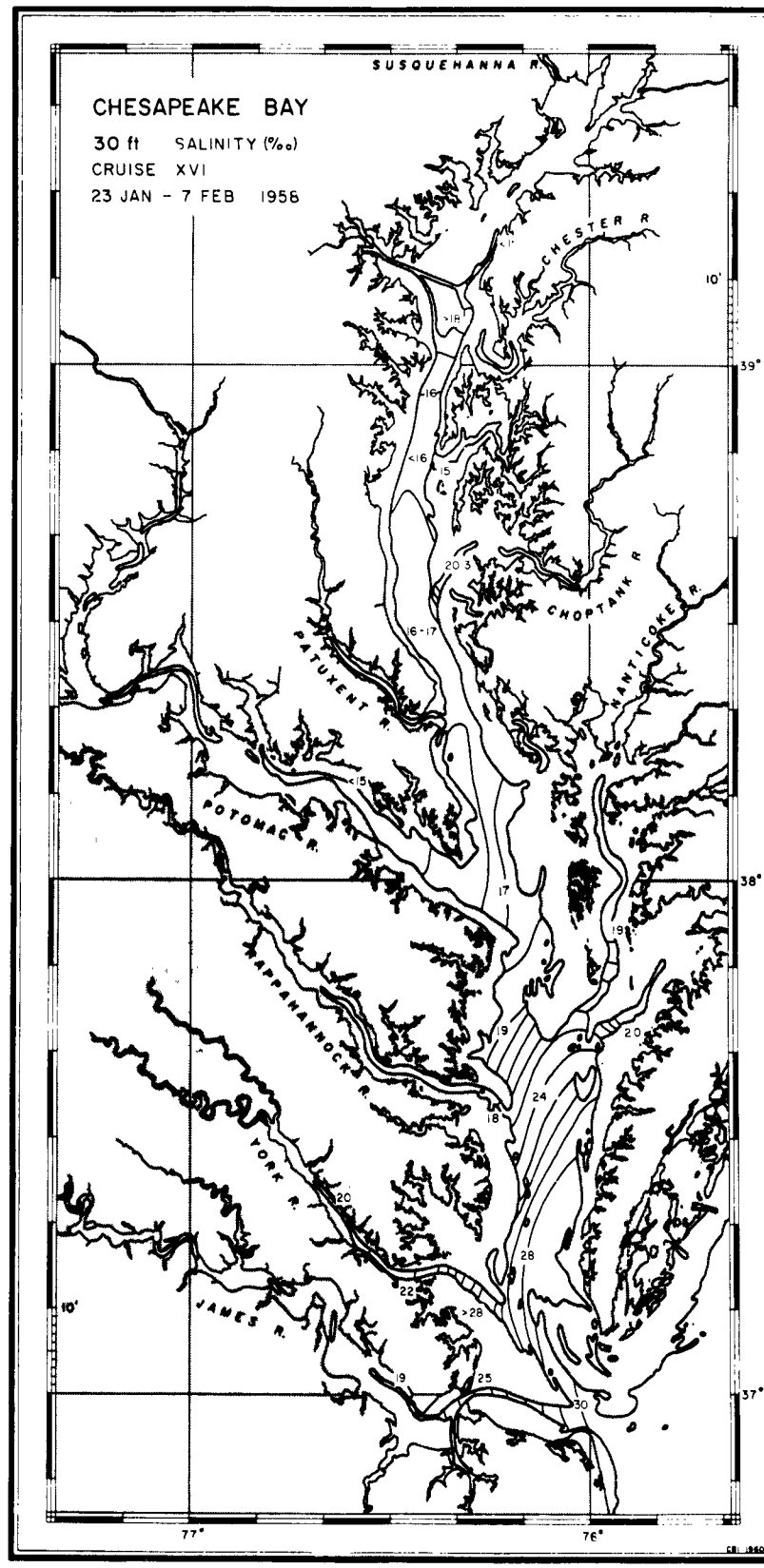

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XVI
23 JAN - 7 FEB 1958
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°
10'

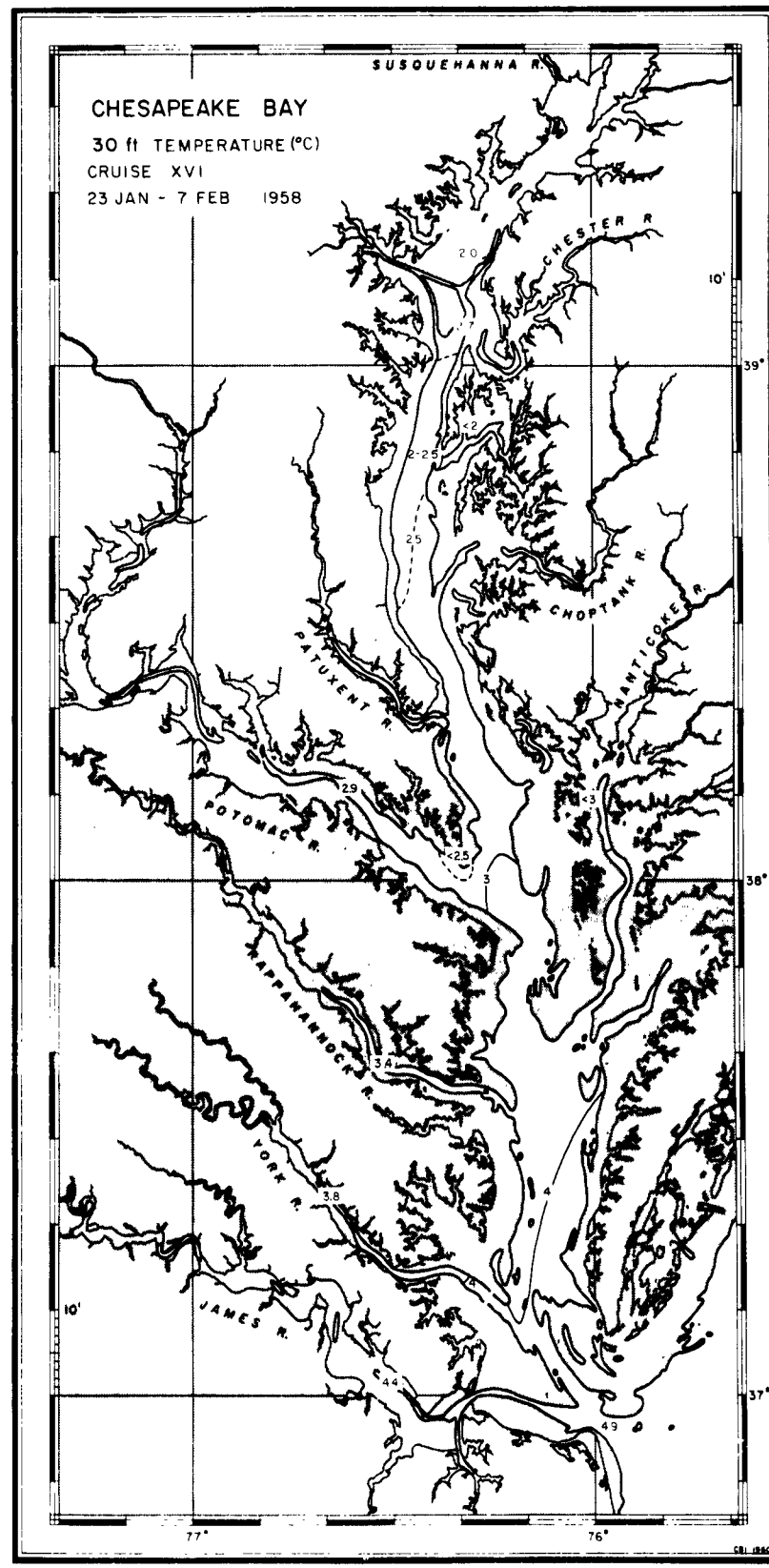

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XVI
23 JAN - 7 FEB 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

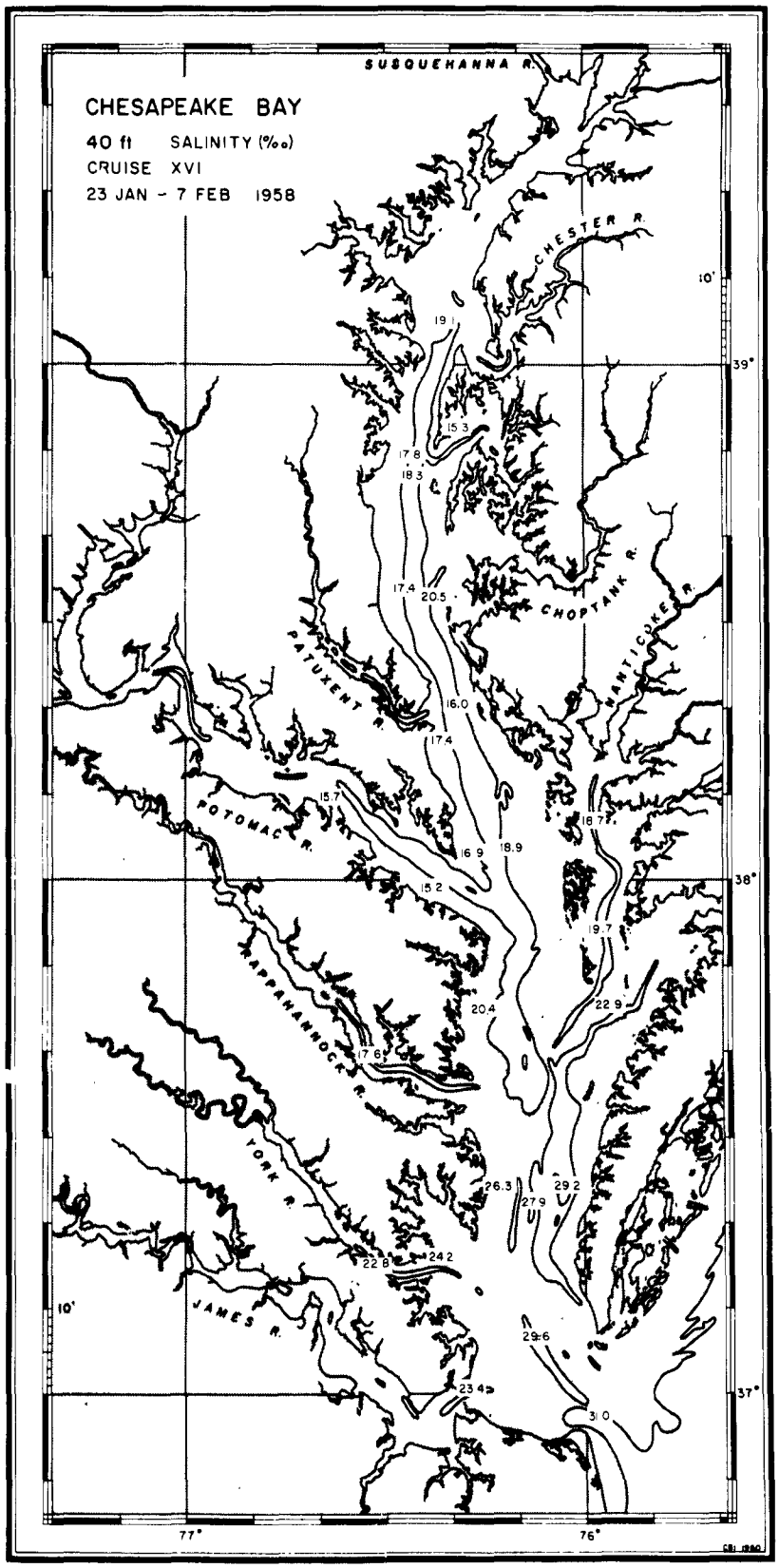

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
CRUISE XVI
23 JAN - 7 FEB 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
39°
38°
37°
77°
76°

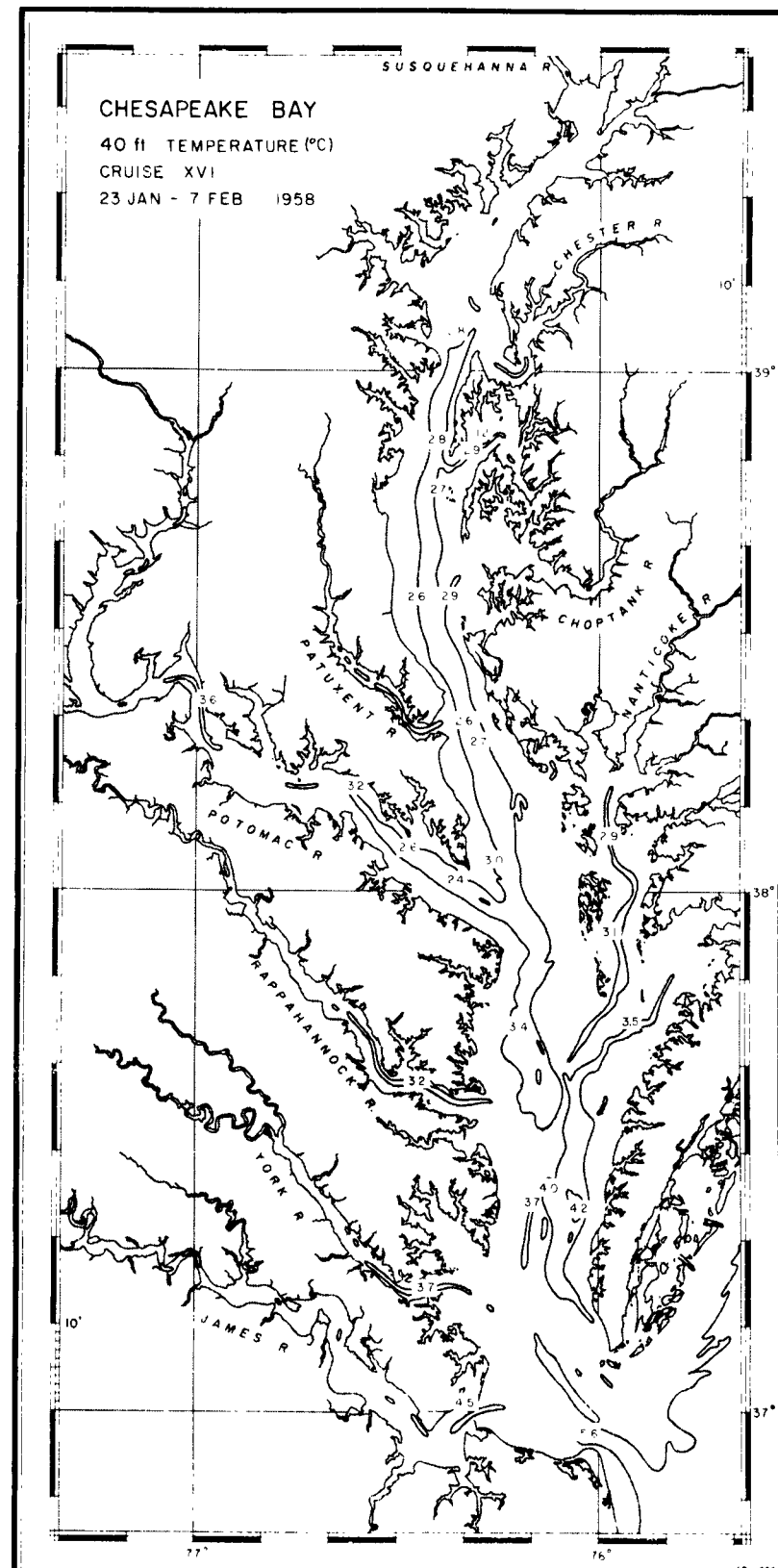

CHESAPEAKE BA
20 11 SALINITY (‰)
CRUISE XVI
23 JAN - 7 FEB 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
77°
76°

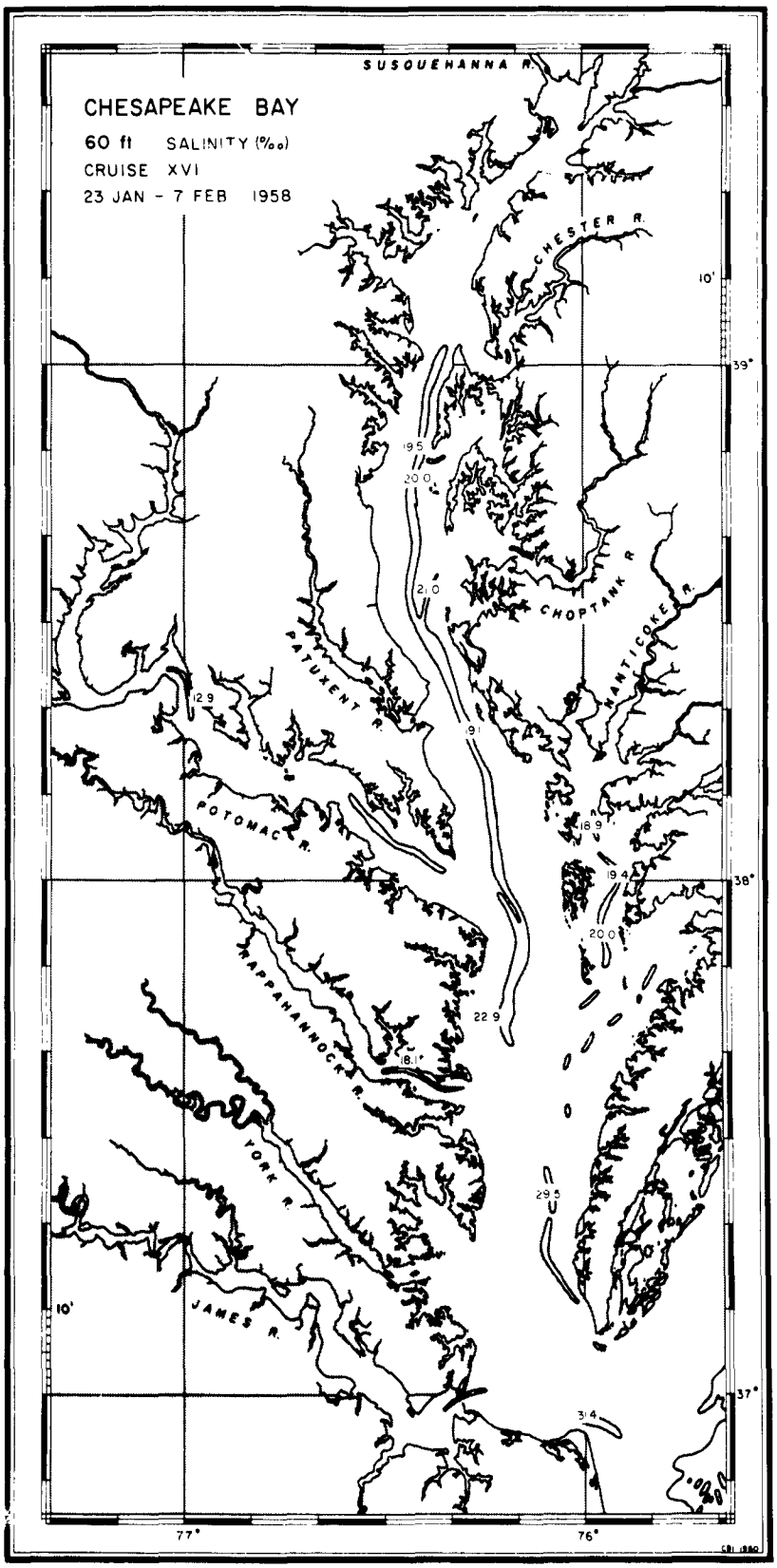

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
CRUISE XVI
23 JAN - 7 FEB 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
MANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
2·25
>25
<25
<3
3
35
4
5
38
39°
38°
37°
10'
77°
76°

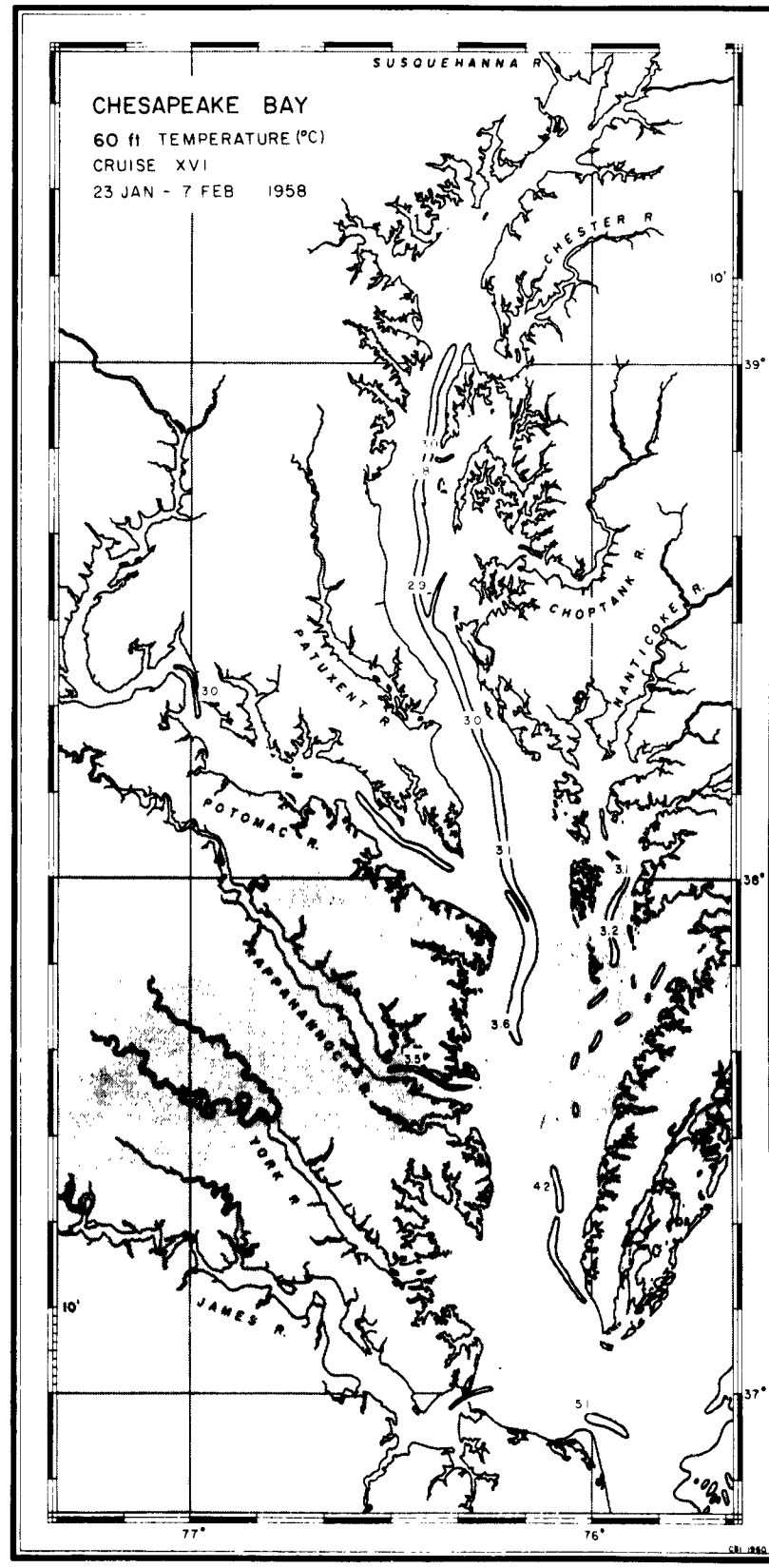

CHESAPEAKE BAY
30 ft SALINITY (‰)
CRUISE XVI
23 JAN - 7 FEB 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
39°
38°
37°
10'
77°
76°


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XVI
23 JAN - 7 FEB 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
2.0
2.5
2.9
3.4
3.8
4.4
4.9
39°
38°
37°
77°
76°
10'

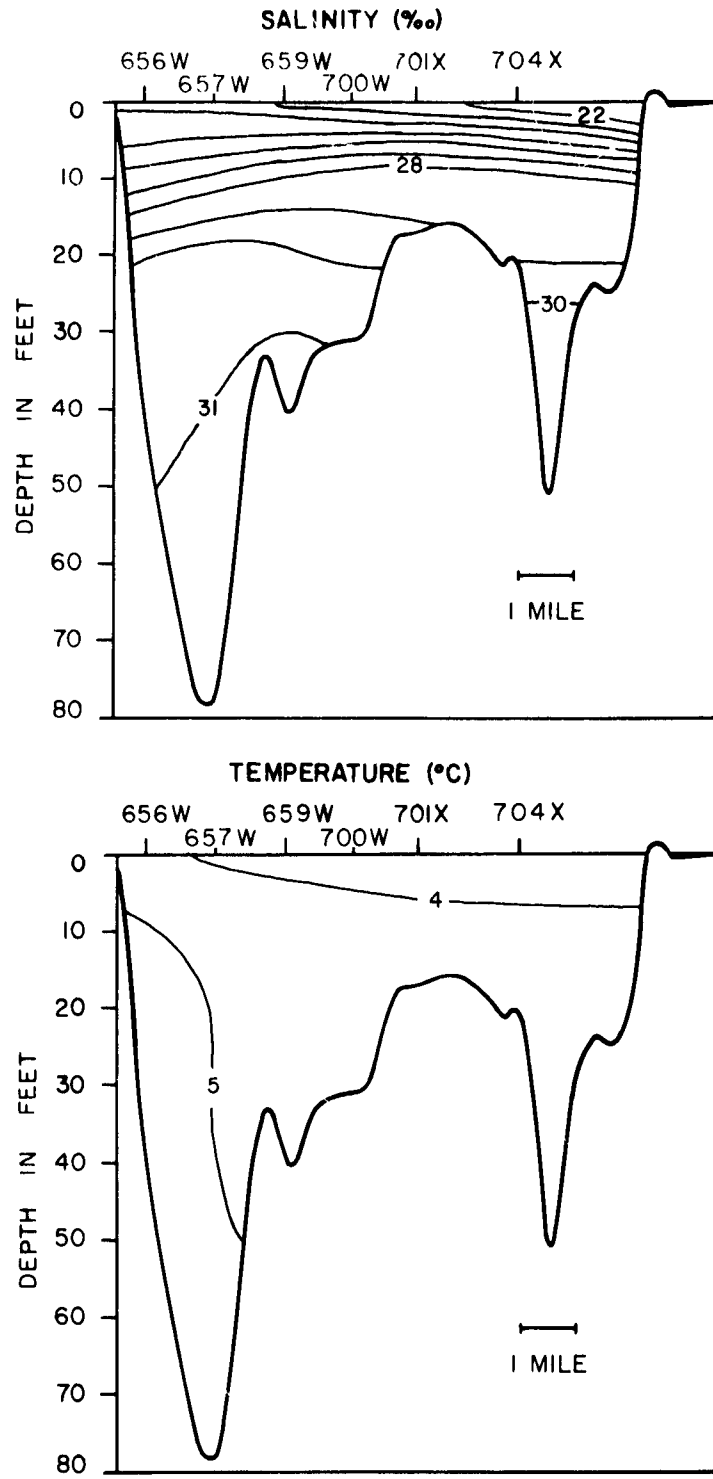

CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XVI
23 JAN - 7 FEB 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
MANTICOKE R.
19.1
15.3
17.8
18.3
17.4
20.5
16.0
17.4
15.7
16.9
18.9
15.2
18.7
19.7
22.9
20.4
17.6
26.3
27.9
29.2
22.8
24.2
29.6
23.4
31.0
39°
38°
37°
10°
77°
76°


CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
CRUISE XVI
23 JAN - 7 FEB 1958
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

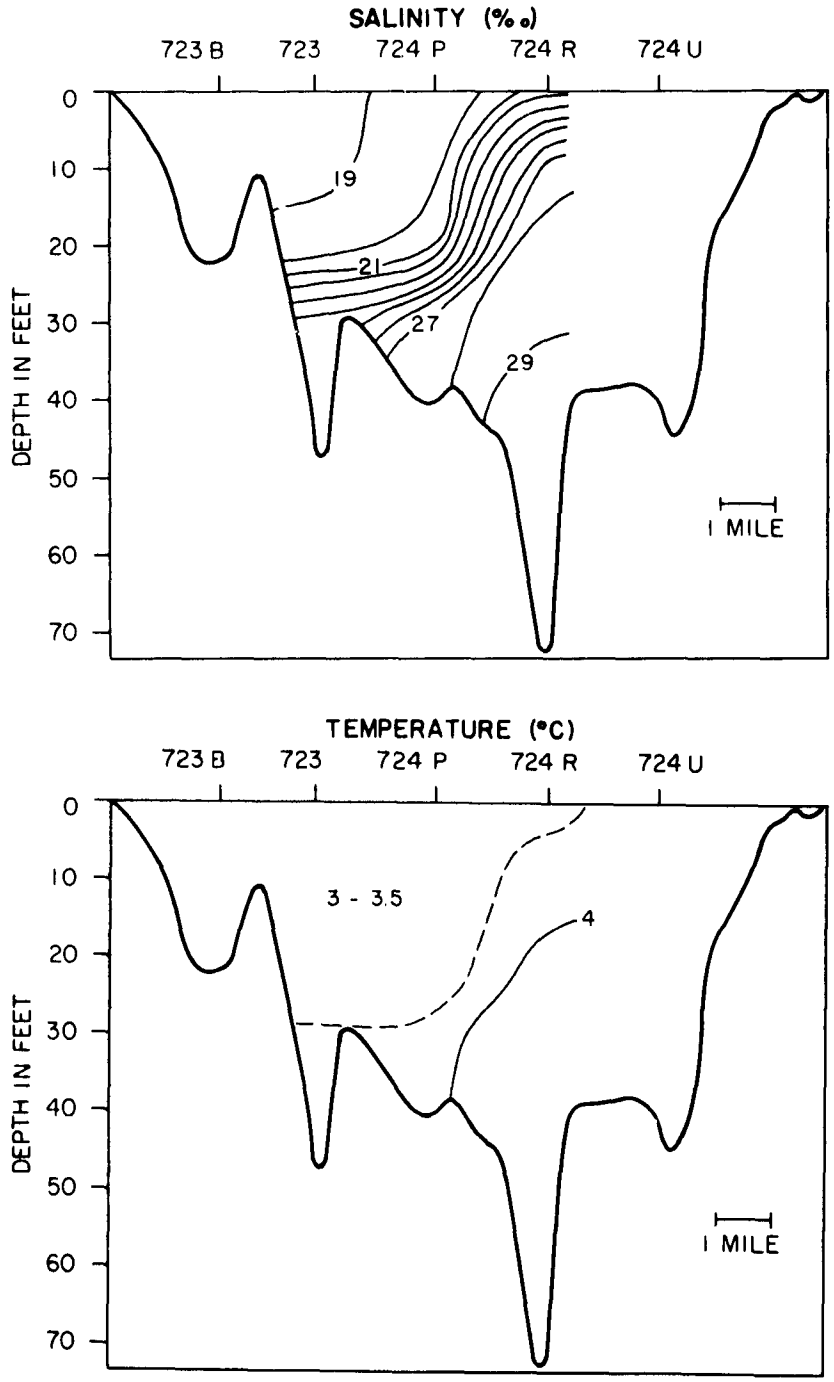

CHESAPEAKE BAY
60 ft SALINITY (‰)
CRUISE XVI
23 JAN - 7 FEB 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
19.5
20.0
21.0
12.9
19.1
18.9
19.4
20.0
22.9
18.1
29.5
31.4
39°
38°
37°
10'
77°
76°


CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
CRUISE XVI
23 JAN - 7 FEB 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°
10'

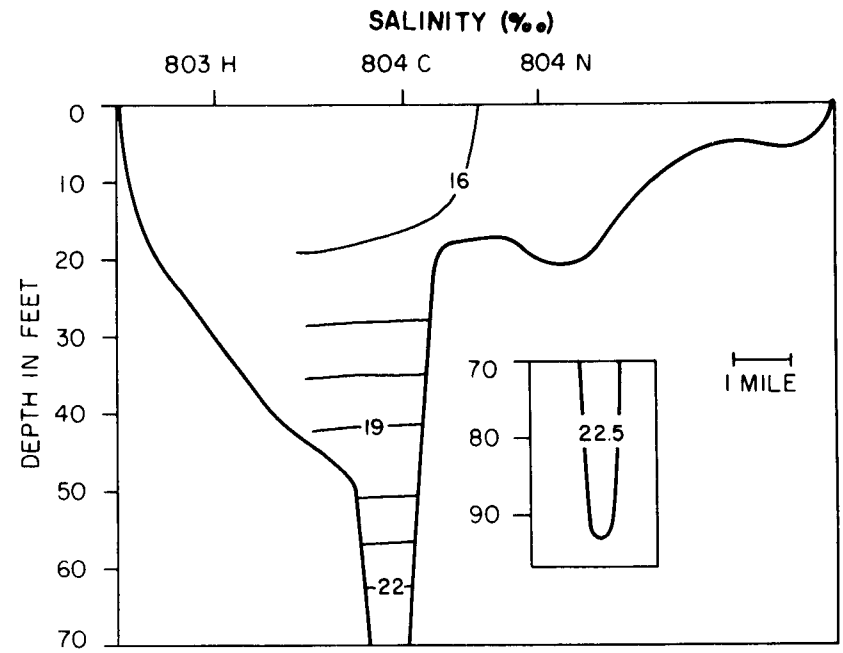
CRUISE XVI 23 JAN - 7 FEB 1958 SECTION II

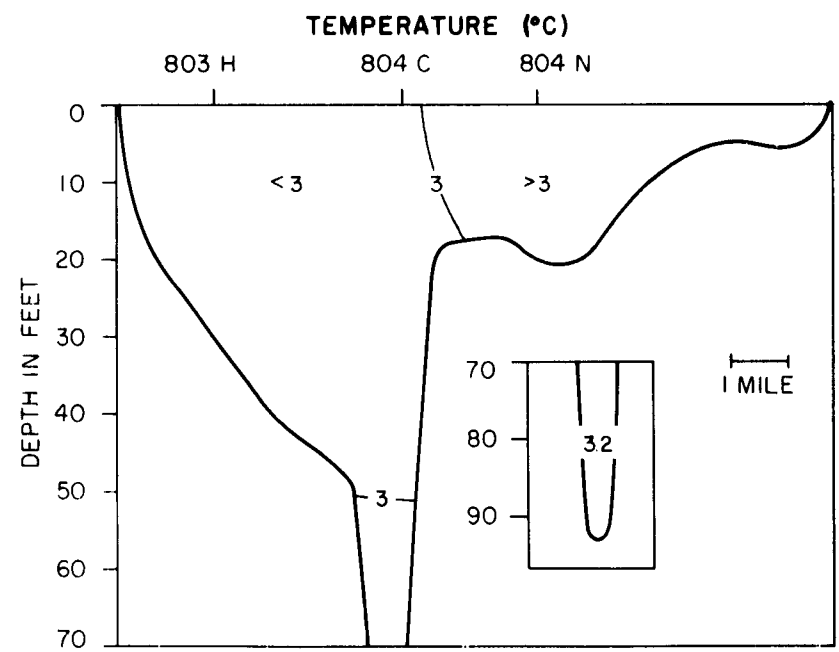


CRUISE XVI 23 JAN - 7 FEB 1958 SECTION IV

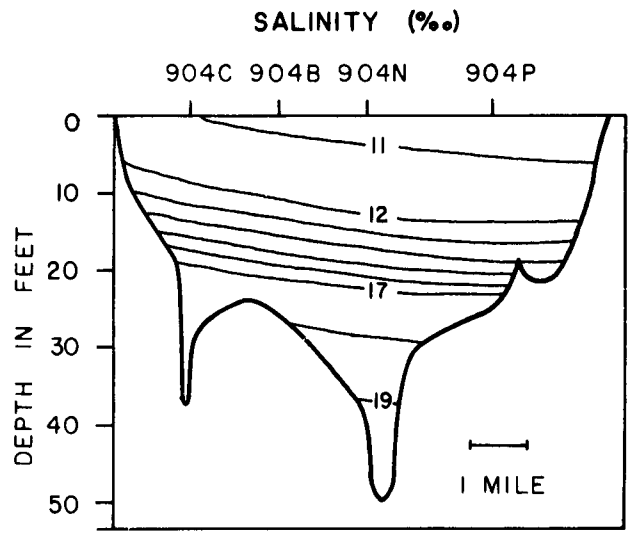


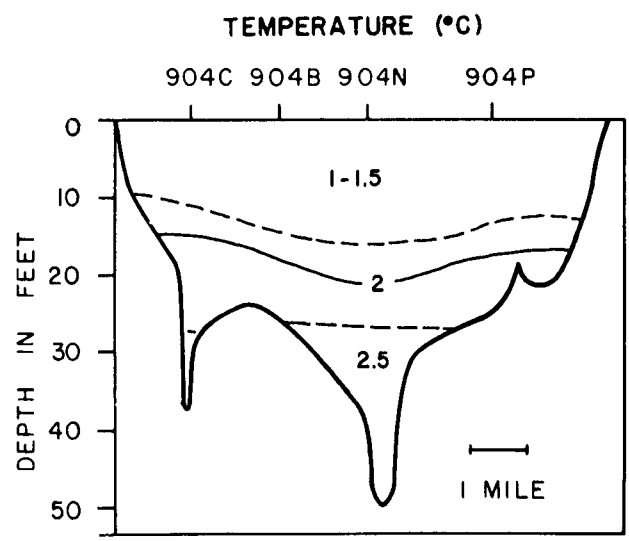
CRUISE XVI 23 JAN - 7 FEB 1958 SECTION VI



CRUISE XVI 23 JAN - 7 FEB 1958 SECTION X



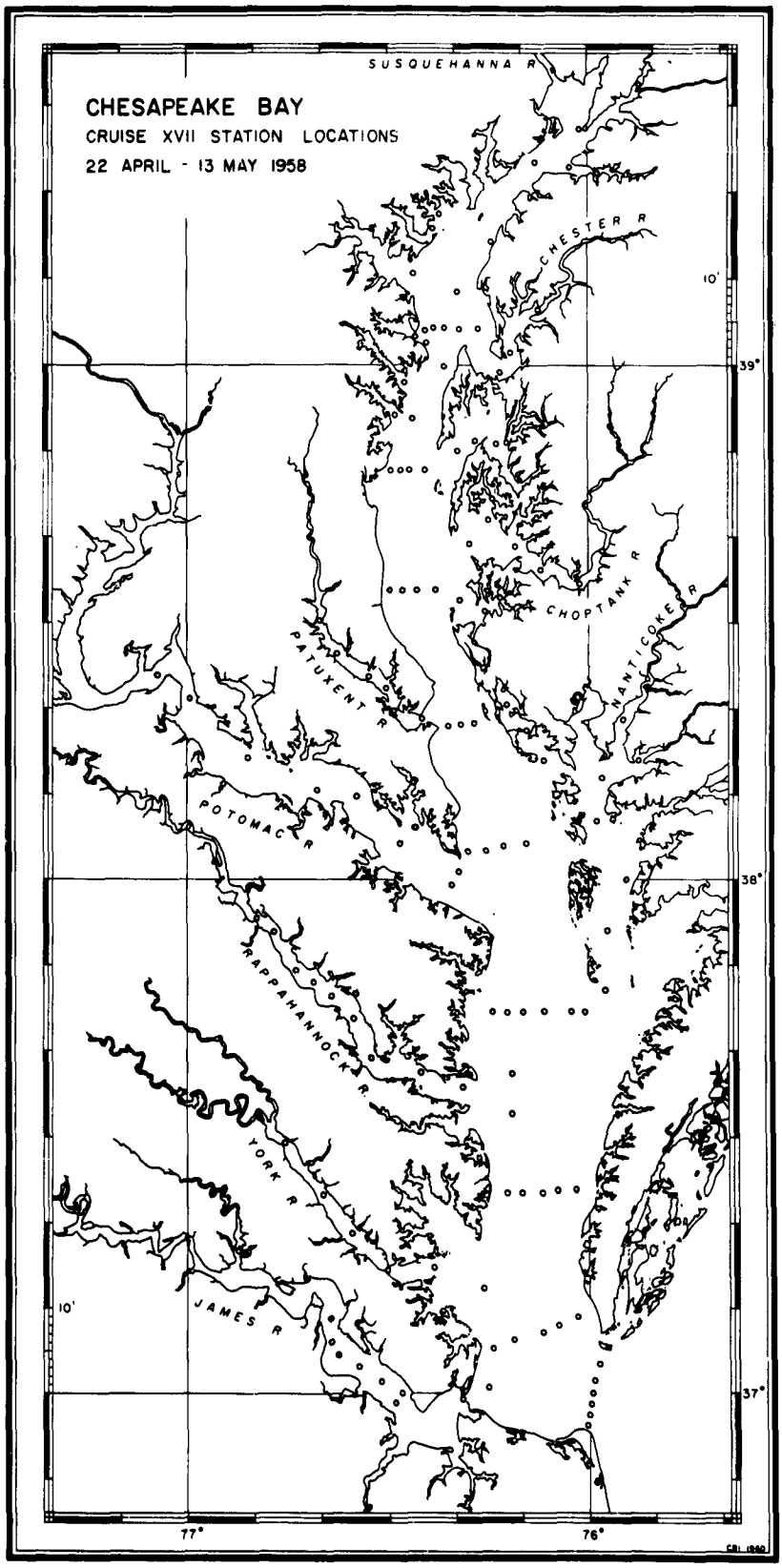



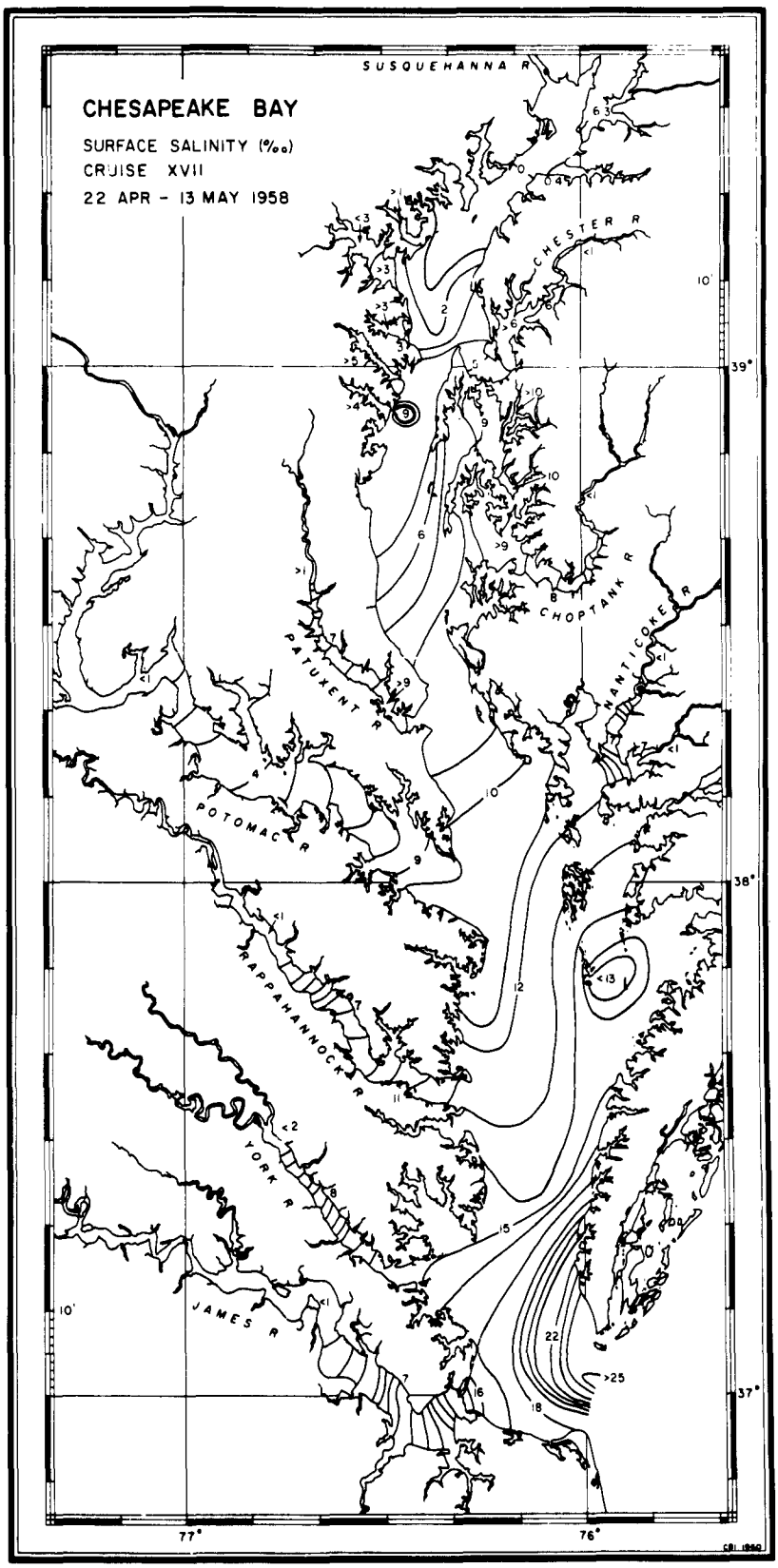
CRUISE XVI 23 JAN - 7 FEB 1958 SECTION XIX

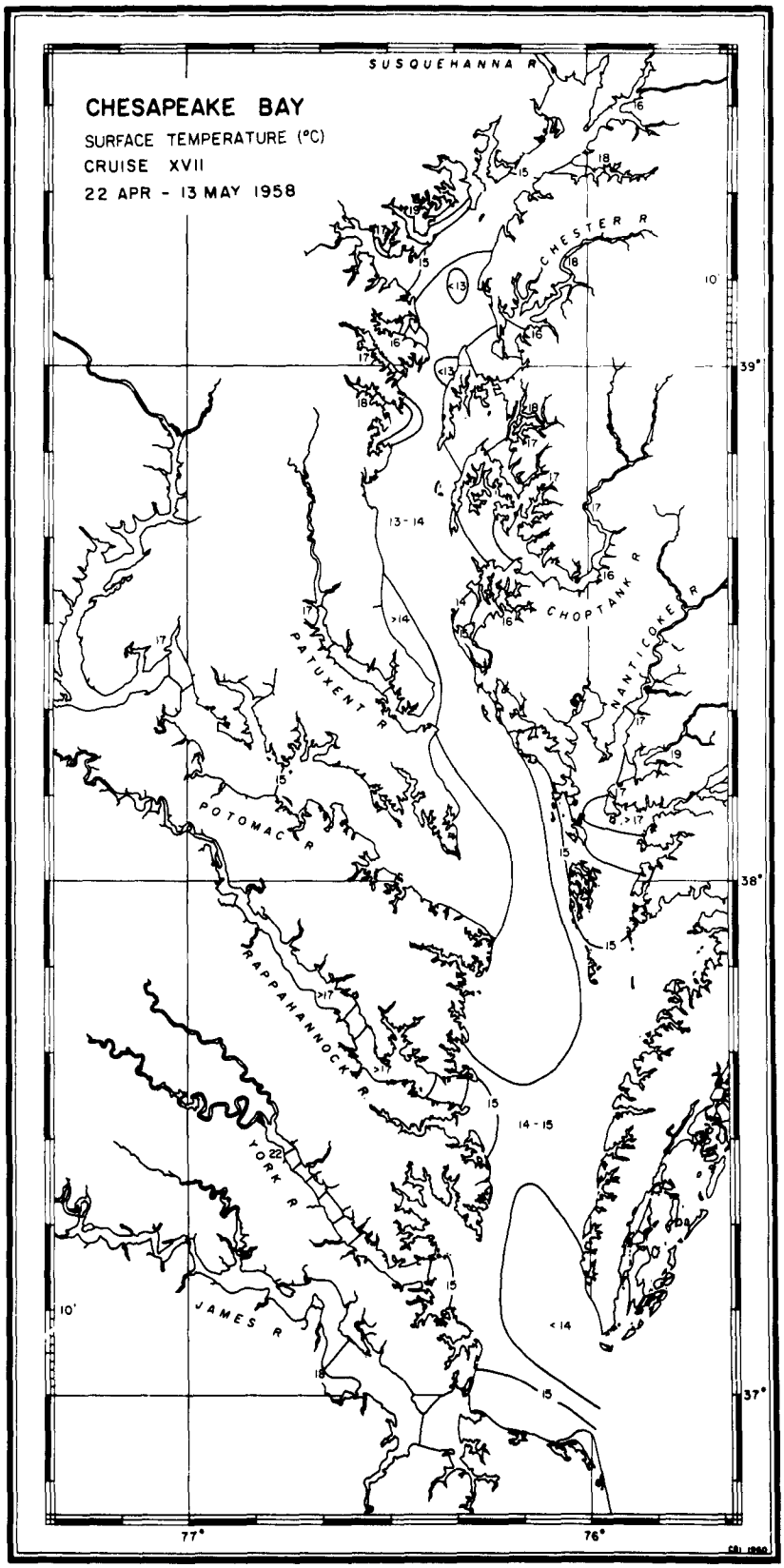
SALINITY (‰)

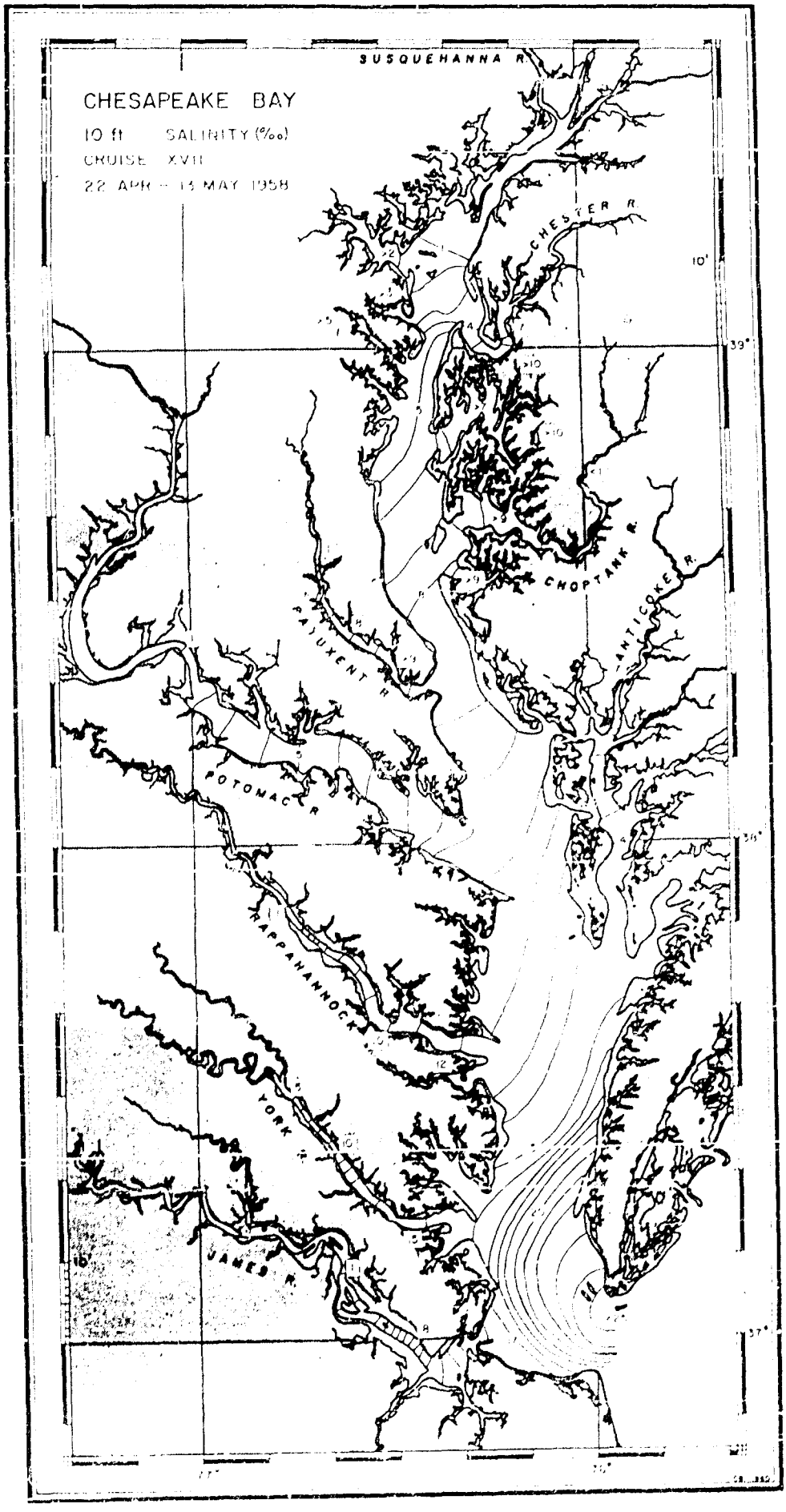
CRUISE XVI 23 JAN - 7 FEB 1958 SECTION XIX

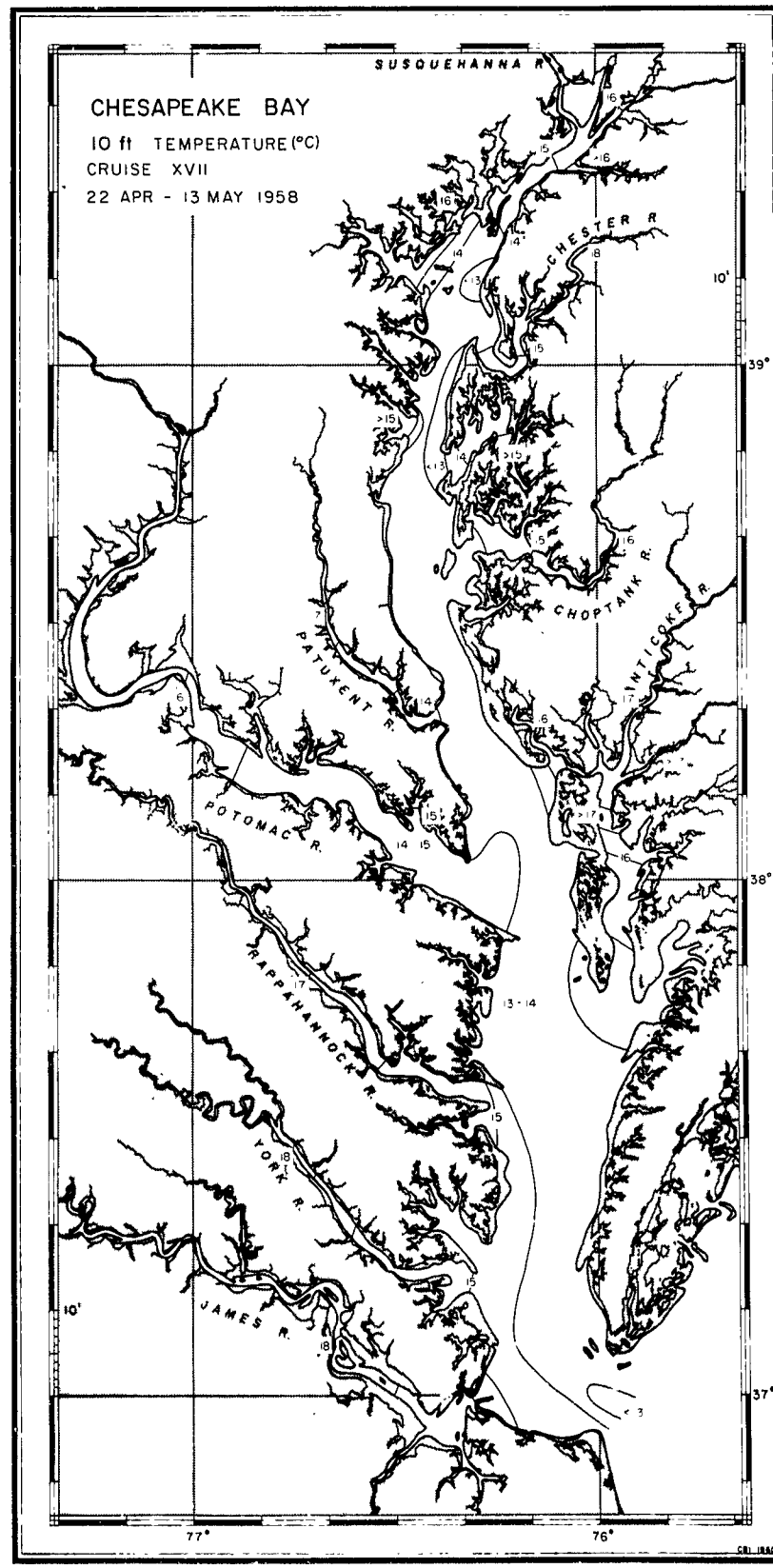
TEMPERATURE (°C)

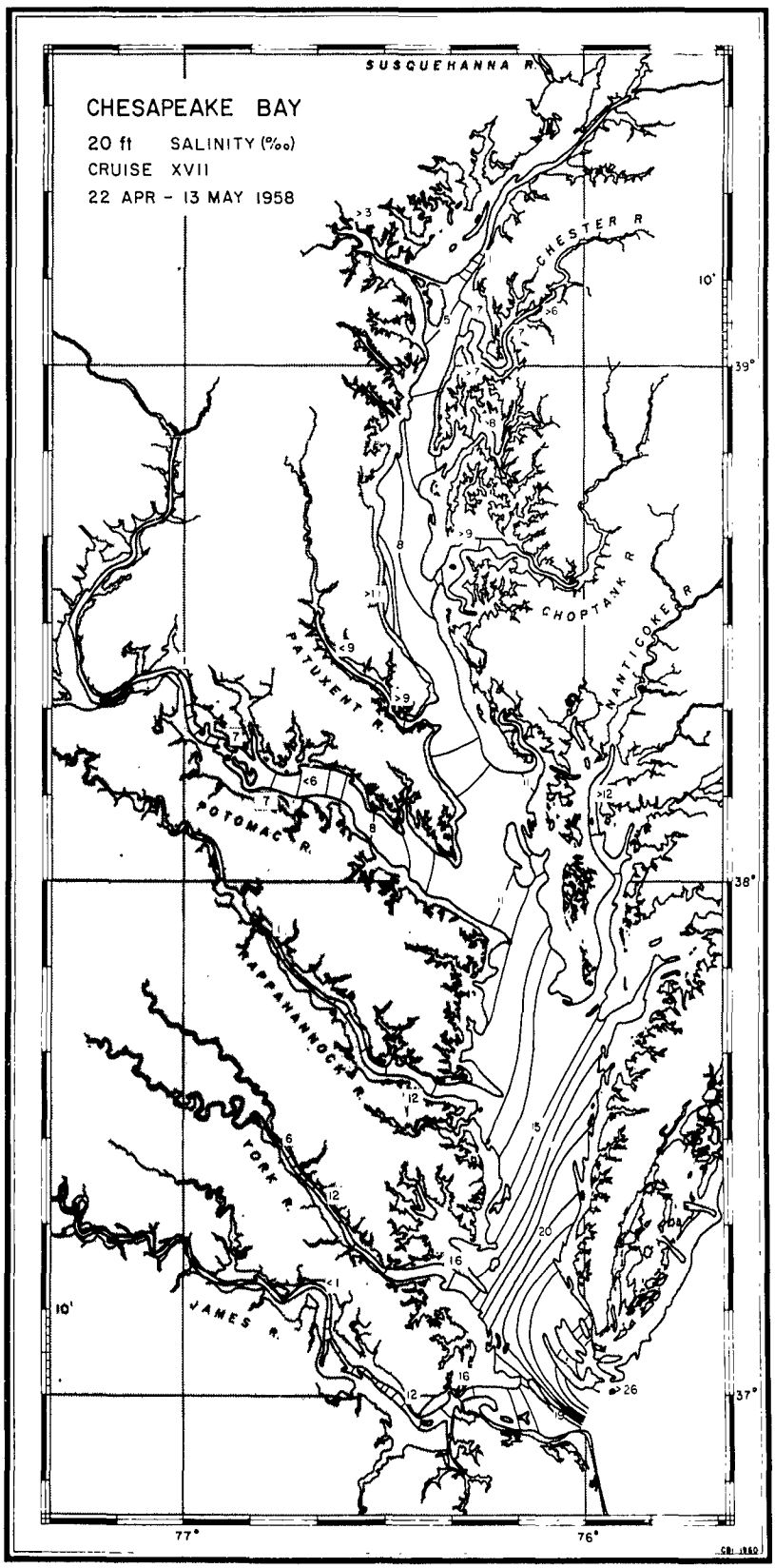

CHESAPEAKE BAY
CRUISE XVII STATION LOCATIONS
22 APRIL - 13 MAY 1958
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
10'
77°
76°

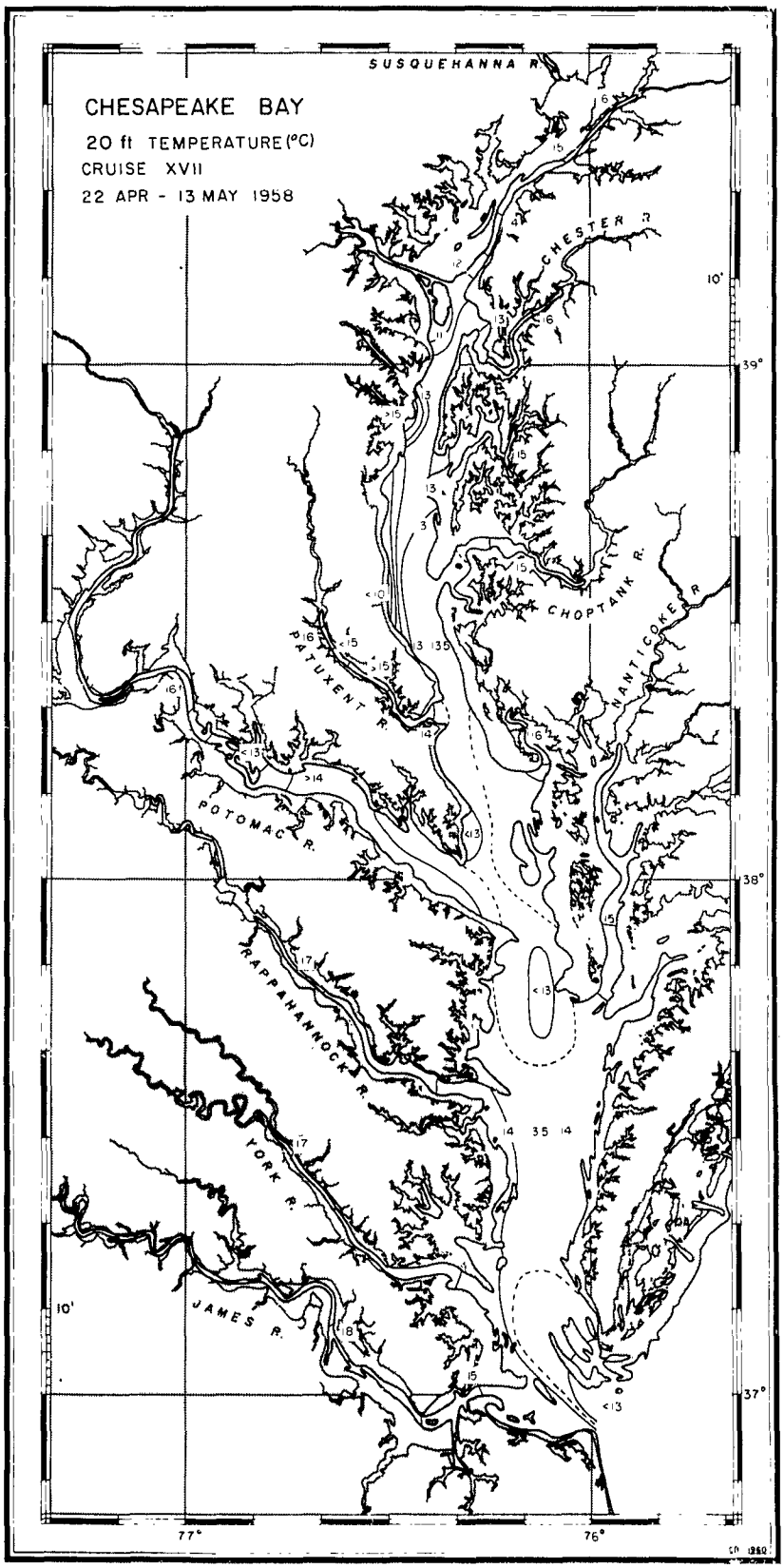

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XVII
22 APR - 13 MAY 1958
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
NANTICOKE R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

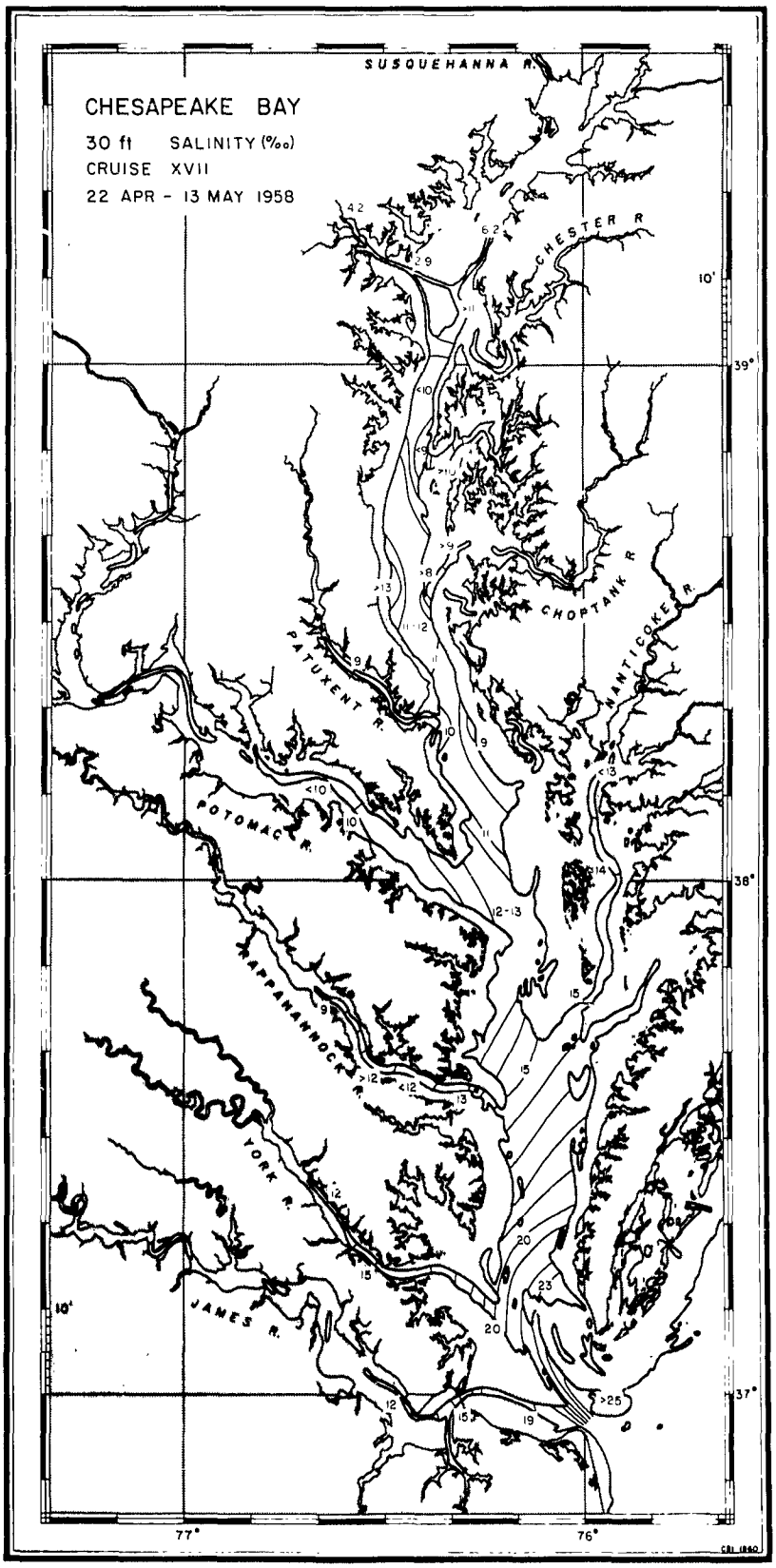

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XVII
22 APR - 13 MAY 1958
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
13 - 14
14 - 15
39°
38°
37°
77°
76°

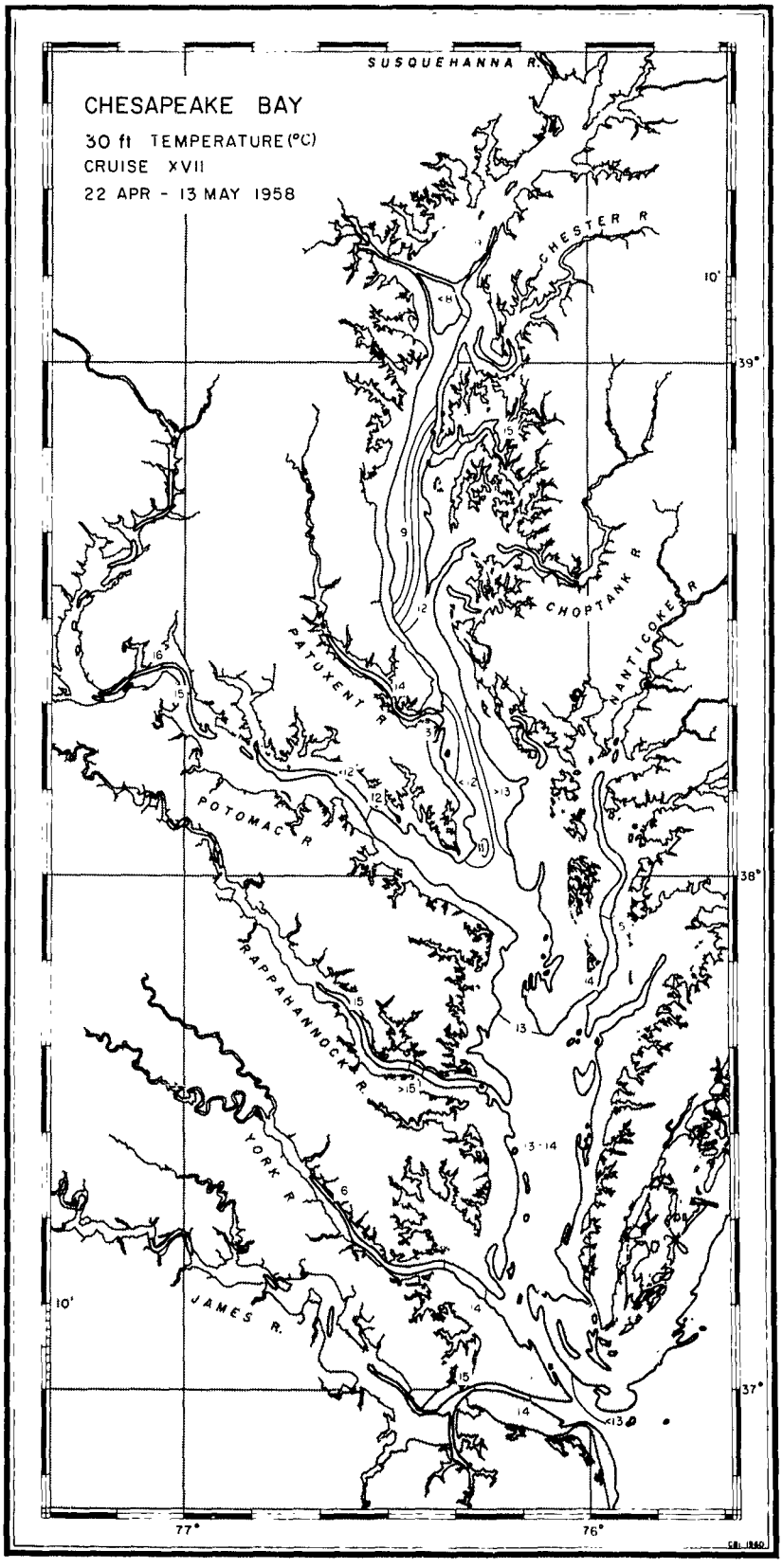

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XVII
22 APR – 14 MAY 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

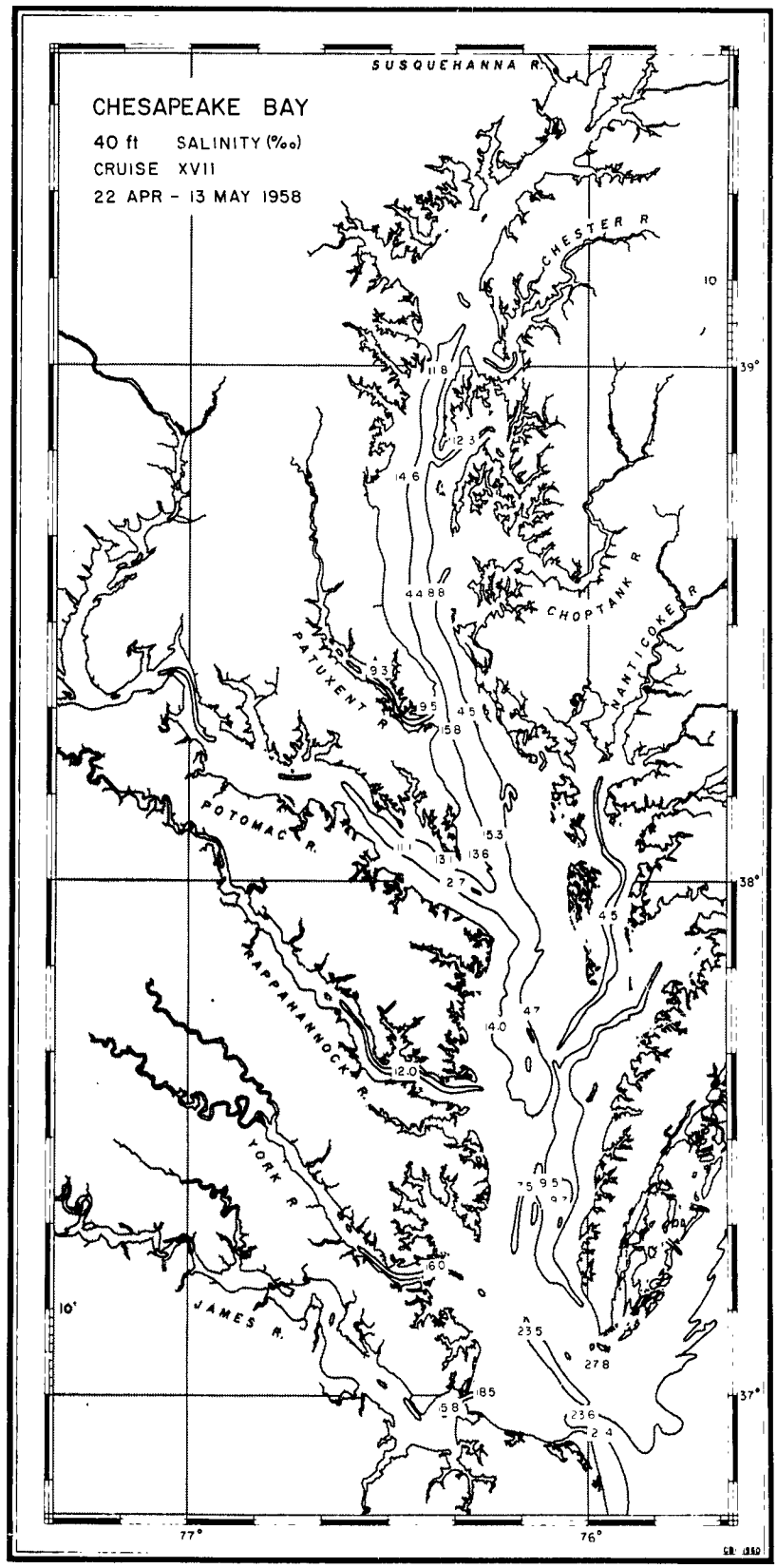

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
CRUISE XVII
22 APR - 13 MAY 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

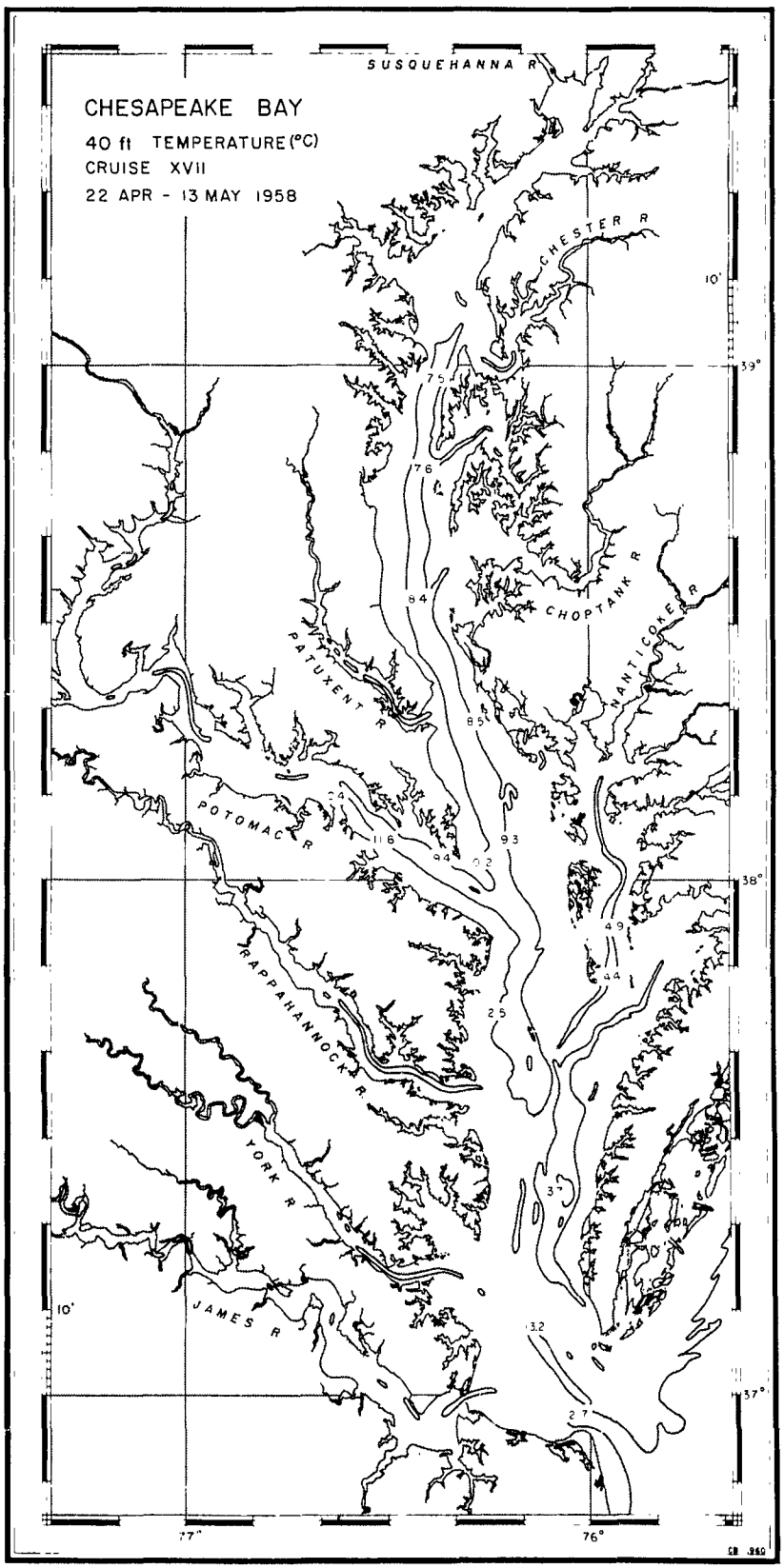

CHESAPEAKE BAY
20 ft SALINITY (‰)
CRUISE XVII
22 APR - 13 MAY 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
39°
38°
37°
10'
77°
76°

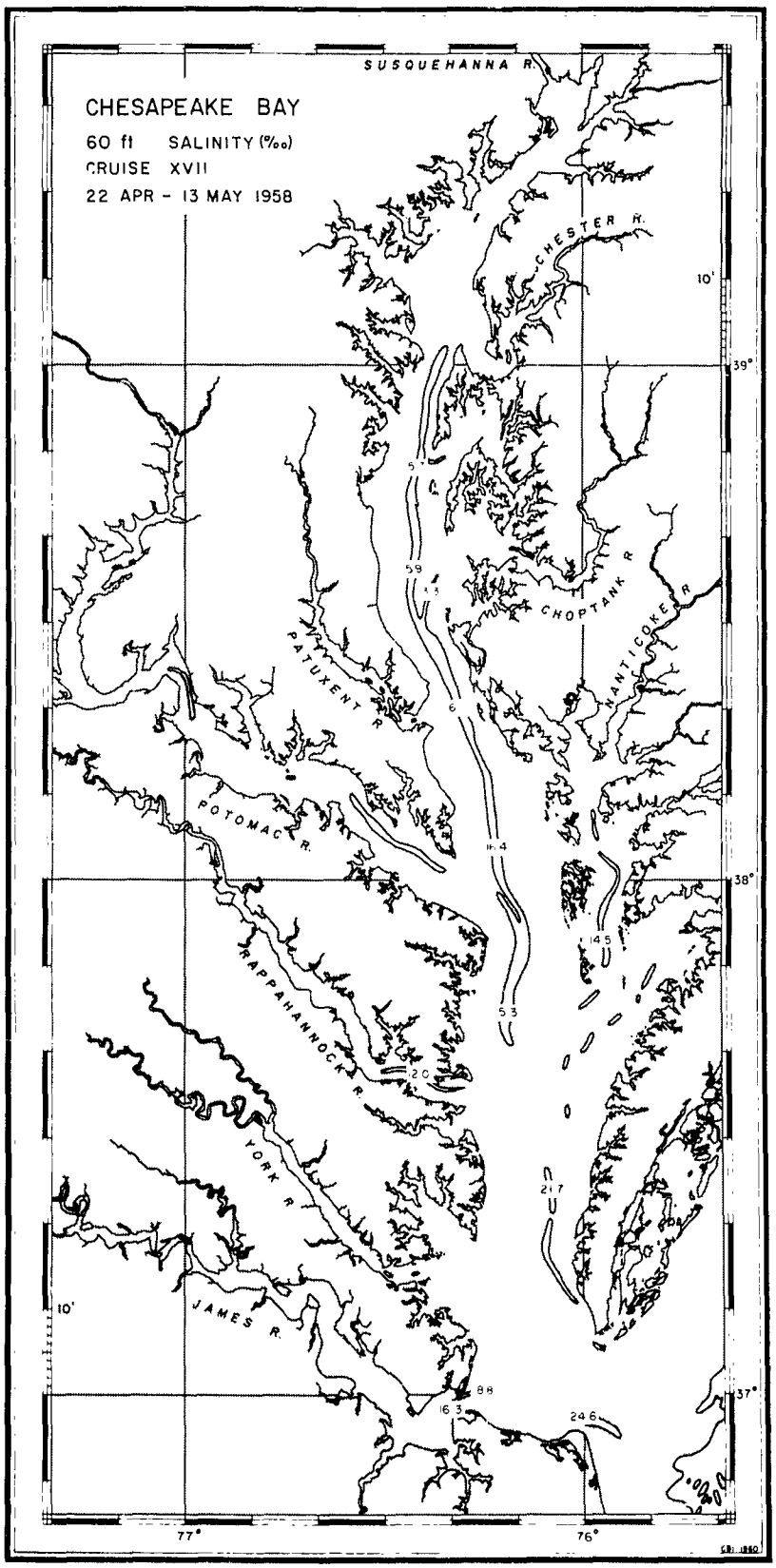

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
CRUISE XVII
22 APR - 13 MAY 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

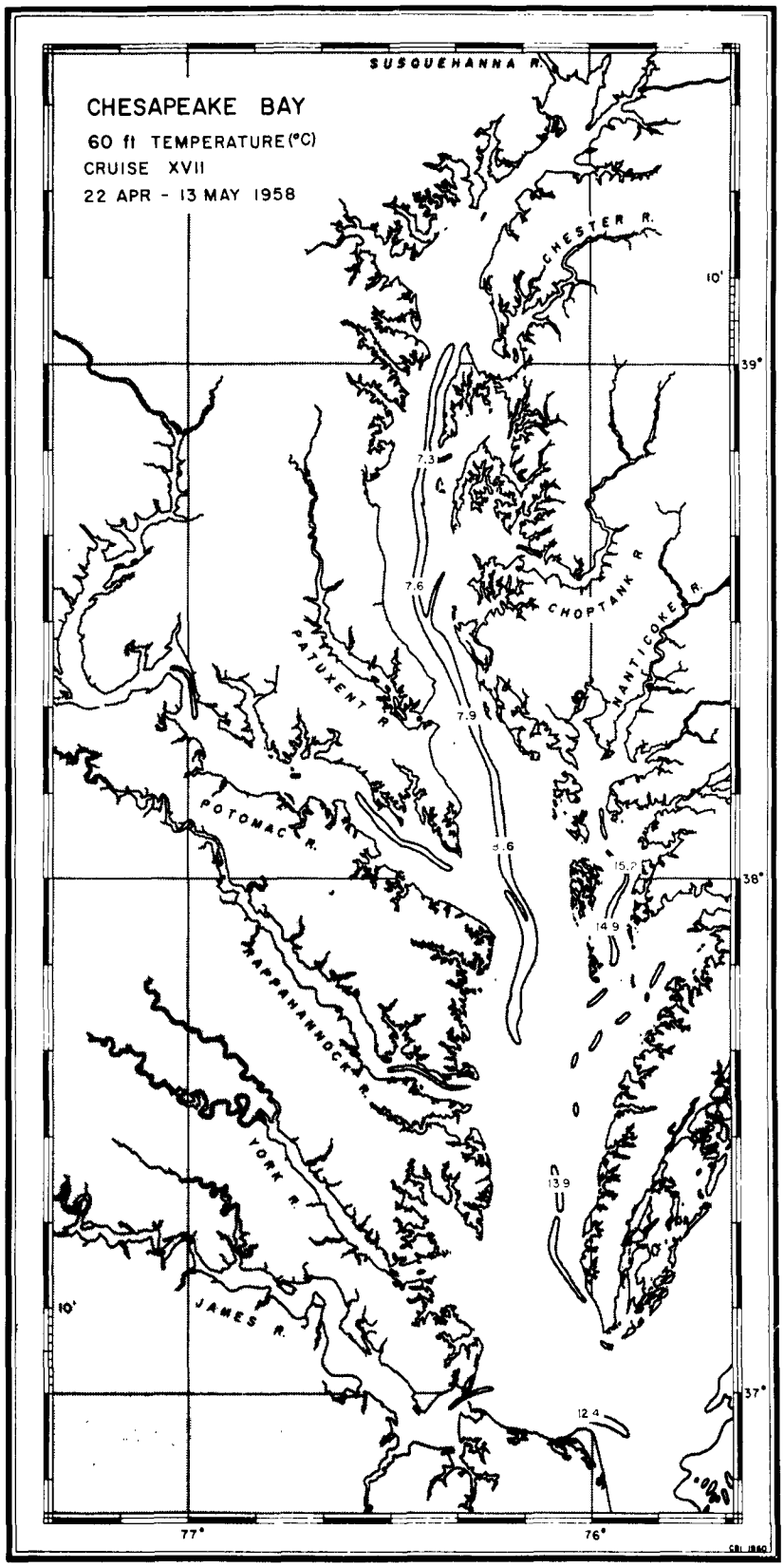

CHESAPEAKE BAY
30 ft SALINITY (‰)
CRUISE XVII
22 APR - 13 MAY 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

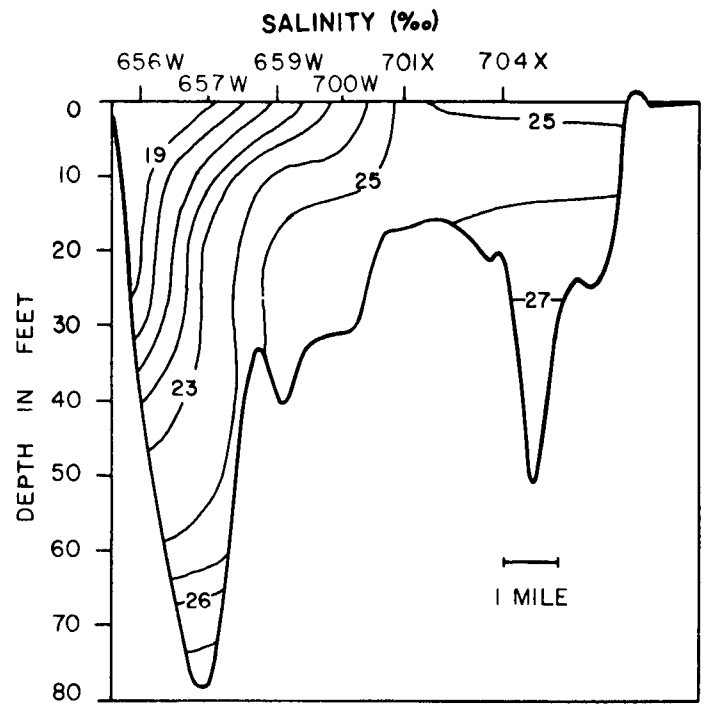

CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XVII
22 APR - 13 MAY 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°
10'

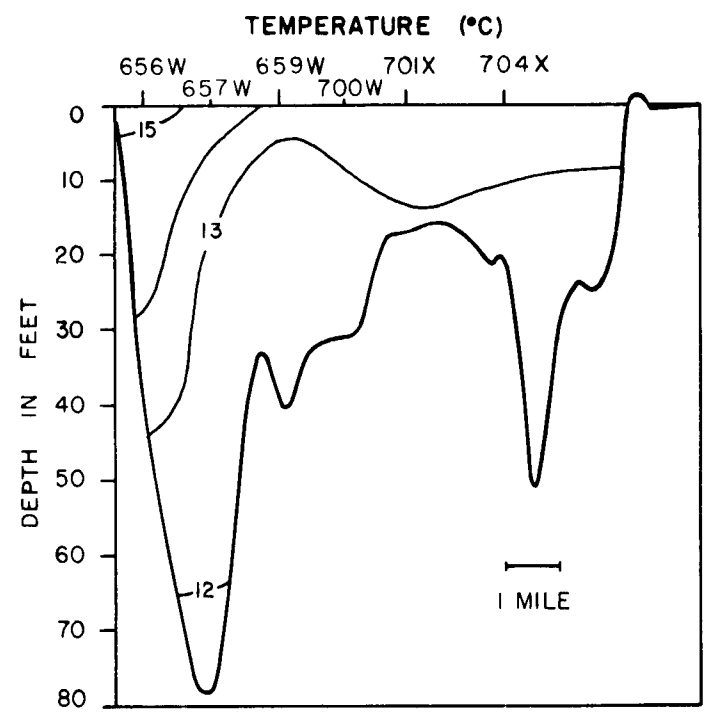

CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XVII
22 APR - 13 MAY 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°


CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
CRUISE XVII
22 APR - 13 MAY 1958
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

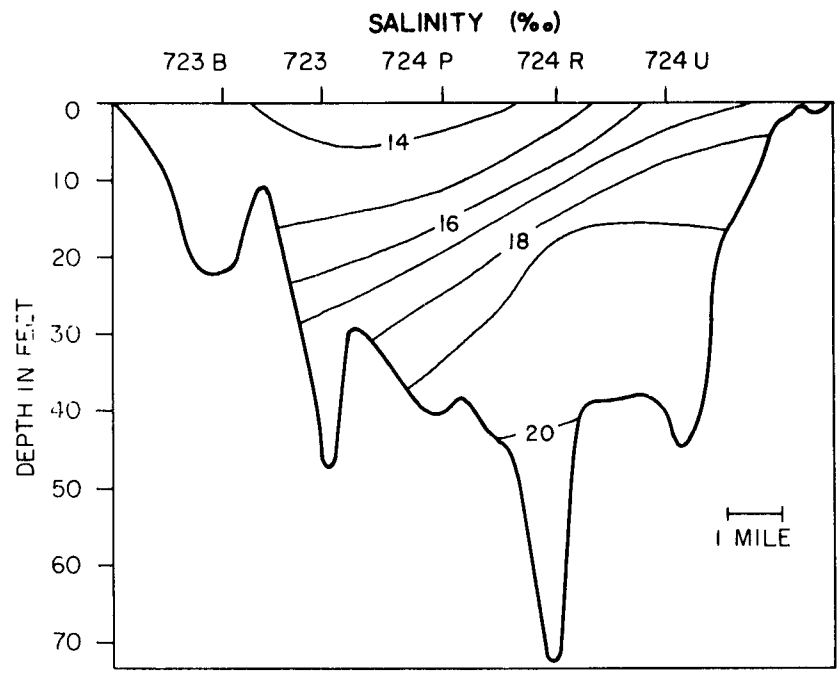

CHESAPEAKE BAY
60 ft SALINITY (‰)
CRUISE XVII
22 APR - 13 MAY 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°
10'
10'
5.7
5.9
6
11.4
14.5
5.3
20
21.7
16.3
8.8
24.6

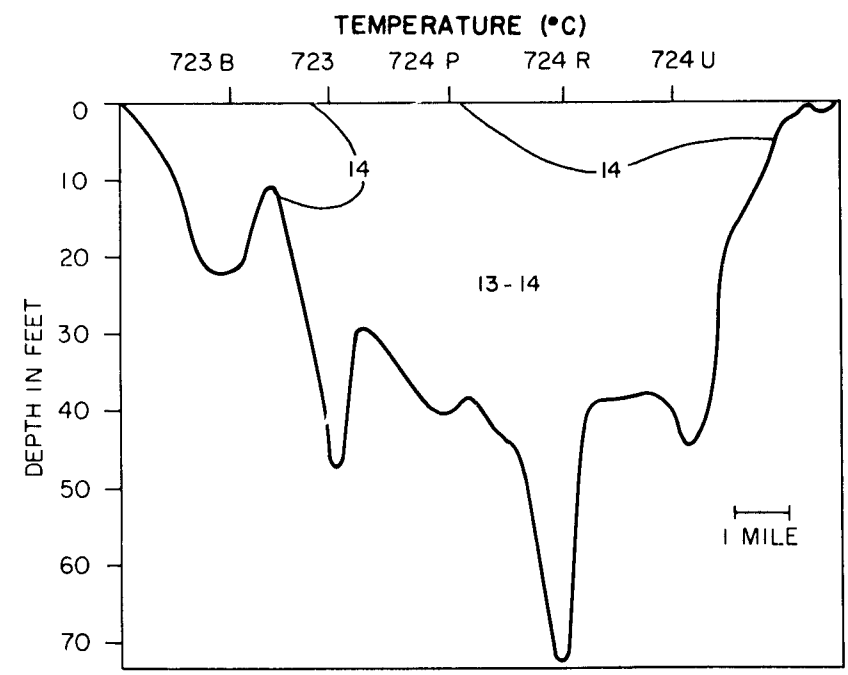

CHESAPEAKE BAY
60 ft TEMPERATURE(°C)
CRUISE XVII
22 APR - 13 MAY 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
7.3
7.6
7.9
8.6
15.2
14.9
13.9
12.4
39°
38°
37°
10'
77°
76°


SALINITY (‰)
656W
657W
659W
700W
701X
704X
0
10
20
30
40
50
60
70
80
DEPTH IN FEET
19
23
25
25
27
26
1 MILE

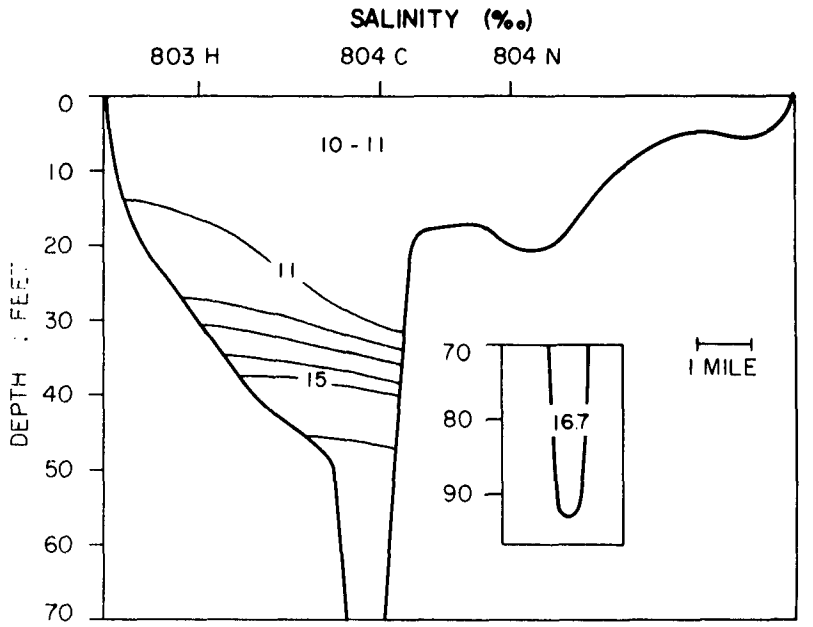

TEMPERATURE (°C)
656W
657W
659W
700W
701X
704X
0
10
20
30
40
50
60
70
80
DEPTH IN FEET
15
13
12
1 MILE

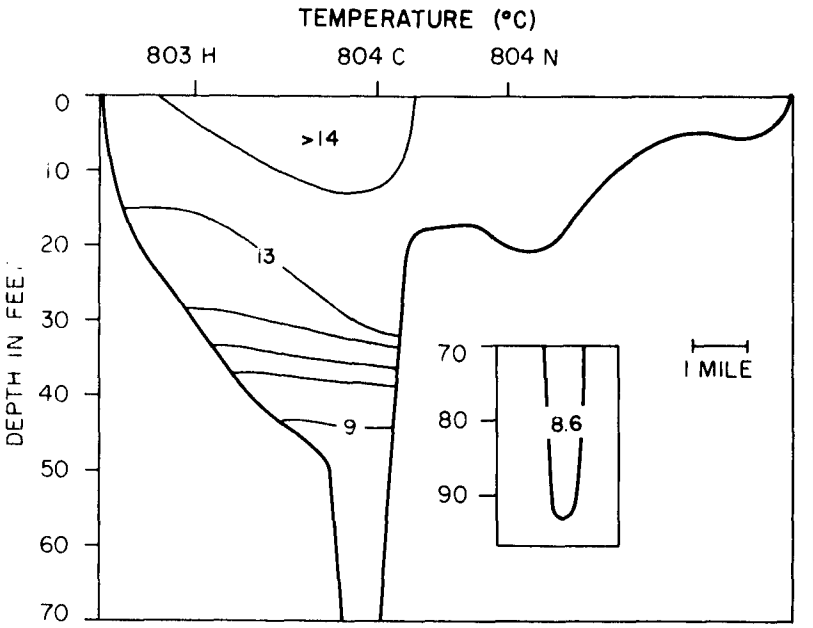
CRUISE XVII 22 APRIL - 13 MAY 1958 SECTION IV



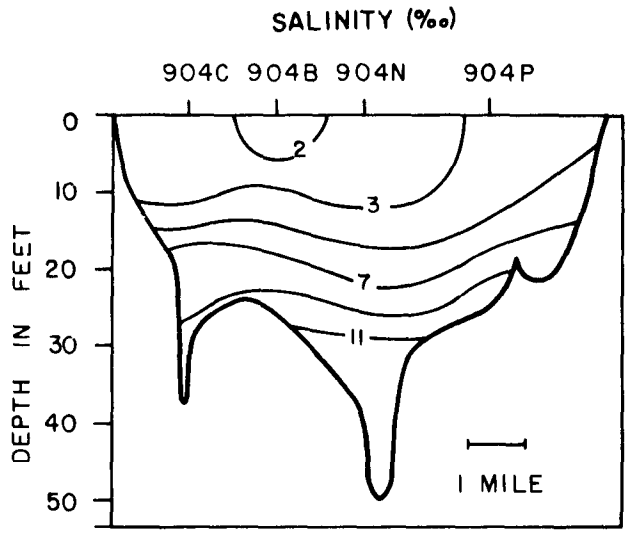



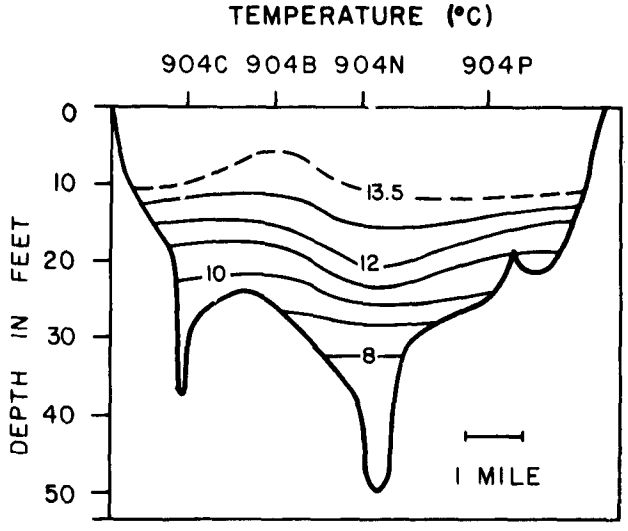
CRUISE XVII 22 APRIL - 13 MAY 1958 SECTION VI



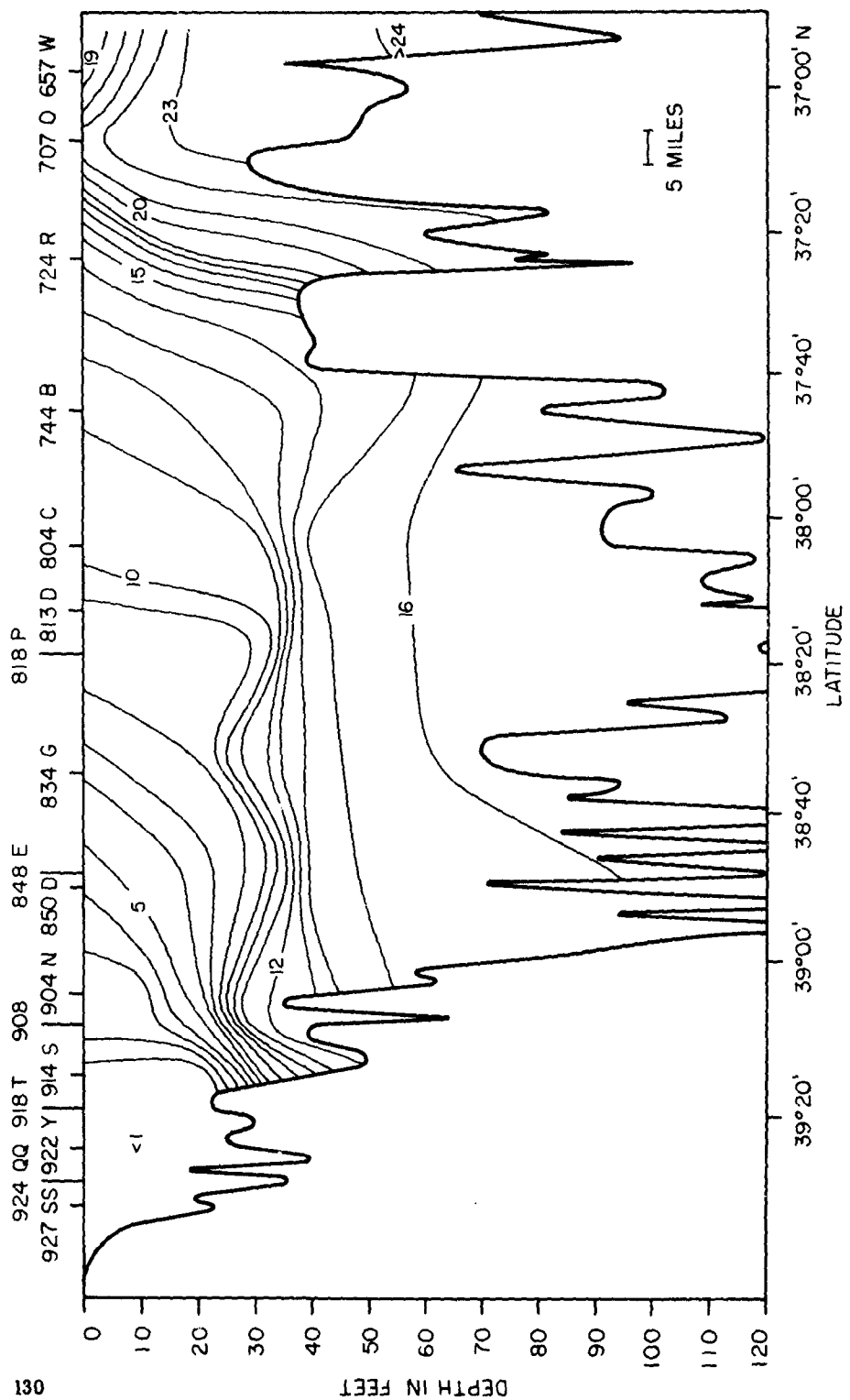
CRUISE XVII 22 APRIL - 13 MAY 1958 SECTION X



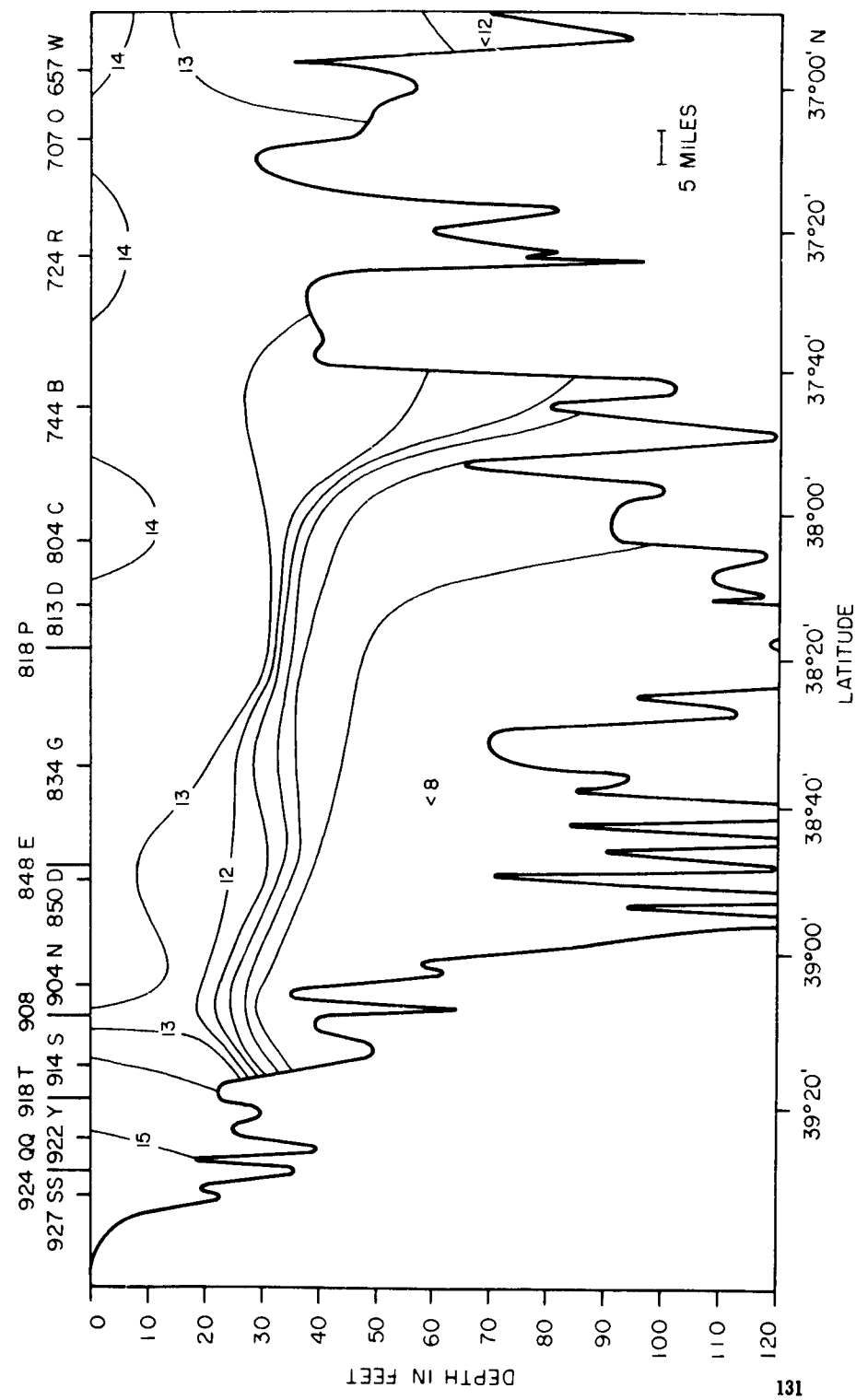
CRUISE XVII 22 APRIL - 13 MAY 1958 SECTION XIX

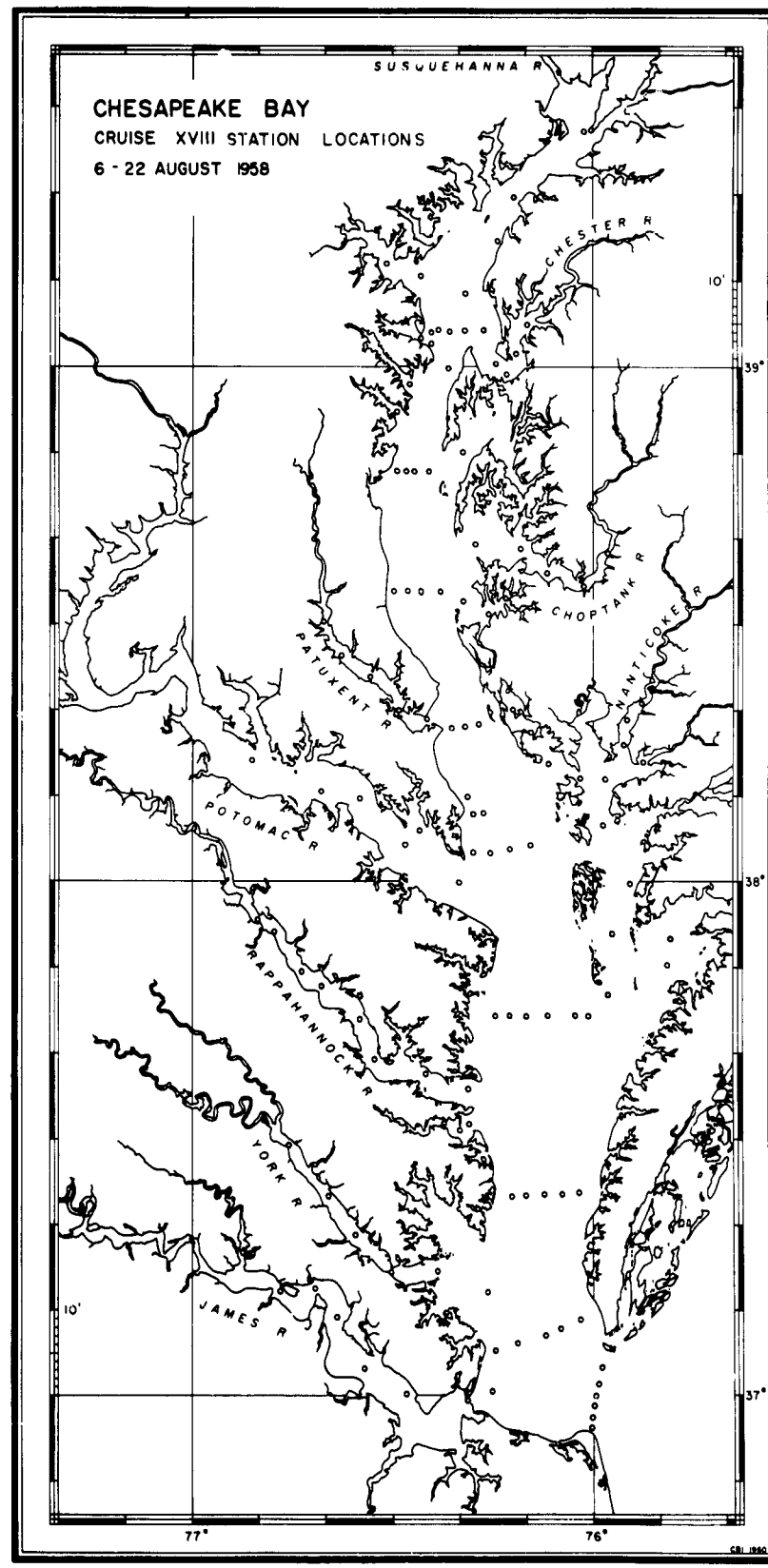
SALINITY (‰)

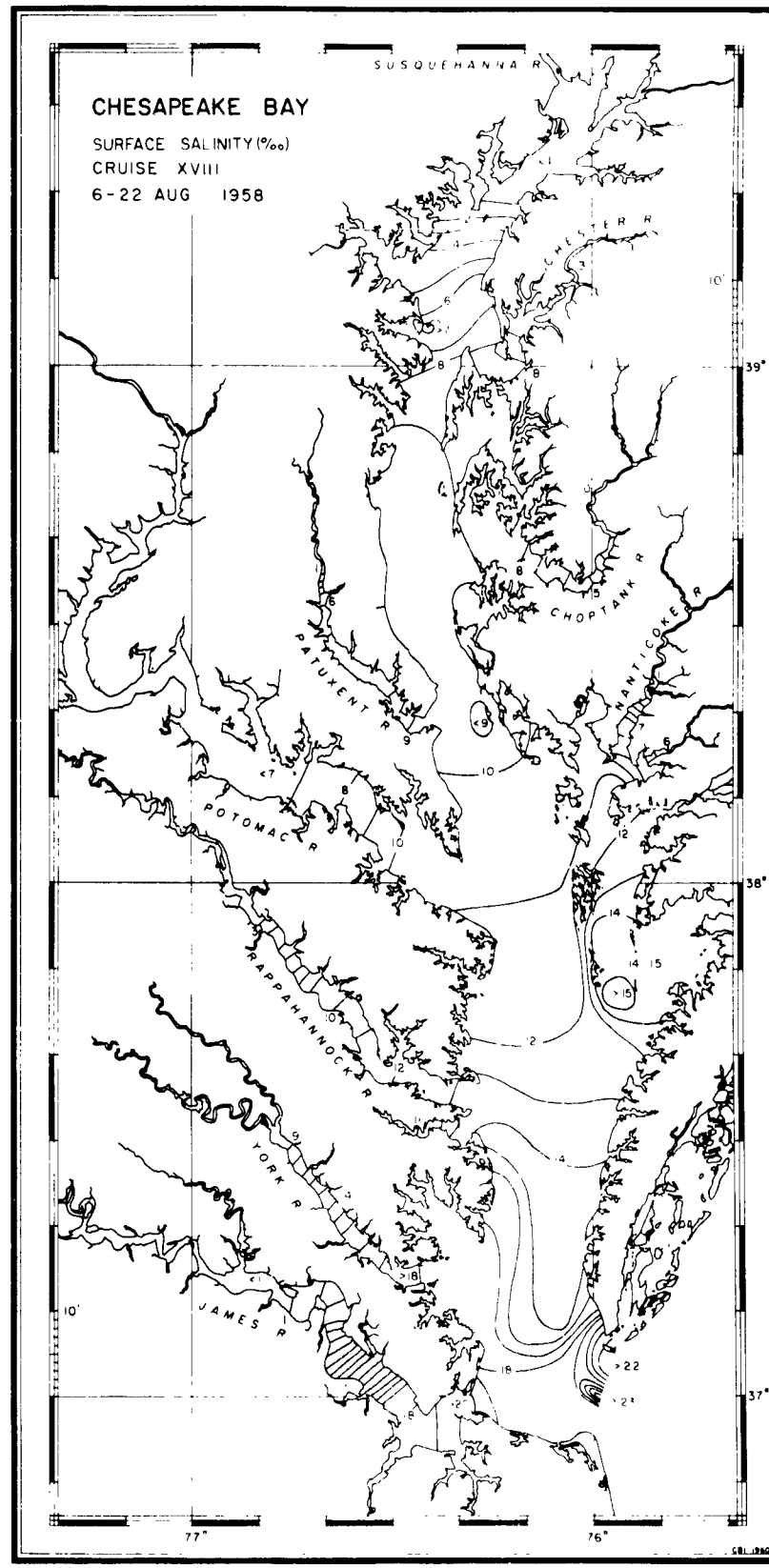


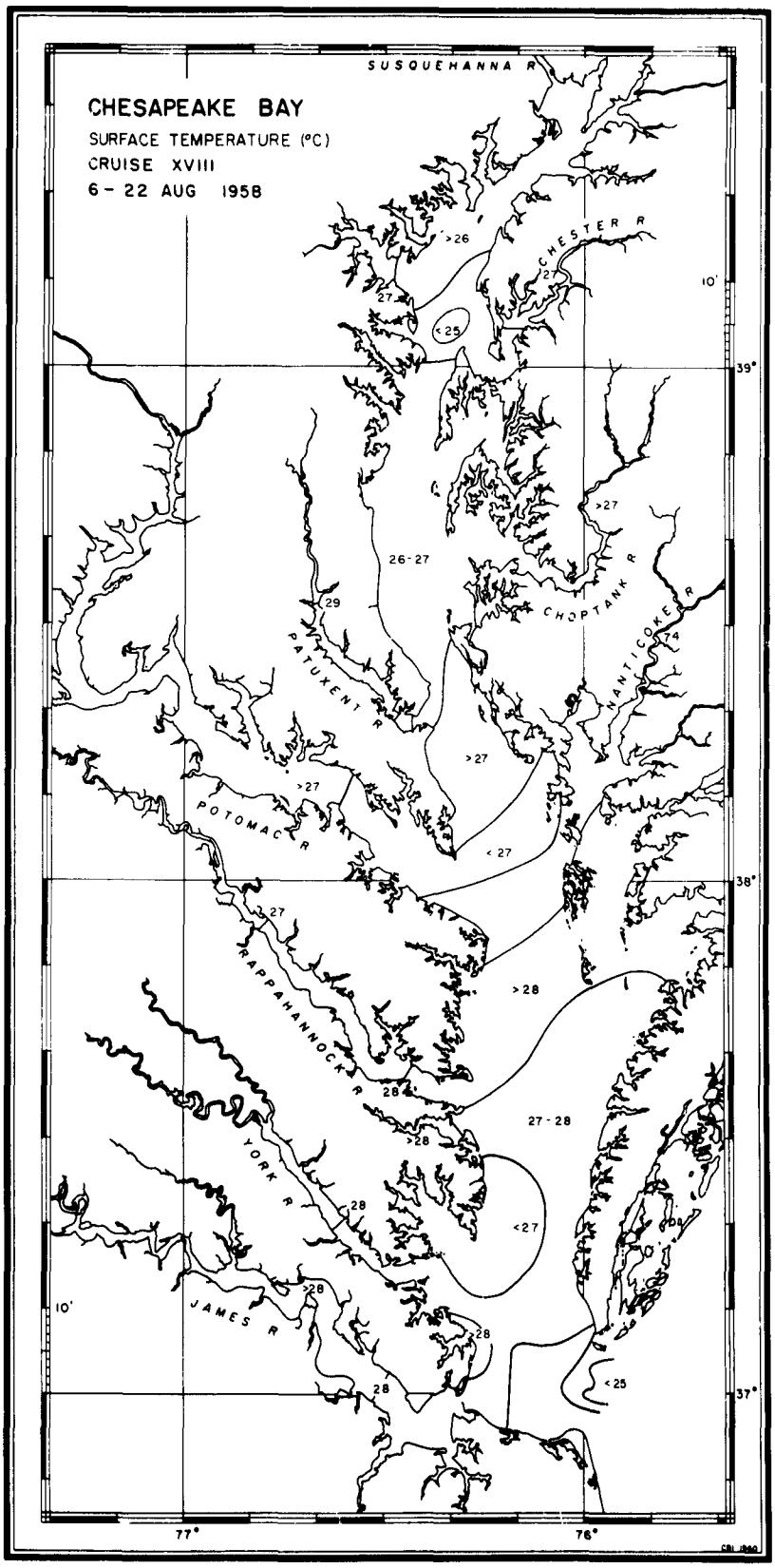
CRUISE XVII 22 APRIL - 13 MAY 1958 SECTION XIX

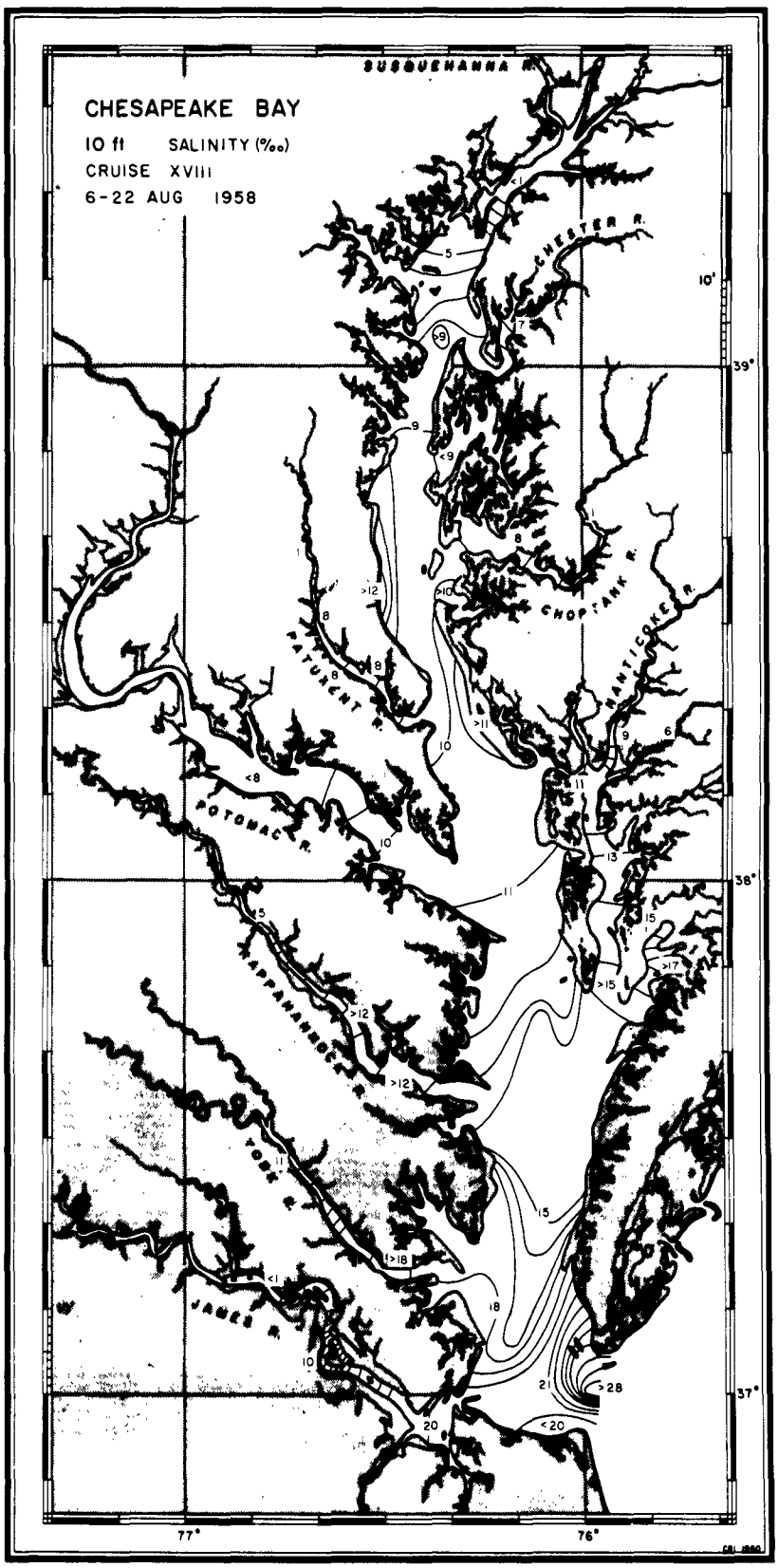
TEMPERATURE (°C)

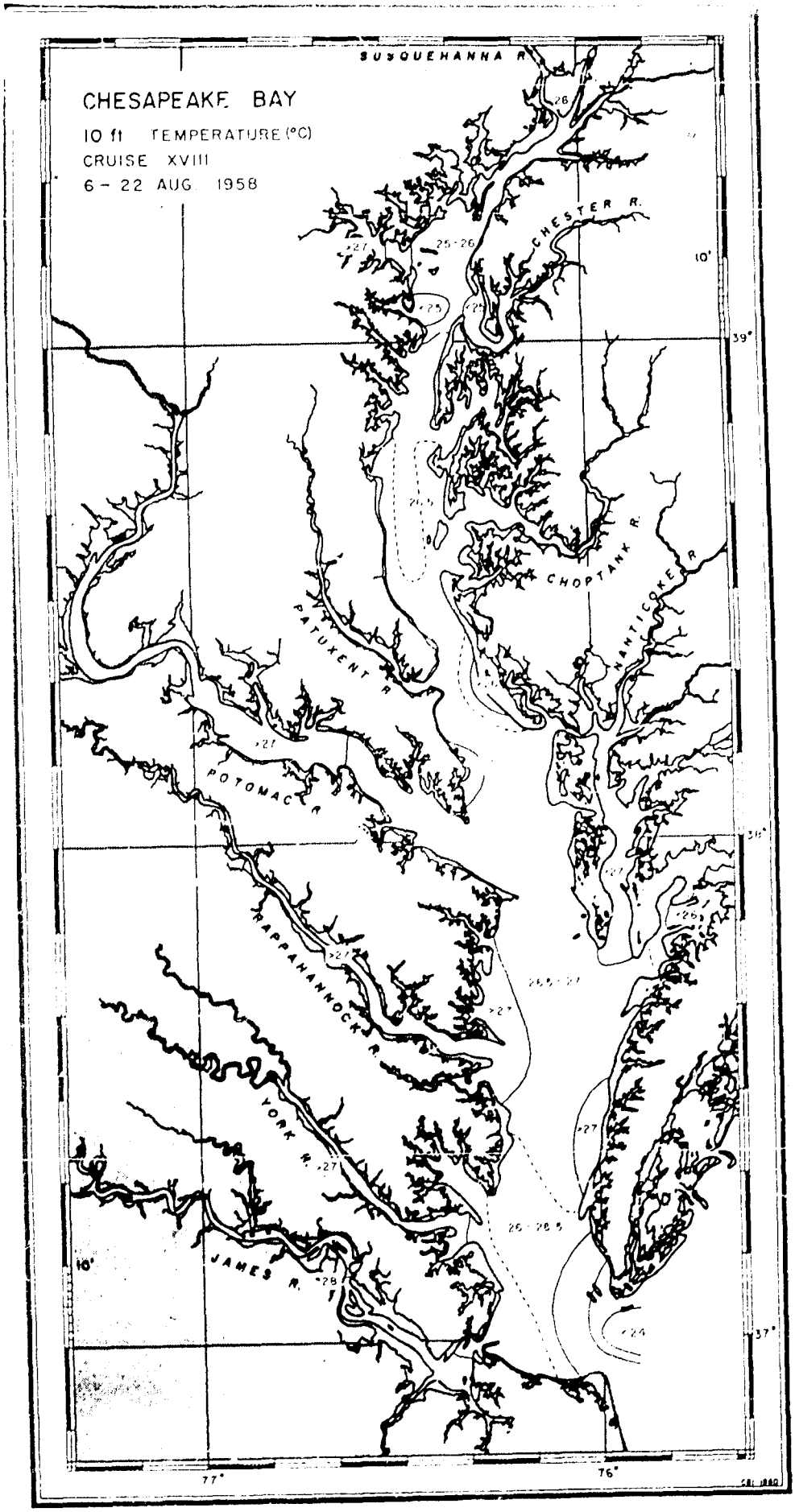


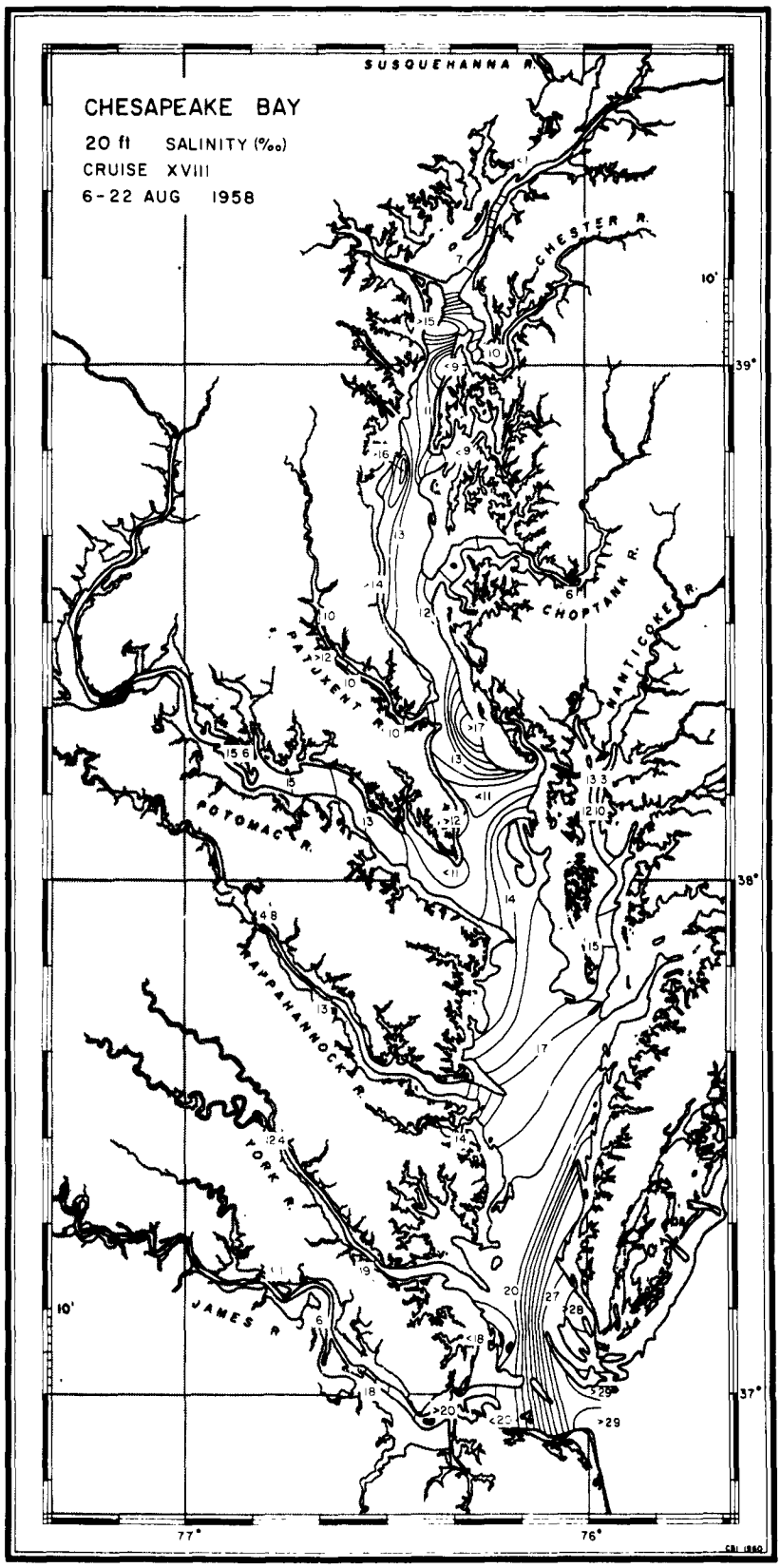

CHESAPEAKE BAY
CRUISE XVIII STATION LOCATIONS
6 - 22 AUGUST 1958
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
MANTICOKE R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
10'
39°
38°
37°
77°
76°
CBI 1960

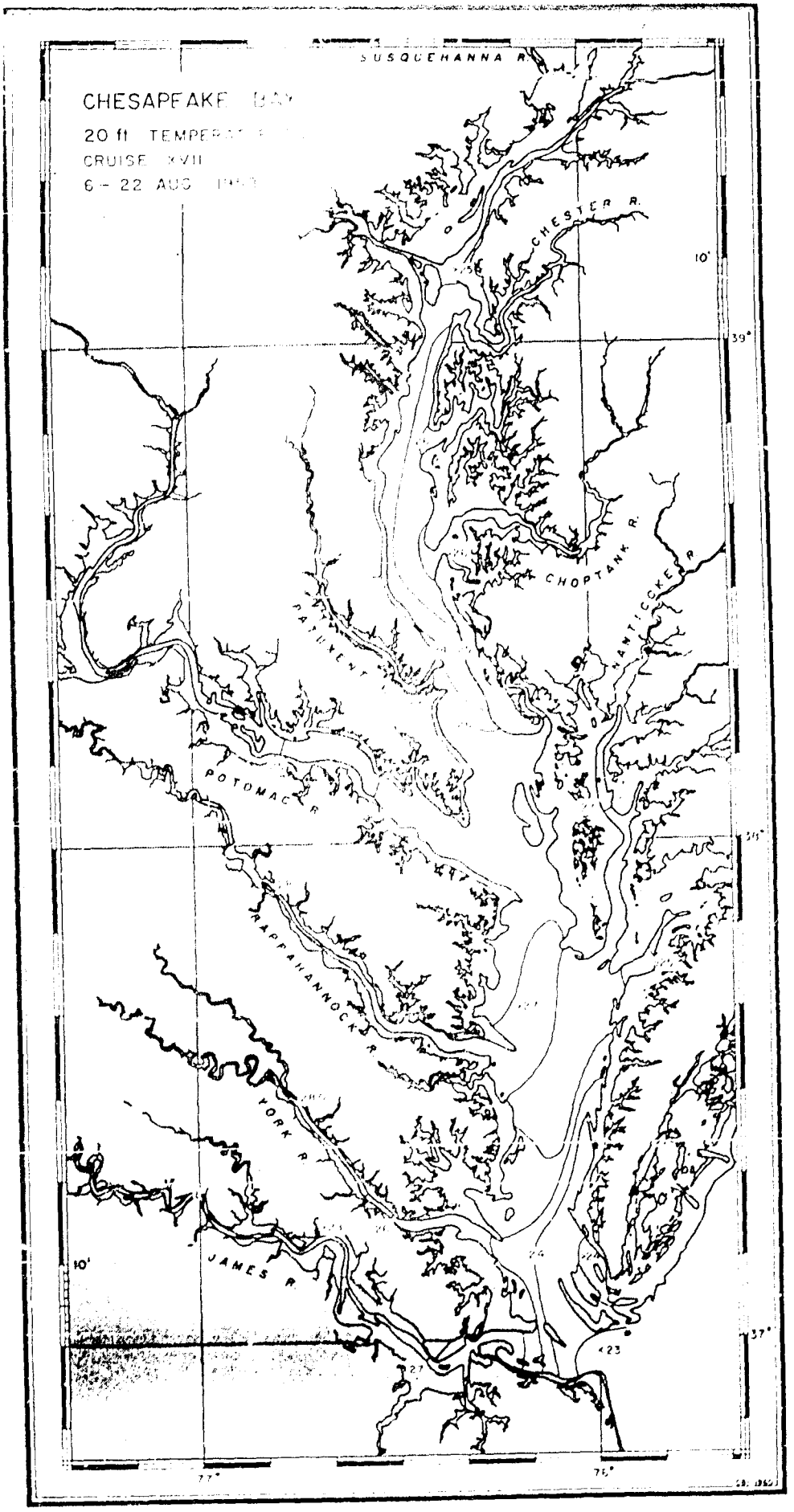

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XVIII
6-22 AUG 1958
SUSQUEHANNA R
CHESTER R
CHOPTANK R
MANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

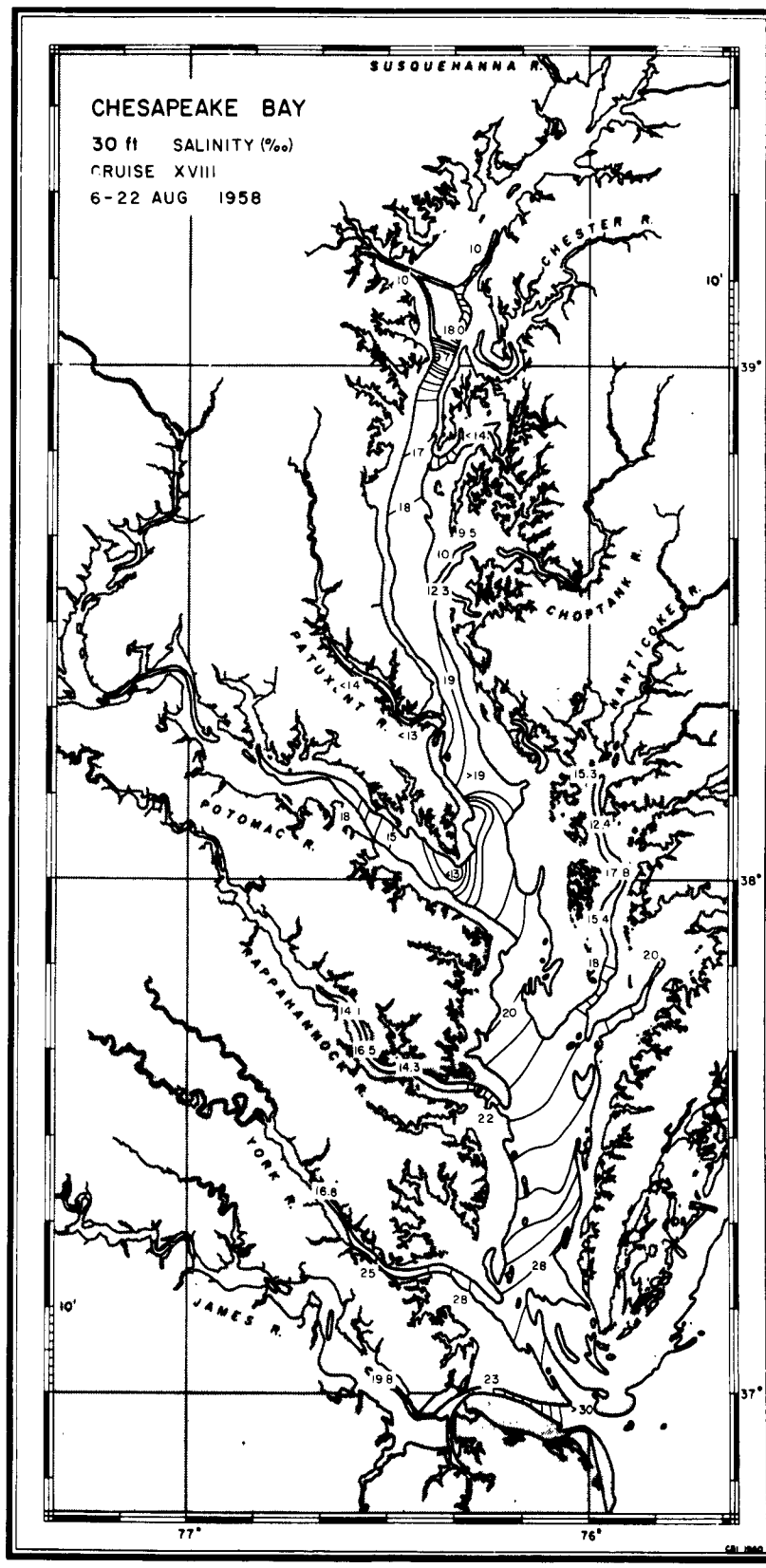

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XVIII
6 - 22 AUG 1958
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
>26
27
<25
26-27
>27
29
<27
>28
28
27-28
10'
39°
38°
37°
77°
76°

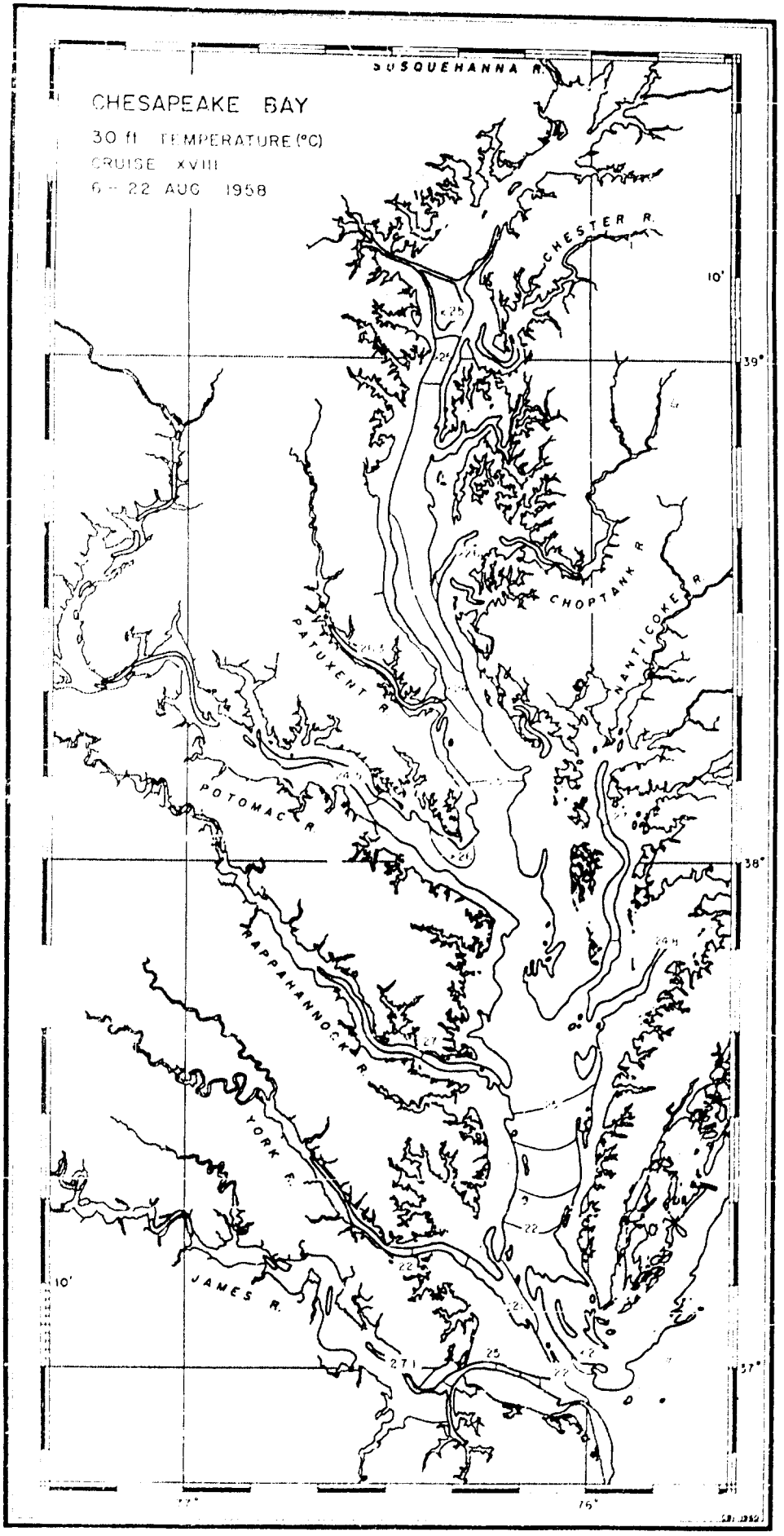

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XVIII
6-22 AUG 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°

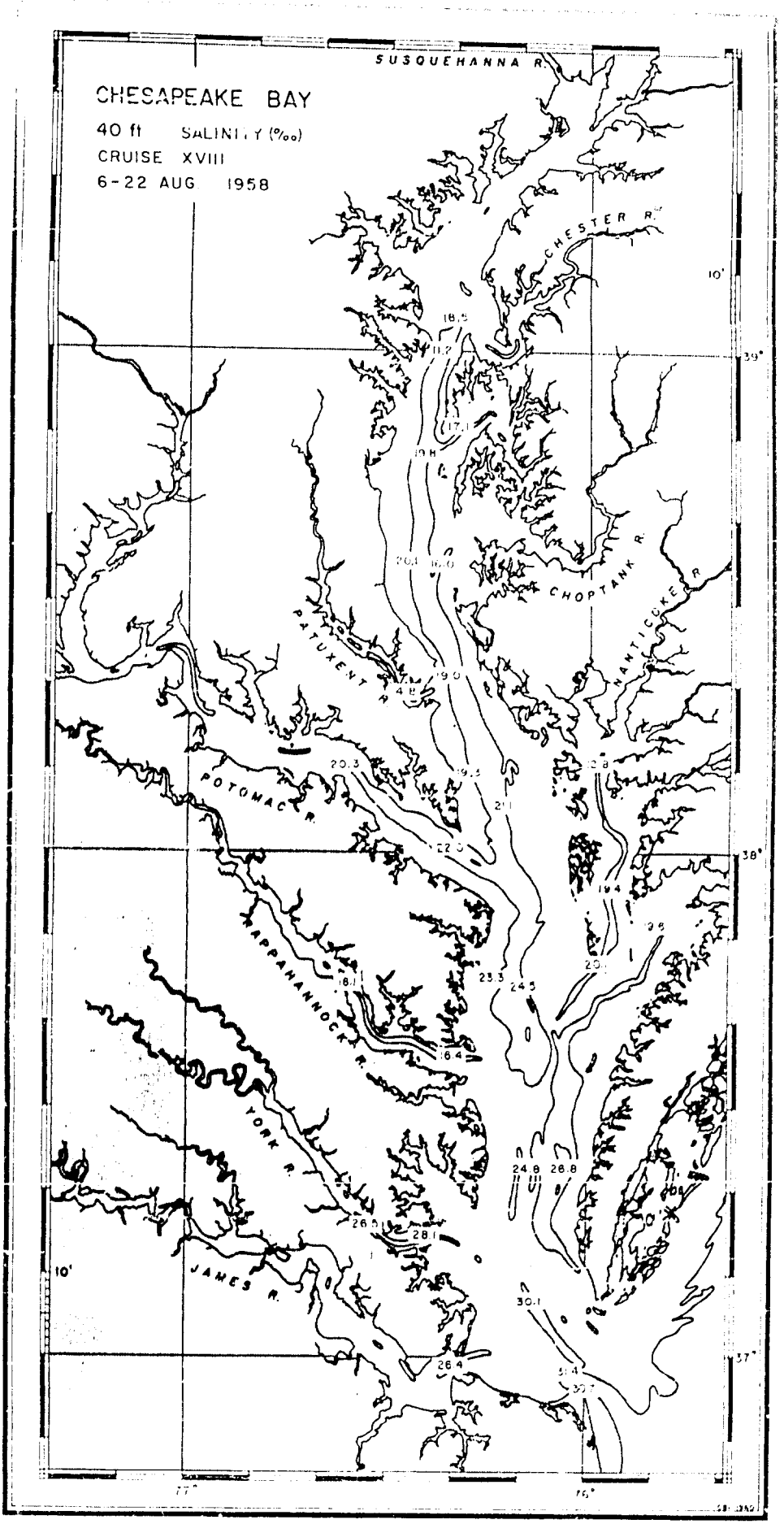

CHESAPEAKE BAY
10 11 TEMPERATURE (°C)
CRUISE XVIII
6 - 22 AUG. 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

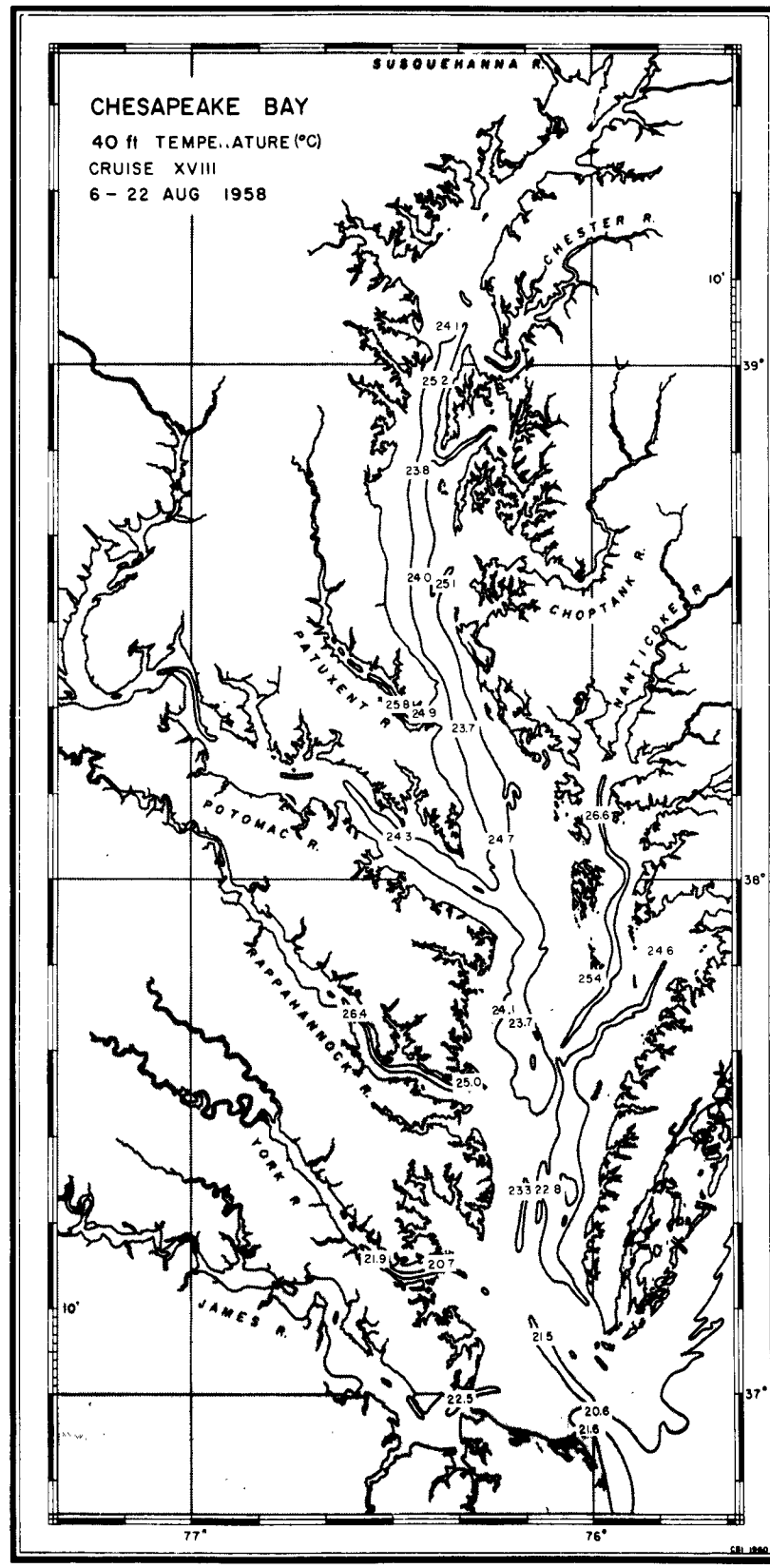

CHESAPEAKE BAY
20 ft SALINITY (‰)
CRUISE XVIII
6-22 AUG 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
10'
77°
76°

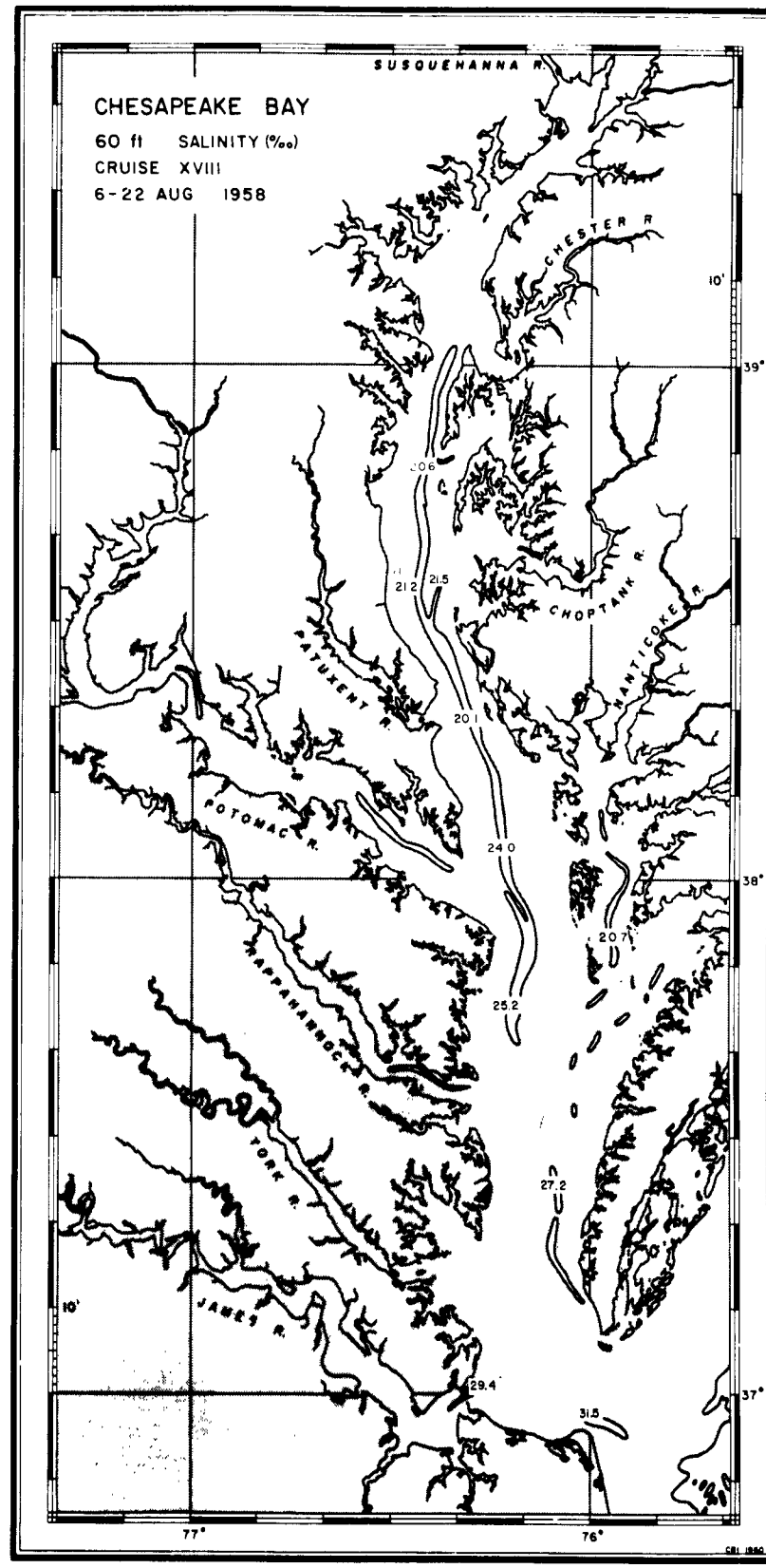

SUSQUEHANNA R.
CHESAPEAKE BAY
20 ft TEMPERATURE
CRUISE XVII
6 - 22 AUG 1952
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°

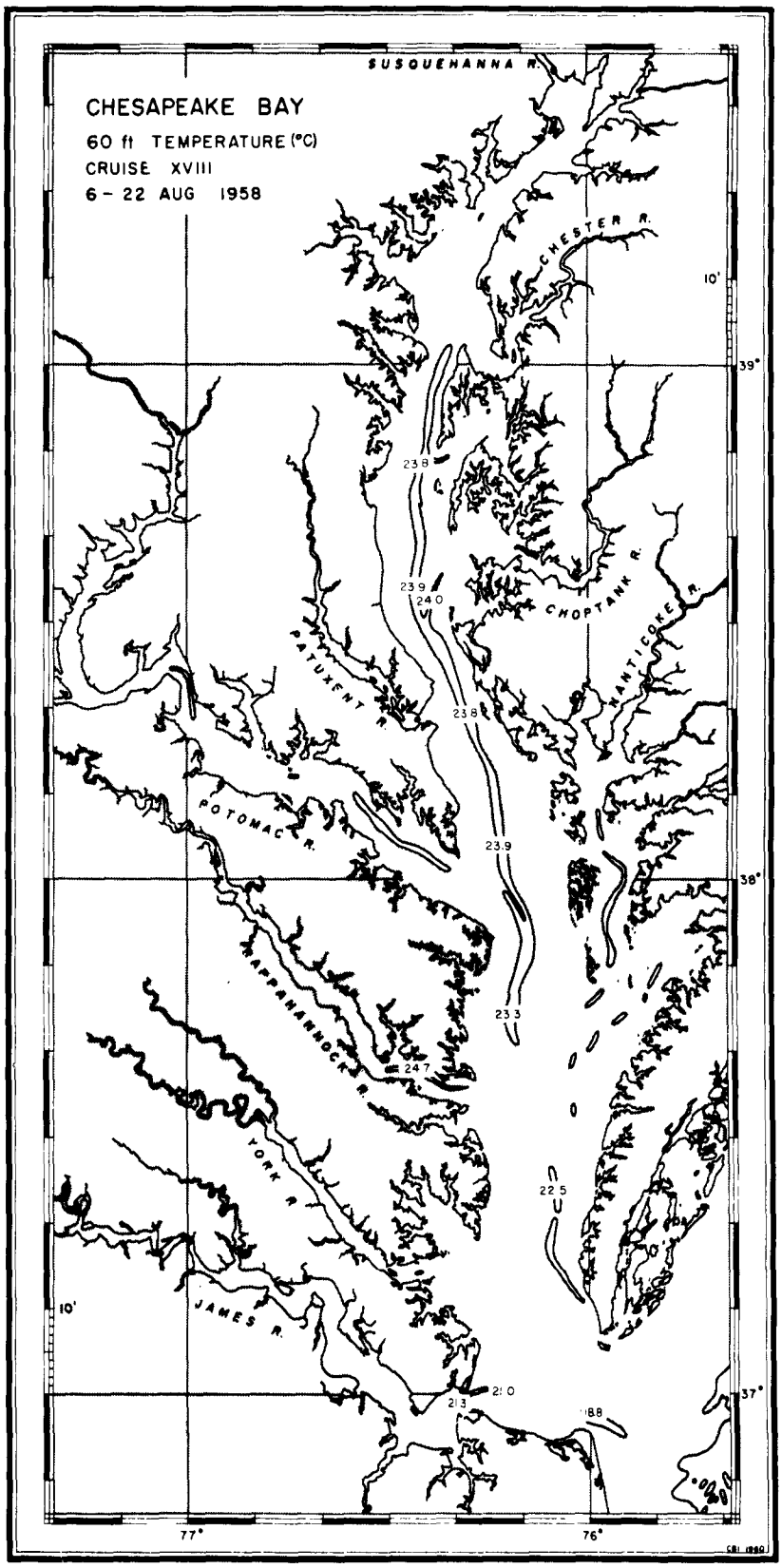

CHESAPEAKE BAY
30 ft SALINITY (‰)
CRUISE XVIII
6-22 AUG 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
MANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°
10'


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XVIII
6 – 22 AUG 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
10'
77°
76°

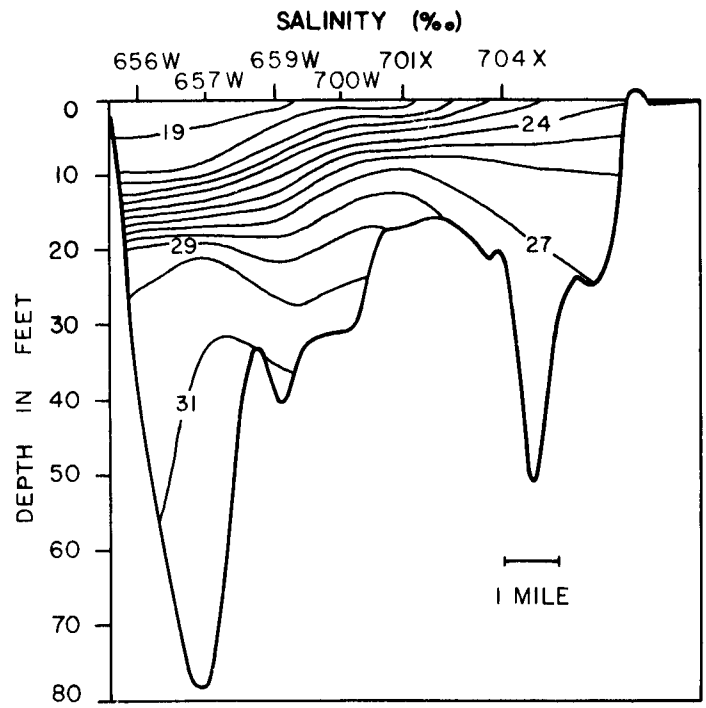

CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XVIII
6-22 AUG 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°

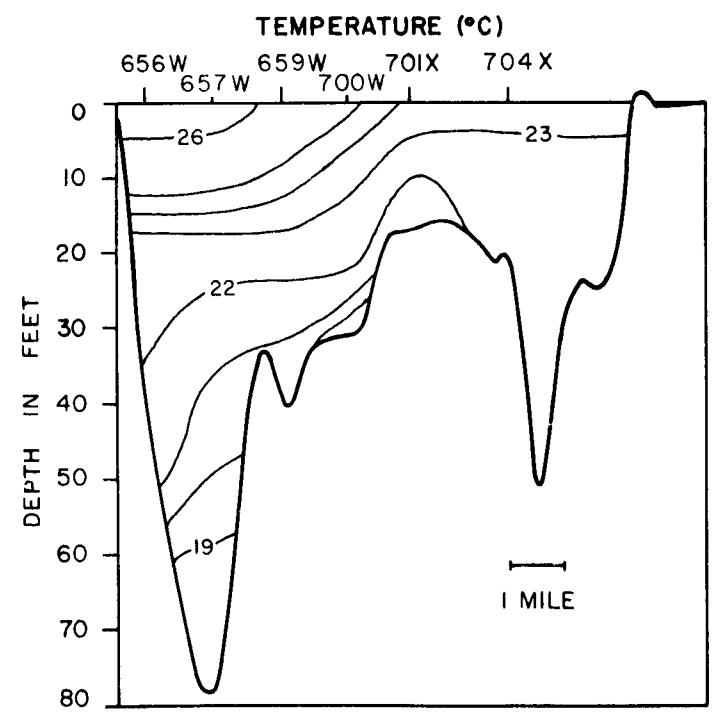

CHESAPEAKE BAY
40 ft TEMPE..ATURE (°C)
CRUISE XVIII
6 - 22 AUG 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
24.1
25.2
23.8
24.0
25.1
25.8
24.9
23.7
26.6
24.3
24.7
24.6
25.4
26.4
24.1
23.7
25.0
23.3
22.8
21.9
20.7
21.5
22.5
20.6
21.6
39°
38°
37°
10'
10'
77°
76°
CBL 1980


CHESAPEAKE BAY
60 ft SALINITY (‰)
CRUISE XVIII
6-22 AUG 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
MANTICOKE R.
20.6
21.2
21.5
20.1
24.0
20.7
25.2
27.2
29.4
31.5
39°
38°
37°
10'
77°
76°

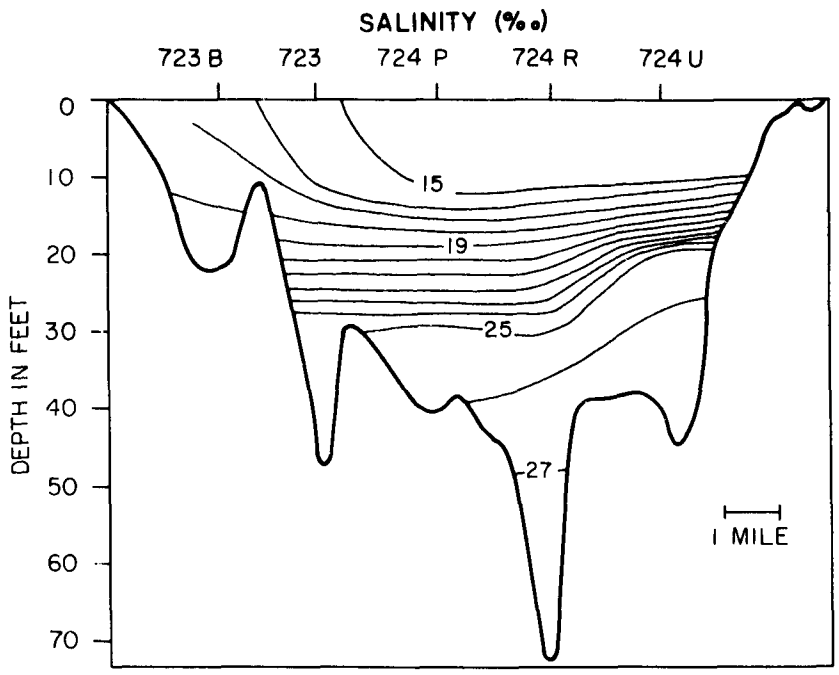

CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
CRUISE XVIII
6 - 22 AUG 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
23.8
23.9
24.0
23.8
23.9
23.3
24.7
22.5
21.0
21.3
18.8
39°
38°
37°
10'
10'
77°
76°

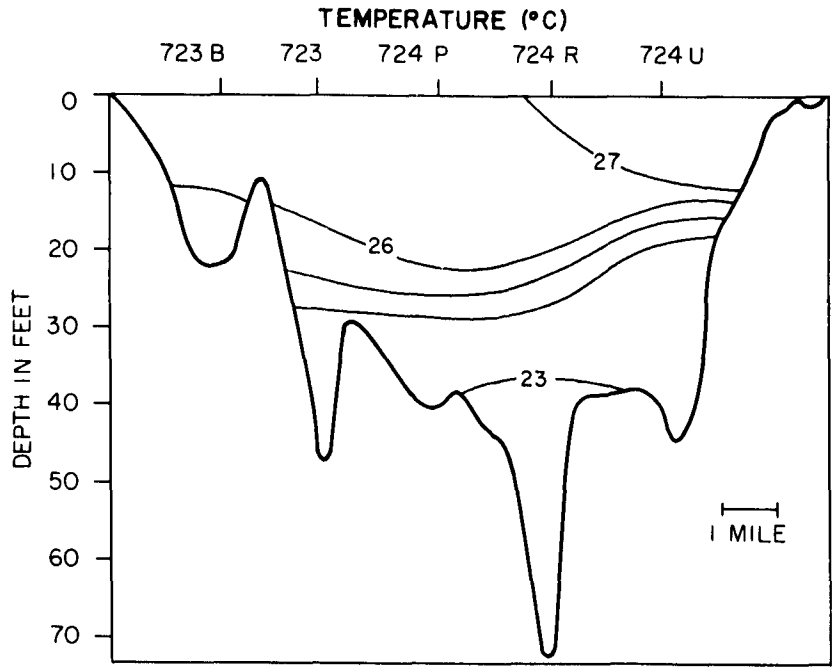
CRUISE XVIII 6 - 22 AUGUST 1958 SECTION II



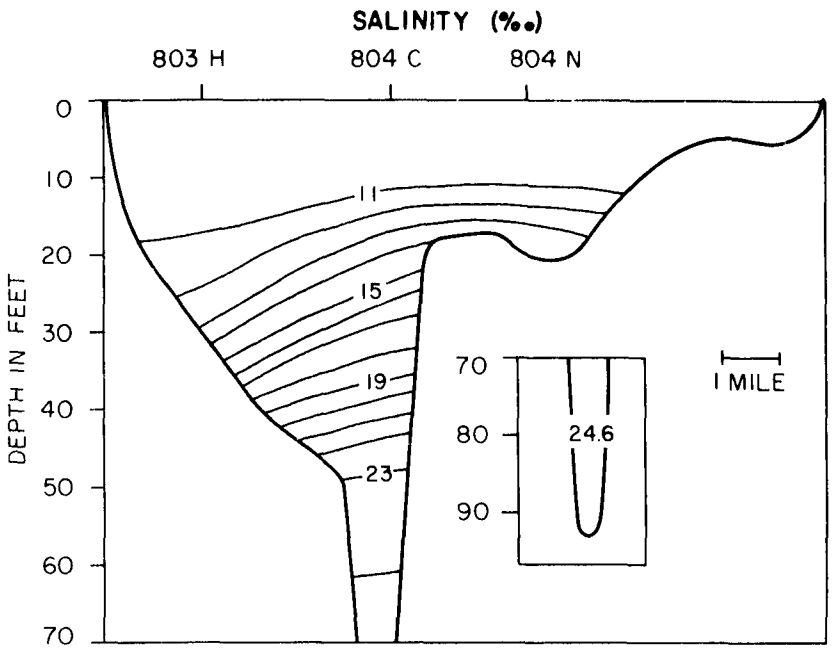



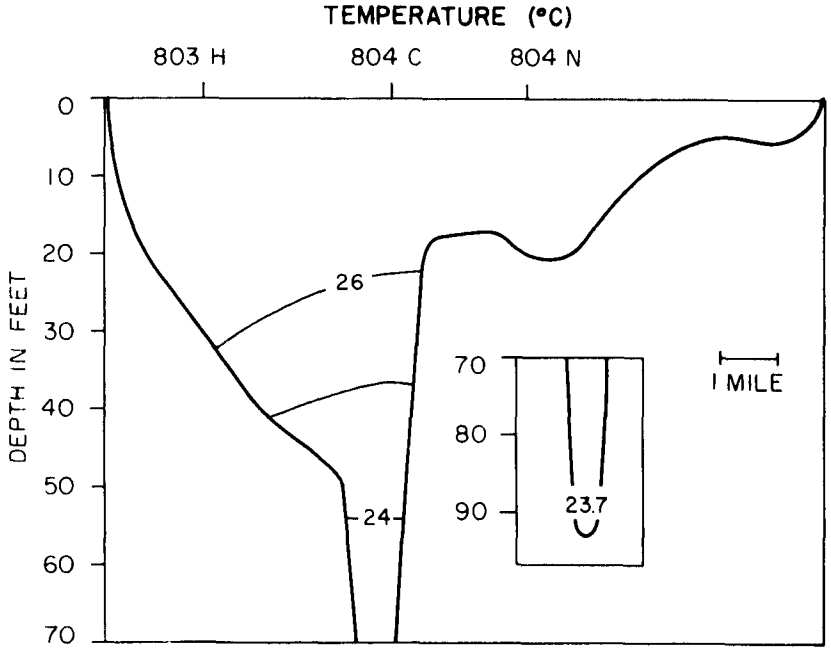
CRUISE XVIII 6 - 22 AUGUST 1958 SECTION IV



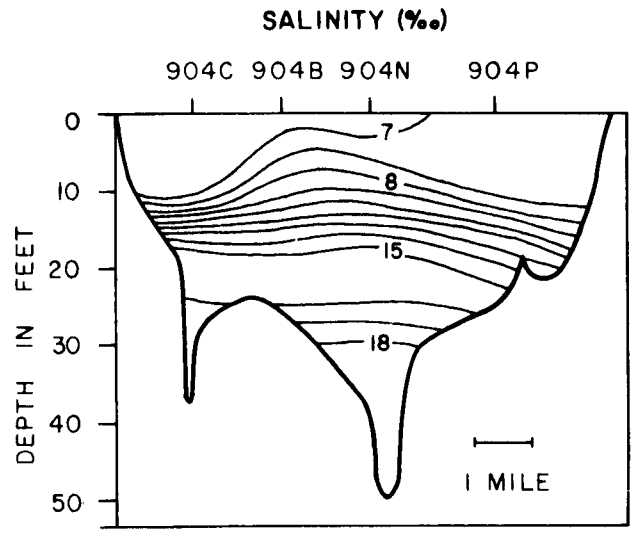



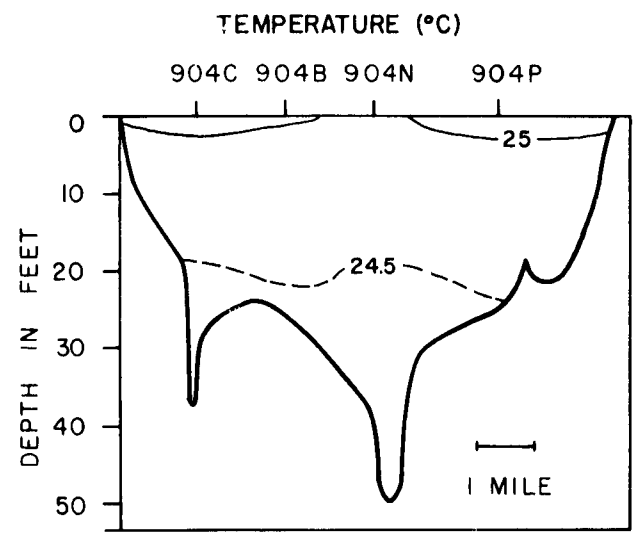
CRUISE XVIII 6 - 22 AUGUST 1958 SECTION VI



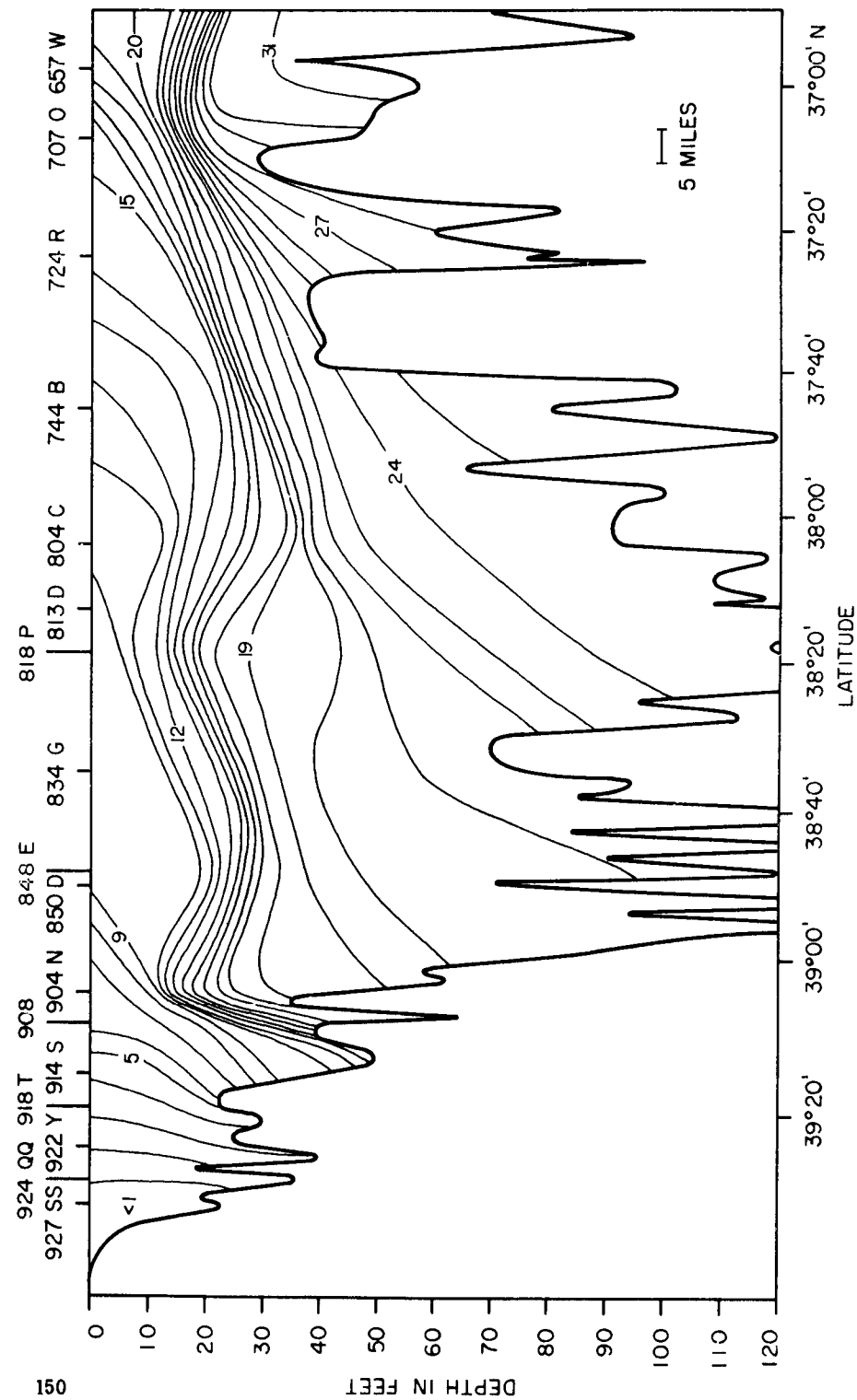
CRUISE XVIII 6 - 22 AUGUST 1958 SECTION X



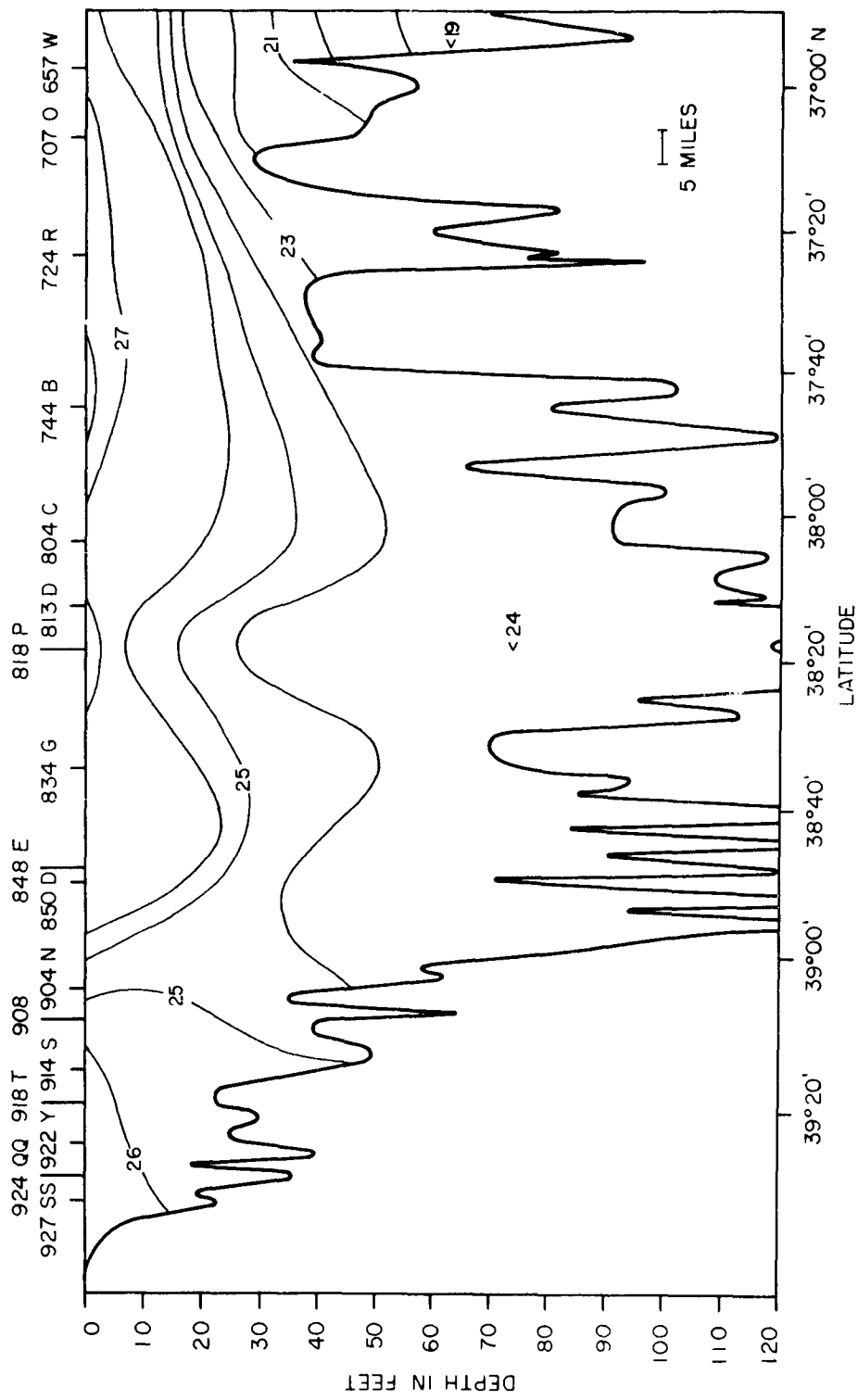
CRUISE XVIII 6 - 22 AUGUST 1958 SECTION XIX

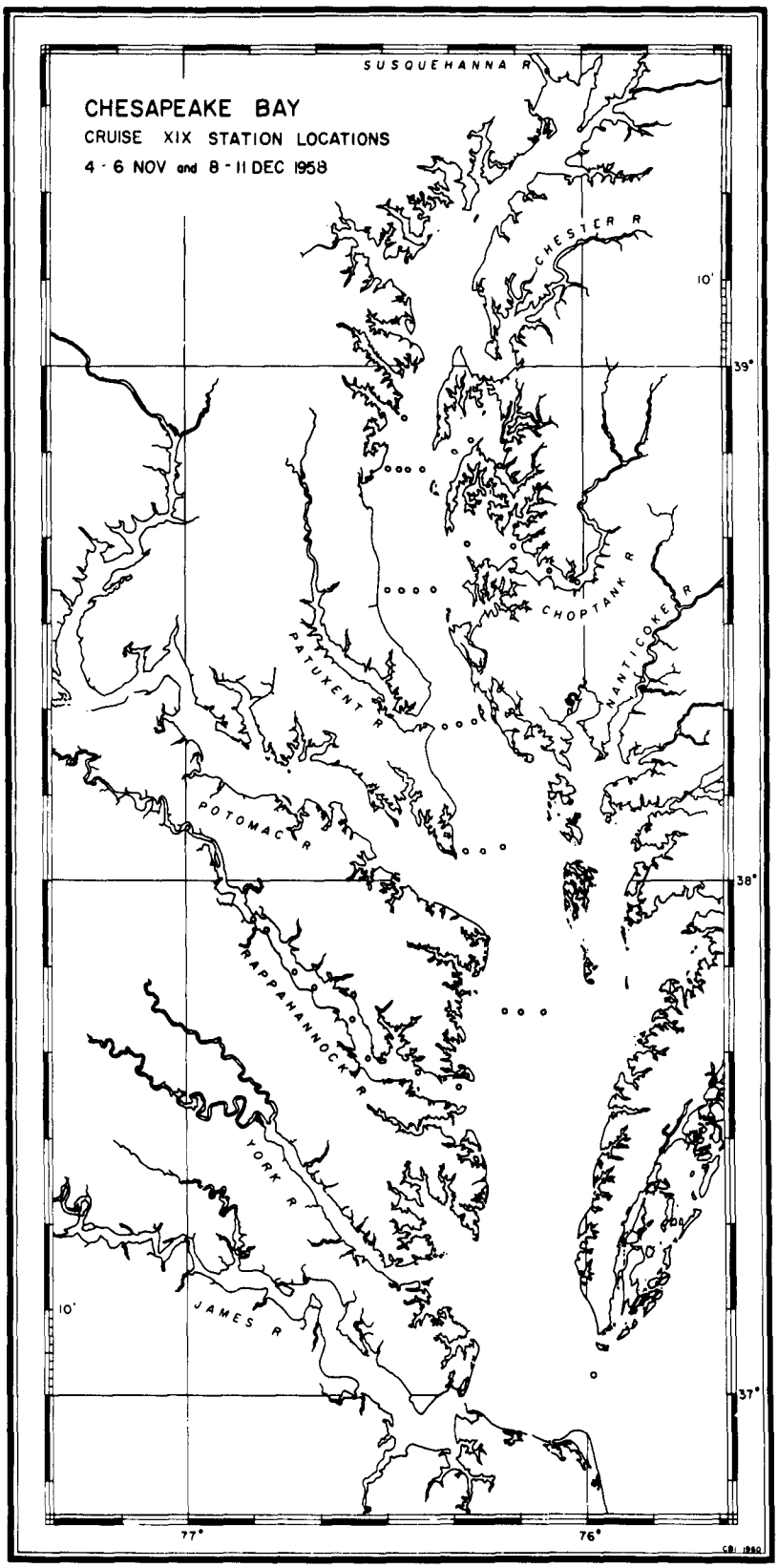
SALINITY (‰)

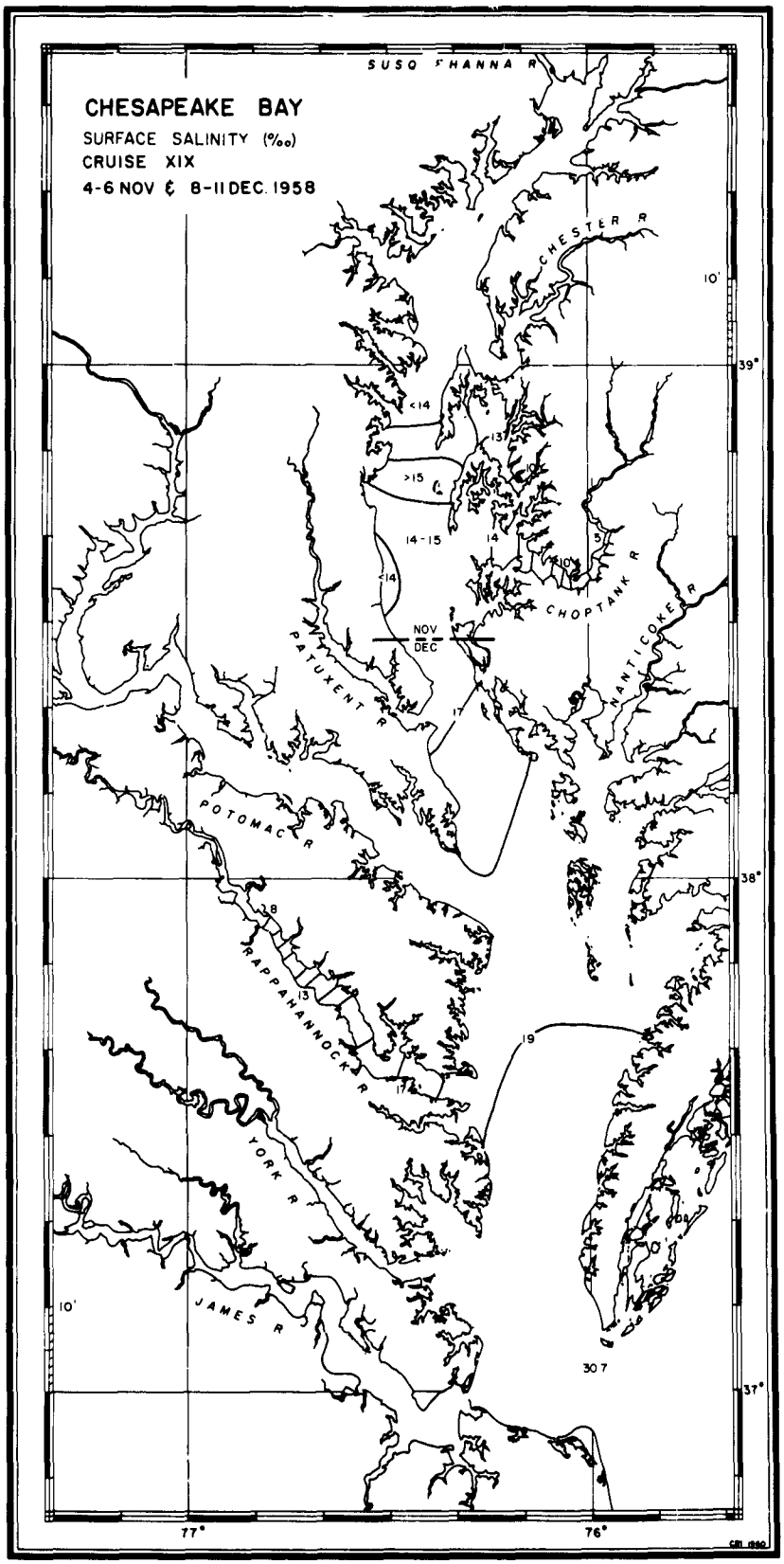


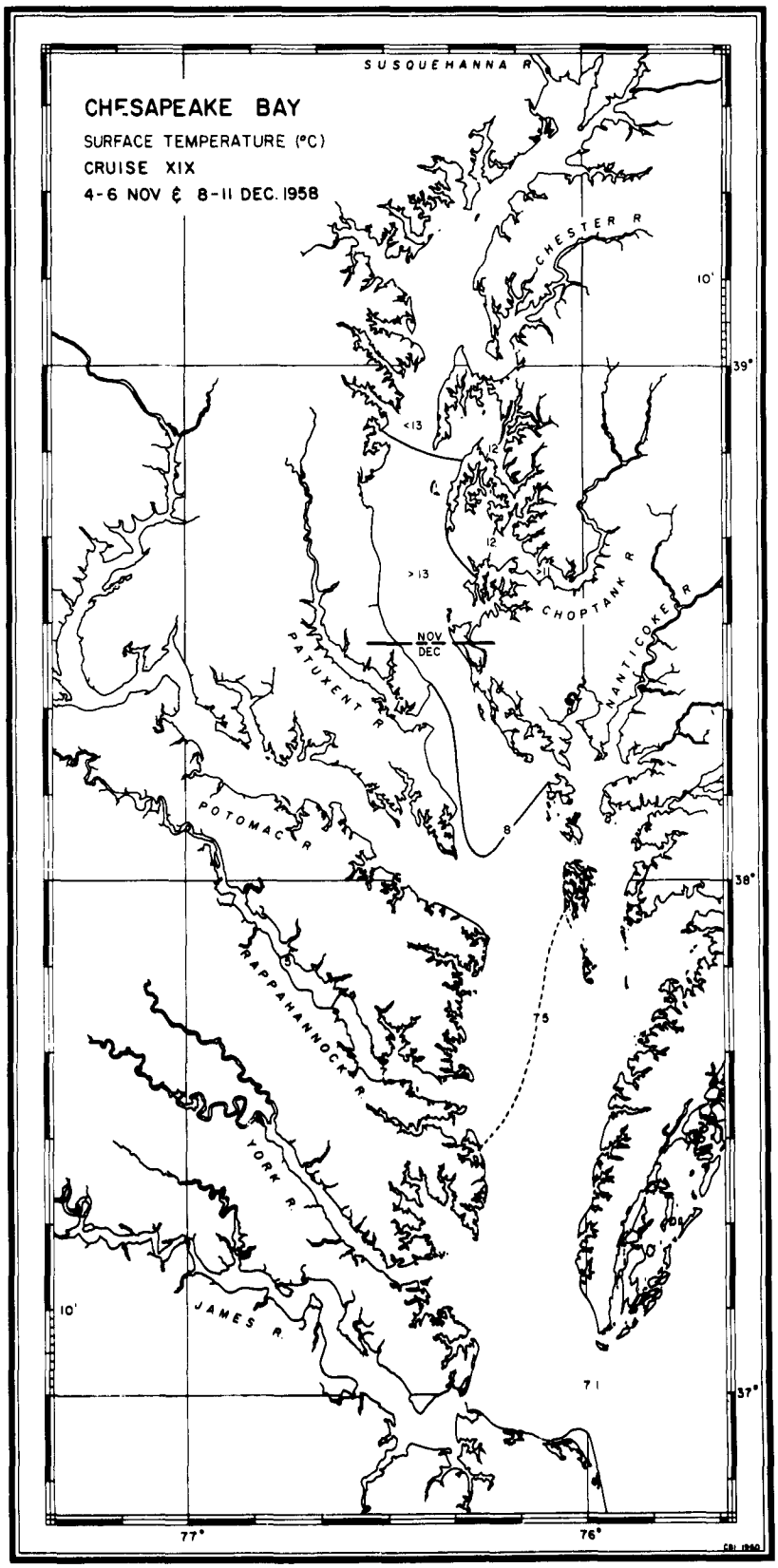
CRUISE XVIII 6 - 22 AUGUST 1958 SECTION XIX

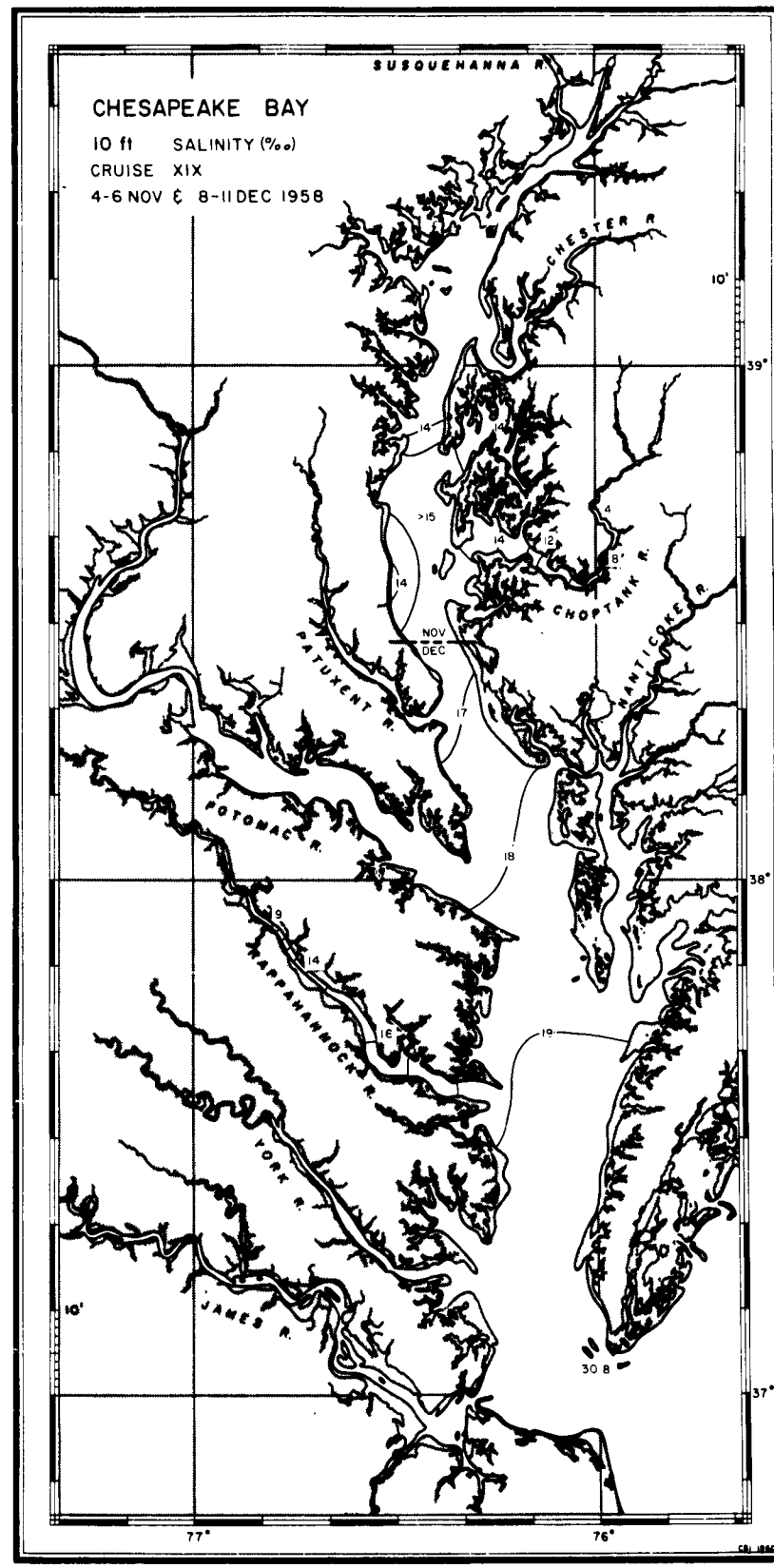
TEMPERATURE (°C)

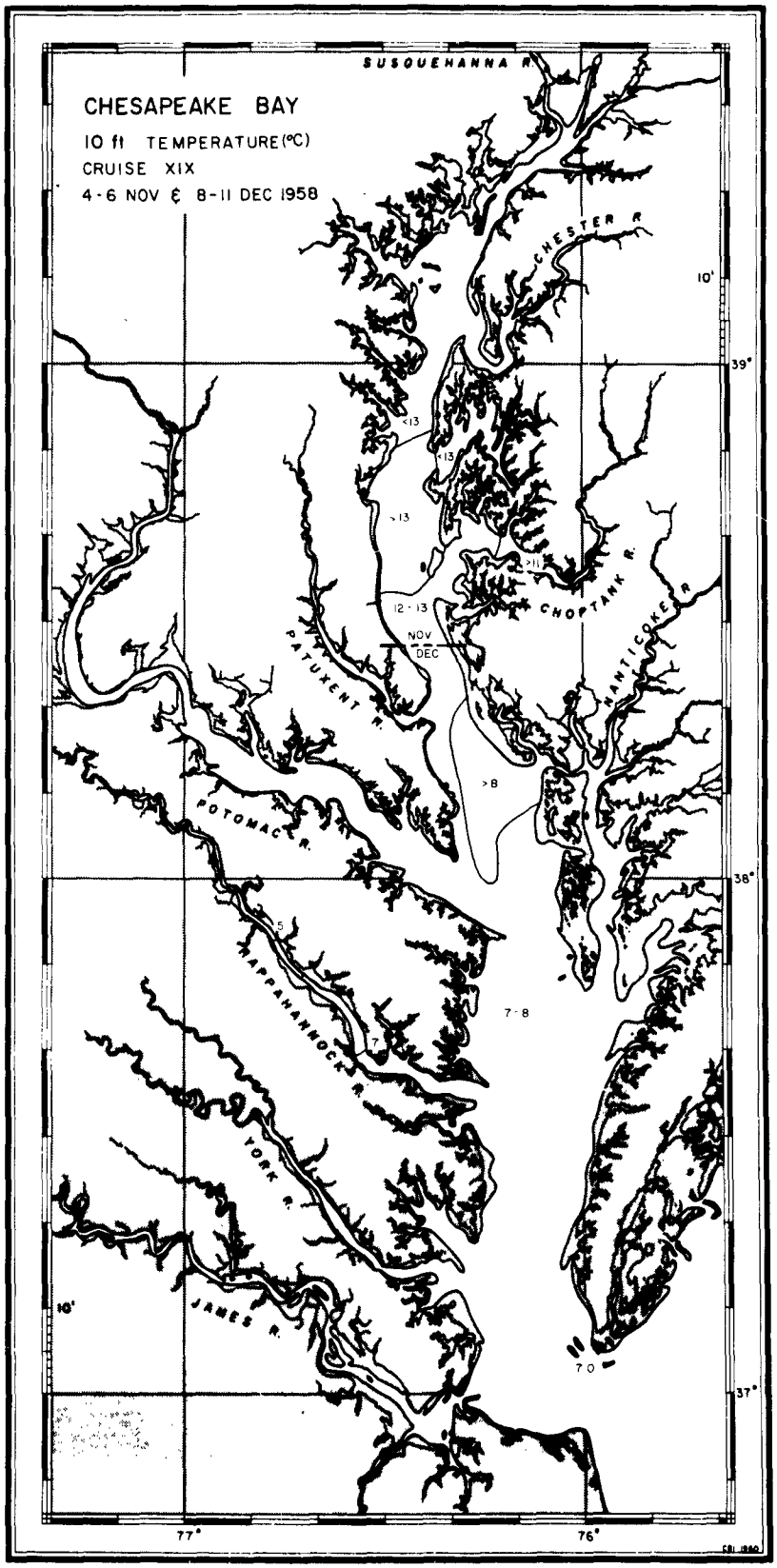


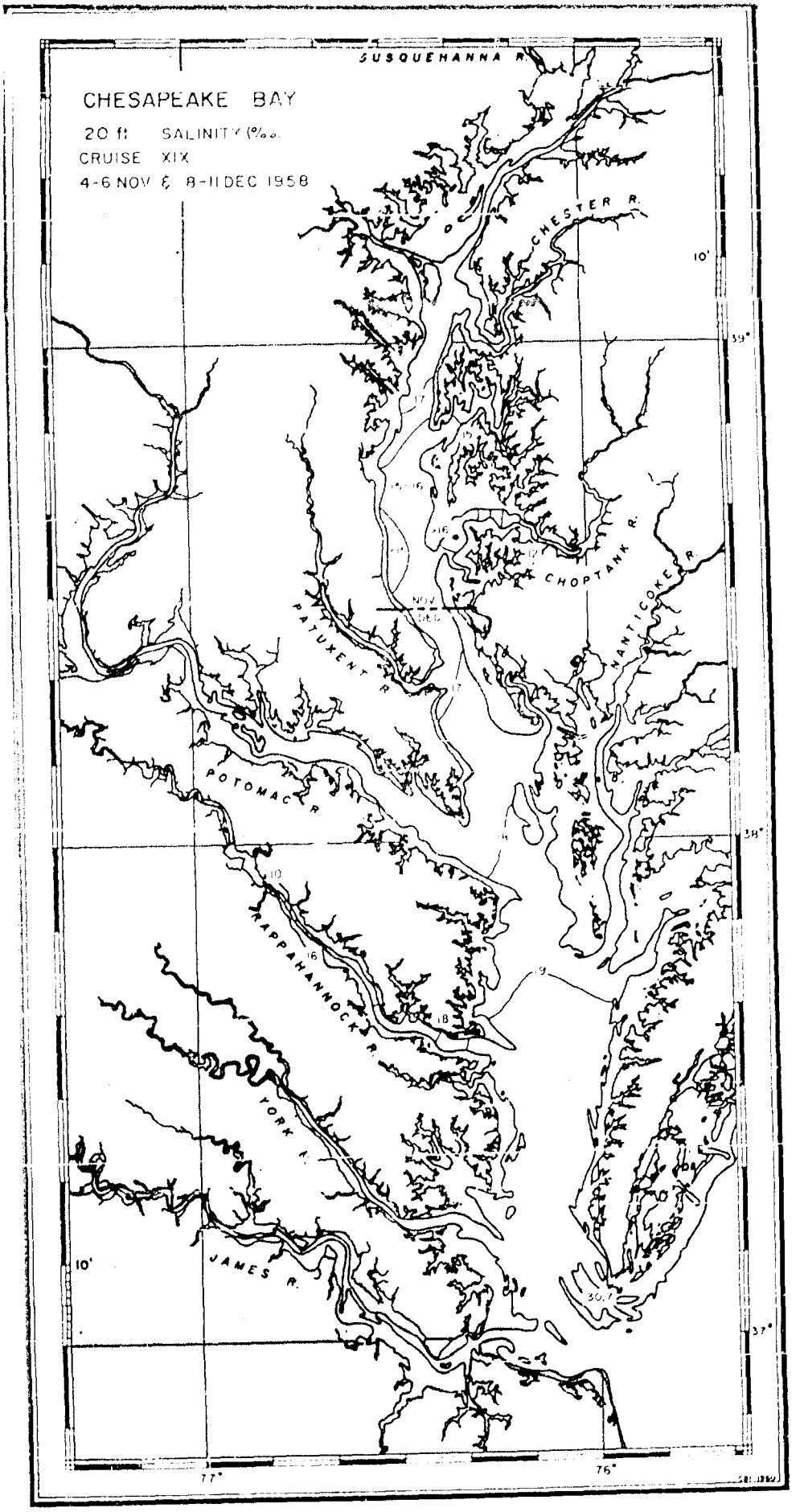

CHESAPEAKE BAY
CRUISE XIX STATION LOCATIONS
4 - 6 NOV and 8 - 11 DEC 1958
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
10'
77°
76°

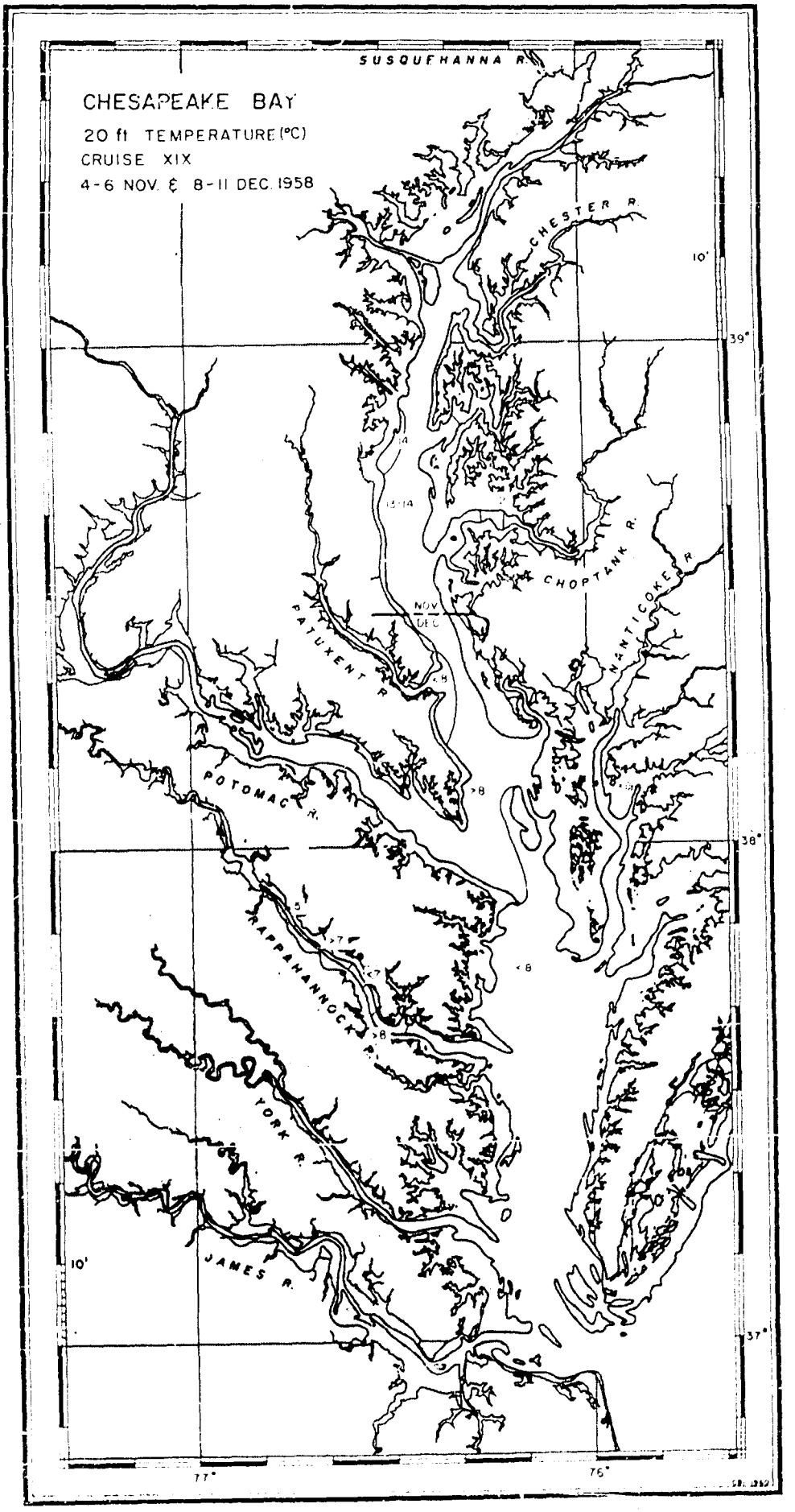

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XIX
4-6 NOV & 8-11 DEC. 1958
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
NOV
DEC
<14
14-15
>15
39°
38°
37°
77°
76°

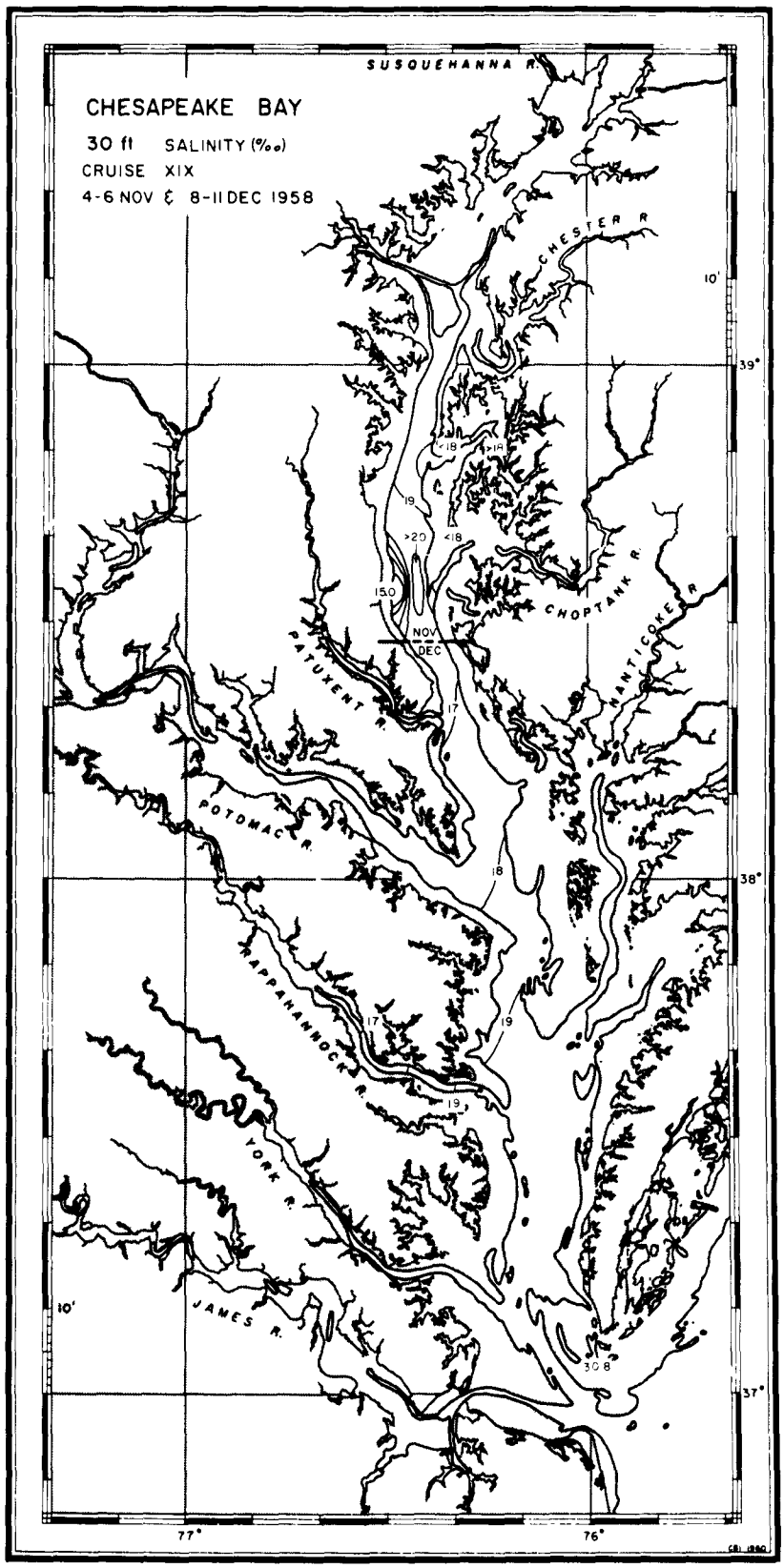

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XIX
4-6 NOV & 8-11 DEC. 1958
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
NOV
DEC
<13
12
>13
8
75
71
39°
38°
37°
10'
77°
76°

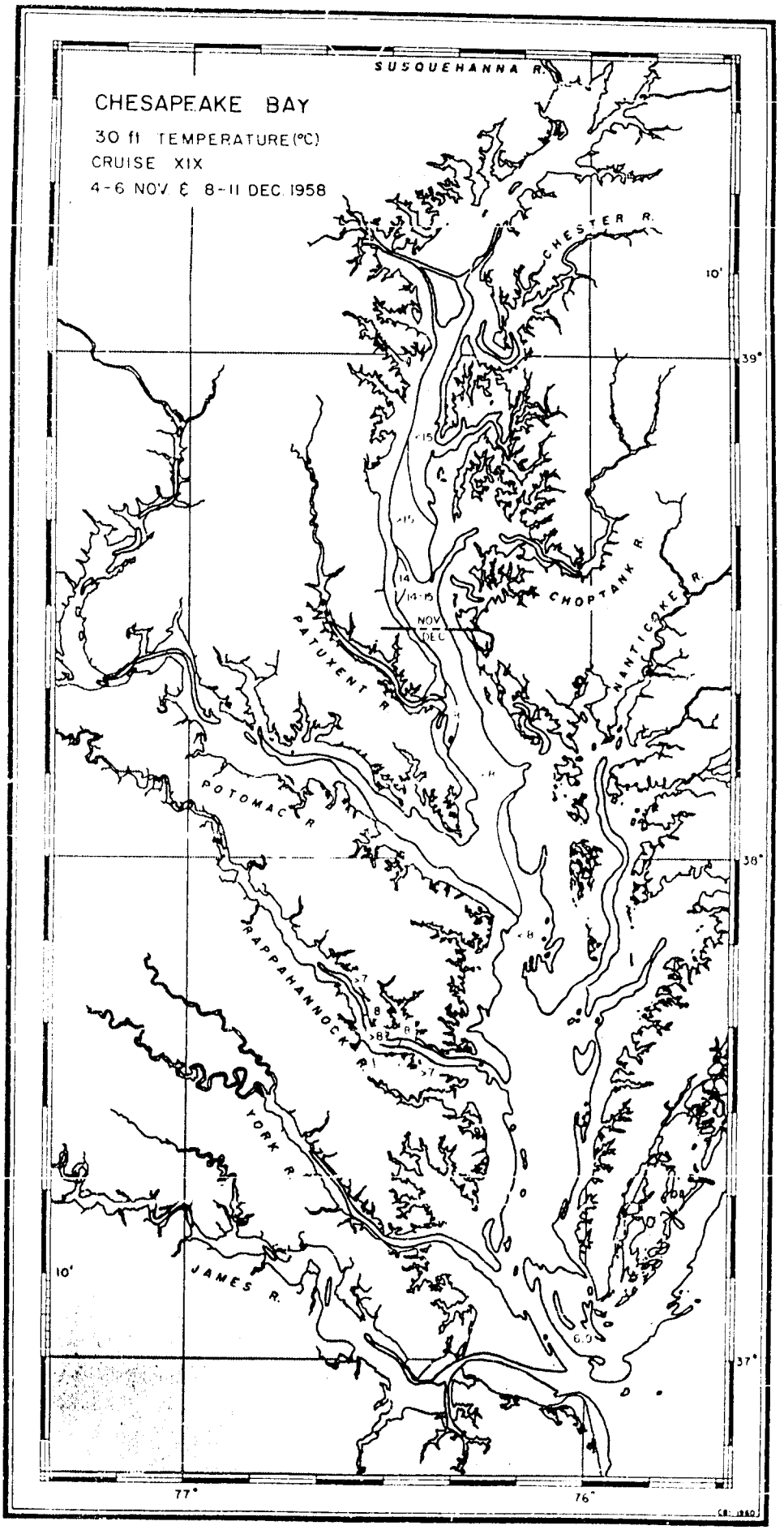

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XIX
4-6 NOV & 8-11 DEC 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NOV
DEC
39°
38°
37°
77°
76°
10'

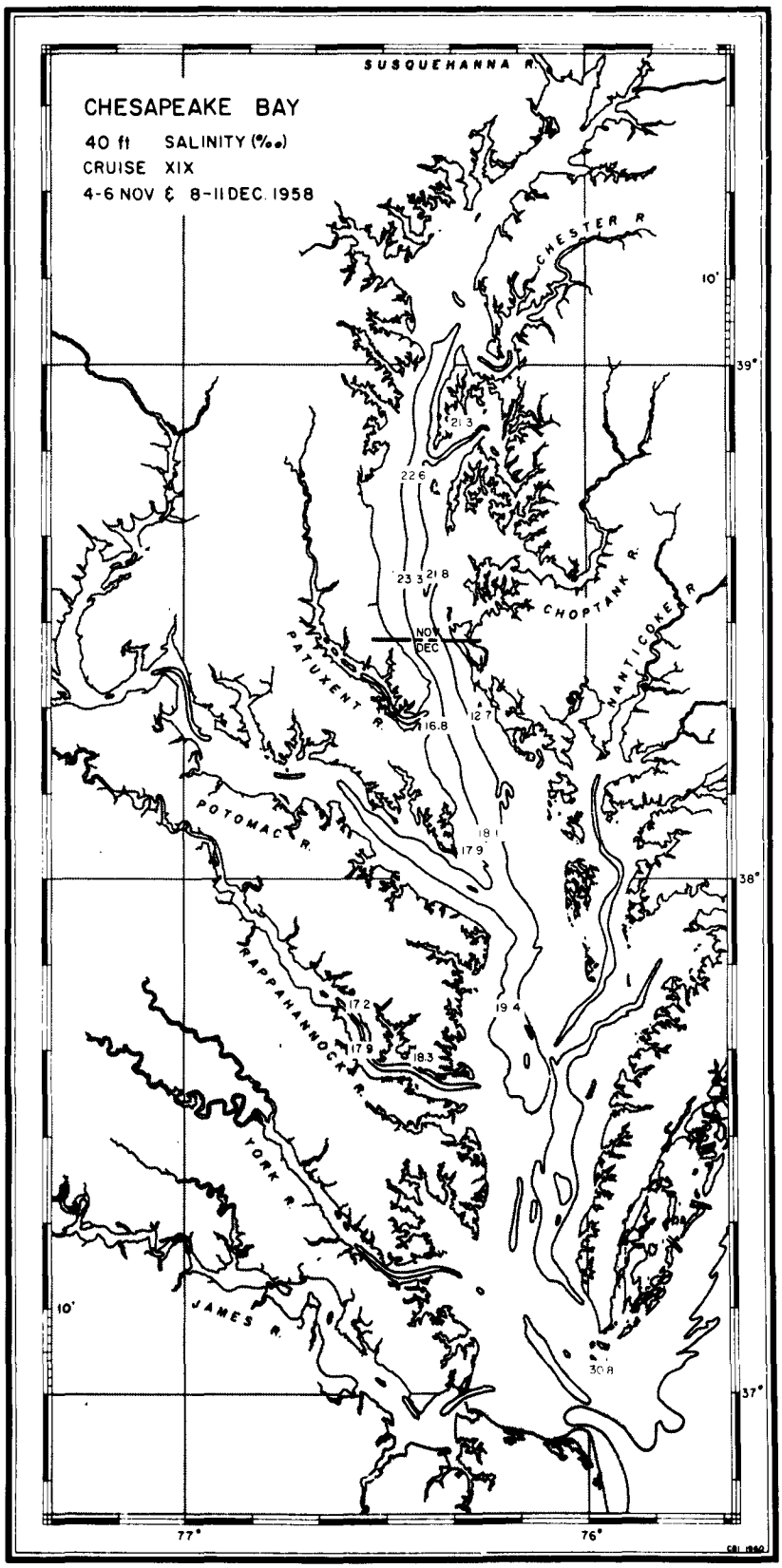

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
CRUISE XIX
4-6 NOV & 8-11 DEC 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
NOV
DEC
12-13
>13
>8
7-8
7
5
10'
39°
38°
37°
77°
76°

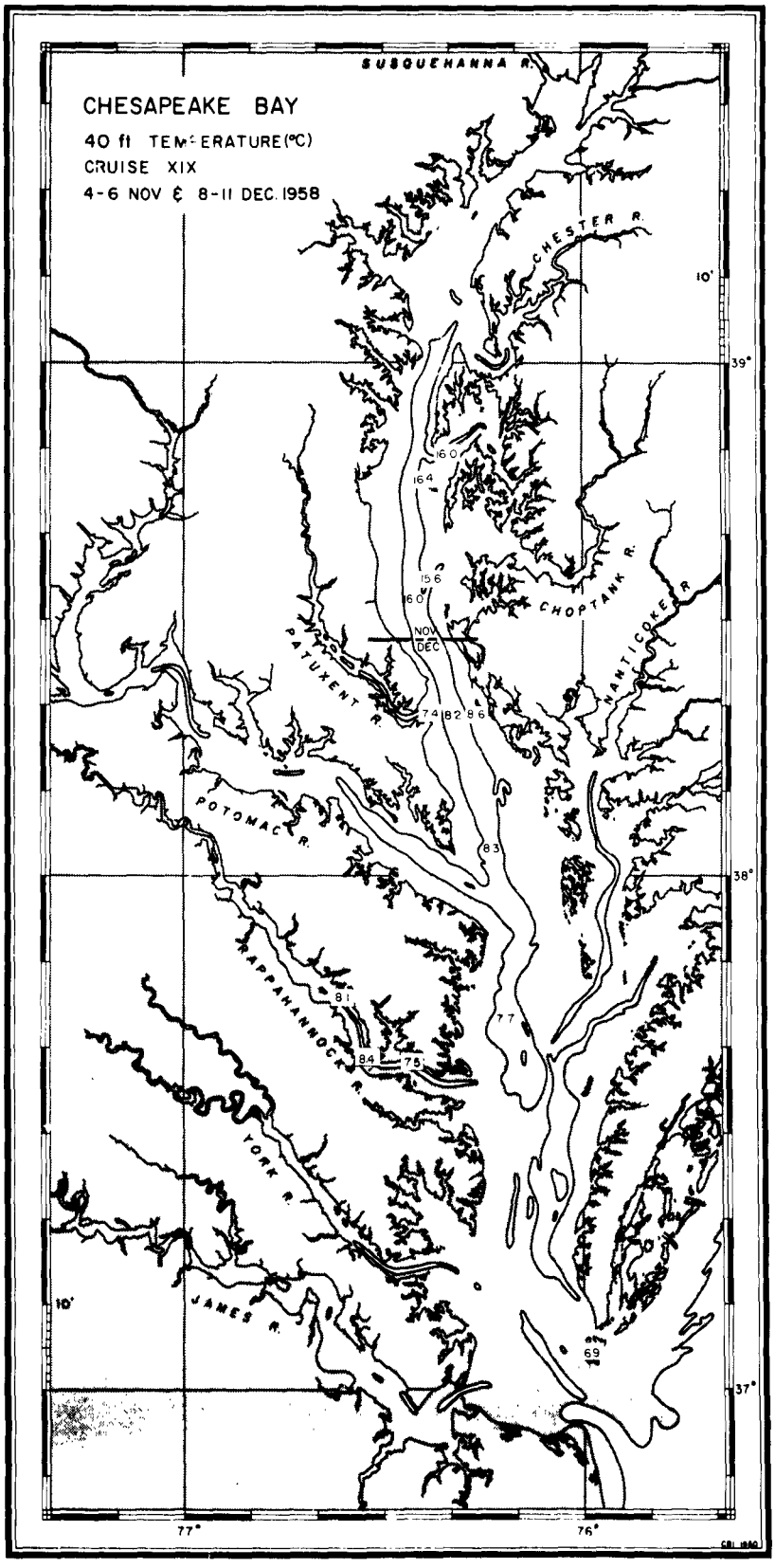

CHESAPEAKE BAY
20 ft SALINITY (‰)
CRUISE XIX
4-6 NOV & 8-11 DEC 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°

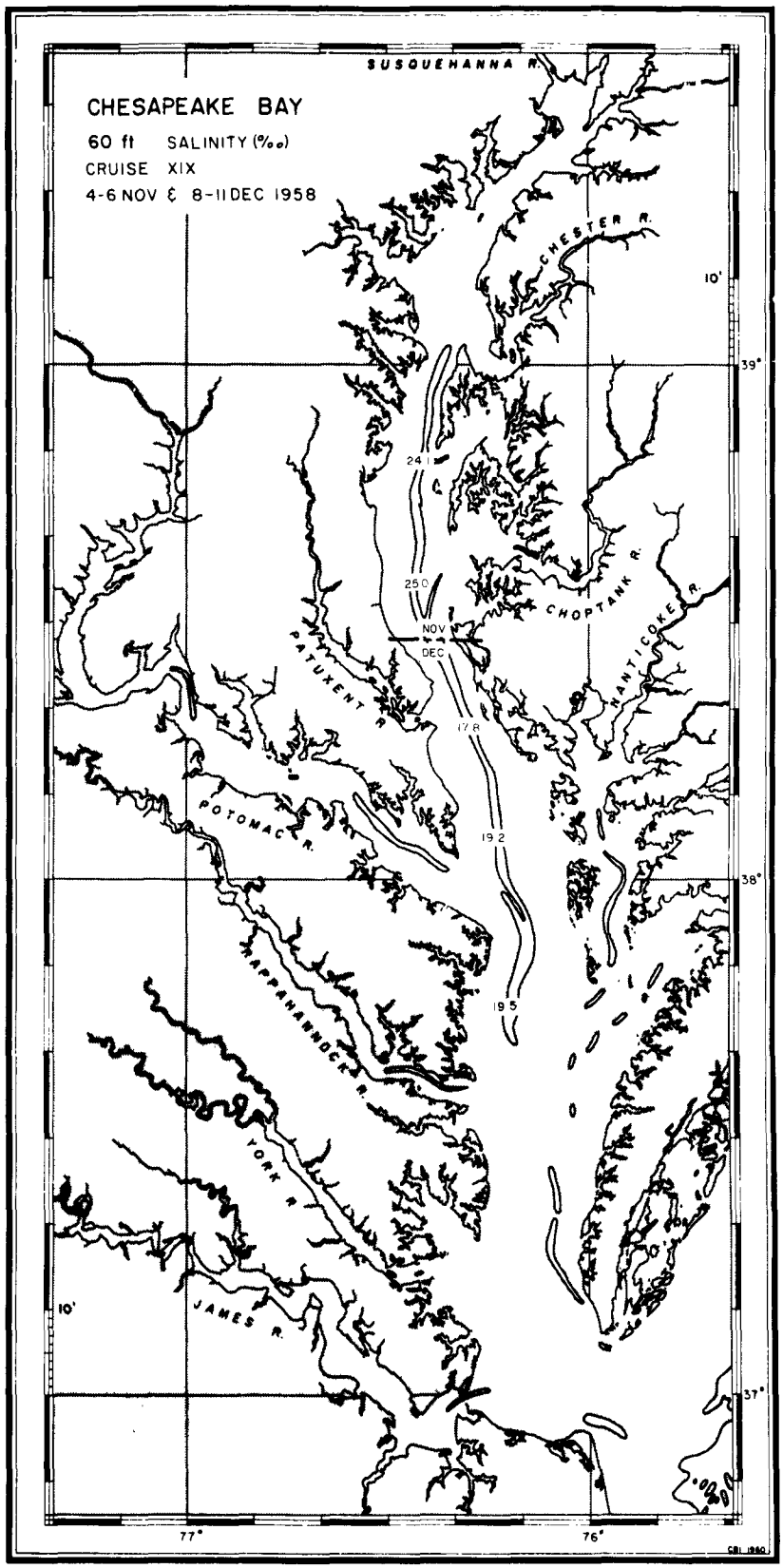

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
CRUISE XIX
4-6 NOV. & 8-11 DEC. 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NOV
DEC
39°
38°
37°
77°
76°
10'

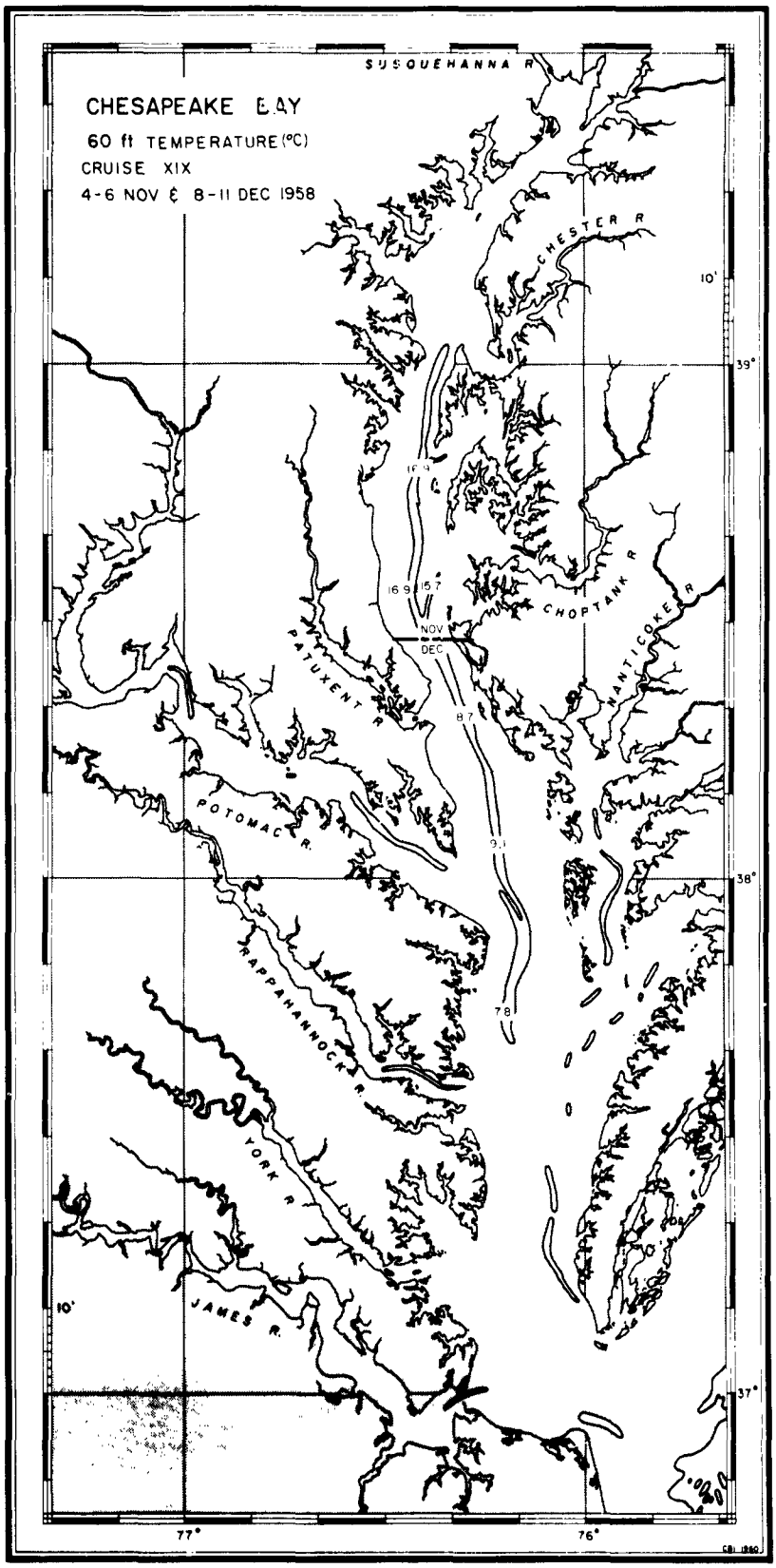

CHESAPEAKE BAY
30 ft SALINITY (‰)
CRUISE XIX
4-6 NOV & 8-11 DEC 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
NOV
DEC
39°
38°
37°
77°
76°
10'


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XIX
4-6 NOV & 8-11 DEC. 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NOV
DEC
10'
39°
38°
37°
77°
76°


CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XIX
4-6 NOV & 8-11 DEC. 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NOV
DEC
213
226
233
218
168
127
181
179
172
179
183
194
308
39°
38°
37°
10°
77°
76°

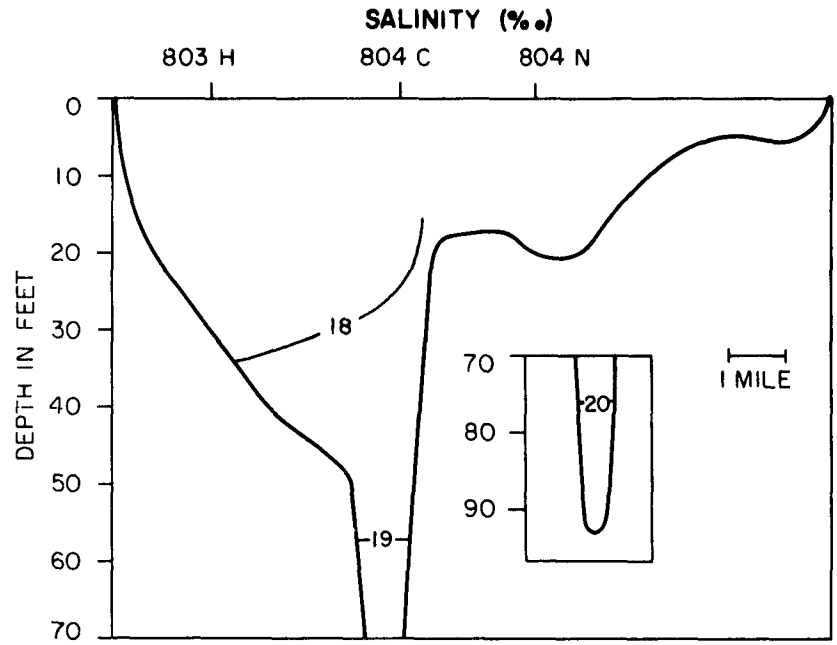

CHESAPEAKE BAY
40 ft TEMPERATURE(°C)
CRUISE XIX
4-6 NOV & 8-11 DEC. 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NOV
DEC
160
164
156
160
74
82
86
83
81
84
75
77
69
39°
38°
37°
10'
77°
76°

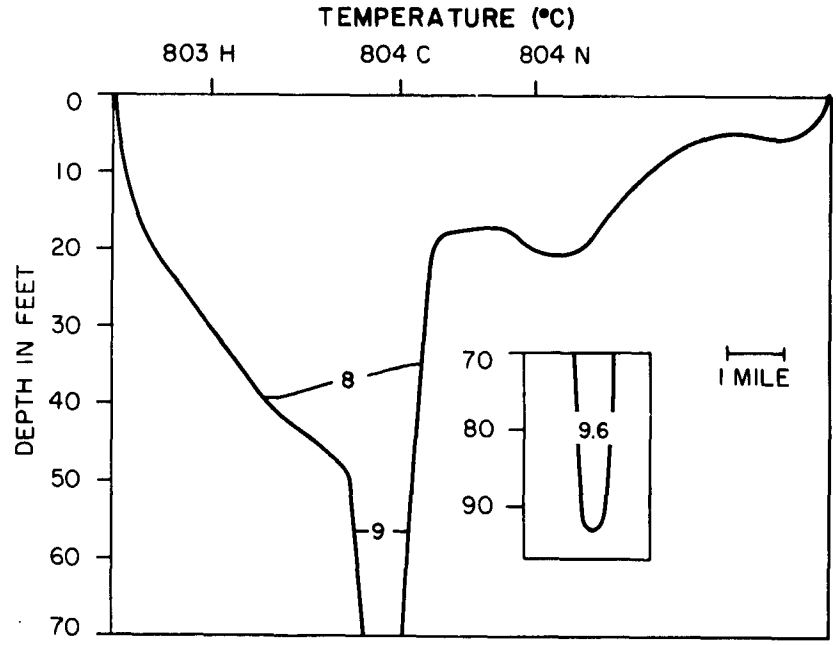

CHESAPEAKE BAY
60 ft SALINITY (‰)
CRUISE XIX
4-6 NOV & 8-11 DEC 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NOV
DEC
241
250
178
192
195
39°
38°
37°
10'
77°
76°


CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
CRUISE XIX
4-6 NOV & 8-11 DEC 1958
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NOV
DEC
16.9
15.7
8.7
7.8
39°
38°
37°
10'
77°
76°

SECTIONS OMITTED
INSUFFICIENT DATA

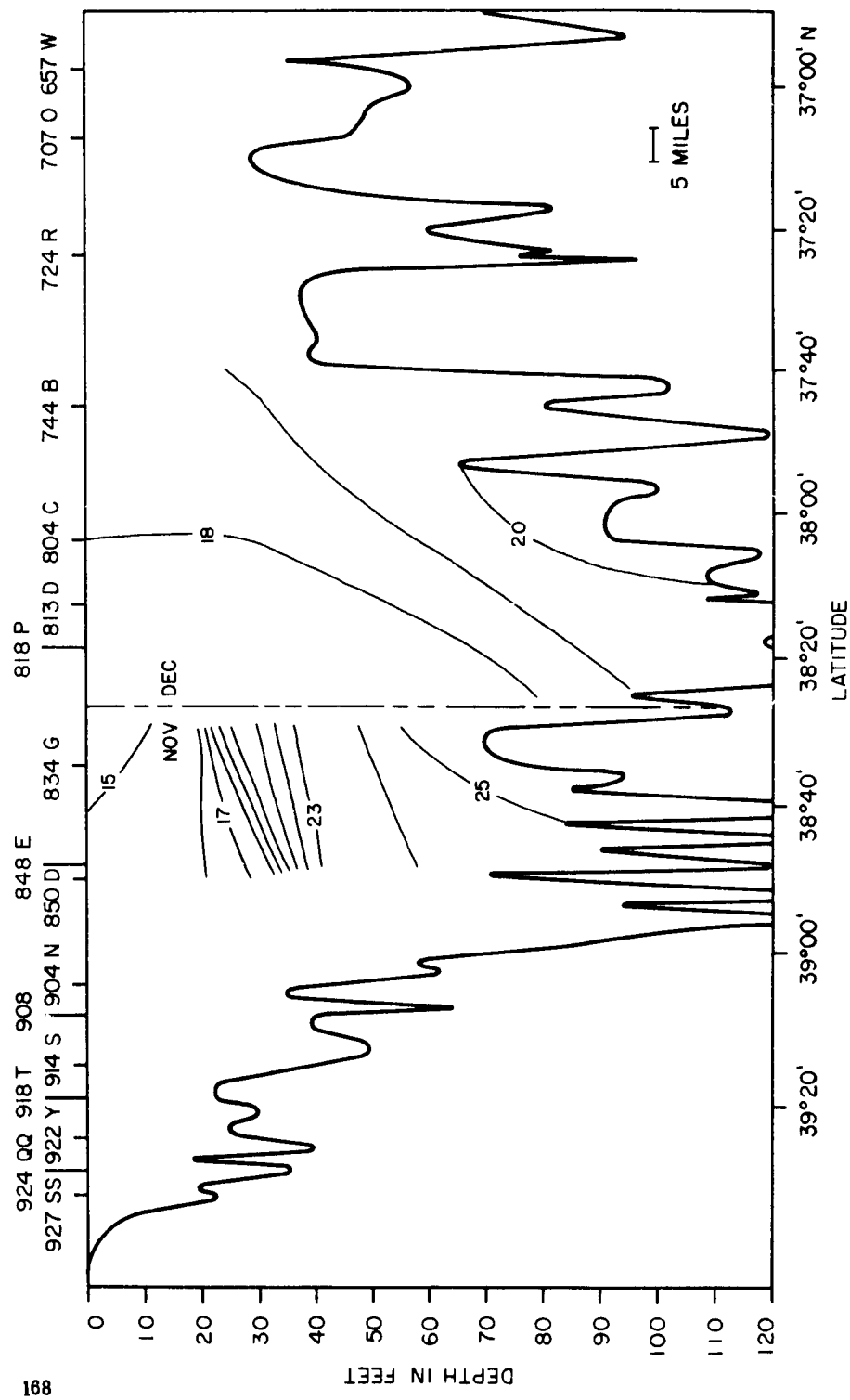
CRUISE XIX 4 - 6 NOV AND 8 - 11 DEC 1958 SECTION VI



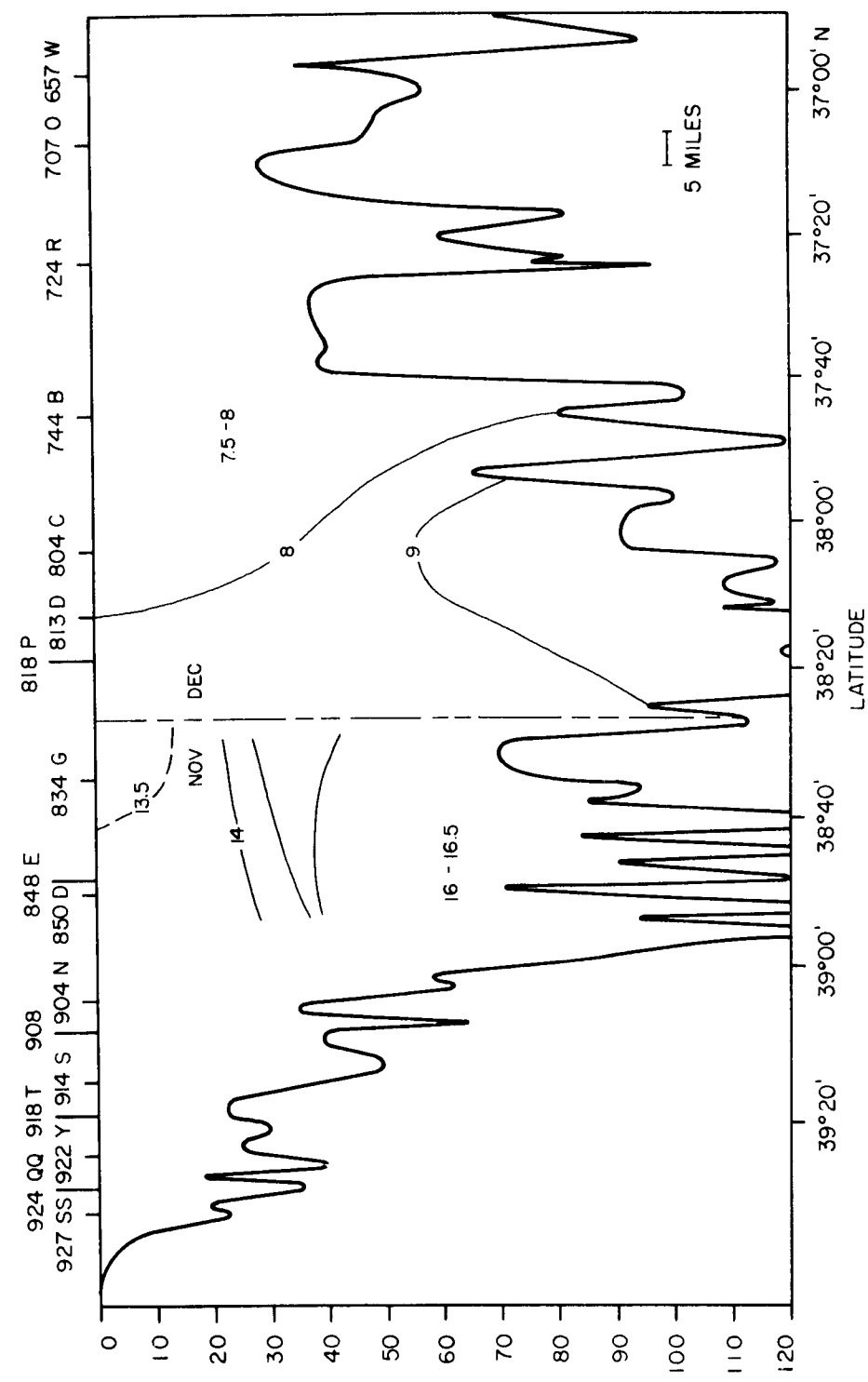
CRUISE XIX 4 - 6 NOV AND 8 - 11 DEC 1958 SECTION XIX

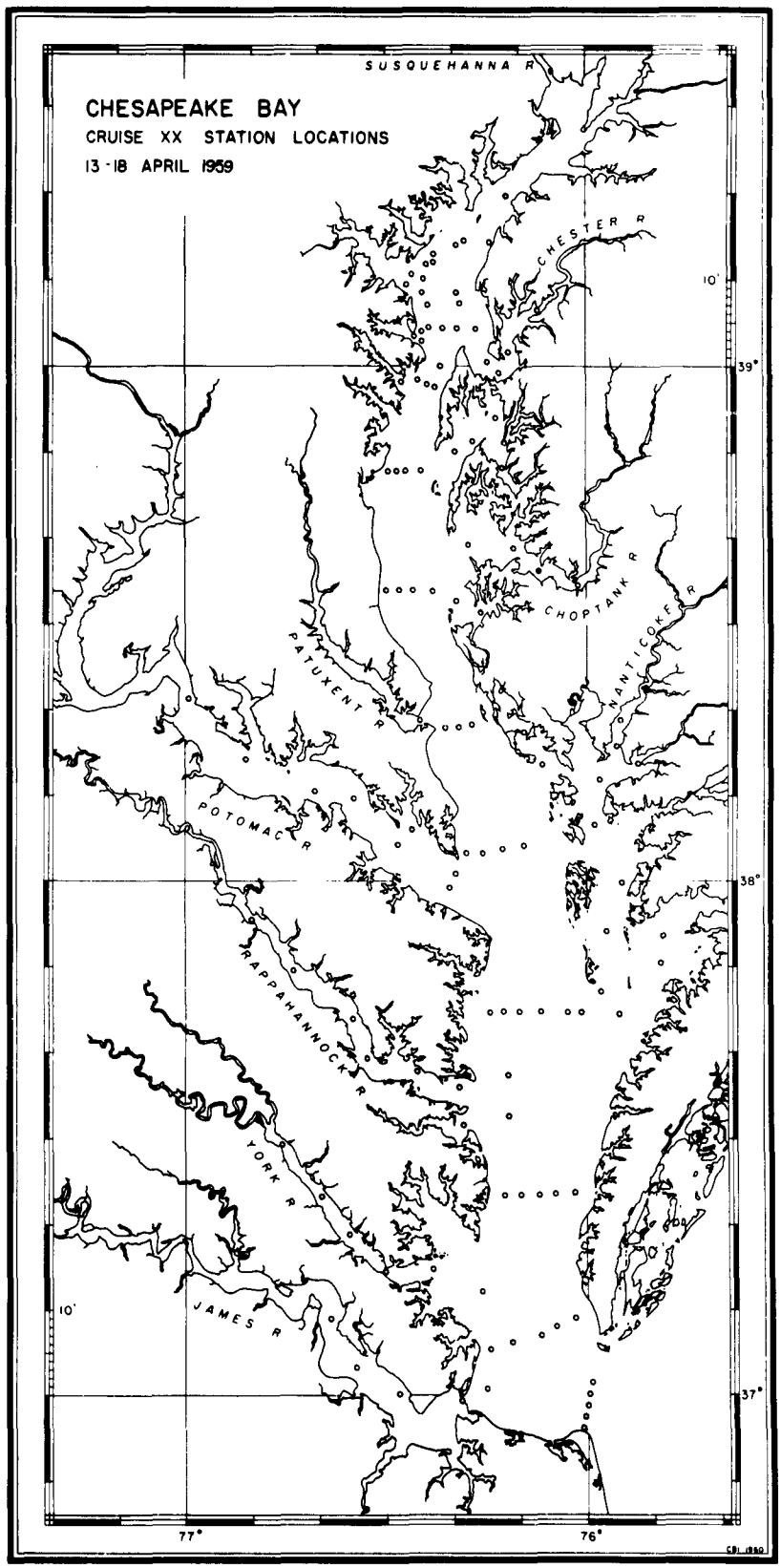
SALINITY (‰)

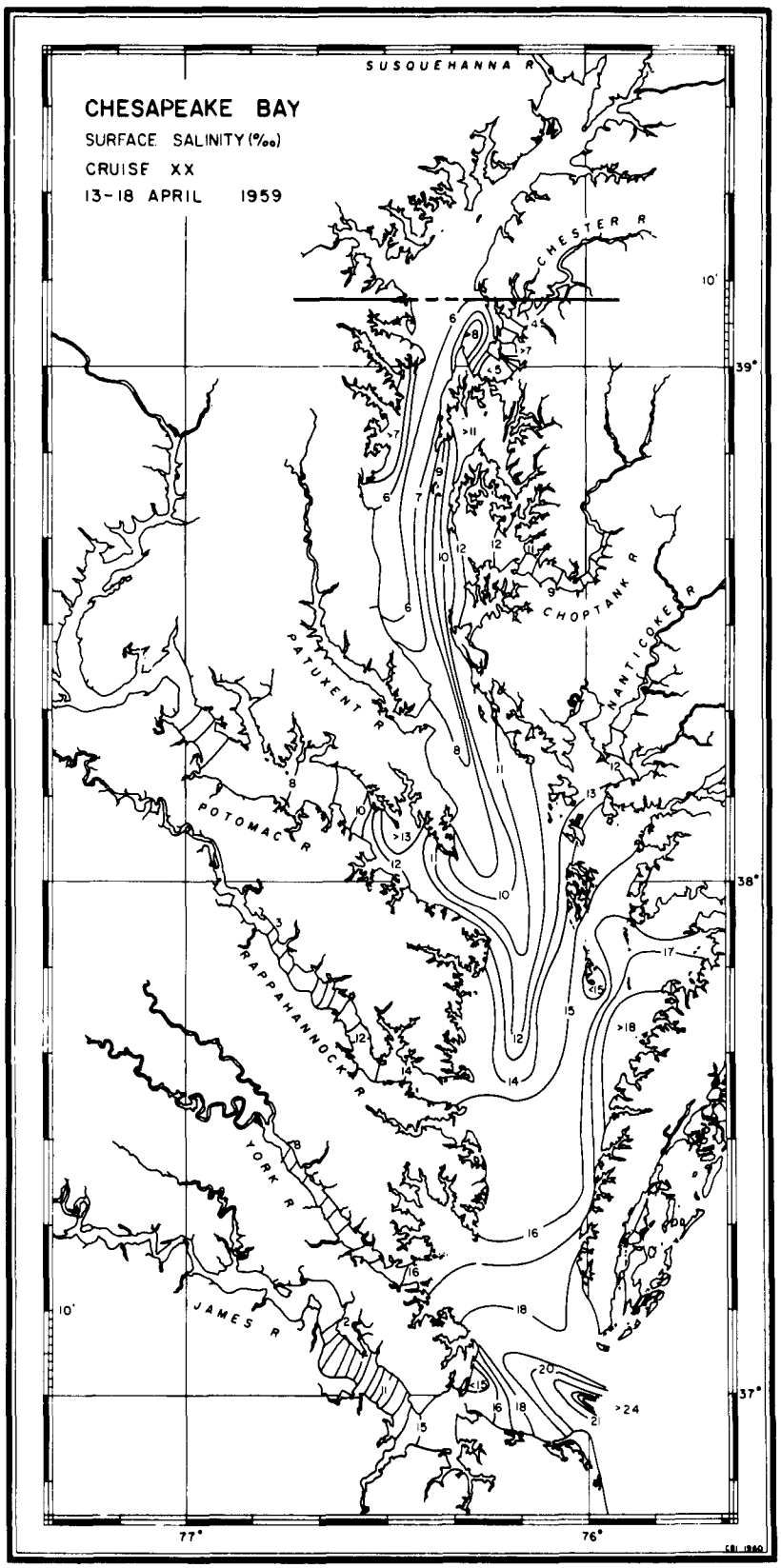


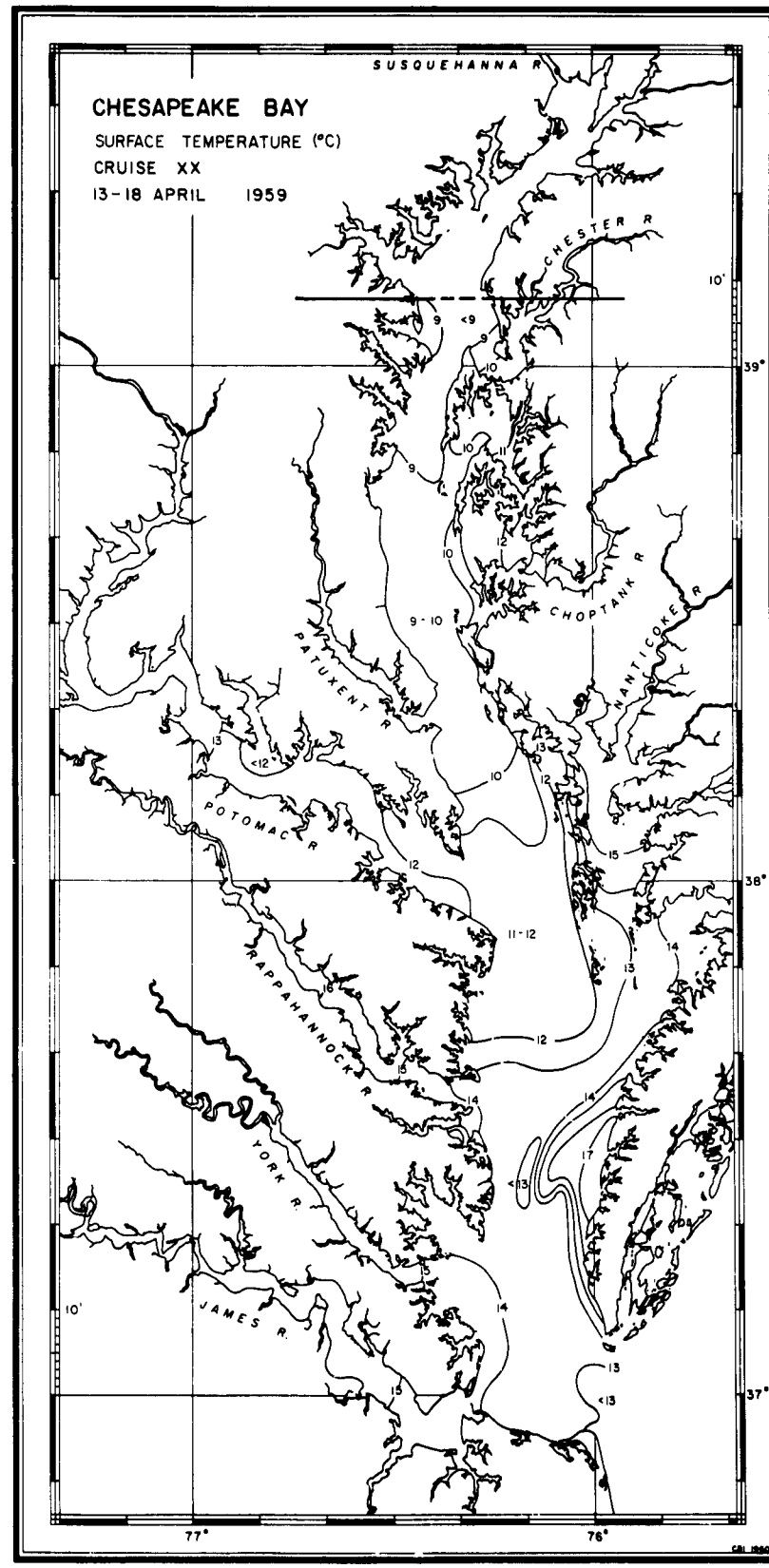
CRUISE XIX 4 - 6 NOV AND 8 - 11 DEC 1958 SECTION XIX

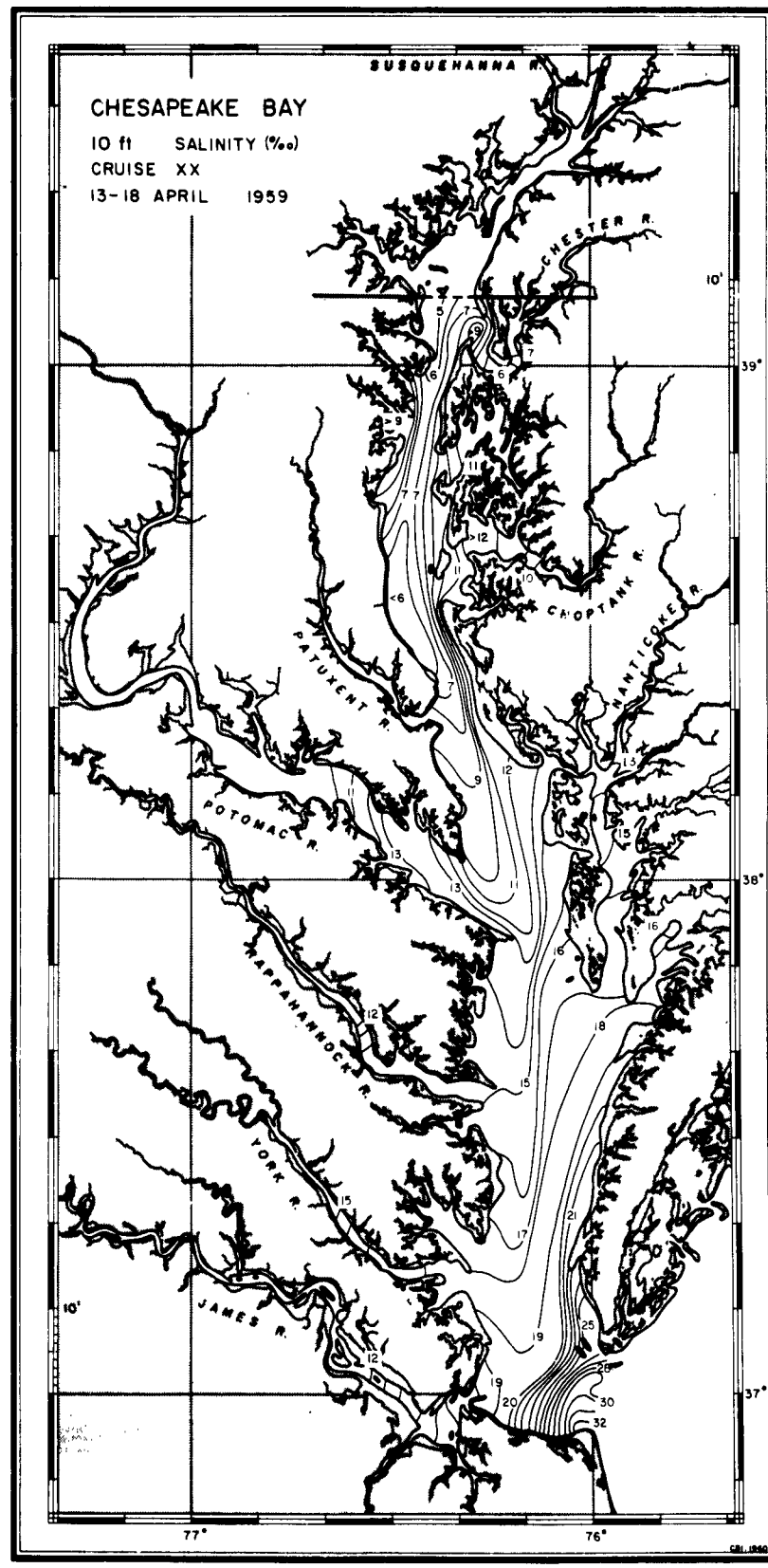
TEMPERATURE (°C)

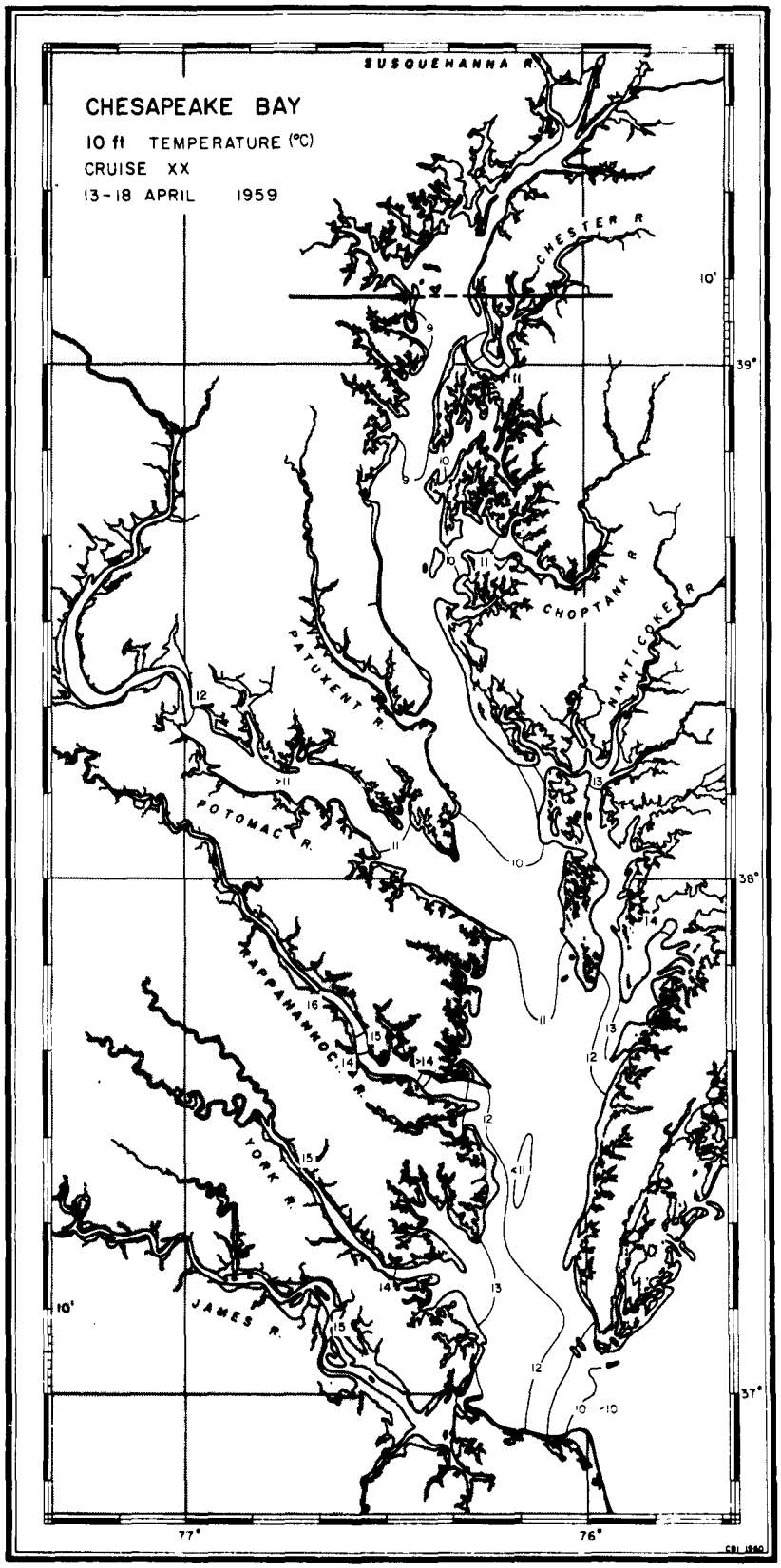


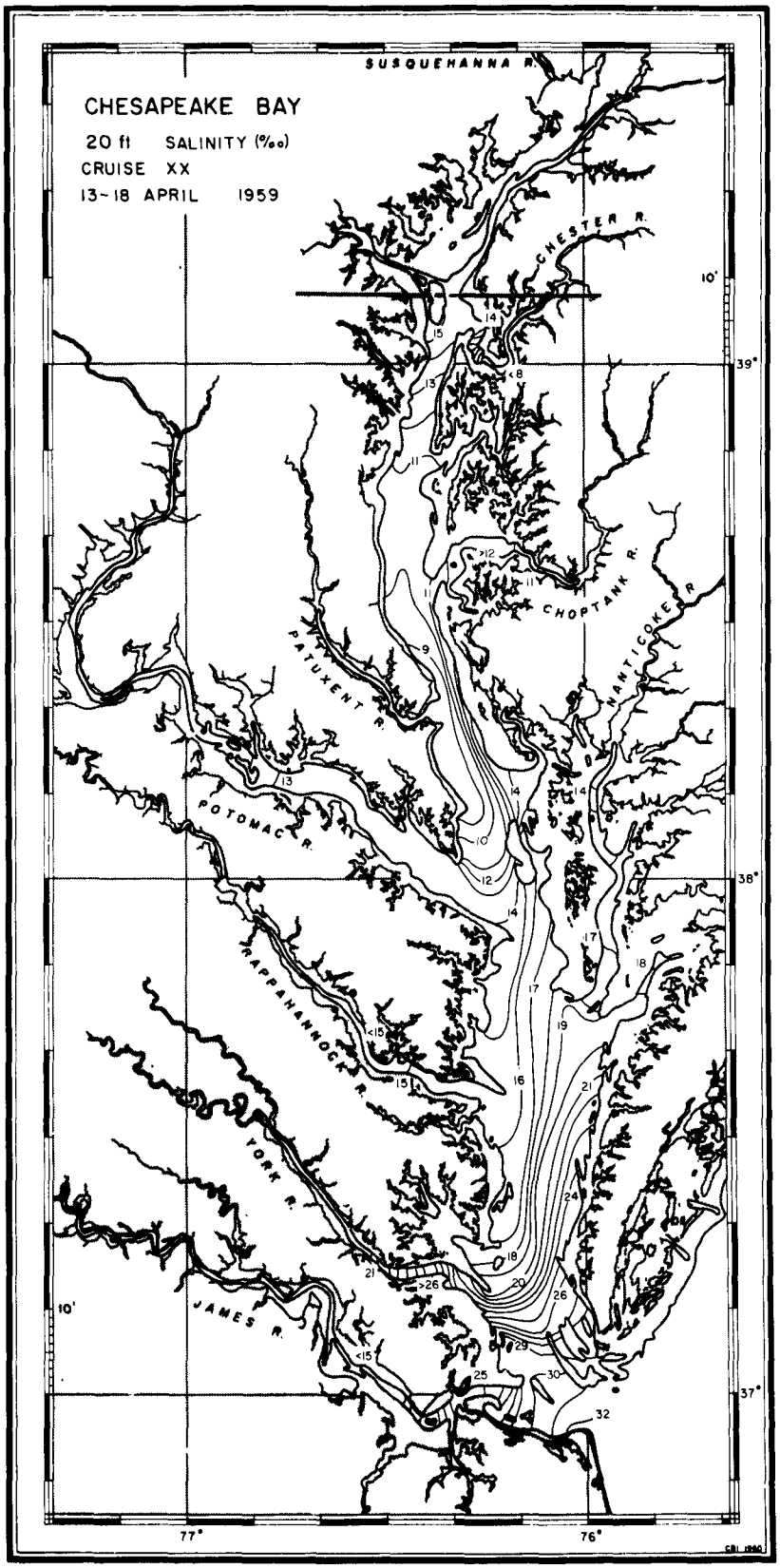

CHESAPEAKE BAY
CRUISE XX STATION LOCATIONS
13 - 18 APRIL 1969
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
10'
77°
76°

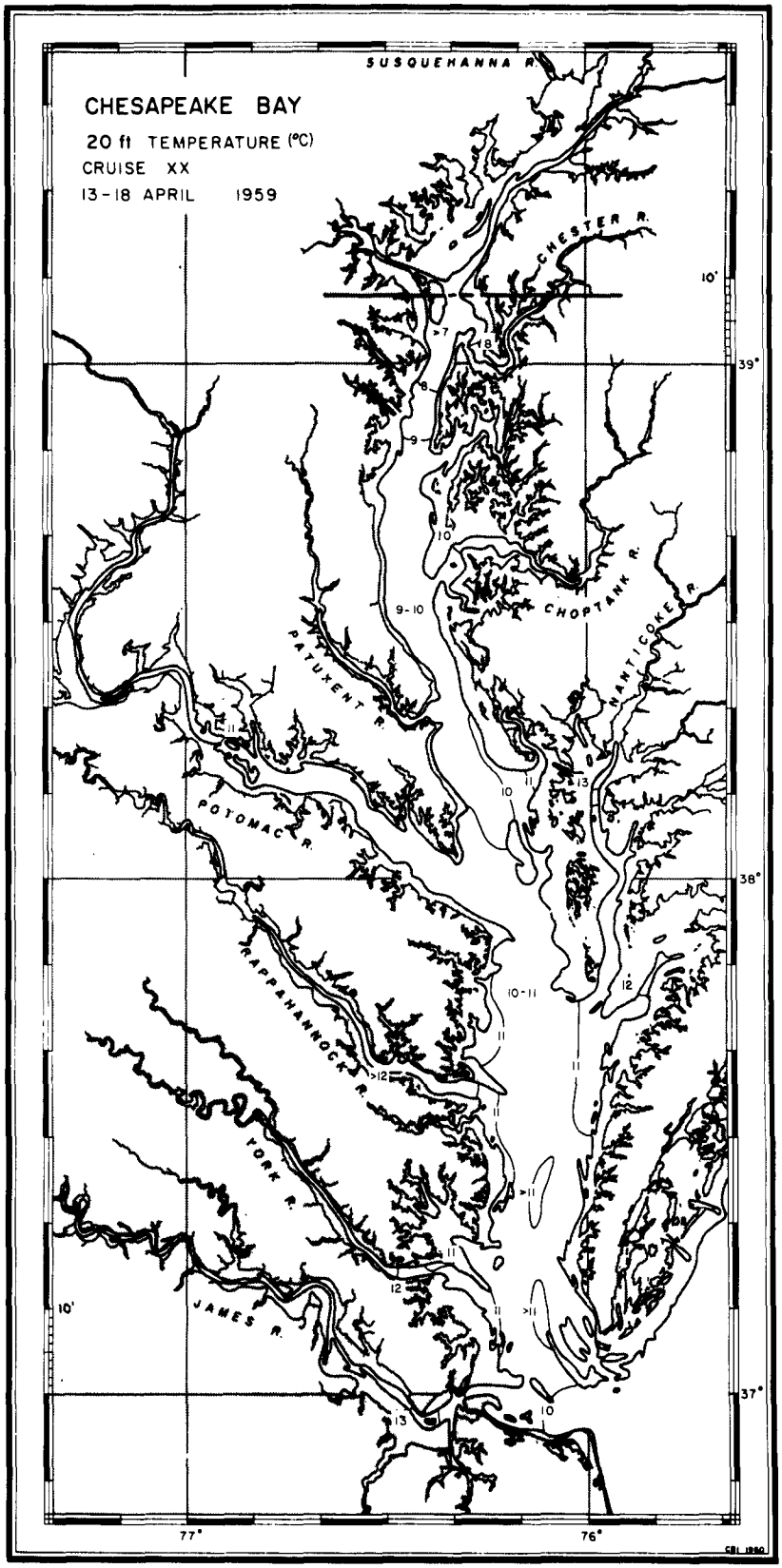

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XX
13-18 APRIL 1959
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

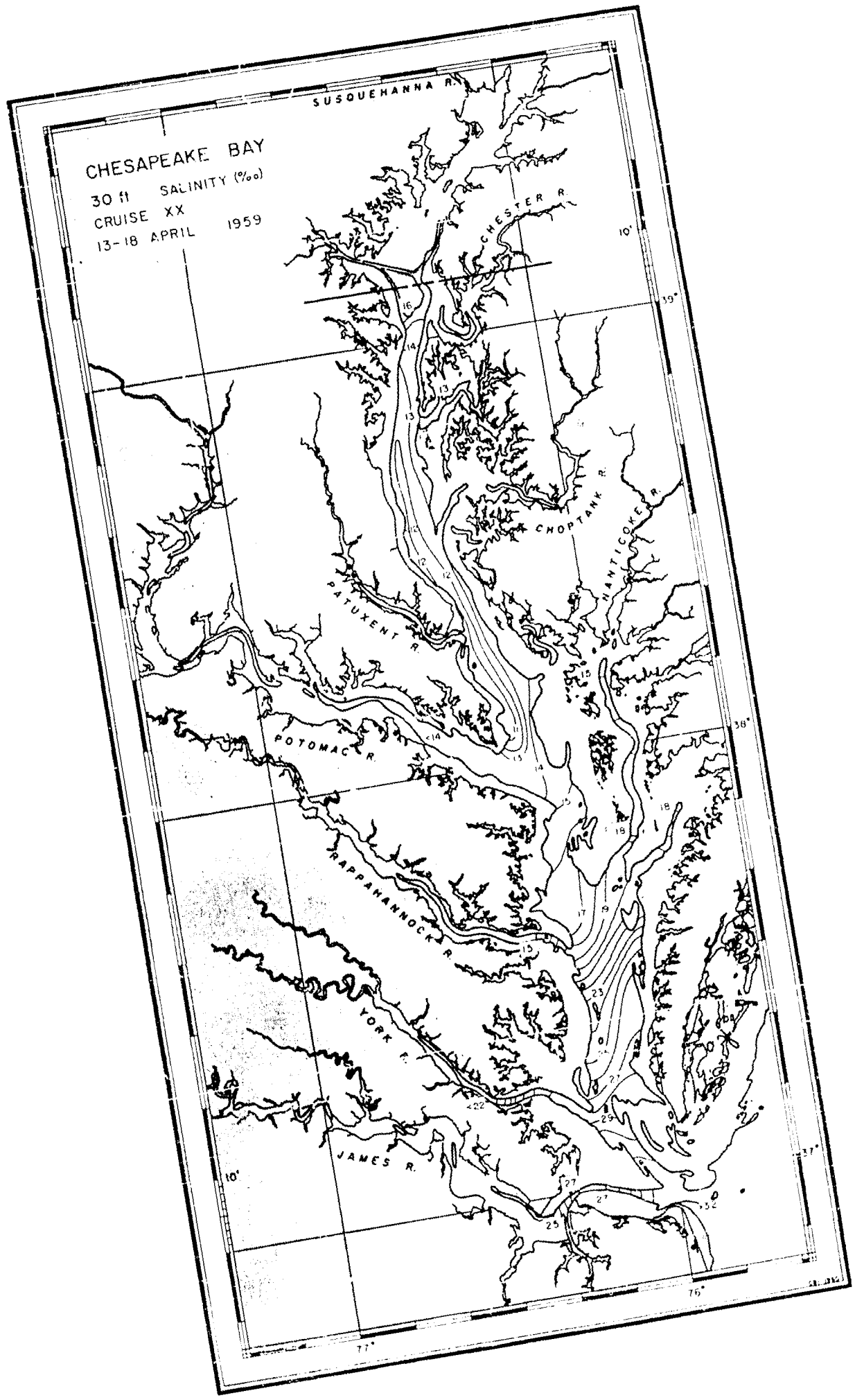

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XX
13-18 APRIL 1959
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
NANTICOKE R
39°
38°
37°
77°
76°

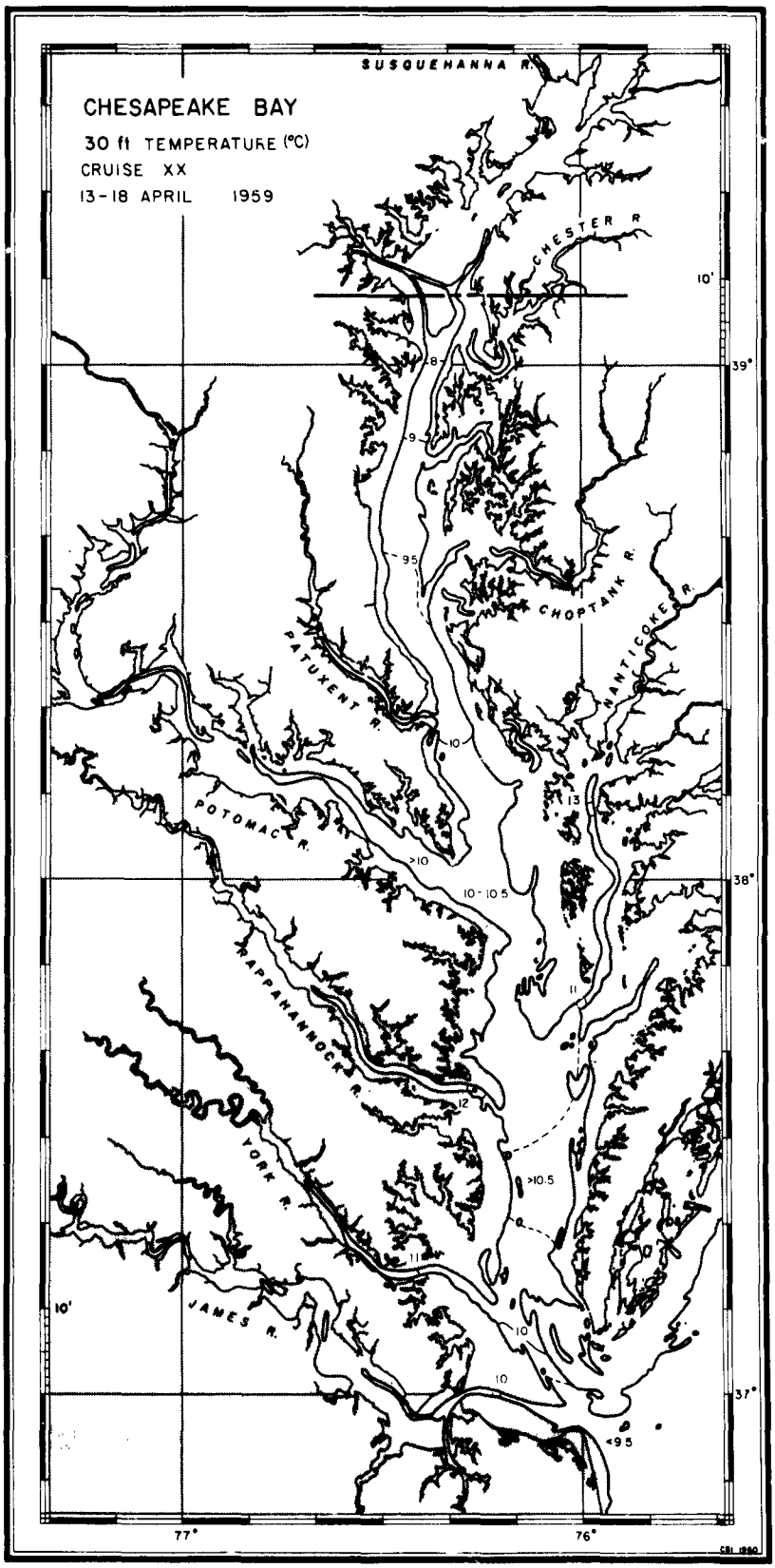

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XX
13-18 APRIL 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

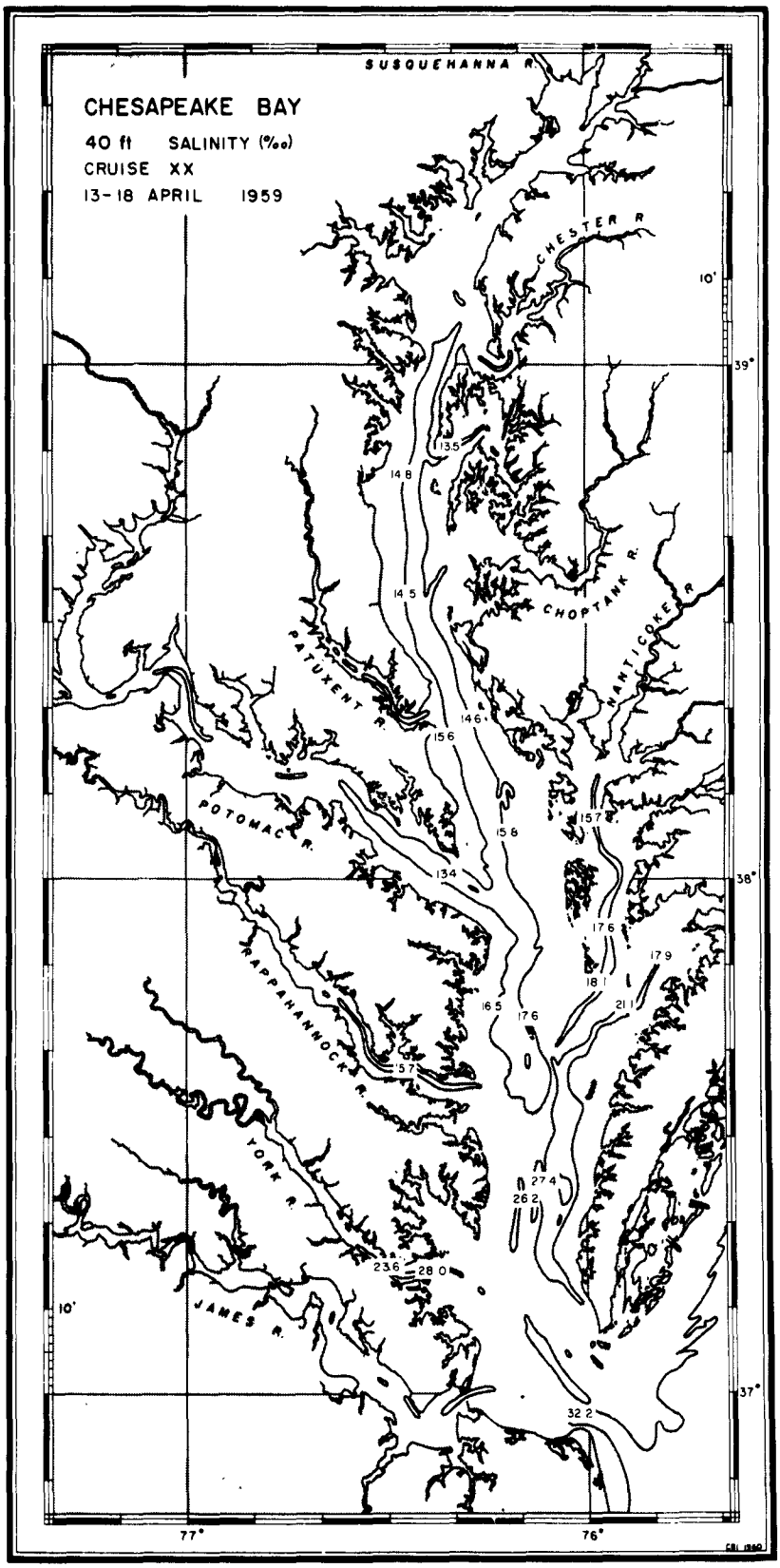

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
CRUISE XX
13-18 APRIL 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

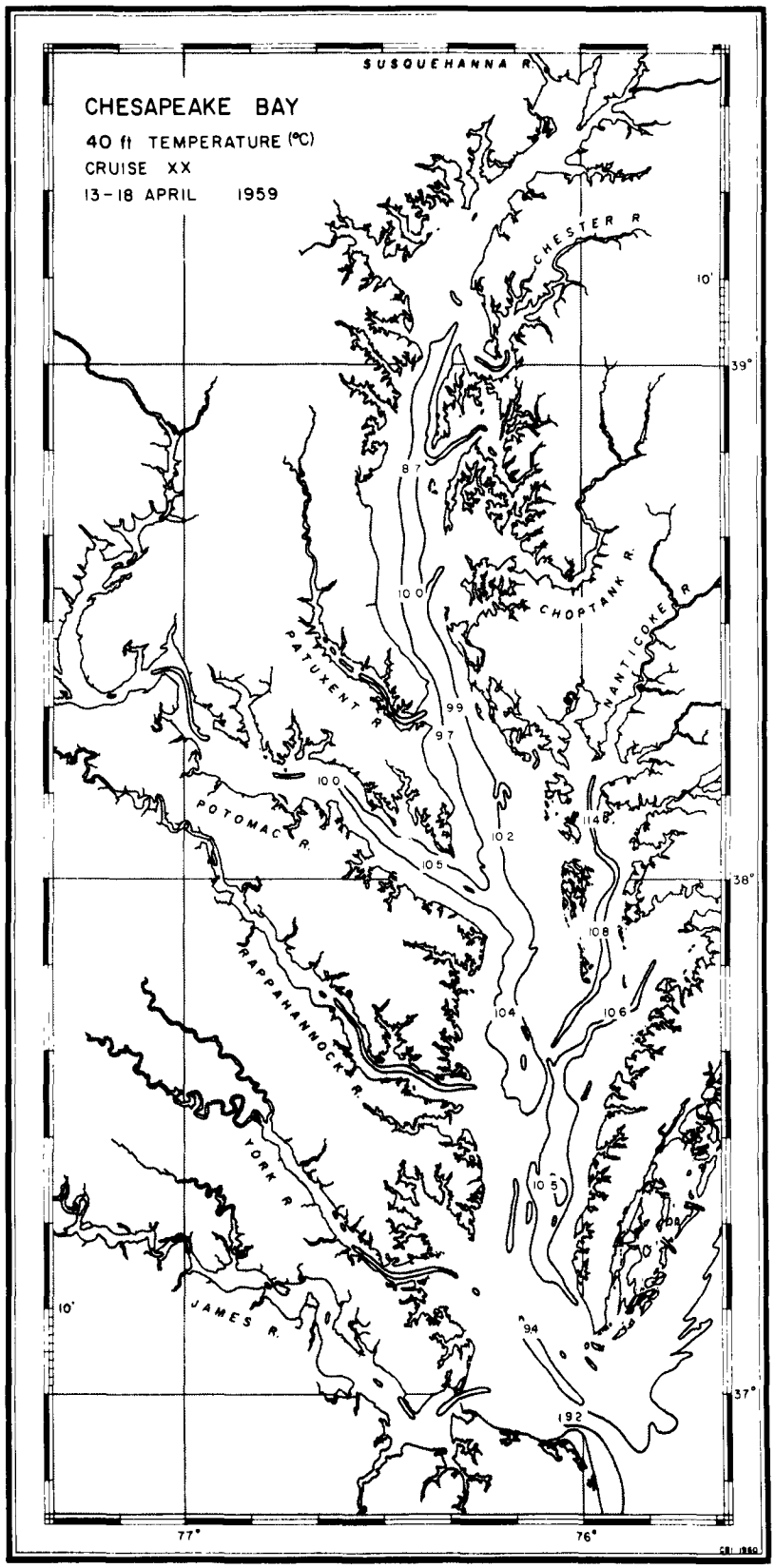

CHESAPEAKE BAY
20 ft SALINITY (‰)
CRUISE XX
13-18 APRIL 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°
10'

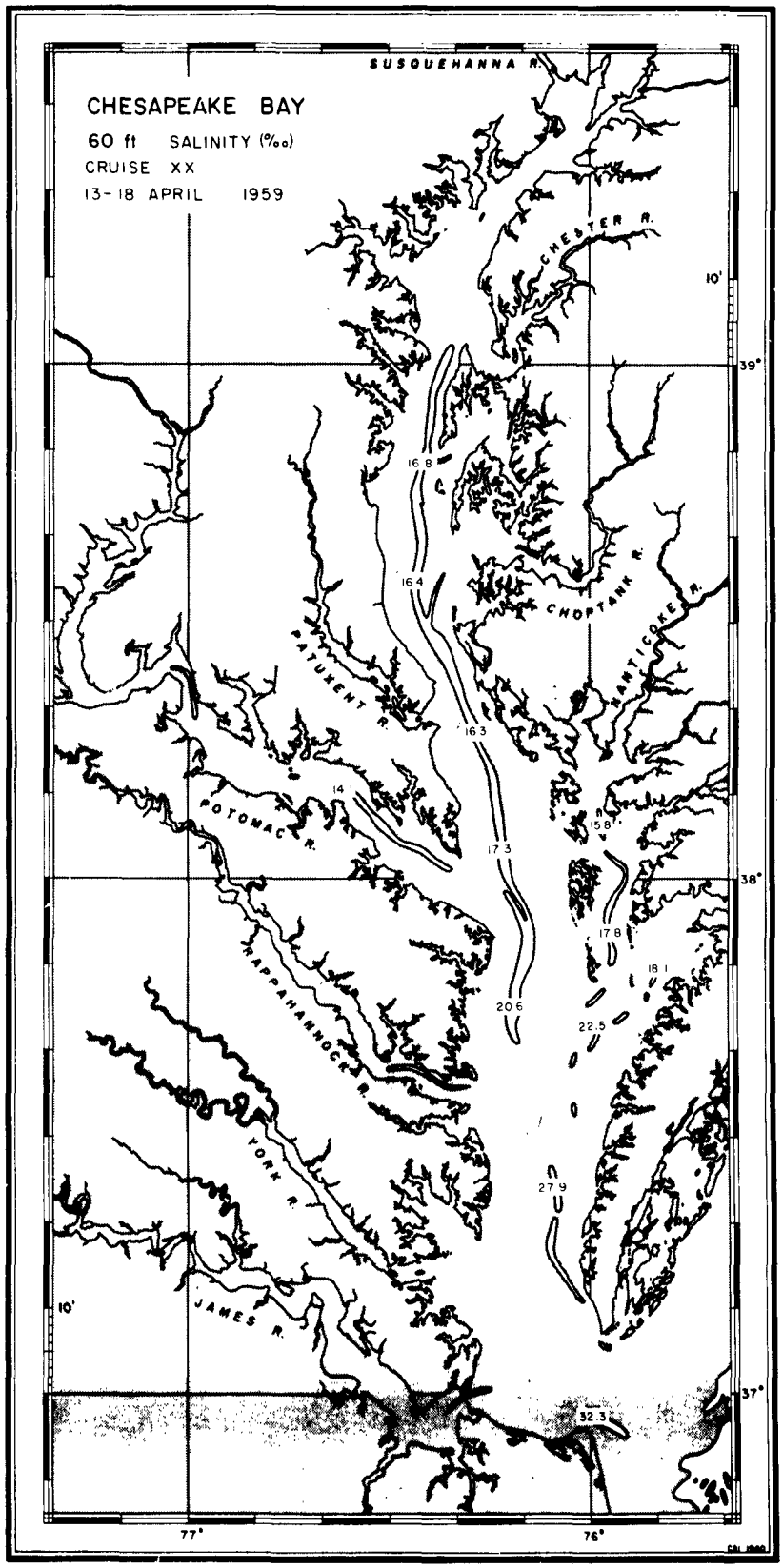

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
CRUISE XX
13-18 APRIL 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
39°
38°
37°
77°
76°

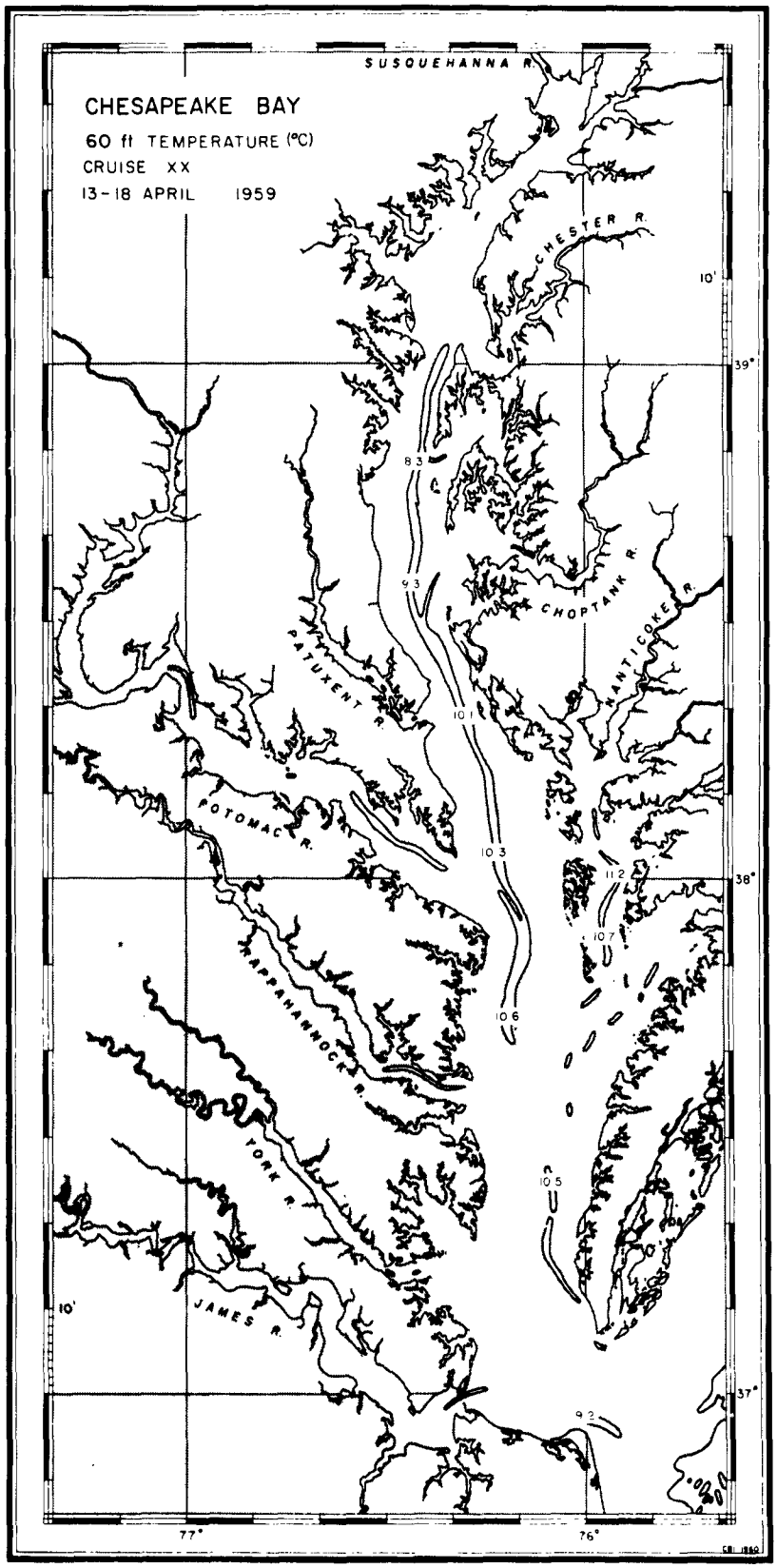

CHESAPEAKE BAY
30 ft SALINITY (‰)
CRUISE XX
13-18 APRIL 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
HANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
10'
77°
76°

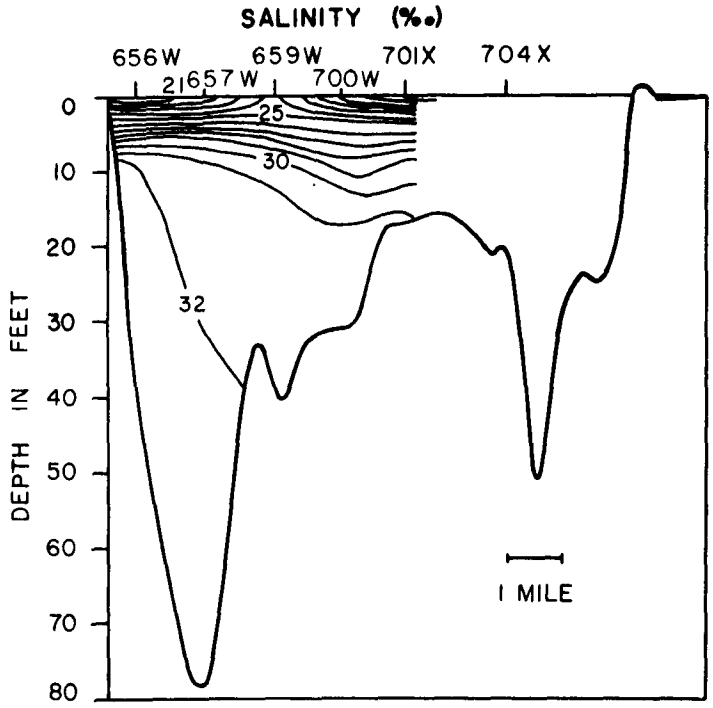

CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XX
13-18 APRIL 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
10'
39°
38°
37°
77°
76°
8
9
9.5
10
13
>10
10-10.5
11
12
>10.5
<9.5

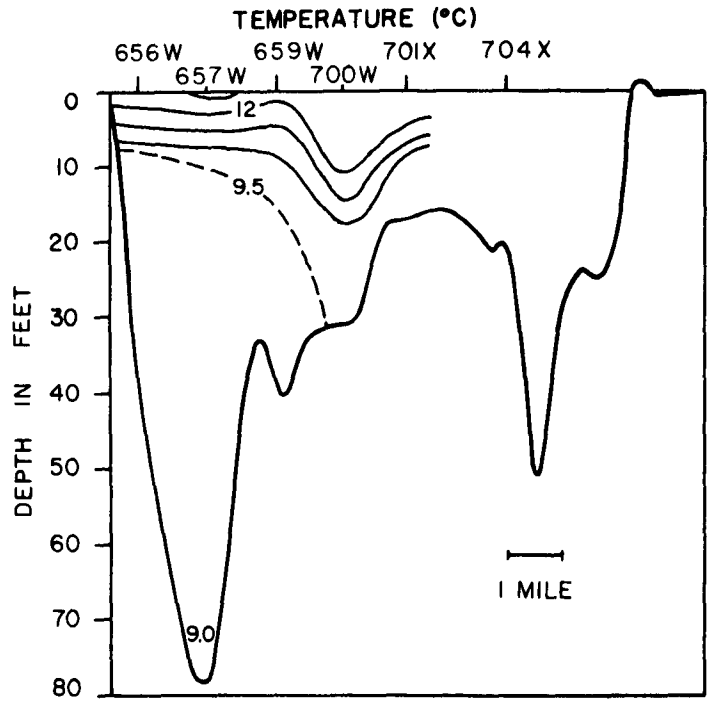

CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XX
13-18 APRIL 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
10'
77°
76°
135
148
145
146
156
157
158
134
176
179
181
211
165
176
157
274
262
236
280
322


CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
CRUISE XX
13-18 APRIL 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
87
100
99
97
100
102
105
104
106
108
114
105
94
92
39°
38°
37°
77°
76°

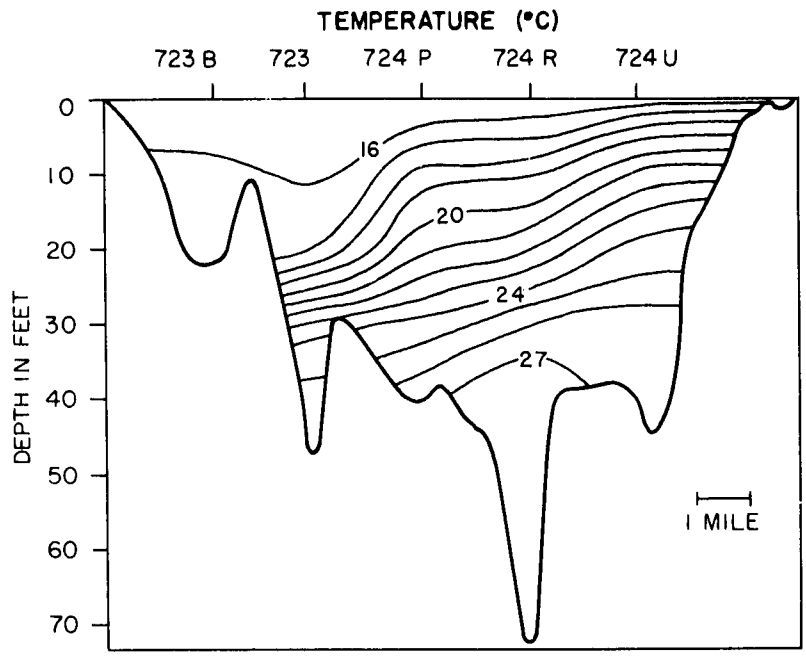

CHESAPEAKE BAY
60 ft SALINITY (‰)
CRUISE XX
13-18 APRIL 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
16.8
16.4
16.3
14.1
17.3
15.8
17.8
18.1
20.6
22.5
27.9
32.3
39°
38°
37°
10'
77°
76°

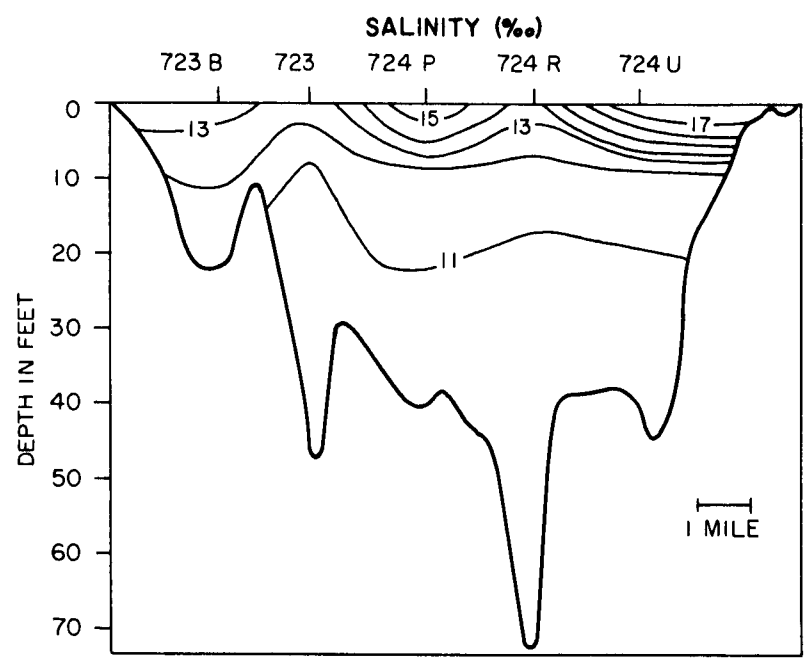

CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
CRUISE XX
13-18 APRIL 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
83
93
101
103
112
107
106
105
93
39°
38°
37°
10'
77°
76°


SALINITY (‰)
656W
659W
701X
704X
21657W
700W
0
10
20
30
40
50
60
70
80
25
30
32
DEPTH IN FEET
1 MILE

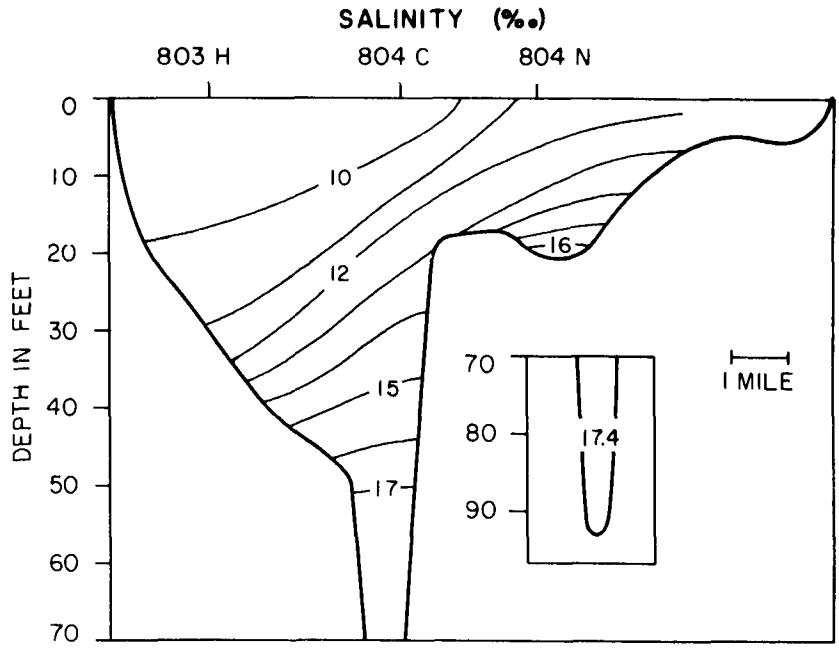

TEMPERATURE (°C)
656W
659W
701X
704X
657W
700W
0
10
20
30
40
50
60
70
80
12
9.5
9.0
DEPTH IN FEET
1 MILE

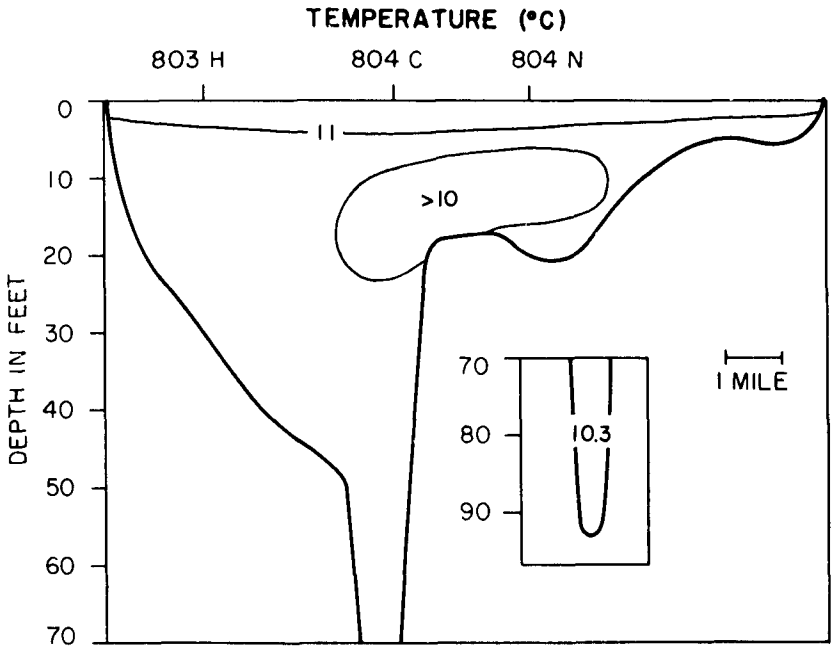
CRUISE XX 13 - 18 APRIL 1959 SECTION IV



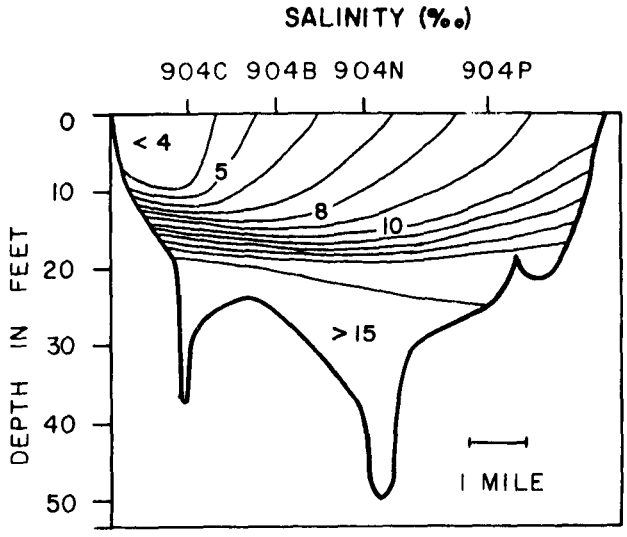



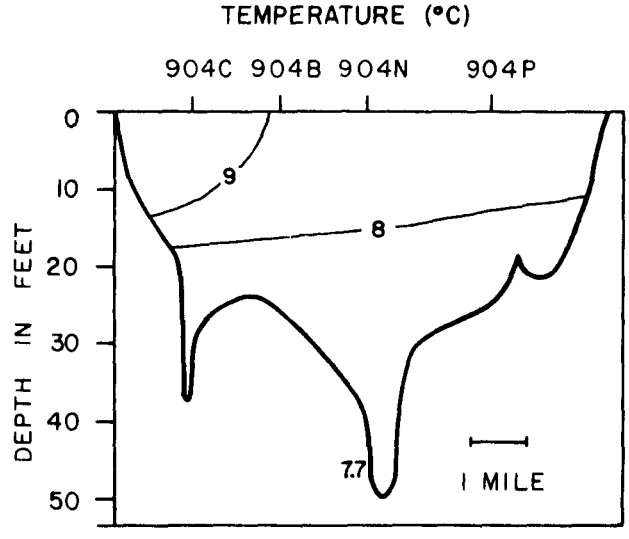
CRUISE XX 13 - 18 APRIL 1959 SECTION VI



CRUISE XX 13 - 18 APRIL 1959 SECTION X



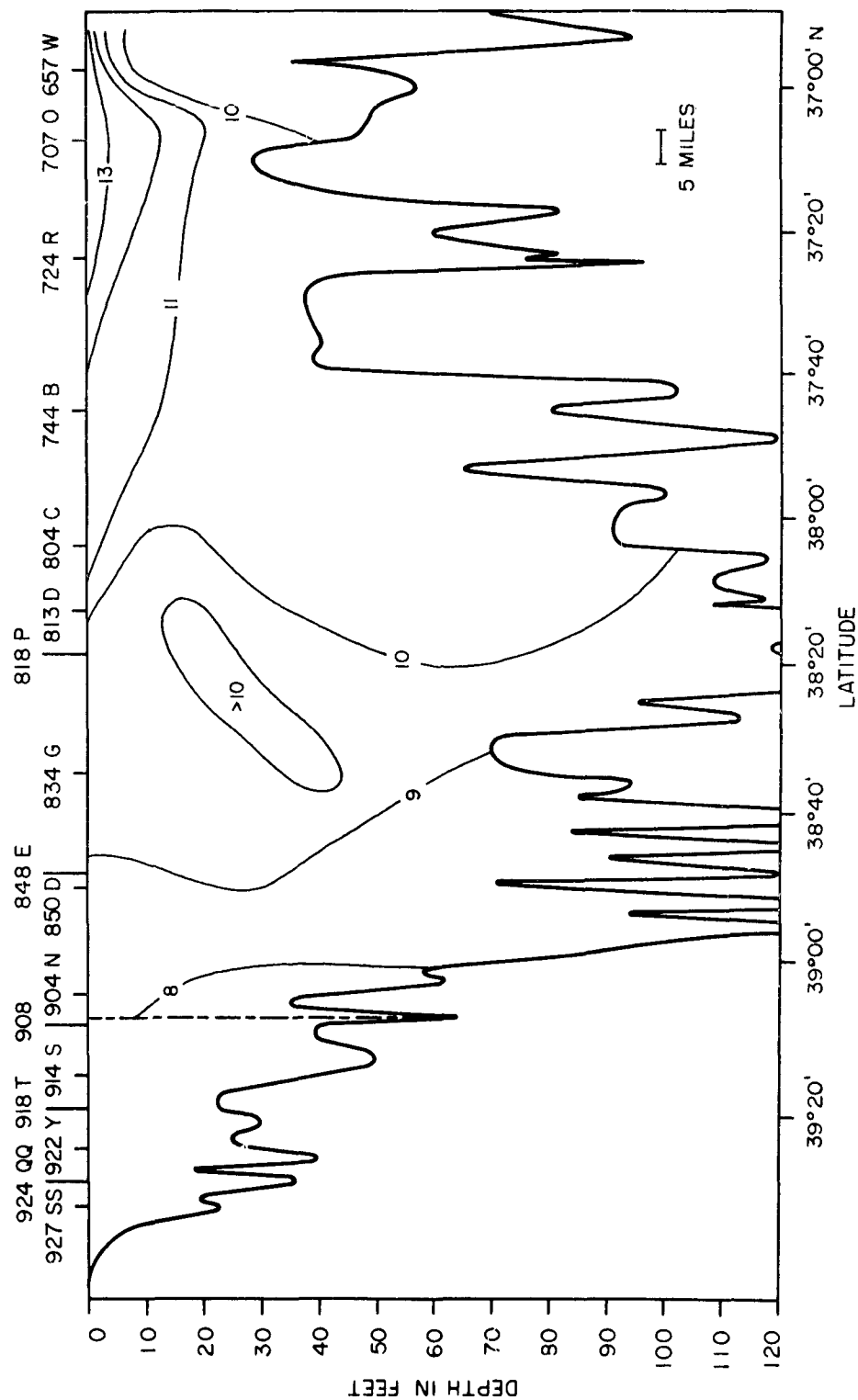



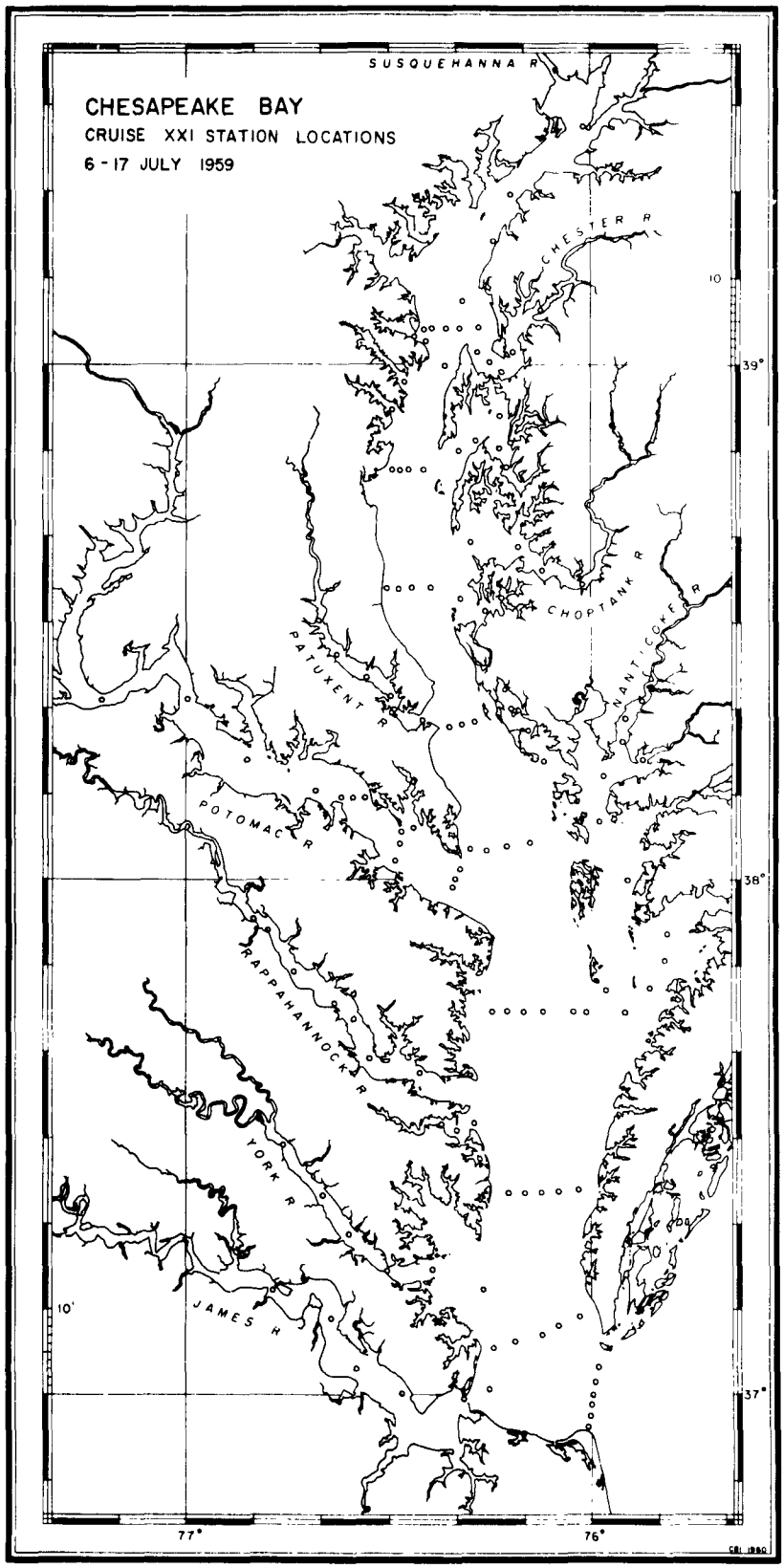
CRUISE XX 13 - 18 APRIL 1959 SECTION XIX

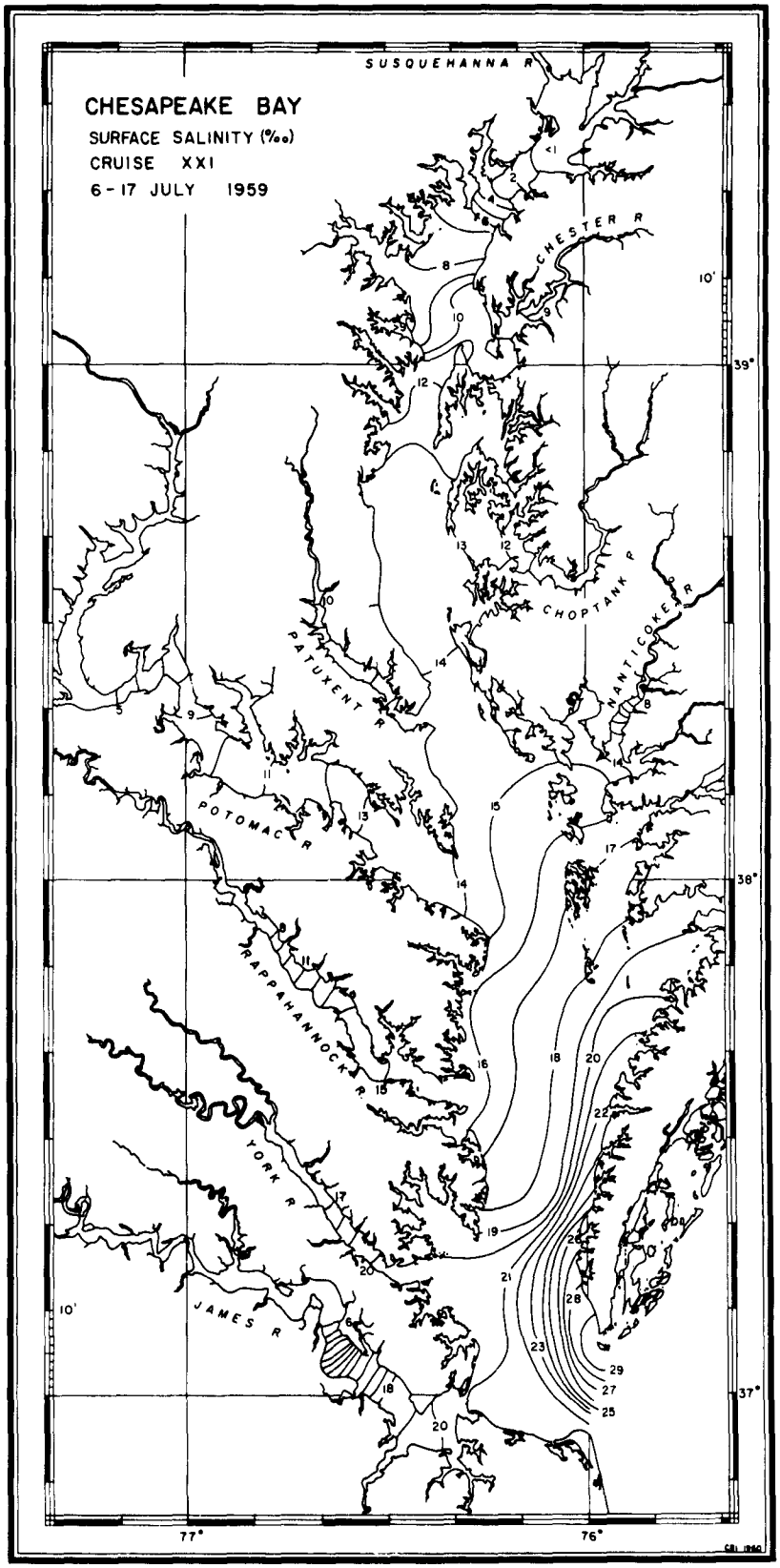
SALINITY (‰)

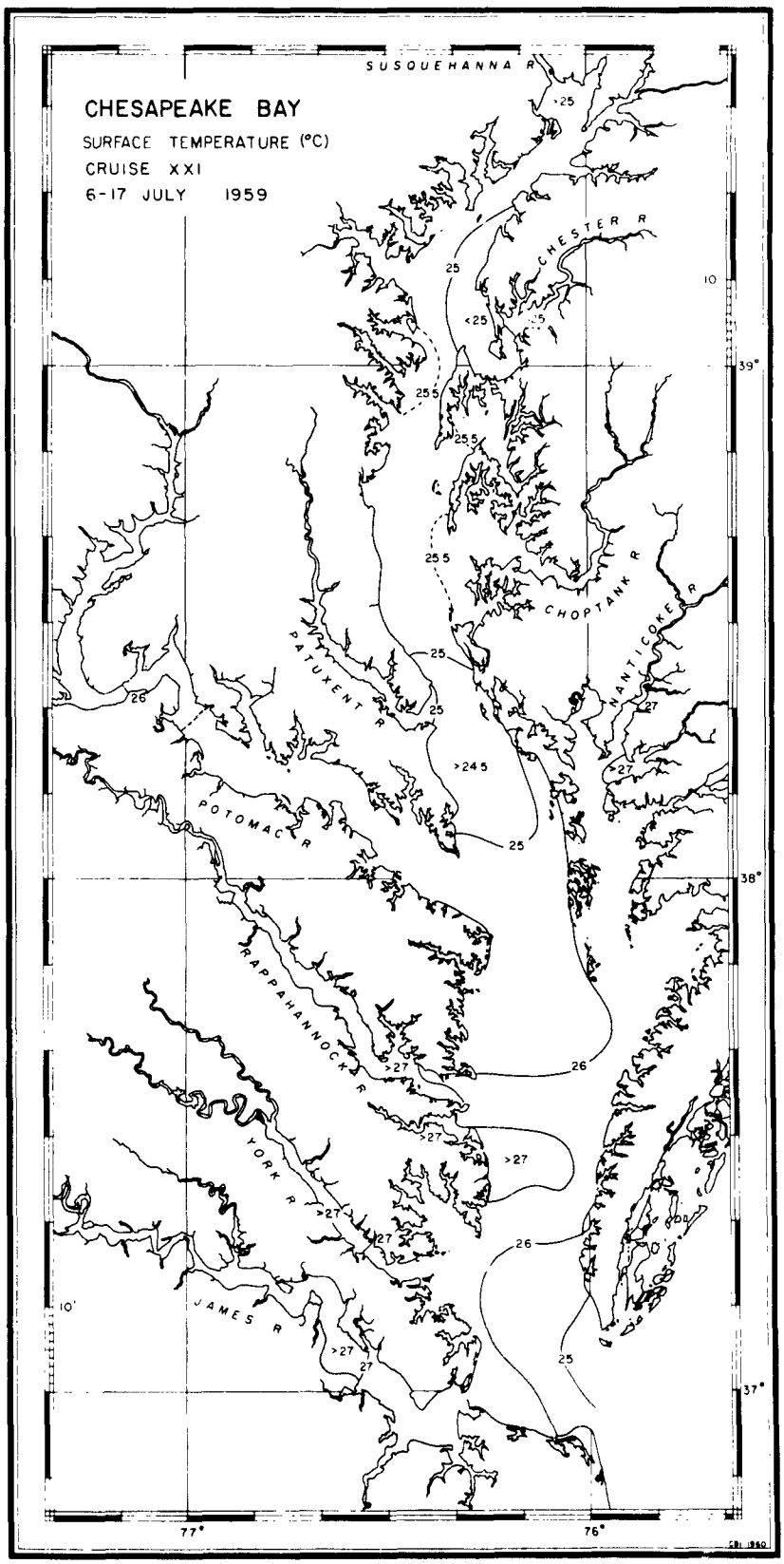
CRUISE XX 13 - 18 APRIL 1959 SECTION XIX

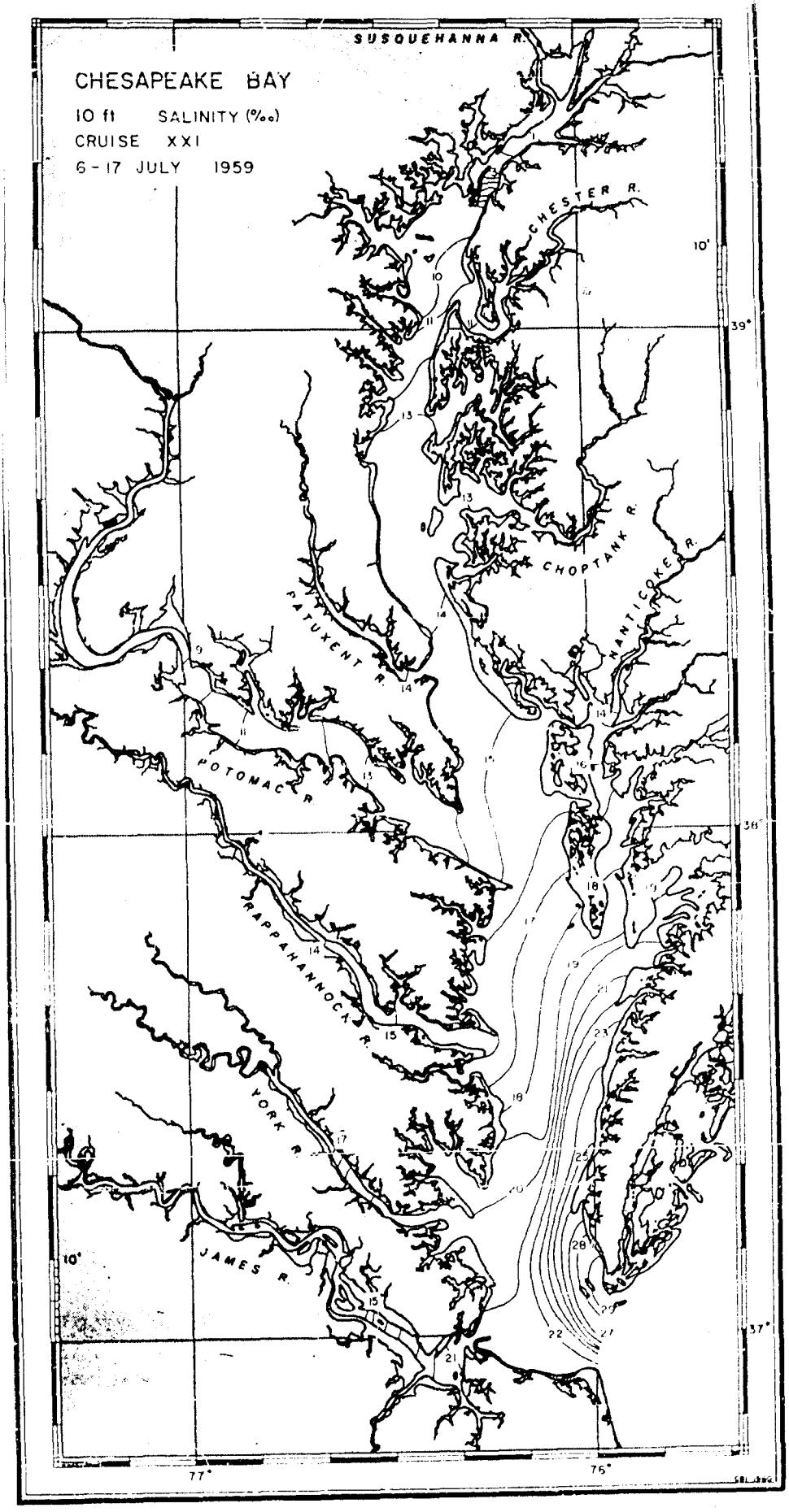
TEMPERATURE (°C)

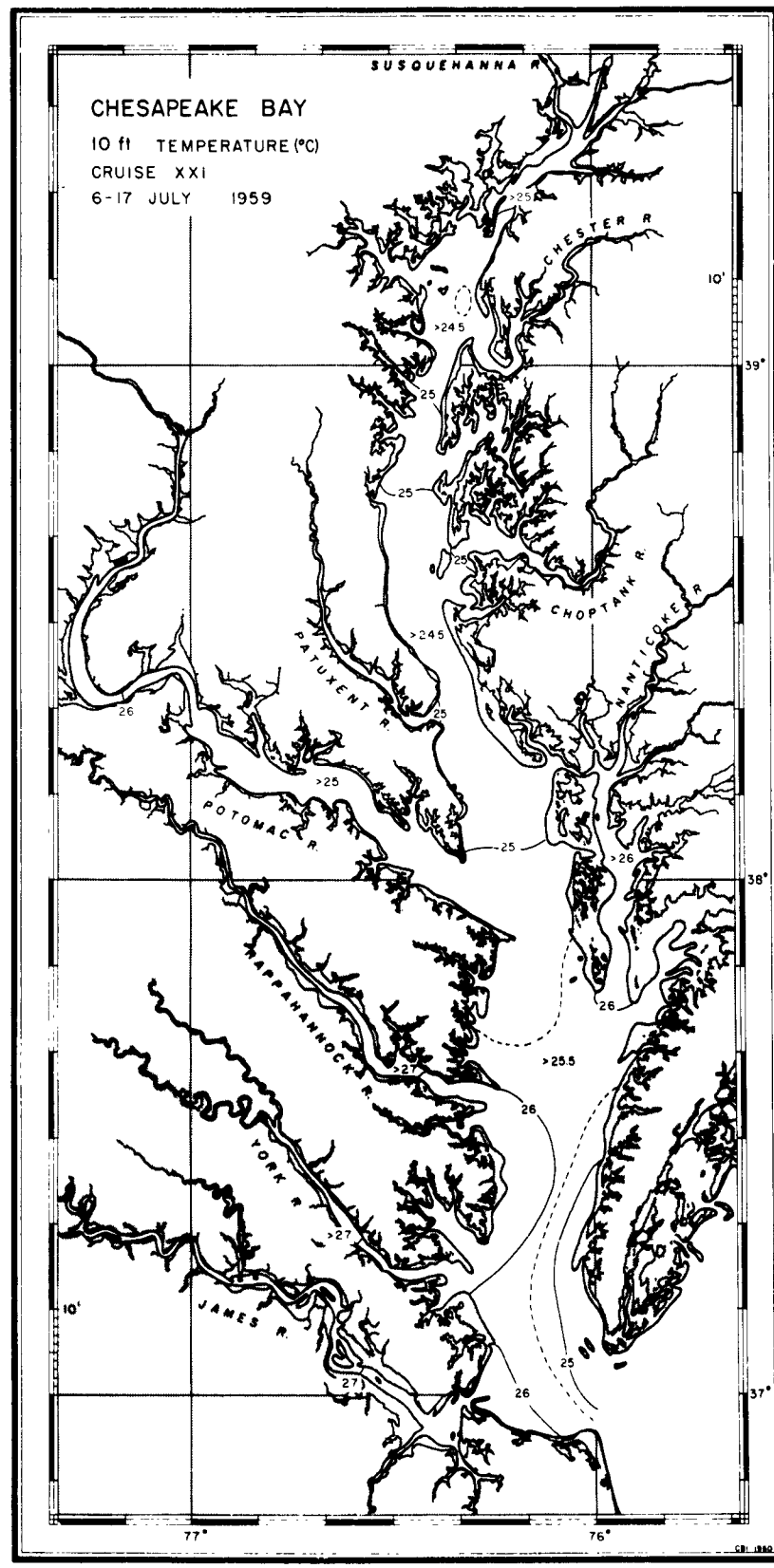


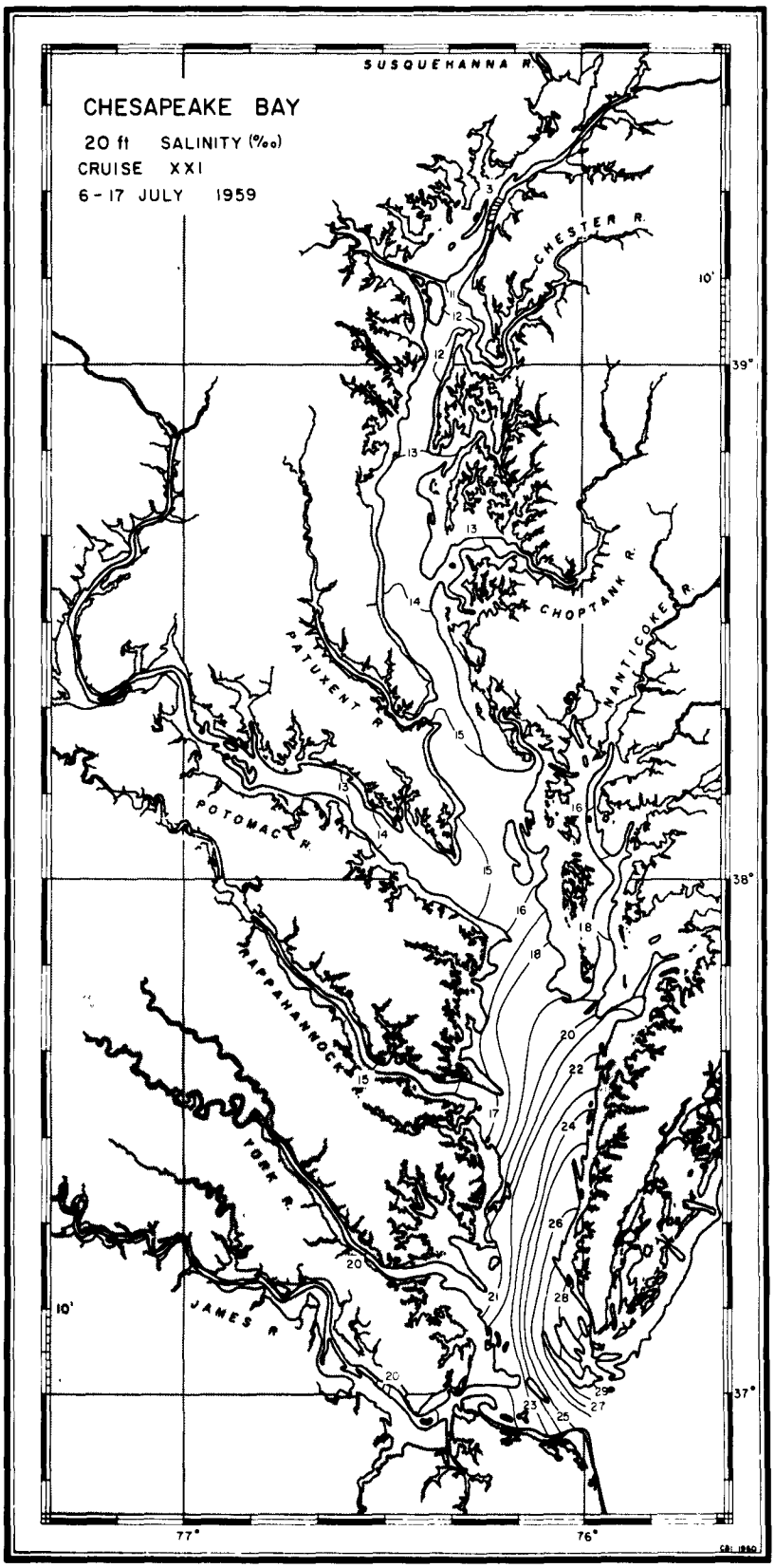

CHESAPEAKE BAY
CRUISE XXI STATION LOCATIONS
6 - 17 JULY 1959
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
NANTICOKE R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
10
39°
38°
37°
77°
76°

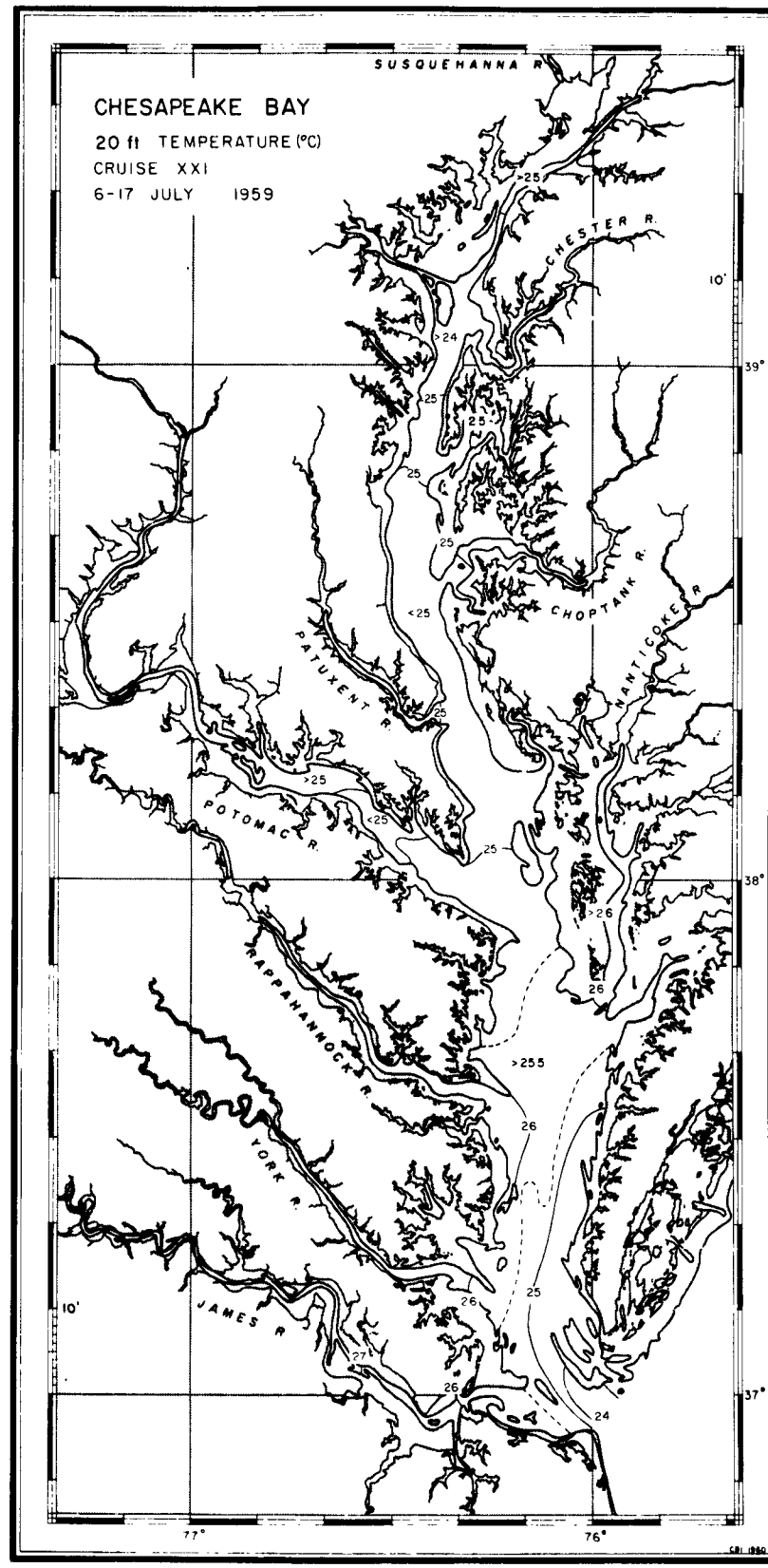

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XXI
6 - 17 JULY 1959
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

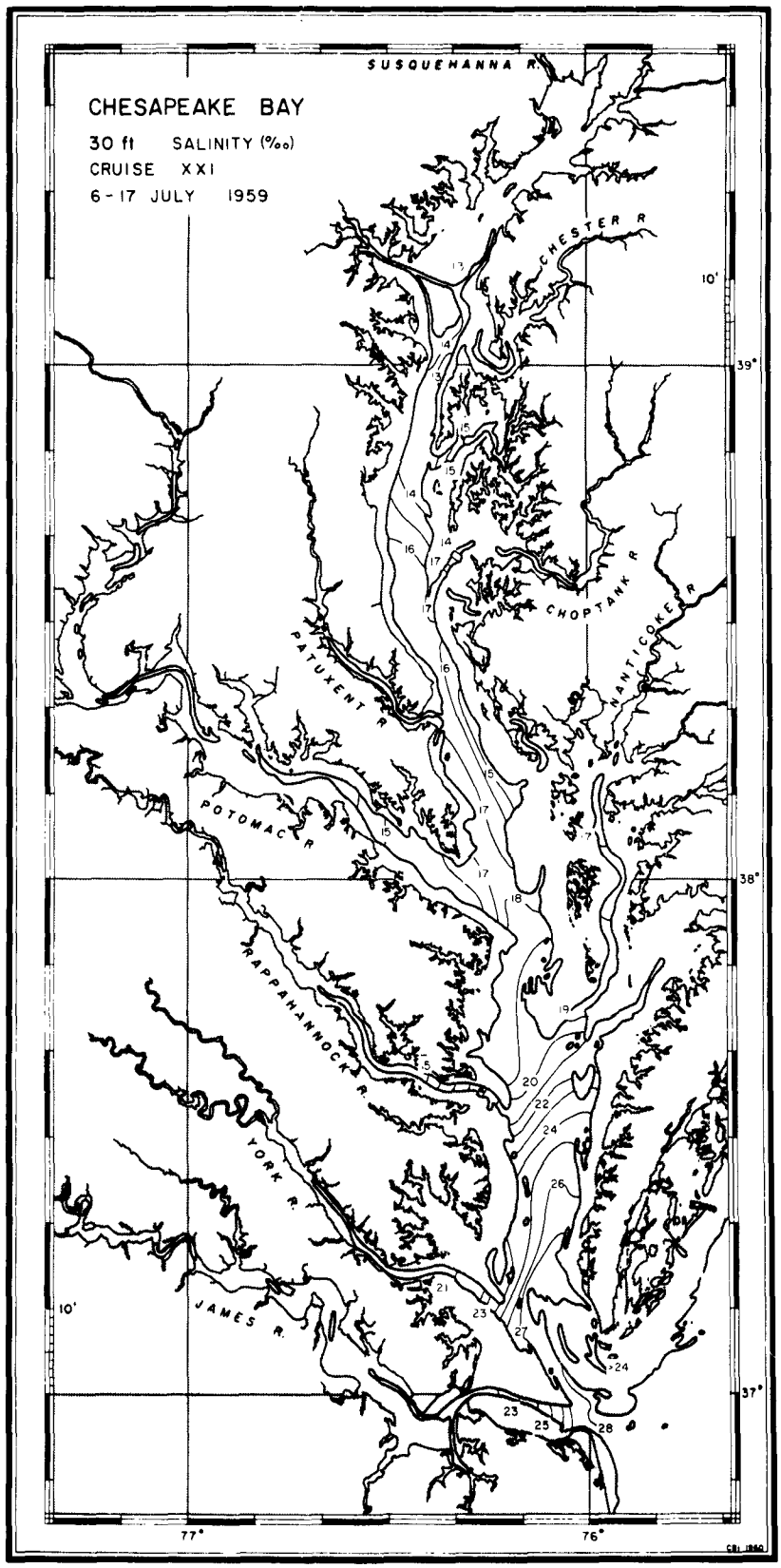

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XXI
6-17 JULY 1959
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

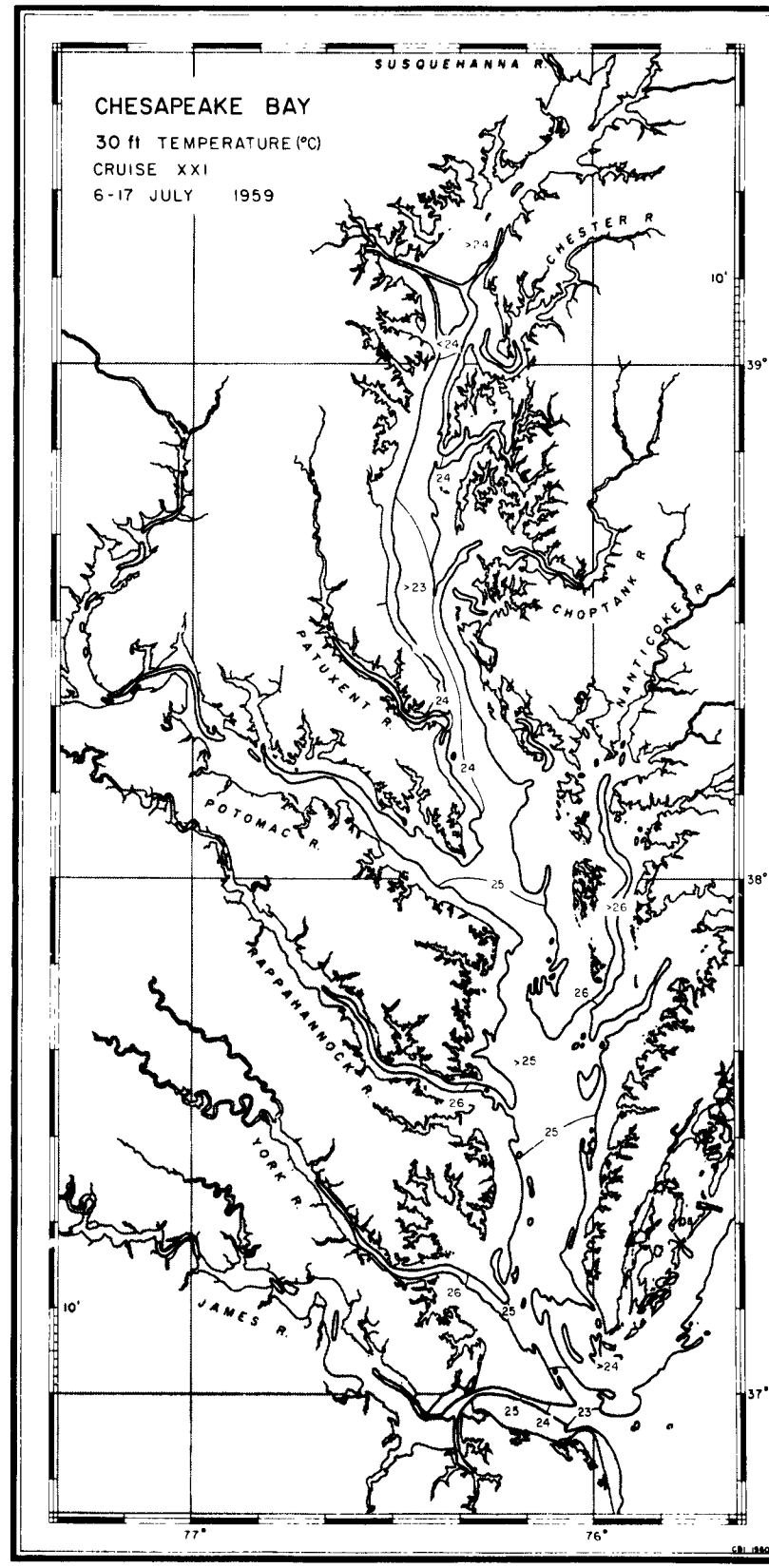

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XXI
6 - 17 JULY 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
MANTICOKE R.
39°
38°
37°
77°
76°

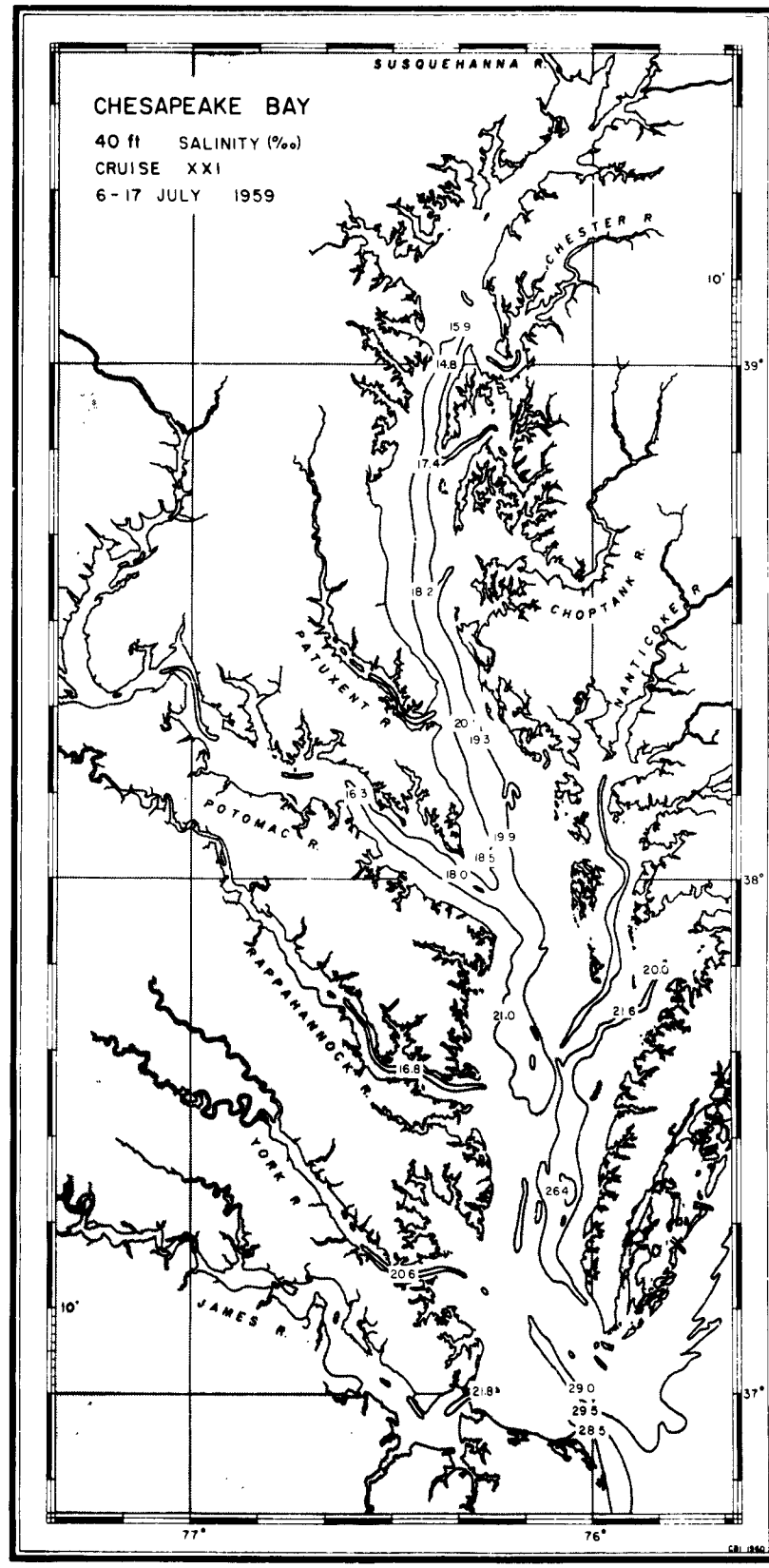

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
CRUISE XXI
6-17 JULY 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
>25
>24.5
25
26
>25.5
>27
27
10'
39°
38°
37°
77°
76°

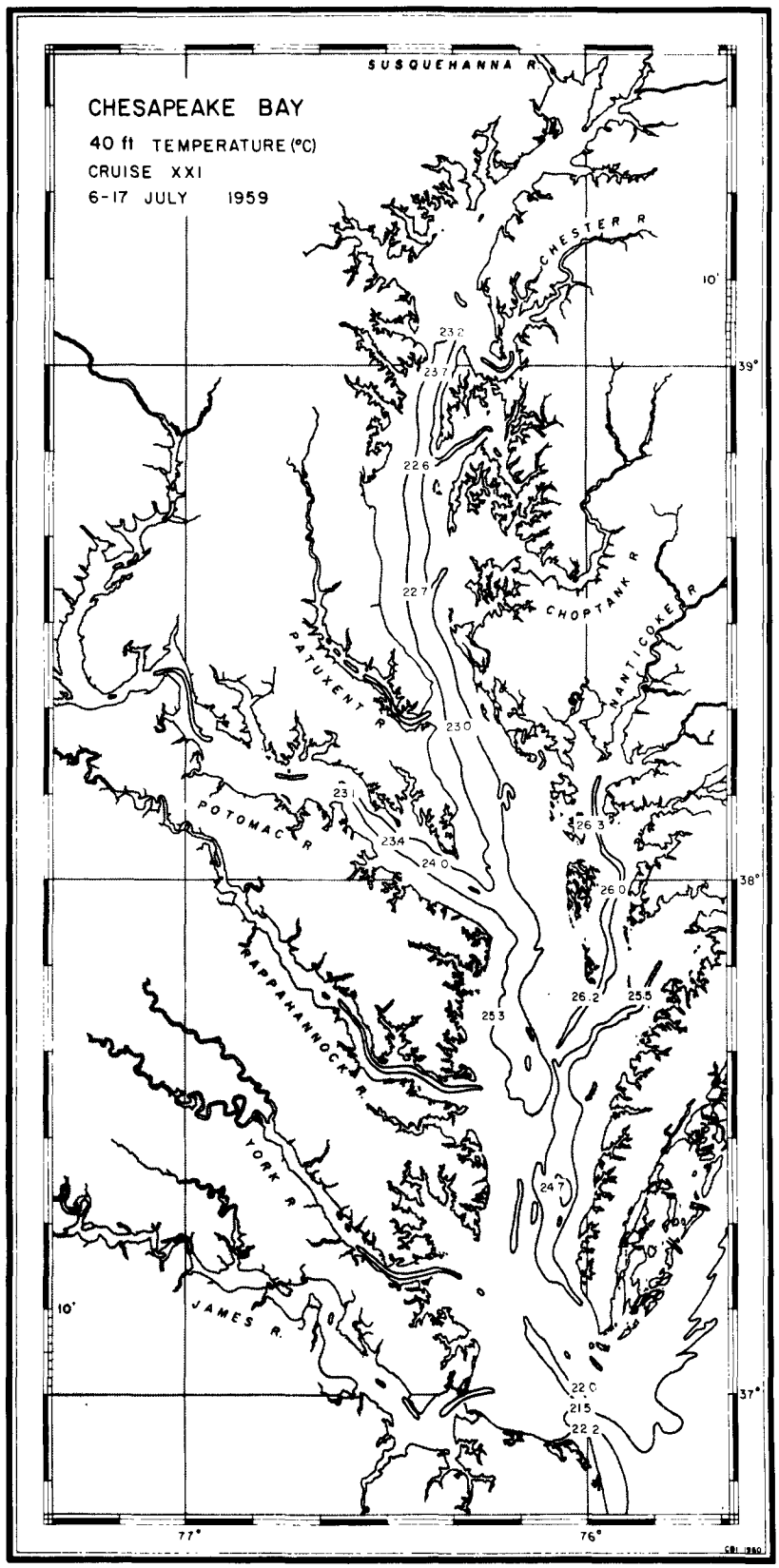

CHESAPEAKE BAY
20 ft SALINITY (‰)
CRUISE XXI
6 - 17 JULY 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
10'
77°
76°

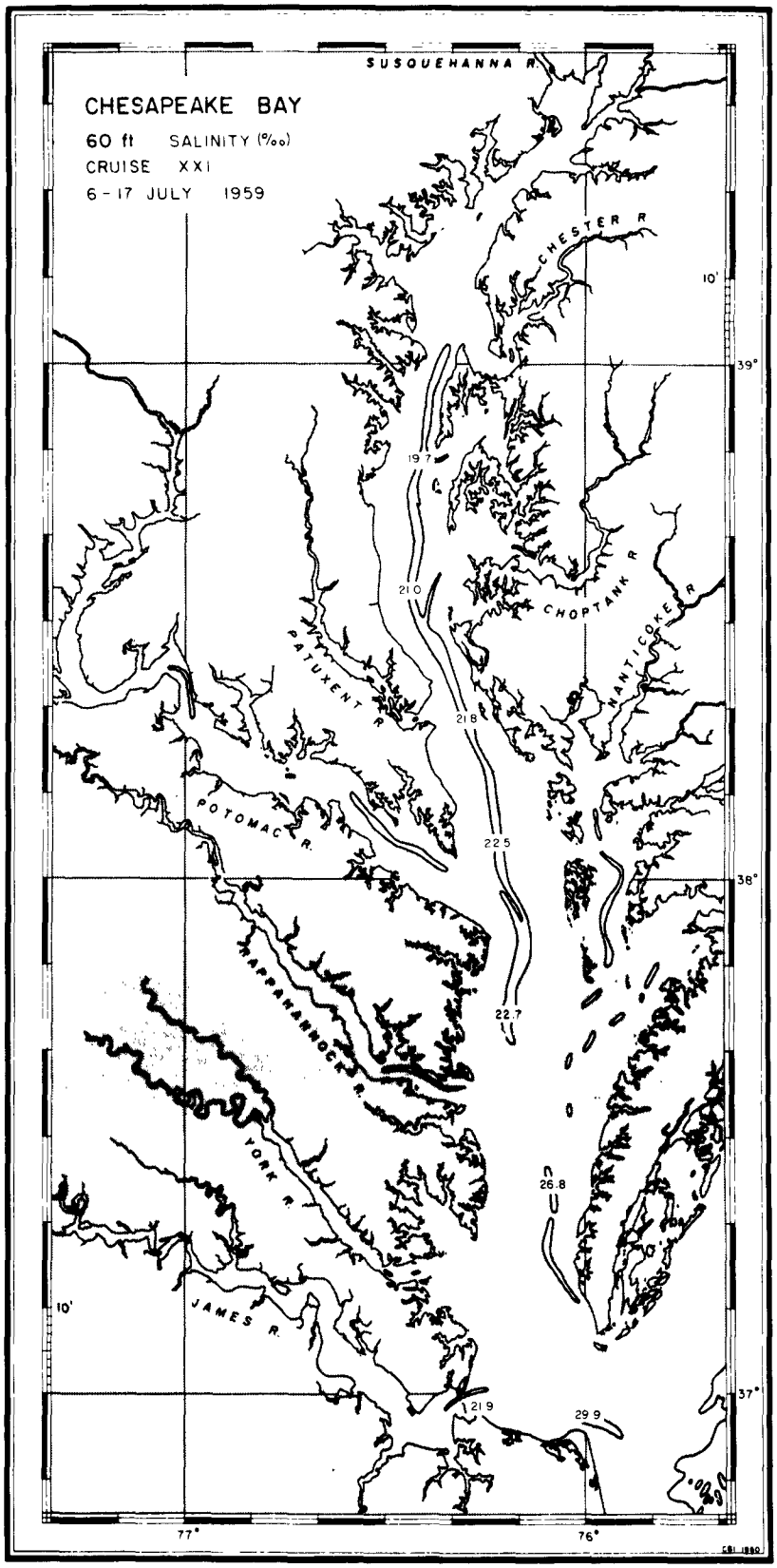

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
CRUISE XXI
6-17 JULY 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
>25
<25
25
>24
26
>255
24
10'
39°
38°
37°
77°
76°

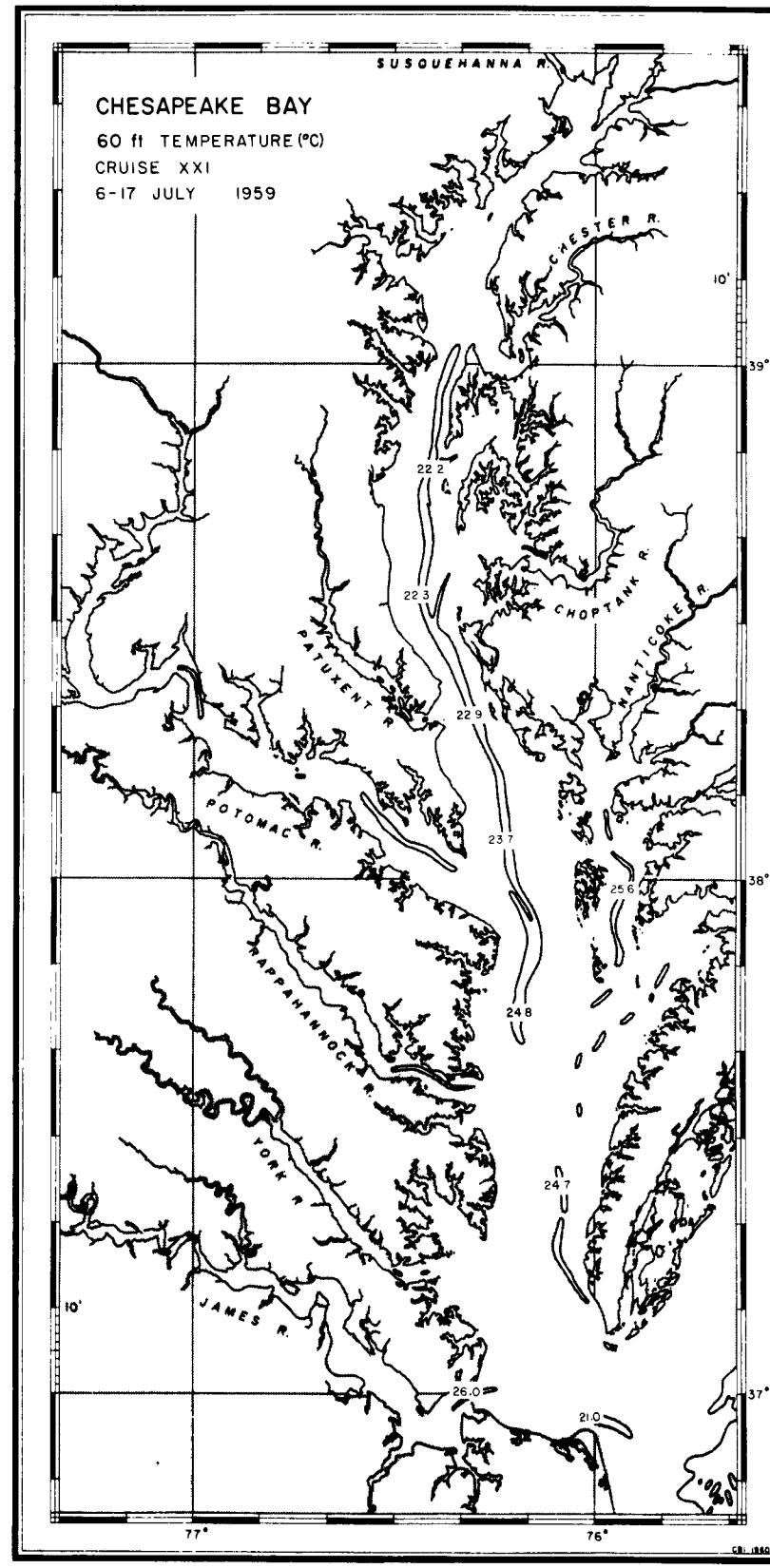

CHESAPEAKE BAY
30 ft SALINITY (‰)
CRUISE XXI
6-17 JULY 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
10'
77°
76°


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XXI
6-17 JULY 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
>24
<24
24
>23
25
>26
26
>25
10'
39°
38°
37°
77°
76°

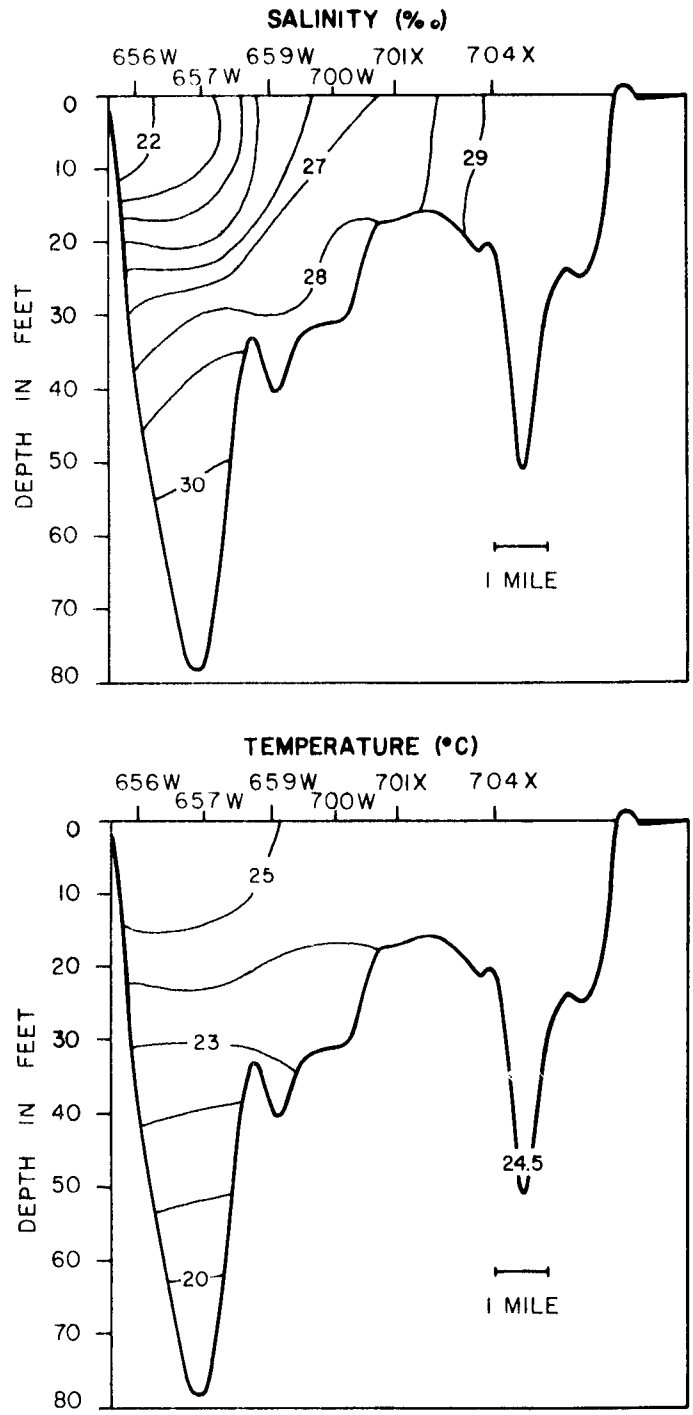

CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XXI
6-17 JULY 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
15.9
14.8
17.4
18.2
19.3
20.1
16.3
19.9
18.5
18.0
20.0
21.6
21.0
16.8
26.4
20.6
21.8
29.0
29.5
28.5
39°
38°
37°
10'
10'
77°
76°


CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
CRUISE XXI
6-17 JULY 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
23.2
23.7
22.6
22.7
23.0
23.1
23.4
24.0
26.3
26.0
26.2
25.5
25.3
24.7
22.0
21.5
22.2
39°
38°
37°
10'
77°
76°

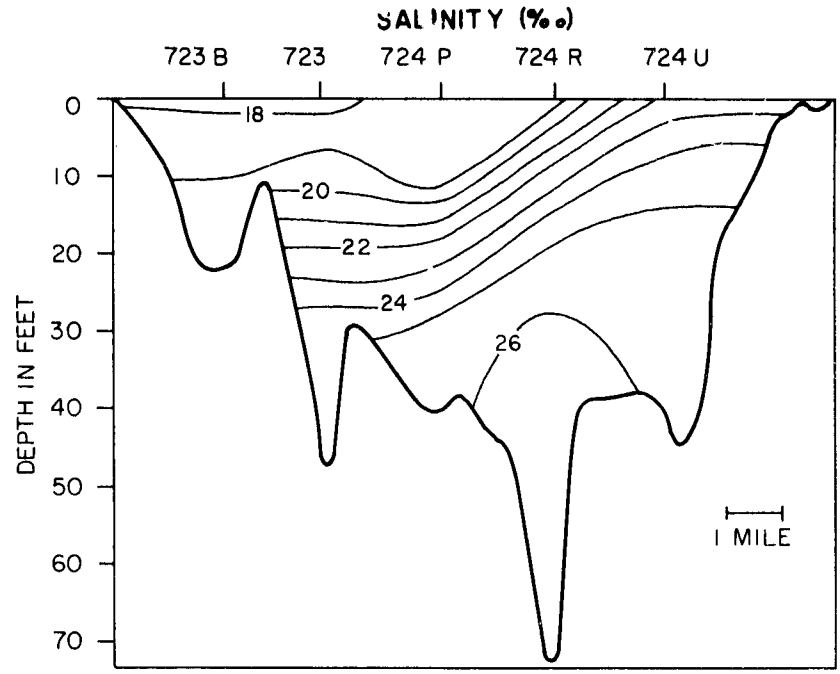

CHESAPEAKE BAY
60 ft SALINITY (‰)
CRUISE XXI
6 - 17 JULY 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
19.7
21.0
21.8
22.5
22.7
26.8
29.9
39°
38°
37°
10'
77°
76°

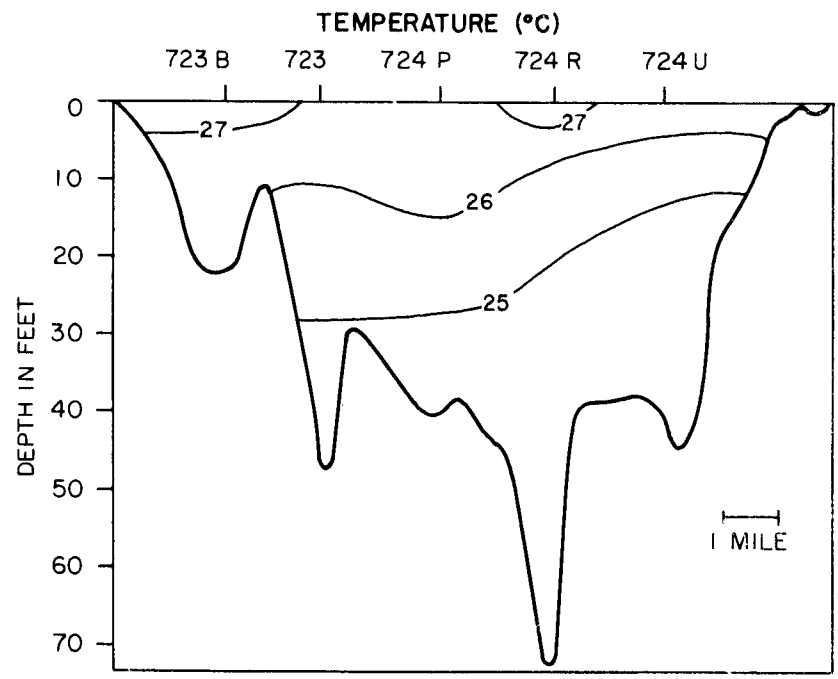

CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
CRUISE XXI
6-17 JULY 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
MANTICOKE R.
22.2
22.3
22.9
23.7
24.8
25.6
24.7
26.0
21.0
39°
38°
37°
10'
77°
76°

CRUISE XXI 6 - 17 JULY 1959 SECTION II

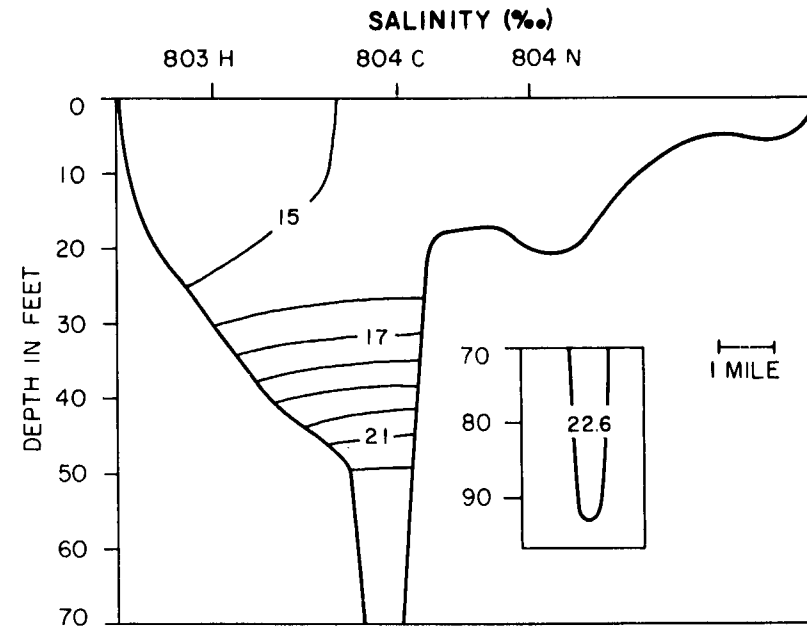


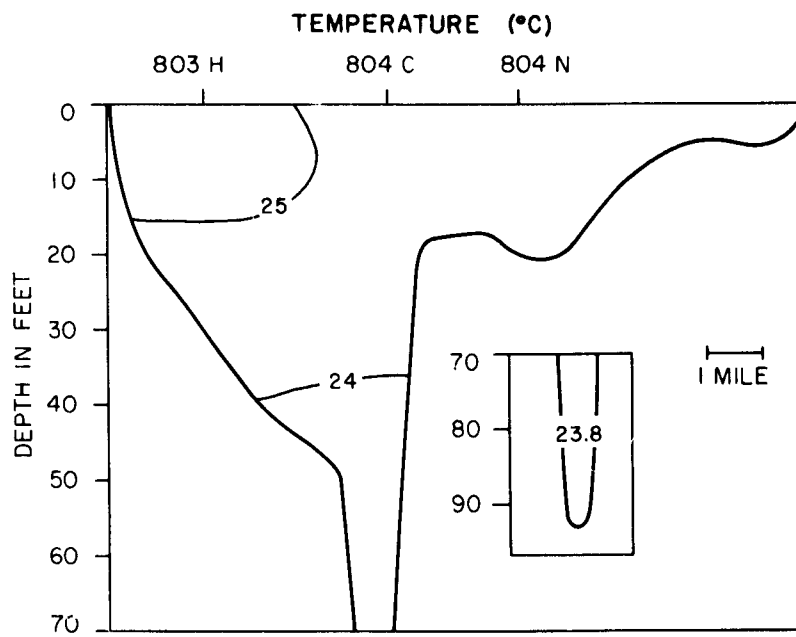
CRUISE XXI 6 - 17 JULY 1959 SECTION IV



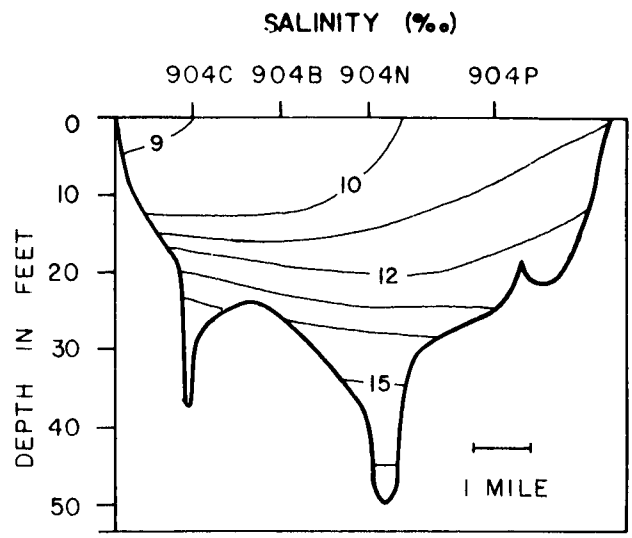



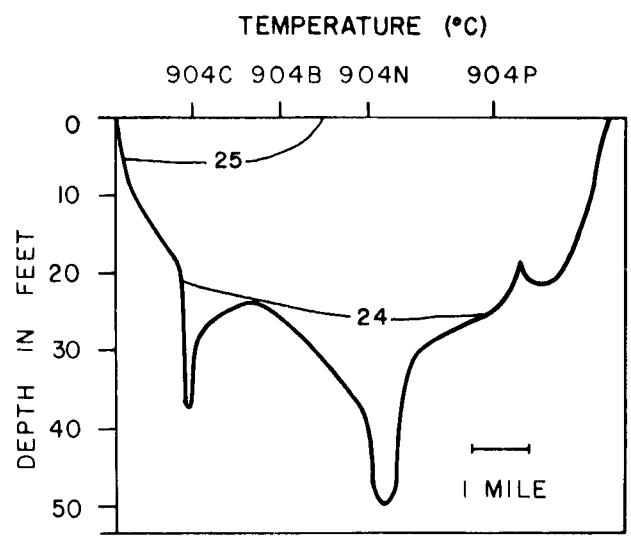
CRUISE XXI 6 - 17 JULY 1959 SECTION VI



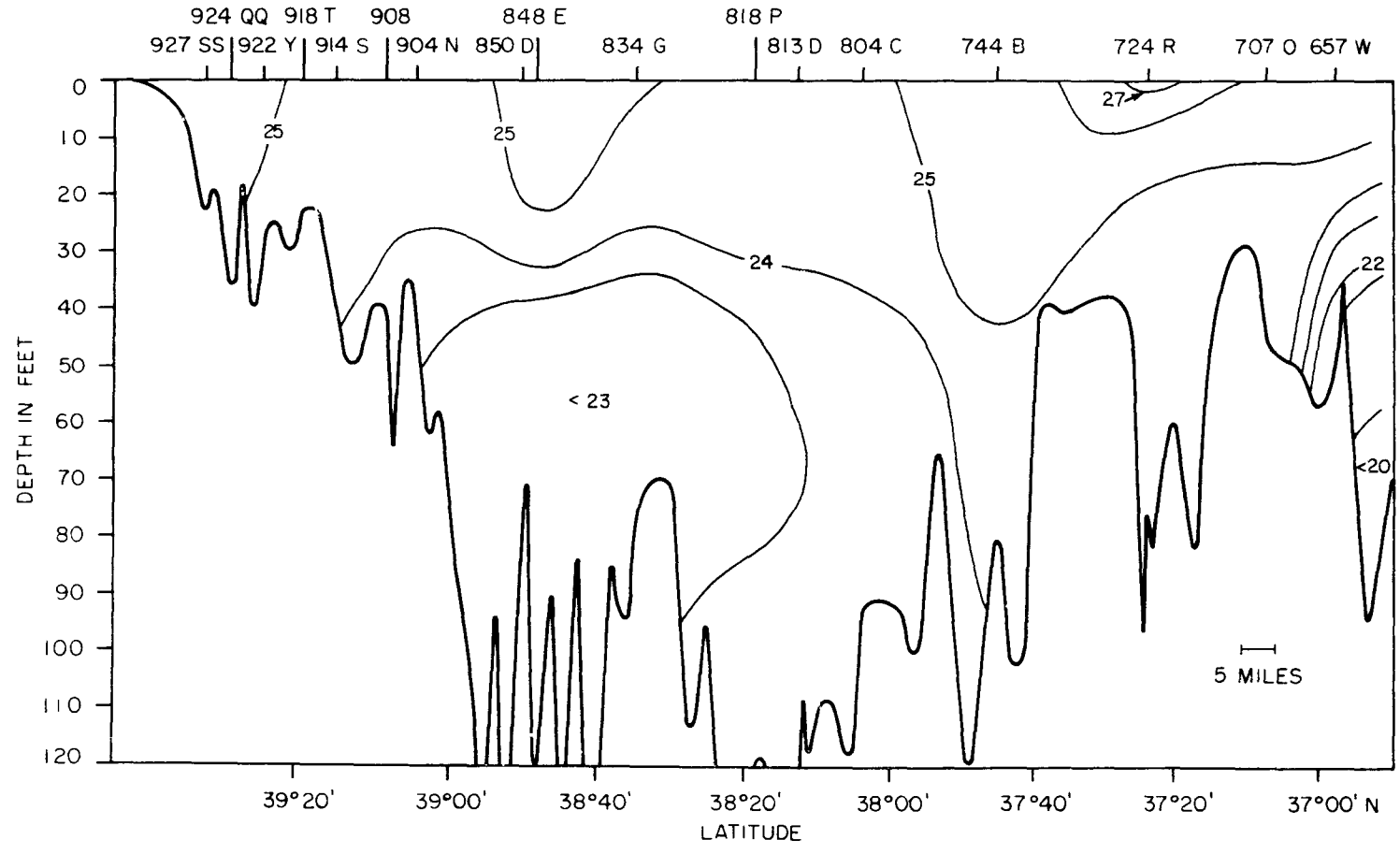
CRUISE XXI 6 - 17 JULY 1959 SECTION X



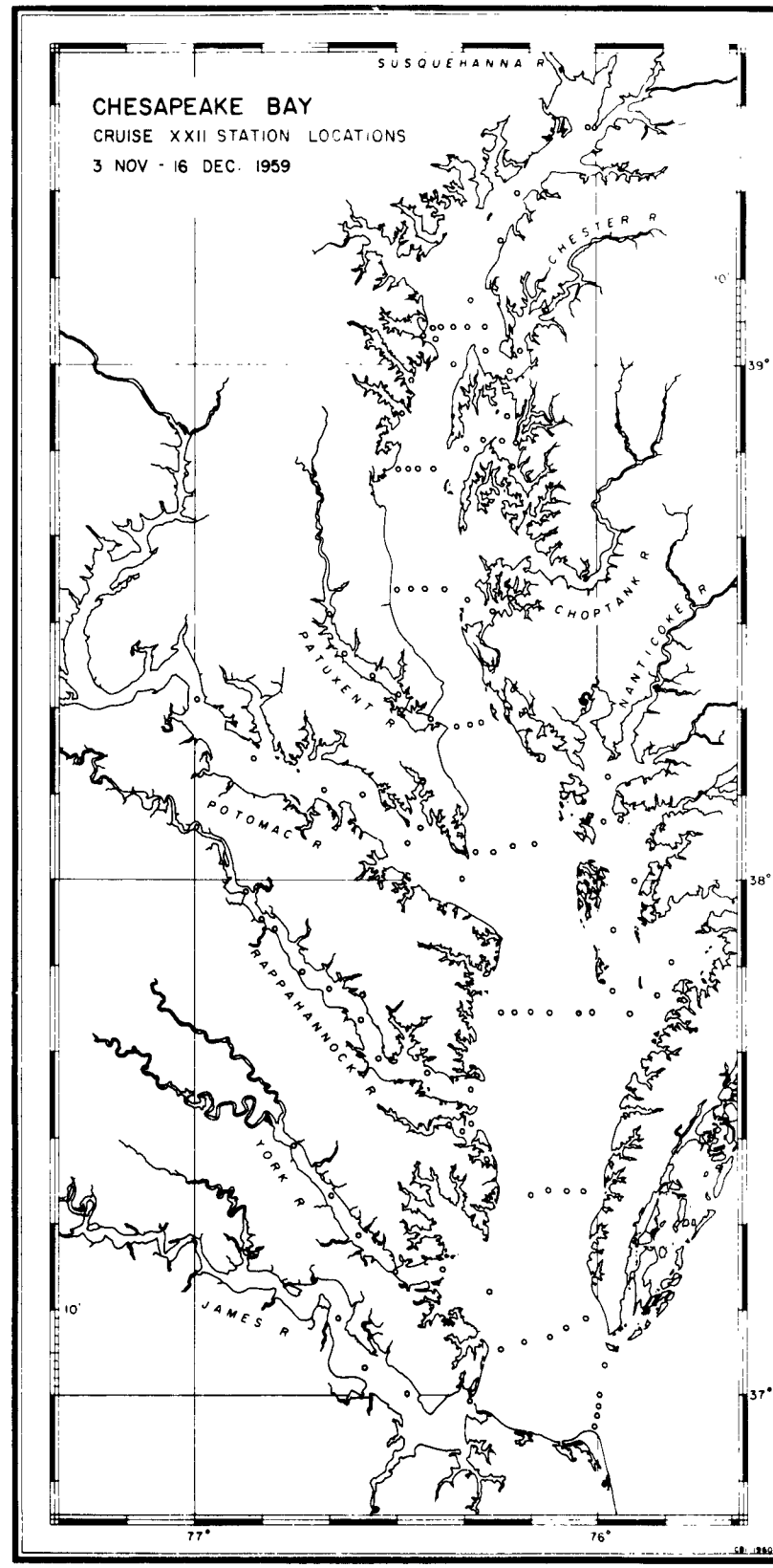
CRUISE XXI 6 - 17 JULY 1959 SECTION XIX

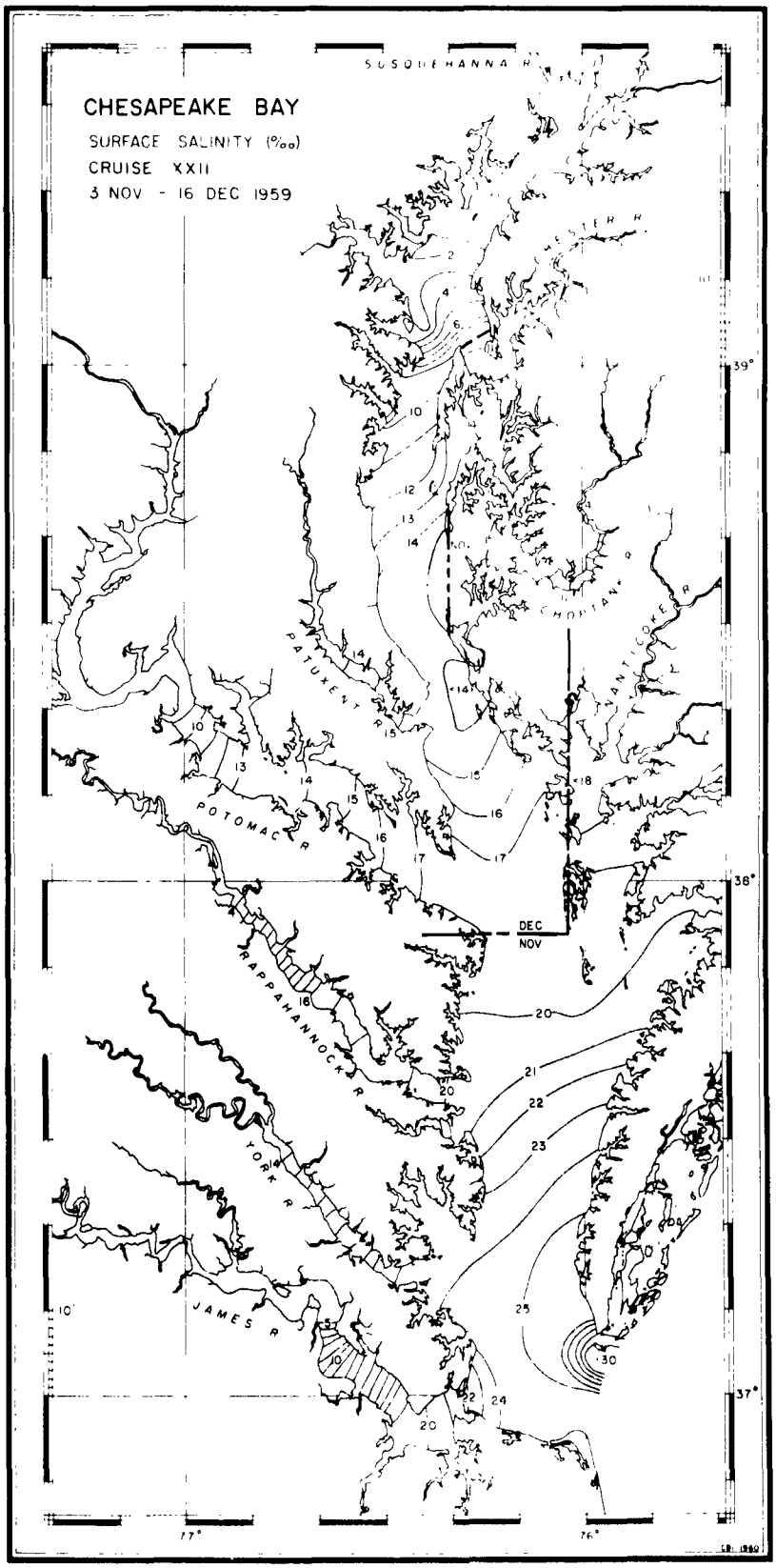
SALINITY (‰)

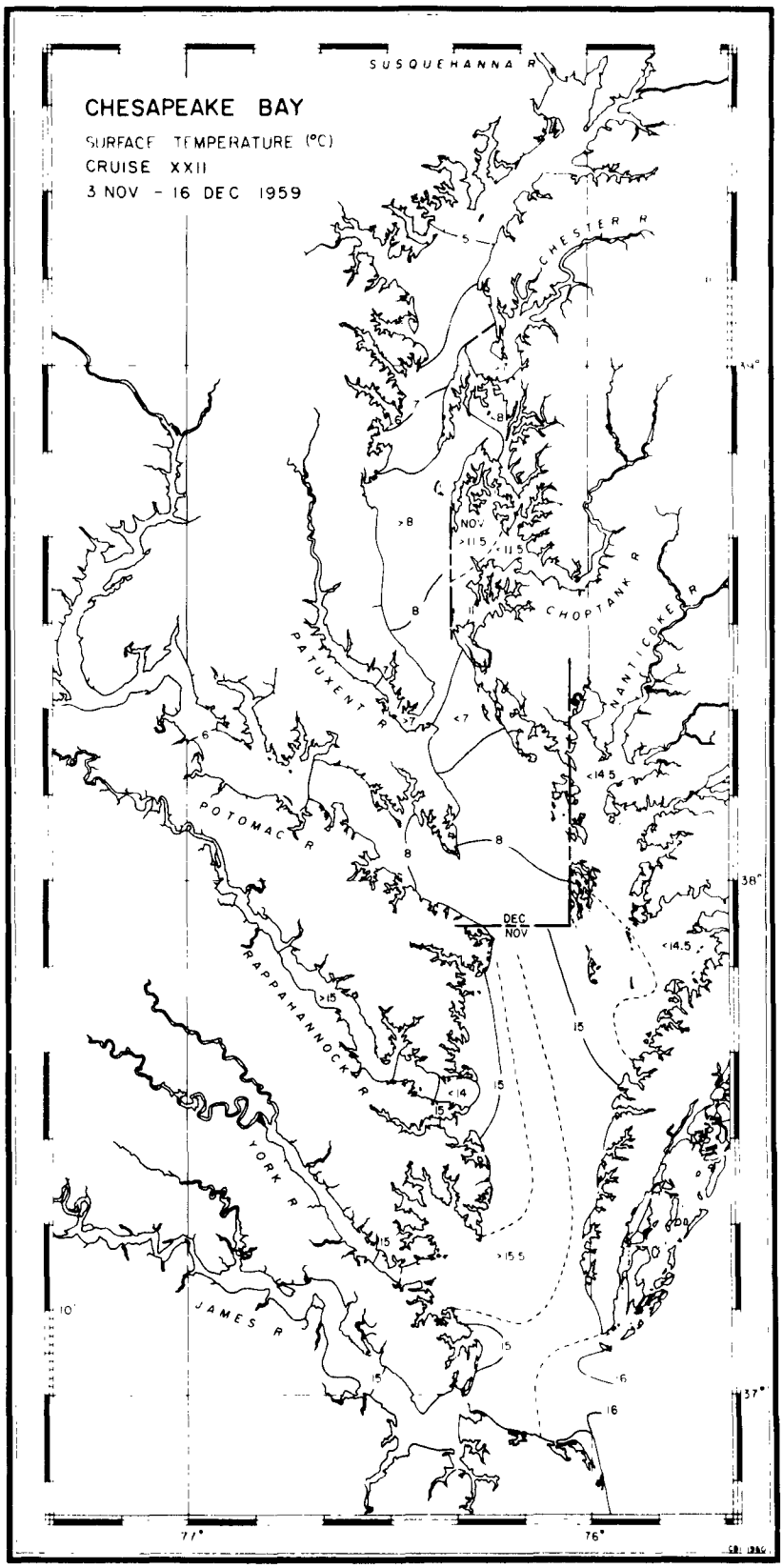


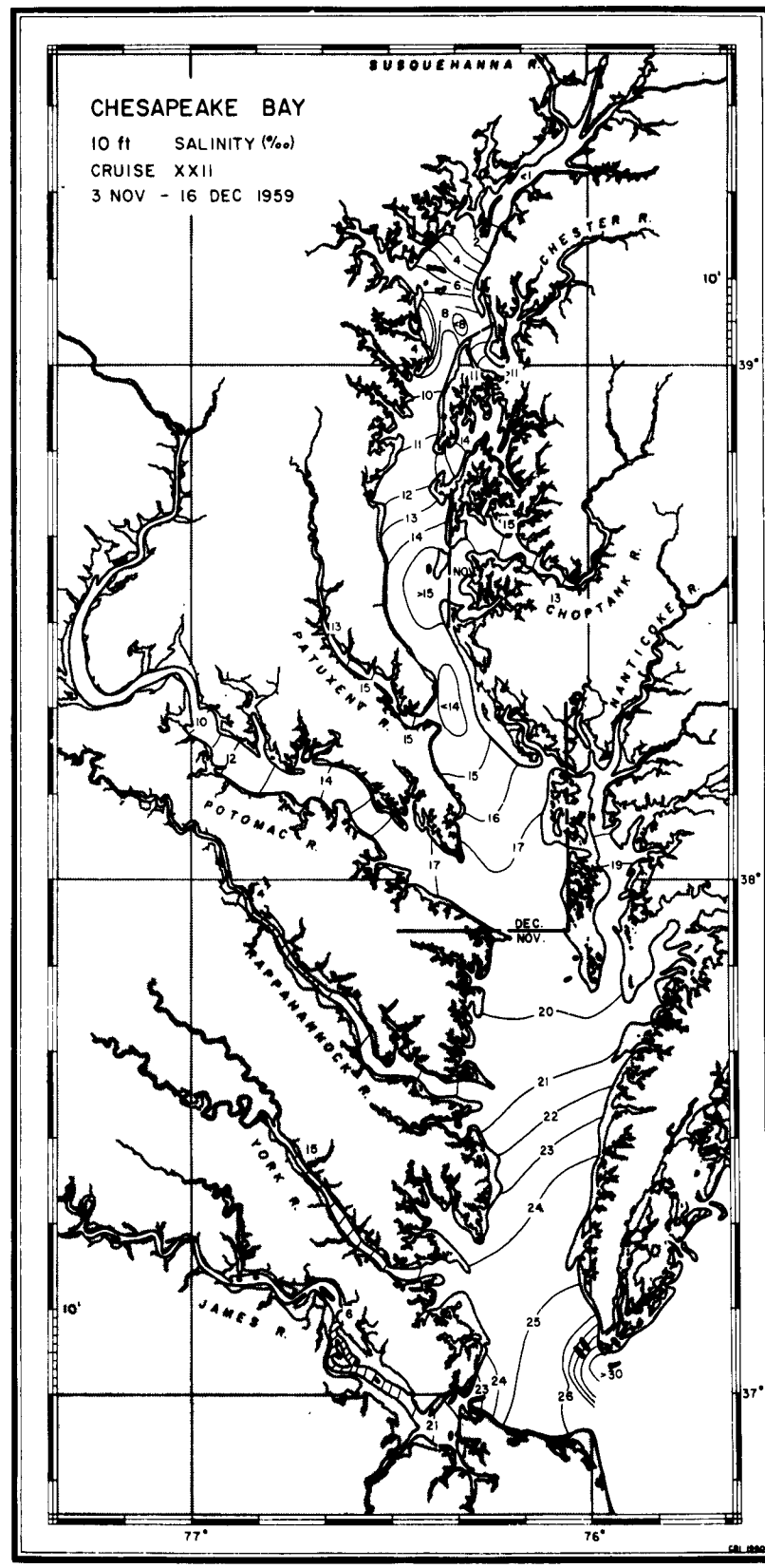

CRUISE XXI 6 - 17 JULY 1959 SECTION XIX

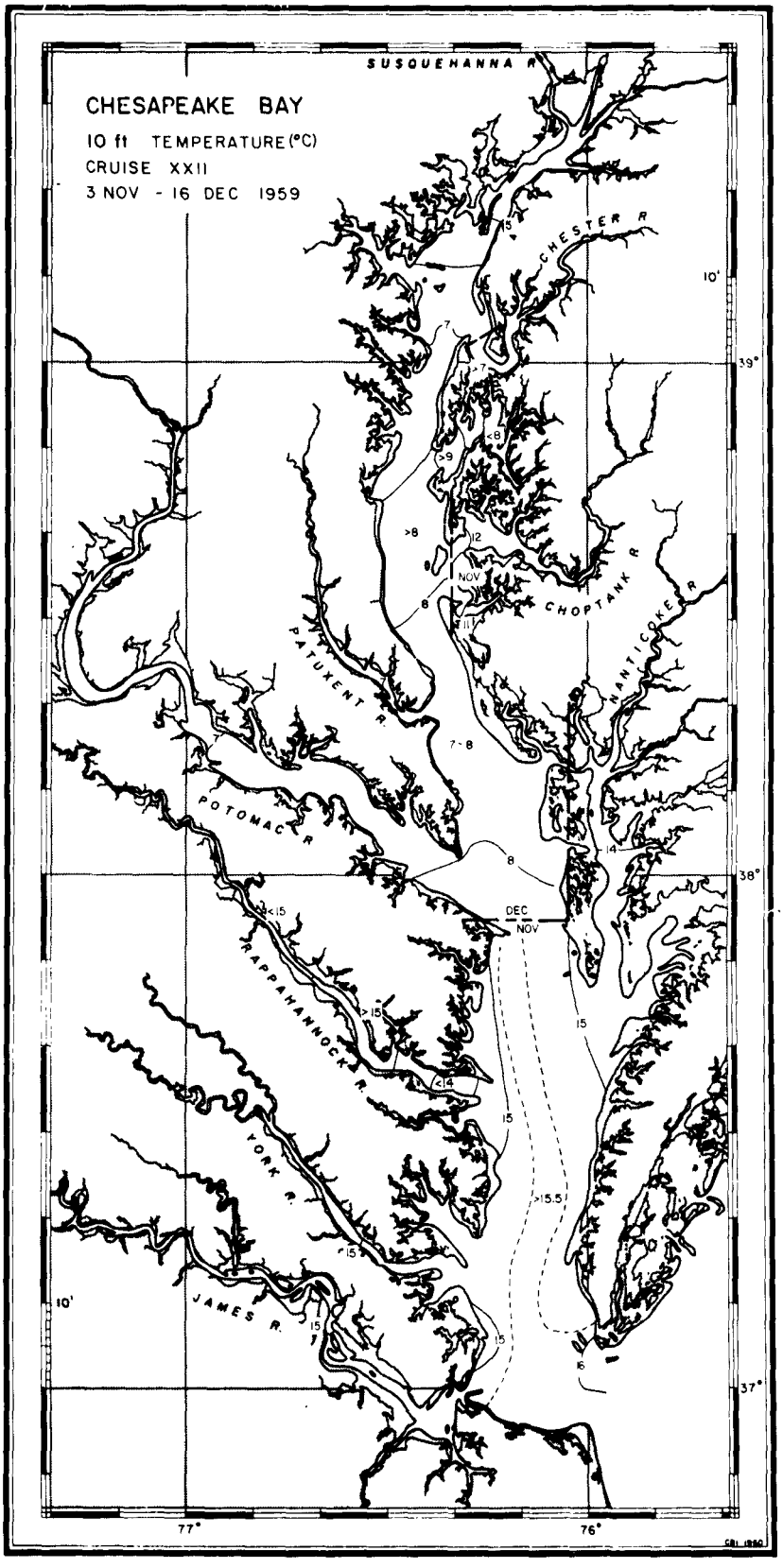
TEMPERATURE (°C)

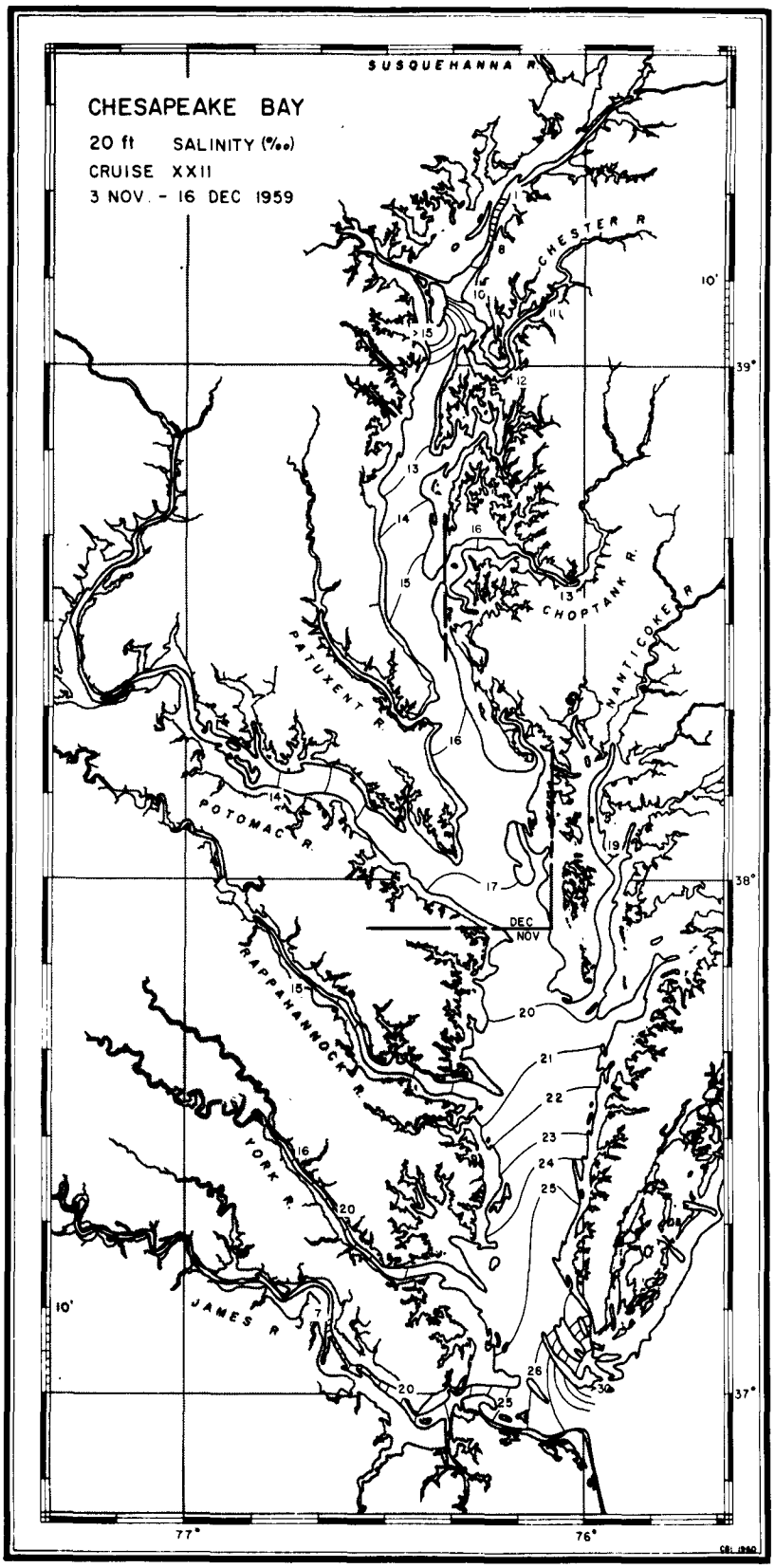

CHESAPEAKE BAY
CRUISE XXII STATION LOCATIONS
3 NOV - 16 DEC. 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
10'
77°
76°

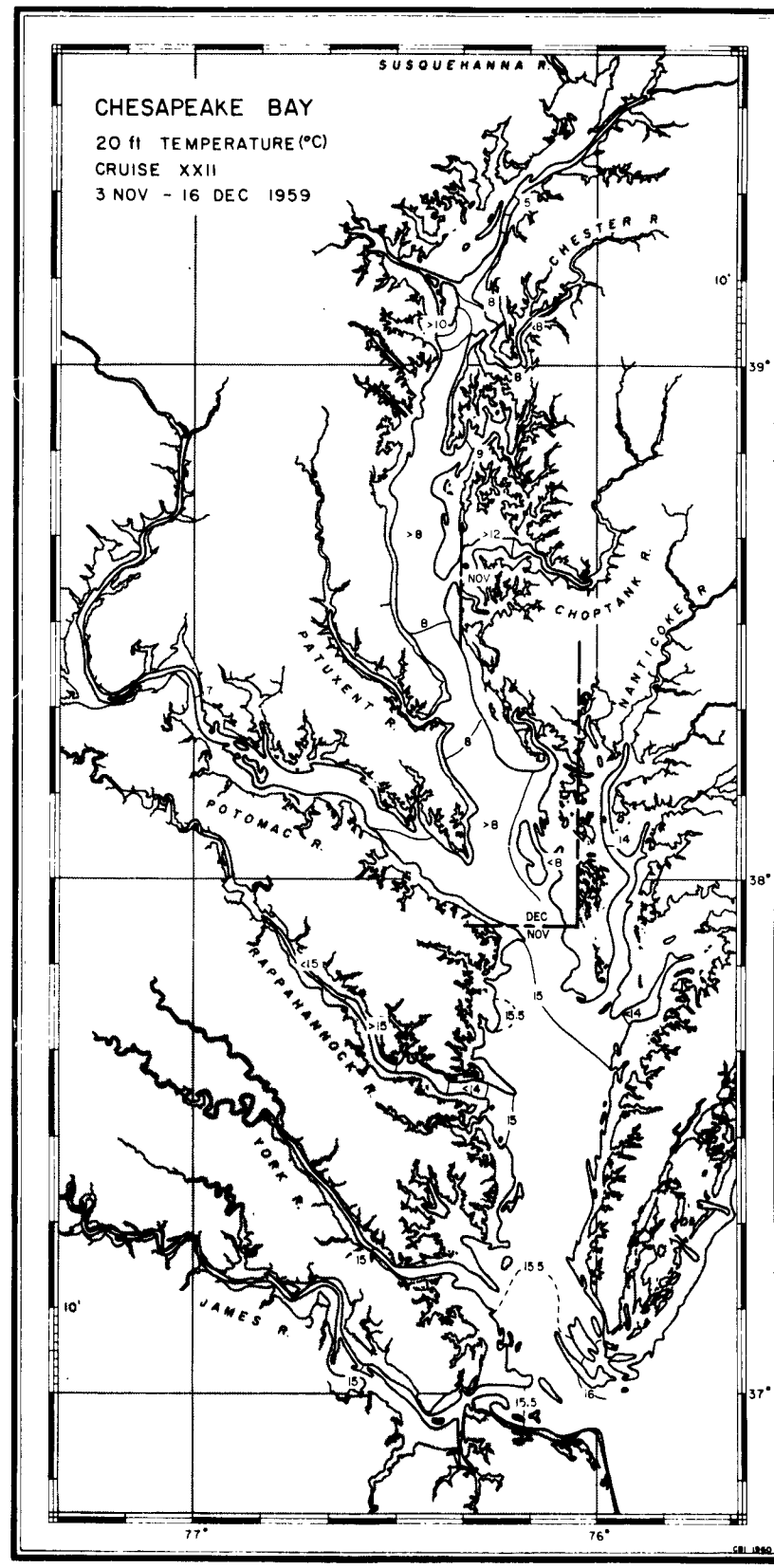

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XXII
3 NOV - 16 DEC 1959
SUSQUEHANNA R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
CHOPTANK R.
NANTICOKE R.
DEC
NOV
39°
38°
37°
77°
76°

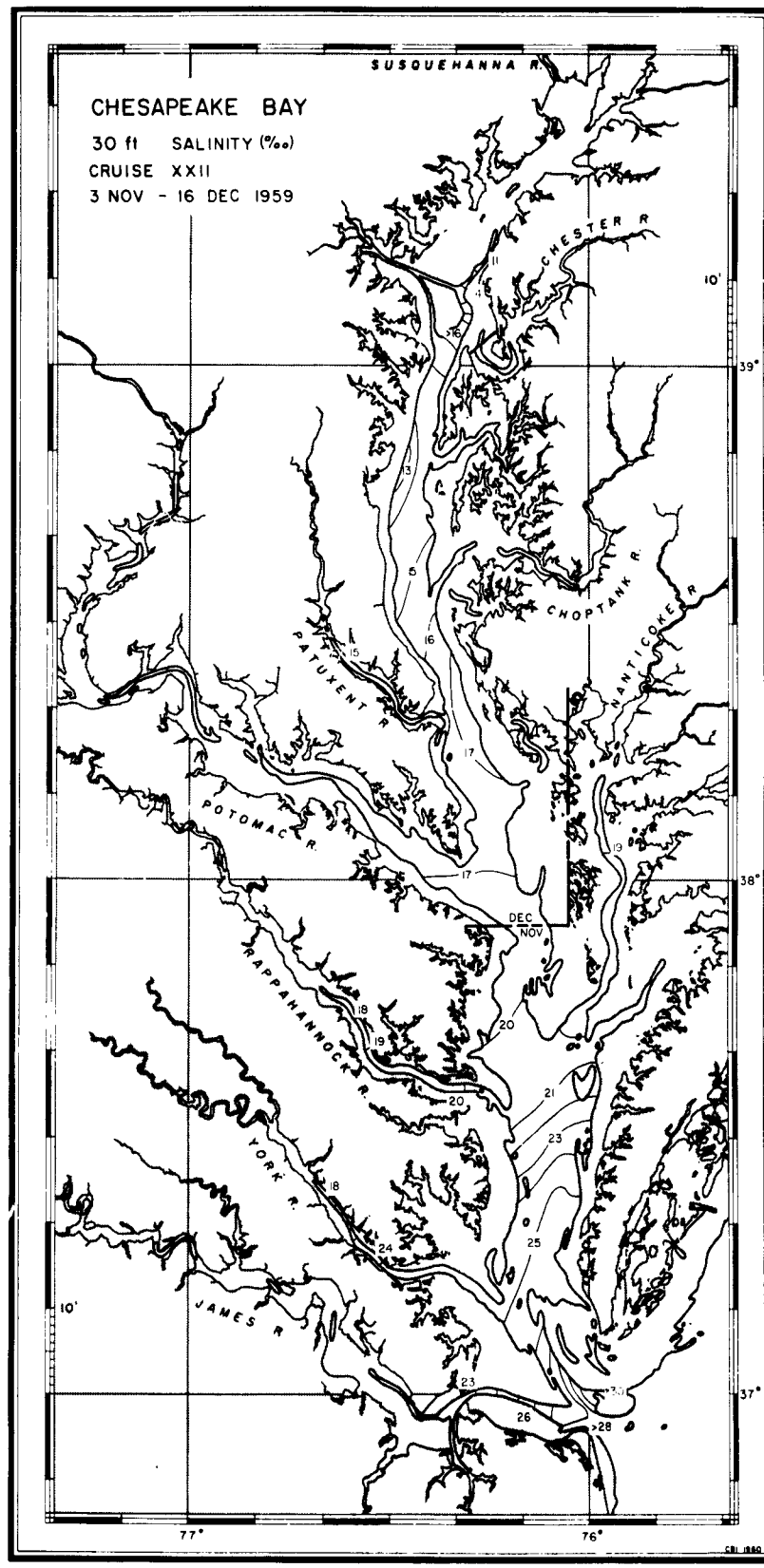

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XXII
3 NOV - 16 DEC 1959
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
NANTICOKE R
NOV
DEC
NOV
<8
>8
<11.5
<7
<14.5
>15
<14
>15.5
38°
37°
77°
76°

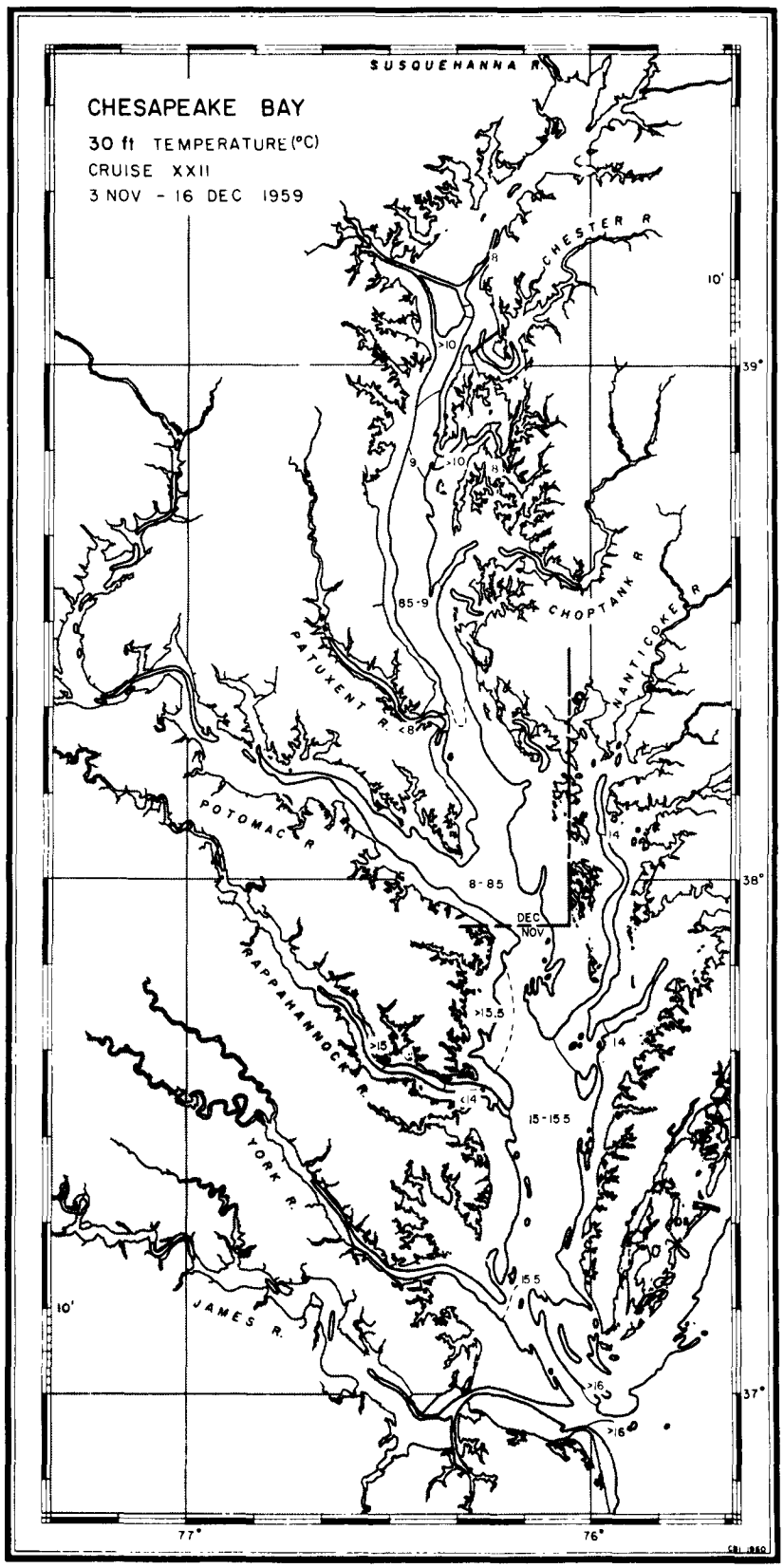

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XXII
3 NOV - 16 DEC 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
DEC.
NOV.
39°
38°
37°
77°
76°
10'

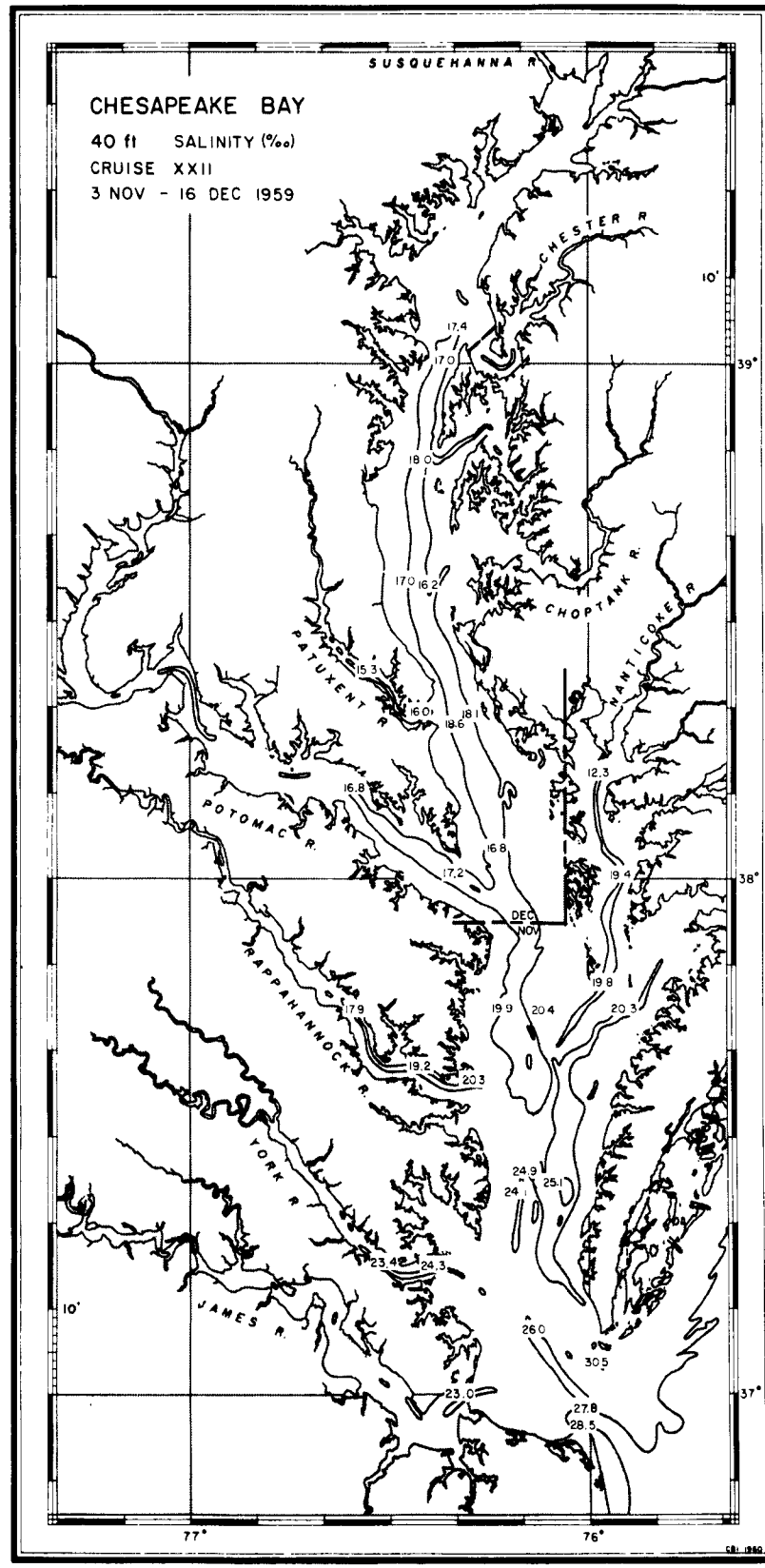

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
CRUISE XXII
3 NOV - 16 DEC 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
HANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NOV
DEC
NOV
39°
38°
37°
77°
76°

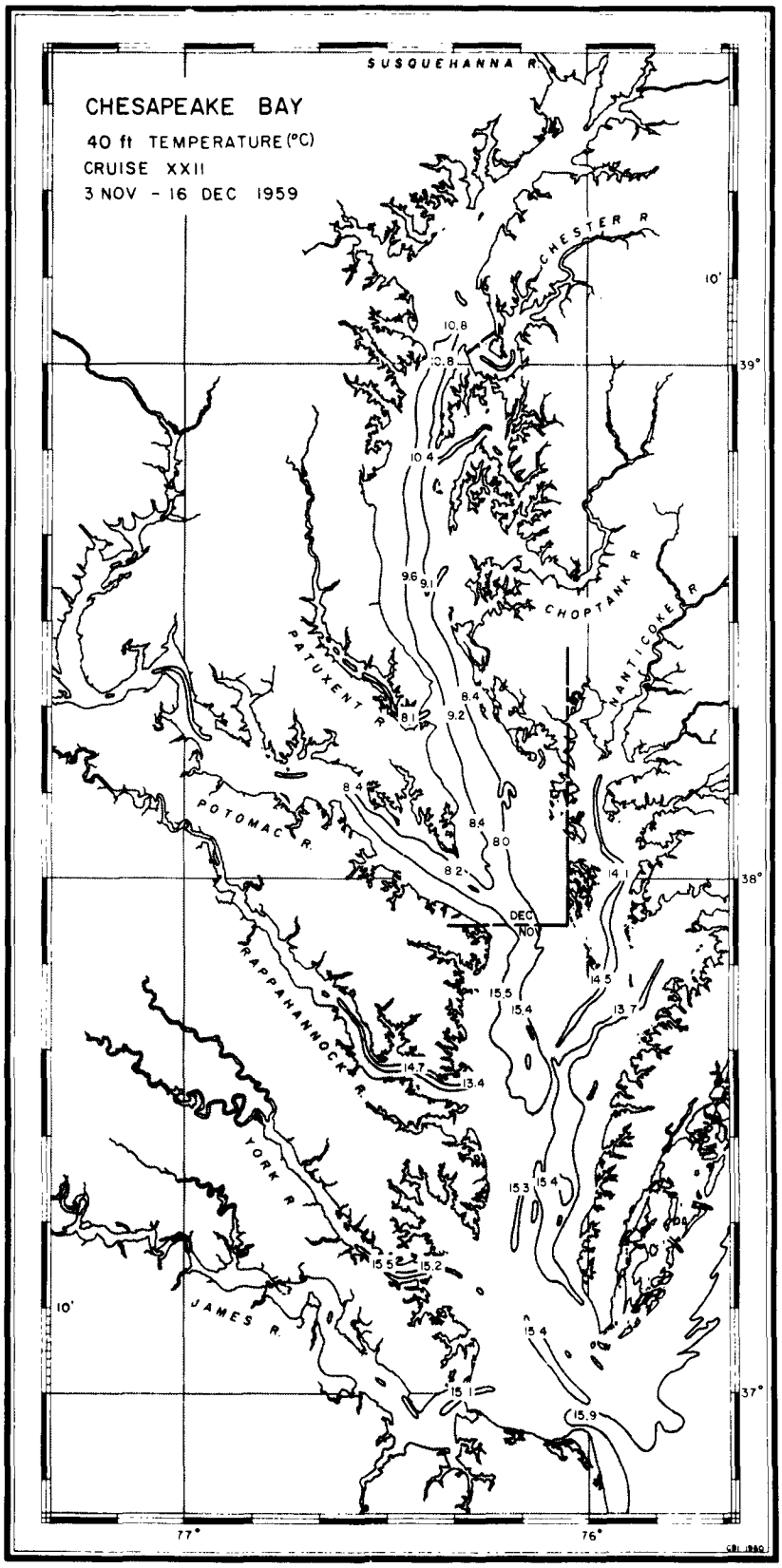

CHESAPEAKE BAY
20 ft SALINITY (‰)
CRUISE XXII
3 NOV. - 16 DEC 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
MANTICOKE R.
DEC
NOV
39°
38°
37°
10'
77°
76°

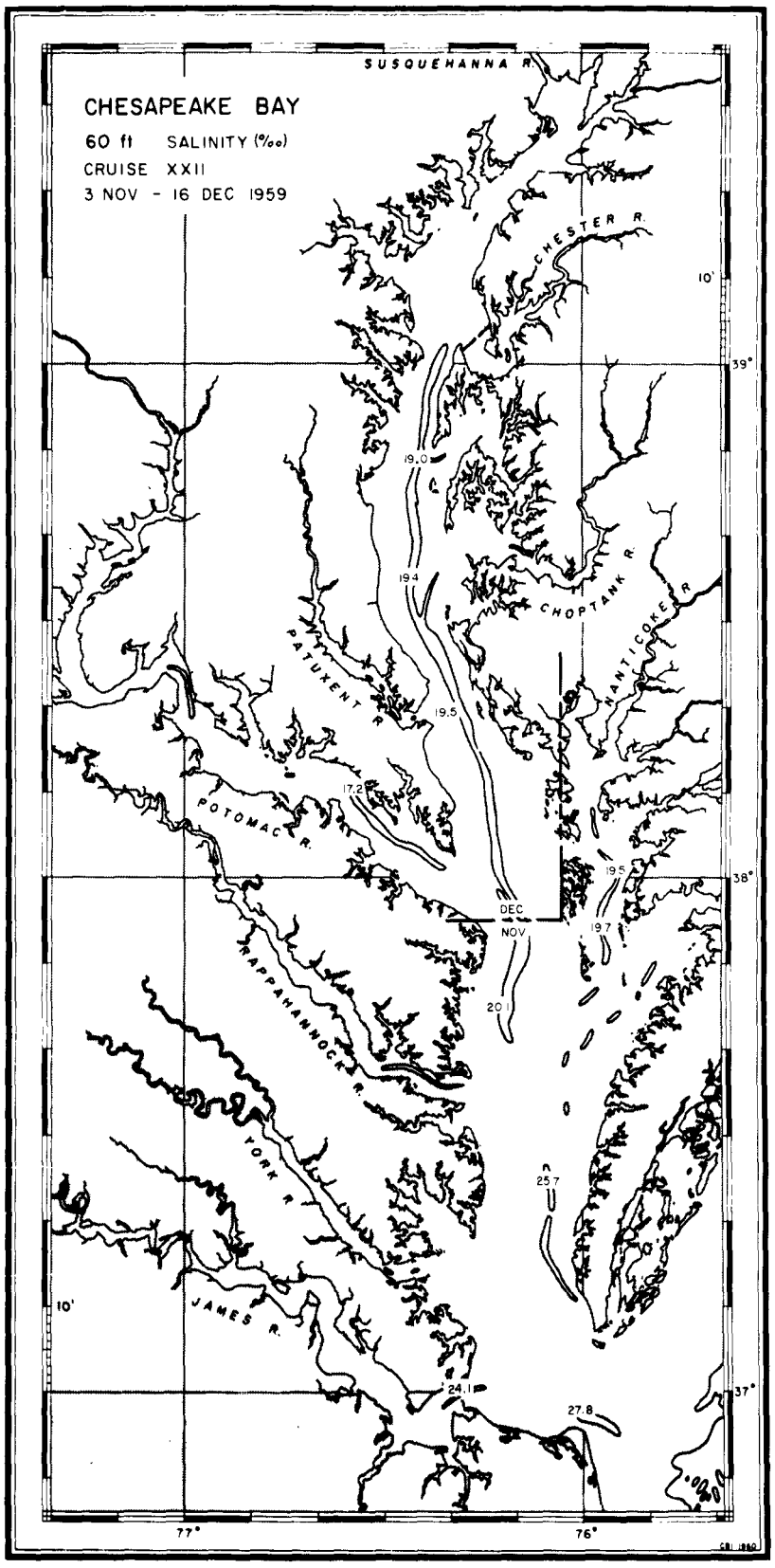

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
CRUISE XXII
3 NOV - 16 DEC 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
NOV
DEC
NOV
39°
38°
37°
10'
77°
76°

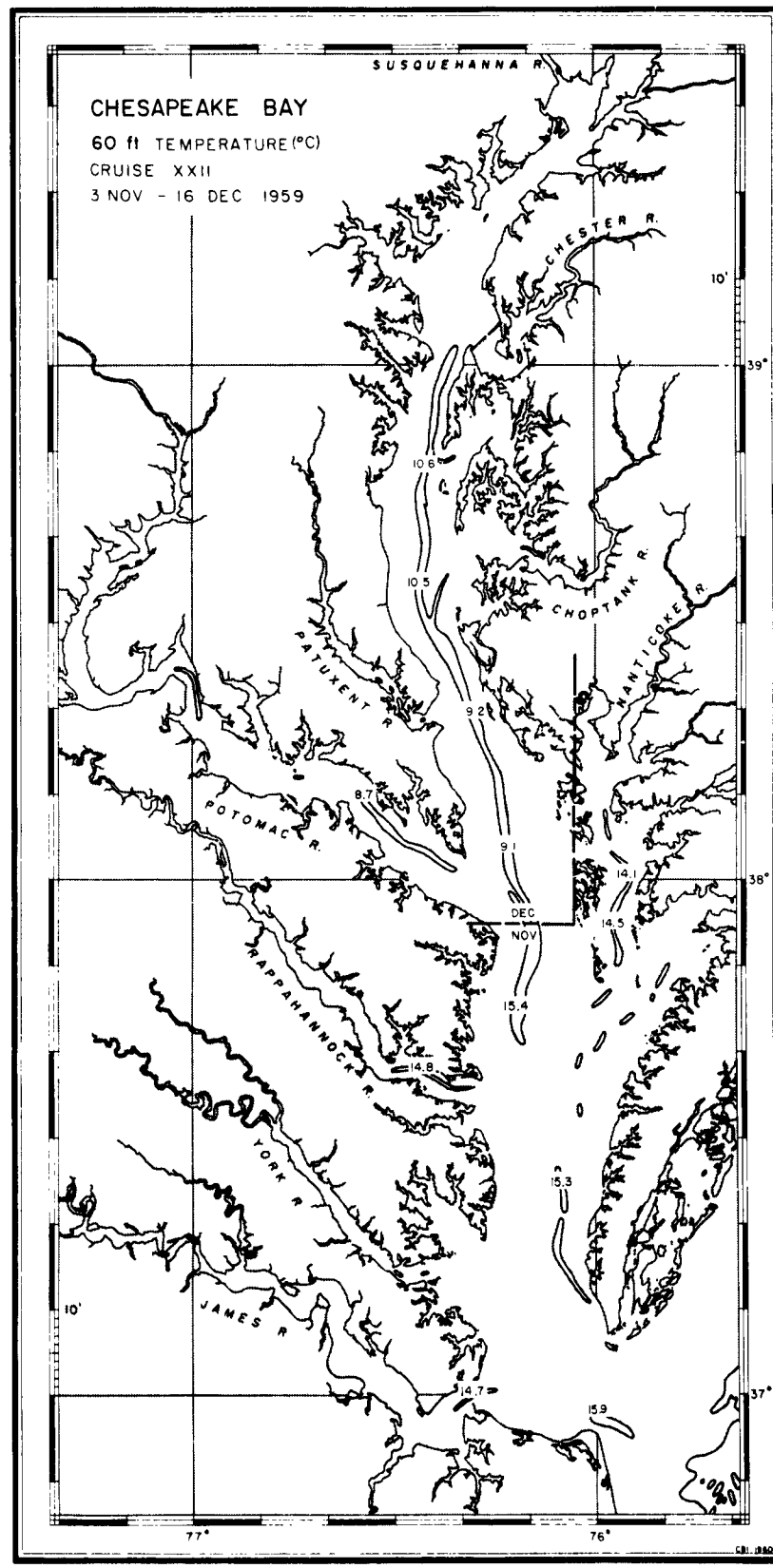

CHESAPEAKE BAY
30 ft SALINITY (‰)
CRUISE XXII
3 NOV - 16 DEC 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
DEC
NOV
39°
38°
37°
10'
77°
76°


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XXII
3 NOV - 16 DEC 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
DEC
NOV
8-8.5
8.5-9
15-15.5
39°
38°
37°
77°
76°

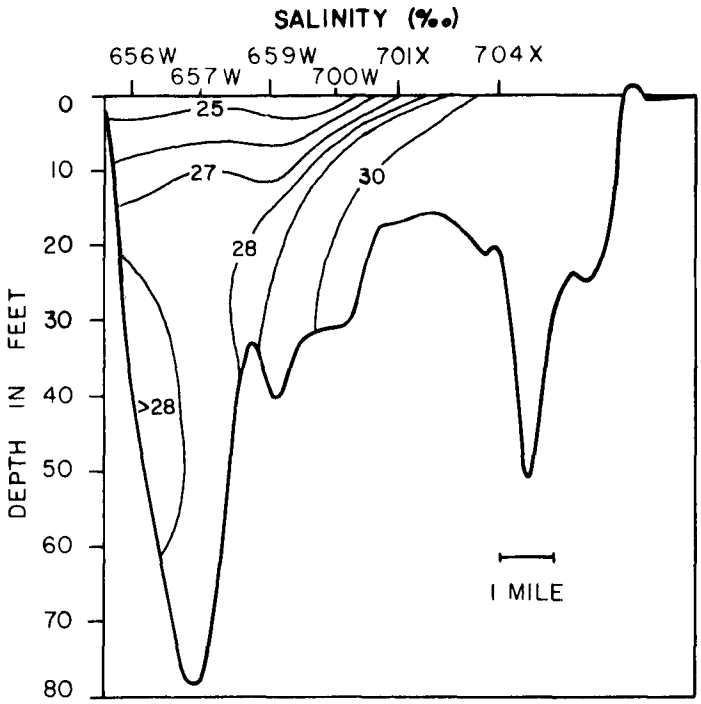

CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XXII
3 NOV - 16 DEC 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
DEC
NOV
17.4
17.0
18.0
17.0
16.2
15.3
16.0
18.1
18.6
16.8
12.3
16.8
17.2
19.4
19.8
17.9
19.9
20.4
20.3
19.2
20.3
24.9
25.1
24
23.4
24.3
26.0
30.5
23.0
27.8
28.5
39°
38°
37°
10'
10'
77°
76°

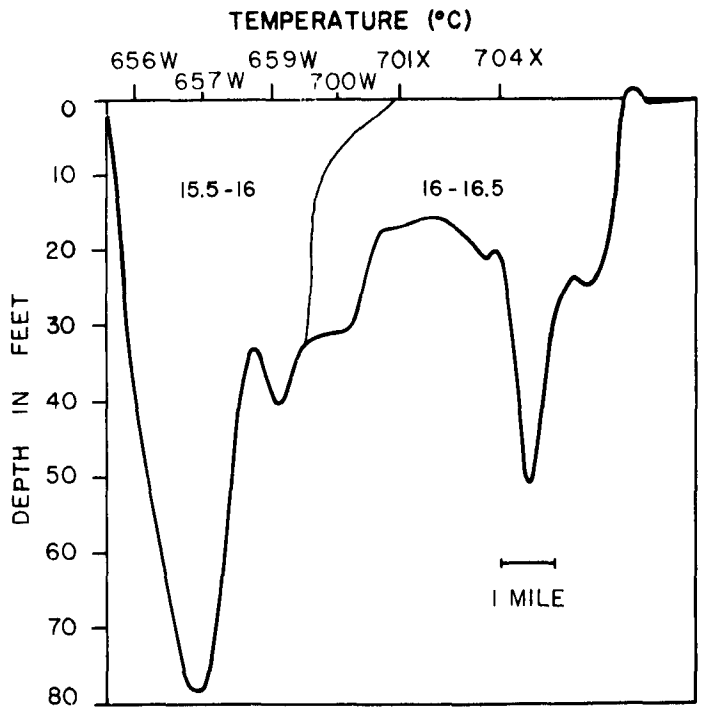

CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
CRUISE XXII
3 NOV - 16 DEC 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
DEC NOV
10.8
10.8
10.4
9.6
9.1
8.1
9.2
8.4
8.4
8.4
8.0
8.2
14.1
14.5
15.5
15.4
13.7
14.7
13.4
15.3
15.4
15.5
15.2
15.4
15.1
15.9
39°
38°
37°
10'
77°
76°


CHESAPEAKE BAY
60 ft SALINITY (‰)
CRUISE XXII
3 NOV - 16 DEC 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
MANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
19.0
19.4
19.5
17.2
19.5
19.7
20.1
25.7
24.1
27.8
DEC
NOV
39°
38°
37°
10'
10'
77°
76°

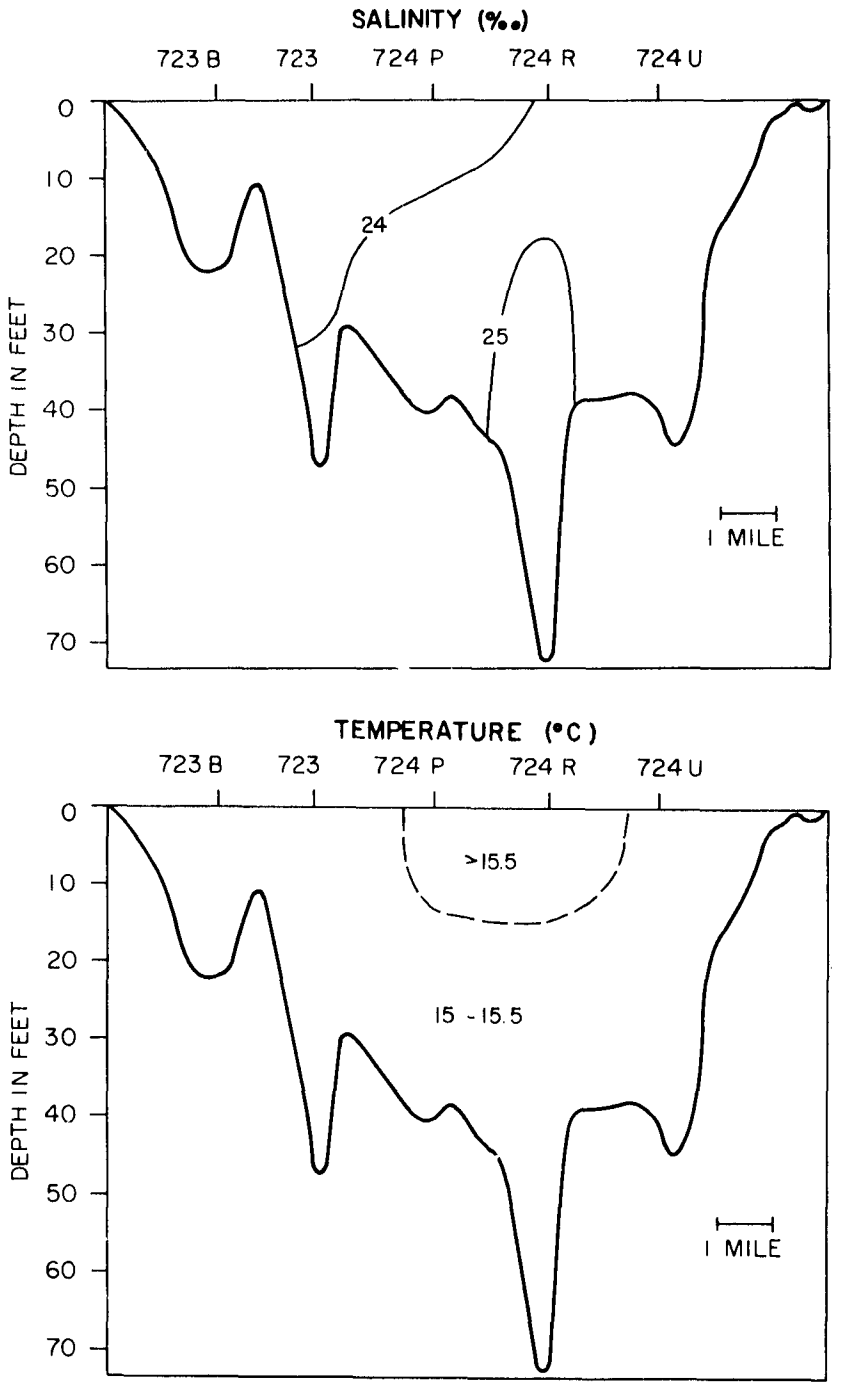

CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
CRUISE XXII
3 NOV - 16 DEC 1959
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
MANTICOKE R.
10.6
10.5
9.2
8.7
9.1
14.1
14.5
15.4
14.8
15.3
14.7
15.9
DEC
NOV
39°
38°
37°
10'
77°
76°

CRUISE XXII 3 NOV - 16 DEC 1959 SECTION II

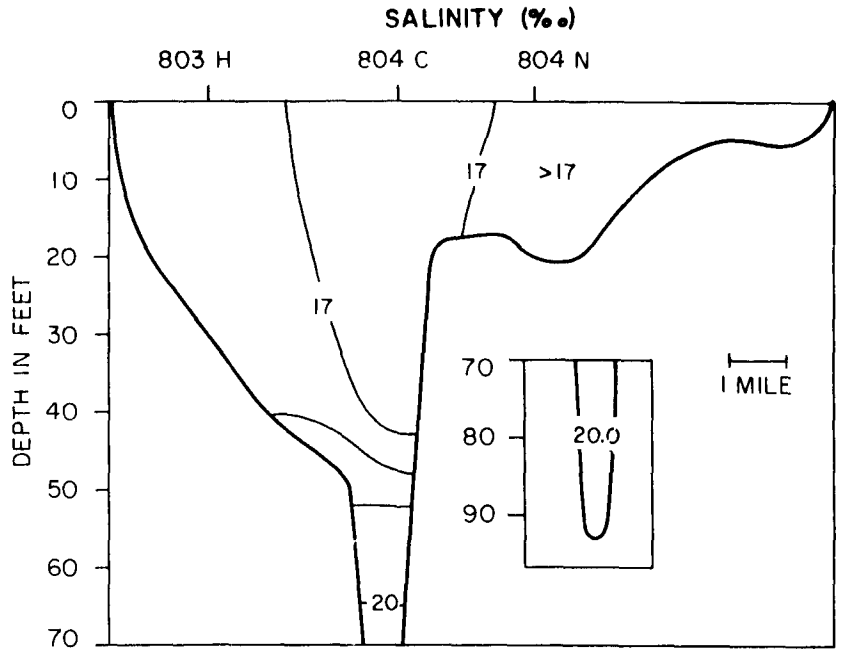


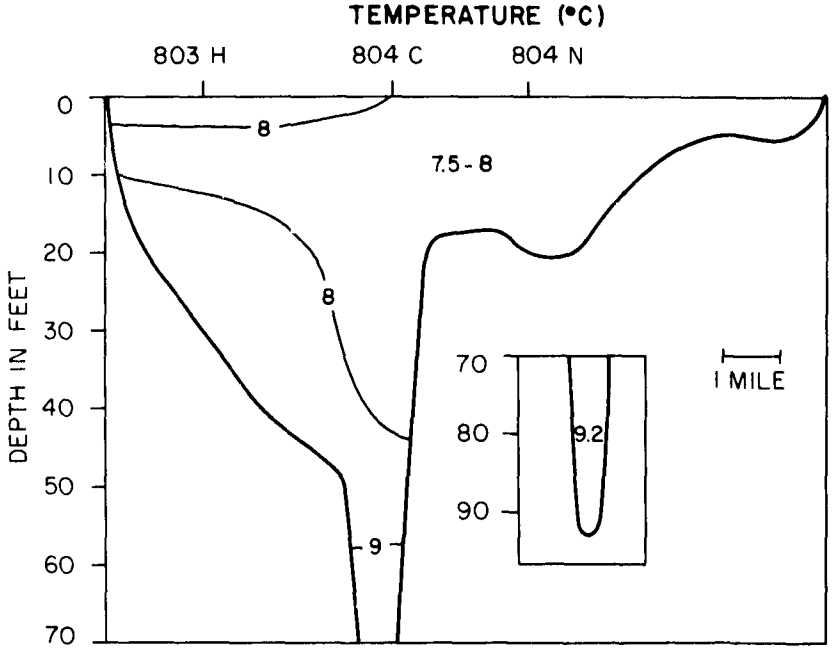



CRUISE XXII 3 NOV - 16 DEC 1959 SECTION IV

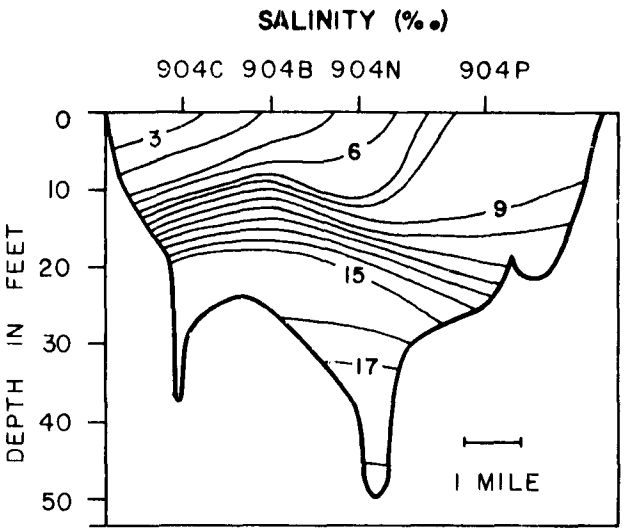


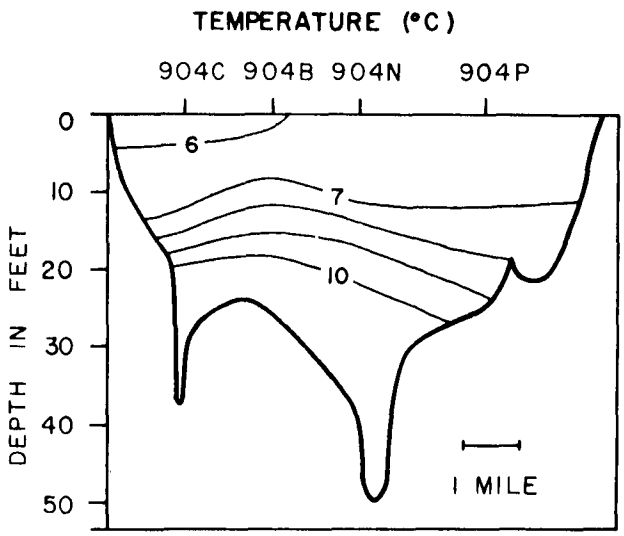
CRUISE XXII 3 NOV - 16 DEC 1959 SECTION VI



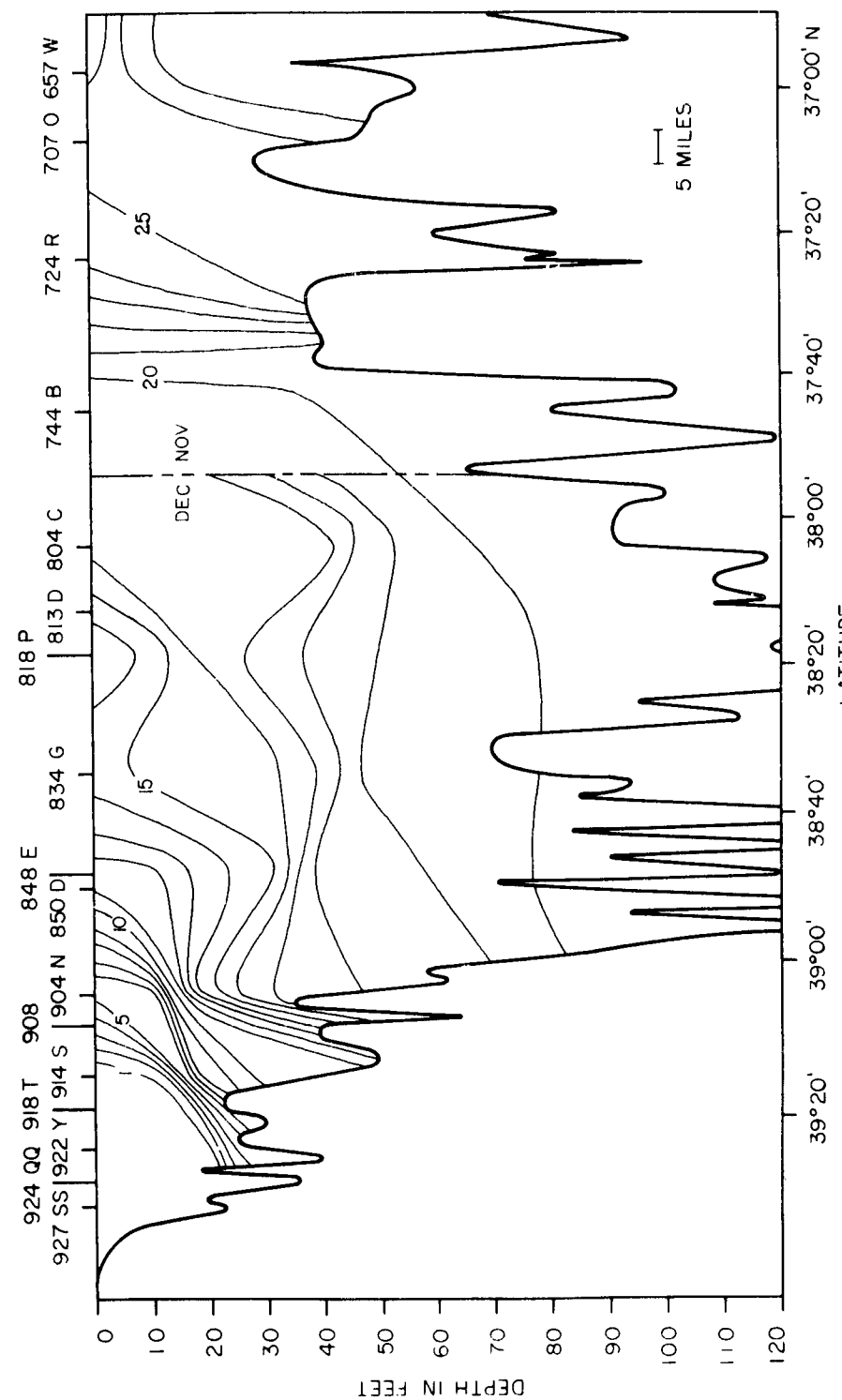
CRUISE XXII 3 NOV - 16 DEC 1959 SECTION X



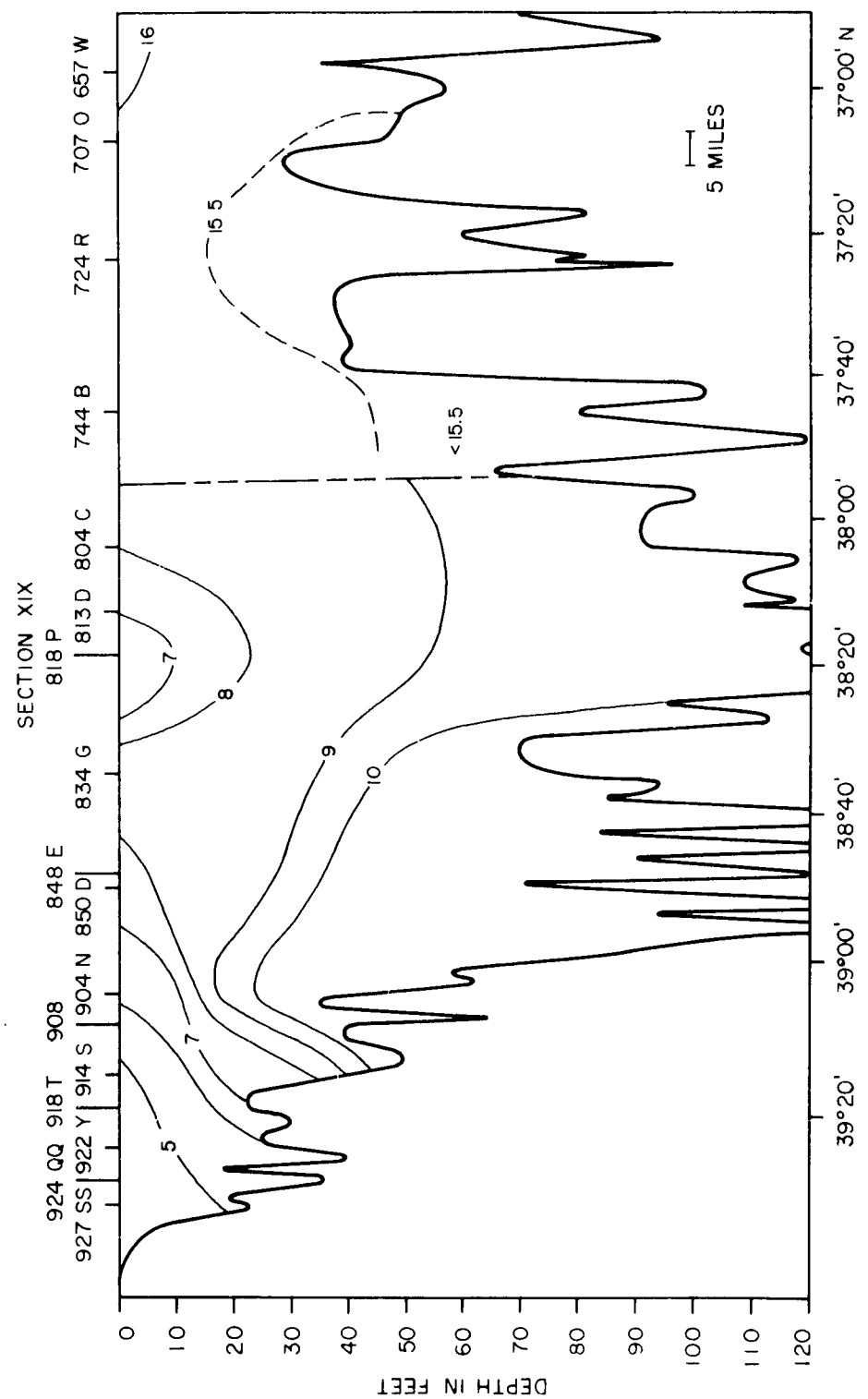
CRUISE XXII 3 NOV - 16 DEC 1959 SECTION XIX

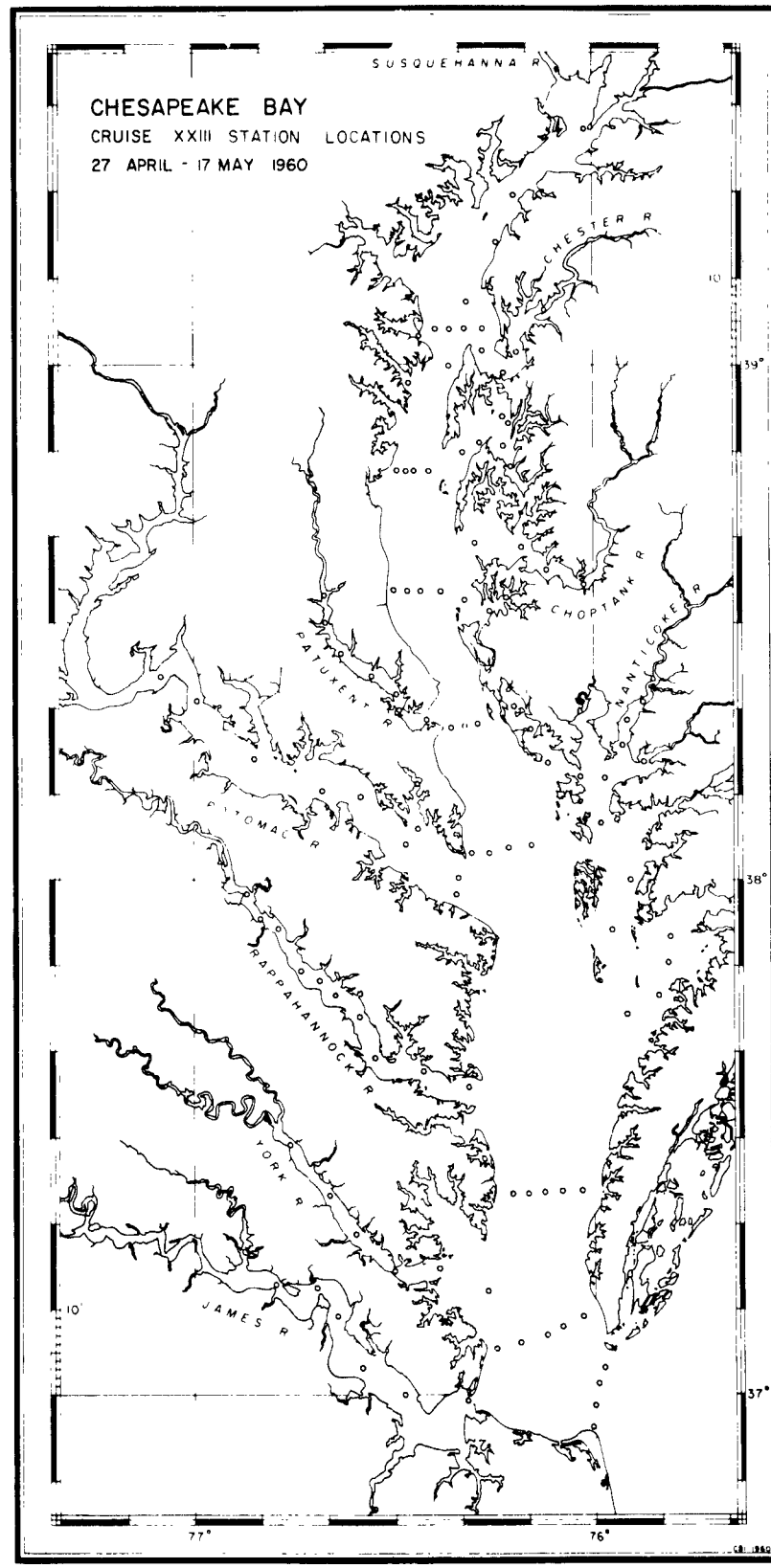
SALINITY (‰)

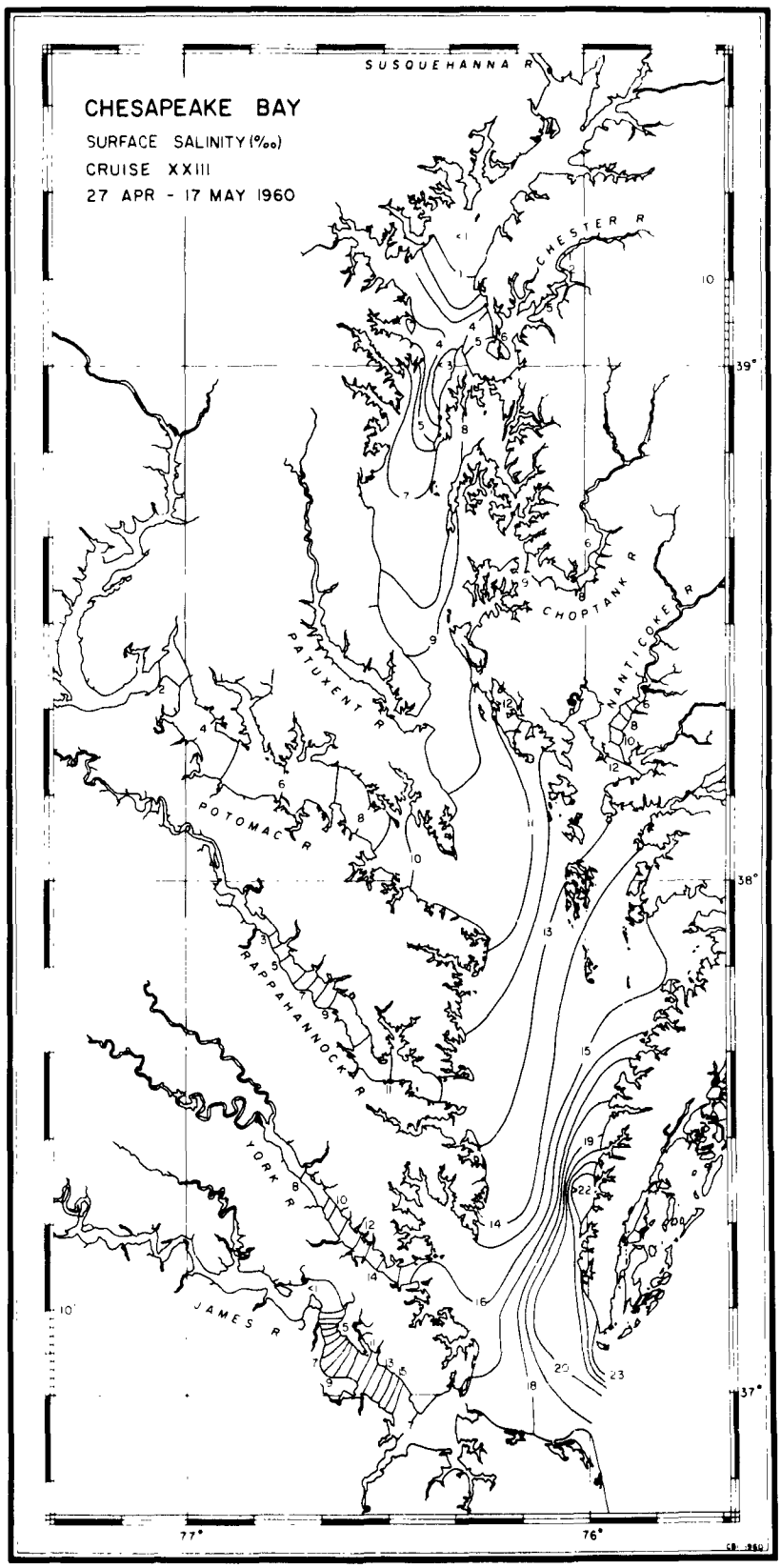


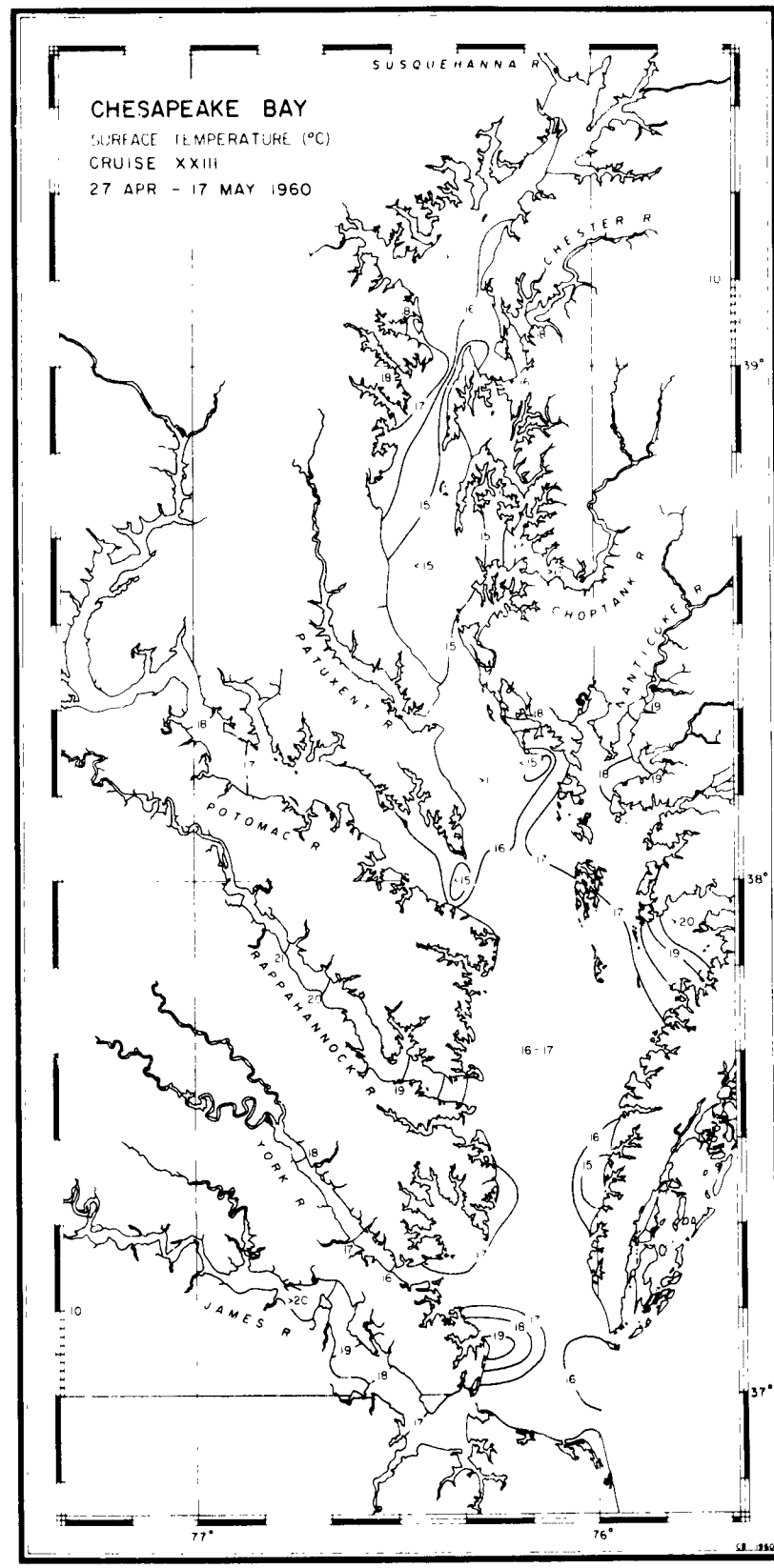
CRUISE XXII 3 NOV - 16 DEC 1959 SECTION XIX

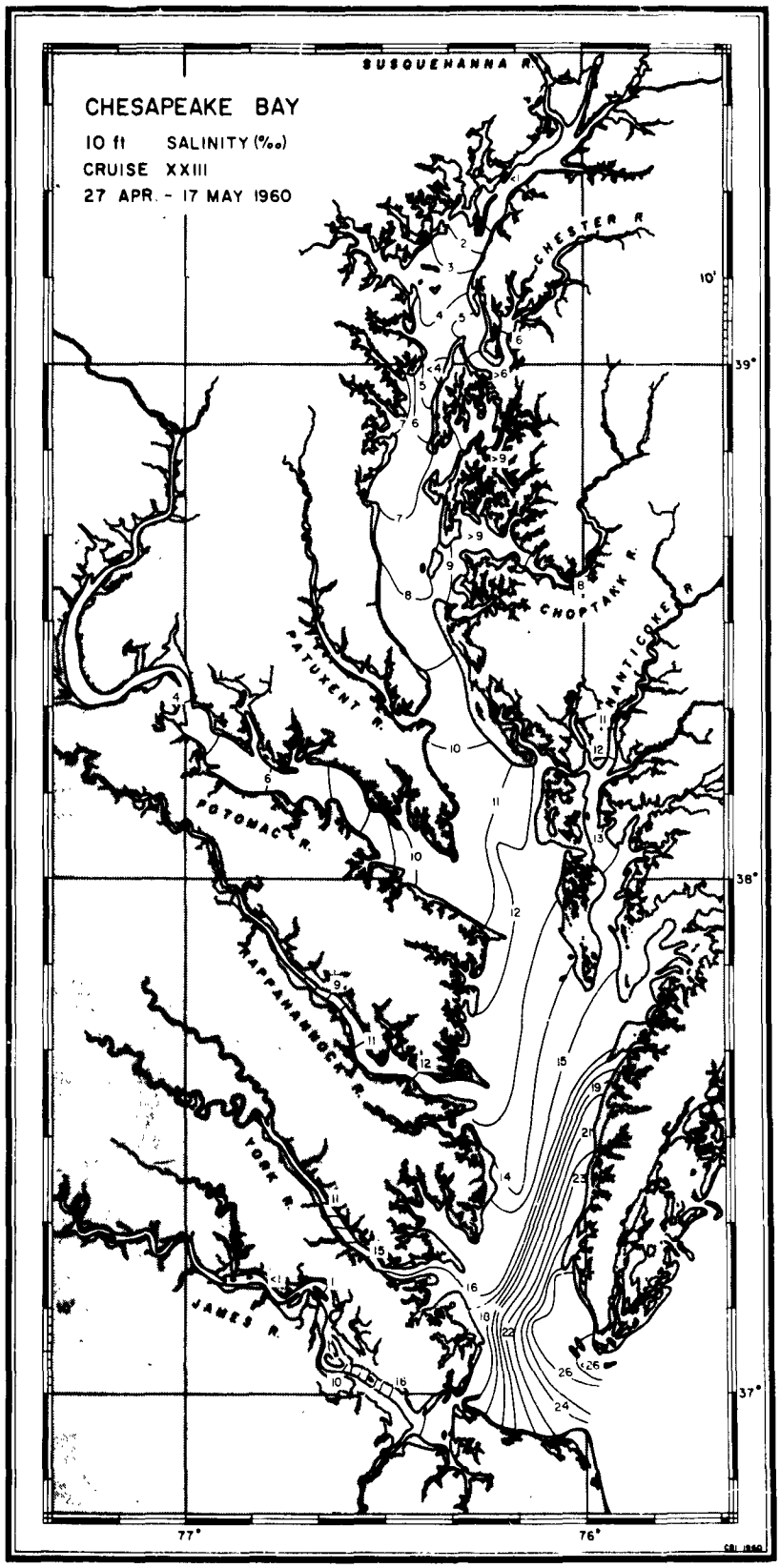
TEMPERATURE (°C)

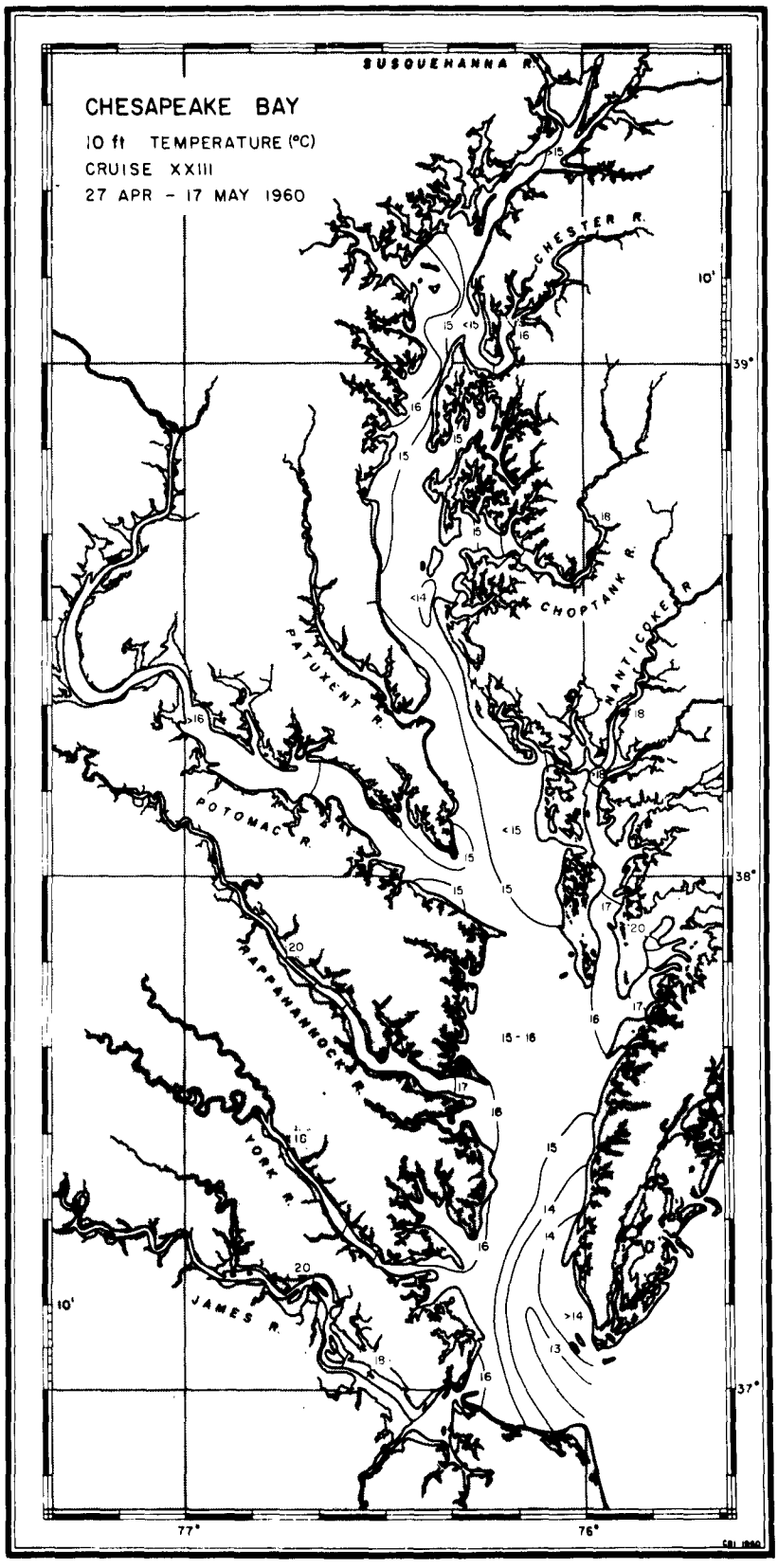


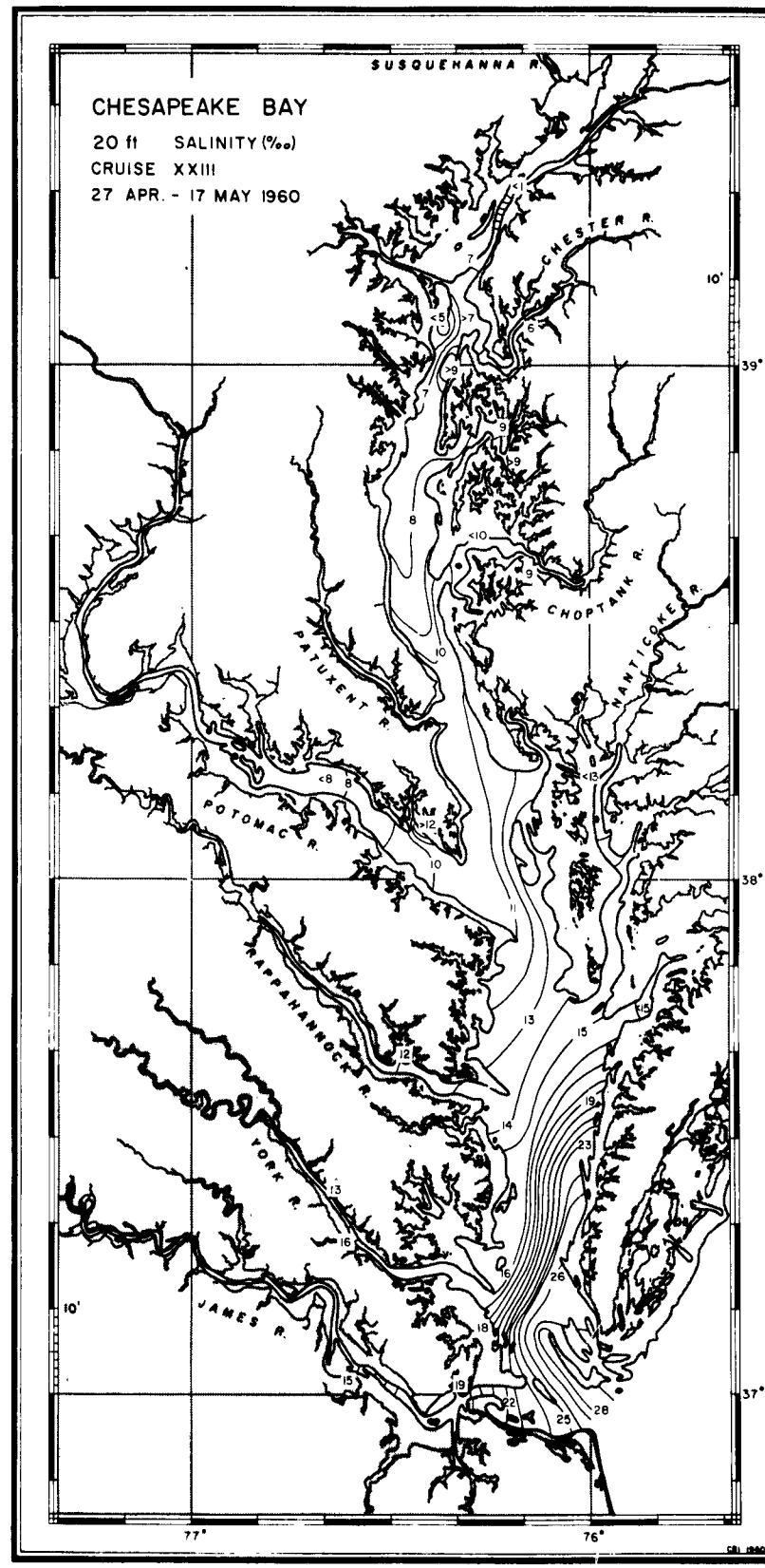

CHESAPEAKE BAY
CRUISE XXIII STATION LOCATIONS
27 APRIL - 17 MAY 1960
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
NANTICOKE R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

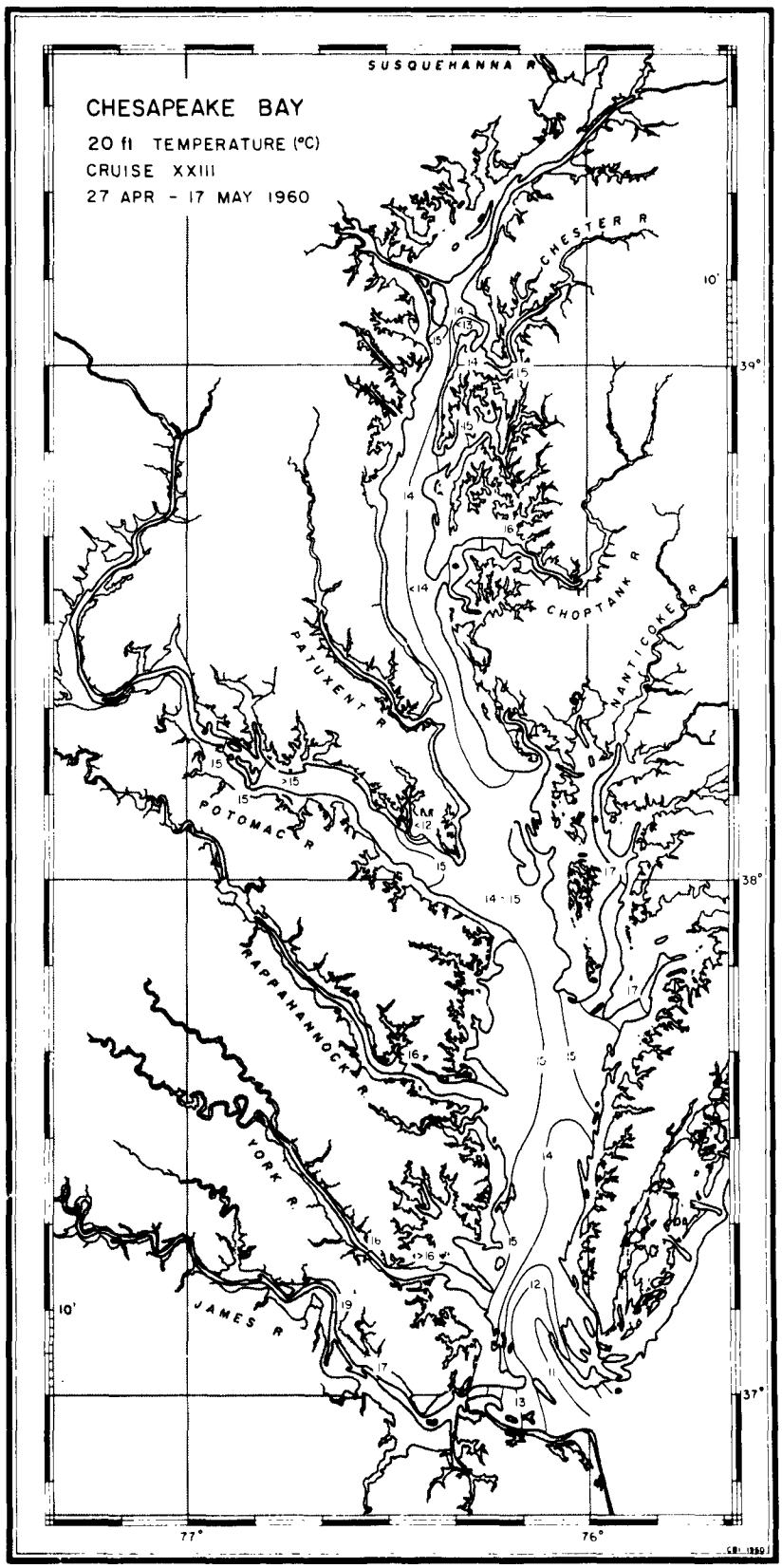

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XXIII
27 APR - 17 MAY 1960
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
10'
77°
76°

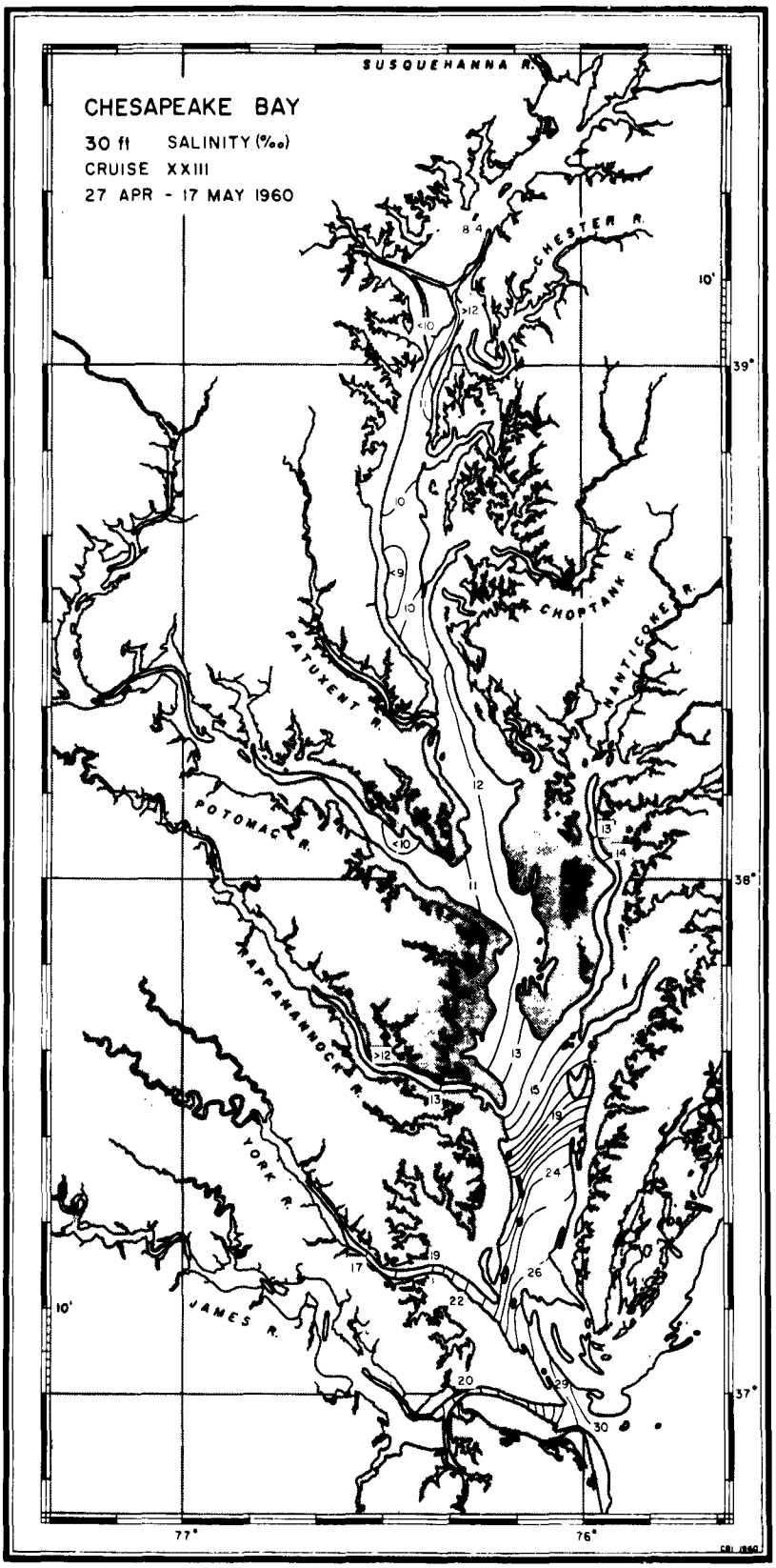

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XXIII
27 APR - 17 MAY 1960
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

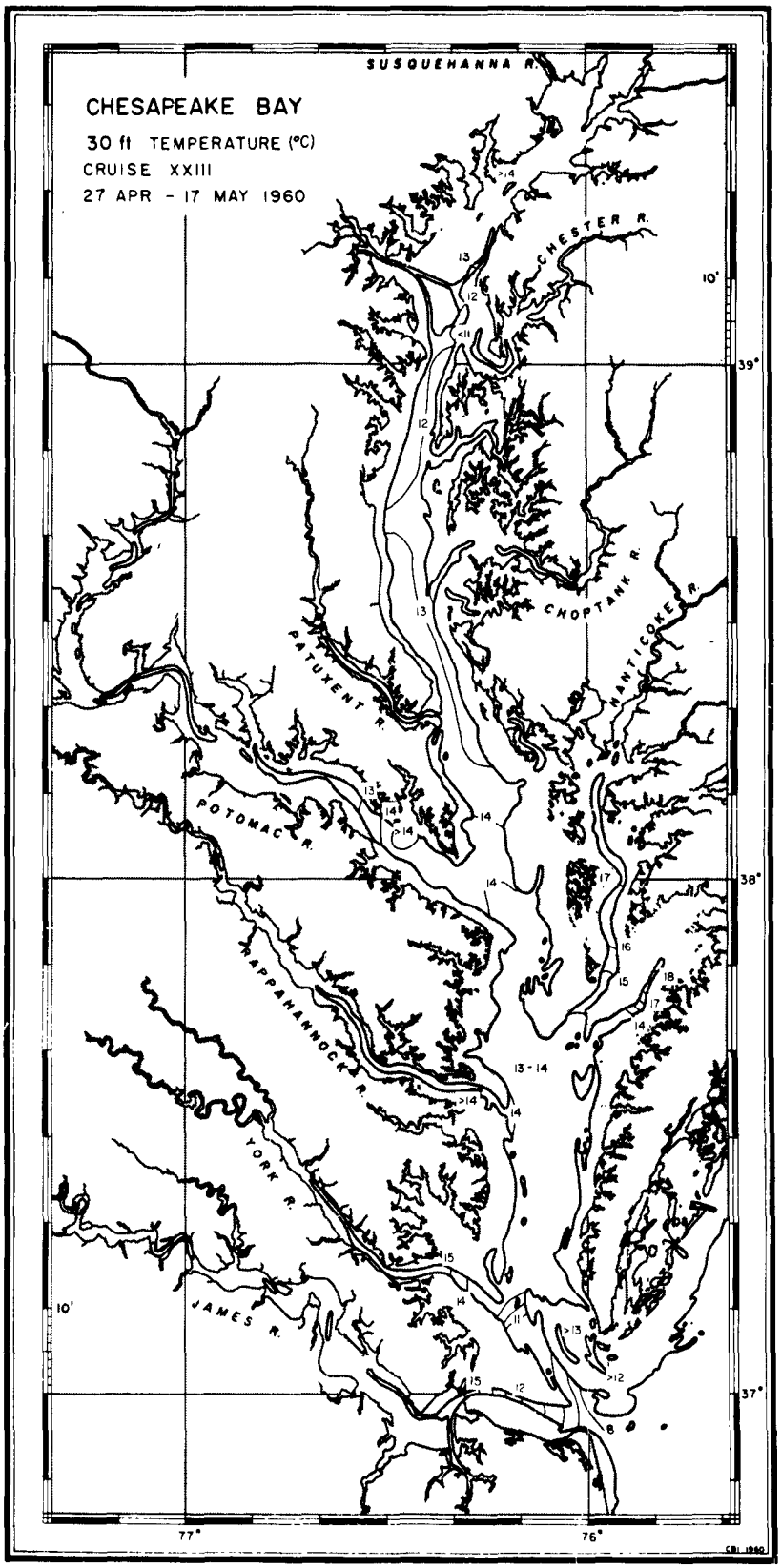

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XXIII
27 APR. - 17 MAY 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°

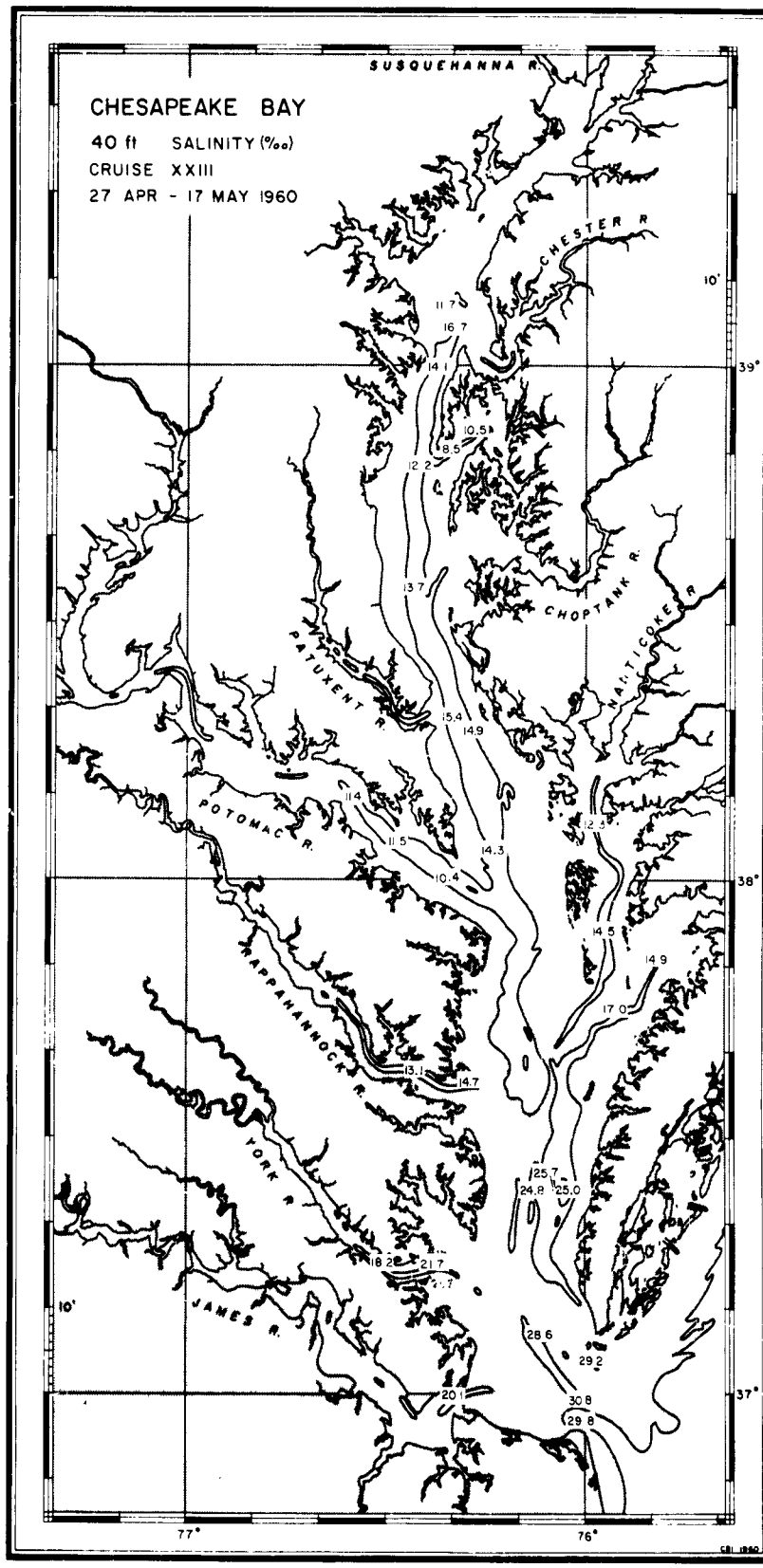

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
CRUISE XXIII
27 APR - 17 MAY 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

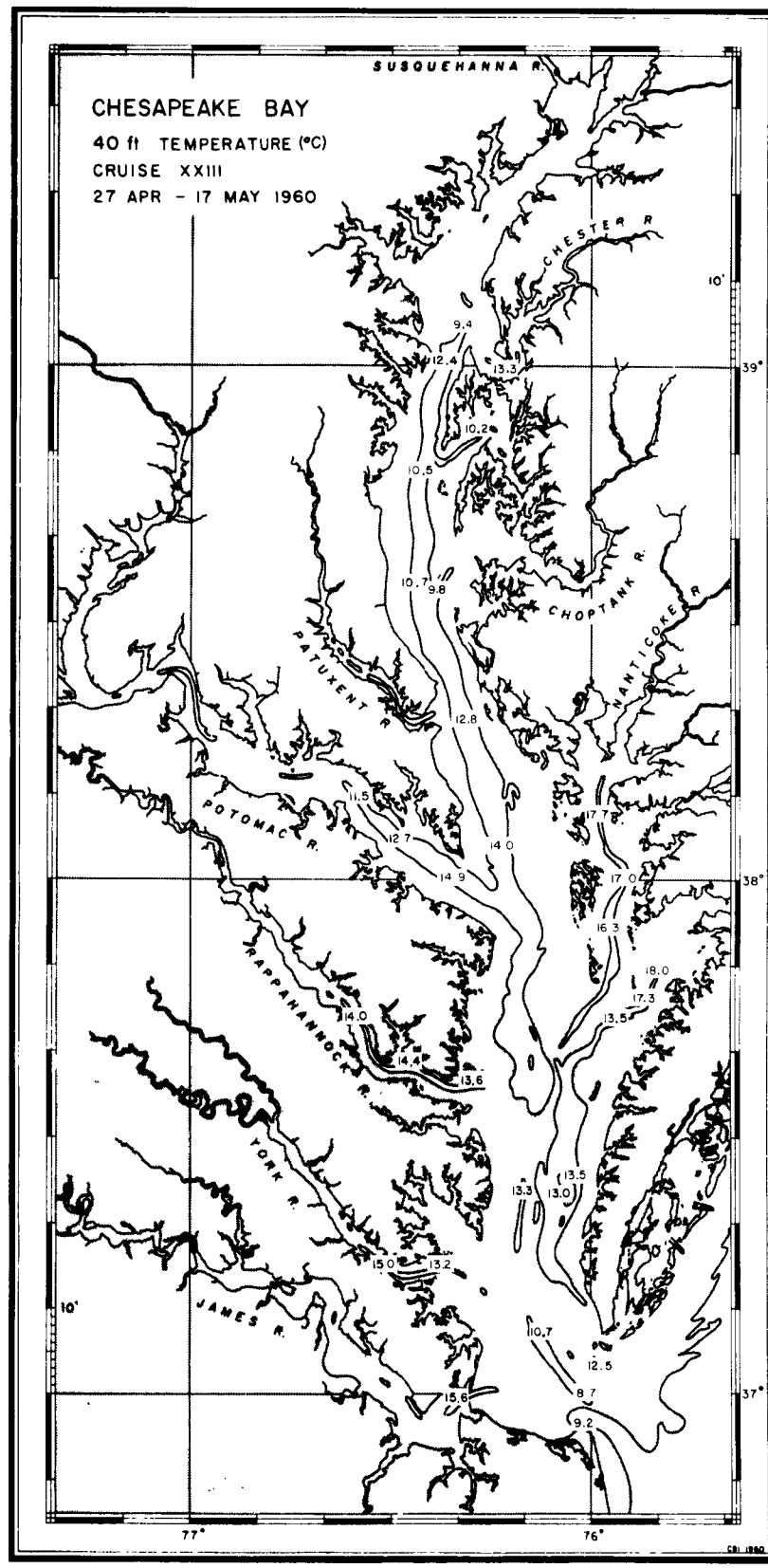

CHESAPEAKE BAY
20 ft SALINITY (‰)
CRUISE XXIII
27 APR. - 17 MAY 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
39°
38°
37°
77°
76°

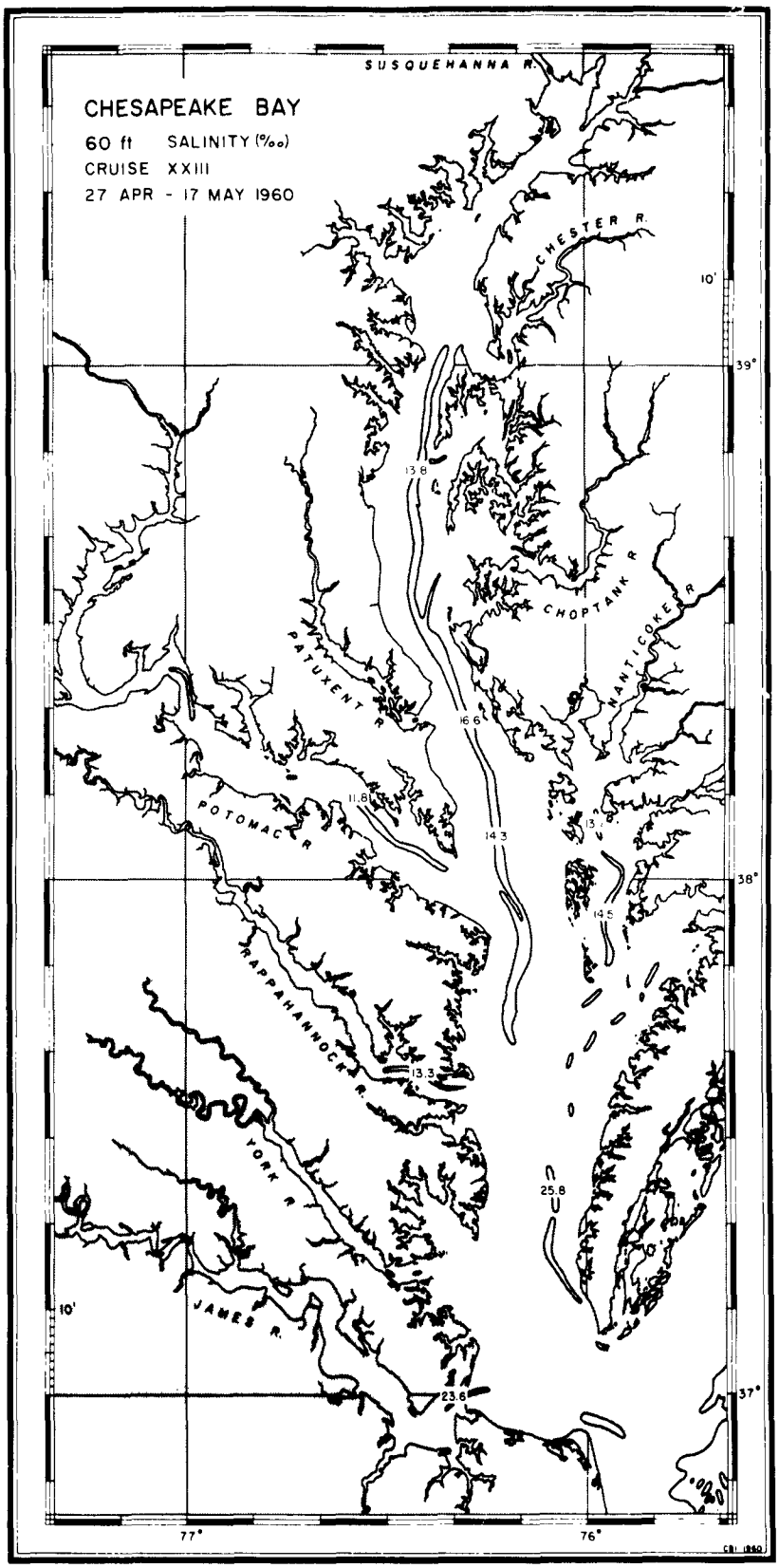

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
CRUISE XXIII
27 APR - 17 MAY 1960
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

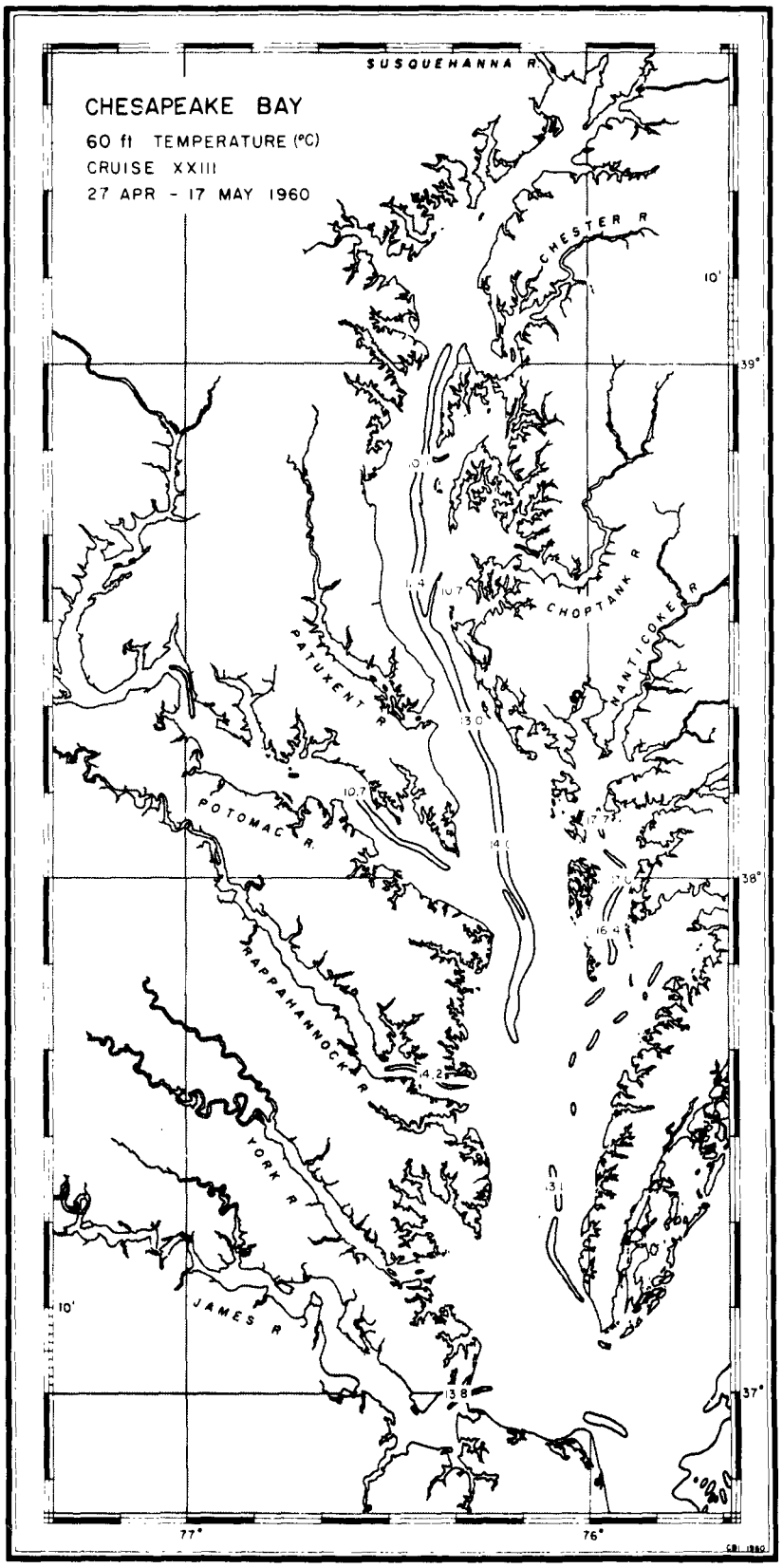

CHESAPEAKE BAY
30 ft SALINITY (‰)
CRUISE XXIII
27 APR - 17 MAY 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XXIII
27 APR - 17 MAY 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°
10'

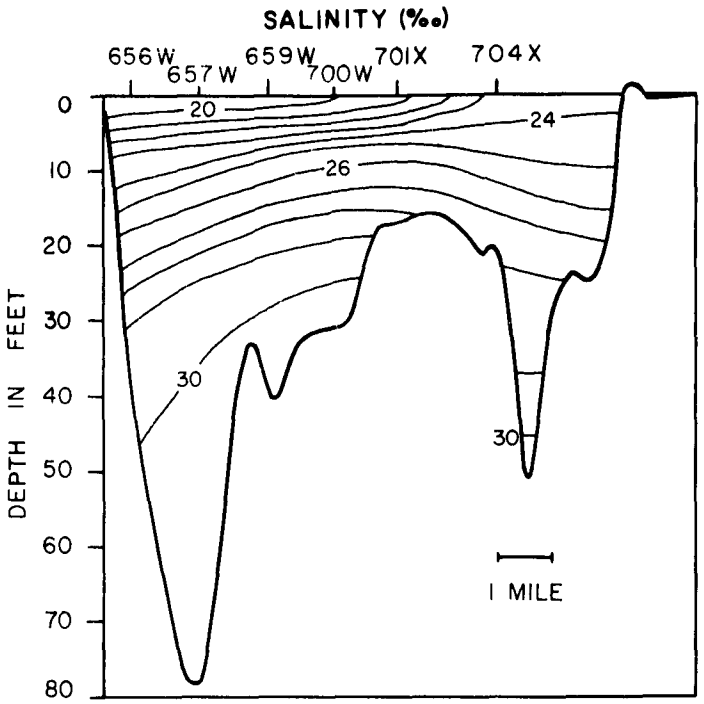

CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XXIII
27 APR - 17 MAY 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
11.7
16.7
14.1
10.5
8.5
12.2
13.7
15.4
14.9
11.4
11.5
10.4
14.3
12.3
14.5
14.9
17.0
13.1
14.7
25.7
24.8
25.0
18.2
21.7
21.7
28.6
29.2
30.8
29.8
20.1
39°
38°
37°
77°
76°
10'

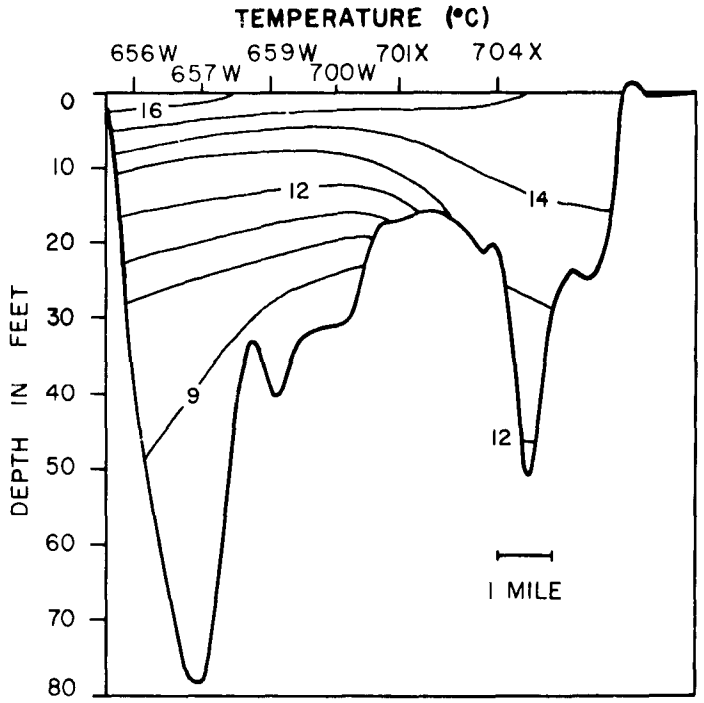

CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
CRUISE XXIII
27 APR - 17 MAY 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
9.4
12.4
13.3
10.2
10.5
10.7
9.8
12.8
11.5
12.7
14.0
14.9
17.7
17.0
16.3
18.0
17.3
13.5
14.0
14.4
13.6
13.3
13.5
13.0
15.0
13.2
10.7
12.5
8.7
15.6
9.2
10°
39°
38°
37°
77°
76°


CHESAPEAKE BAY
60 ft SALINITY (‰)
CRUISE XXIII
27 APR - 17 MAY 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
MANTICOKE R.
13.8
16.6
11.8
14.3
13.7
14.5
13.3
25.8
23.6
39°
38°
37°
10'
77°
76°

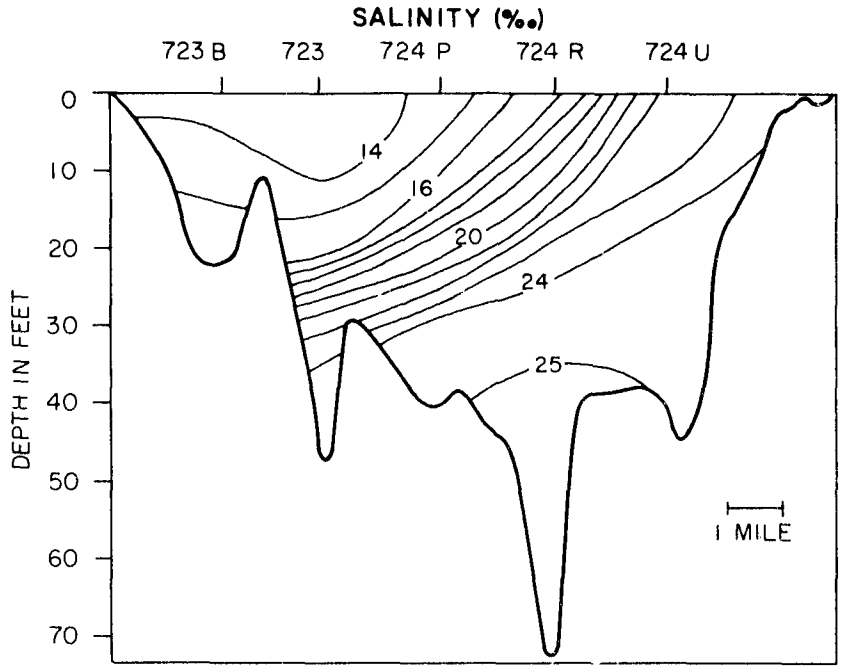

CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
CRUISE XXIII
27 APR - 17 MAY 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°
10'

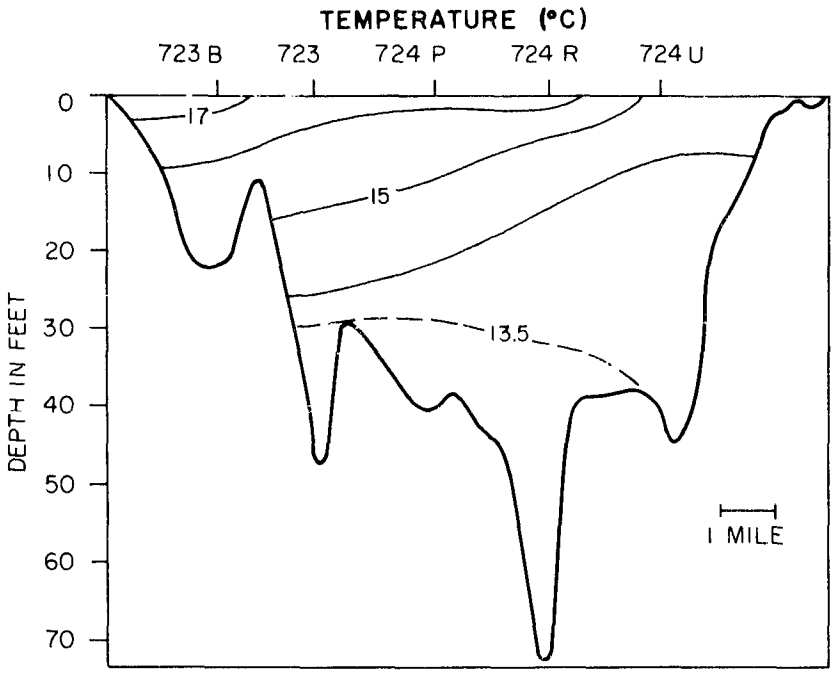
CRUISE XXIII 27 APRIL - 17 MAY 1960 SECTION II



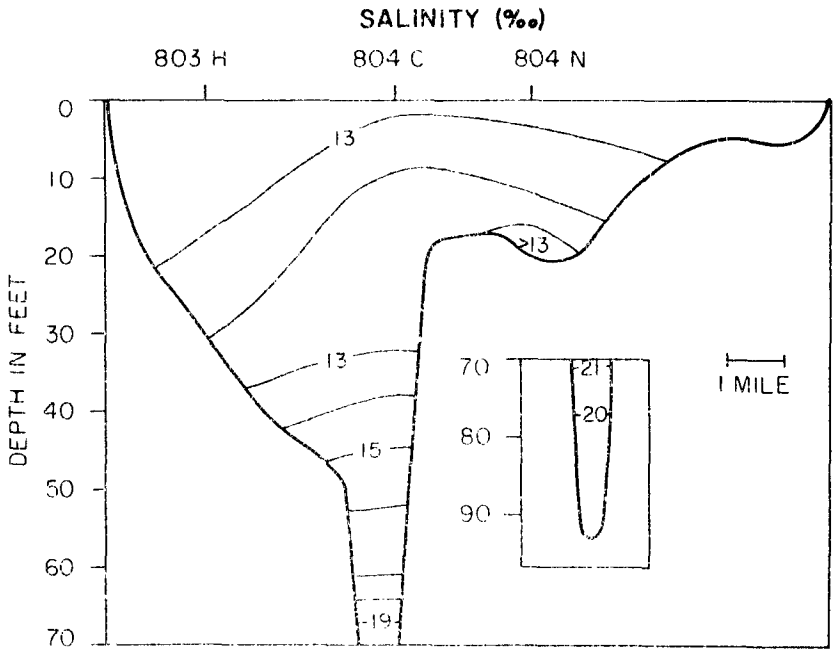



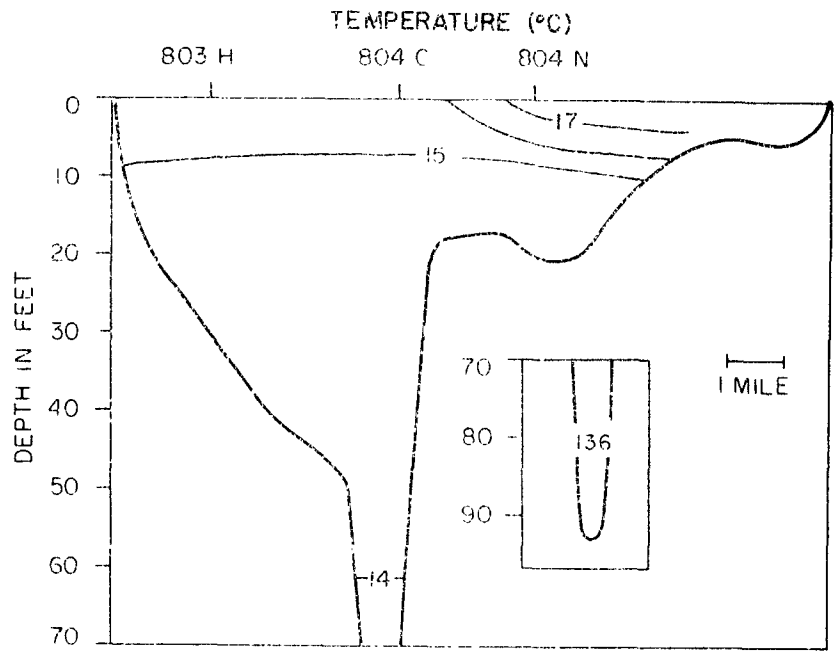
CRUISE XXIII 27 APRIL - 17 MAY 1960 SECTION IV



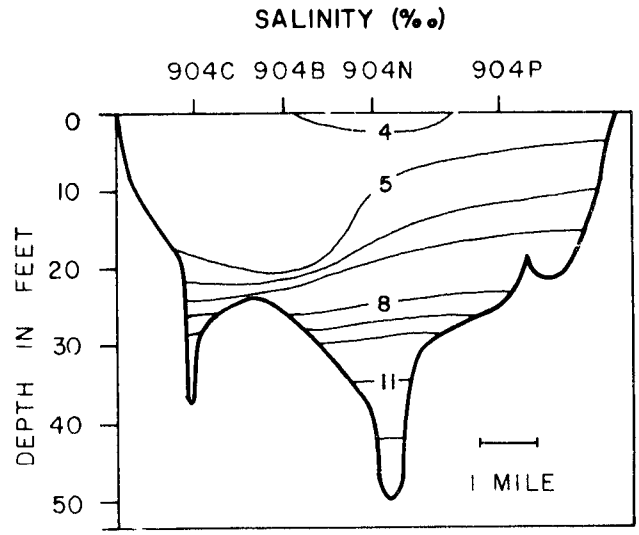



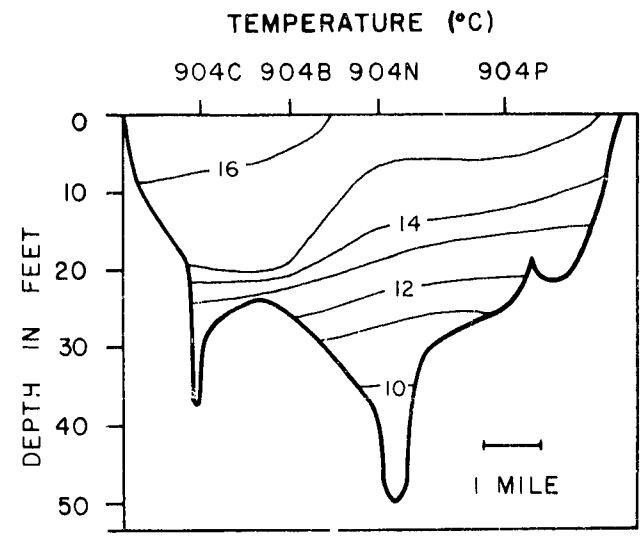
CRUISE XXIII 27 APRIL - 17 MAY 1960 SECTION VI



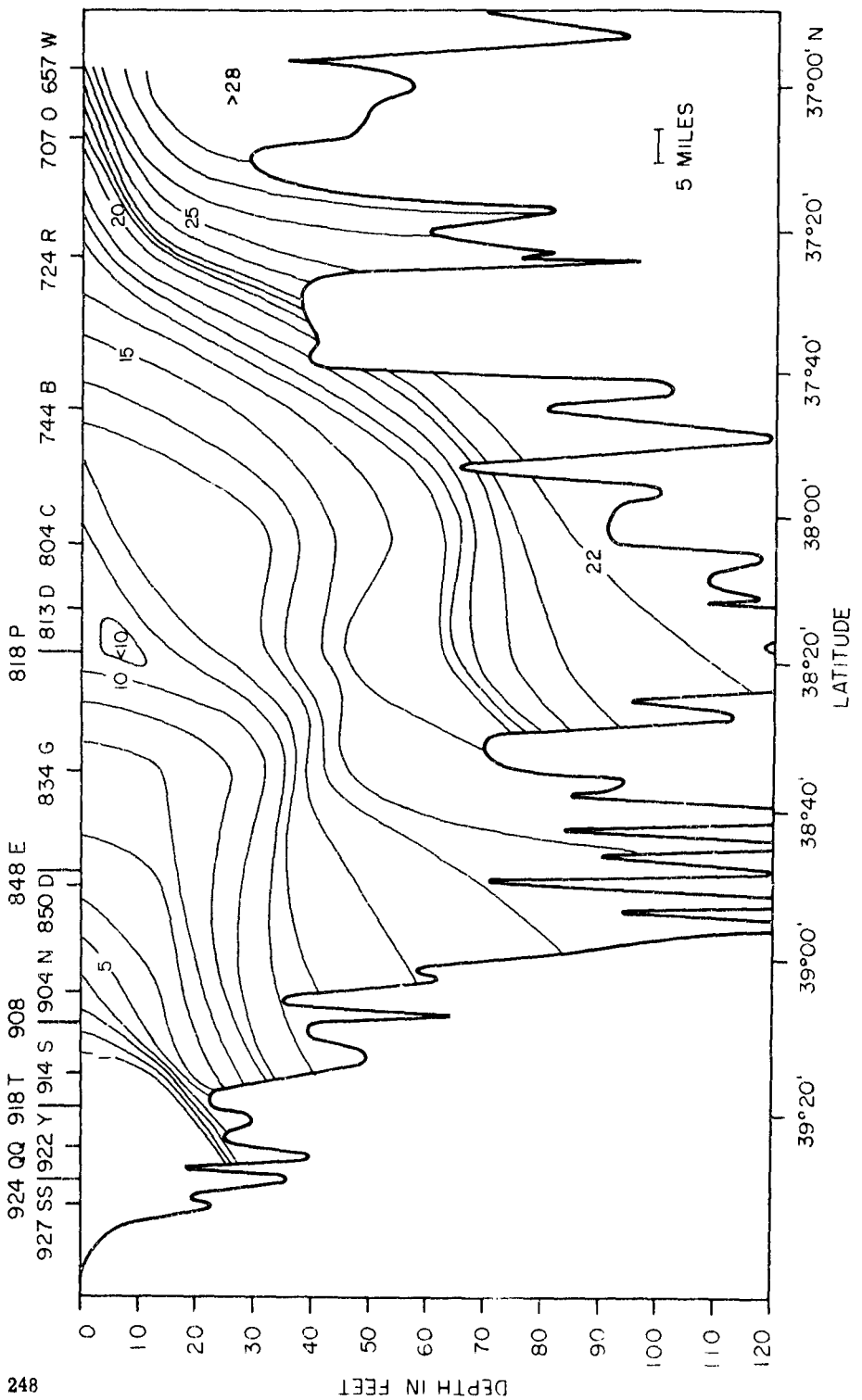
CRUISE XXIII 27 APRIL - 17 MAY 1960 SECTION X



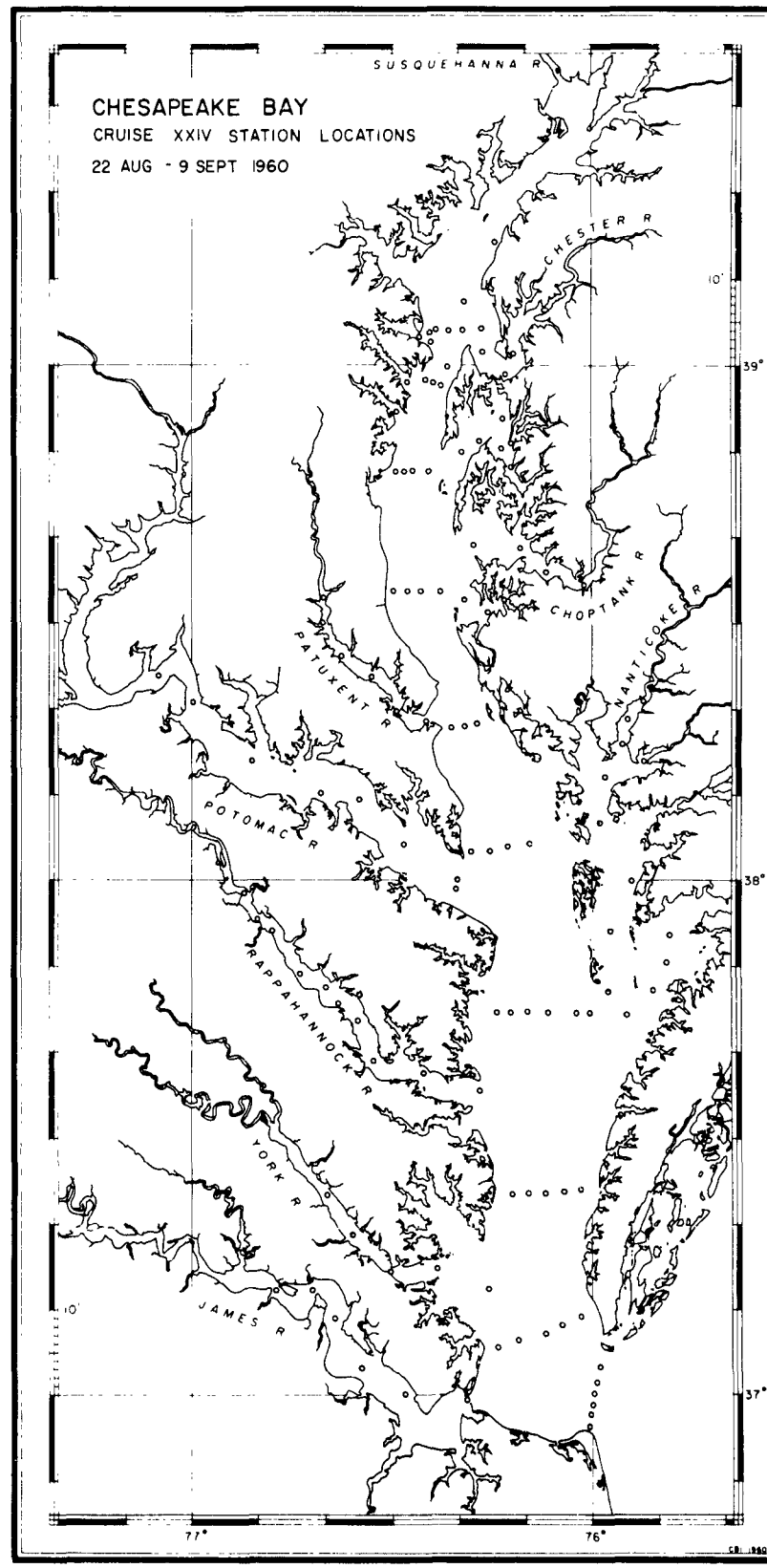
CRUISE XXIII 27 APRIL - 17 MAY 1960 SECTION XIX

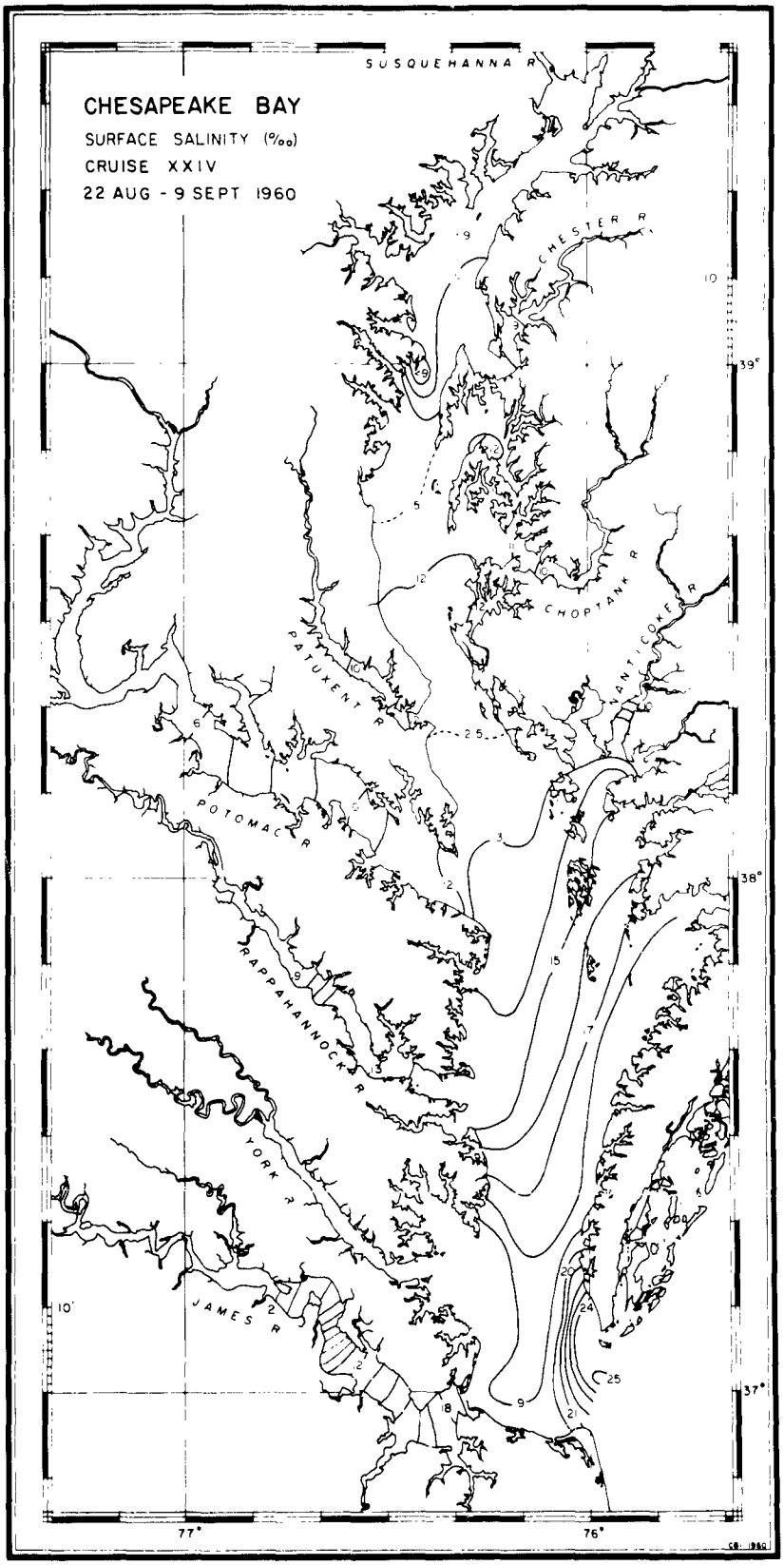
SALINITY (‰)

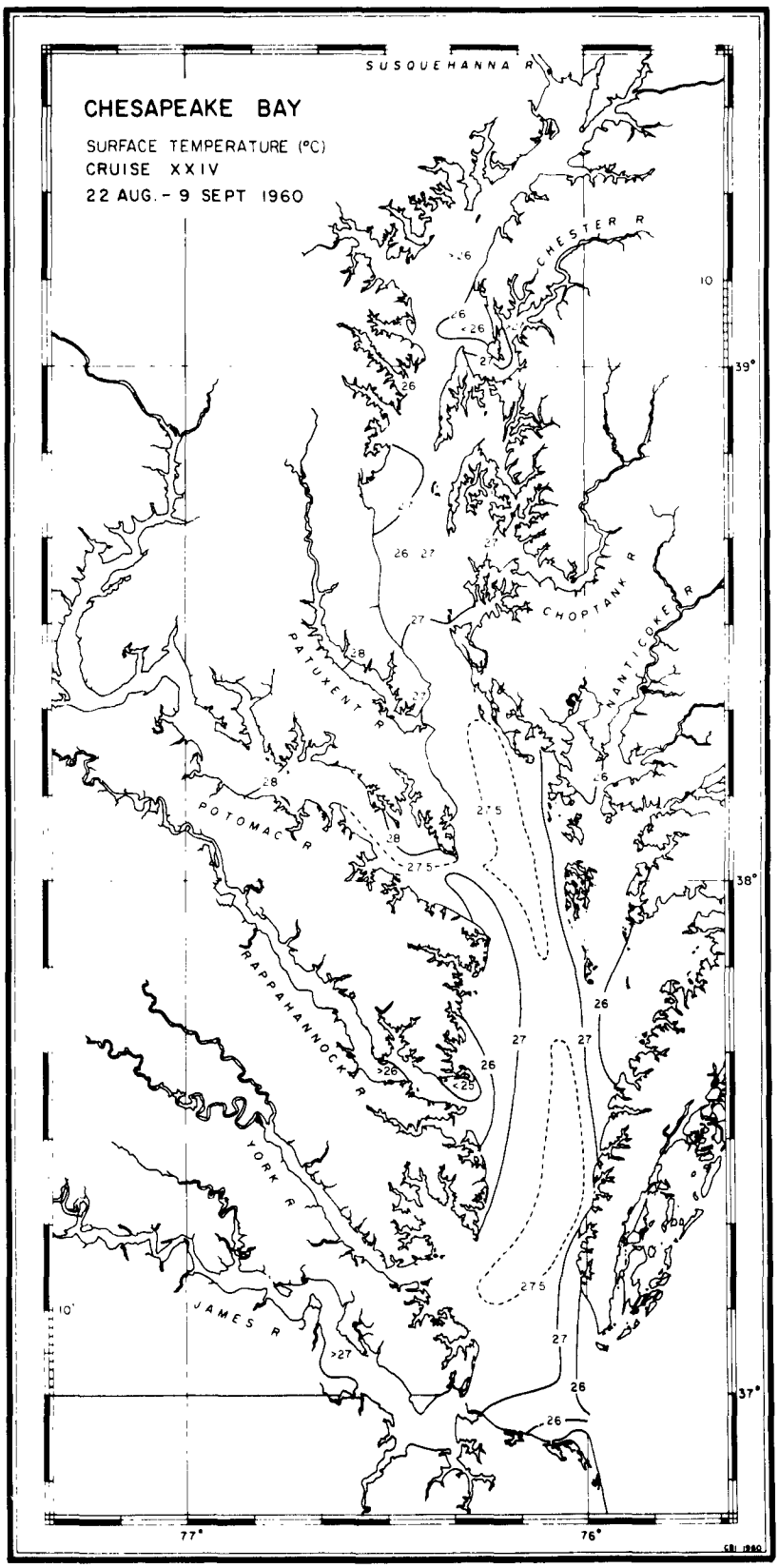


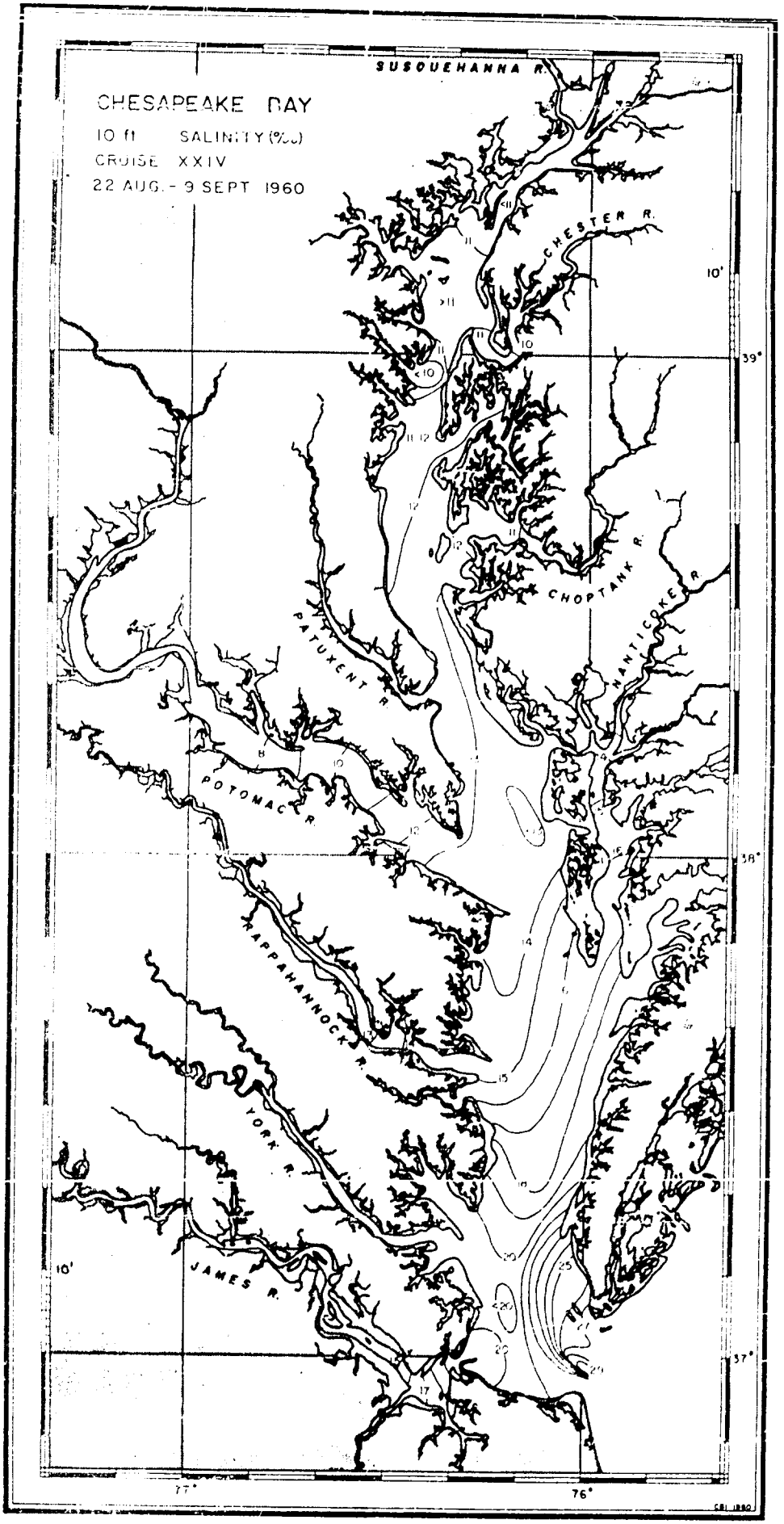
CRUISE XXIII 27 APRIL - 17 MAY 1960 SECTION XIX

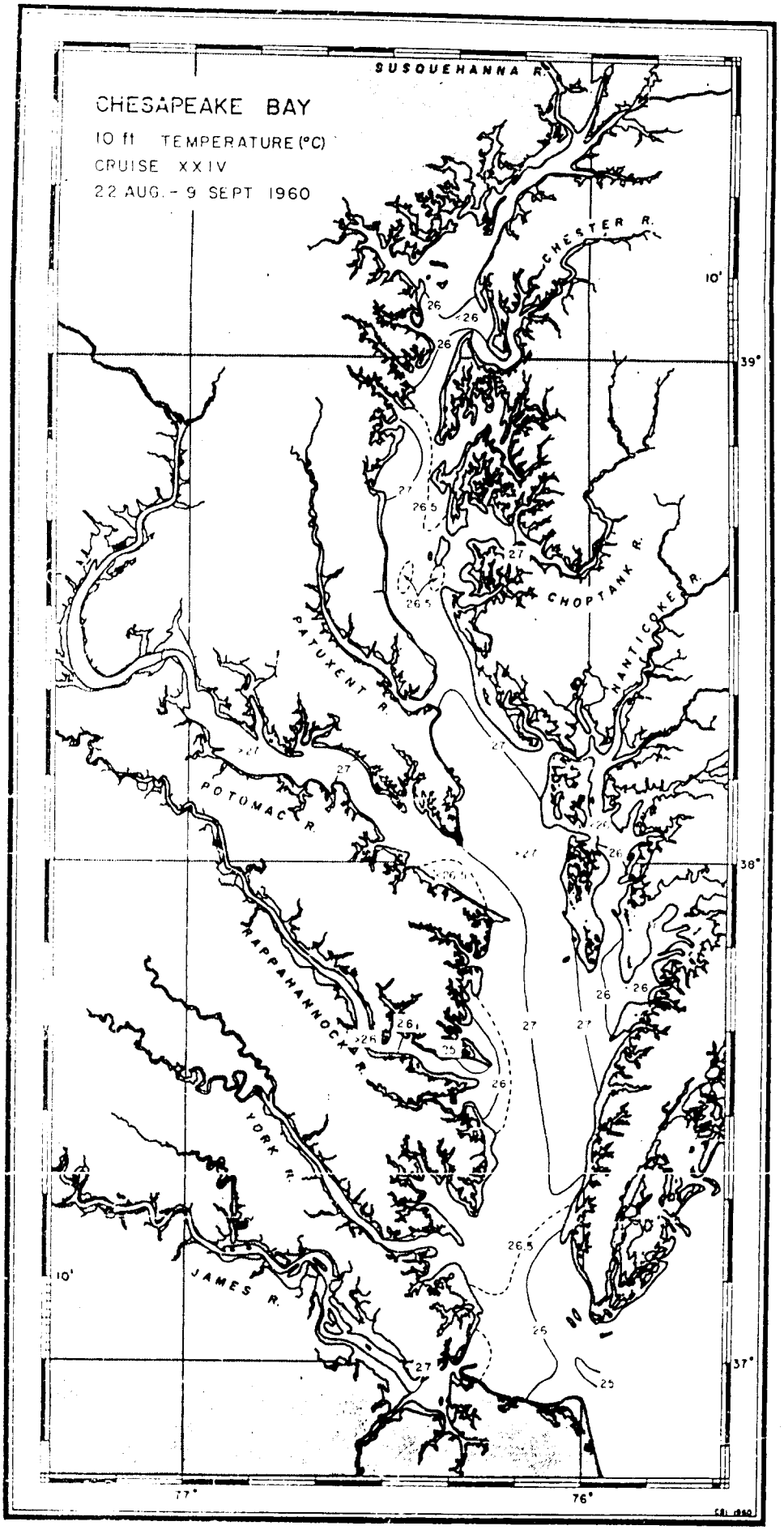
TEMPERATURE (°C)

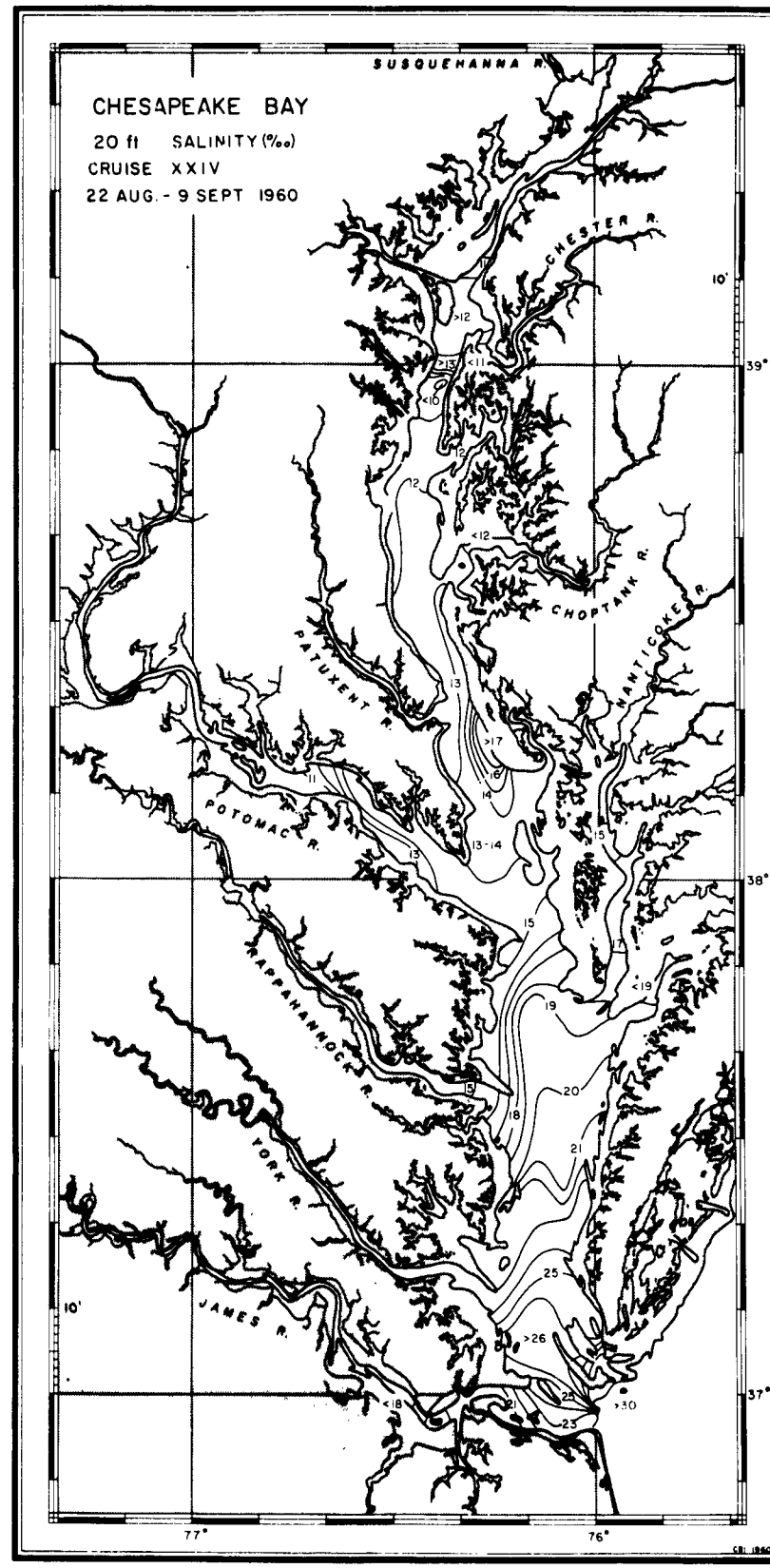

CHESAPEAKE BAY
CRUISE XXIV STATION LOCATIONS
22 AUG - 9 SEPT 1960
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
NANTICOKE R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

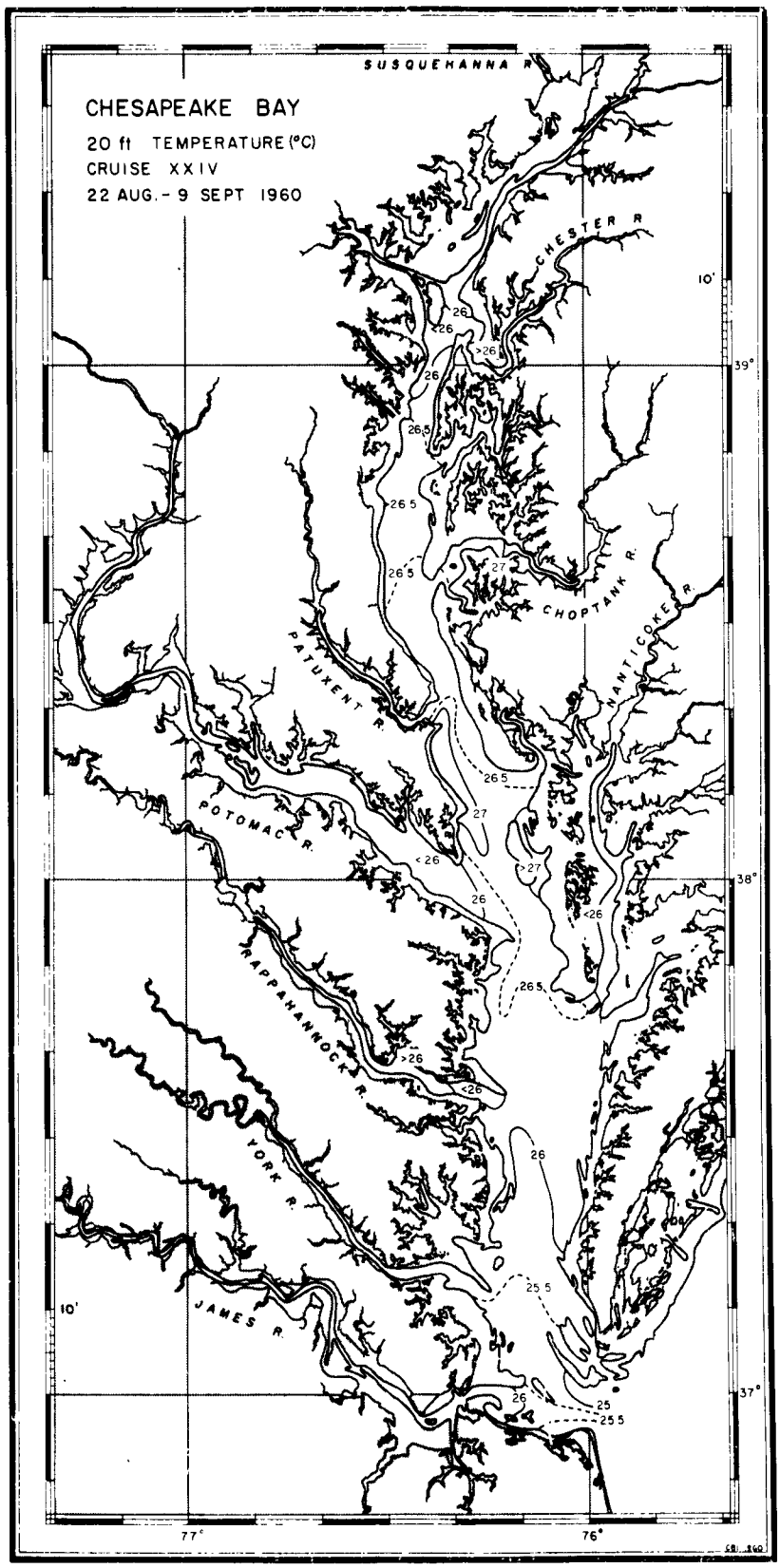

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XXIV
22 AUG - 9 SEPT 1960
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

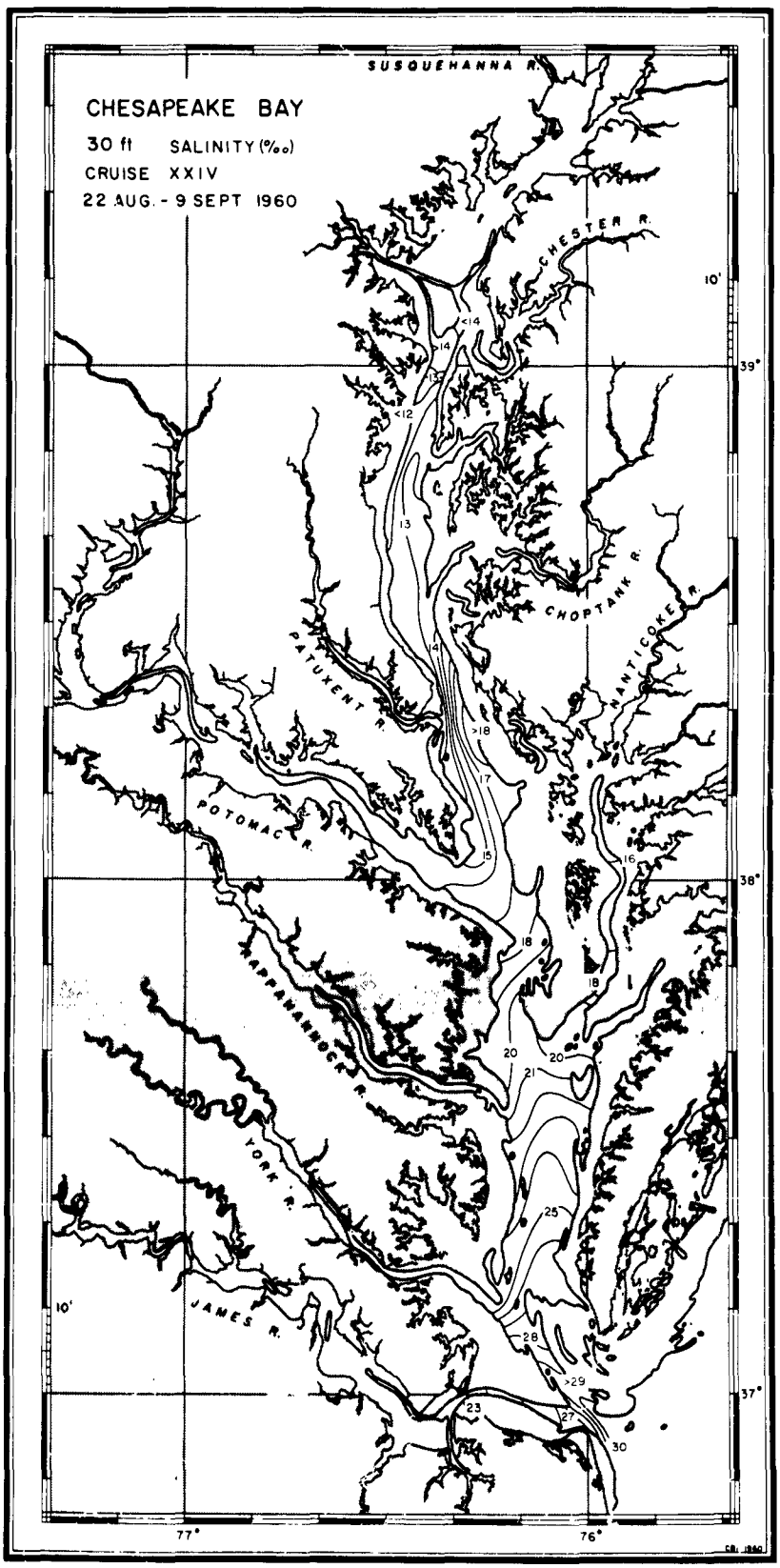

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XXIV
22 AUG. - 9 SEPT 1960
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

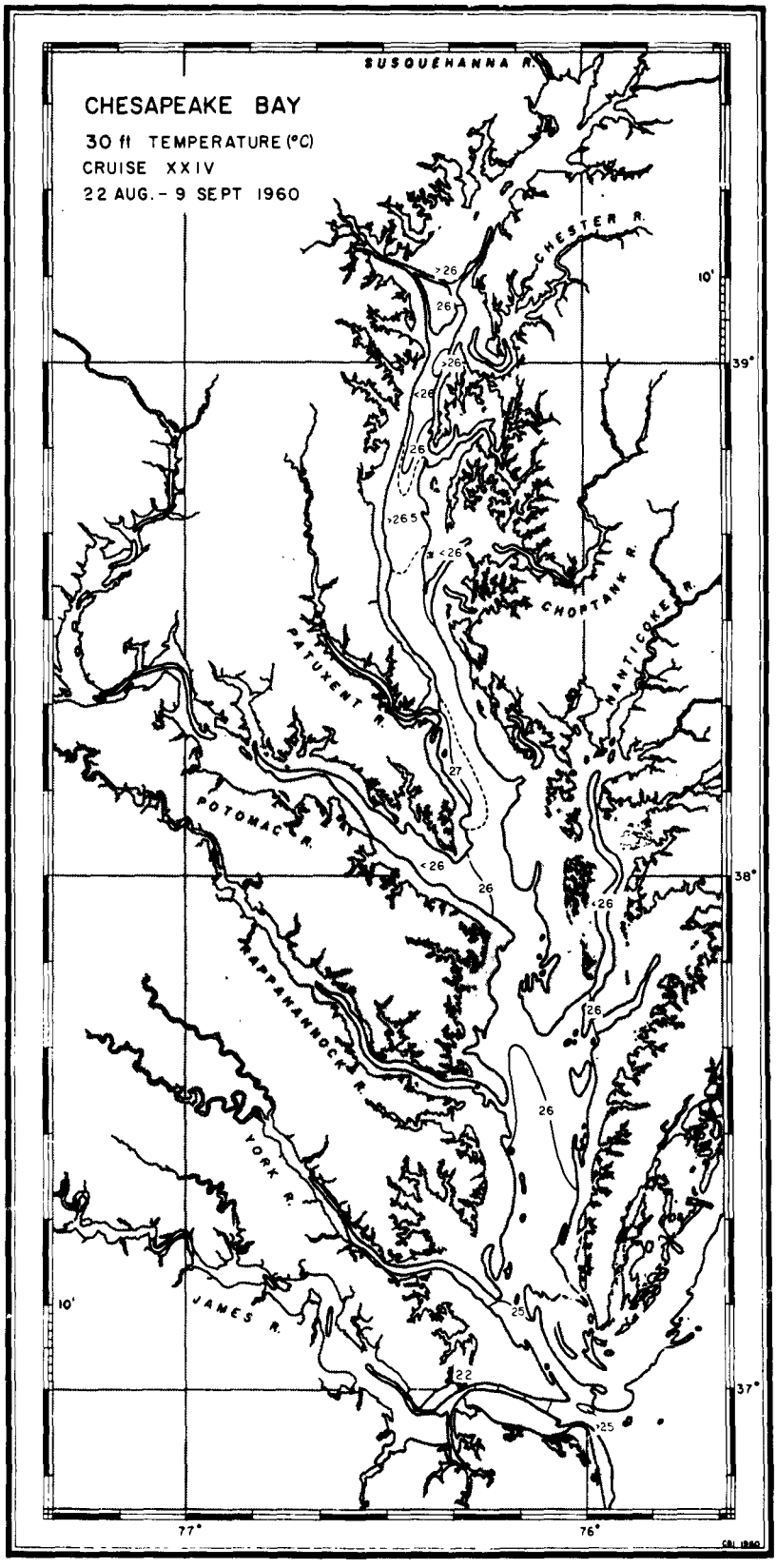

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XXIV
22 AUG. - 9 SEPT 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

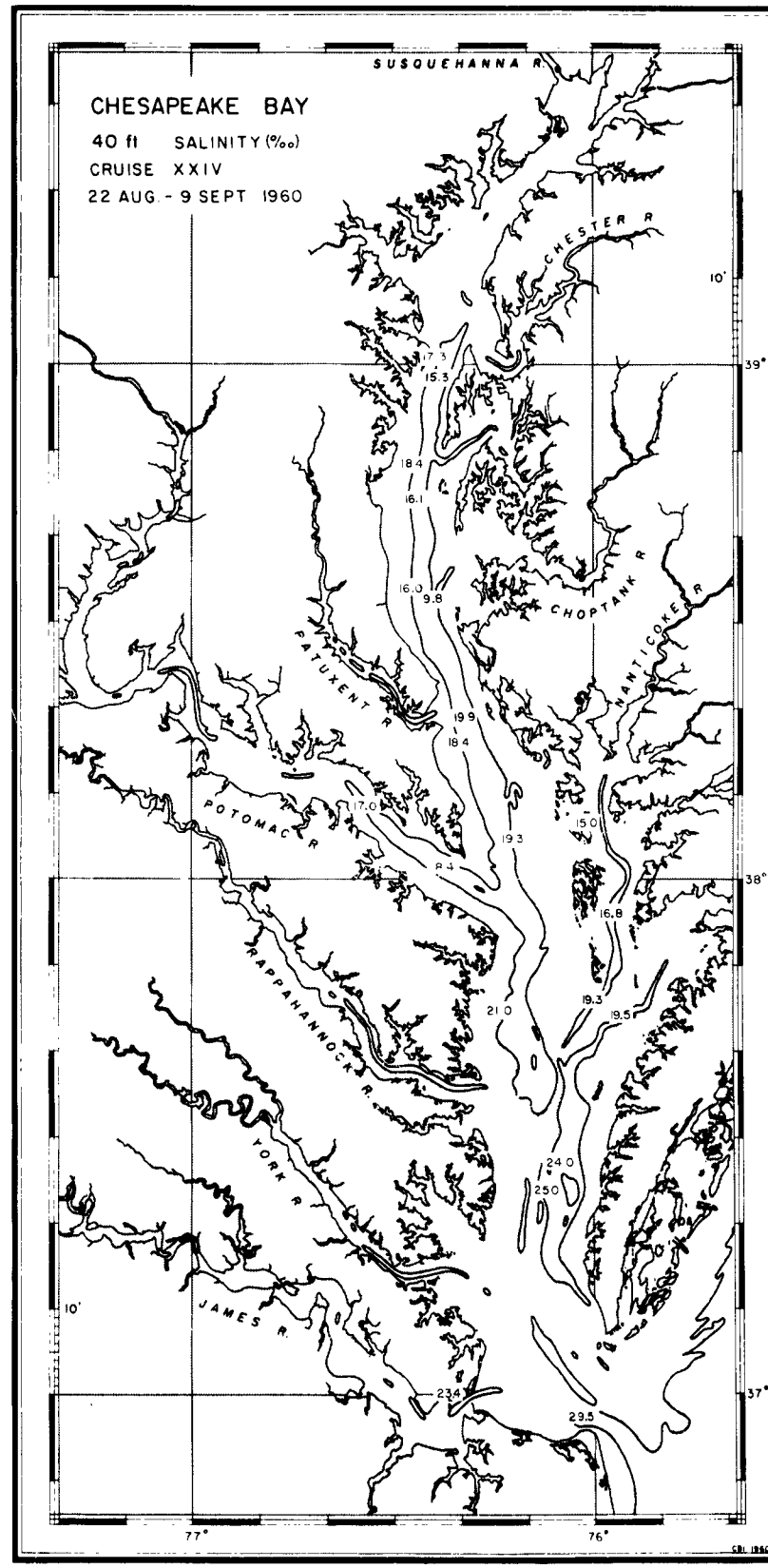

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
CRUISE XXIV
22 AUG. - 9 SEPT 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
HANTICOKE R.
39°
38°
37°
77°
76°
10'

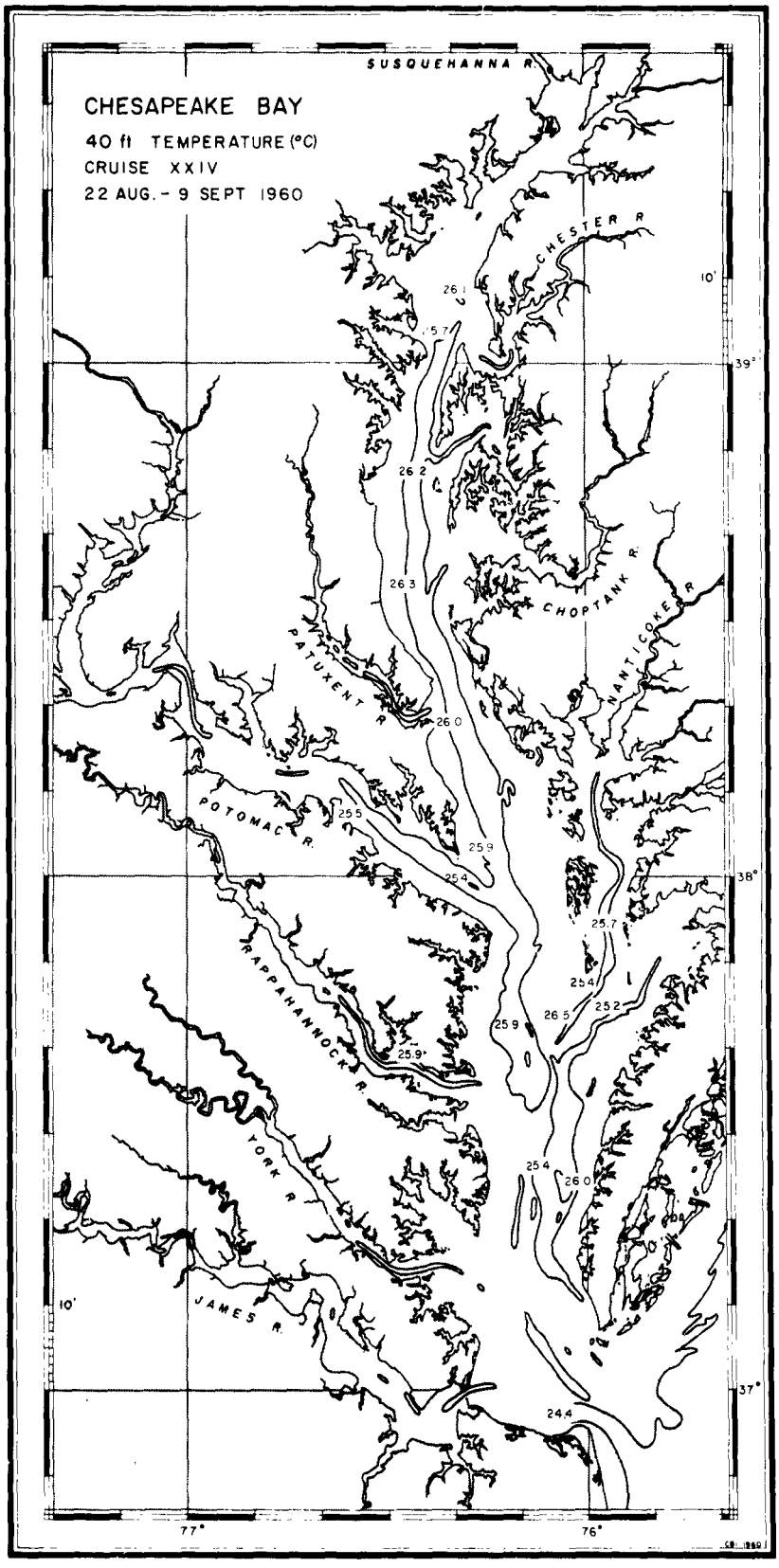

CHESAPEAKE BAY
20 ft SALINITY (‰)
CRUISE XXIV
22 AUG. - 9 SEPT 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°
10'

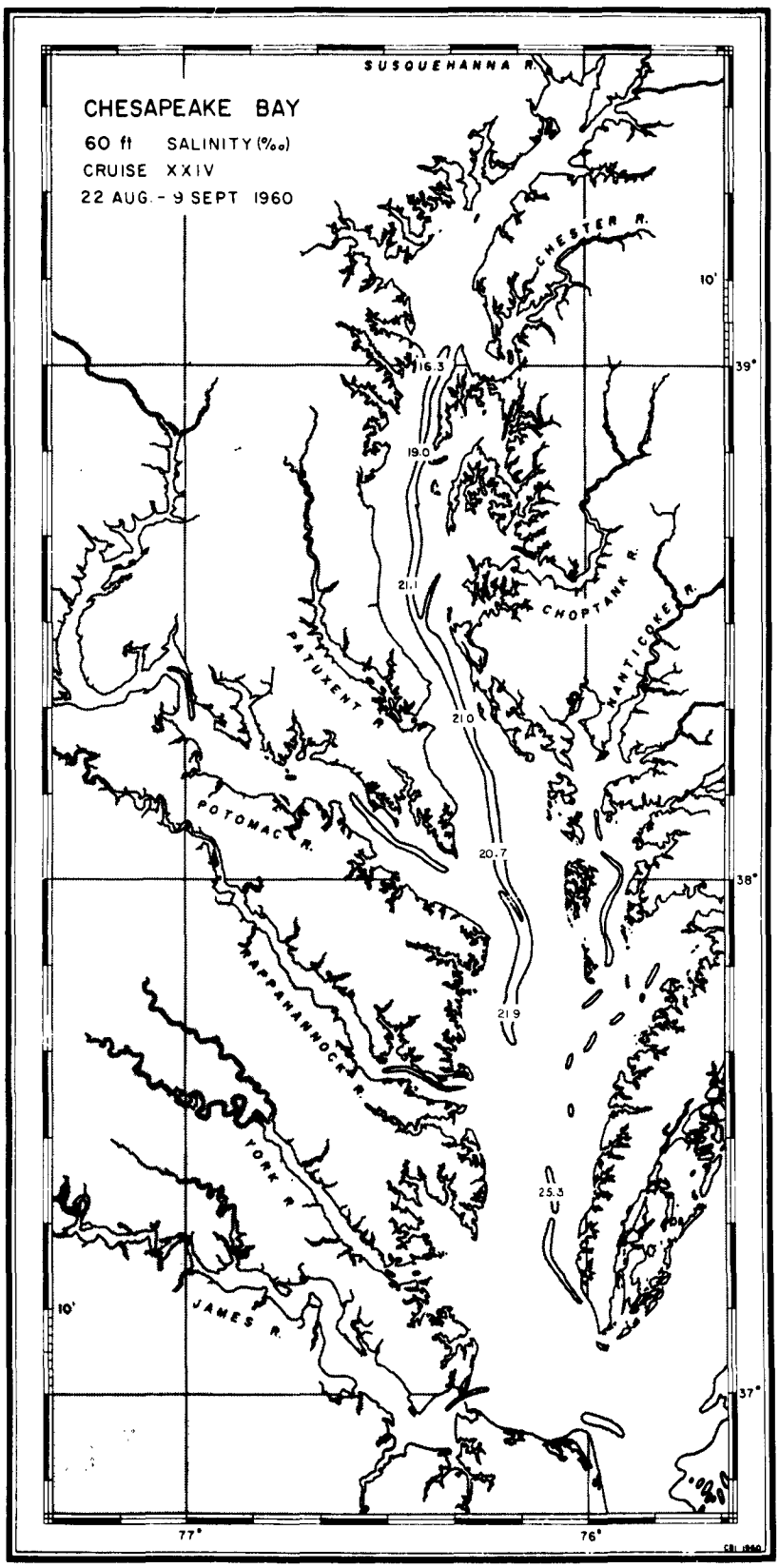

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
CRUISE XXIV
22 AUG. - 9 SEPT 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°

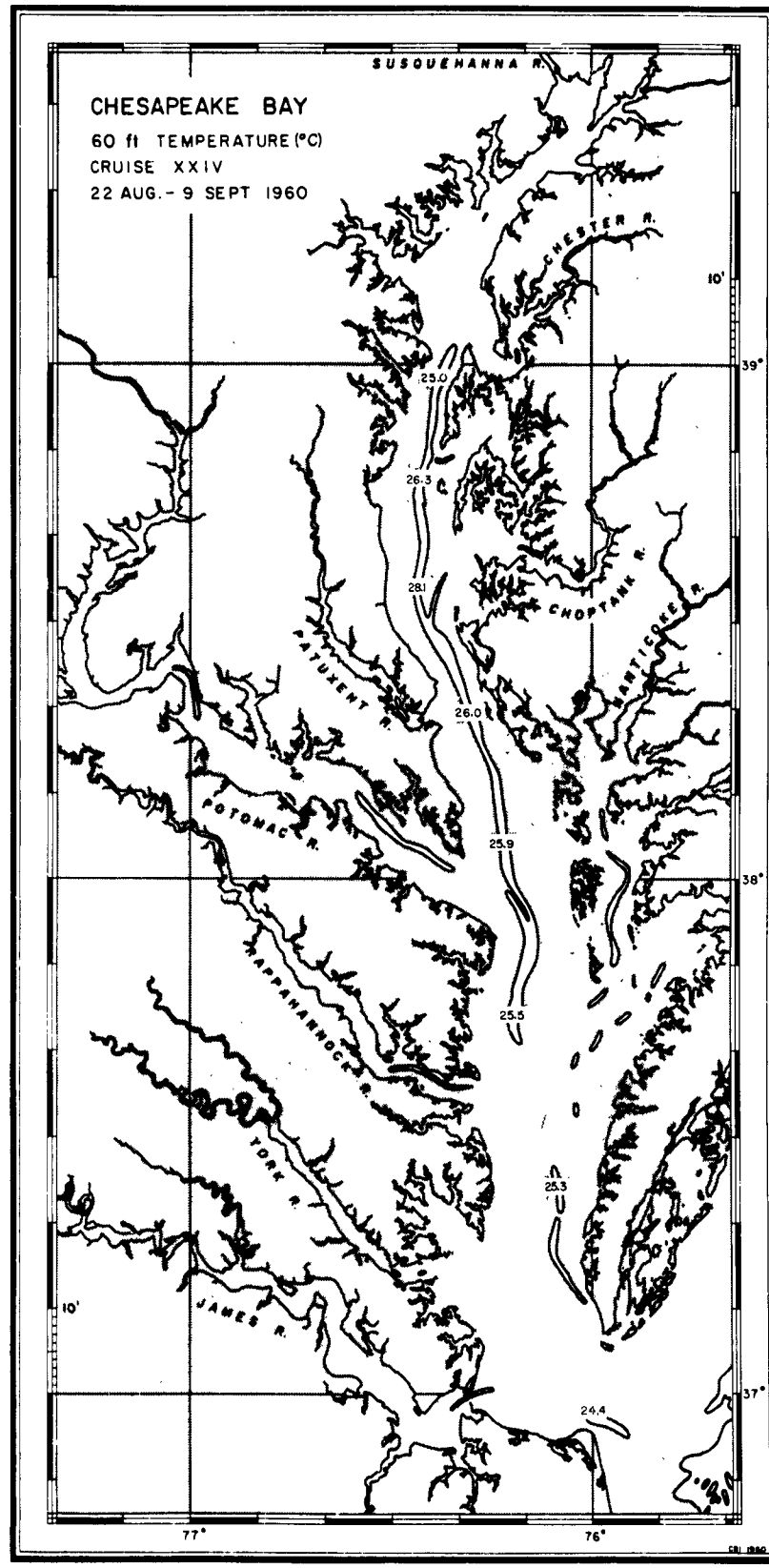

CHESAPEAKE BAY
30 ft SALINITY (‰)
CRUISE XXIV
22 AUG. - 9 SEPT 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
10'
77°
76°


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XXIV
22 AUG. - 9 SEPT 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°
>26
26
<26
26.5
27
25
22

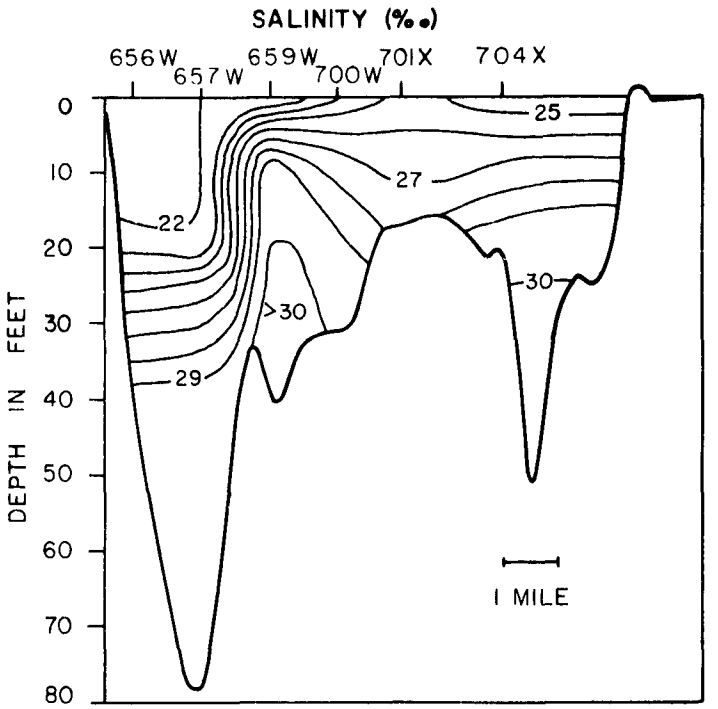

CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XXIV
22 AUG - 9 SEPT 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
17.3
15.3
18.4
16.1
16.0
9.8
19.9
18.4
17.0
19.3
15.0
16.8
19.3
19.5
21.0
24.0
25.0
23.4
29.5
39°
38°
37°
10'
10'
77°
76°

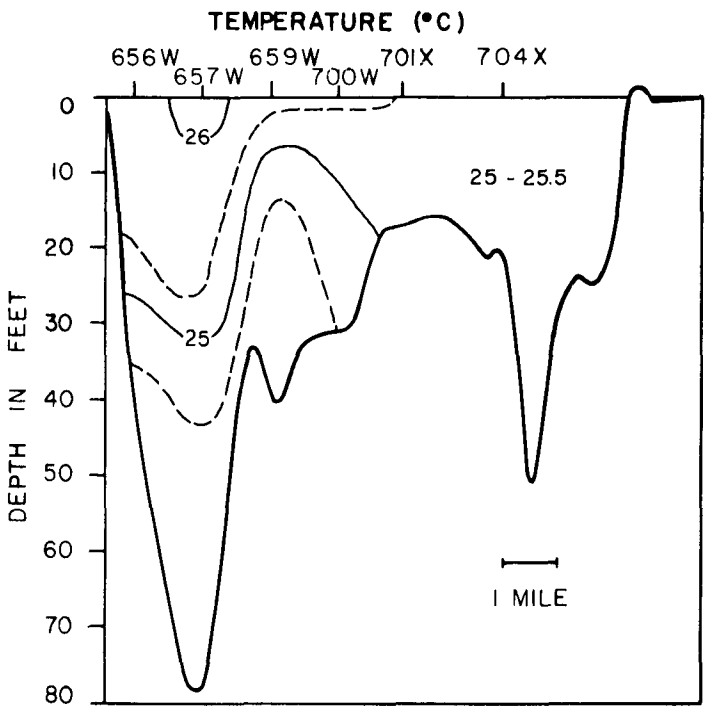

CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
CRUISE XXIV
22 AUG. - 9 SEPT 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
26.1
25.7
26.2
26.3
26.0
25.5
25.9
25.4
25.7
25.4
26.5
25.2
25.9
25.9
25.4
26.0
24.4
39°
38°
37°
10'
10'
77°
76°


CHESAPEAKE BAY
60 ft SALINITY (‰)
CRUISE XXIV
22 AUG. - 9 SEPT 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
16.3
19.0
21.1
21.0
20.7
21.9
25.3
39°
38°
37°
10'
77°
76°

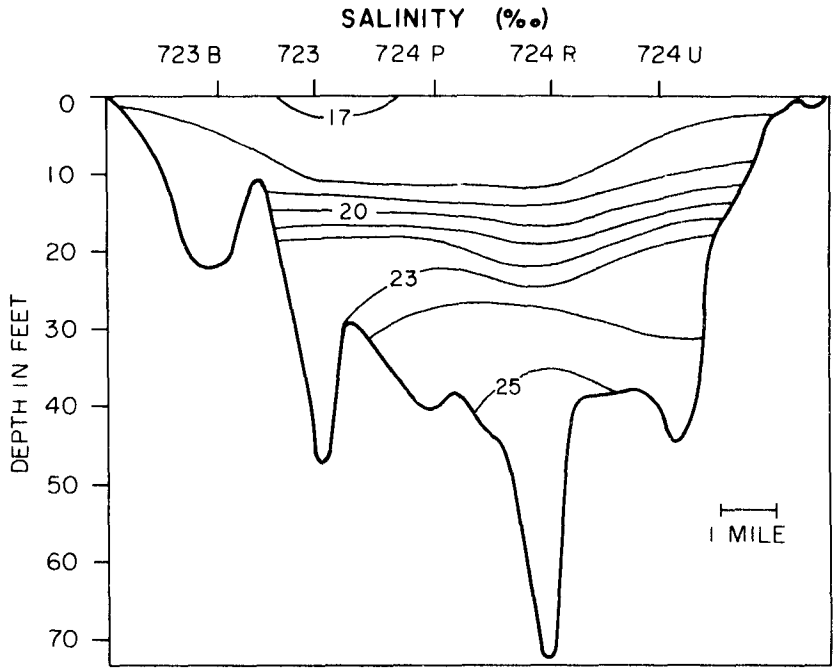

CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
CRUISE XXIV
22 AUG.- 9 SEPT 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
25.0
26.3
28.1
26.0
25.9
25.5
25.3
24.4
39°
38°
37°
10'
77°
76°

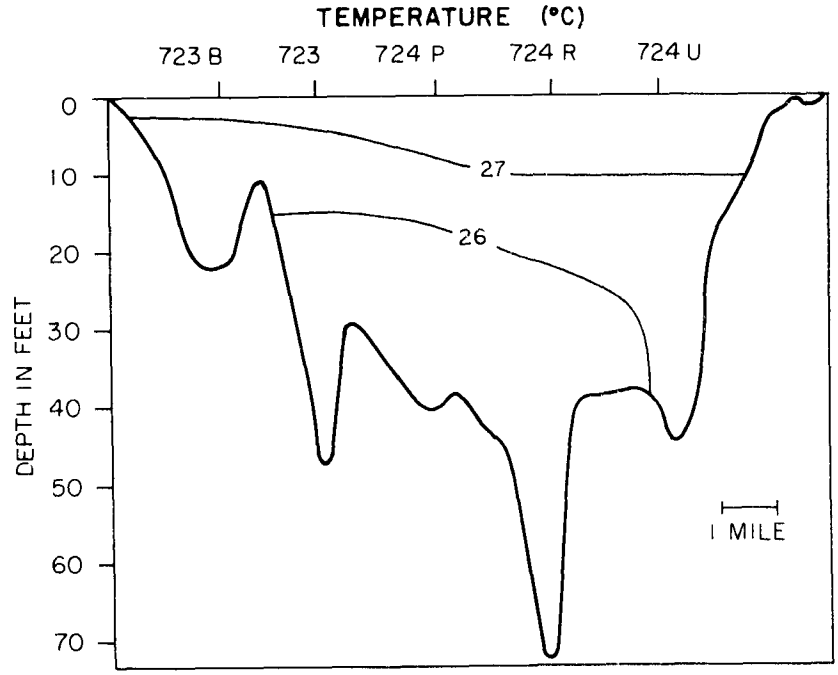
CRUISE XXIV 22 AUG - 9 SEPT 1960 SECTION II



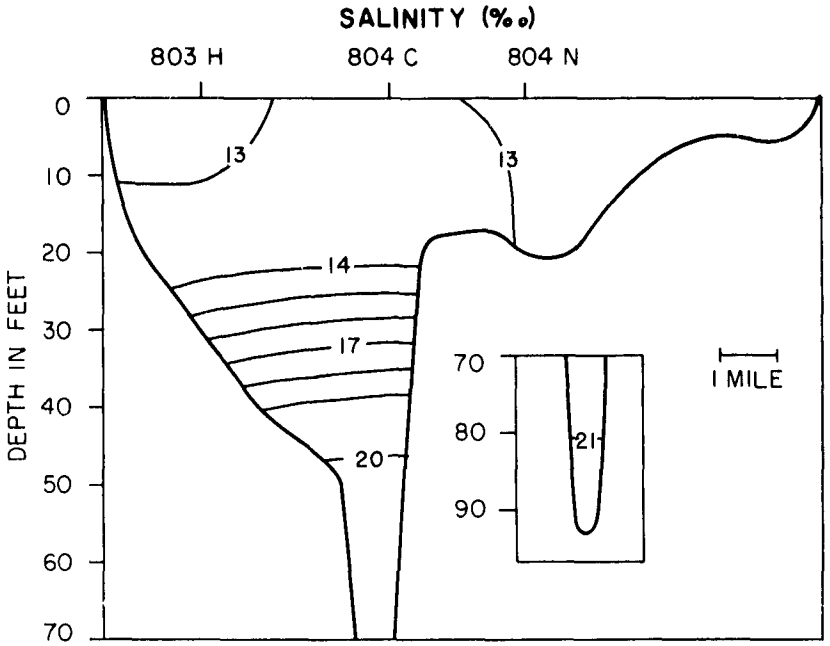



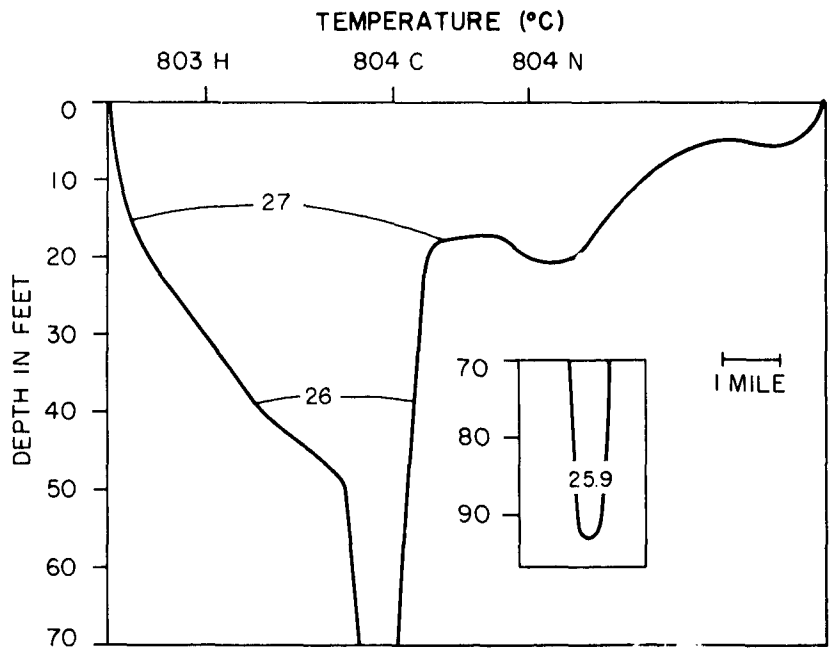
CRUISE XXIV 22 AUG - 9 SEPT 1960 SECTION IV



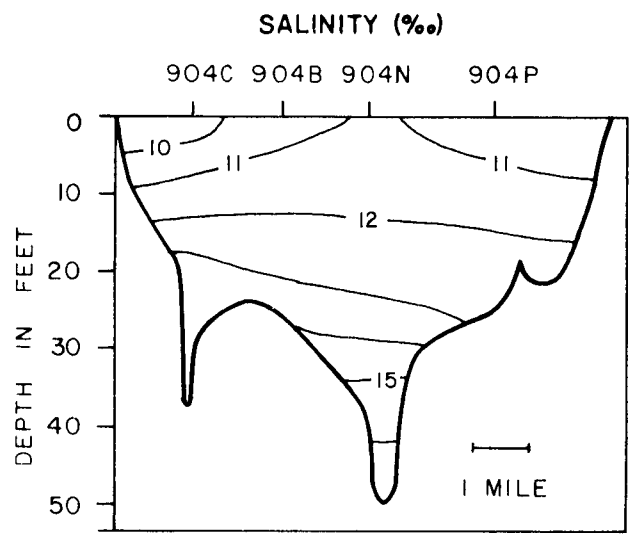



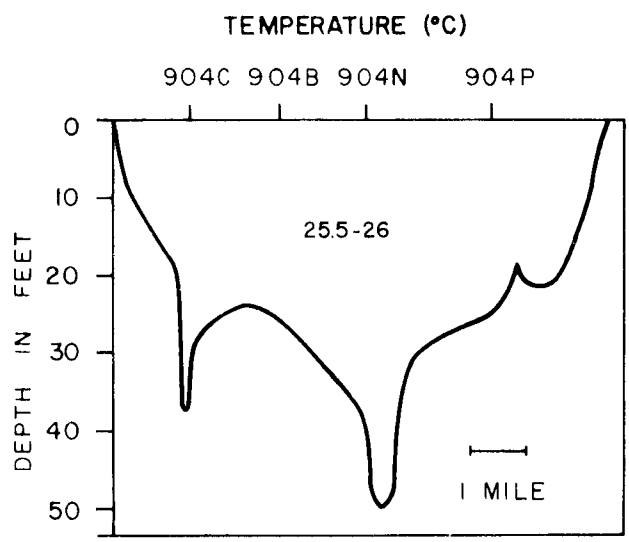
CRUISE XXIV 22 AUG - 9 SEPT 1960 SECTION VI



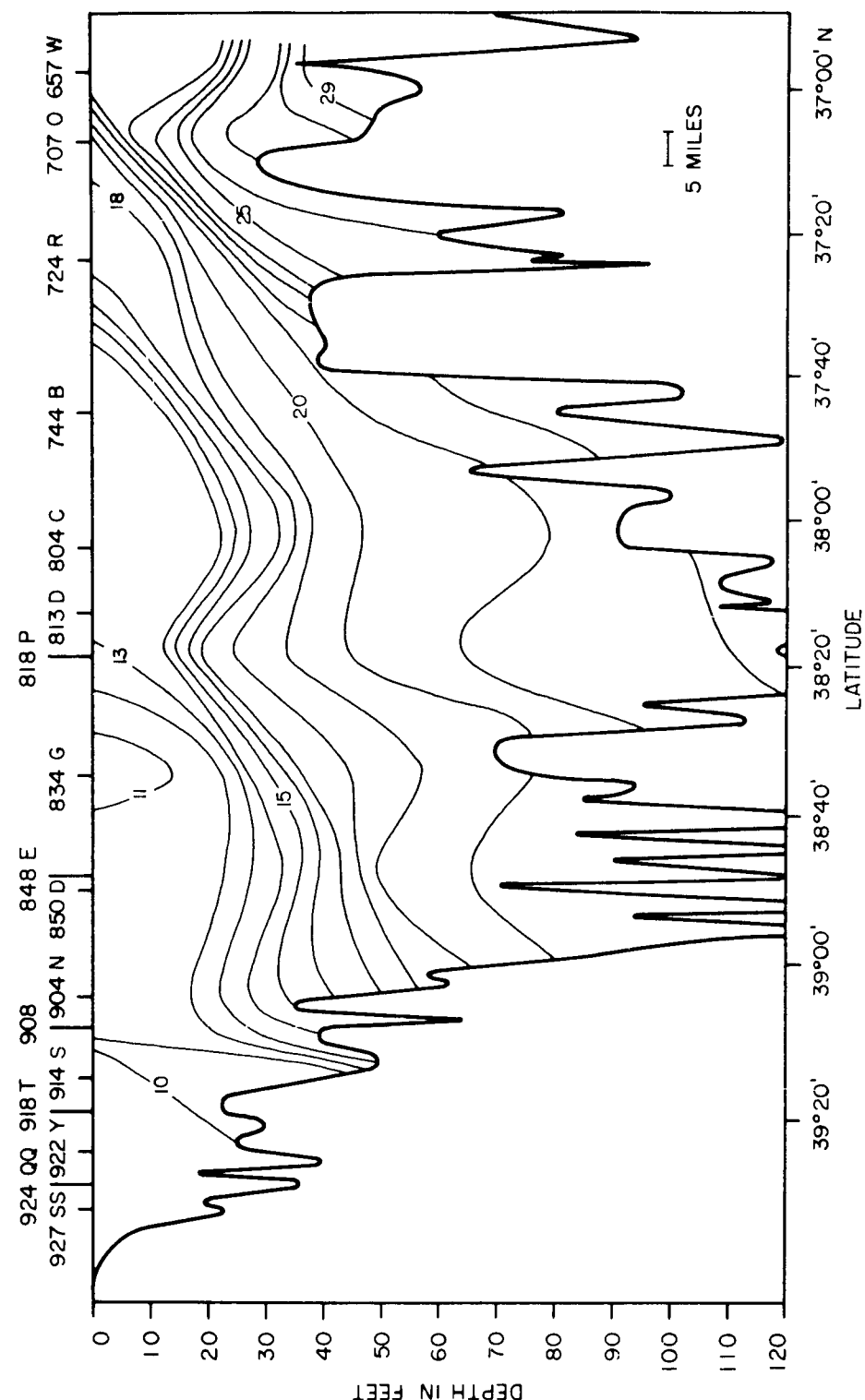
CRUISE XXIV 22 AUG - 9 SEPT 1960 SECTION X



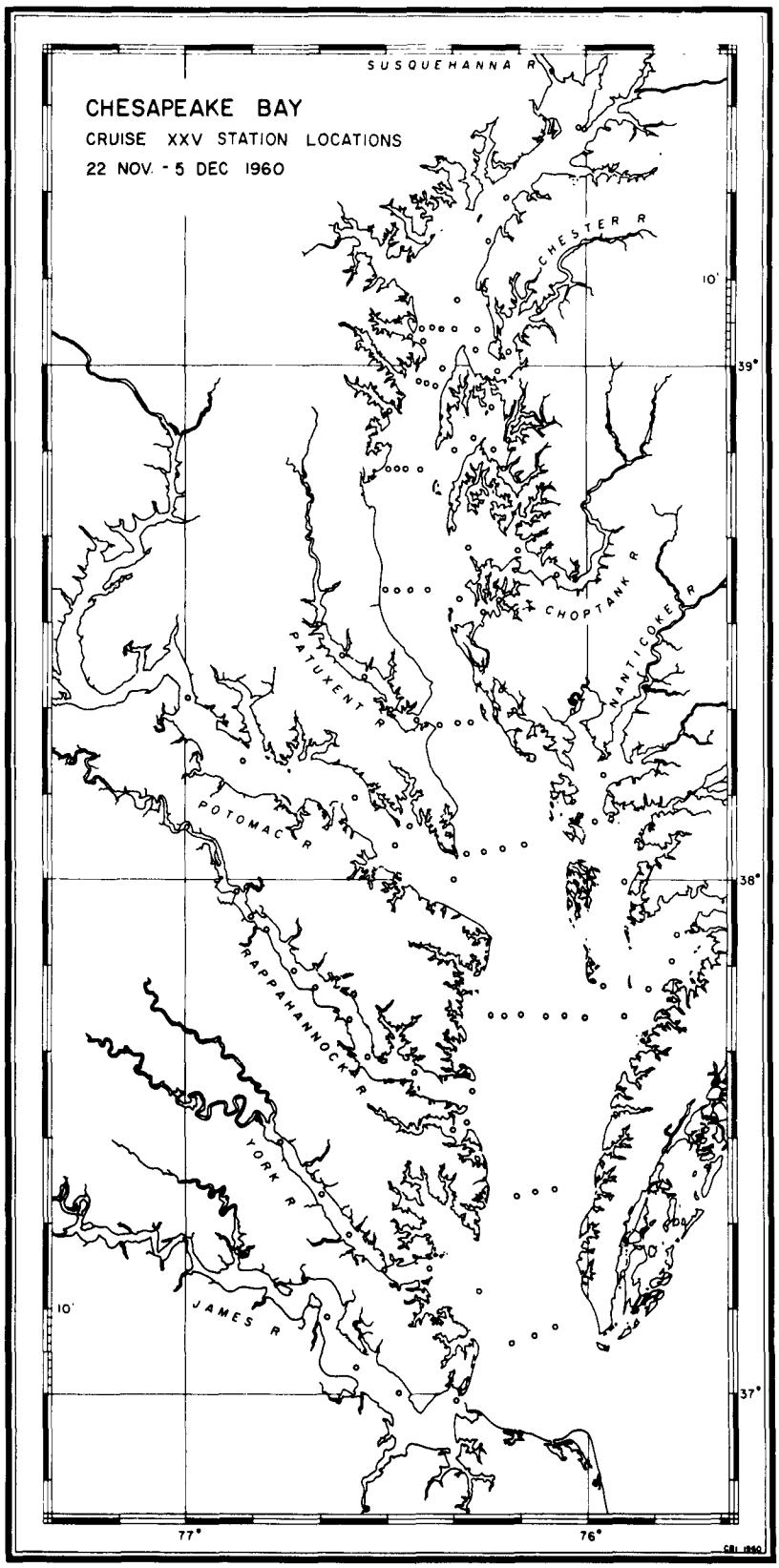
CRUISE XXIV 22 AUG - 9 SEPT 1960 SECTION XIX

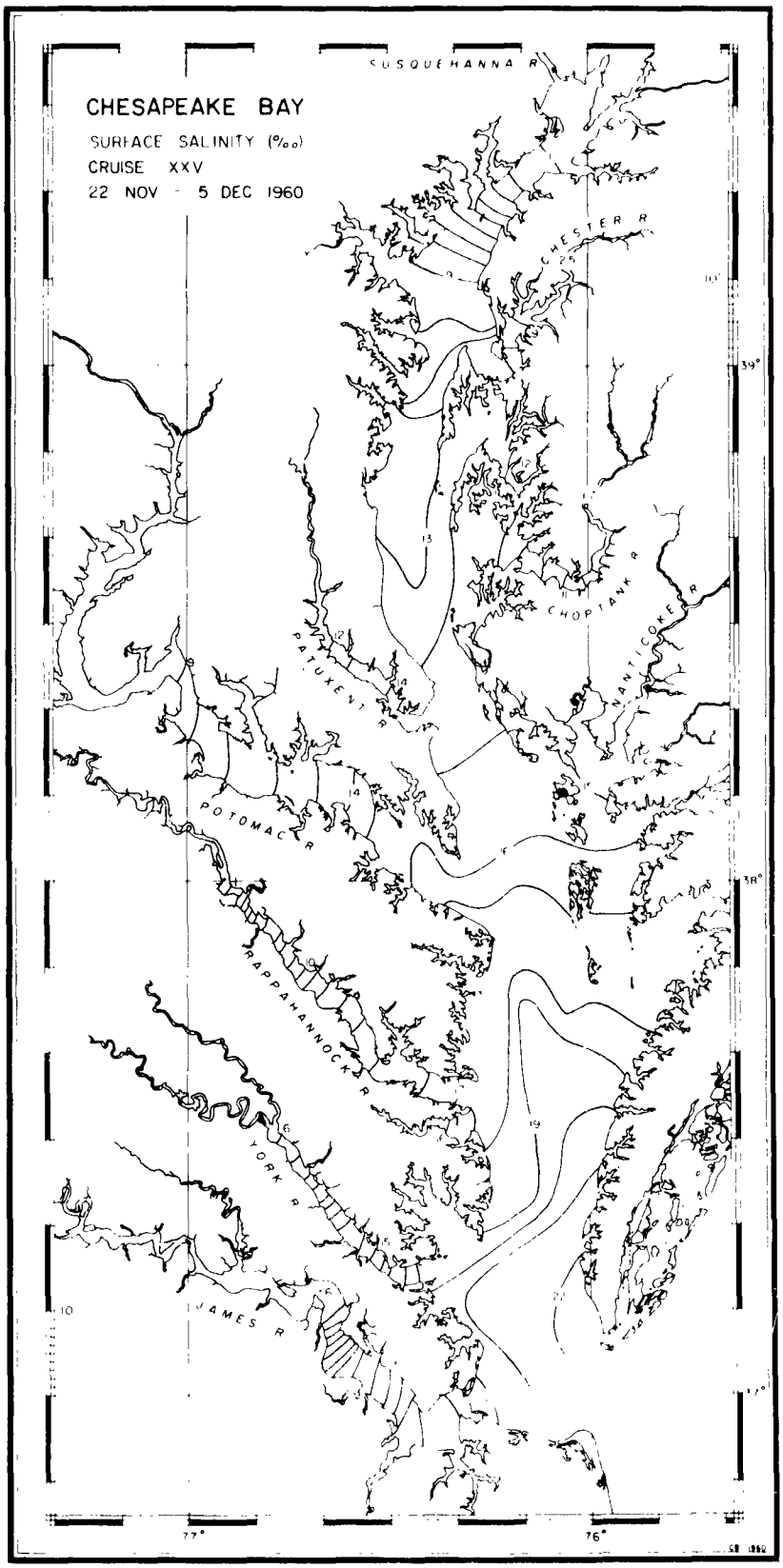
SALINITY (‰)

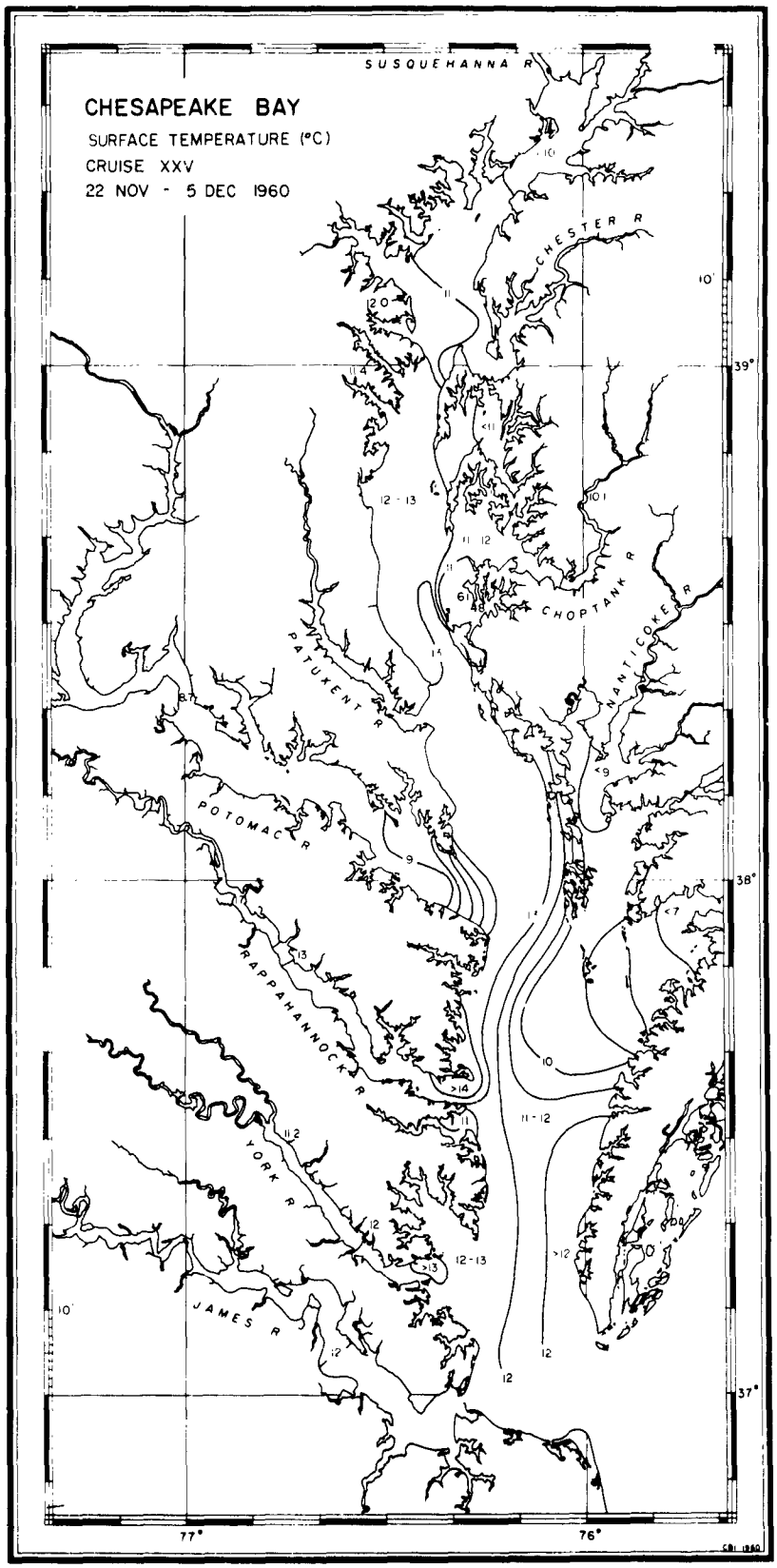


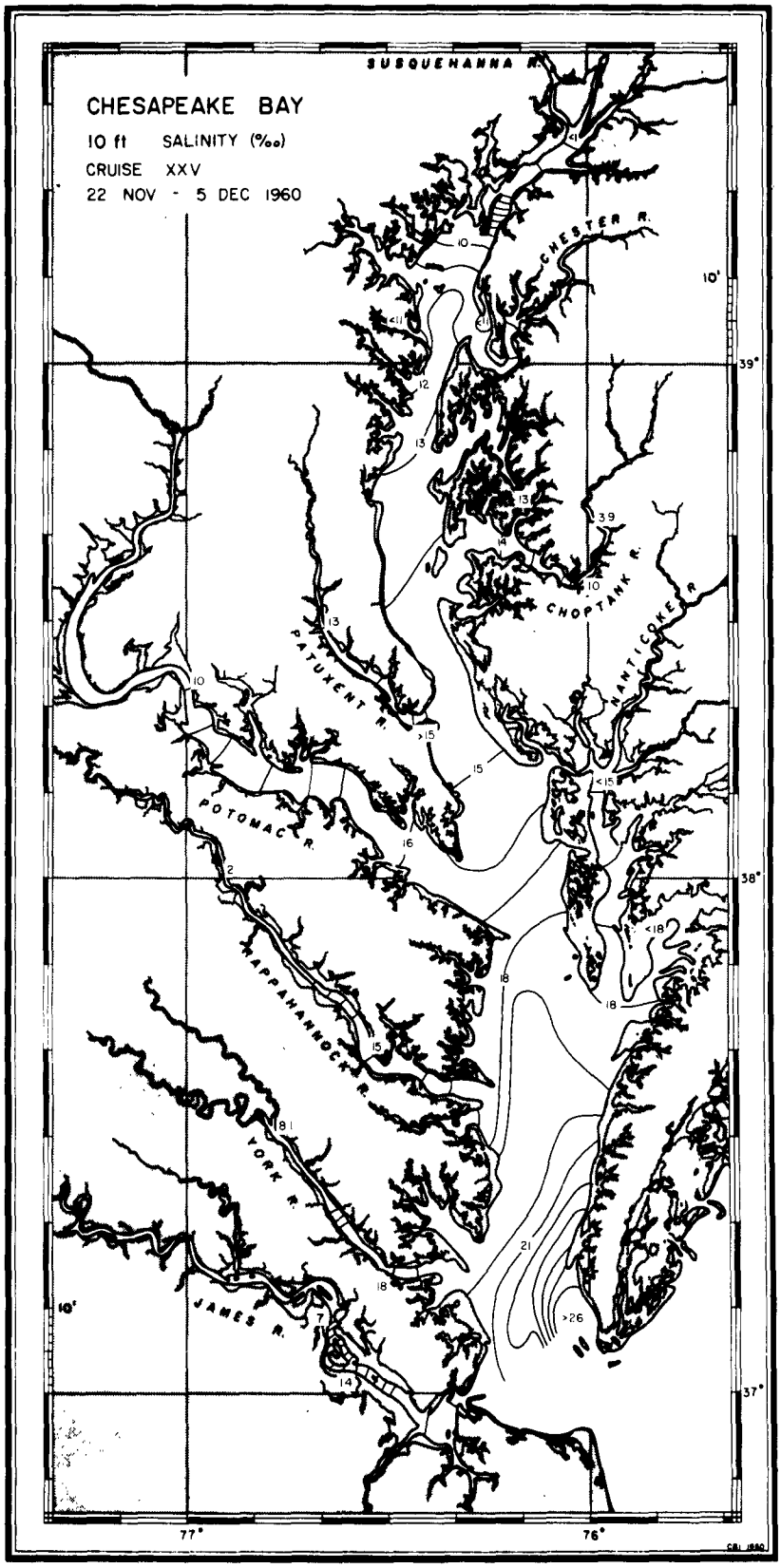
CRUISE XXIV 22 AUG - 9 SEPT 1960 SECTION XIX

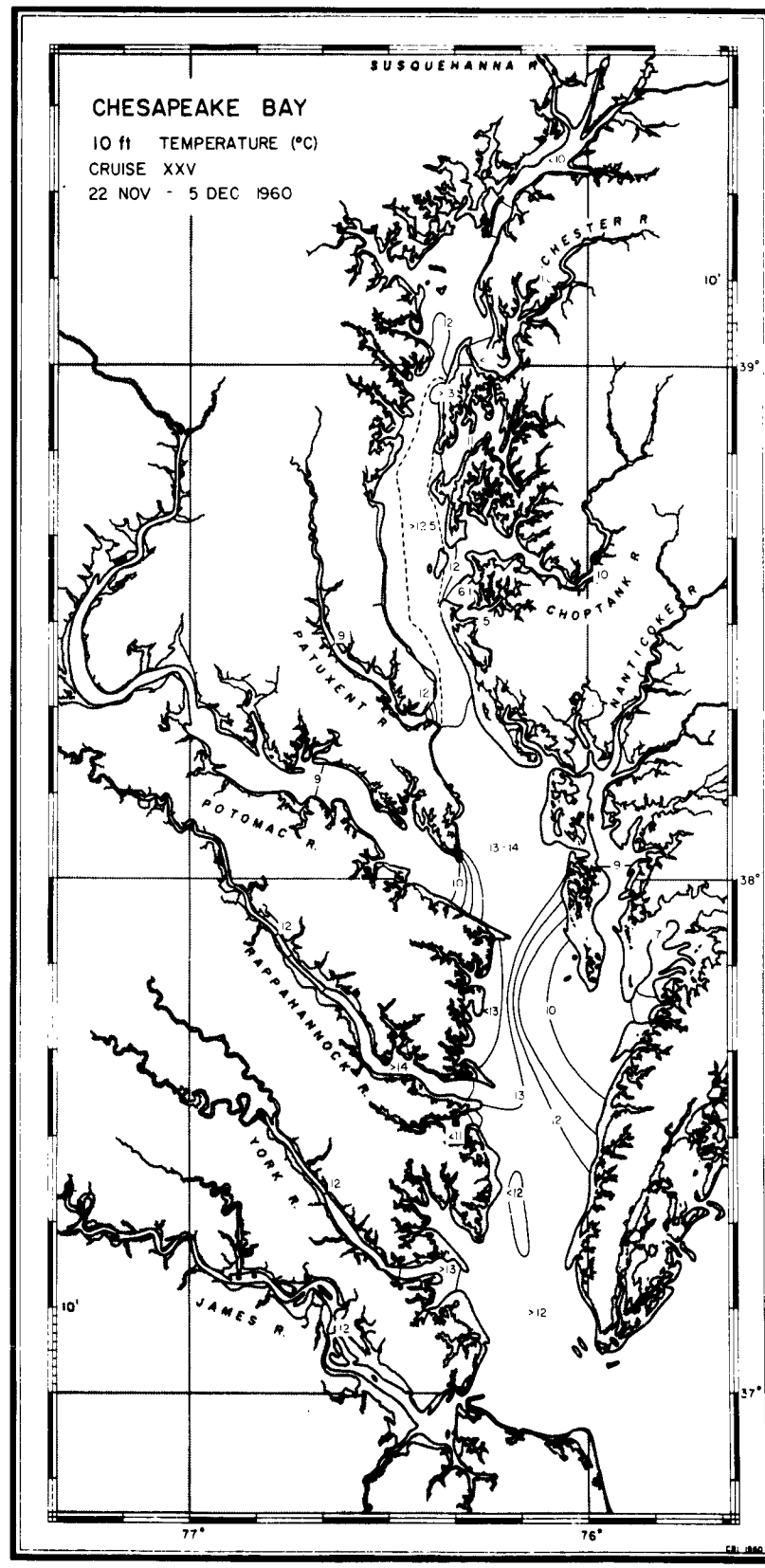
TEMPERATURE (°C)

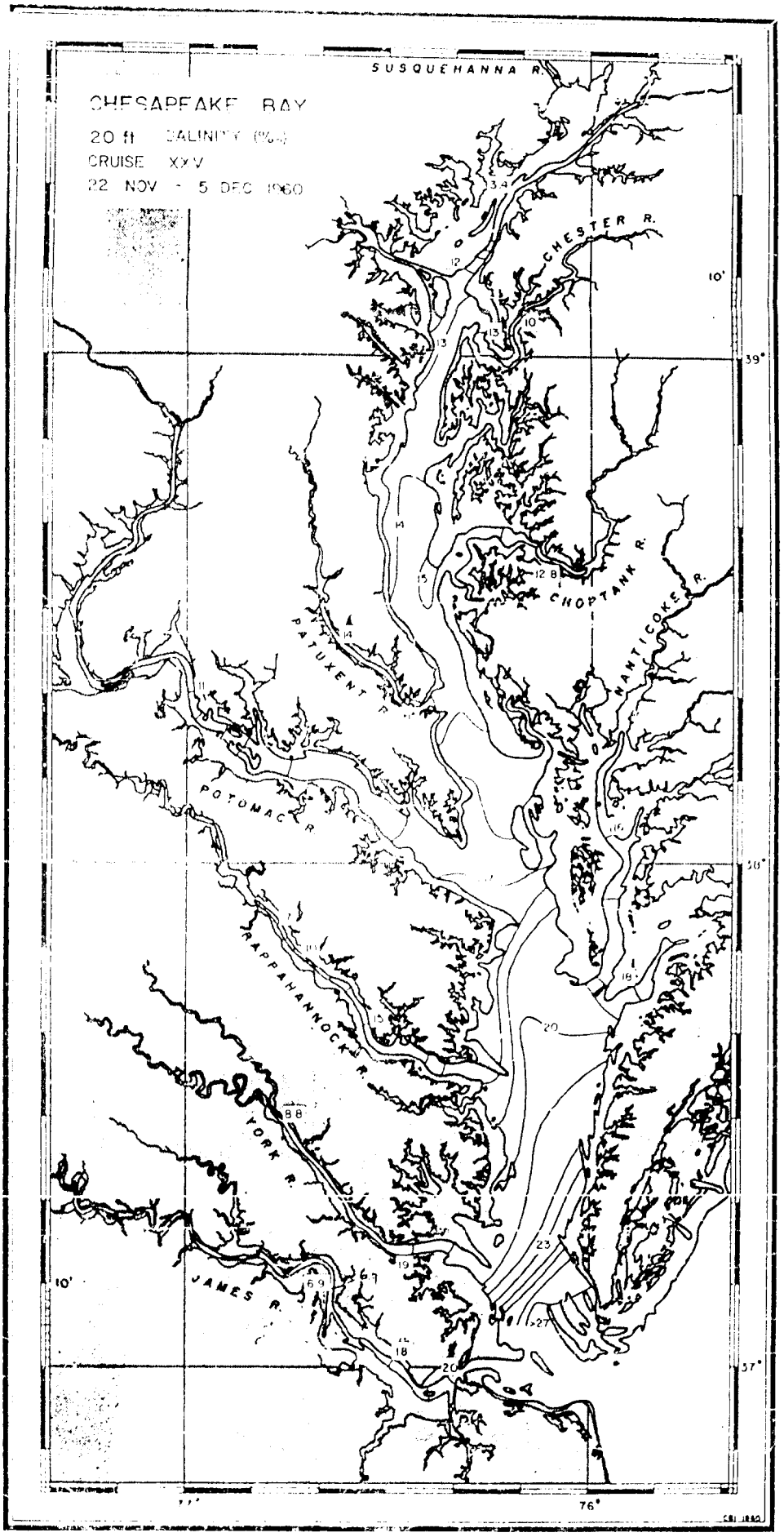

CHESAPEAKE BAY
CRUISE XXV STATION LOCATIONS
22 NOV. - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
39°
38°
37°
10'
77°
76°
CBI-1960

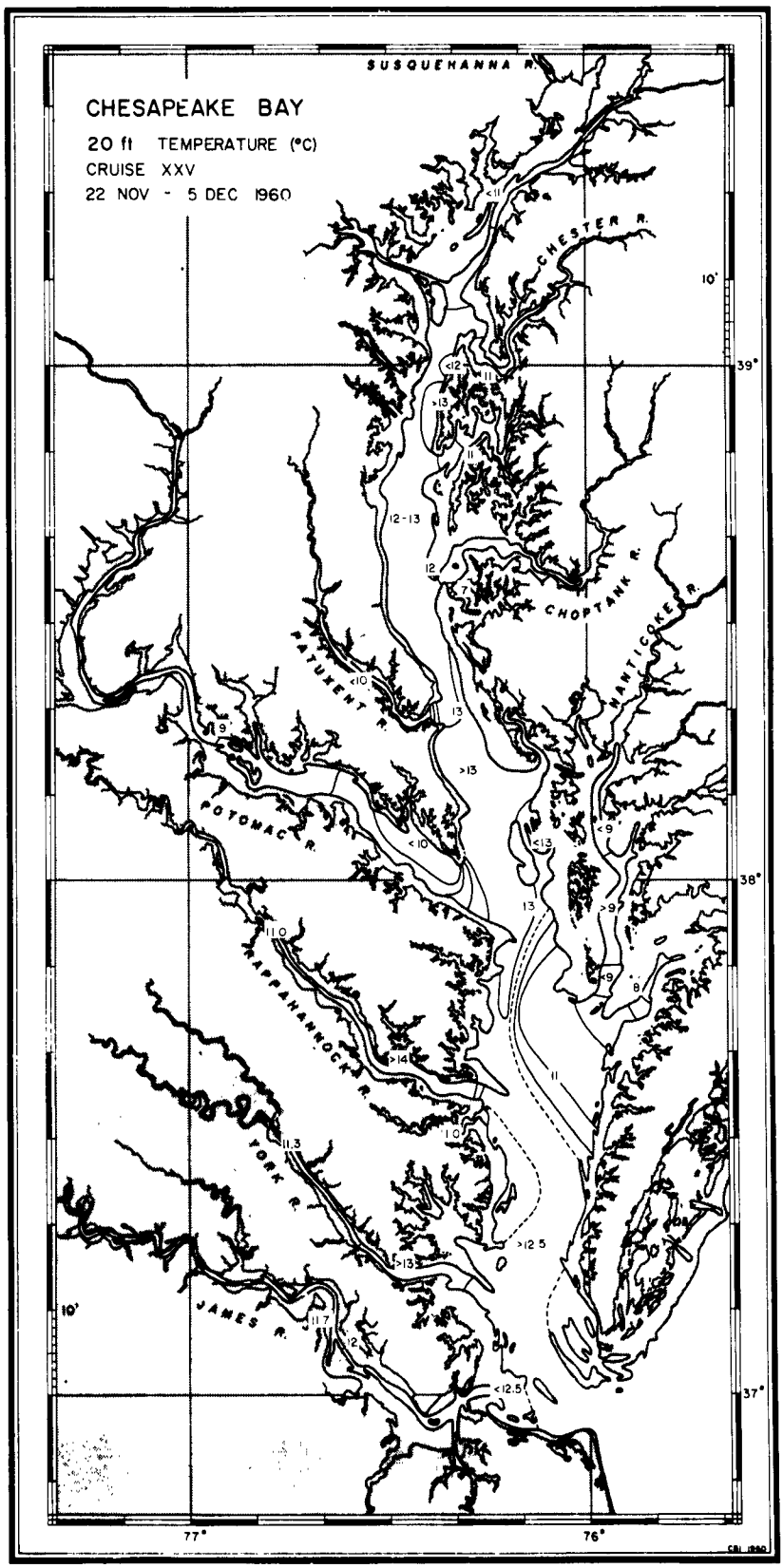

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XXV
22 NOV - 5 DEC 1960
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

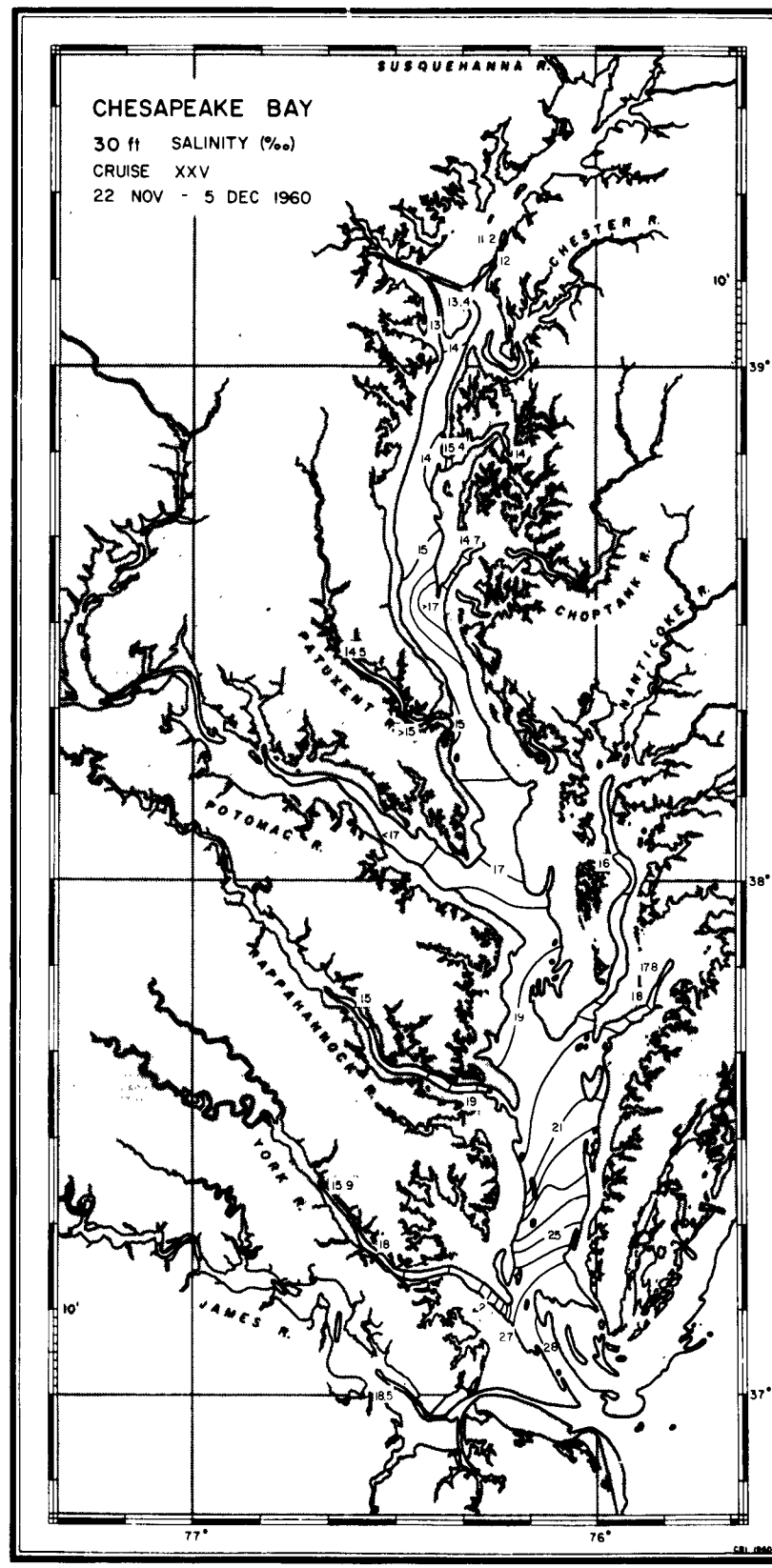

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XXV
22 NOV - 5 DEC 1960
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

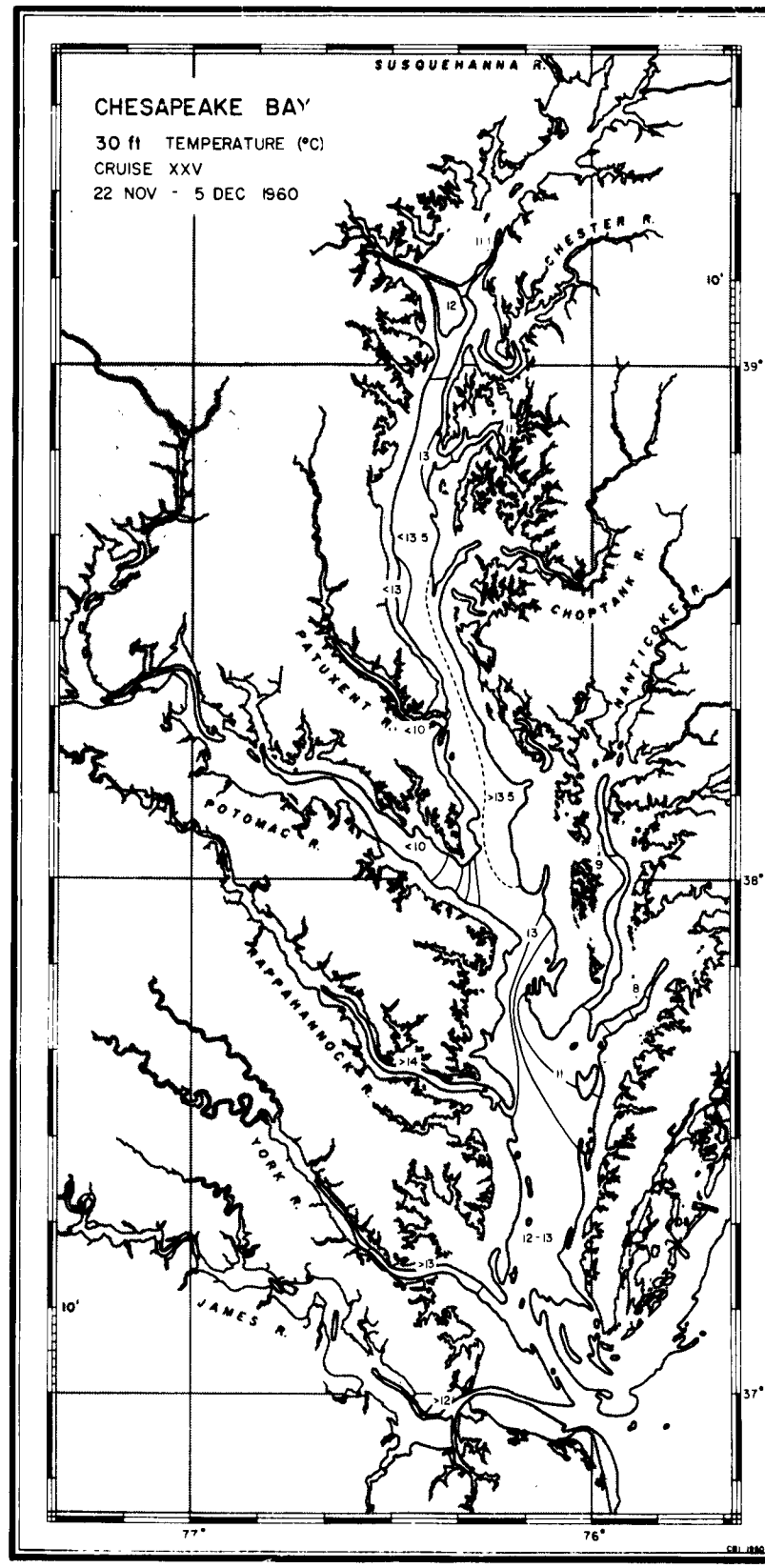

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XXV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

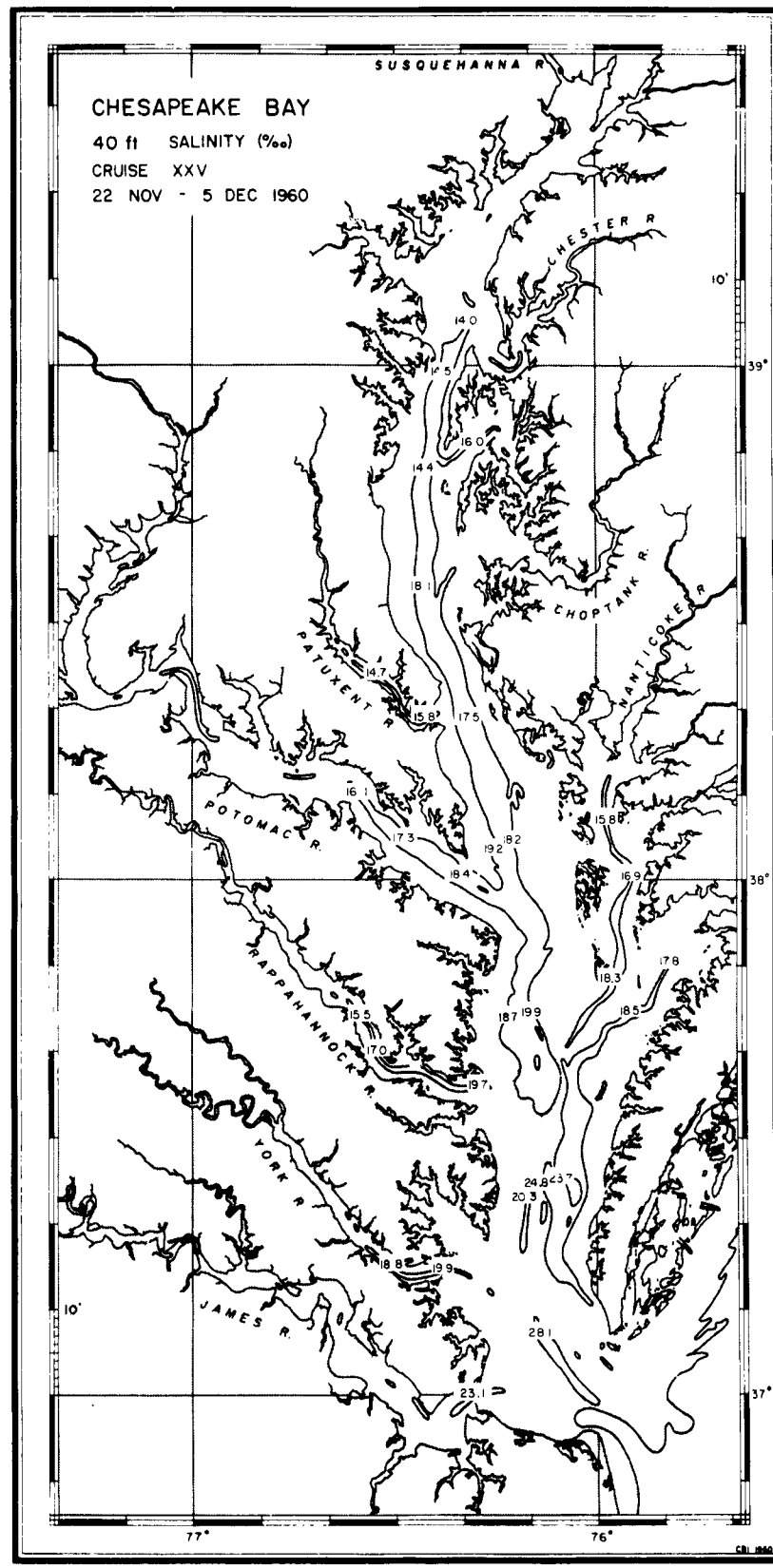

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
CRUISE XXV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

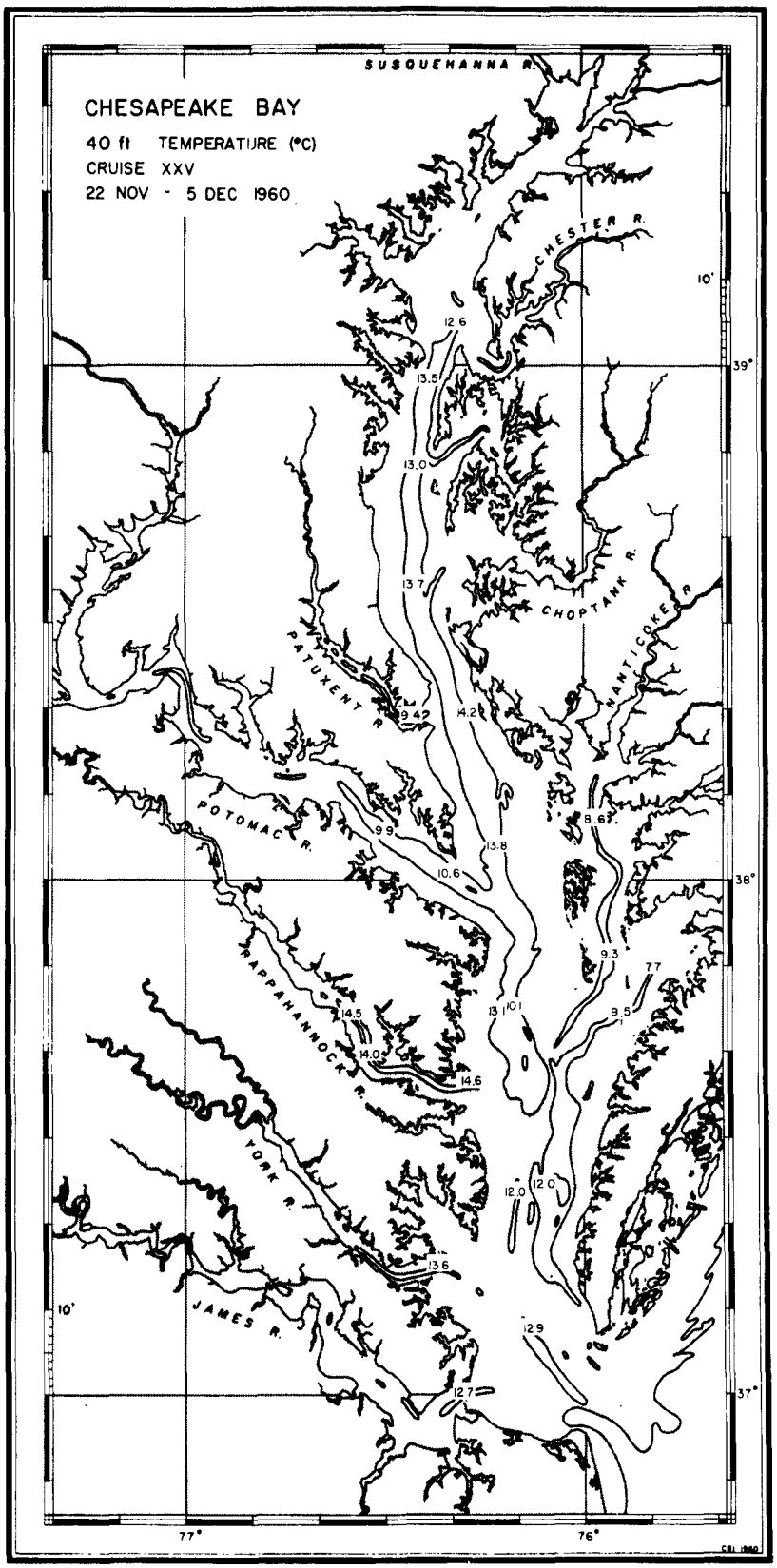

CHESAPEAKE BAY
20 ft SALINITY (‰)
CRUISE XXV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
MANTICOKE R.
39°
38°
37°
10'
77°
76°

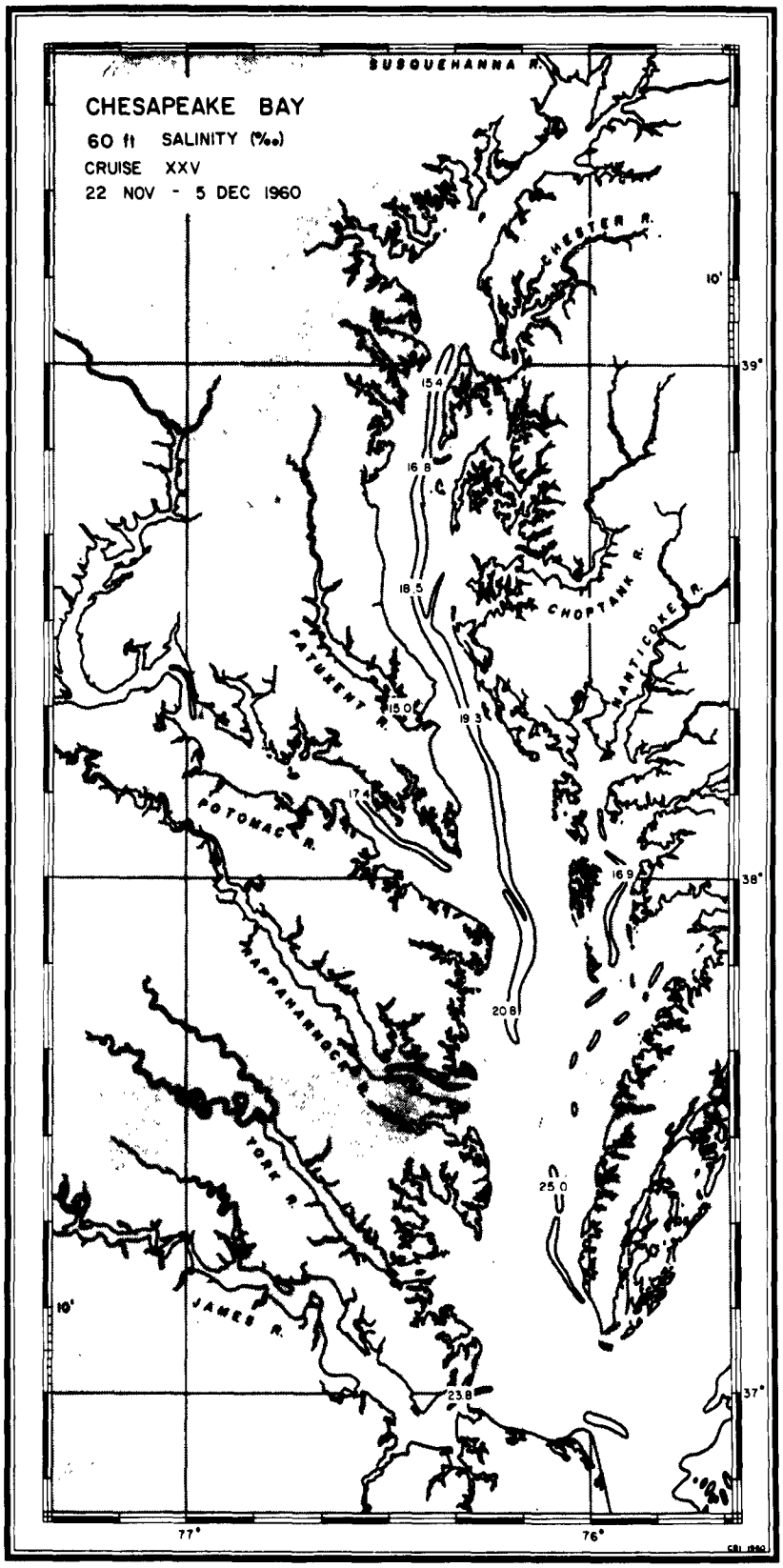

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
CRUISE XXV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
MANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

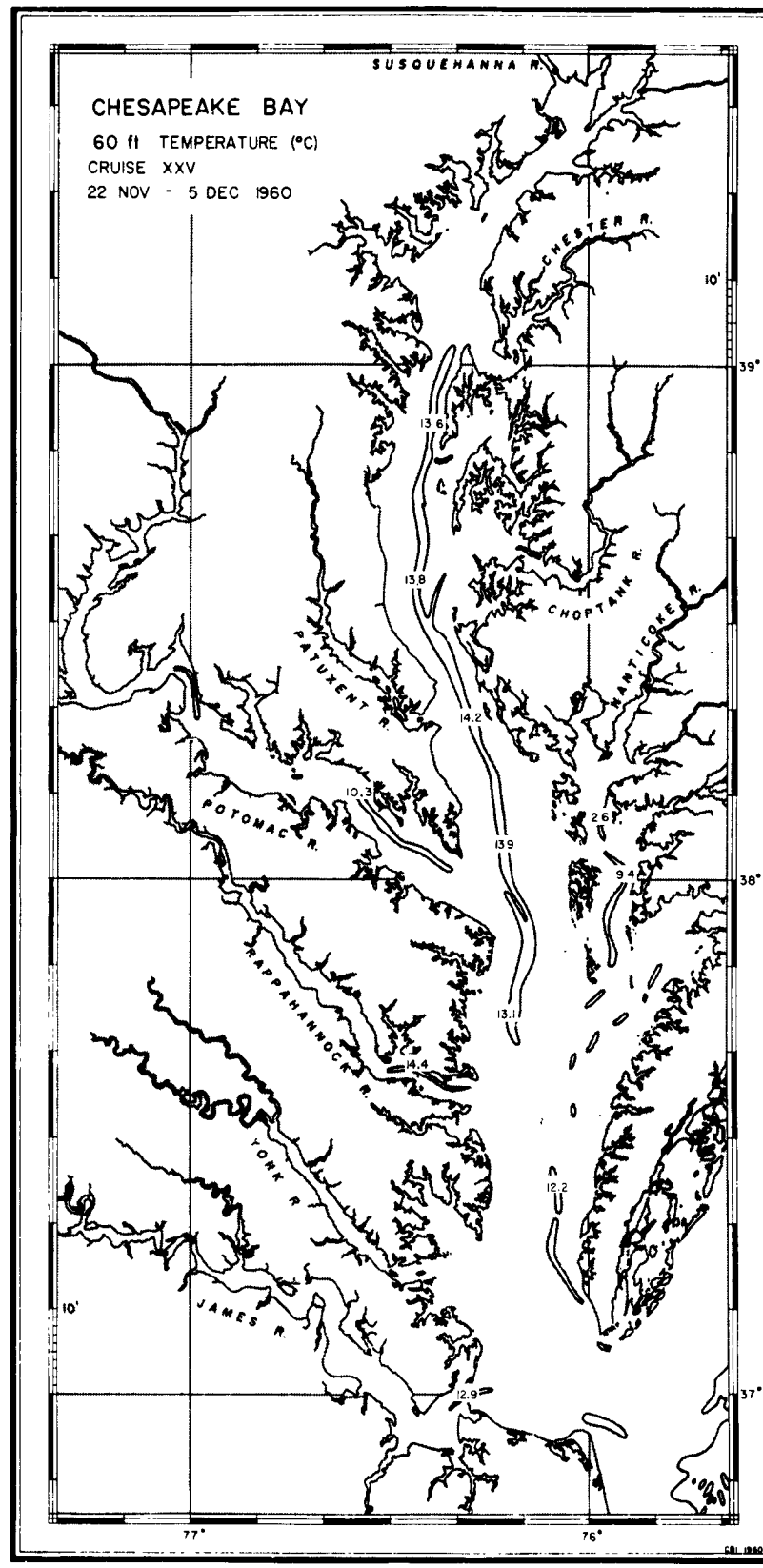

CHESAPEAKE BAY
30 ft SALINITY (‰)
CRUISE XXV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
10'
77°
76°


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XXV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°


CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XXV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°
10'
14.0
14.5
16.0
14.4
18.1
14.7
15.8
17.5
16.1
17.3
19.2
18.2
18.4
15.8
16.9
18.3
17.8
15.5
17.0
19.7
18.7
19.9
18.5
20.3
24.8
23.7
18.8
19.9
28.1
23.1

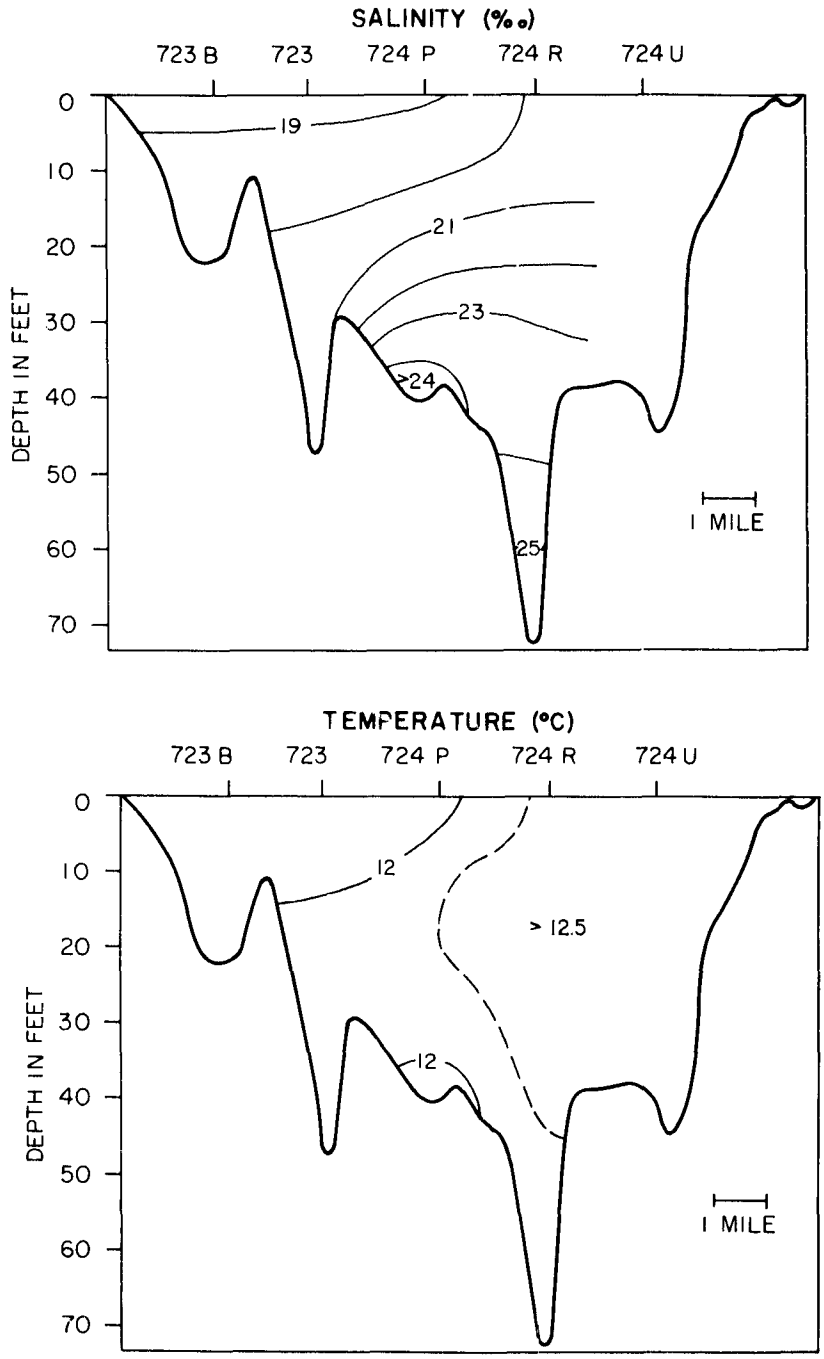

CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
CRUISE XXV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
12.6
13.5
13.0
13.7
14.2
9.42
9.9
10.6
13.8
8.67
9.3
7.7
13.1
10.1
9.5
14.5
14.0
14.6
12.0
12.0
13.6
12.9
12.7
39°
38°
37°
10'
77°
76°


CHESAPEAKE BAY
60 ft SALINITY (‰)
CRUISE XXV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
15.4
16.8
18.5
15.0
19.3
17.4
16.9
20.8
25.0
23.8
39°
38°
37°
10'
77°
76°

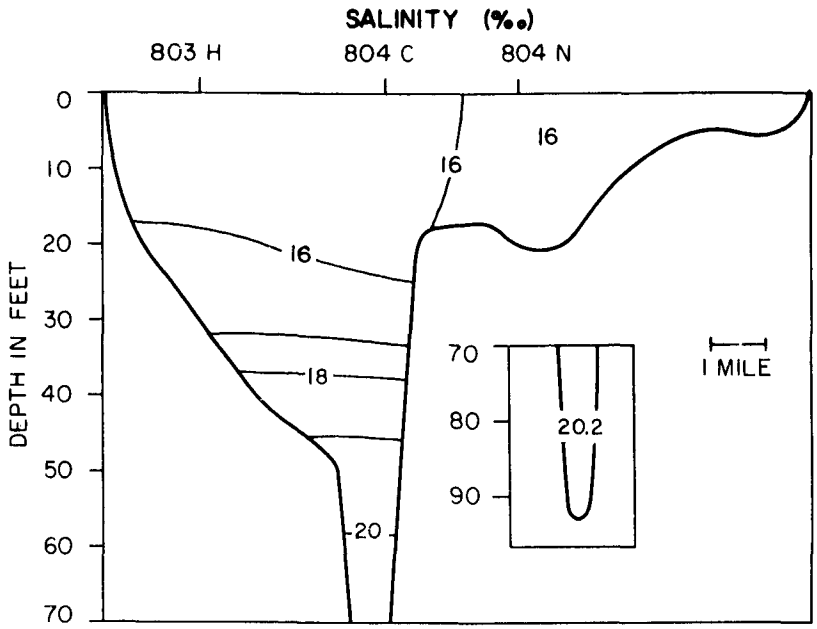

CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
CRUISE XXV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
13.6
13.8
14.2
10.3
13.9
2.6
9.4
13.1
14.4
12.2
12.9
10'
39°
38°
37°
77°
76°

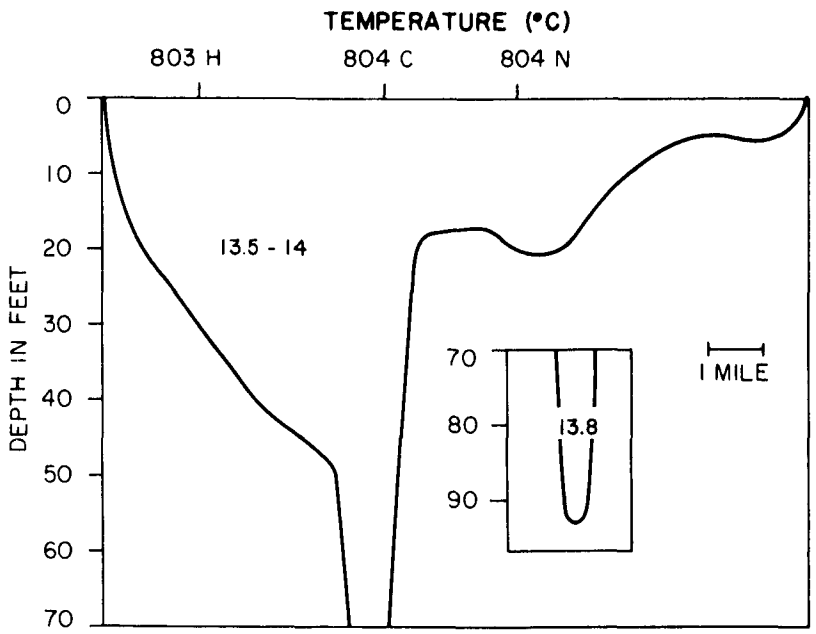
SECTION OMITTED
INSUFFICIENT DATA

CRUISE XXV 22 NOV - 5 DEC 1960 SECTION IV

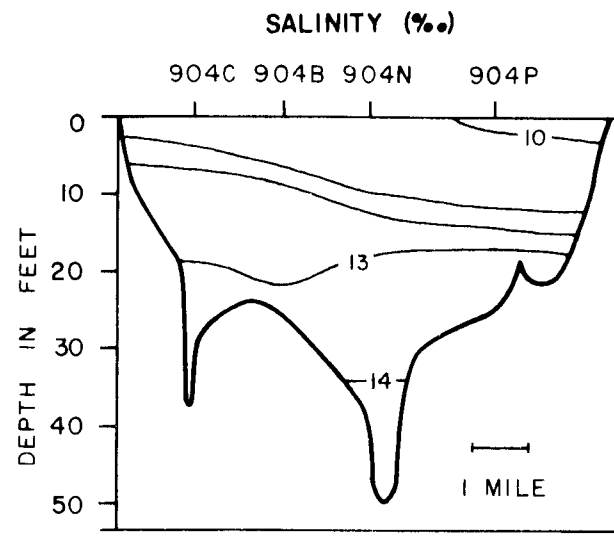


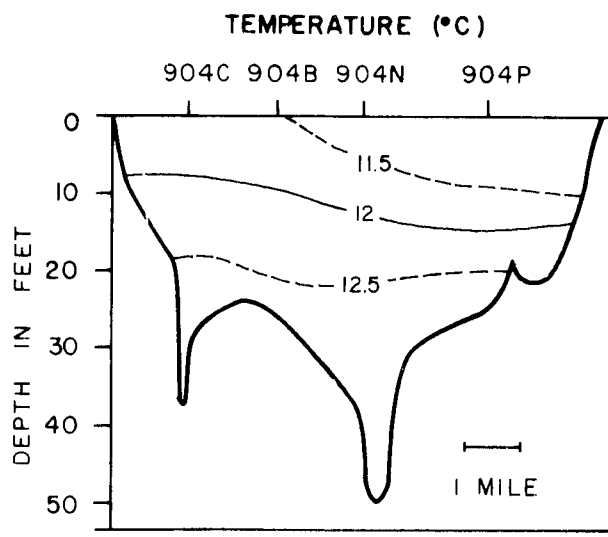
CRUISE XXV 22 NOV - 5 DEC 1960 SECTION VI



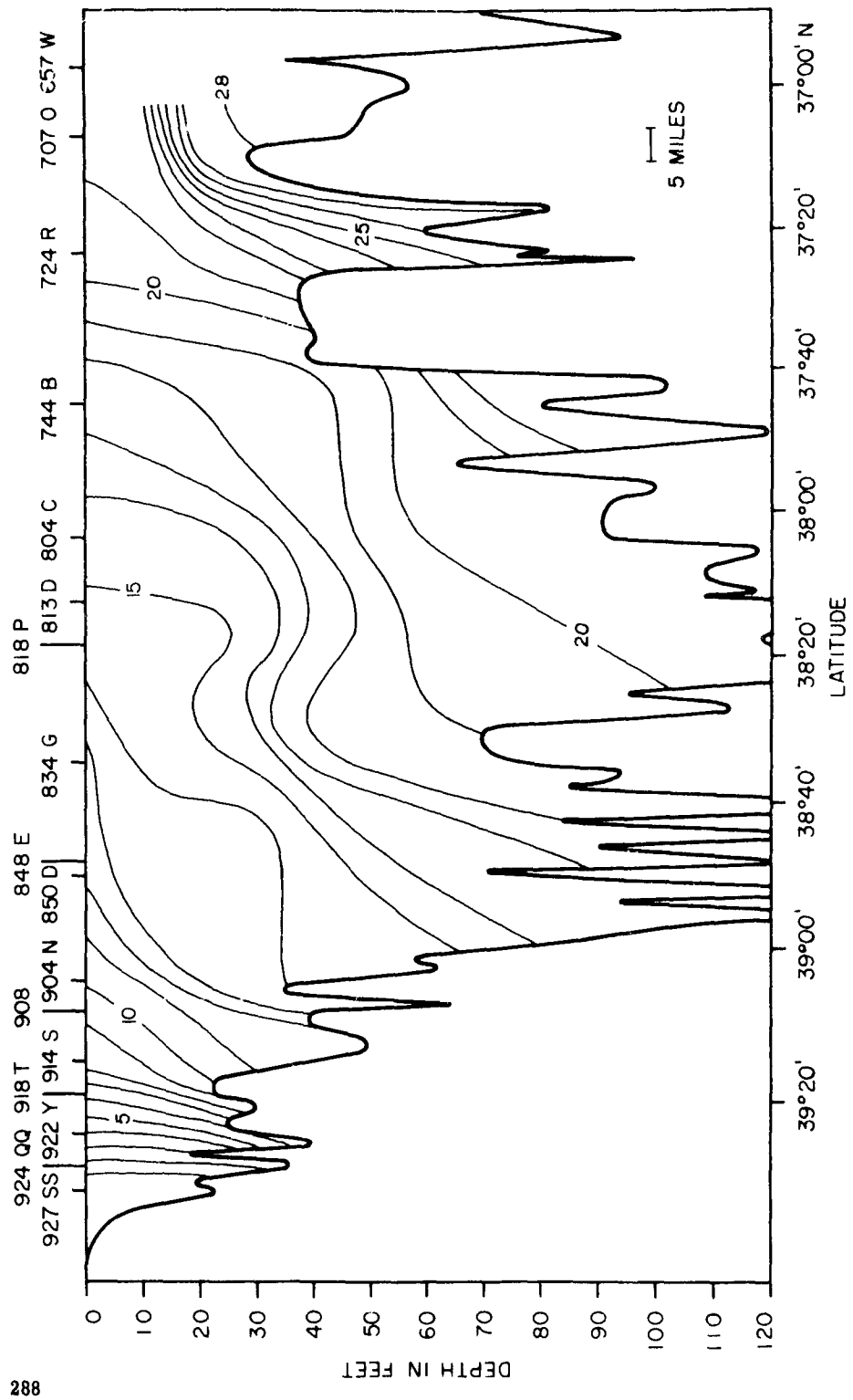
CRUISE XXV 22 NOV - 5 DEC 1960 SECTION X

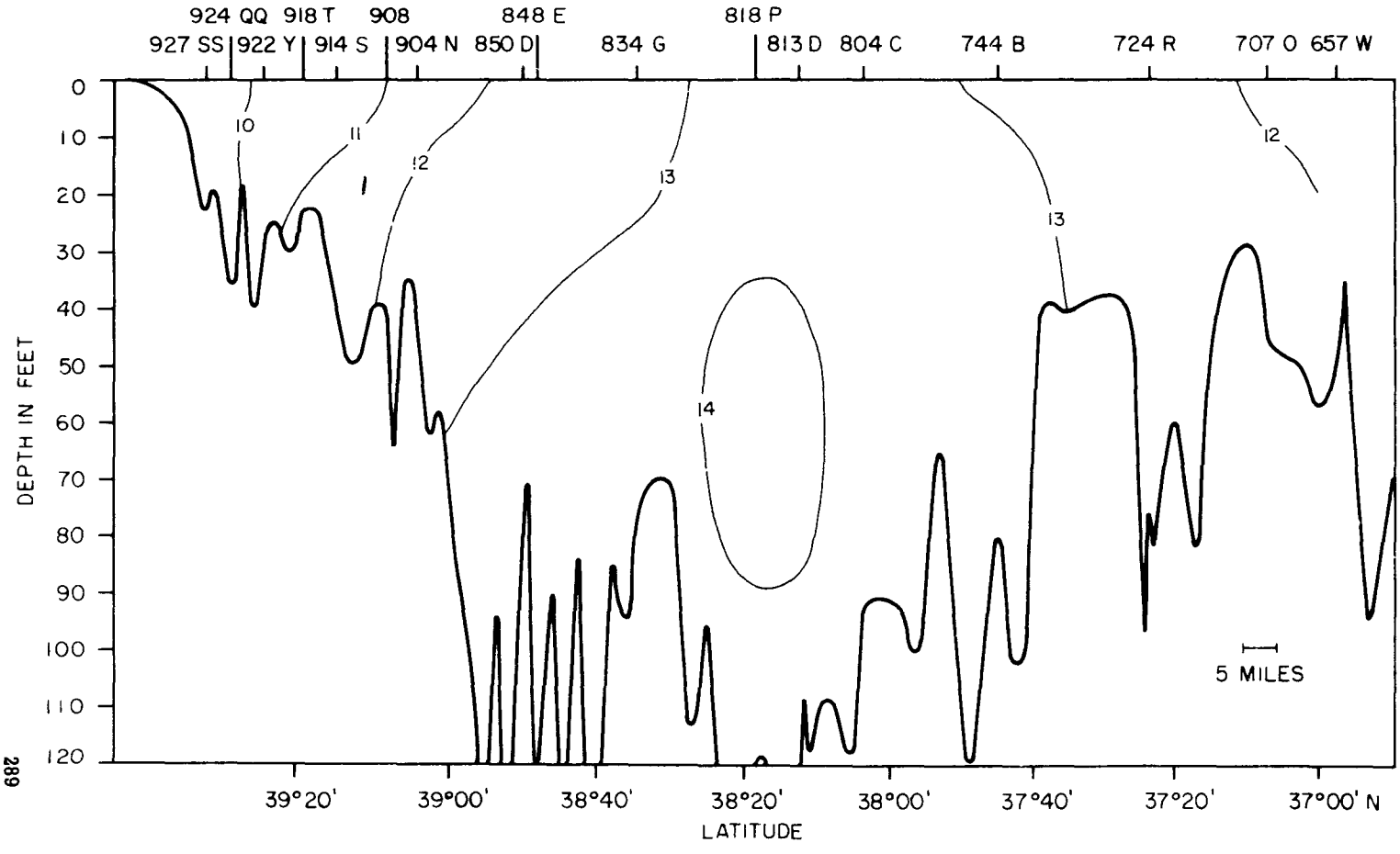


CRUISE XXV 22 NOV - 5 DEC 1960 SECTION XIX

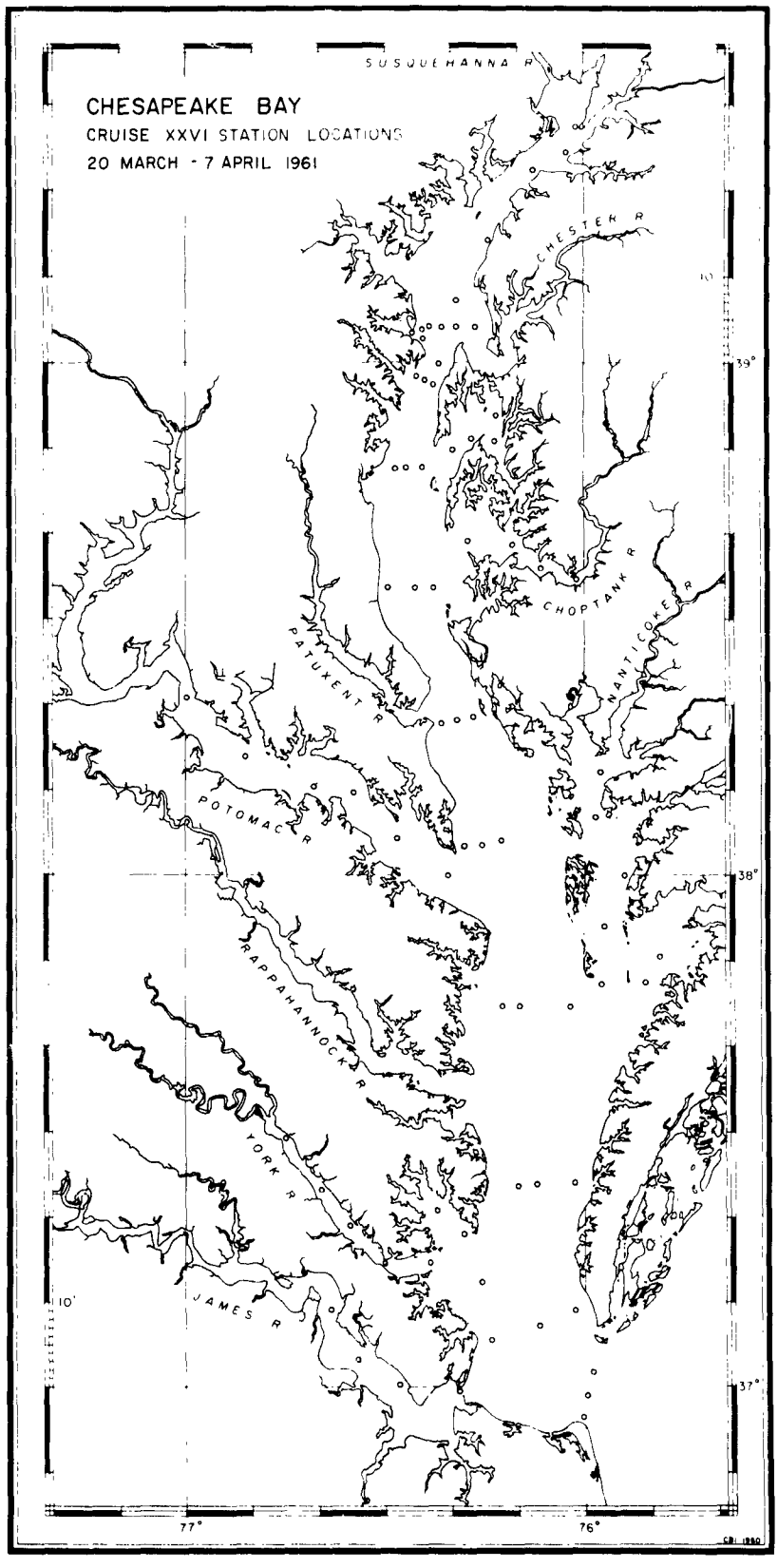
SALINITY (‰)

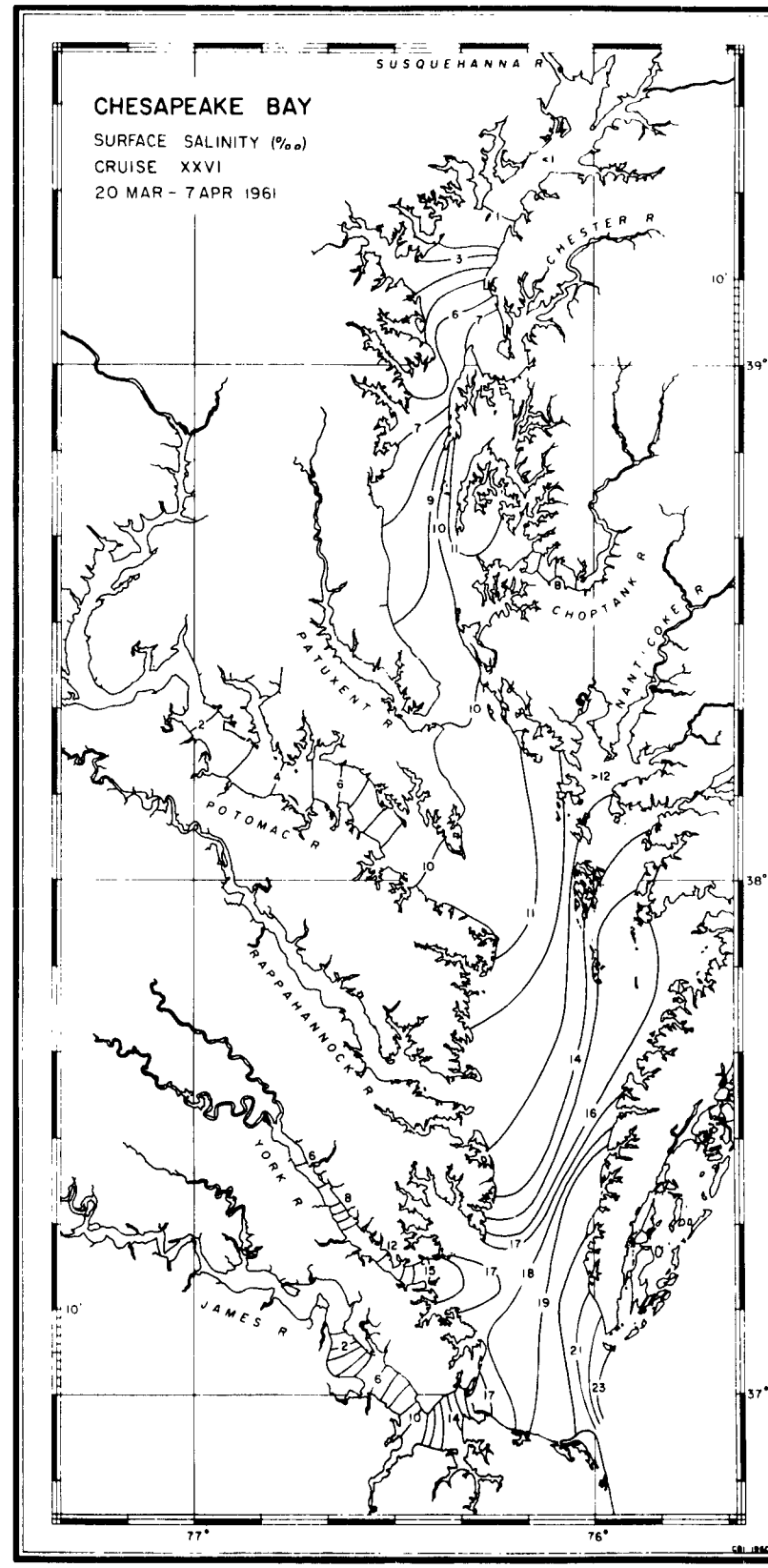


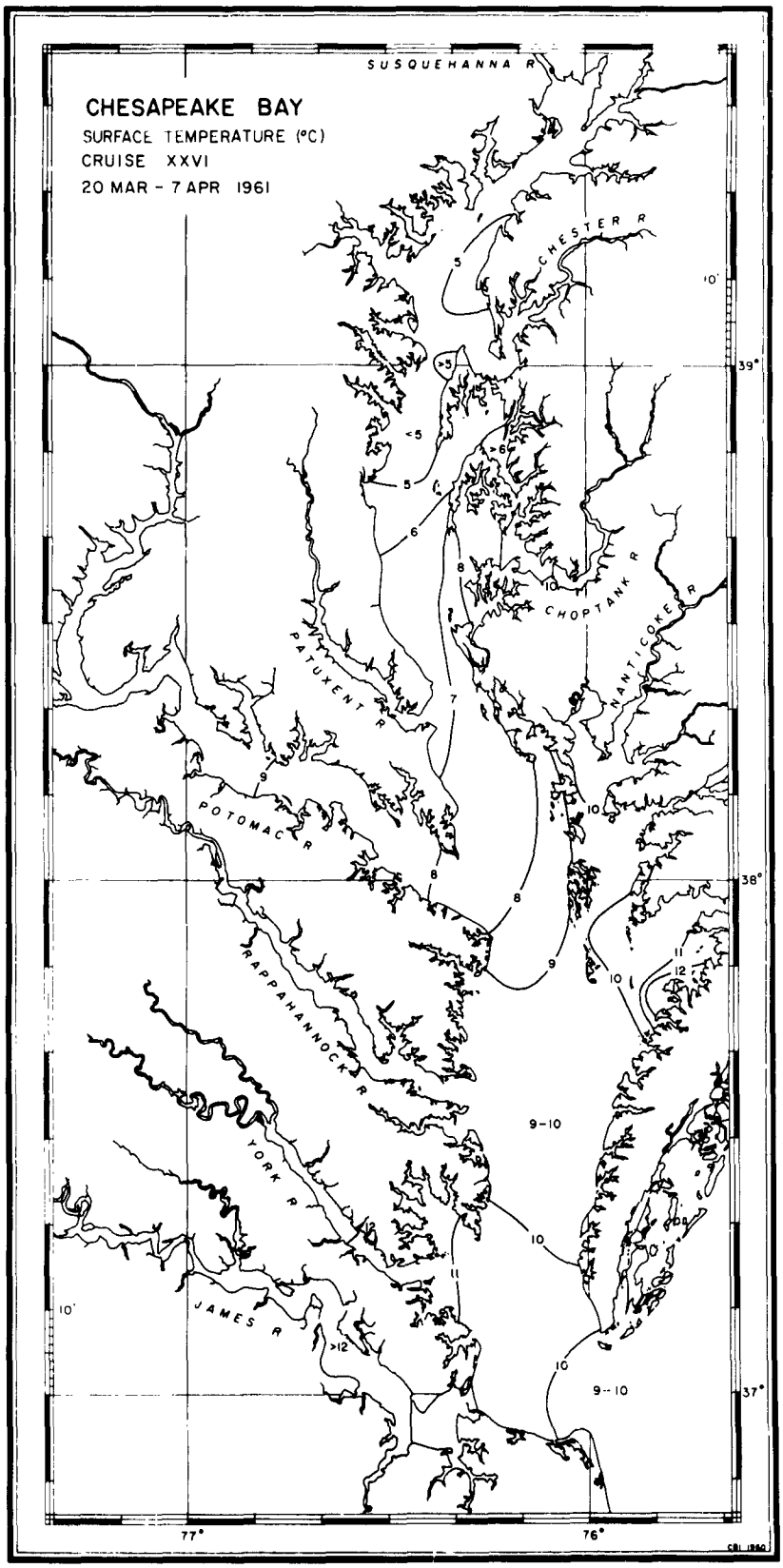


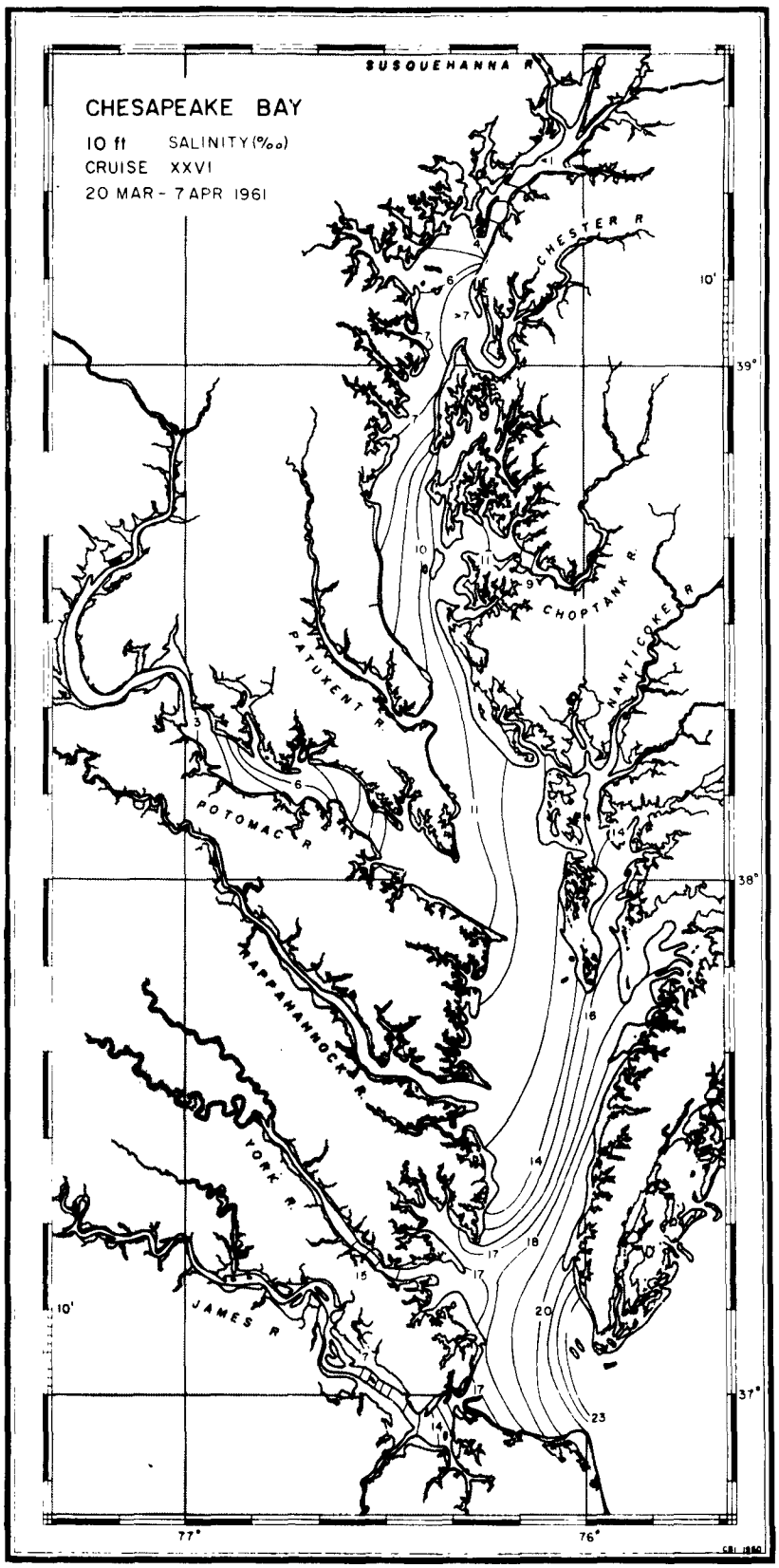

CRUISE XXV 22 NOV - 5 DEC 1960 SECTION XIX

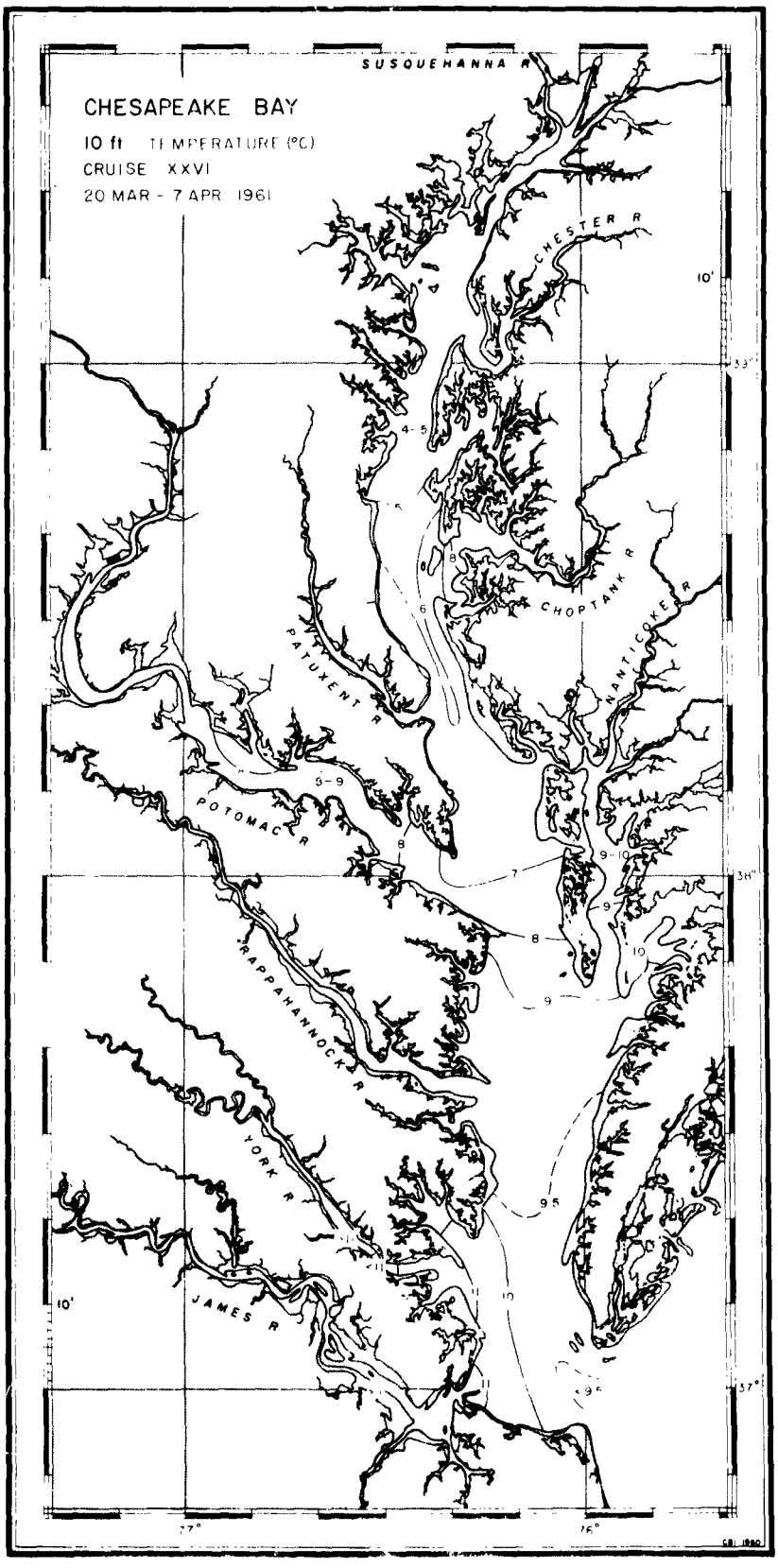
TEMPERATURE (°C)

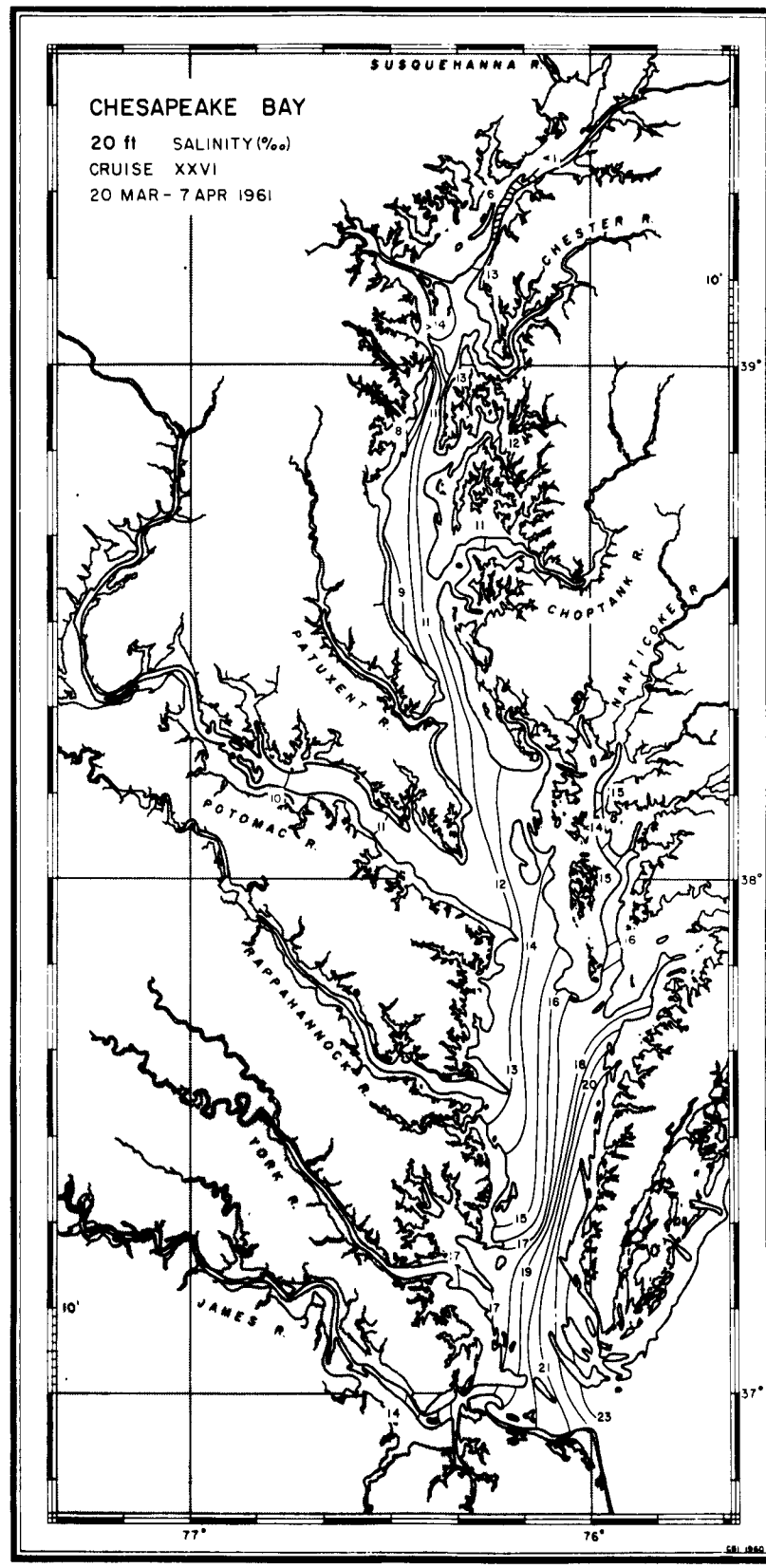

CHESAPEAKE BAY
CRUISE XXVI STATION LOCATIONS
20 MARCH - 7 APRIL 1961
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

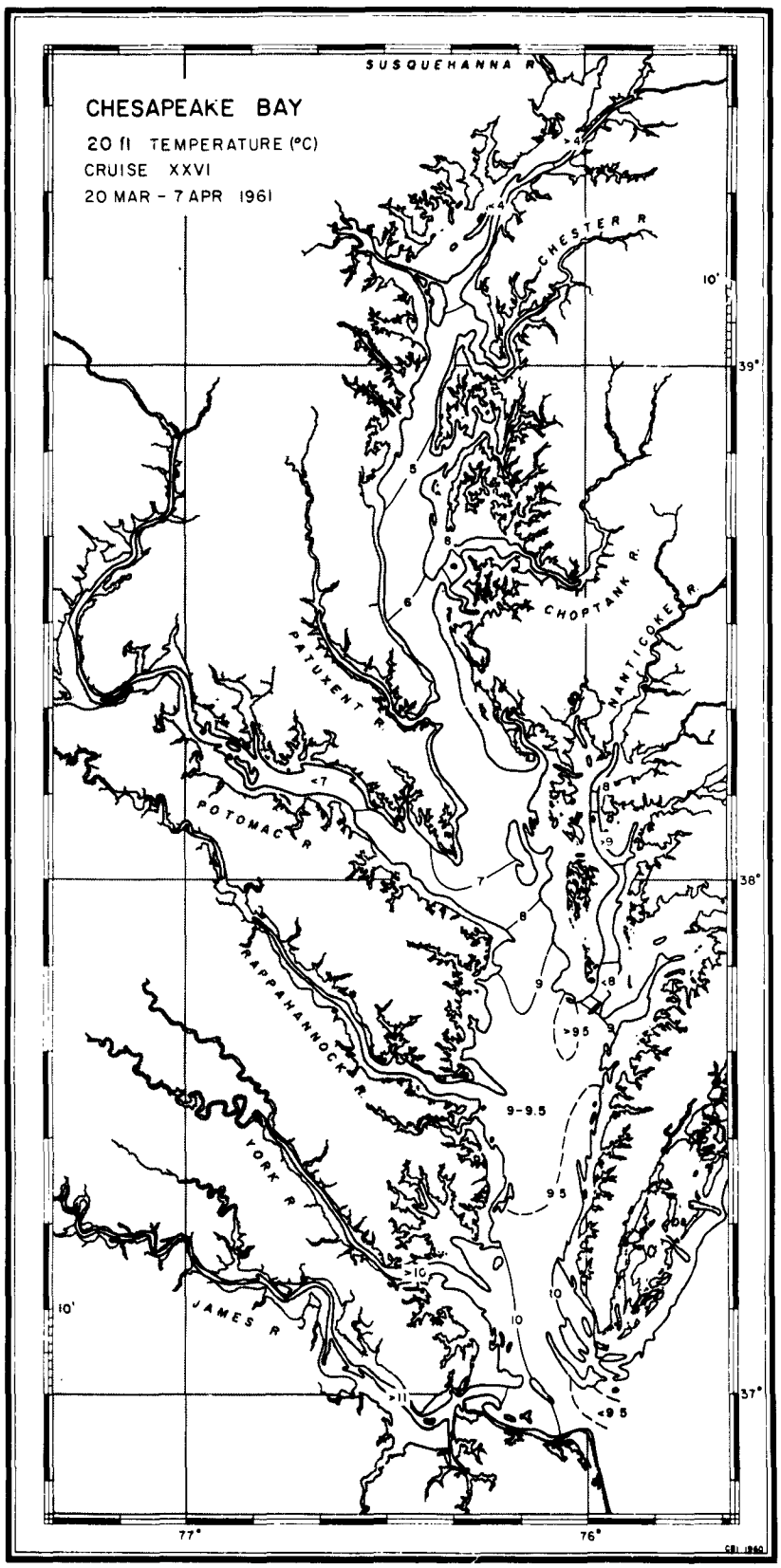

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XXVI
20 MAR - 7 APR 1961
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

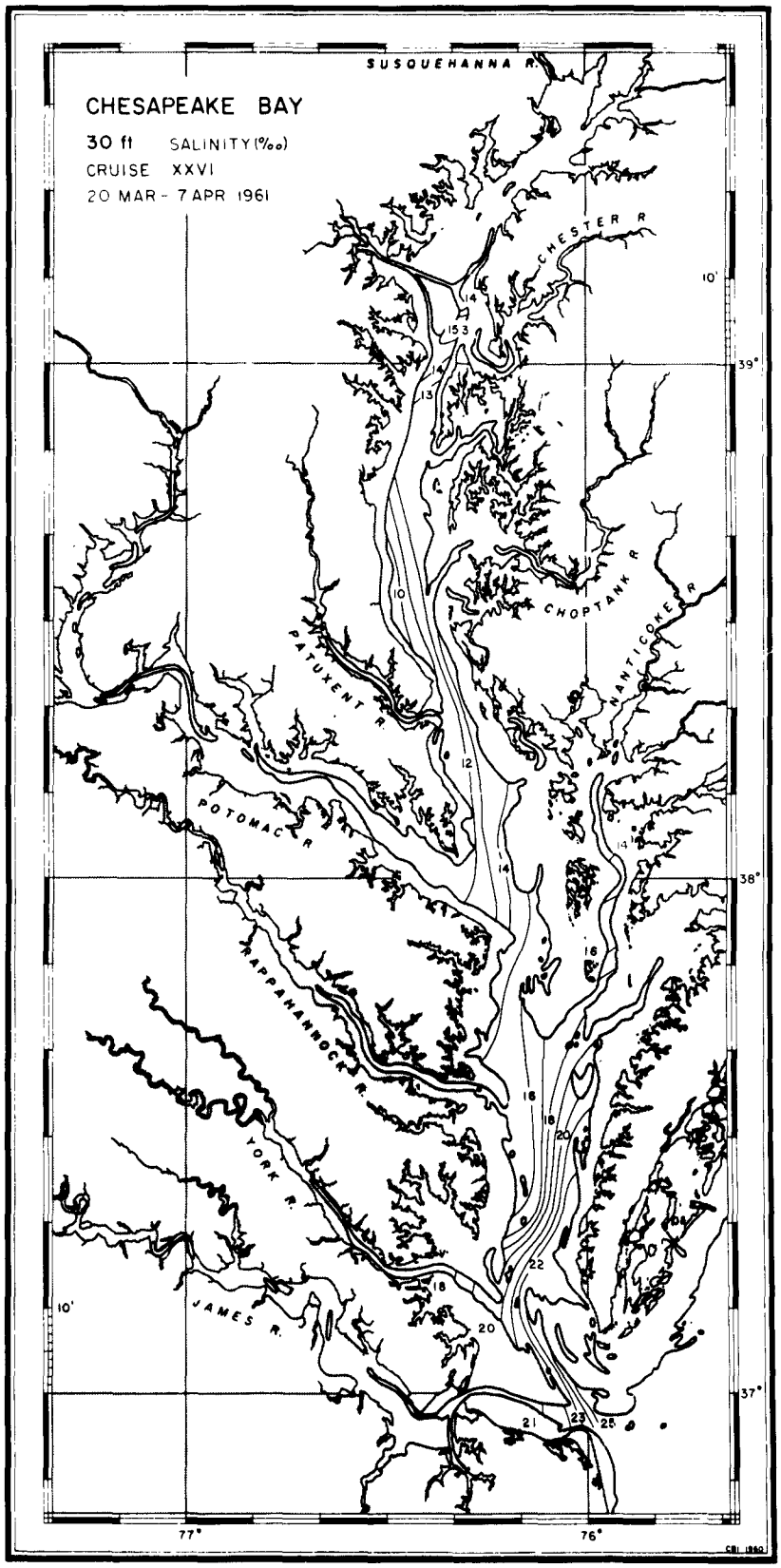

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XXVI
20 MAR - 7 APR 1961
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
NANTICOKE R
39°
38°
37°
77°
76°
9-10
9--10

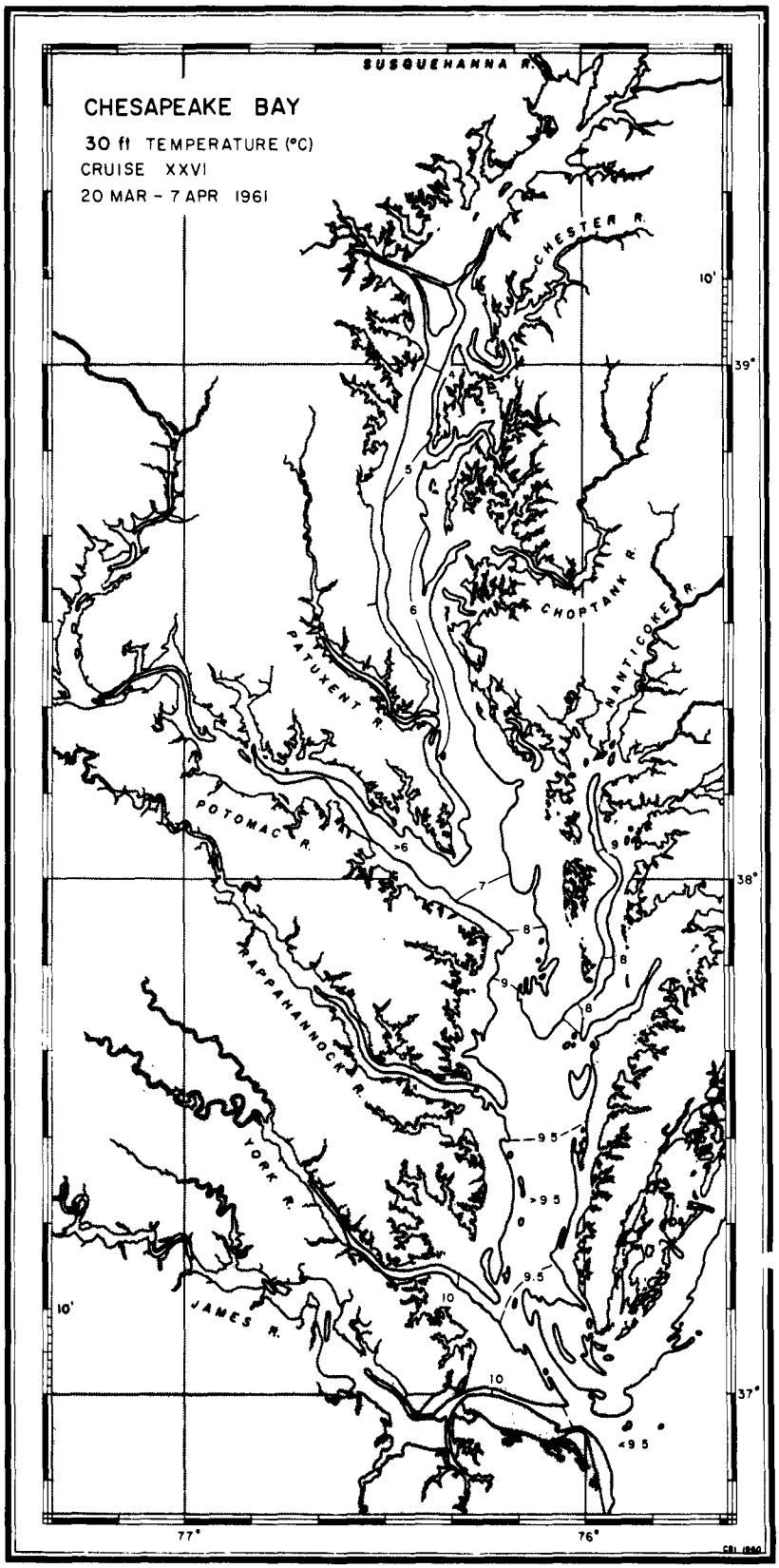

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XXVI
20 MAR - 7 APR 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°
10'

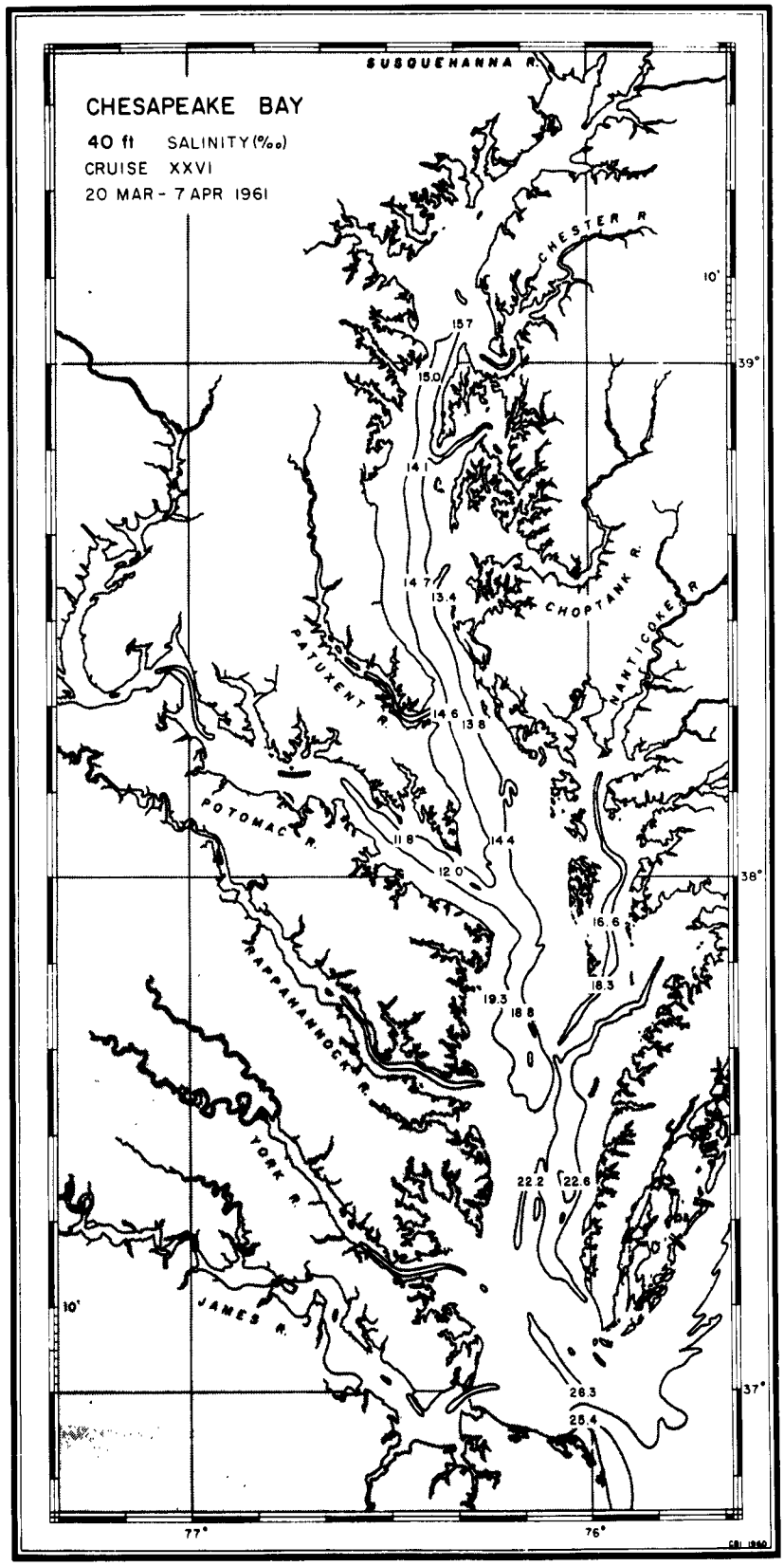

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
CRUISE XXVI
20 MAR - 7 APR 1961
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
10'
39°
38°
37°
77°
76°
4-5
6
8
9-9
7
9-10
9
8
10
9
9.5
11
10
9.6

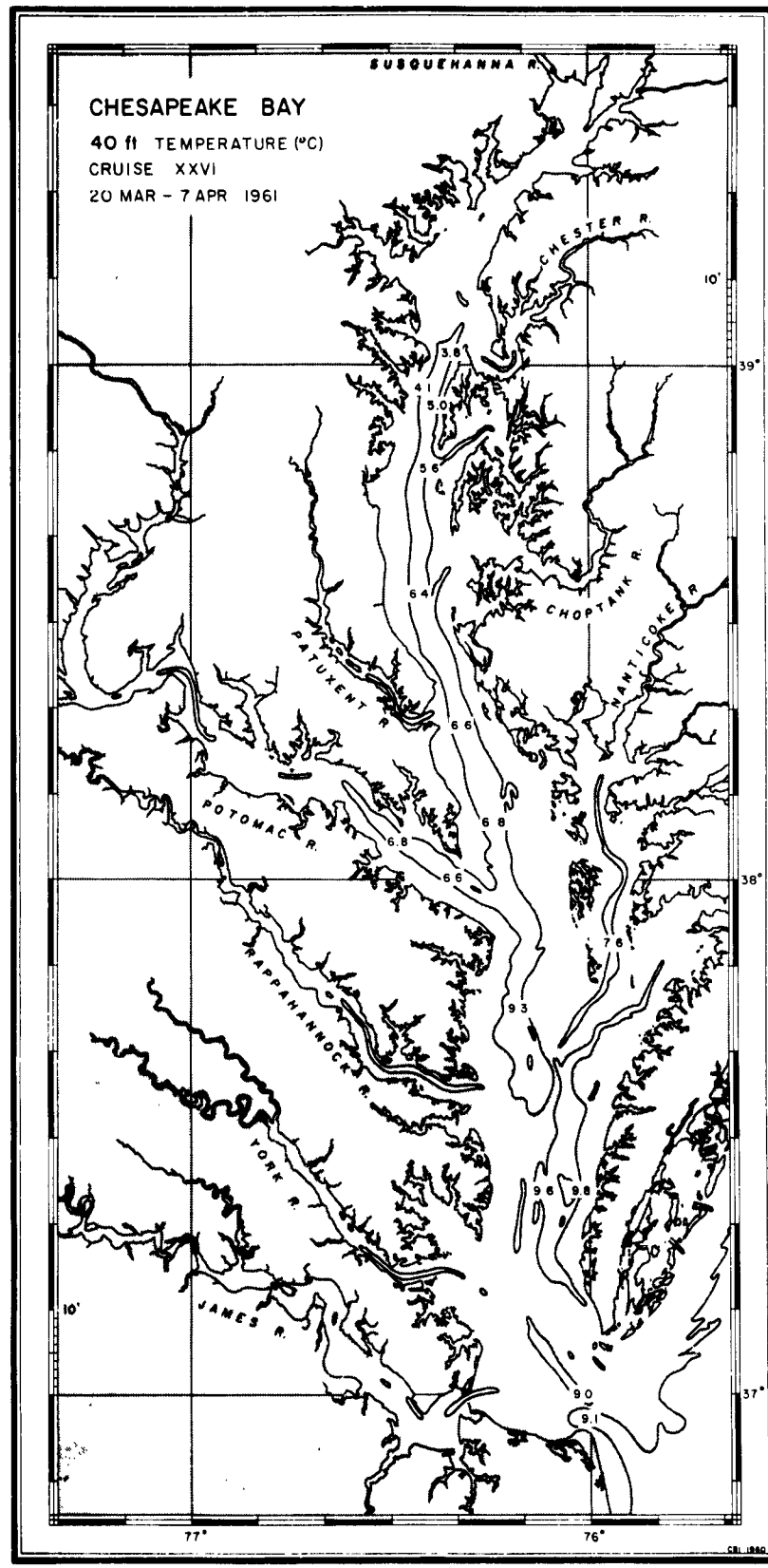

CHESAPEAKE BAY
20 ft SALINITY (‰)
CRUISE XXVI
20 MAR - 7 APR 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

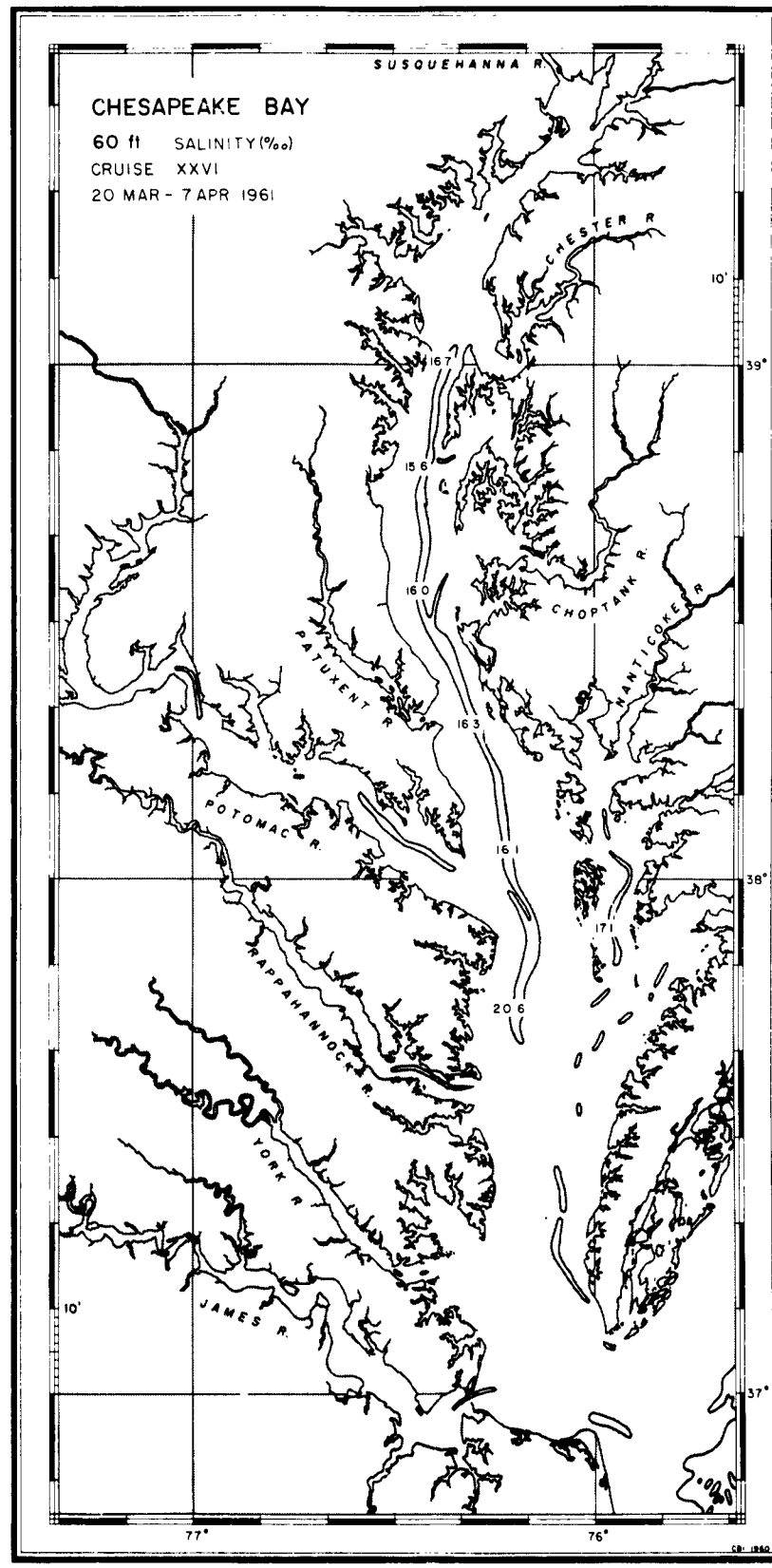

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
CRUISE XXVI
20 MAR - 7 APR 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
10'
77°
76°

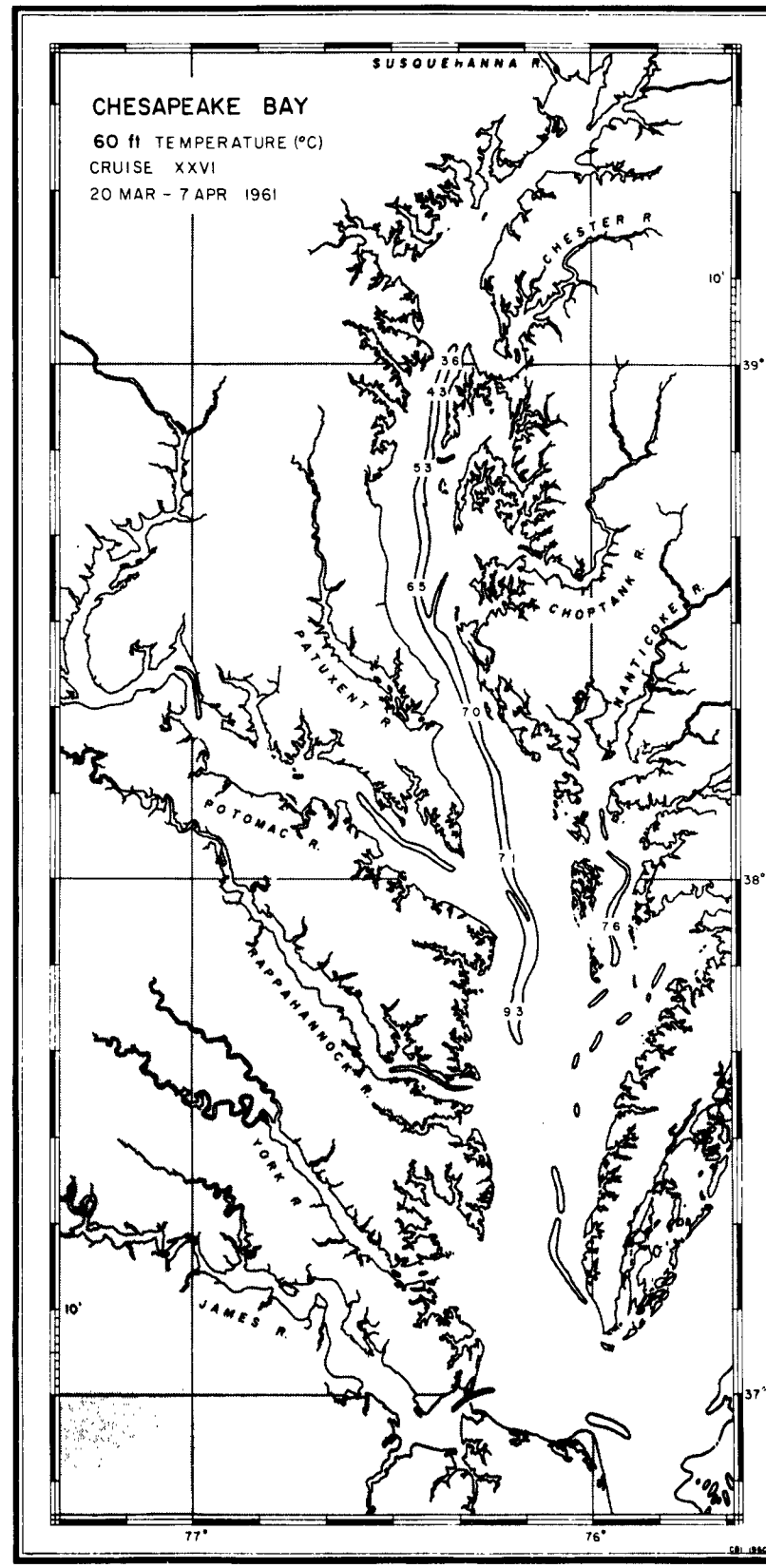

CHESAPEAKE BAY
30 ft SALINITY(‰)
CRUISE XXVI
20 MAR - 7 APR 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XXVI
20 MAR - 7 APR 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°
5
6
>6
7
8
9
>9.5
10
<9.5

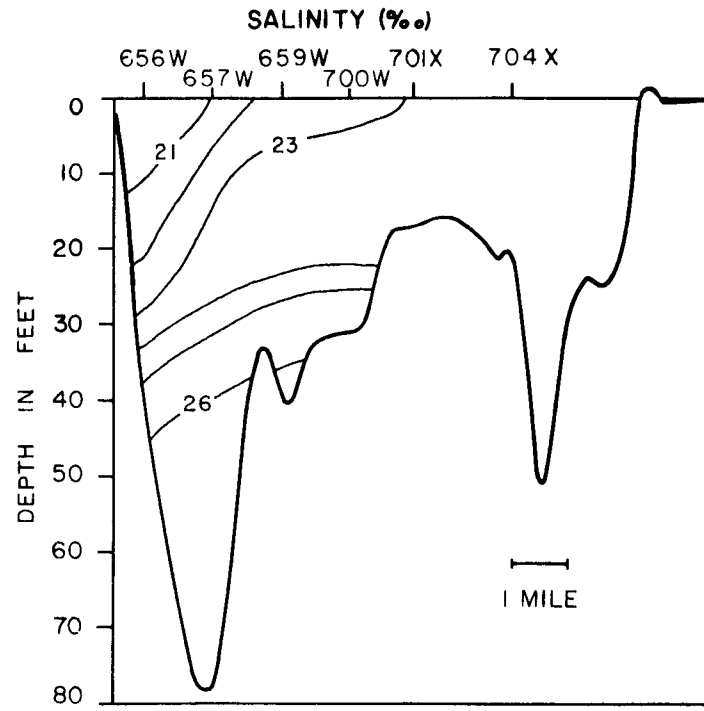

CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XXVI
20 MAR - 7 APR 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
15.7
15.0
14.1
14.7
13.4
14.6
13.8
11.8
12.0
14.4
16.6
18.3
19.3
18.8
22.2
22.6
26.3
25.4
39°
38°
37°
10'
10'
77°
76°
CBI 1960

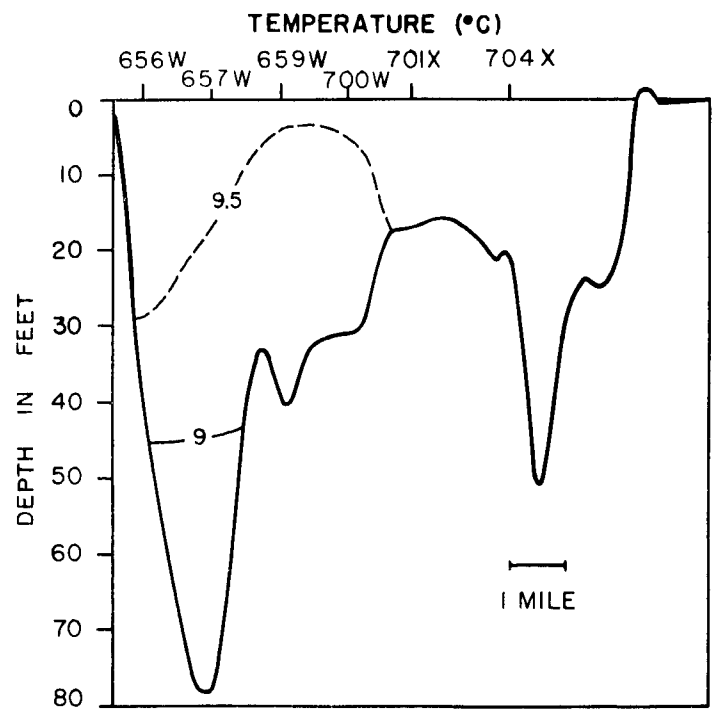

CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
CRUISE XXVI
20 MAR - 7 APR 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
3.8
4.1
5.0
5.6
6.4
6.6
6.8
6.8
6.6
7.6
9.3
9.6
9.8
9.0
9.1
39°
38°
37°
10'
10'
77°
76°


CHESAPEAKE BAY
60 ft SALINITY(‰)
CRUISE XXVI
20 MAR - 7 APR 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
MANTICOKE R.
167
156
160
163
161
171
206
39°
38°
37°
10'
77°
76°

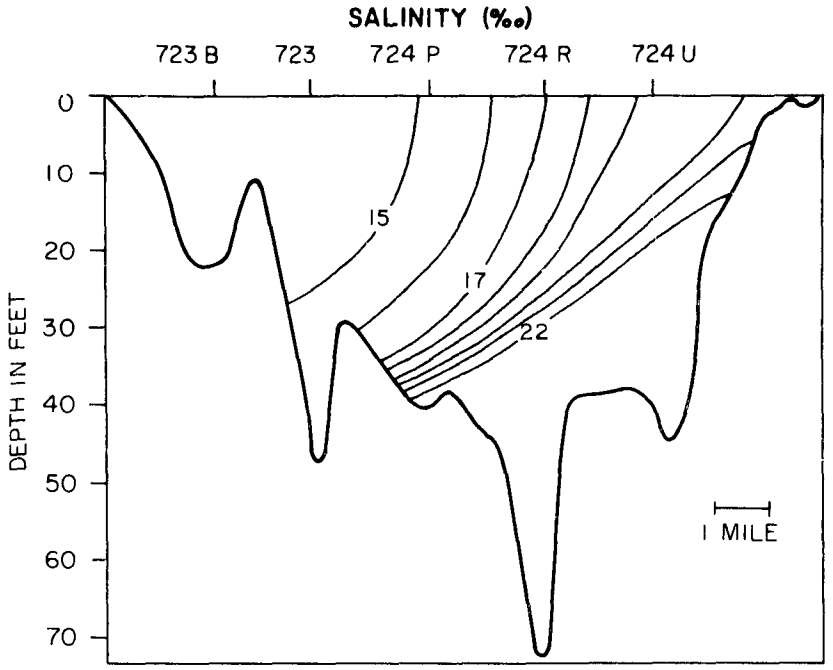

CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
CRUISE XXVI
20 MAR - 7 APR 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
36
43
53
65
70
71
76
93
39°
38°
37°
10'
77°
76°

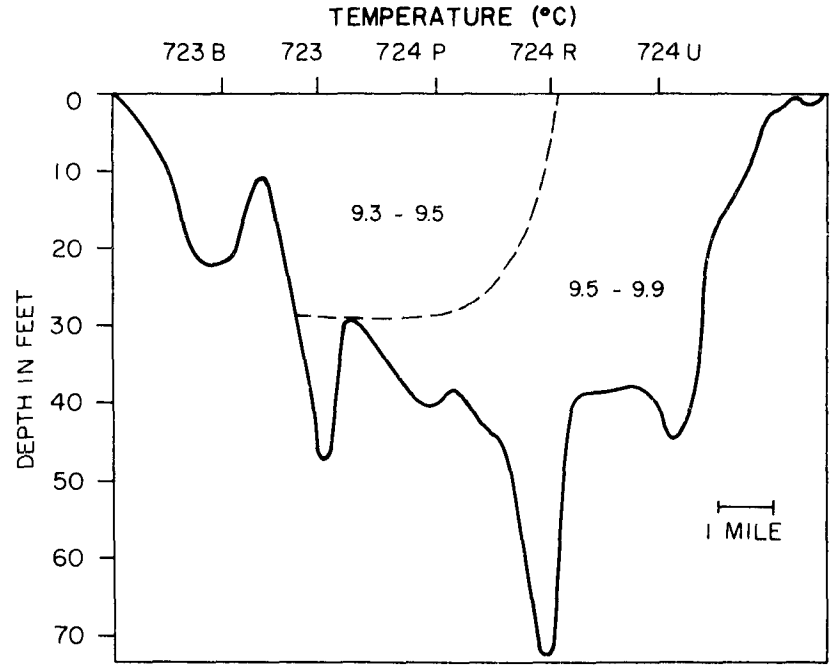
# CRUISE XXVI 20 MAR - 7 APRIL 1961 SECTION II

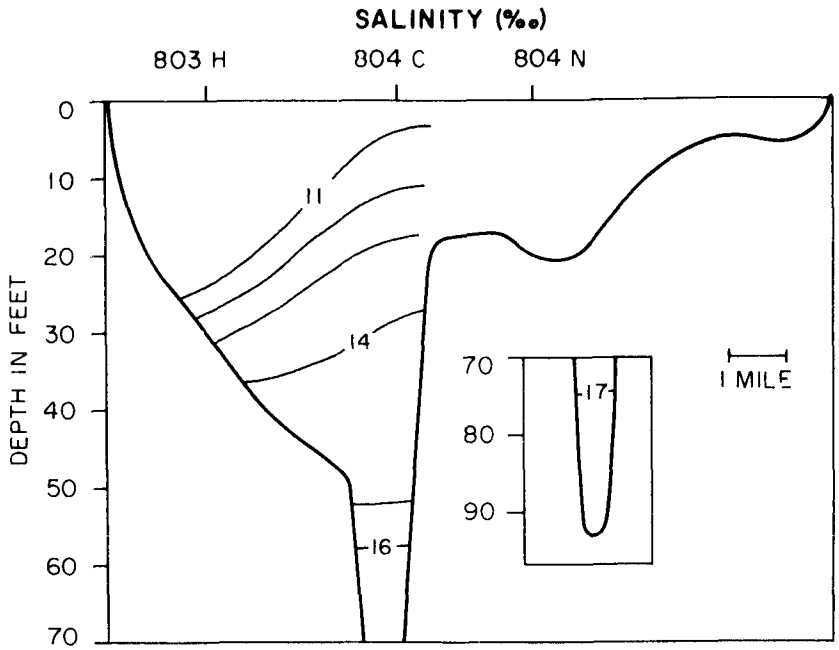


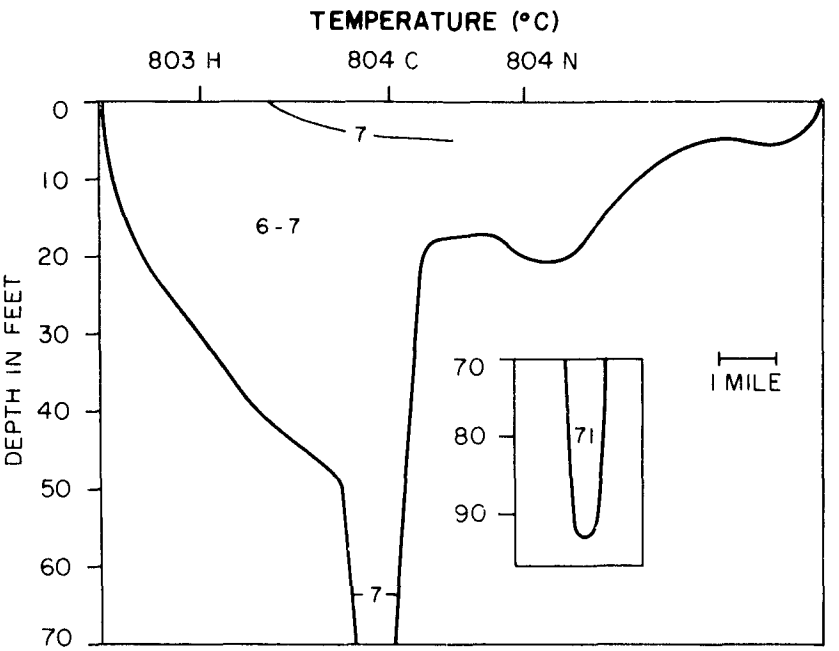



CRUISE XXVI 20 MAR - 7 APRIL 1961 SECTION IV

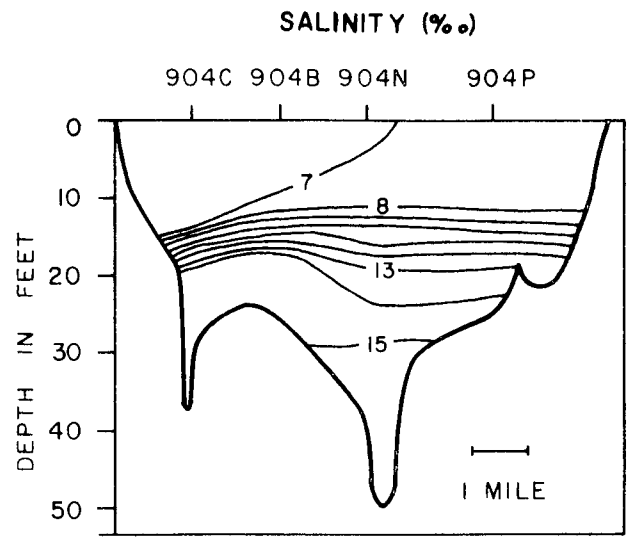


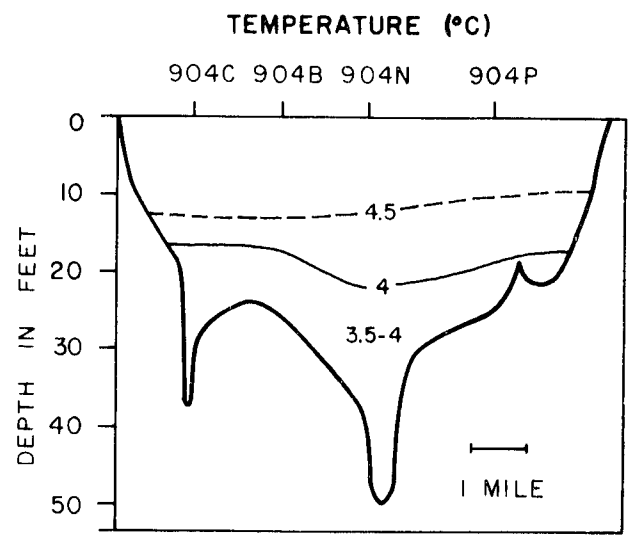




SALINITY (‰)
803 H
804 C
804 N
0
10
20
30
40
50
60
70
DEPTH IN FEET
11
14
16
70
80
90
17
1 MILE


TEMPERATURE (°C)
803 H
804 C
804 N
0
10
20
30
40
50
60
70
DEPTH IN FEET
7
6-7
7
70
80
90
71
1 MILE

CRUISE XXVI 20 MAR - 7 APRIL 1961 SECTION X



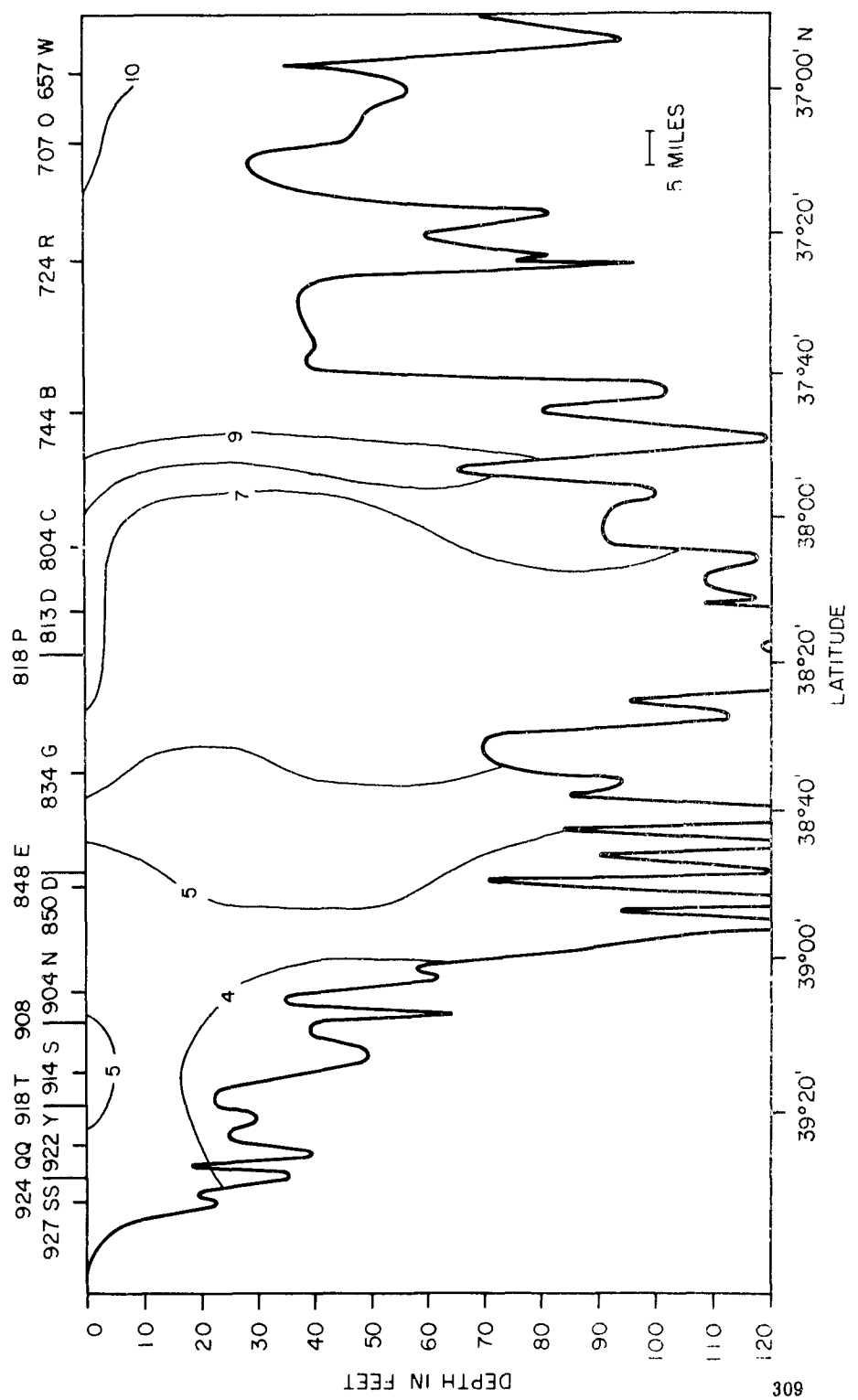



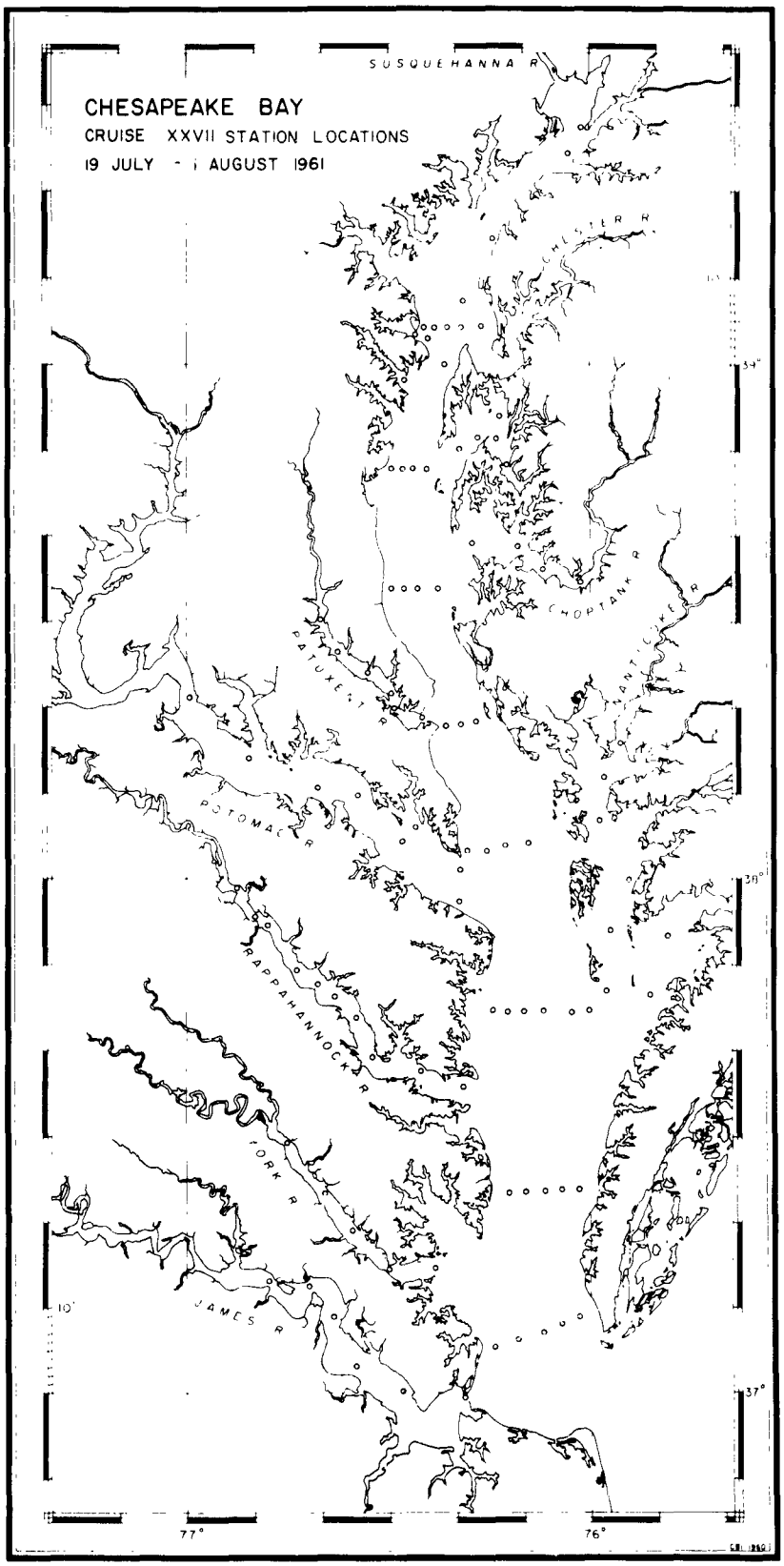
CRUISE XXVI 20 MAR - 7 APRIL 1961 SECTION XIX

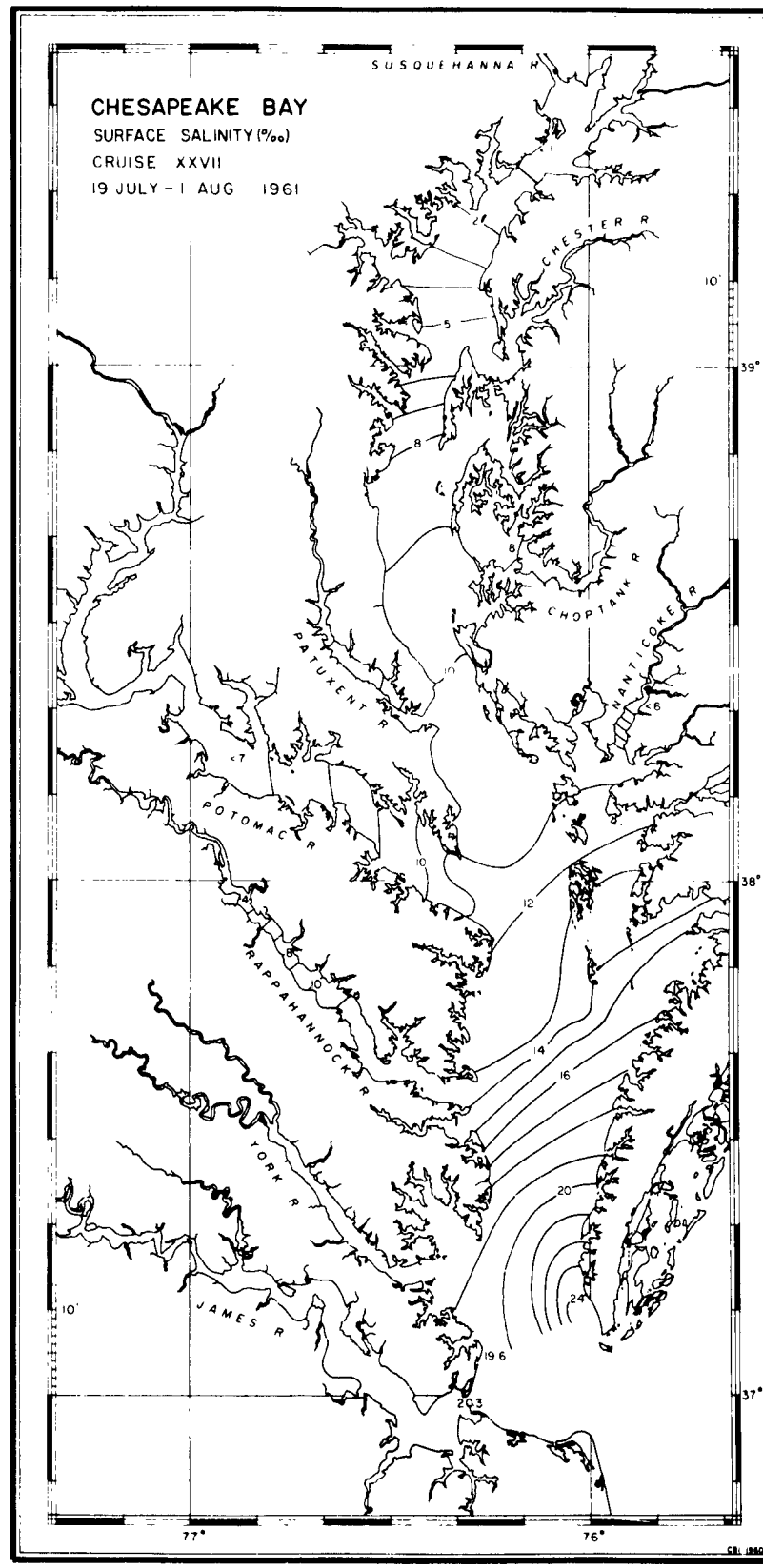
SALINITY (‰)

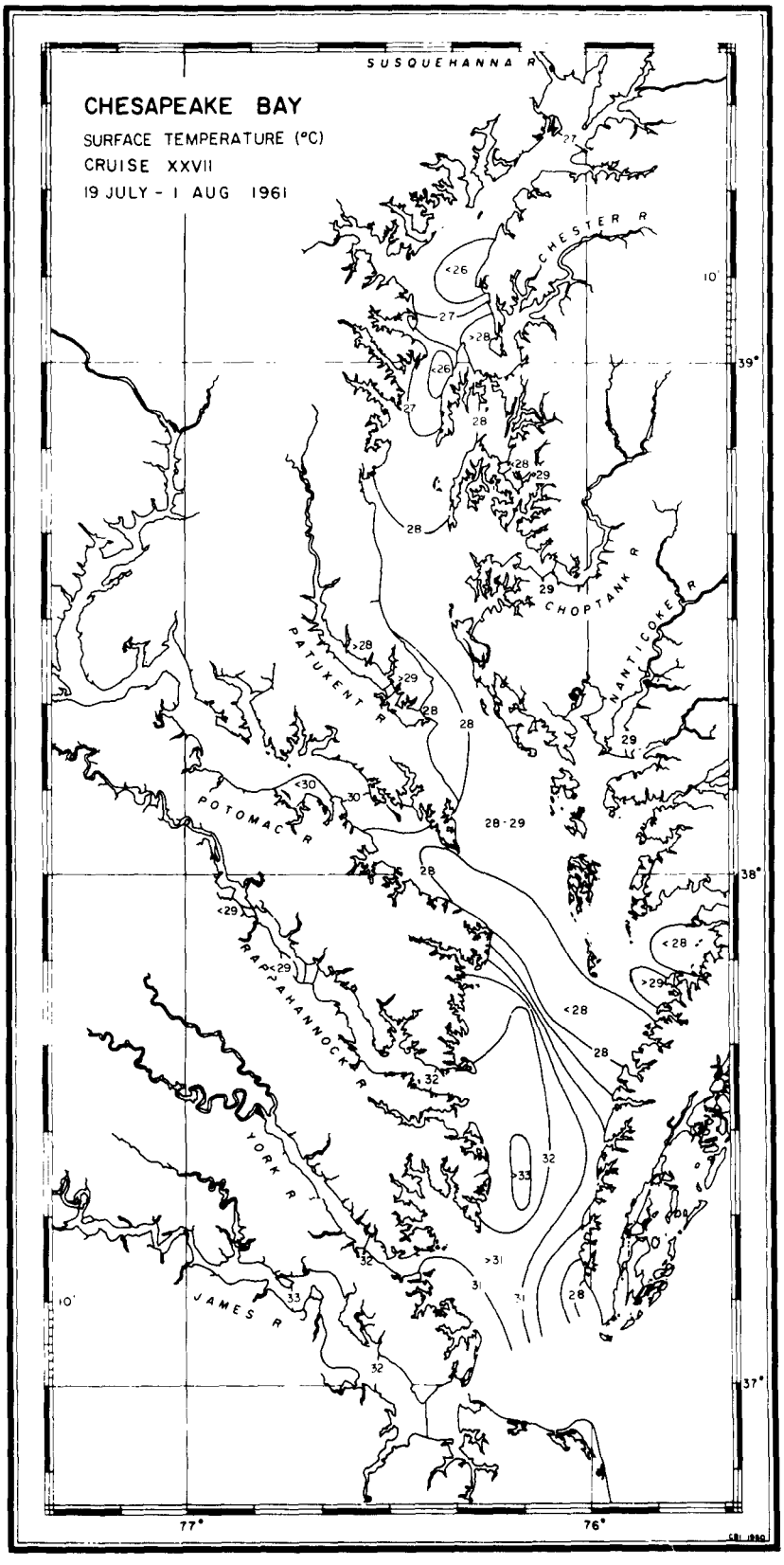
CRUISE XXVI 20 MAR - 7 APRIL 1961 SECTION XIX

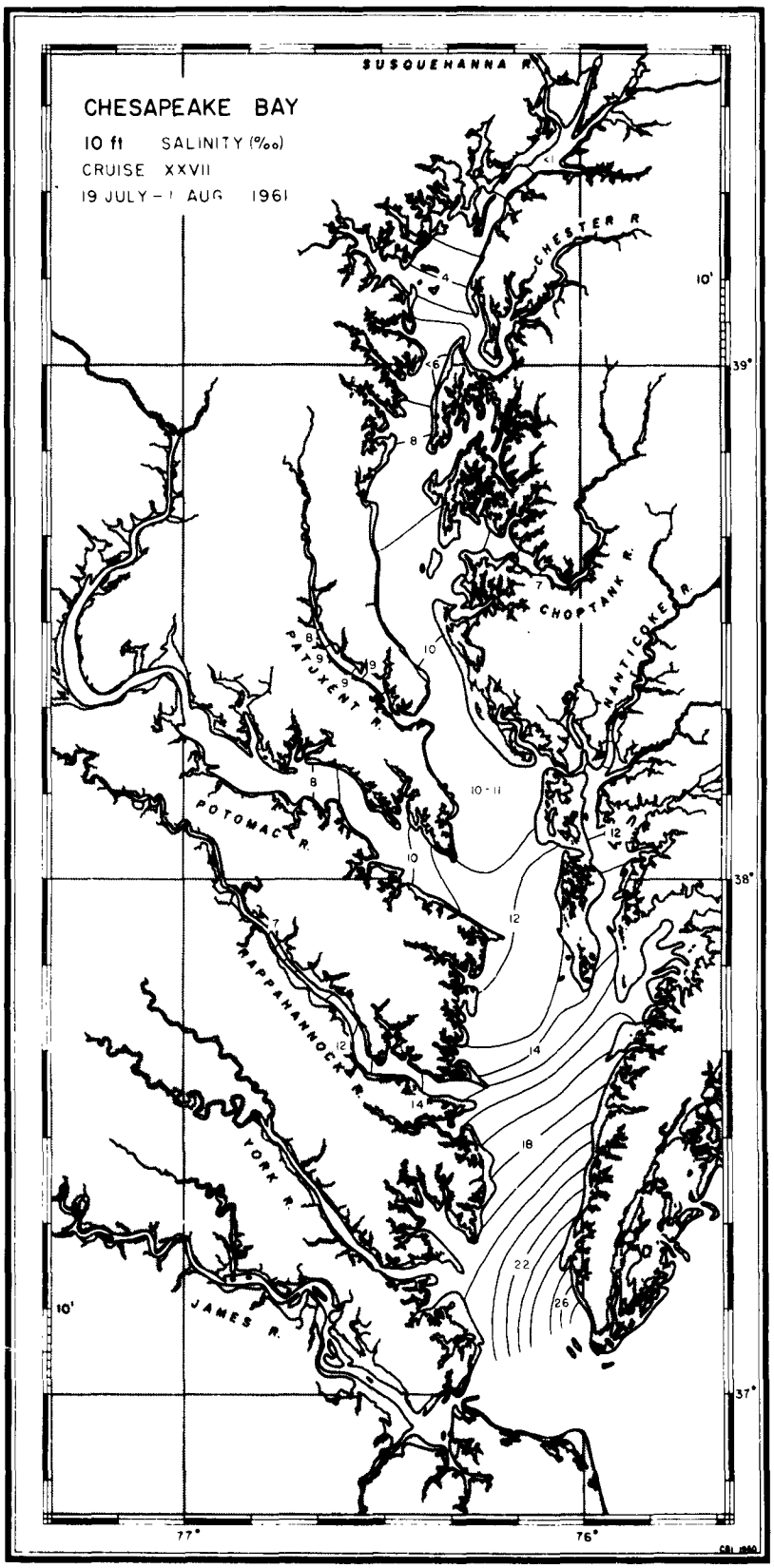
TEMPERATURE (°C)

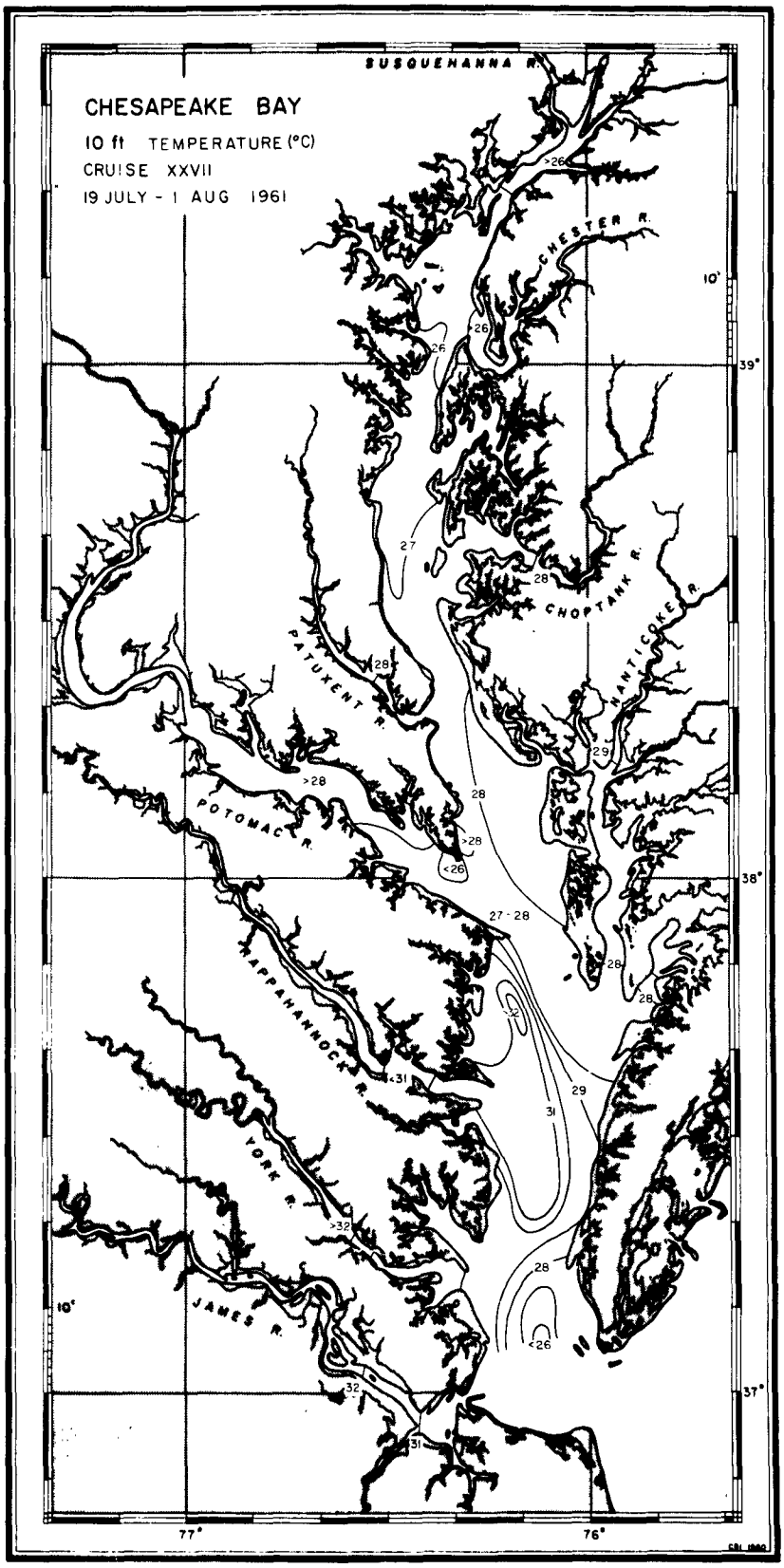


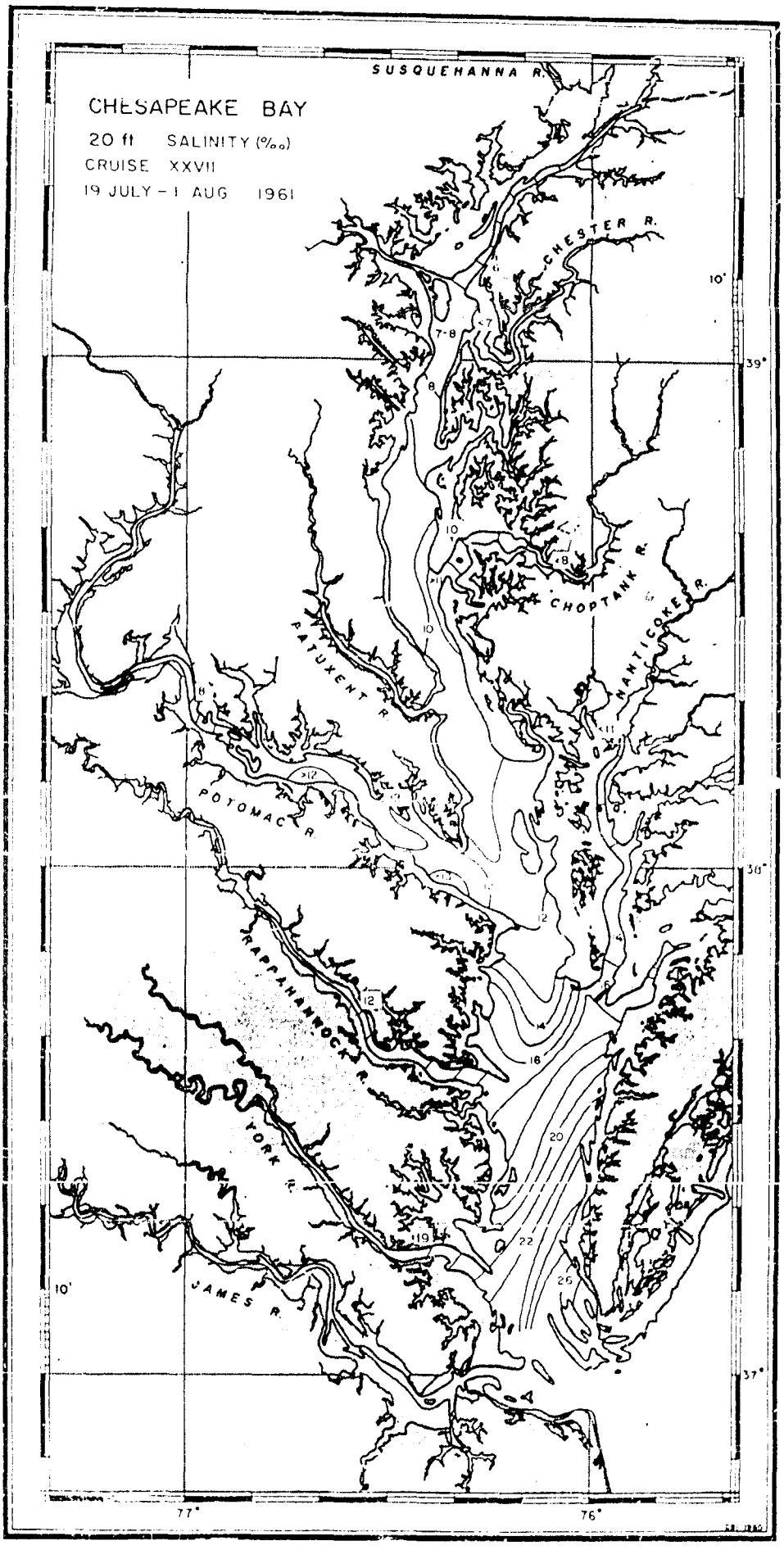

CHESAPEAKE BAY
CRUISE XXVII STATION LOCATIONS
19 JULY - 1 AUGUST 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

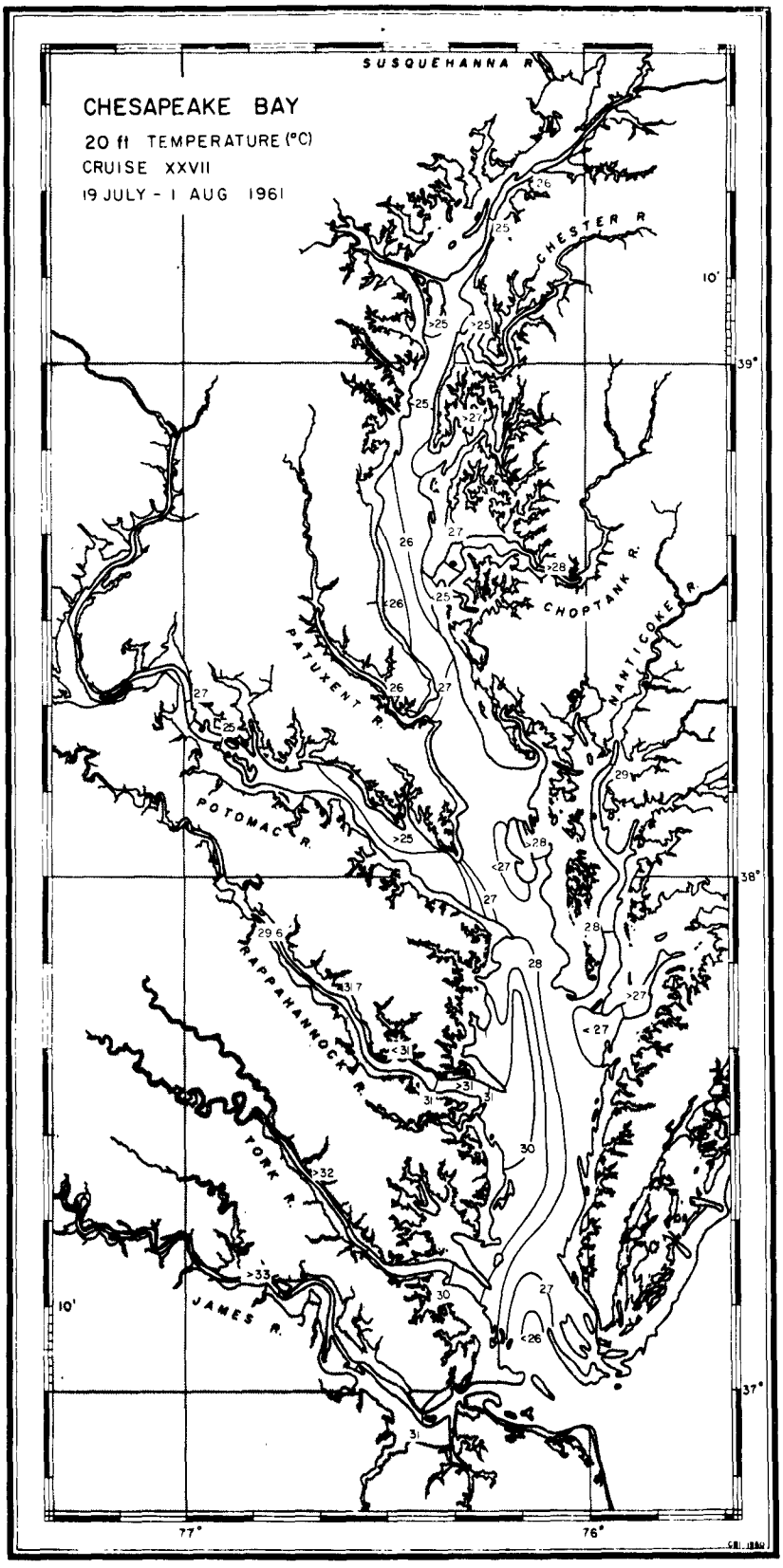

CHESAPEAKE BAY
SURFACE SALINITY (‰)
CRUISE XXVII
19 JULY - 1 AUG 1961
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
5
8
10
12
14
16
20
24
196
203
39°
38°
37°
77°
76°

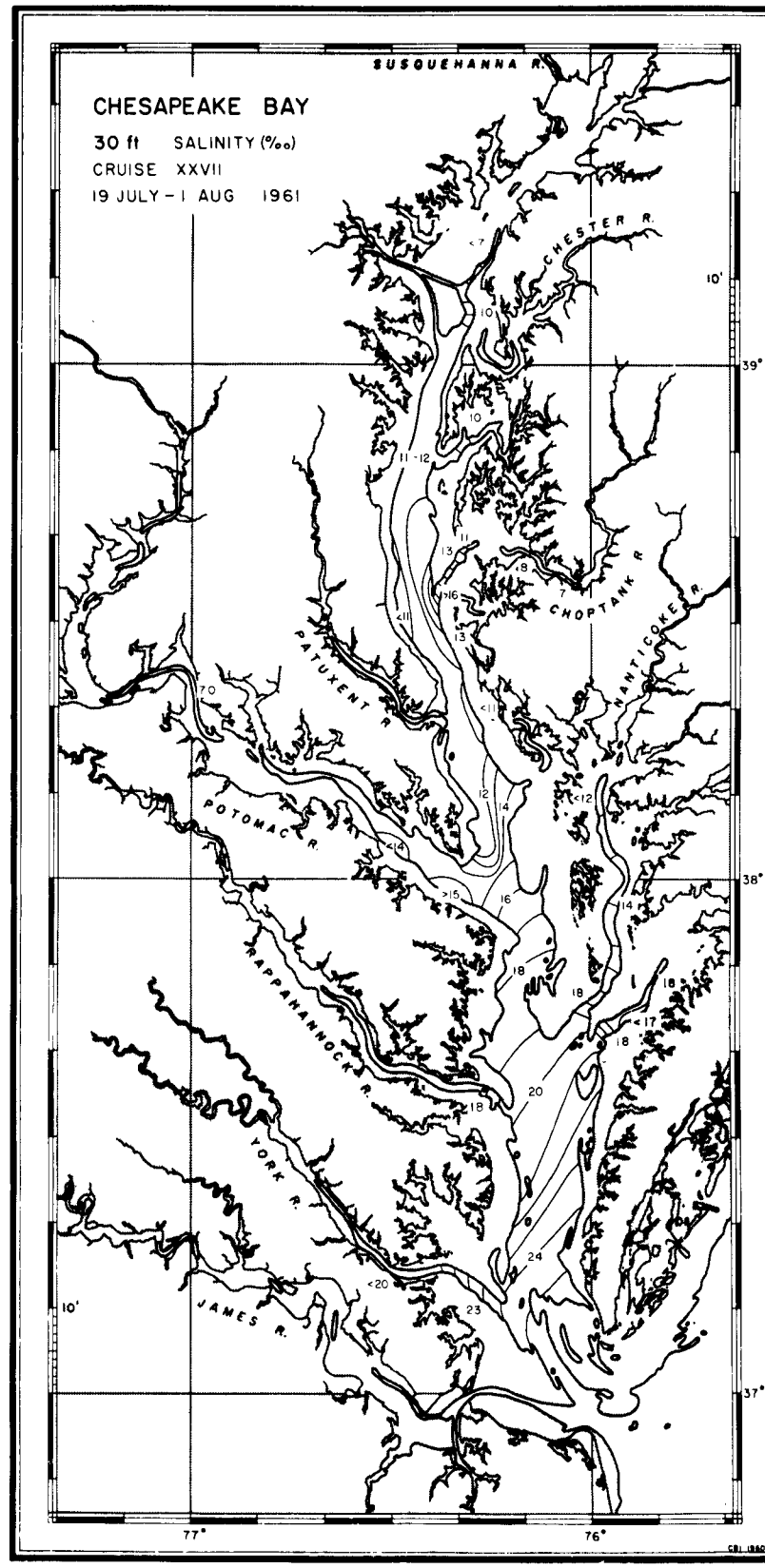

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
CRUISE XXVII
19 JULY - 1 AUG 1961
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
<26
27
>28
28
29
>29
<30
30
28-29
<29
<28
32
>33
>31
31
33
10'
39°
38°
37°
77°
76°

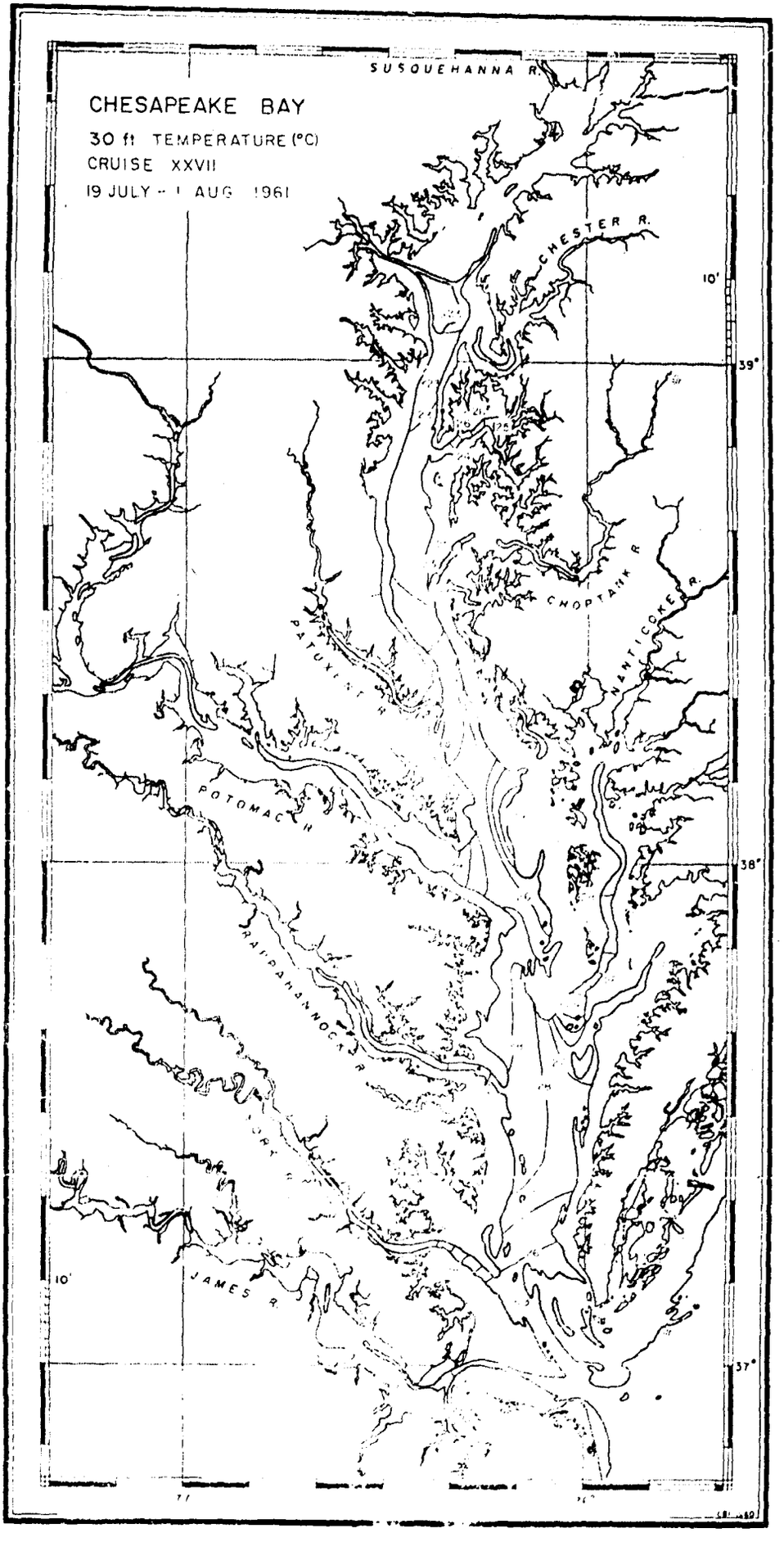

CHESAPEAKE BAY
10 ft SALINITY (‰)
CRUISE XXVII
19 JULY – 1 AUG 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°

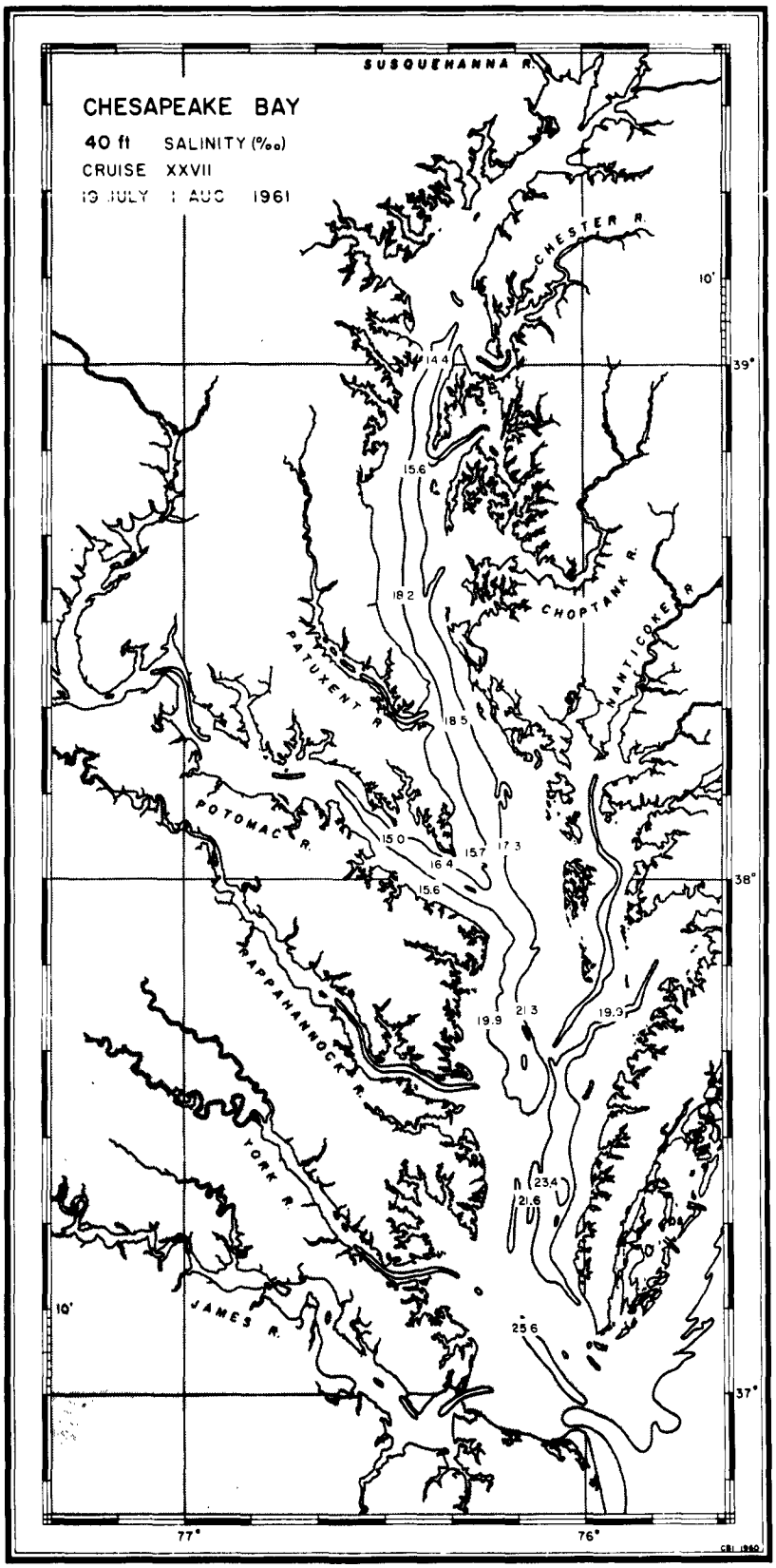

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
CRUISE XXVII
19 JULY - 1 AUG 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

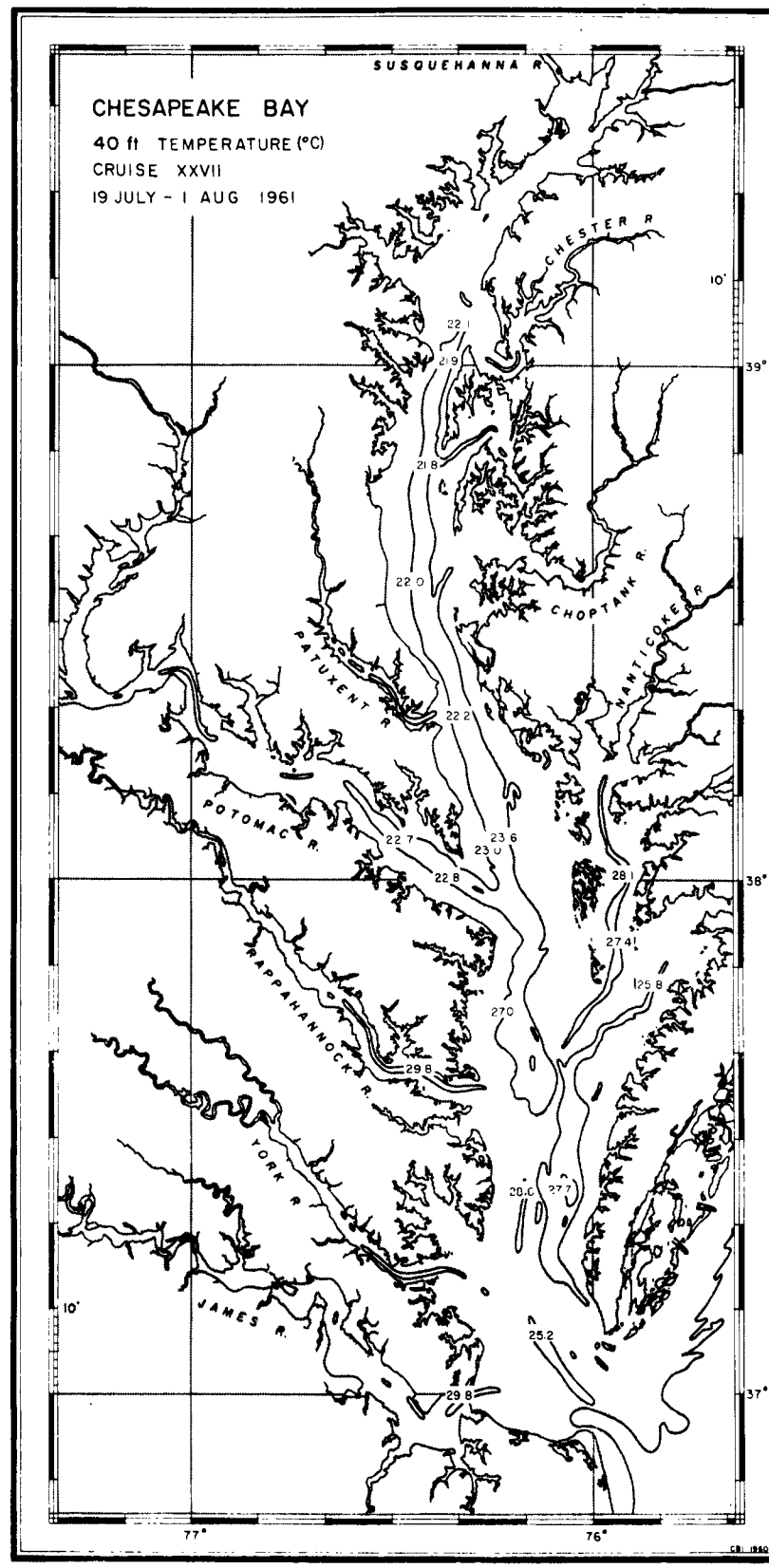

CHESAPEAKE BAY
20 ft SALINITY (‰)
CRUISE XXVII
19 JULY – 1 AUG 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10°
39°
38°
37°
77°
76°

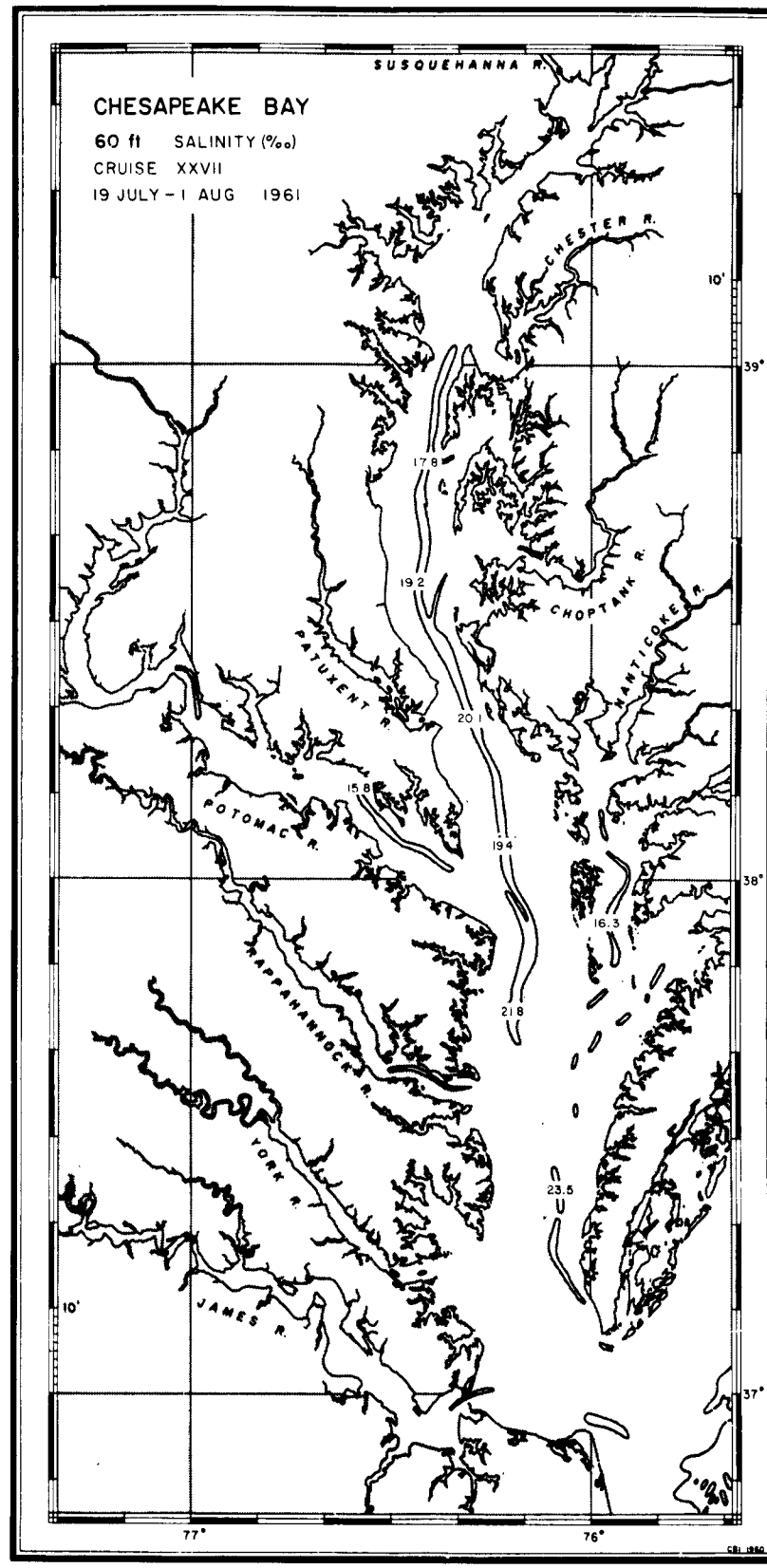

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
CRUISE XXVII
19 JULY - 1 AUG 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

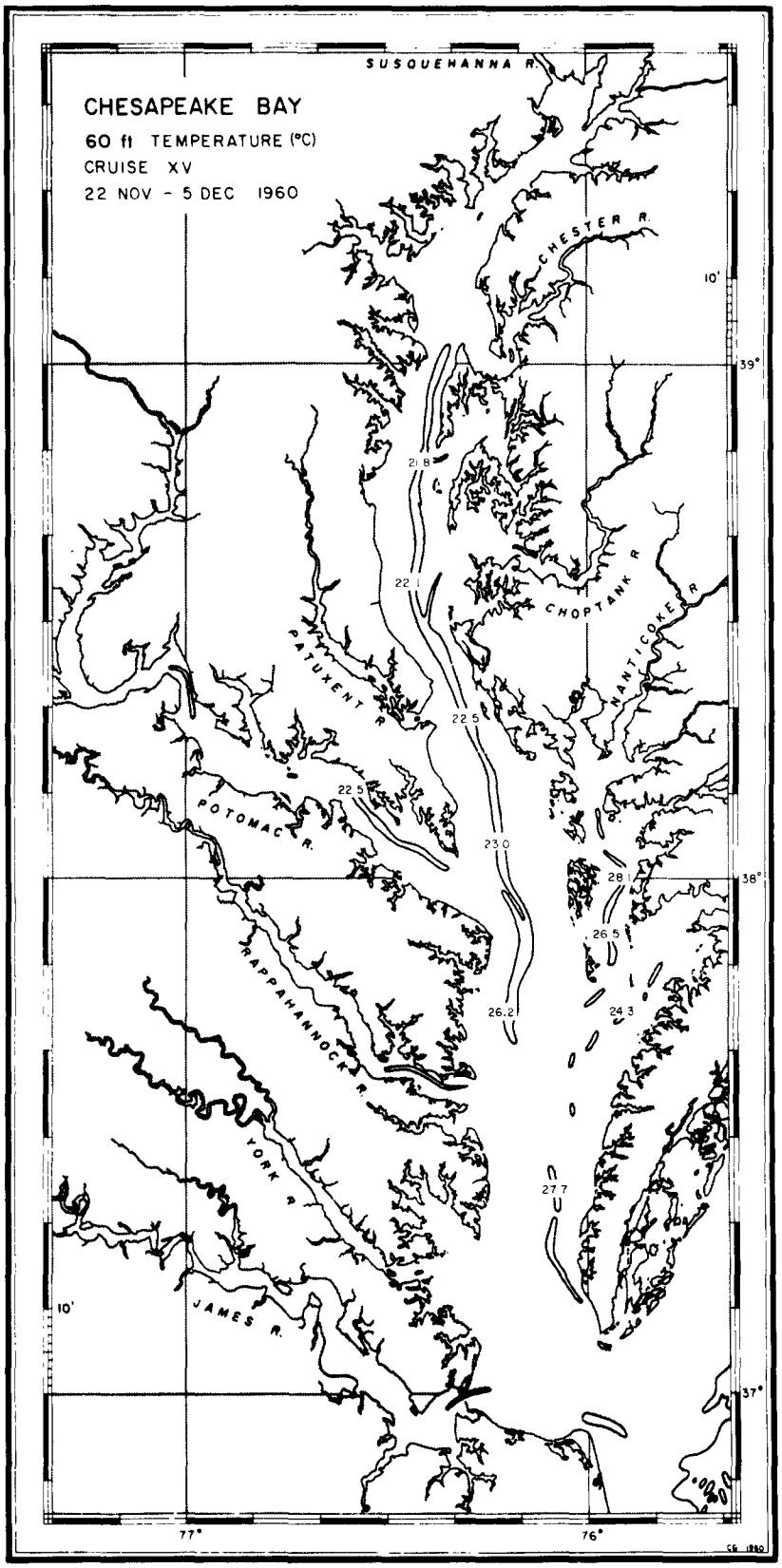

CHESAPEAKE BAY
30 ft SALINITY (‰)
CRUISE XXVII
19 JULY – 1 AUG 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°
10'


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
CRUISE XXVII
19 JULY – 1 AUG 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°


CHESAPEAKE BAY
40 ft SALINITY (‰)
CRUISE XXVII
19 JULY - 1 AUG 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
14.4
15.6
18.2
18.5
15.0
15.7
17.3
16.4
15.6
19.9
21.3
19.3
23.4
21.6
25.6
39°
38°
37°
10'
77°
76°


CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
CRUISE XXVII
19 JULY - 1 AUG 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
22.1
21.9
21.8
22.0
22.2
22.7
23.6
23.0
22.8
28.1
27.4
25.8
27.0
29.8
20.0
27.7
25.2
29.8
39°
38°
37°
10'
77°
76°

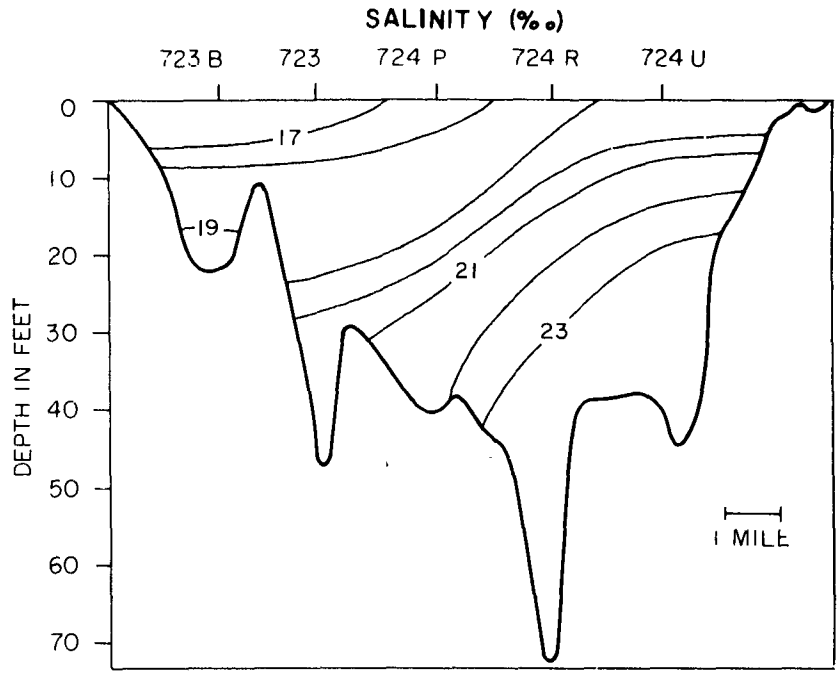

CHESAPEAKE BAY
60 ft SALINITY (‰)
CRUISE XXVII
19 JULY – 1 AUG 1961
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
17.8
19.2
20.1
15.8
19.4
16.3
21.8
23.5
39°
38°
37°
10'
77°
76°

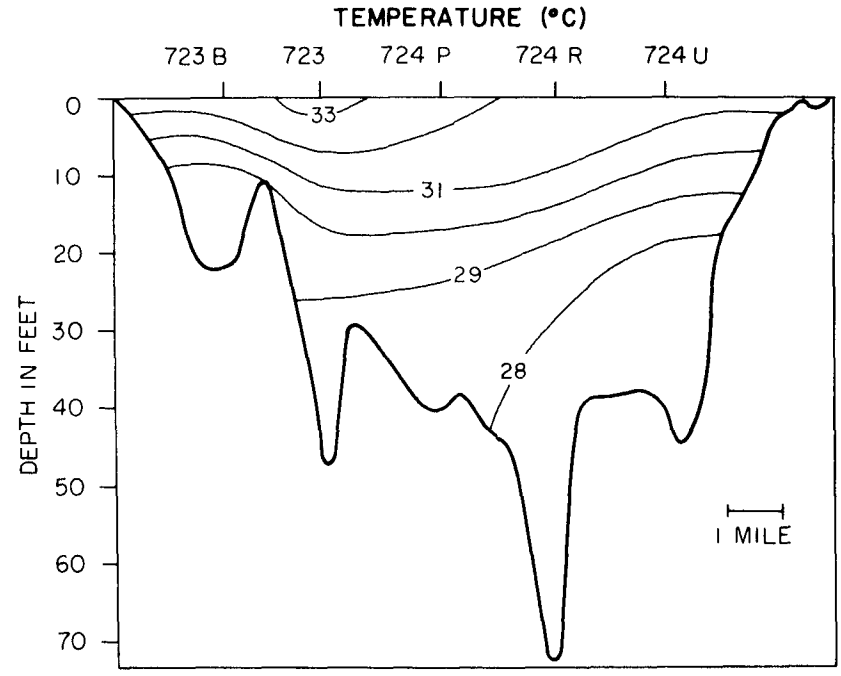

CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
CRUISE XV
22 NOV - 5 DEC 1960
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
21.8
22.1
22.5
22.5
23.0
28.1
26.5
24.3
26.2
27.7
10'
39°
38°
37°
77°
76°

SECTION OMITTED

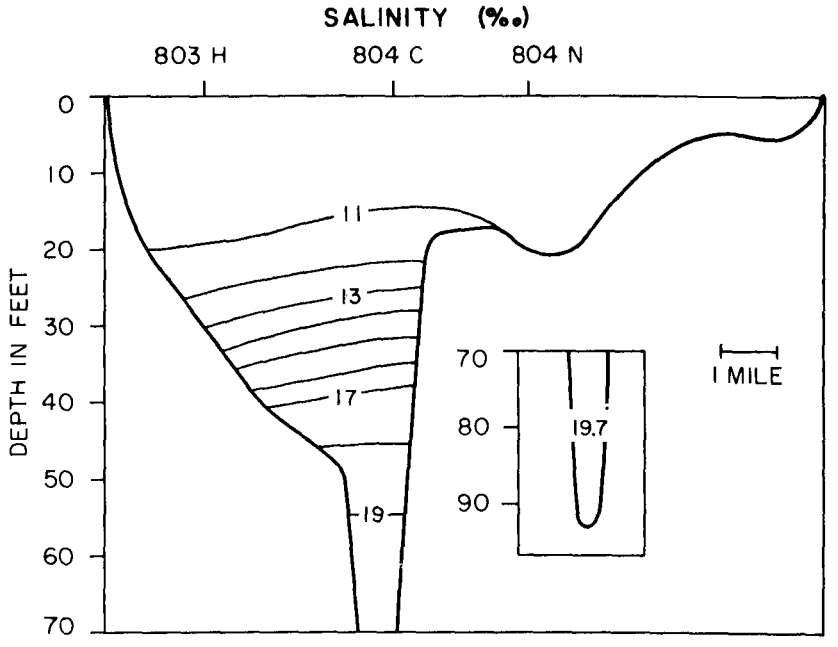
INSUFFICIENT DATA

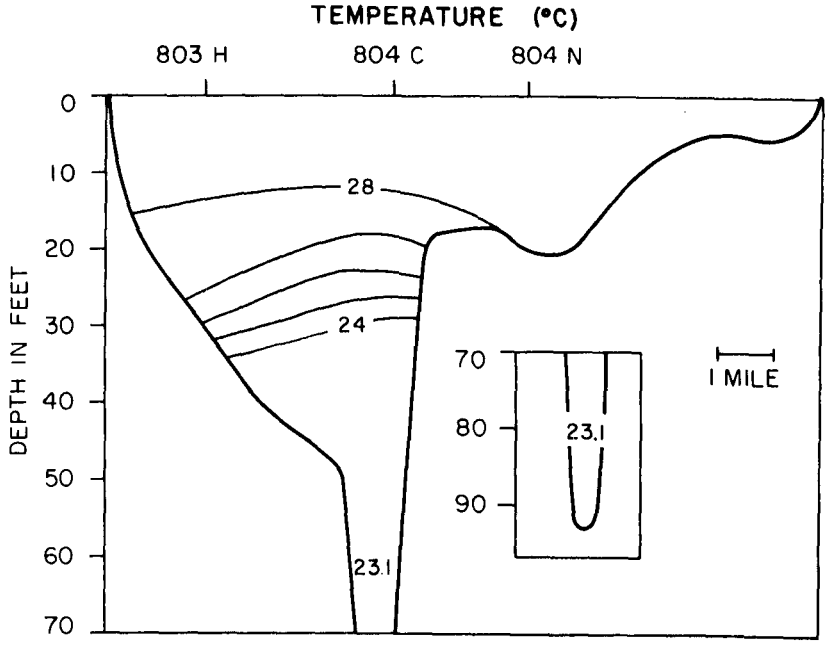
CRUISE XXVII 19 JULY - 1 AUG 1961 SECTION IV



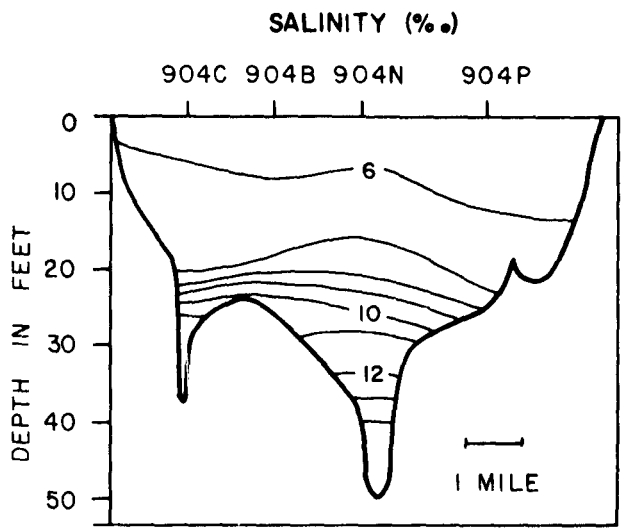



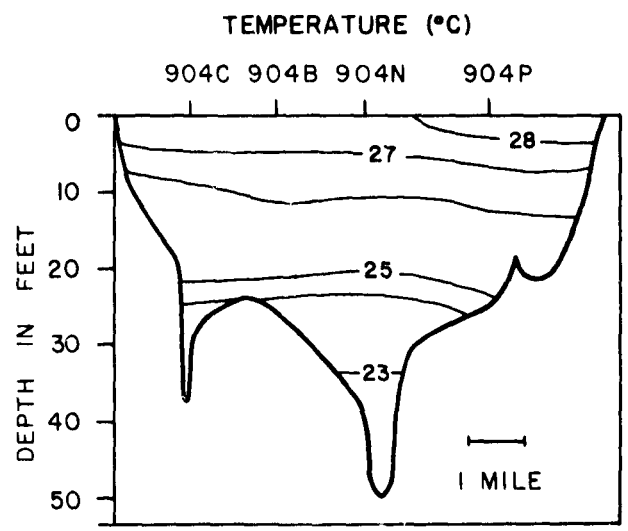
CRUISE XXVII 19 JULY - 1 AUG 1961 SECTION VI



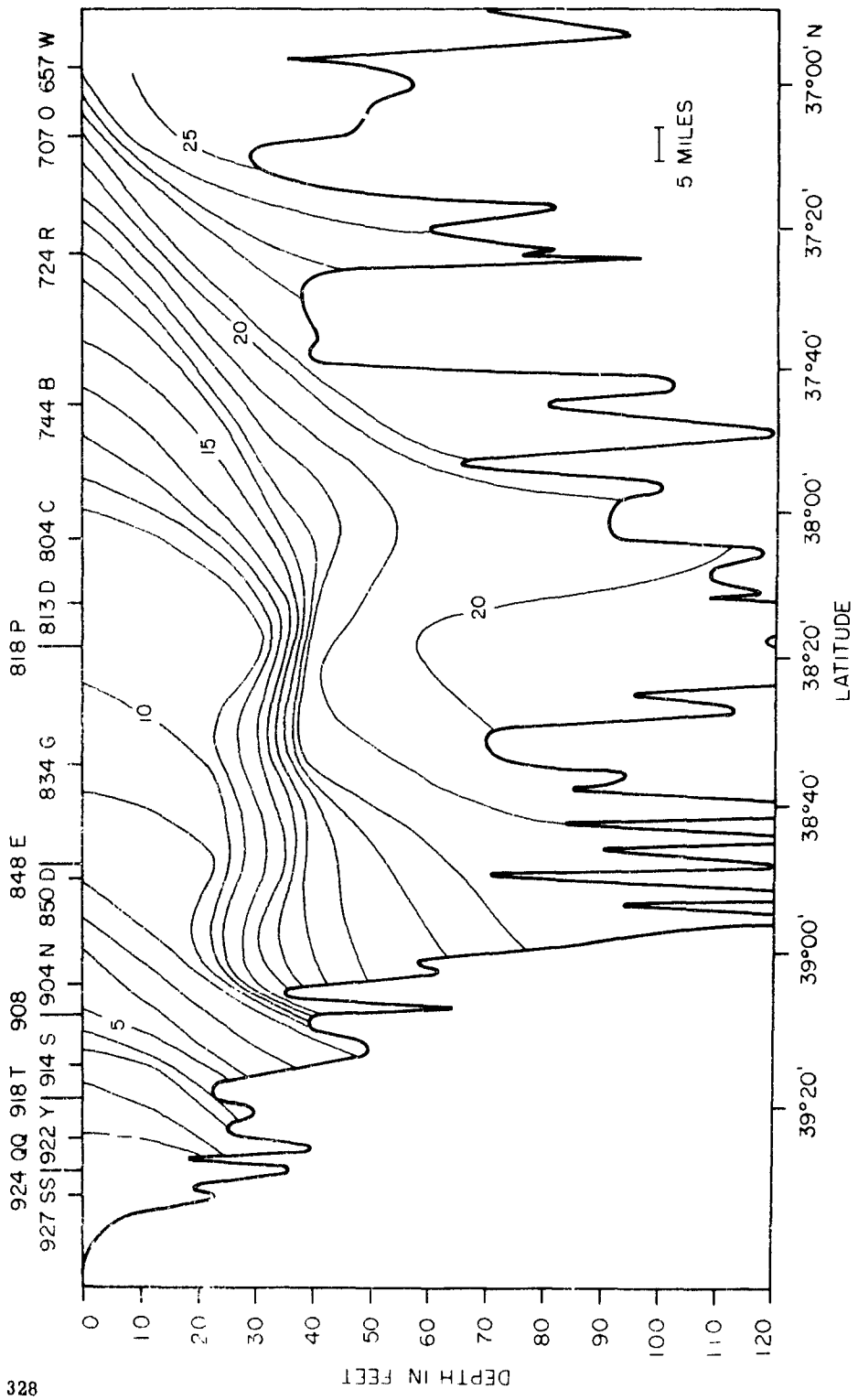
CRUISE XXVII 19 JULY - 1 AUG 1961 SECTION X



CRUISE XXVII 19 JULY - 1 AUG 1961 SECTION XIX

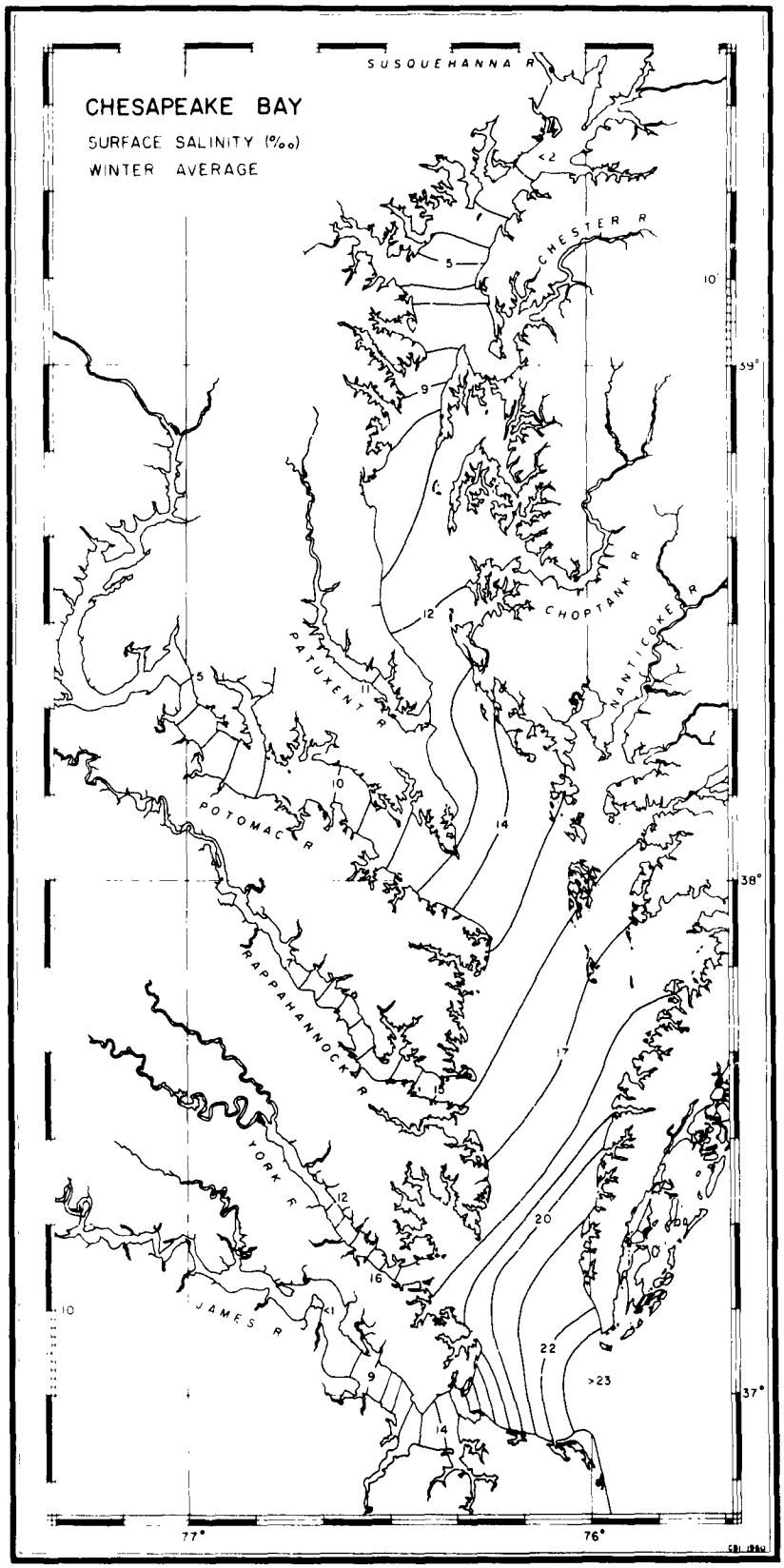
SALINITY (‰)

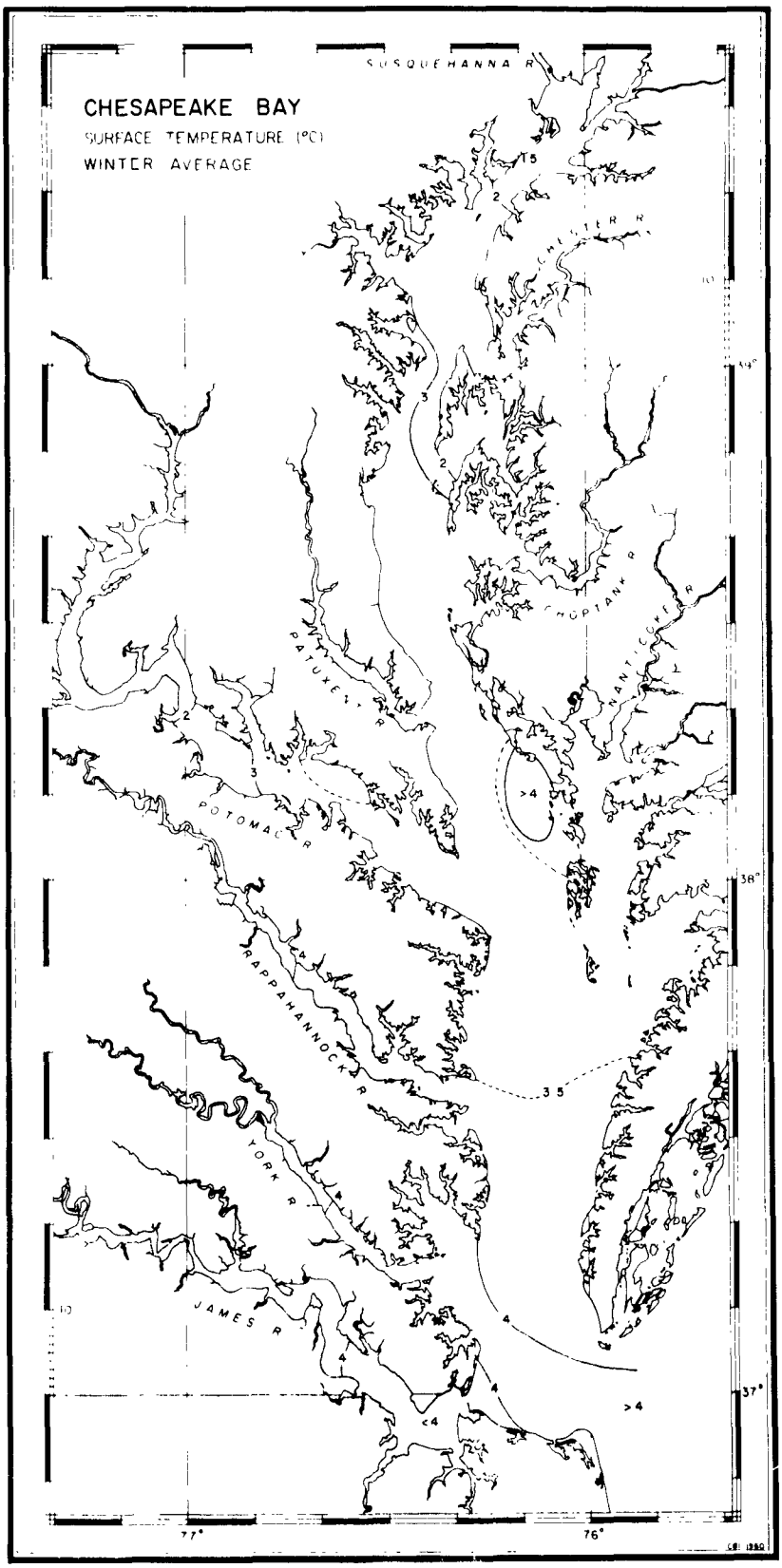


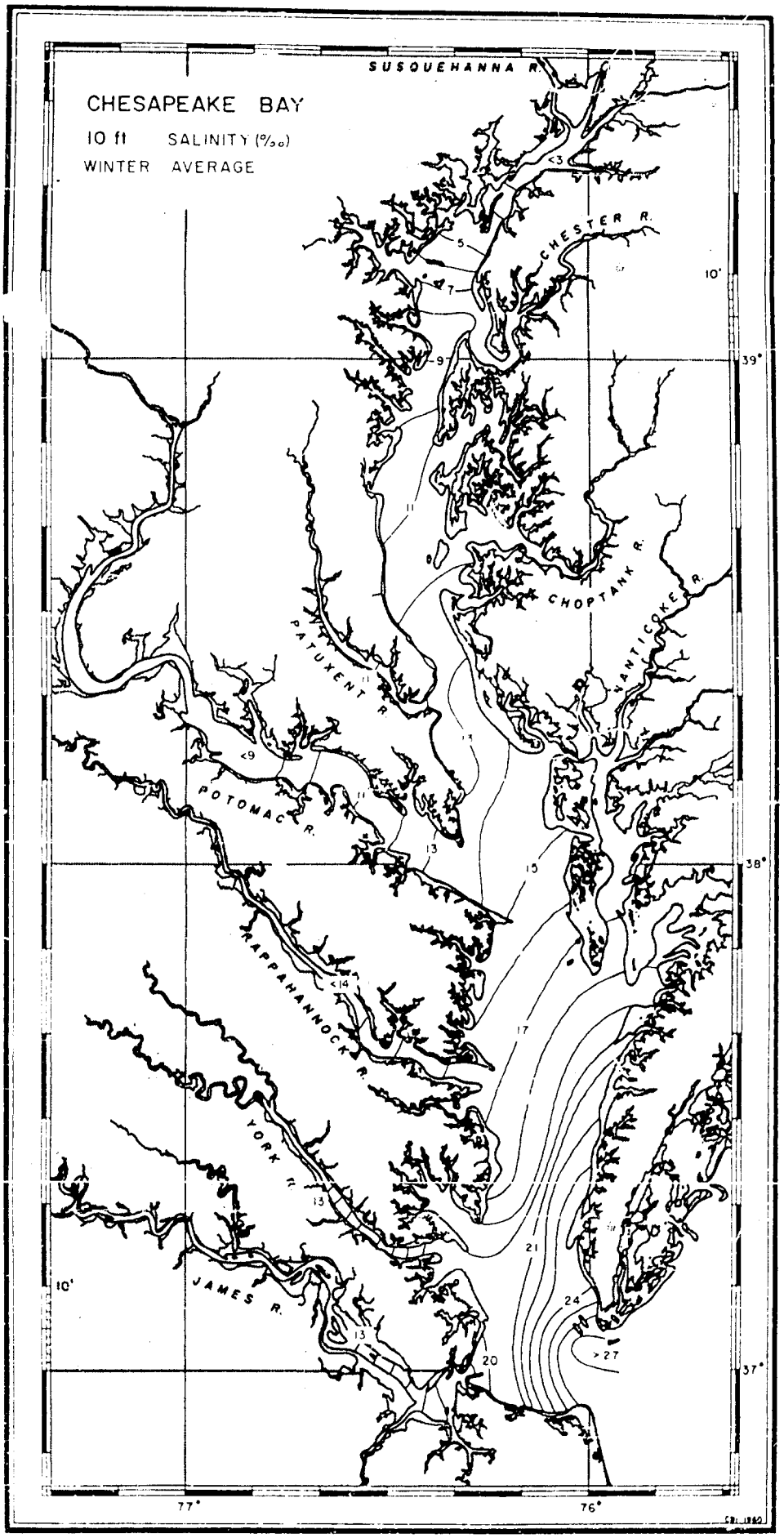
CRUISE XXVII 19 JULY - 1 AUG 1961 SECTION II

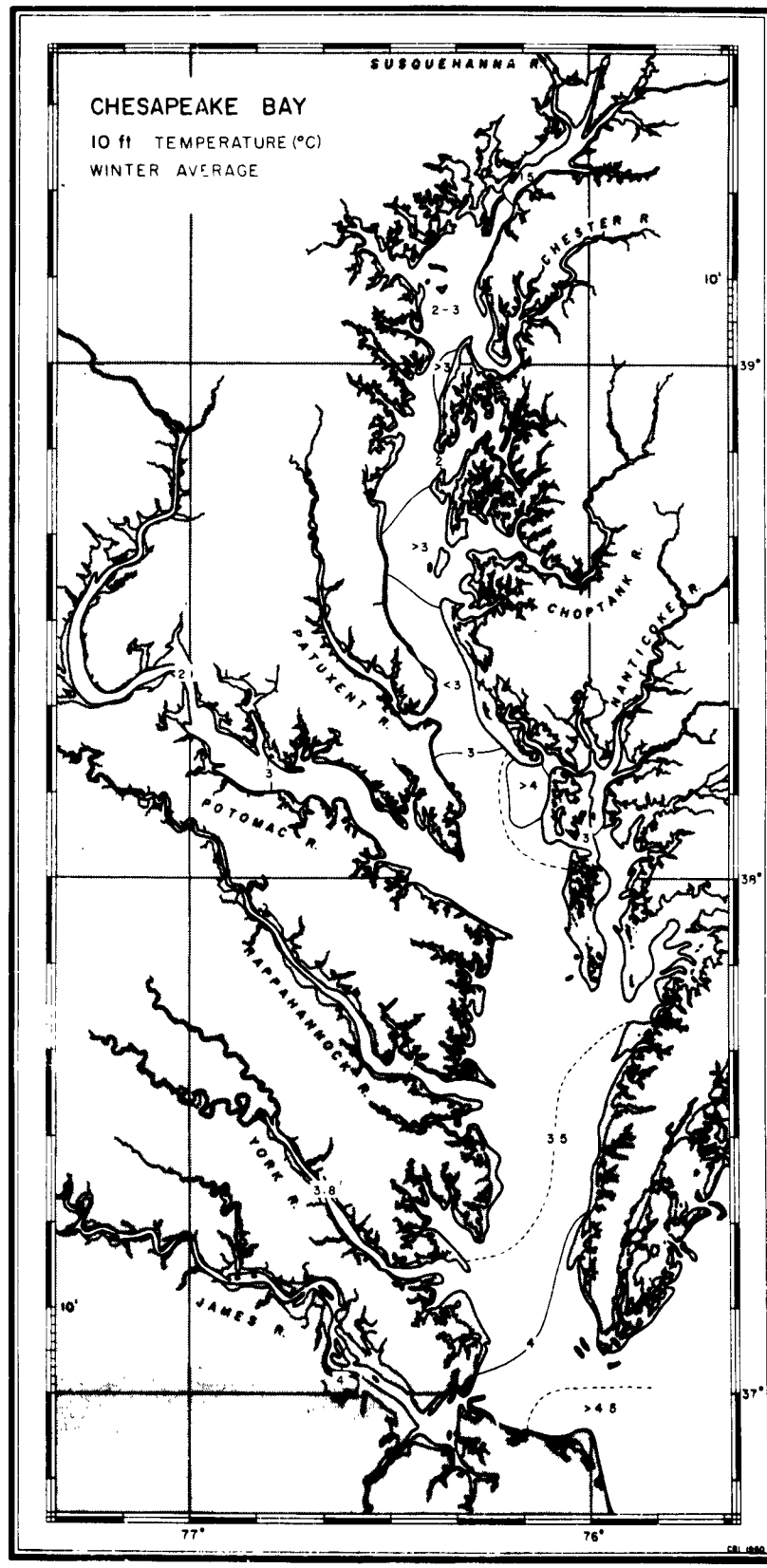
TEMPERATURE (°C)

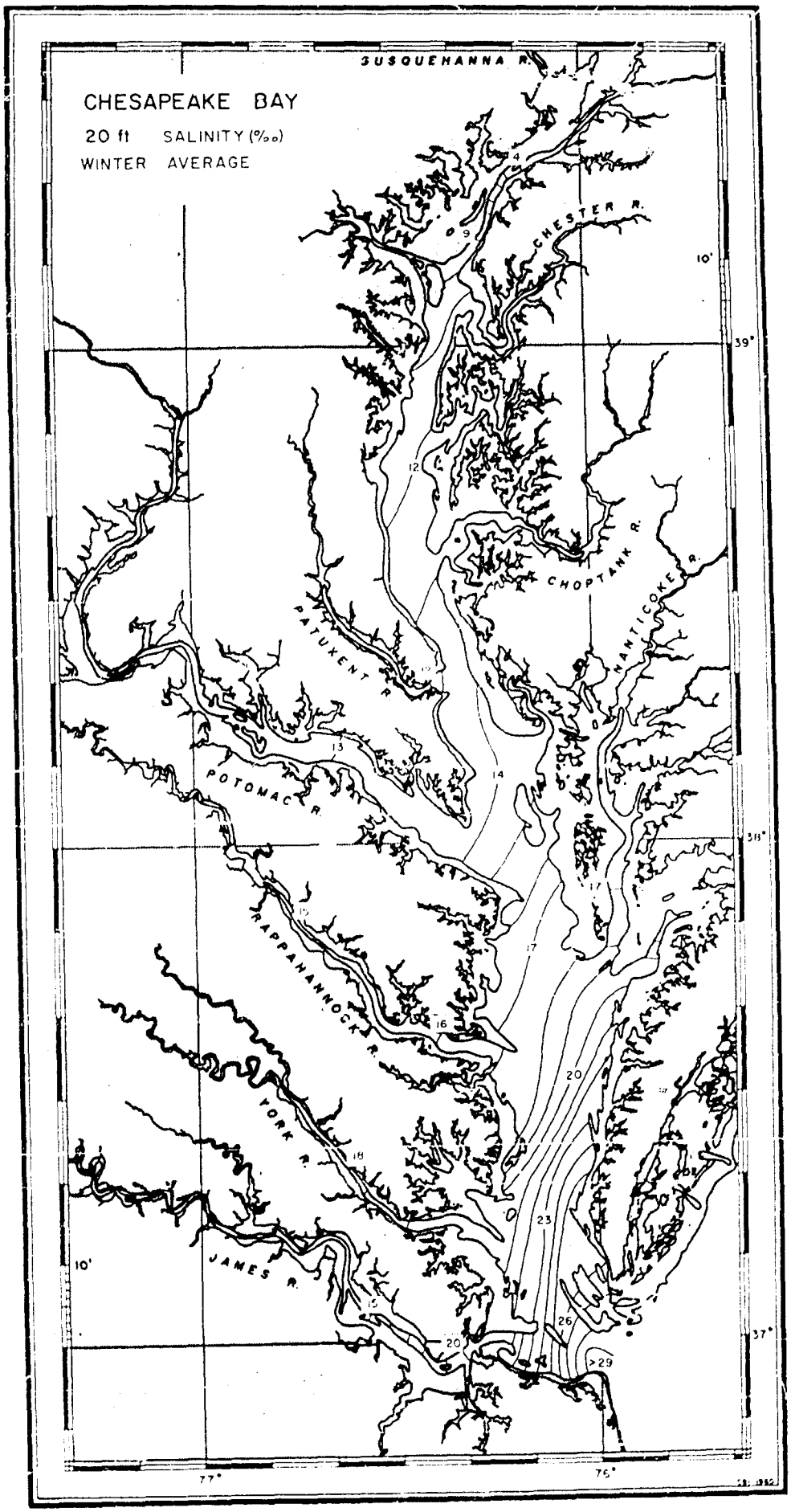
# PART II

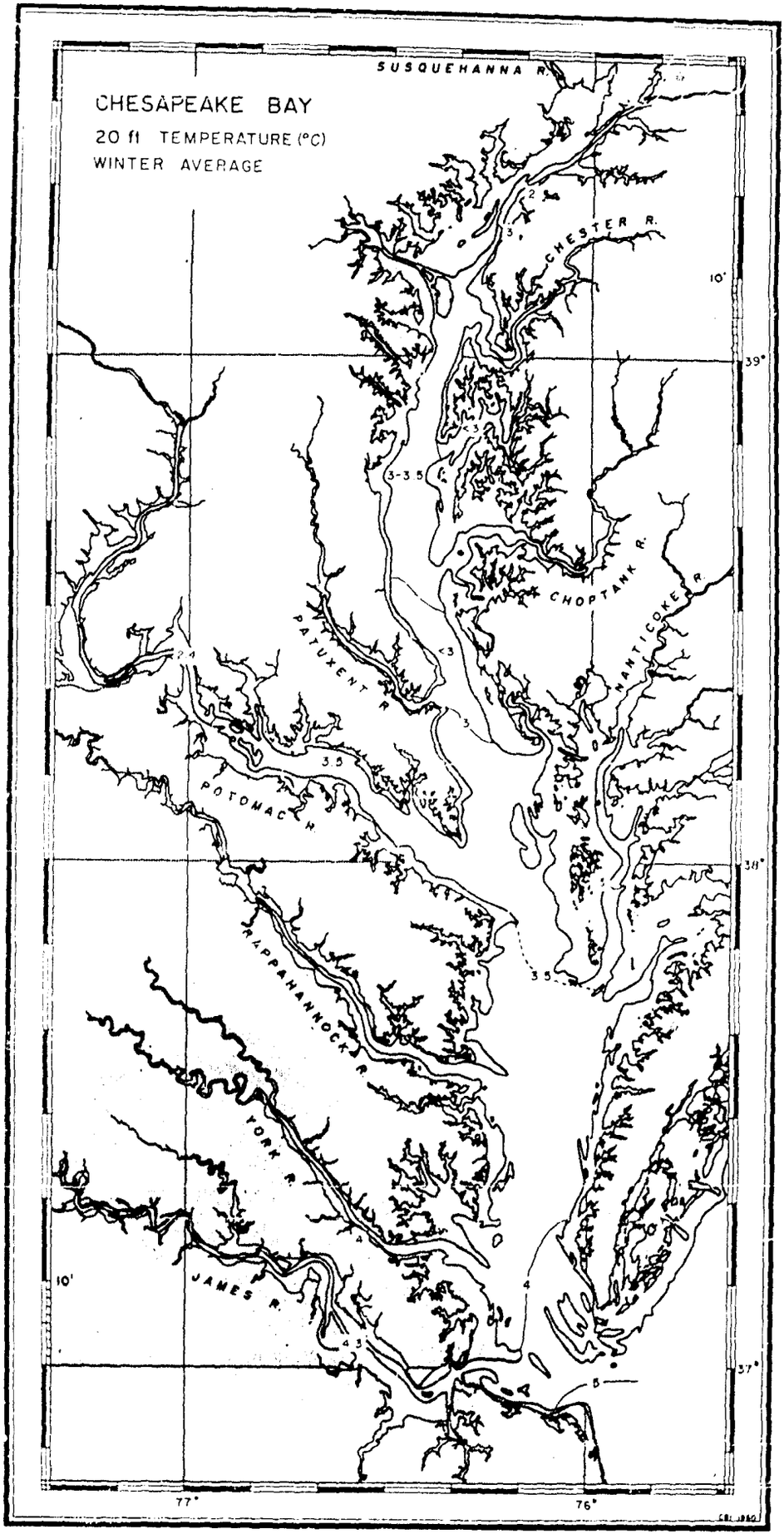

CHESAPEAKE BAY
SURFACE SALINITY (‰)
WINTER AVERAGE
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
<2
5
9
12
11
10
14
17
20
22
>23
16
<1
39°
38°
37°
77°
76°

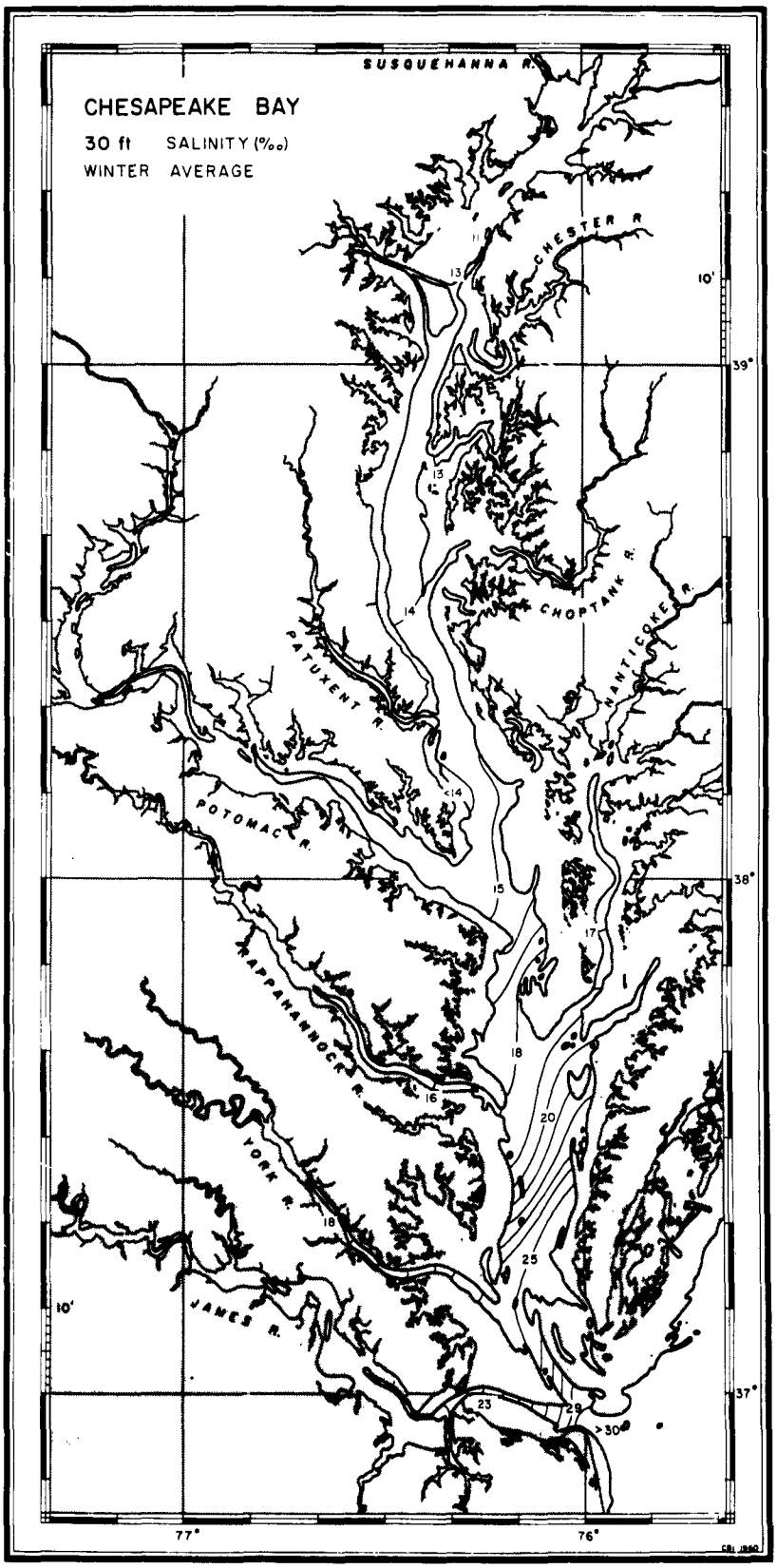

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
WINTER AVERAGE
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
>4
<4
39°
38°
37°
77°
76°

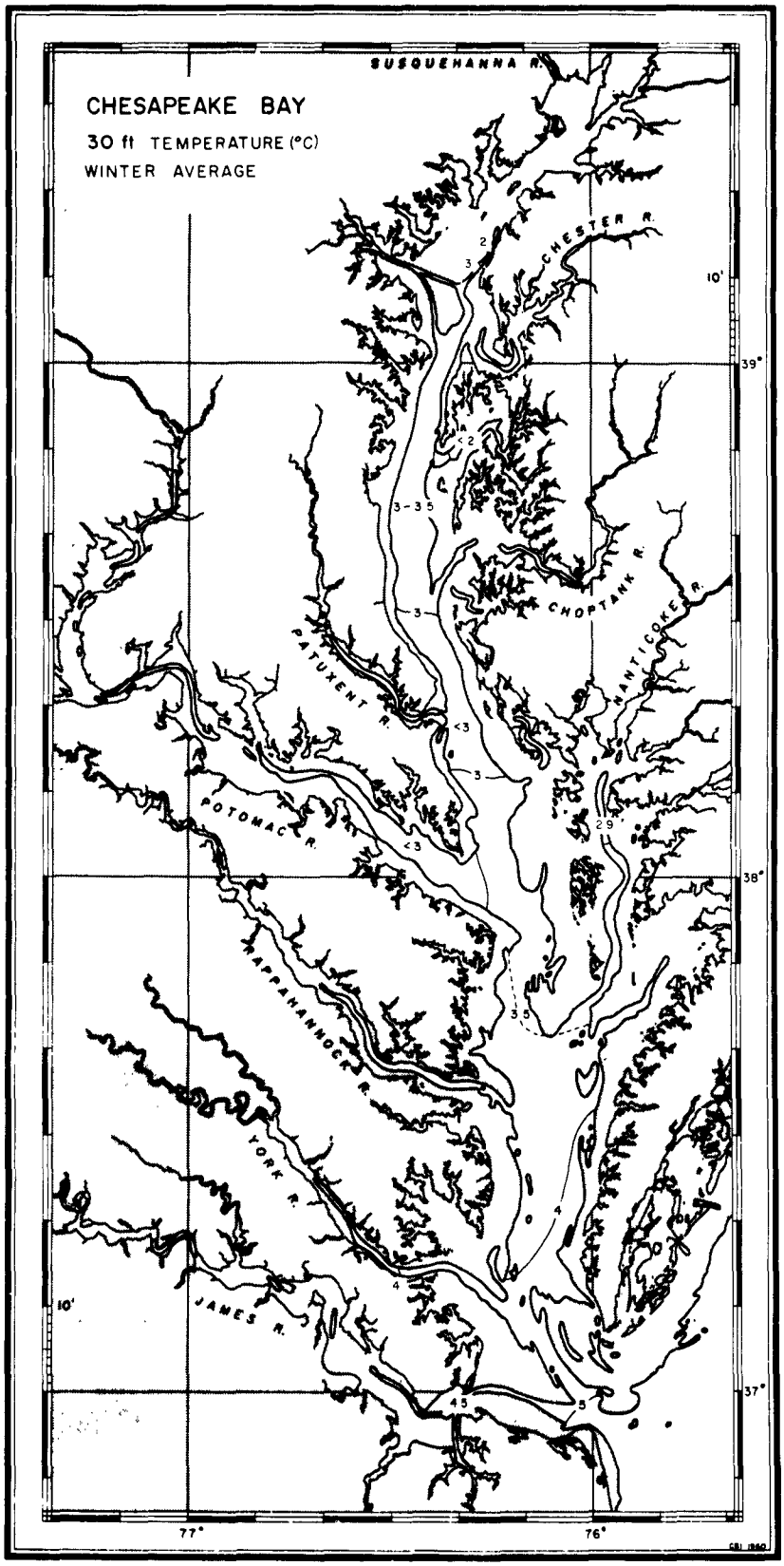

CHESAPEAKE BAY
10 ft SALINITY (‰)
WINTER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
<3
5
7
9
11
<9
13
15
<14
17
21
24
>27
20
10'
39°
38°
37°
77°
76°

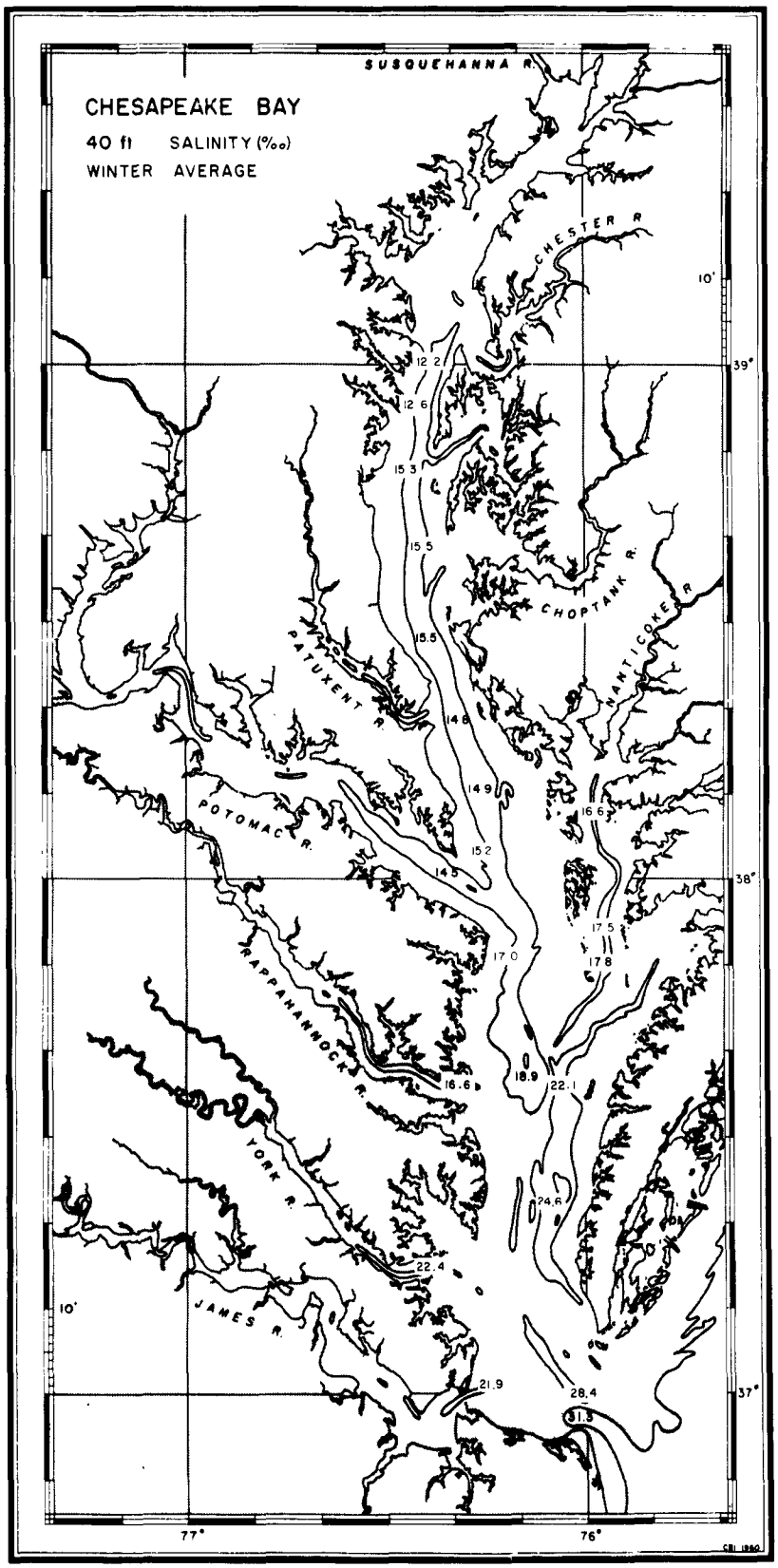

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
WINTER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
2-3
>3
<3
3
>4
3.5
3.8
4
>4.8
39°
38°
37°
77°
76°

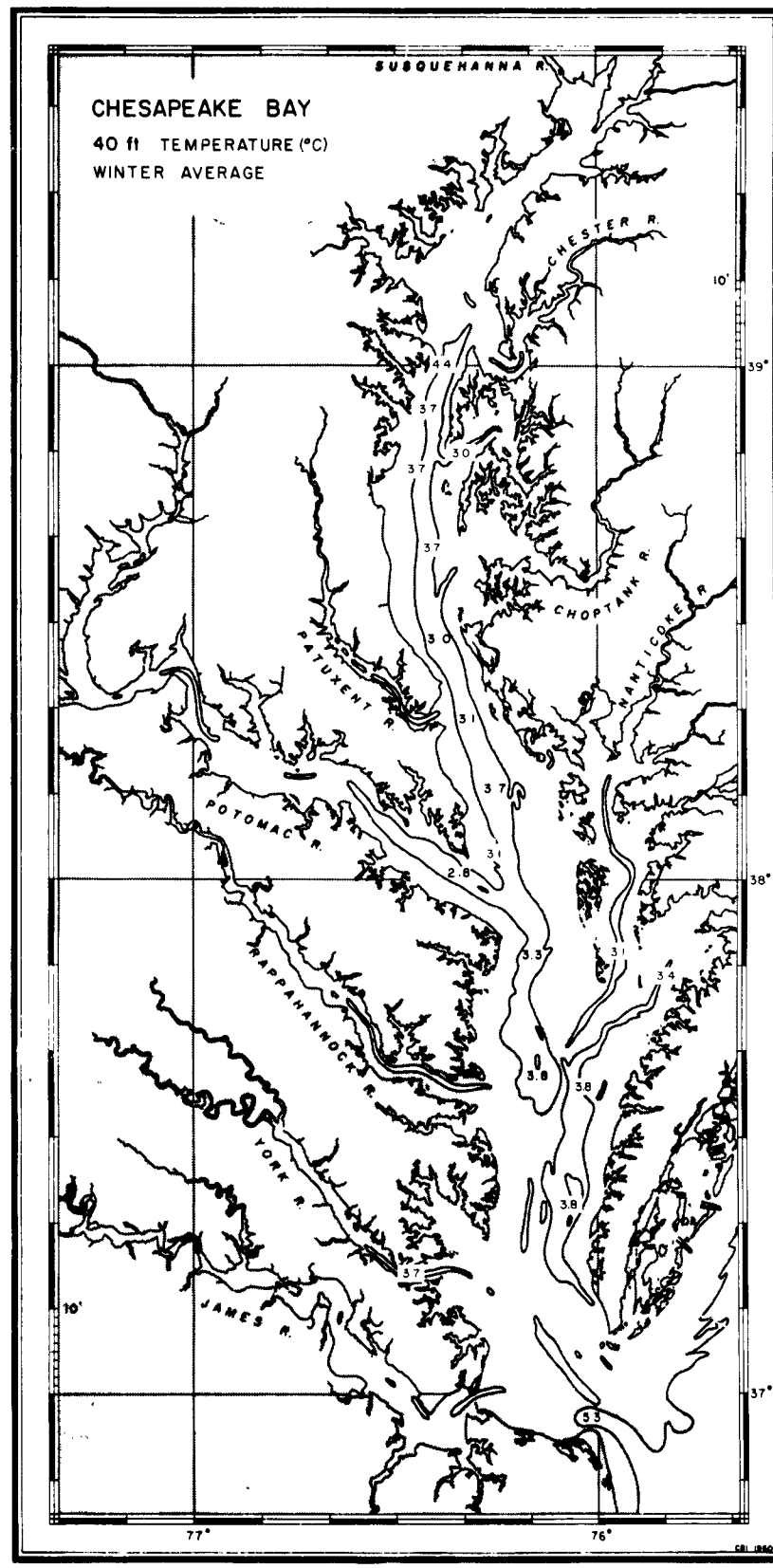

CHESAPEAKE BAY
20 ft SALINITY (‰)
WINTER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
MANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°
10'
>29

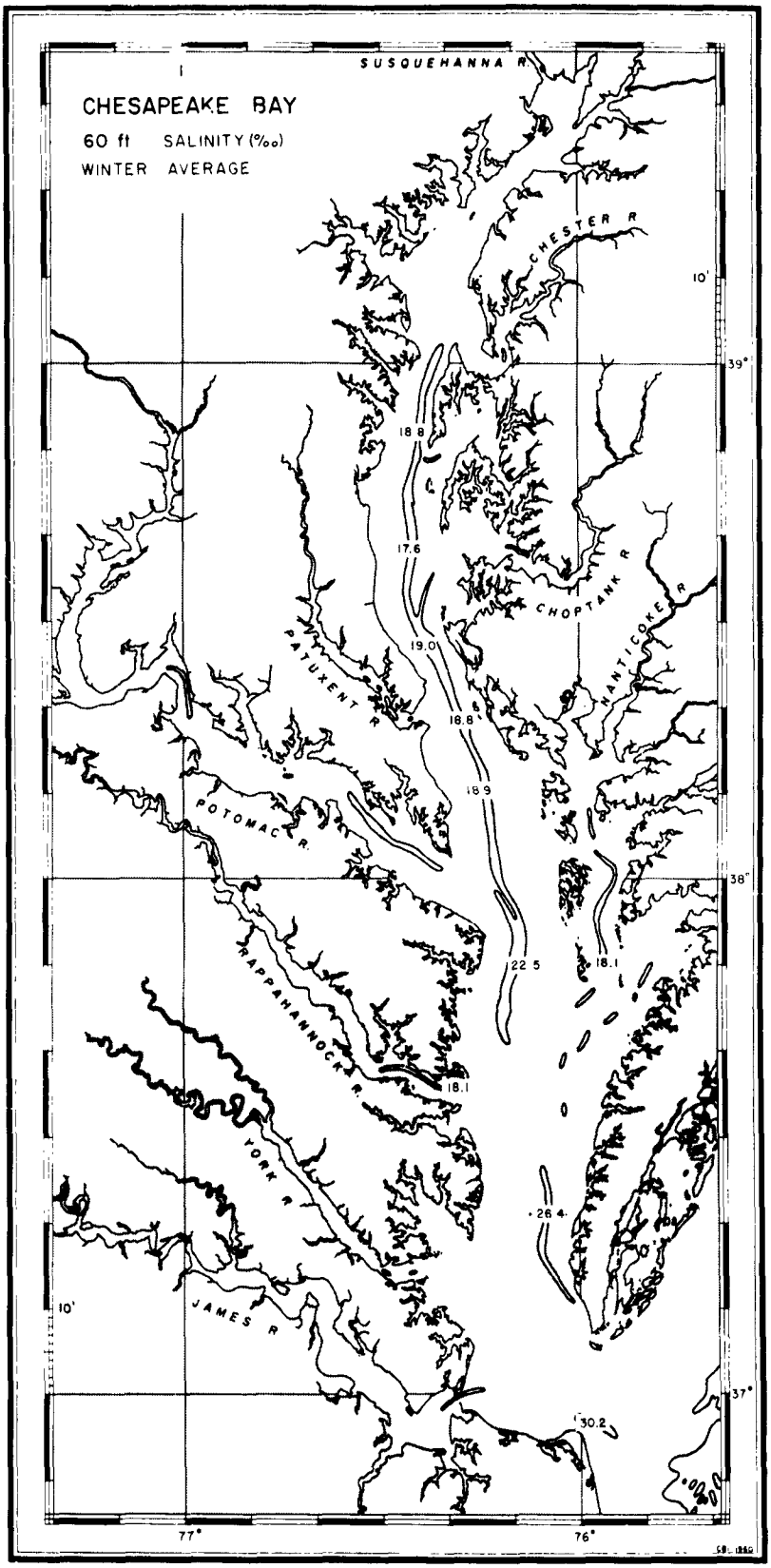

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
WINTER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°
10'

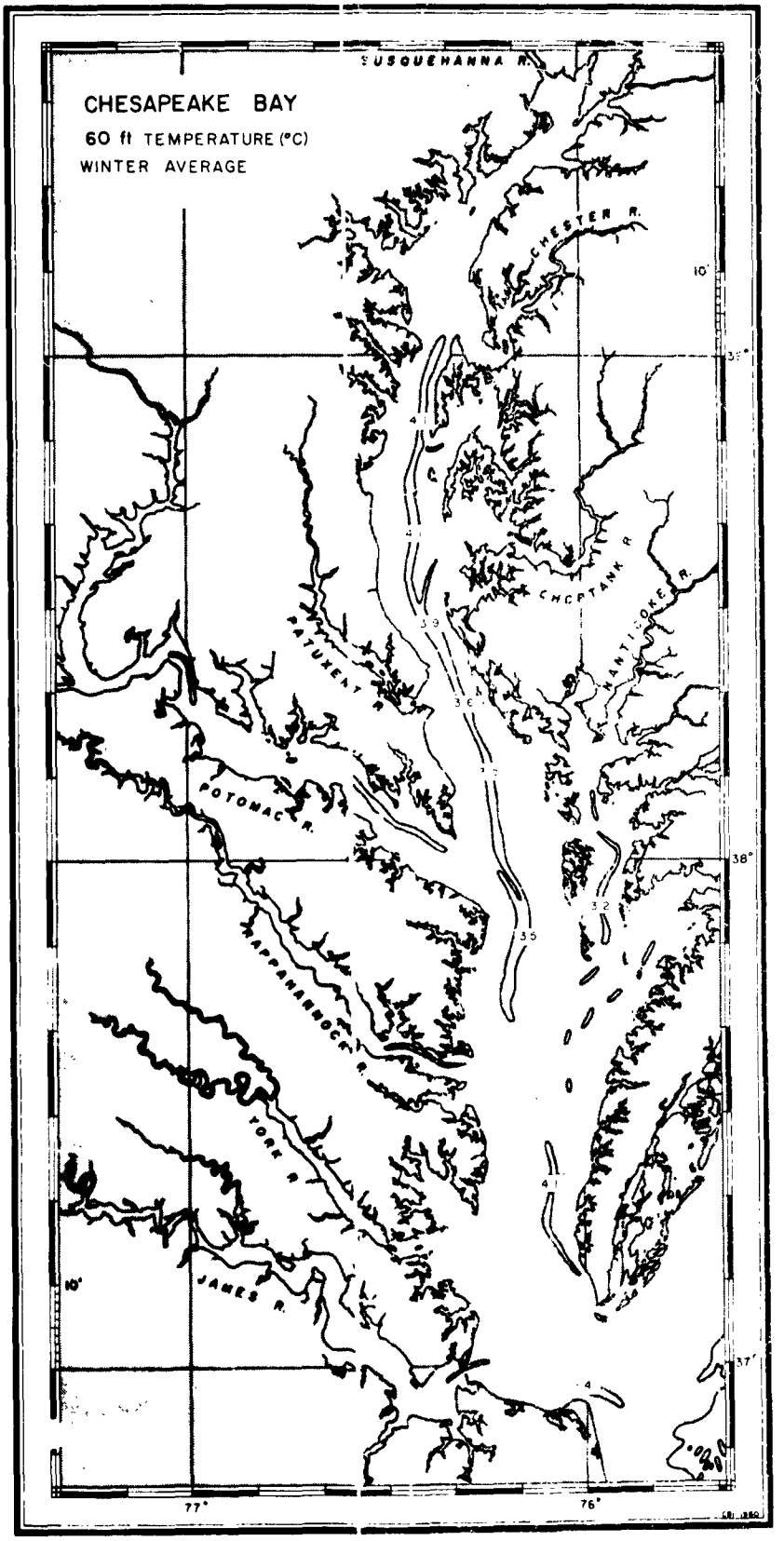

CHESAPEAKE BAY
30 ft SALINITY (‰)
WINTER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
13
14
<14
15
17
18
16
20
18
25
23
28
>30
10'
39°
38°
37°
77°
76°


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
WINTER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
10'
77°
76°

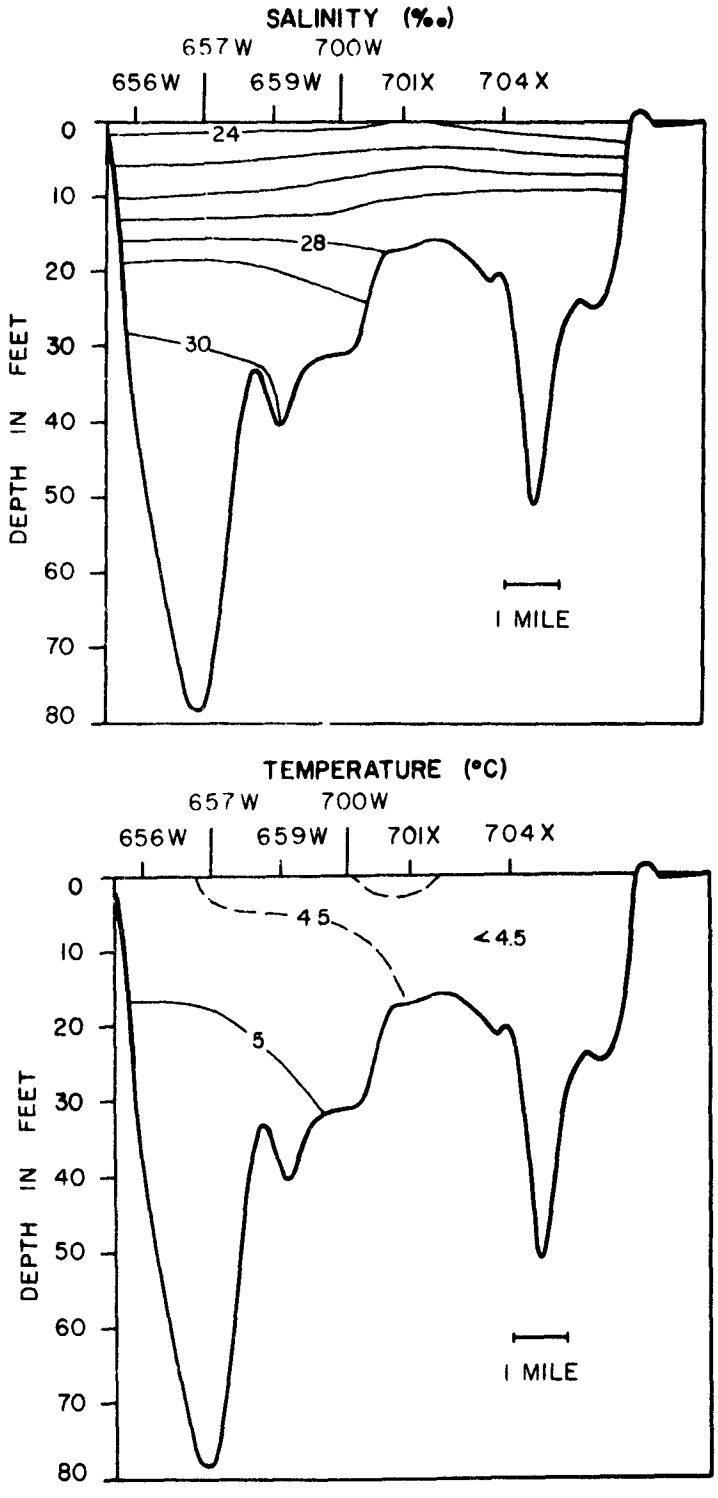

CHESAPEAKE BAY
40 ft SALINITY (‰)
WINTER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
MANTICOKE R.
12.2
12.6
15.3
15.5
15.5
14.8
14.9
16.6
15.2
14.5
17.5
17.8
17.0
18.9
22.1
16.6
24.6
22.4
21.9
28.4
31.3
39°
38°
37°
10'
77°
76°
CBI 1980


CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
WINTER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°
4.4
3.7
3.0
3.7
3.7
3.0
3.1
3.7
3.1
2.8
3.3
3.1
3.4
3.8
3.8
3.8
3.7
5.5

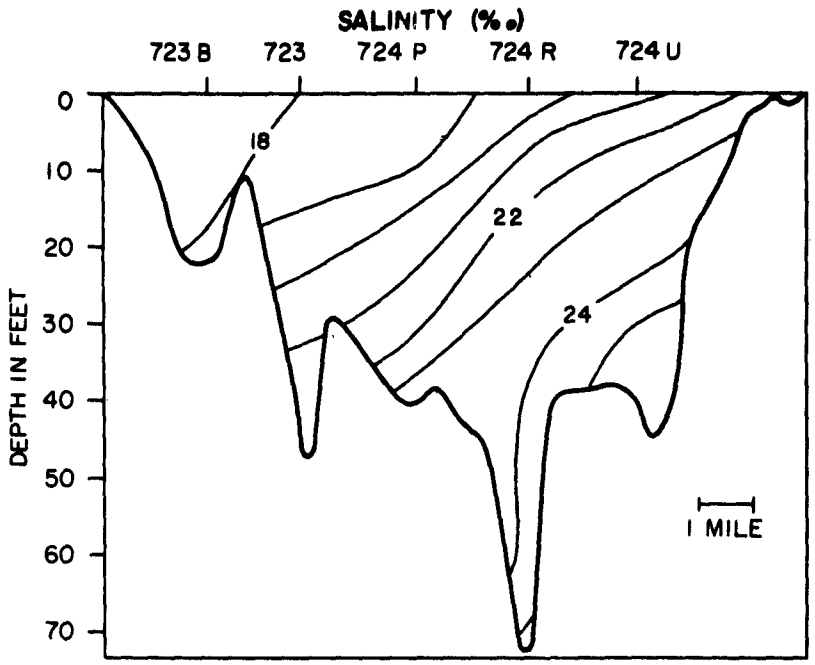

CHESAPEAKE BAY
60 ft SALINITY (‰)
WINTER AVERAGE
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
18.8
17.6
19.0
18.8
18.9
22.5
18.1
18.1
26.4
30.2
39°
38°
37°
10'
10'
77°
76°

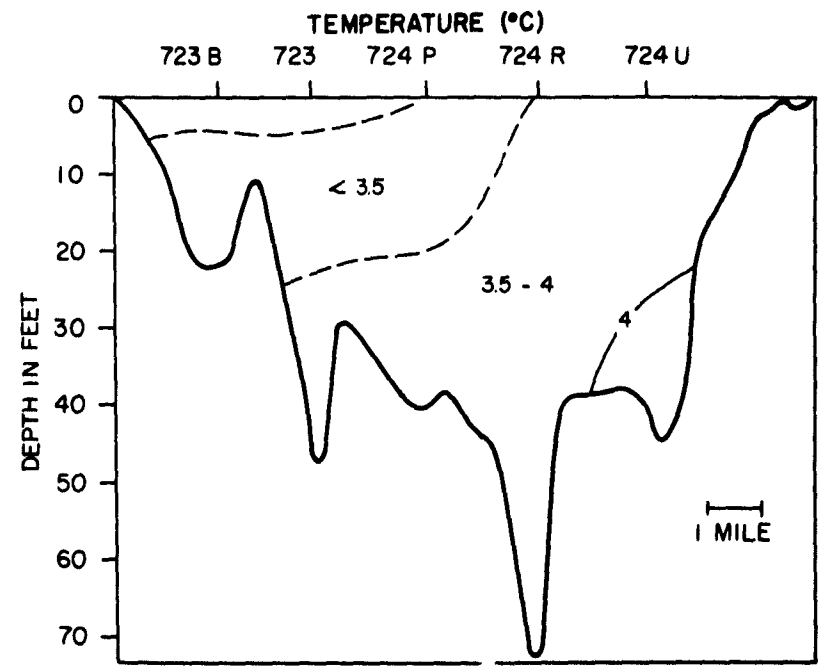

CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
WINTER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39
38
35
32
10'
77°
76°

## WINTER AVERAGE SECTION II

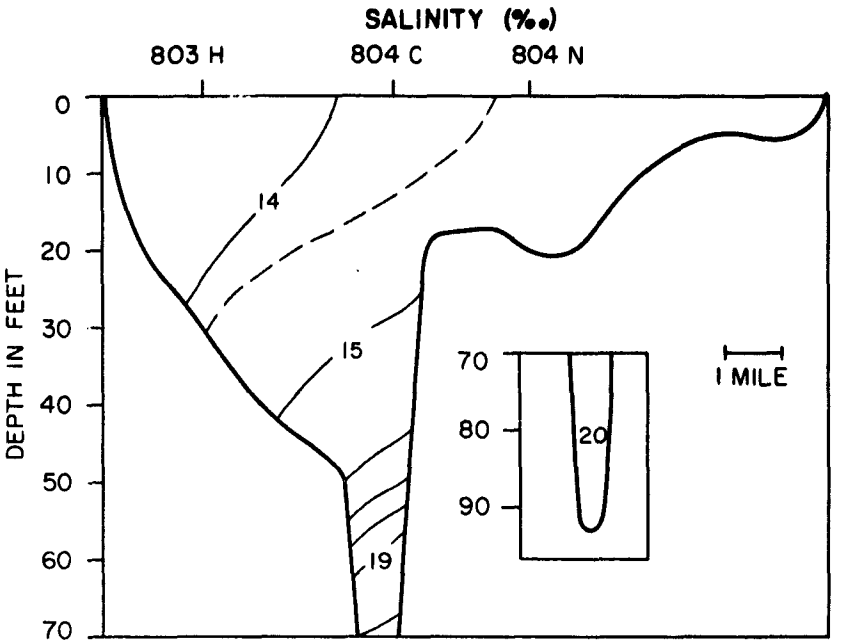


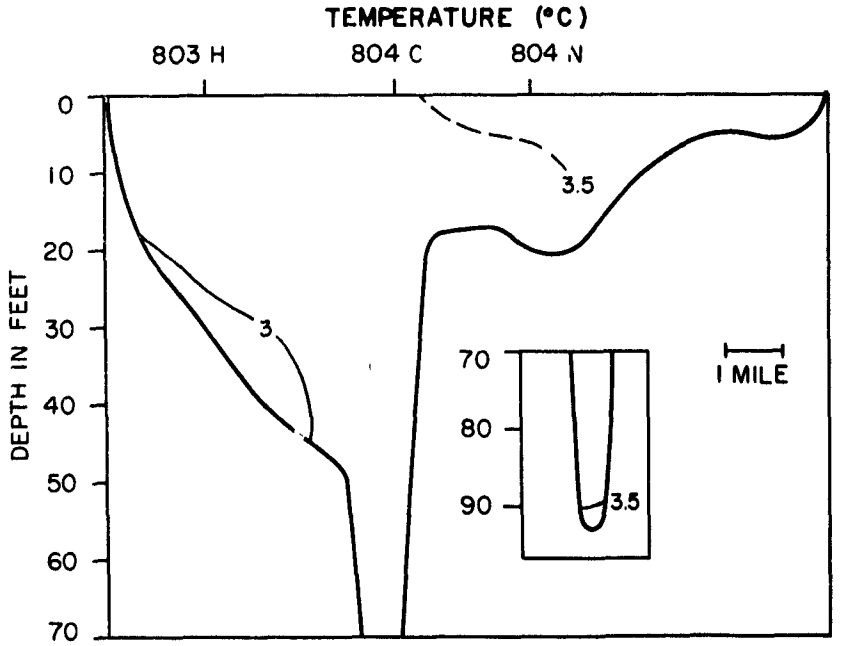
## WINTER AVERAGE SECTION IV



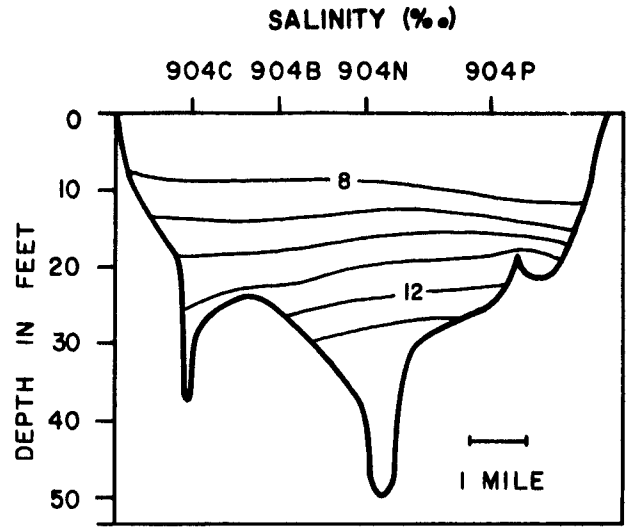



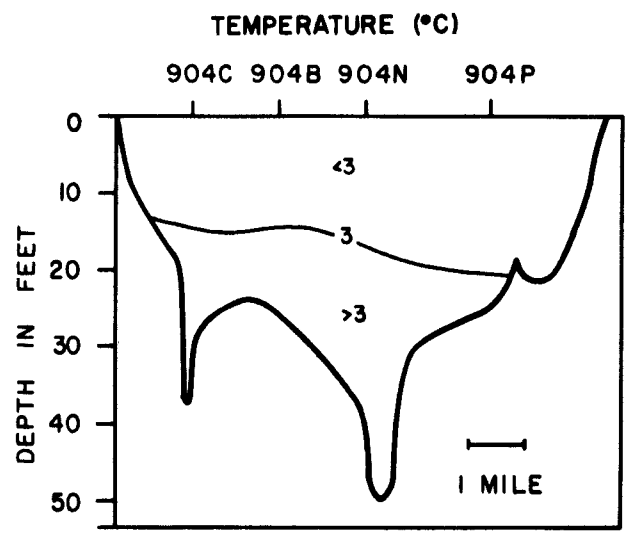
## WINTER AVERAGE SECTION VI



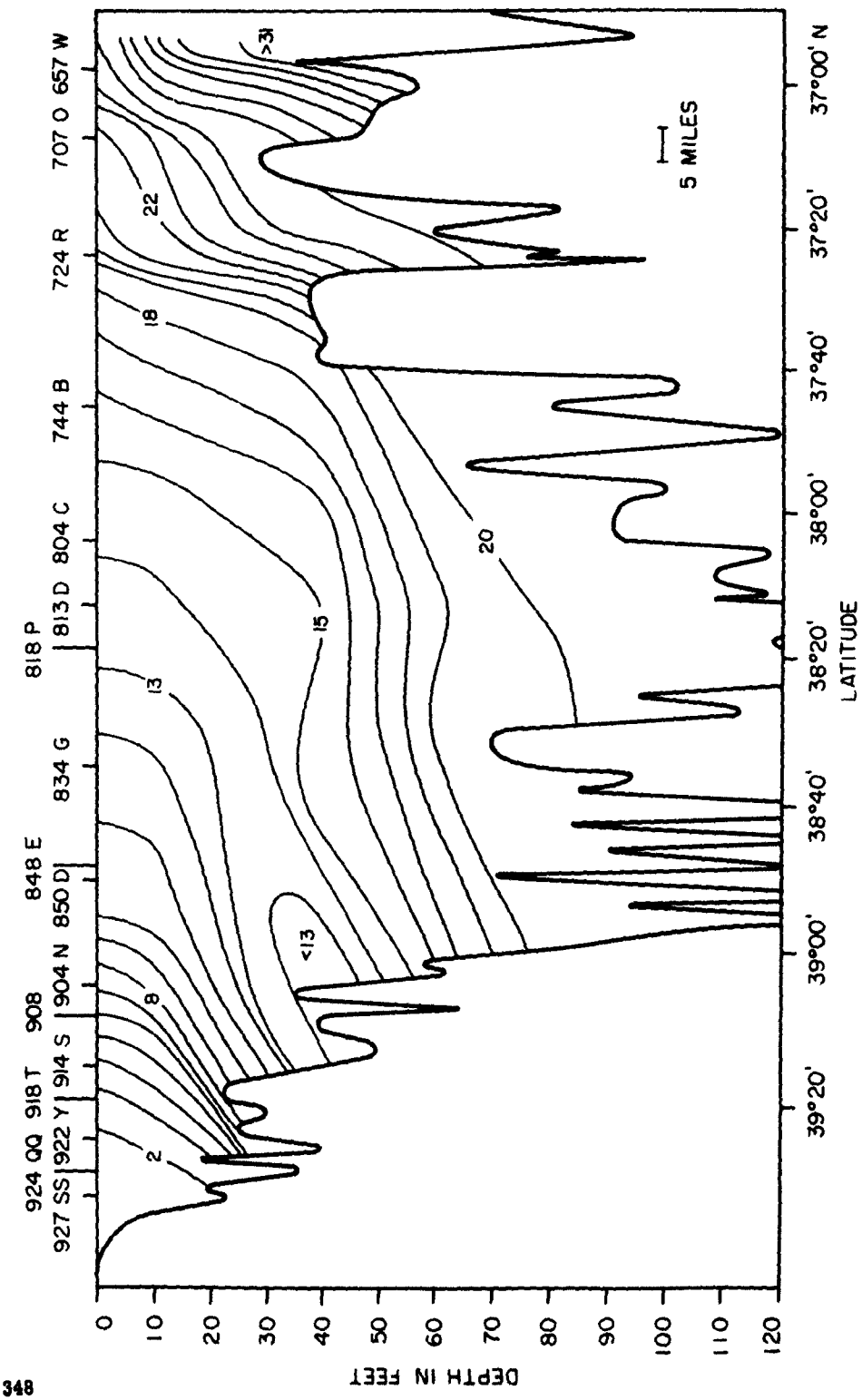



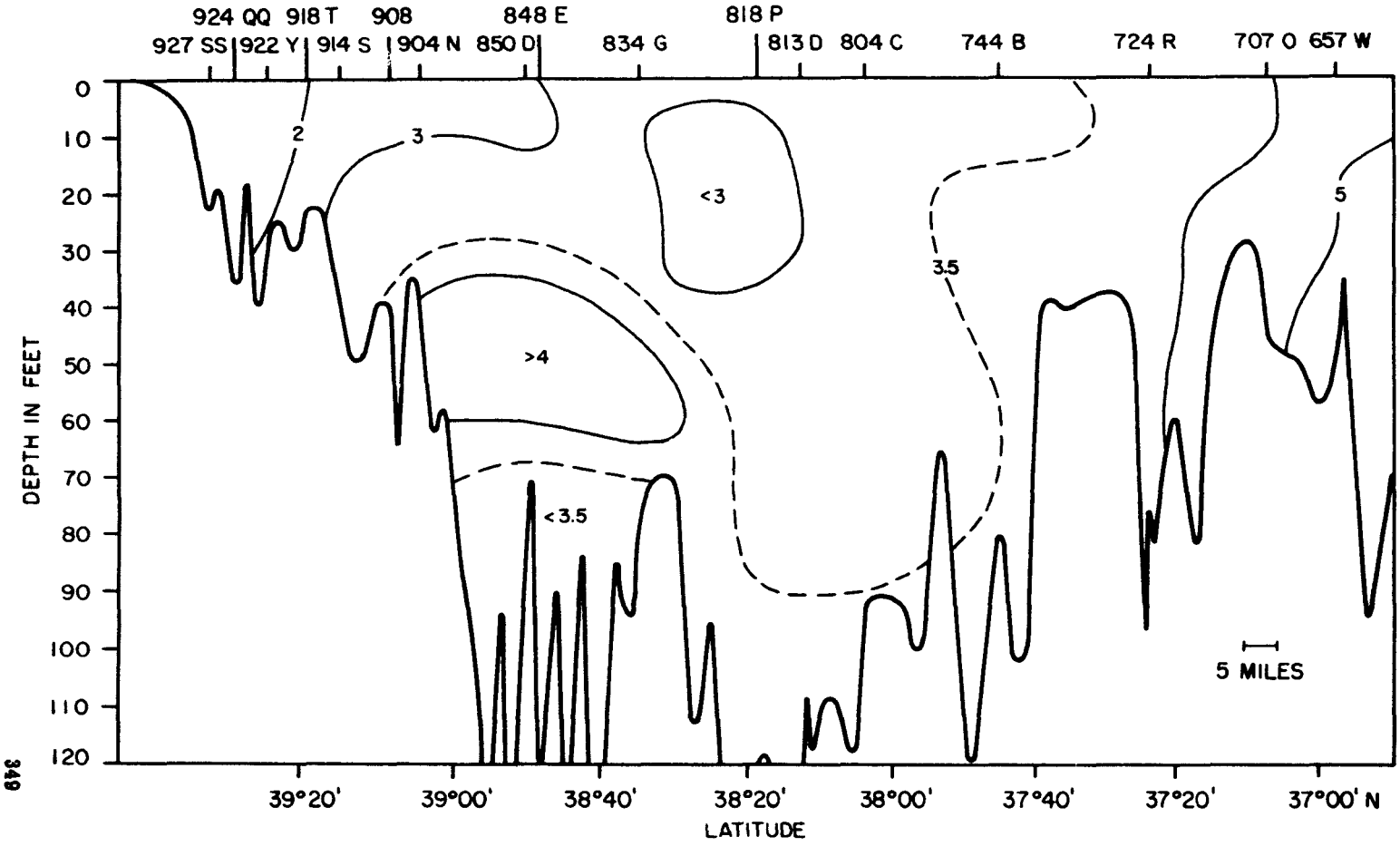
## WINTER AVERAGE SECTION X



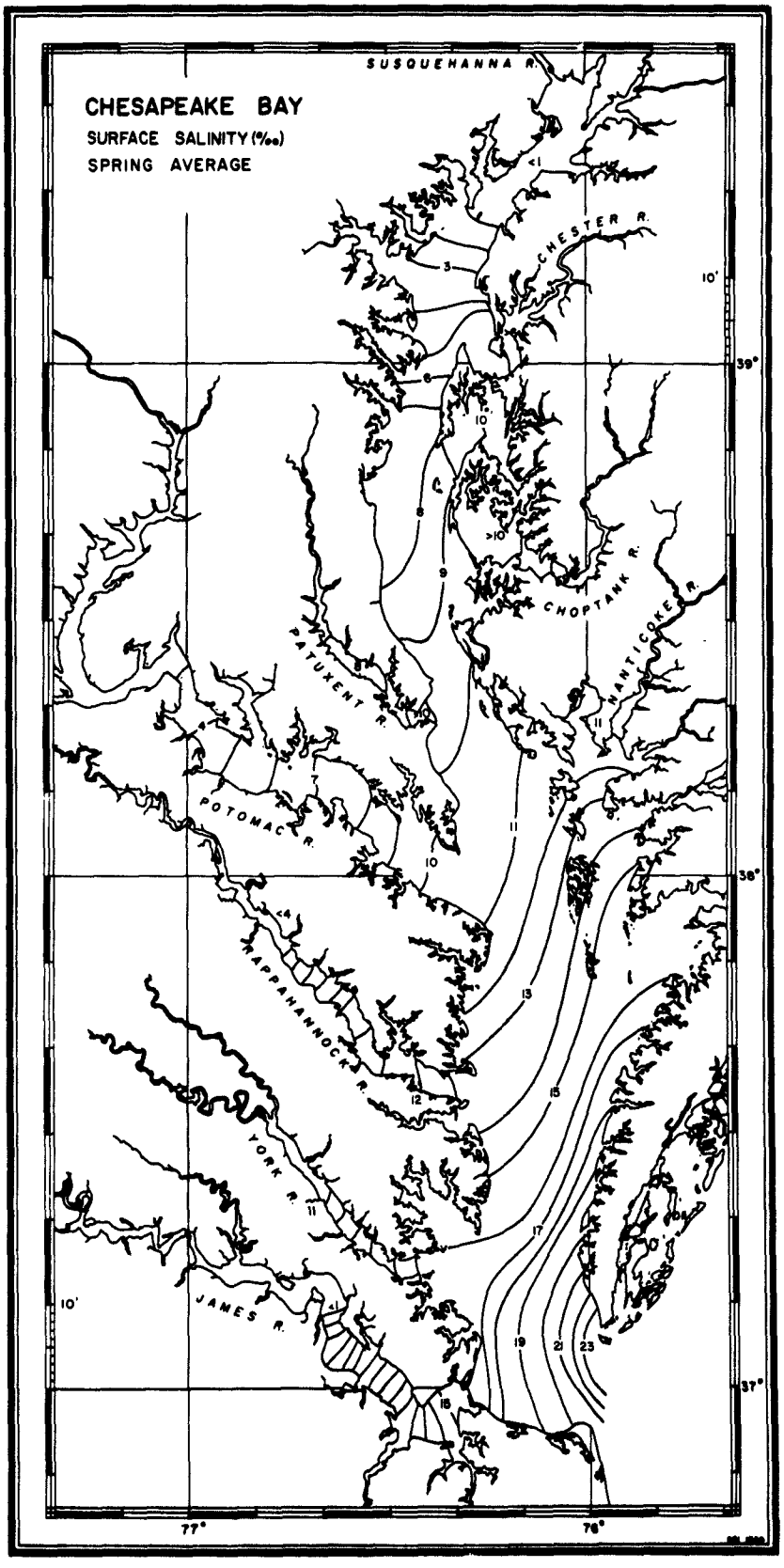



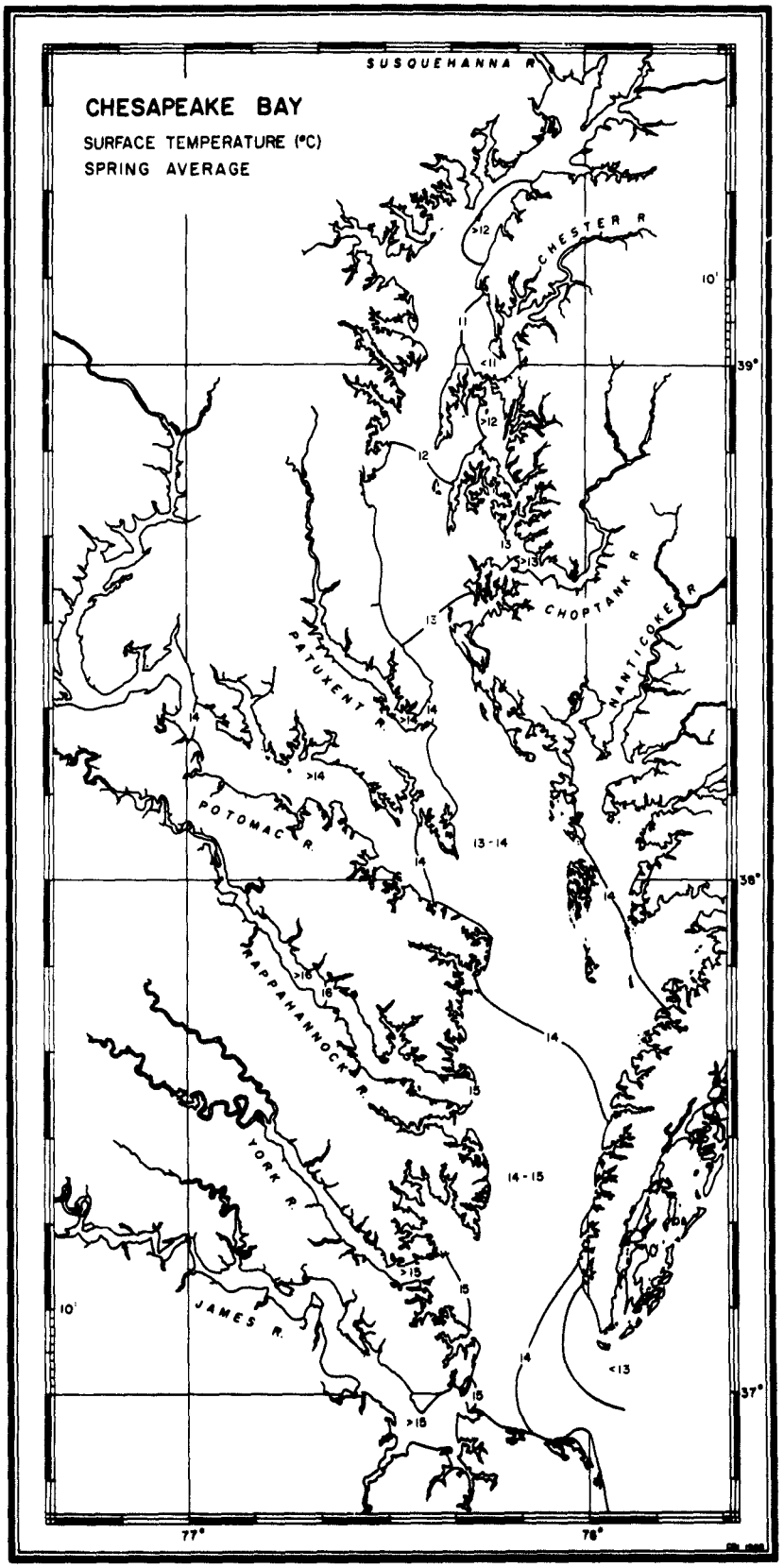
# WINTER AVERAGE SECTION XIX
## SALINITY (‰)

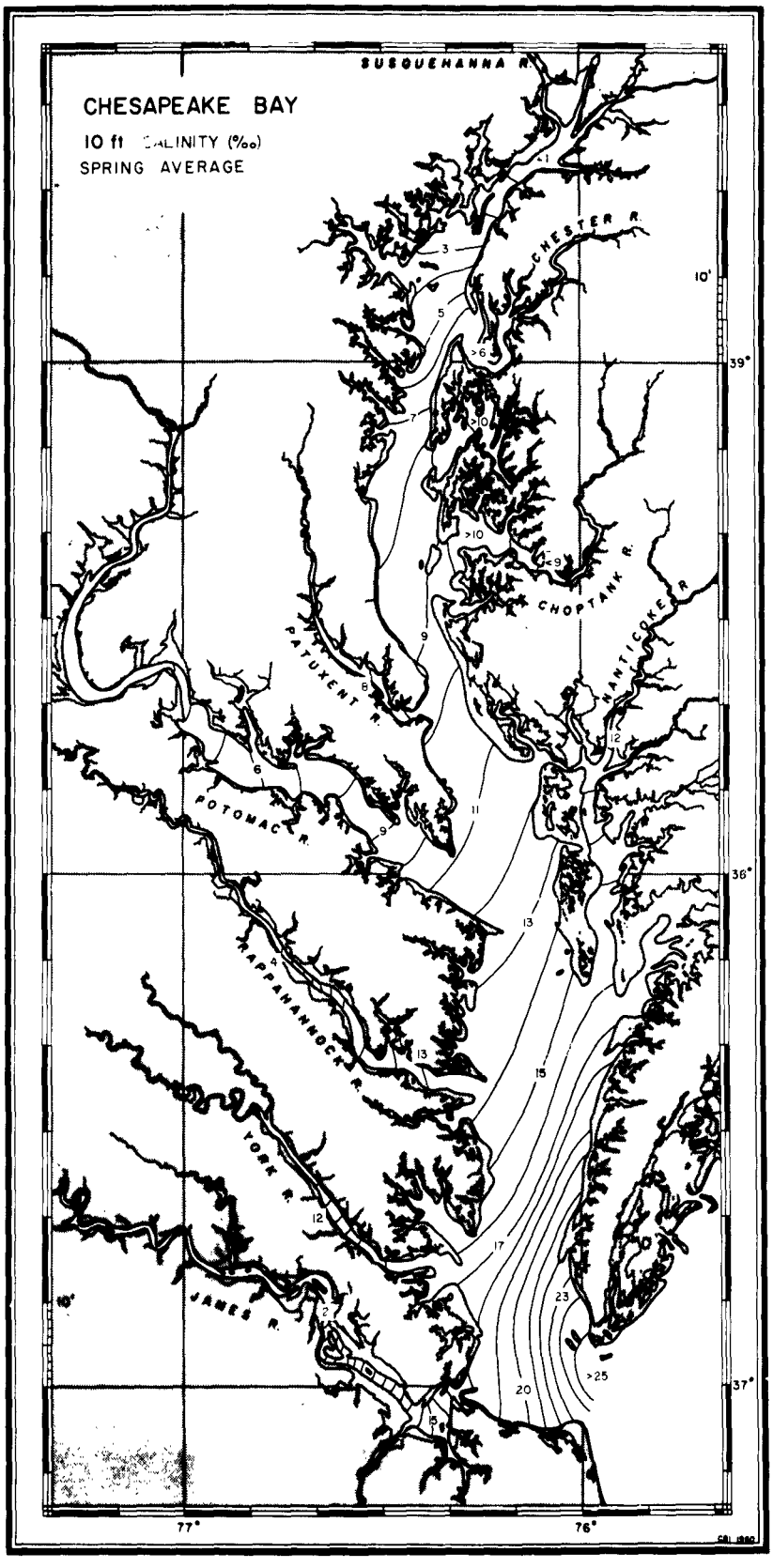


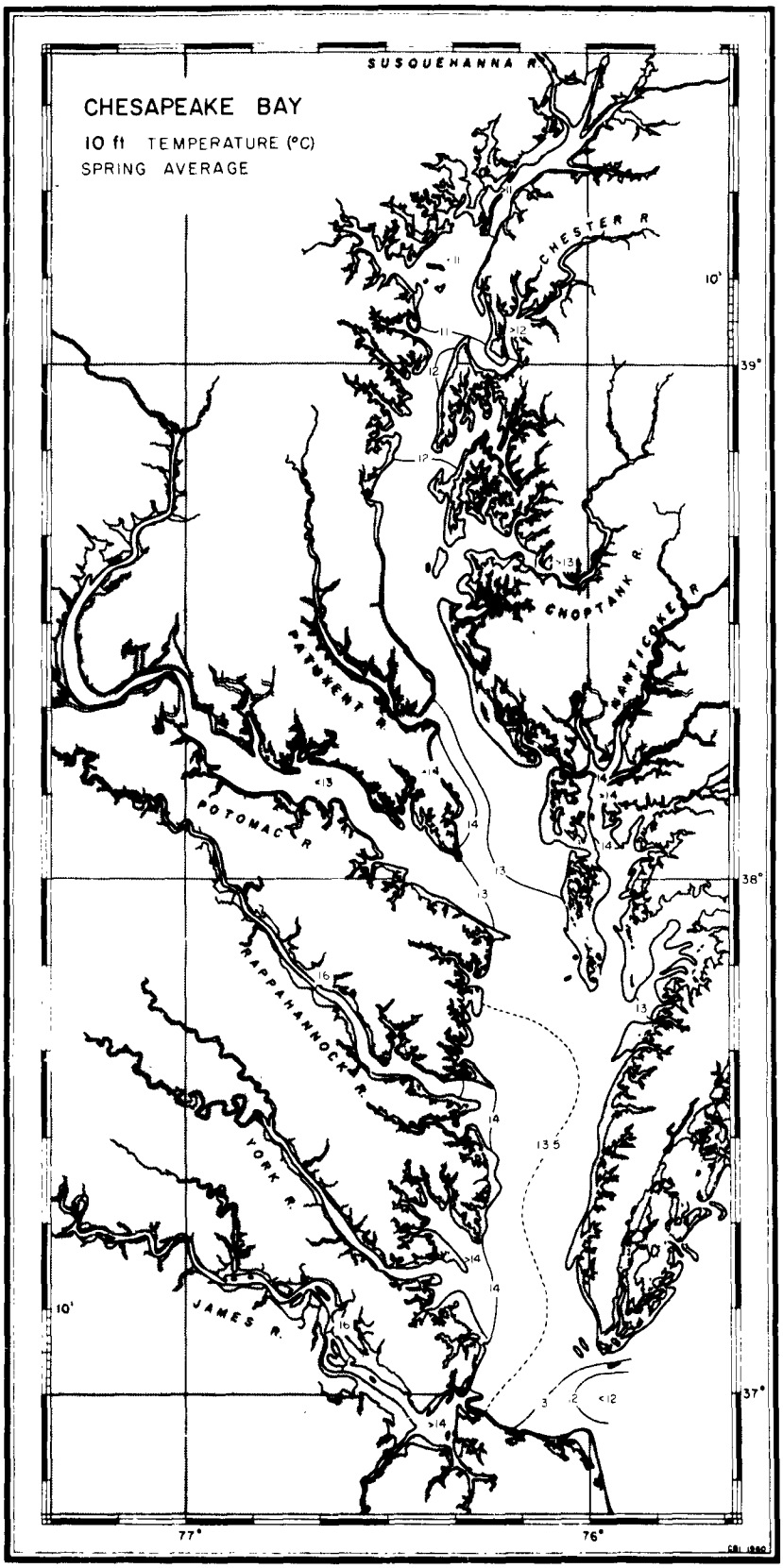


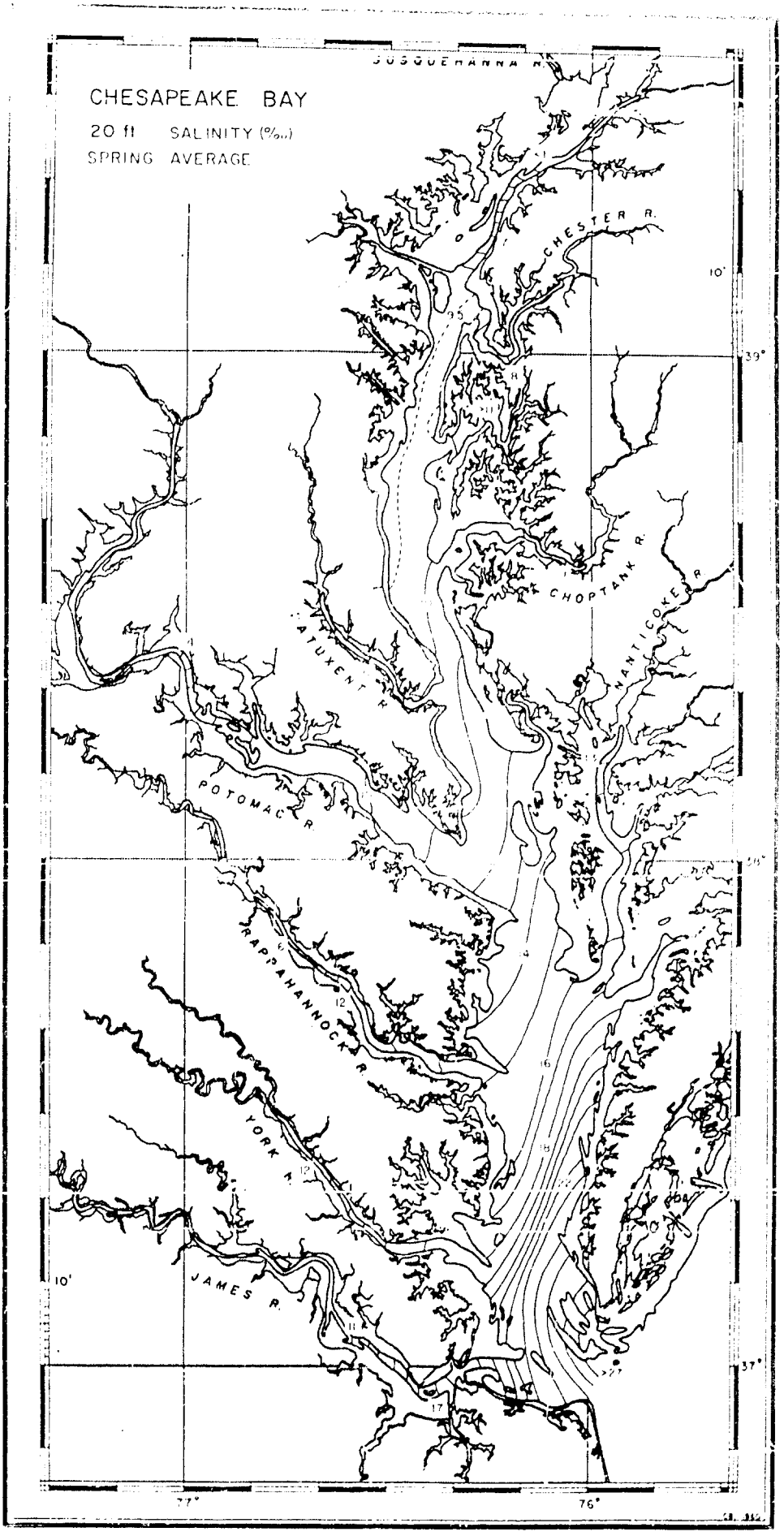

WINTER AVERAGE SECTION XIX
TEMPERATURE (°C)

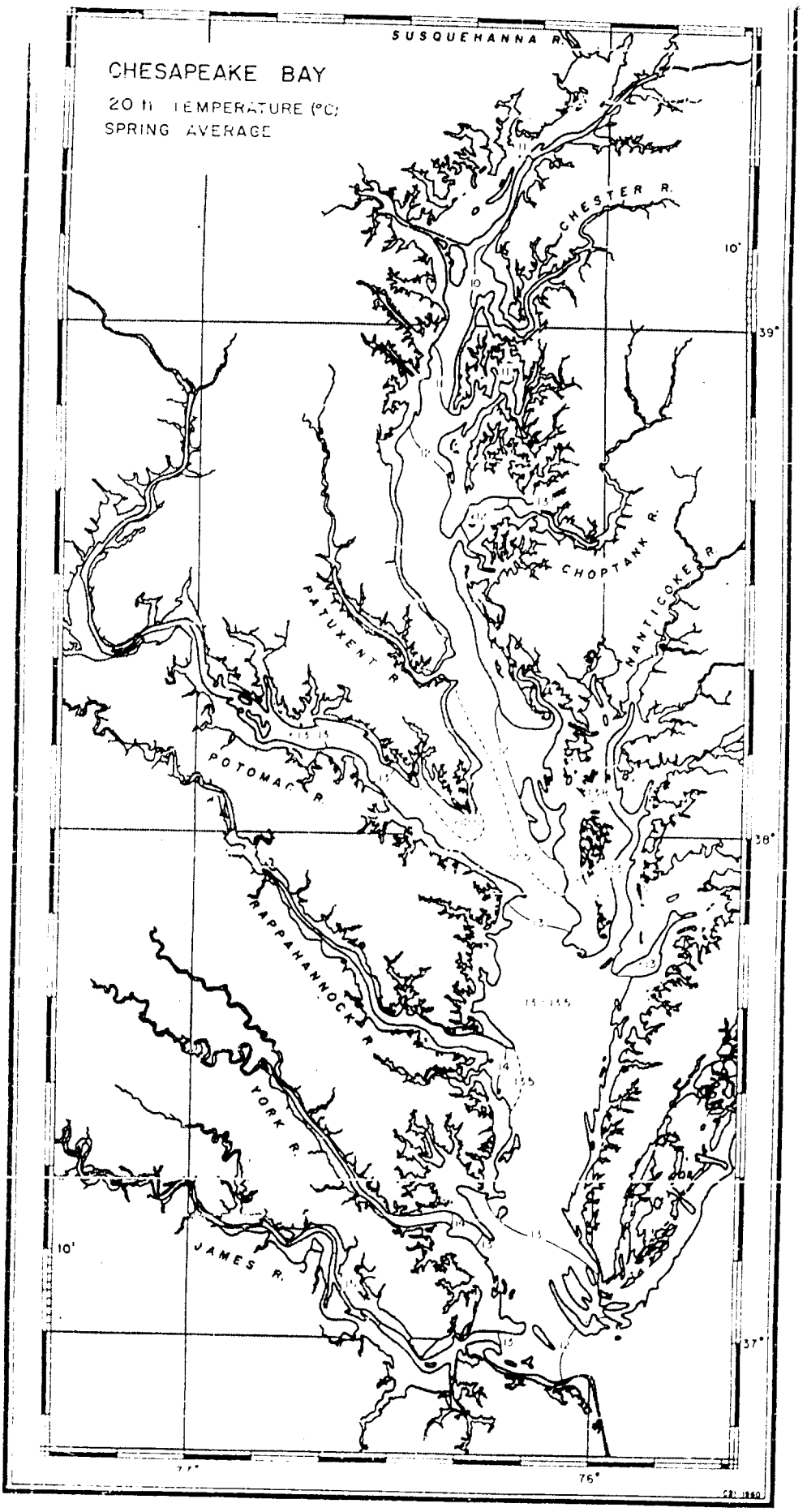

CHESAPEAKE BAY
SURFACE SALINITY (‰)
SPRING AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
MANTICOKE R.
39°
38°
37°
77°
76°

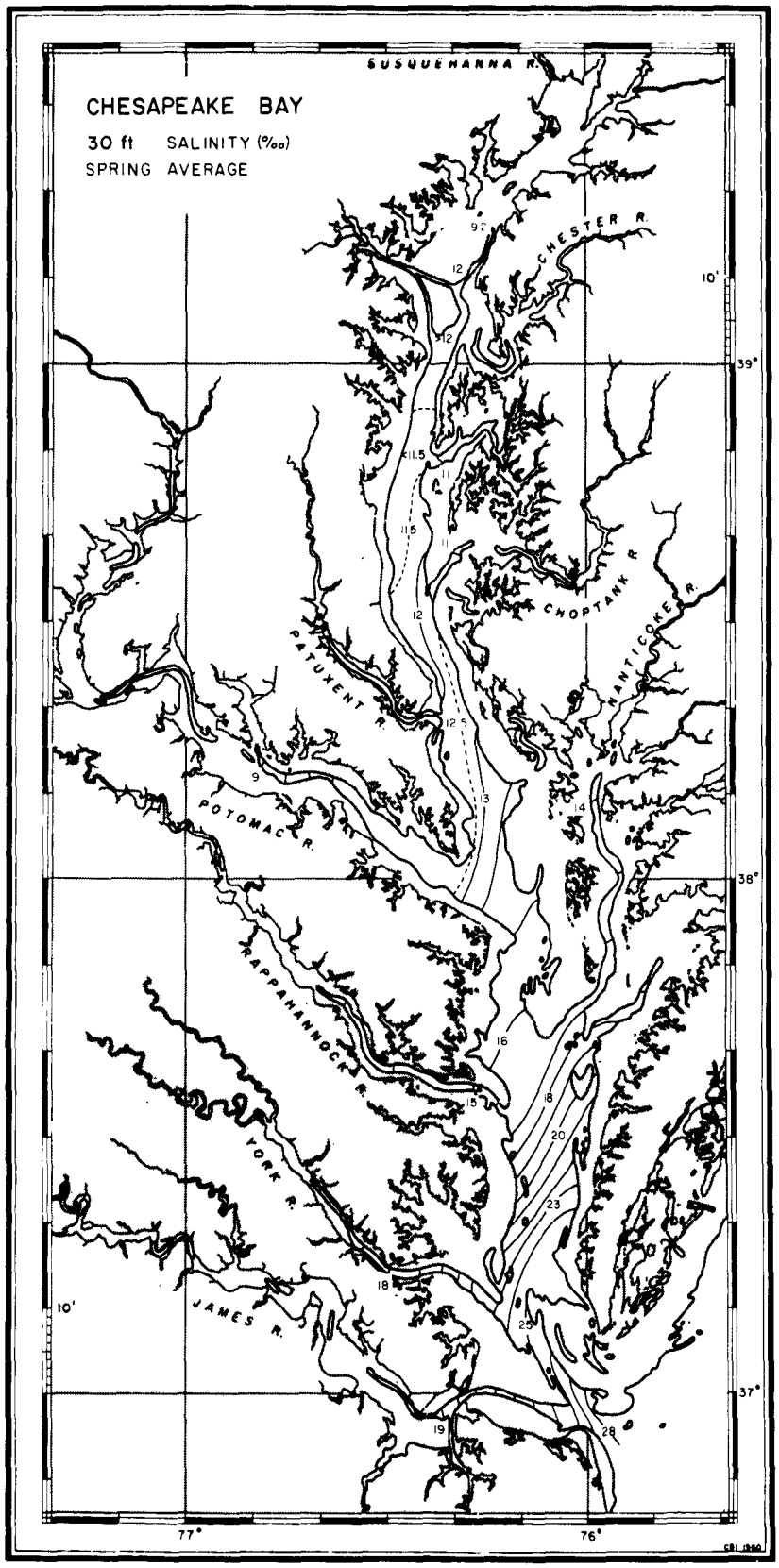

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
SPRING AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°
13-14
14-15

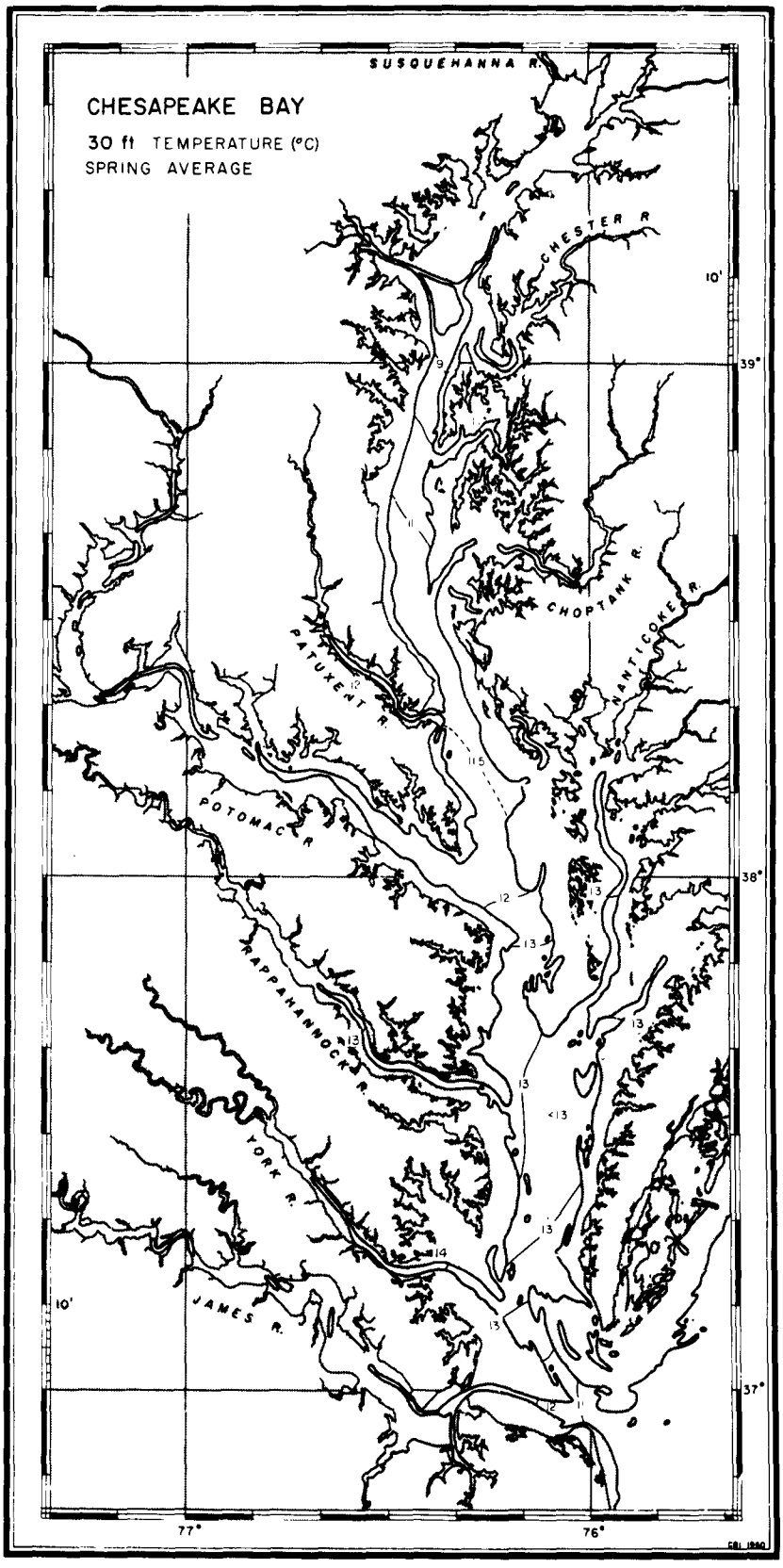

CHESAPEAKE BAY
10 ft SALINITY (‰)
SPRING AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

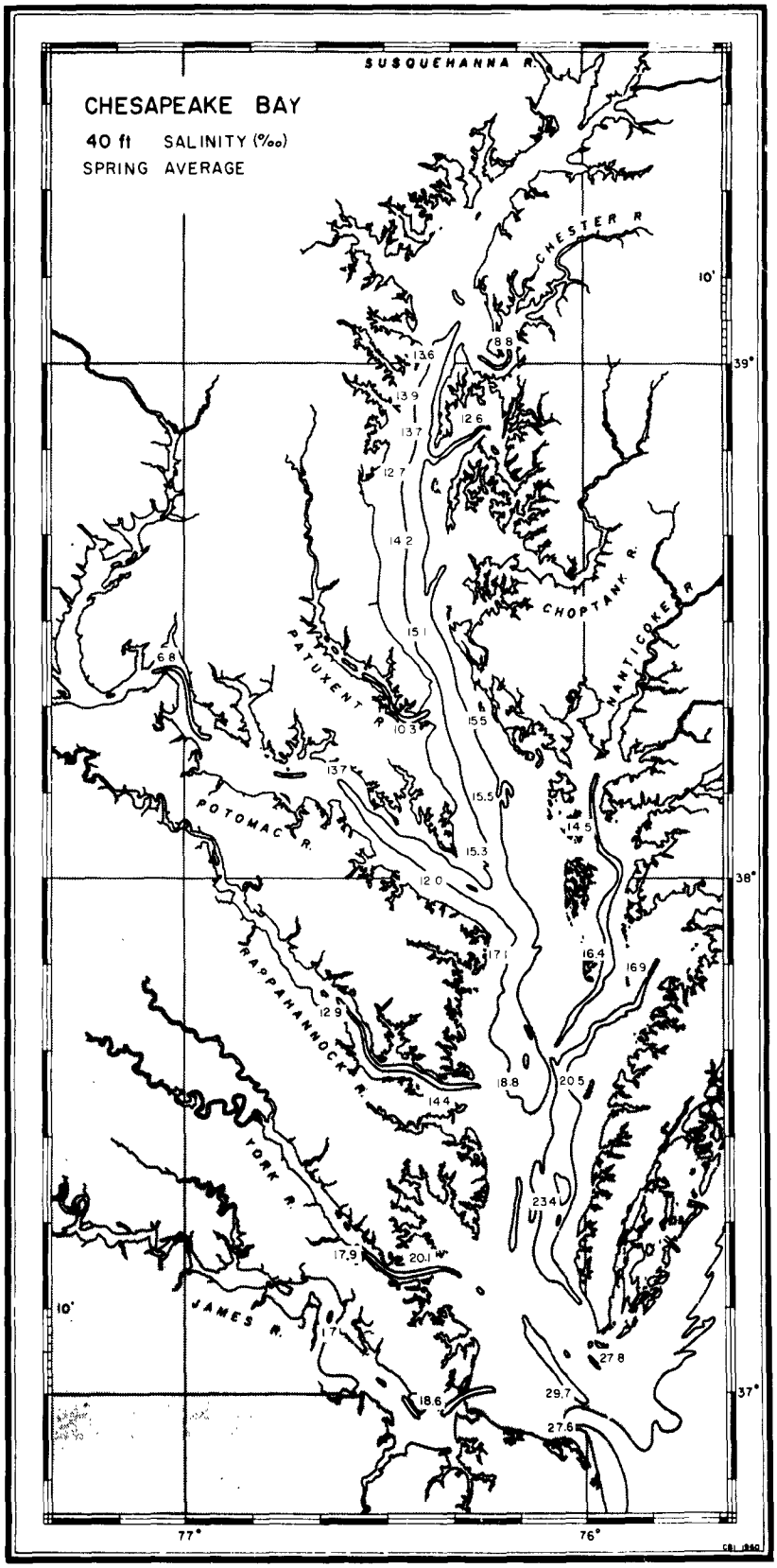

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
SPRING AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

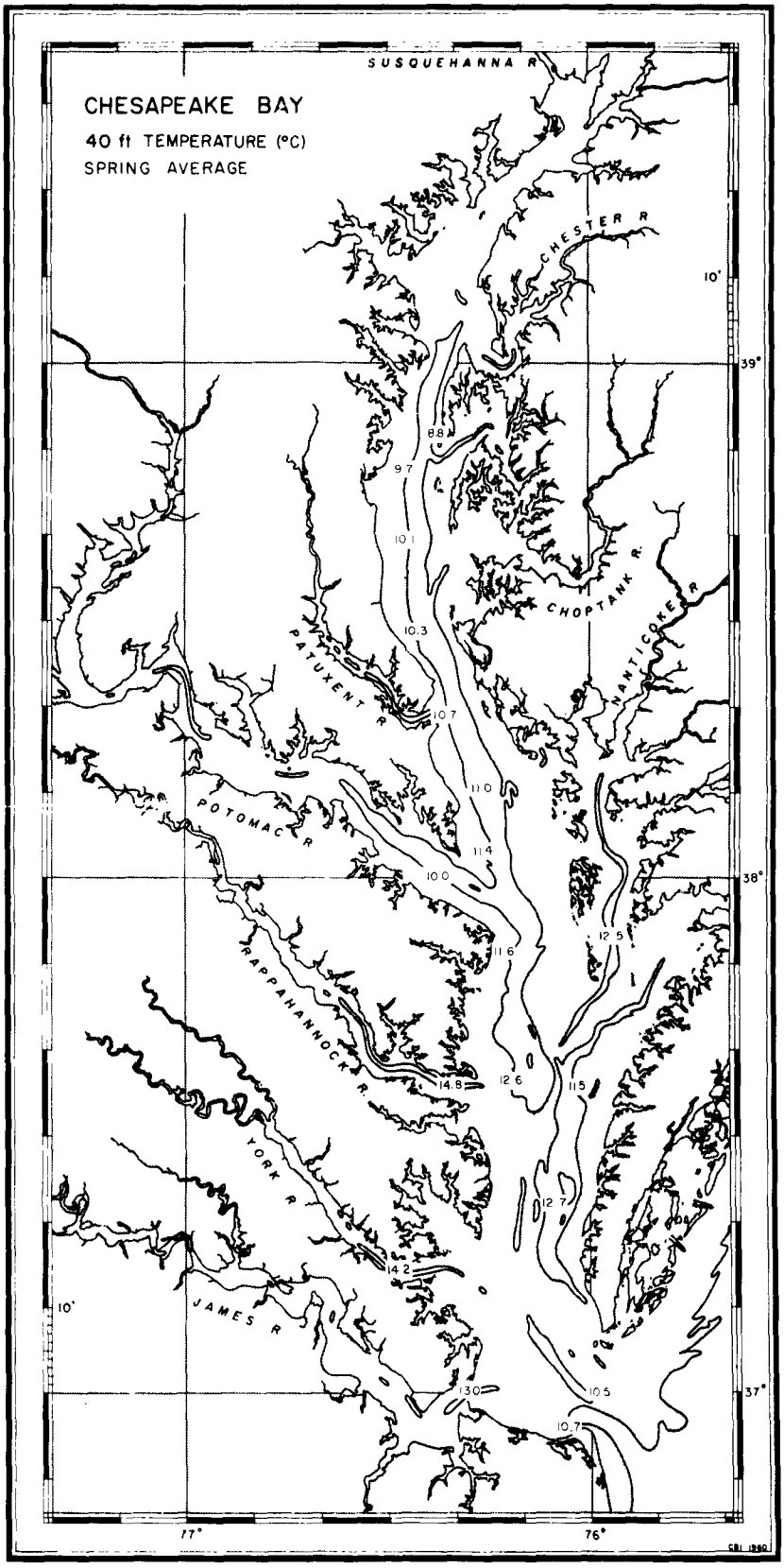

CHESAPEAKE BAY
20 ft SALINITY (‰)
SPRING AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
NANTICOKE R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°

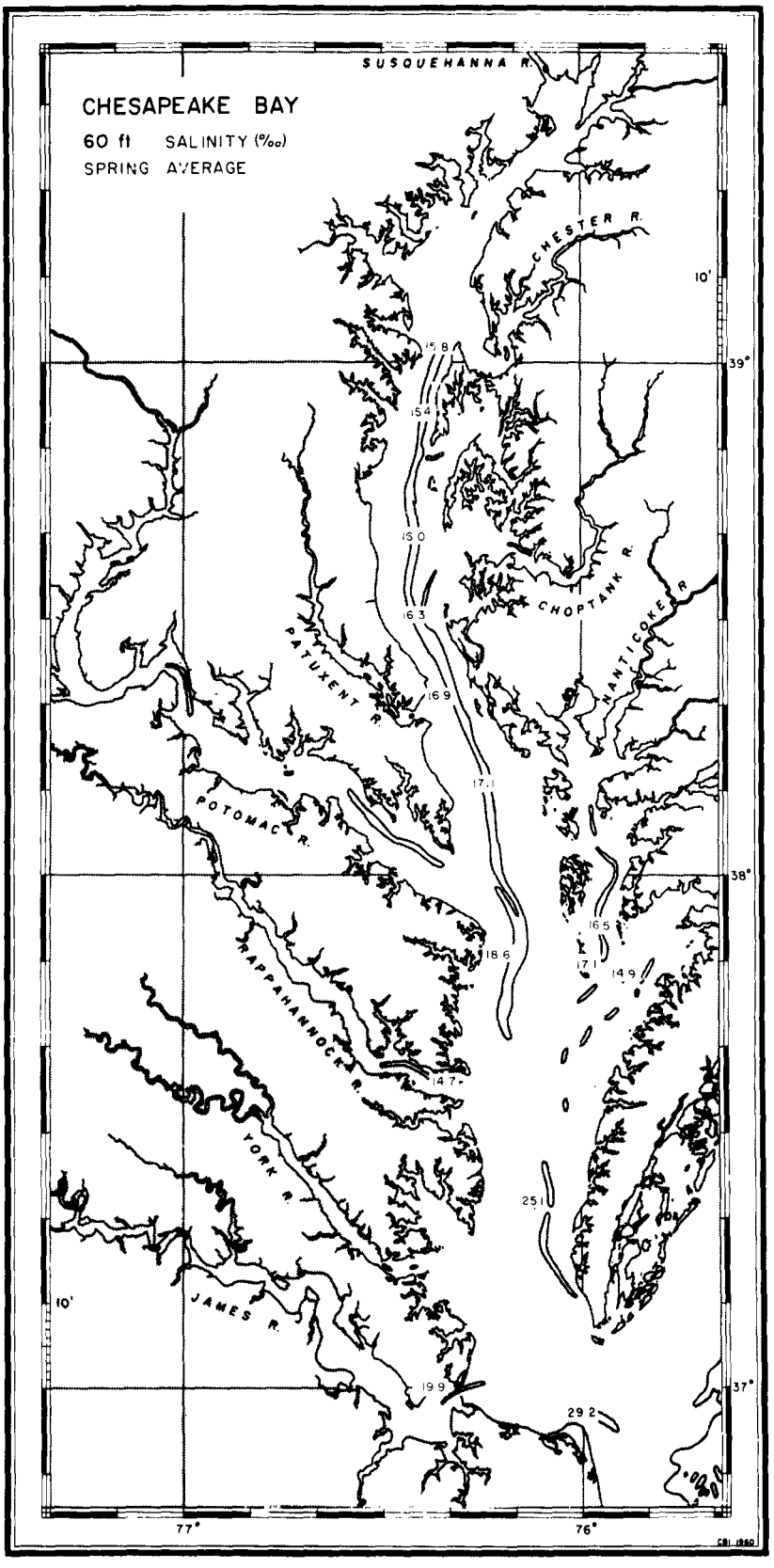

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
SPRING AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
10°
77°
76°

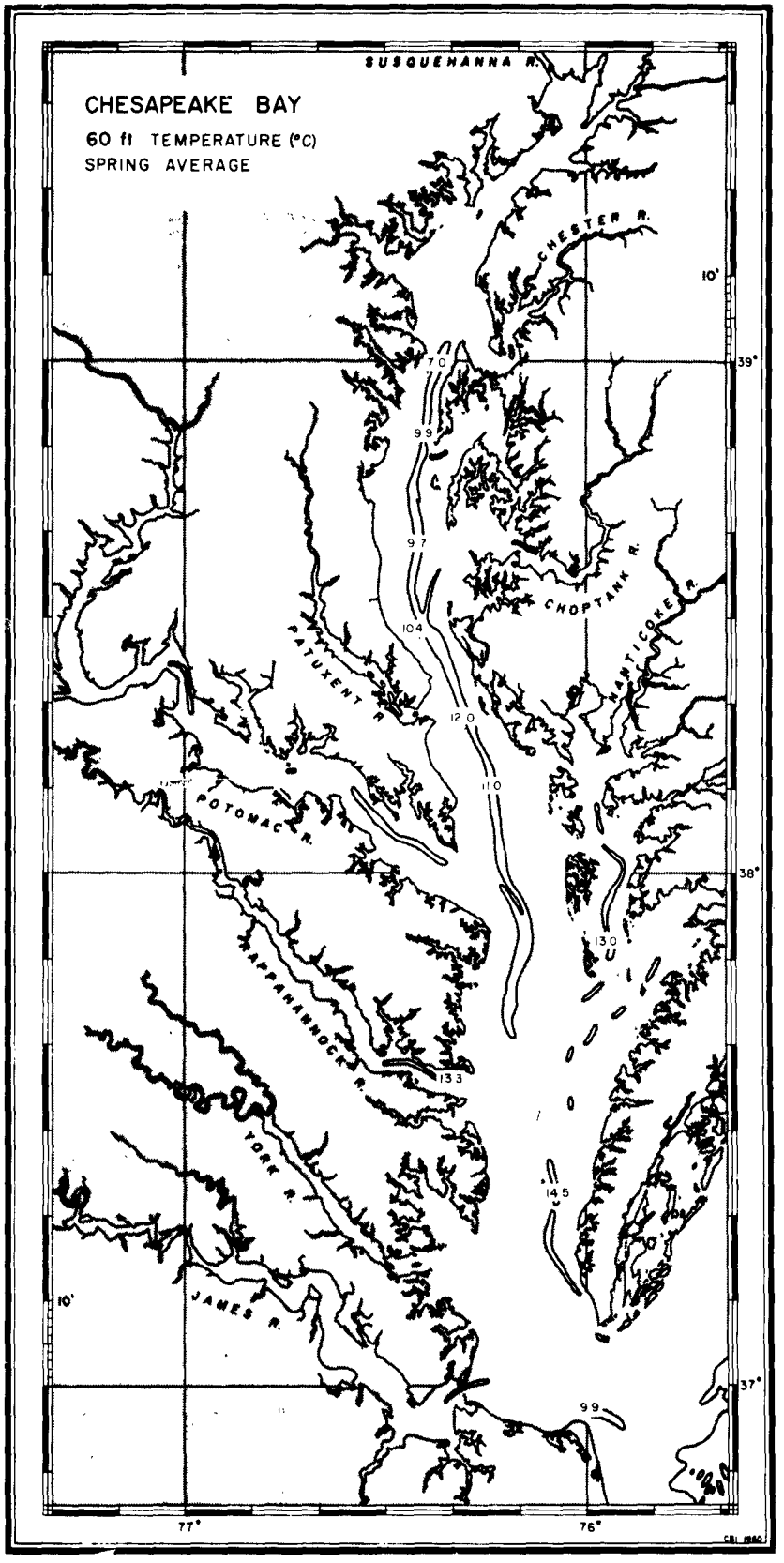

CHESAPEAKE BAY
30 ft SALINITY (‰)
SPRING AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
39°
38°
37°
77°
76°
10'


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
SPRING AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
MANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°
10'

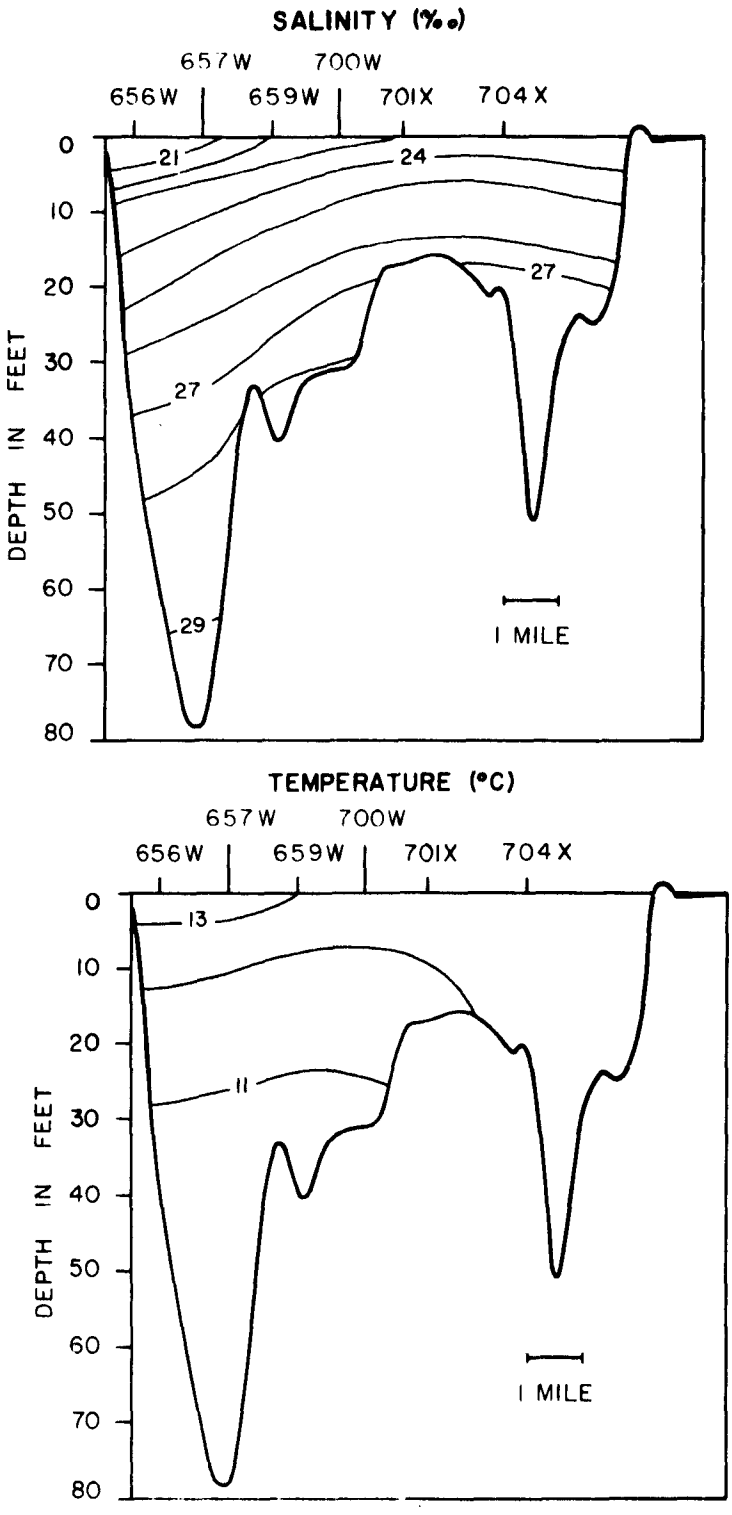

CHESAPEAKE BAY
40 ft SALINITY (‰)
SPRING AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
13.6
8.8
13.9
12.6
13.7
12.7
14.2
15.1
6.8
10.3
15.5
13.7
15.5
14.5
15.3
12.0
17.1
16.4
16.9
12.9
18.8
20.5
14.4
23.4
17.9
20.1
17
27.8
29.7
18.6
27.6
39°
38°
37°
10'
10'
77°
76°


CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
SPRING AVERAGE
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
8.8
9.7
10.1
10.3
10.7
11.0
11.4
10.0
11.6
12.5
14.8
12.6
11.5
12.7
14.2
13.0
10.5
10.7
39°
38°
37°
10°
77°
76°

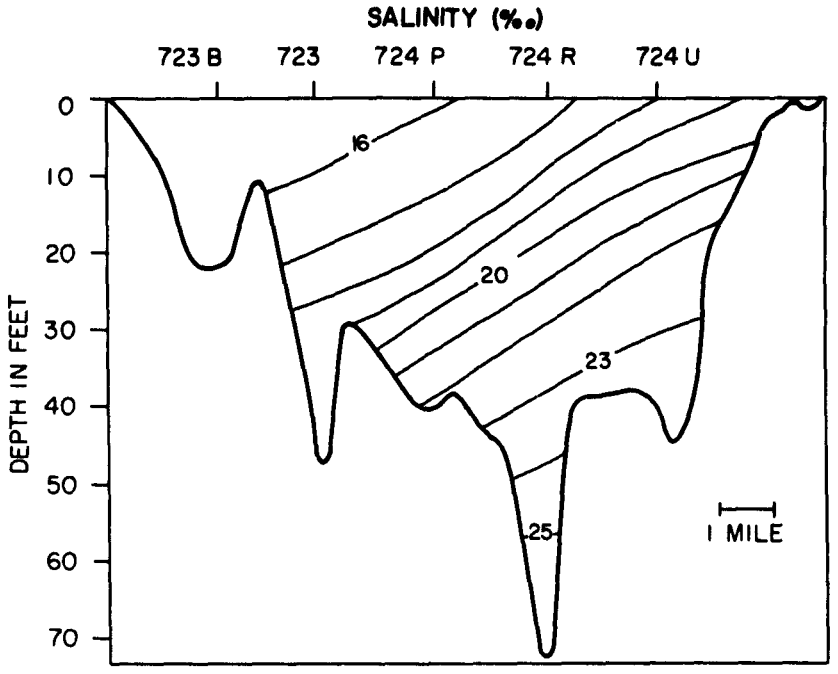

CHESAPEAKE BAY
60 ft SALINITY (‰)
SPRING AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
158
154
150
163
169
171
186
165
171
149
147
251
199
292
39°
38°
37°
10'
77°
76°

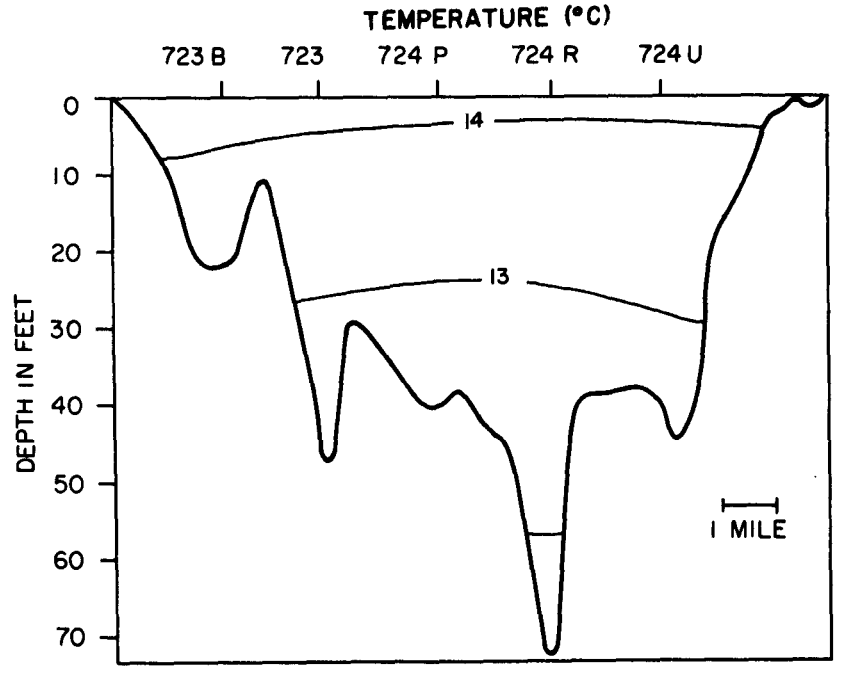

CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
SPRING AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
7.0
9.9
9.7
10.4
12.0
11.0
13.0
13.3
14.5
9.9
39°
38°
37°
10'
77°
76°

## SPRING AVERAGE SECTION II

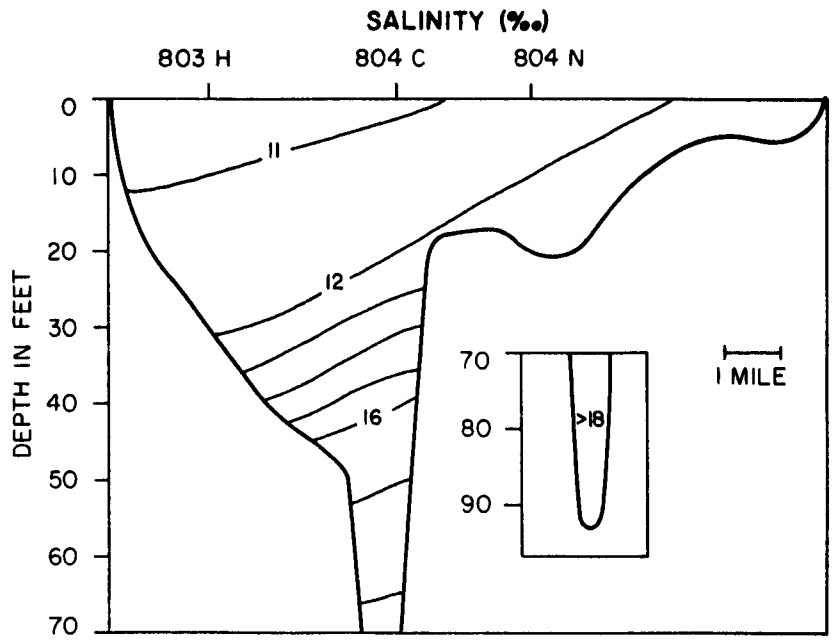


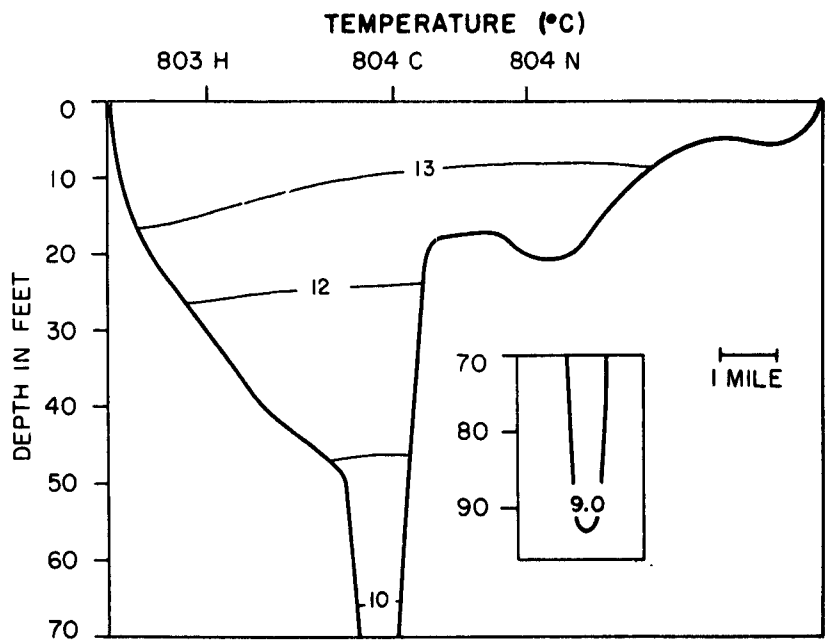
## SPRING AVERAGE SECTION IV



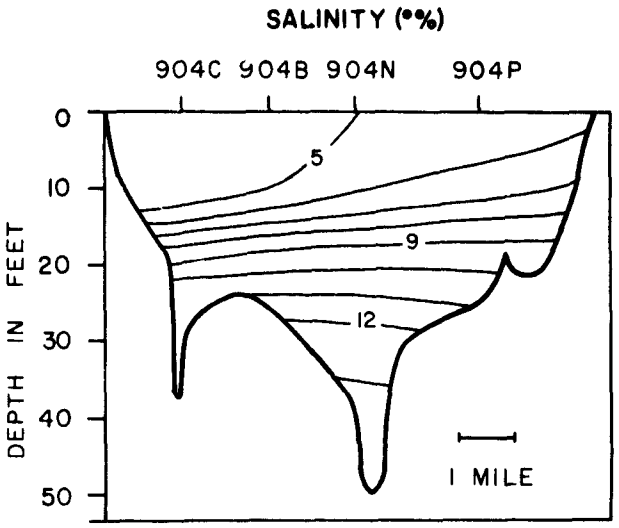



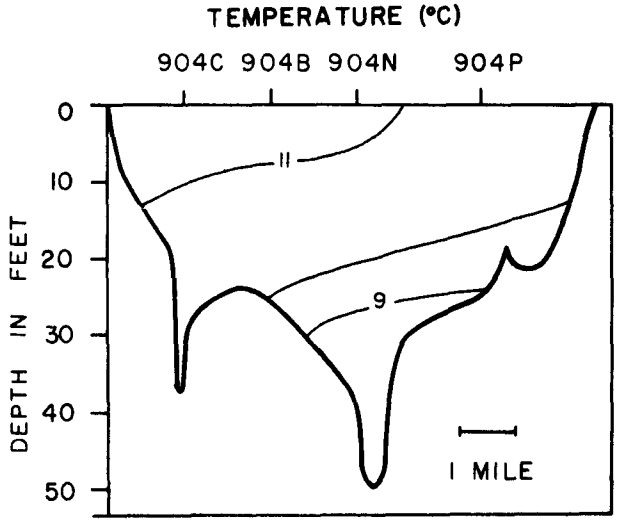
## SPRING AVERAGE SECTION VI



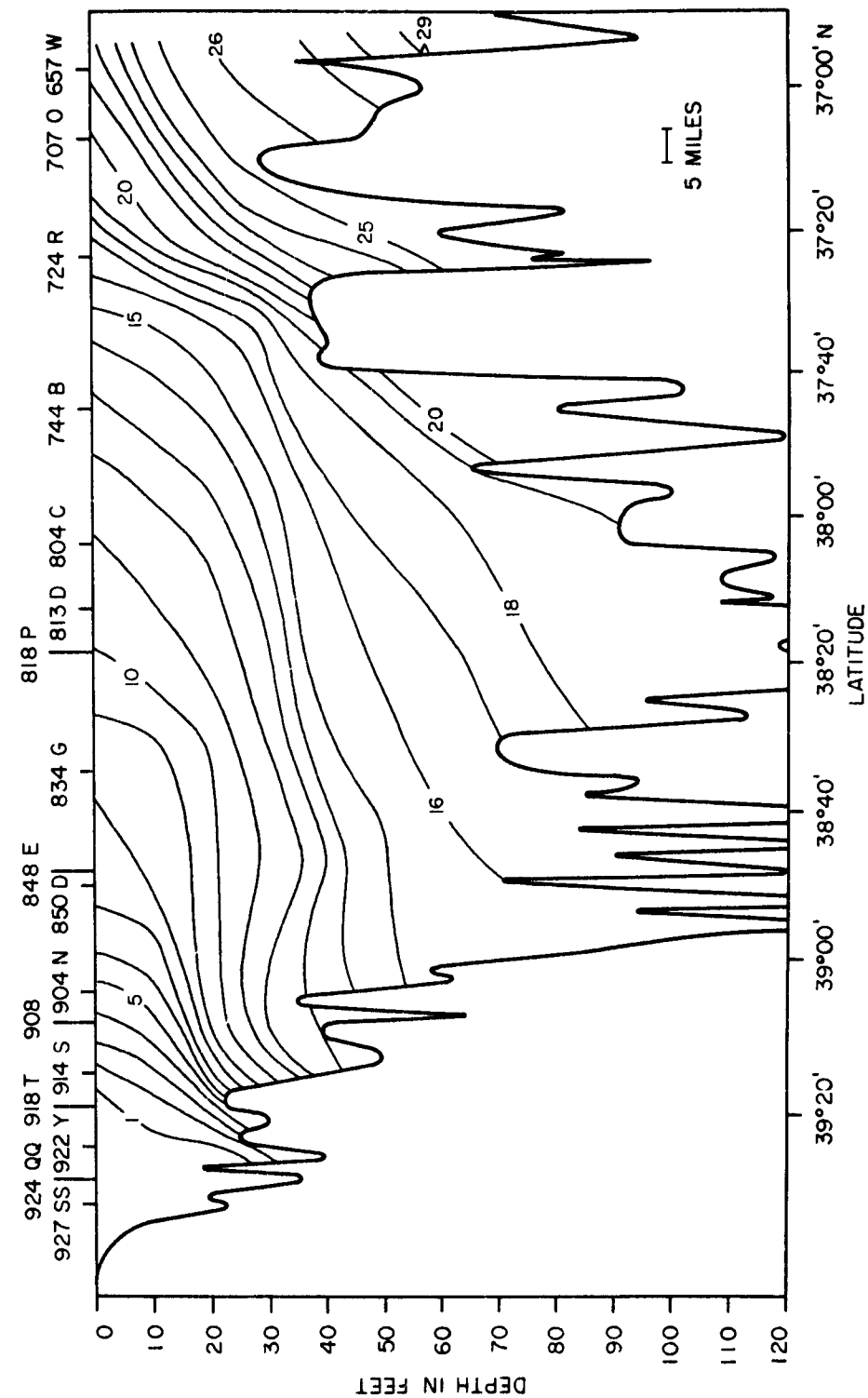
SPRING AVERAGE SECTION X

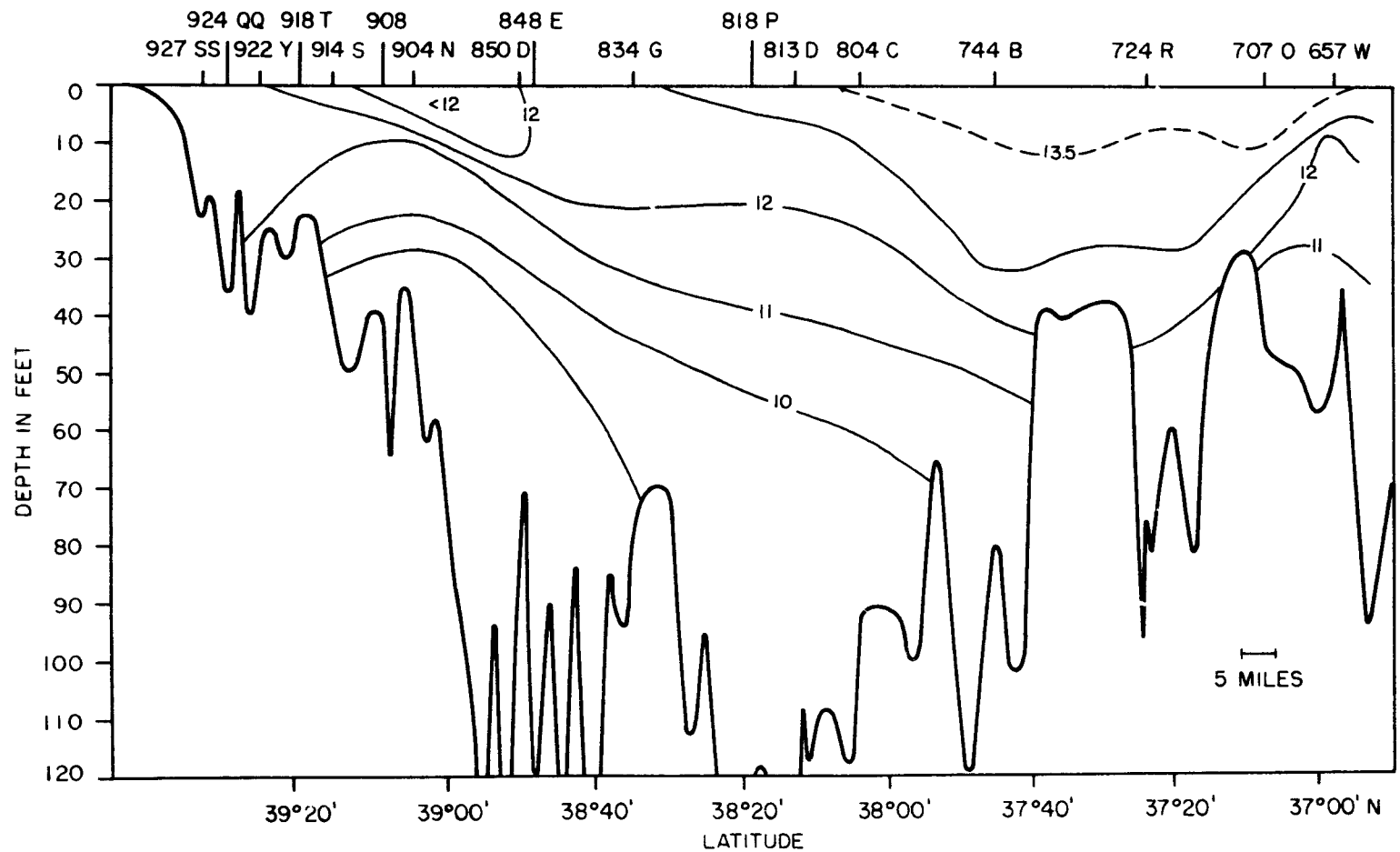


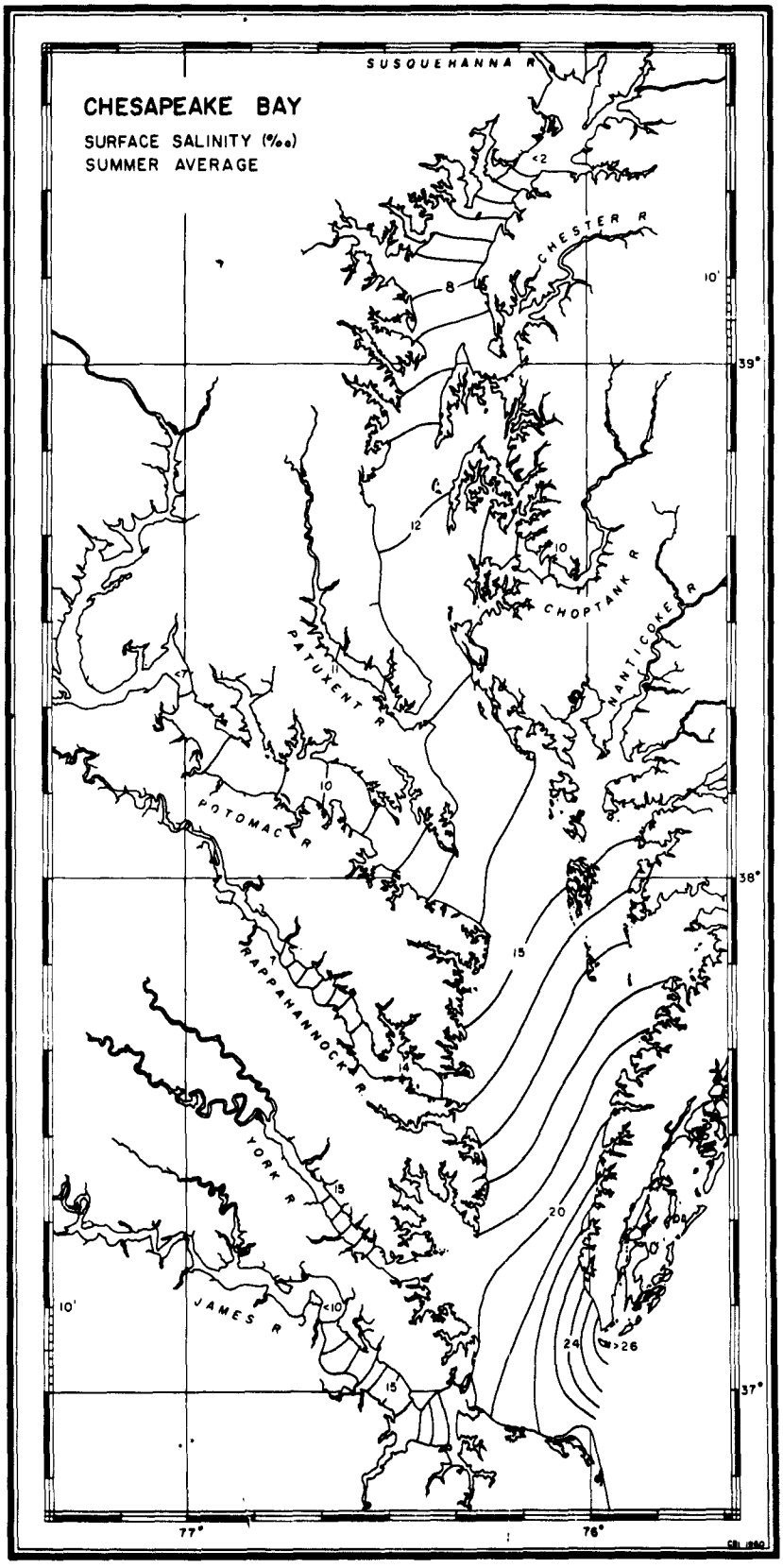
SPRING AVERAGE SECTION XIX

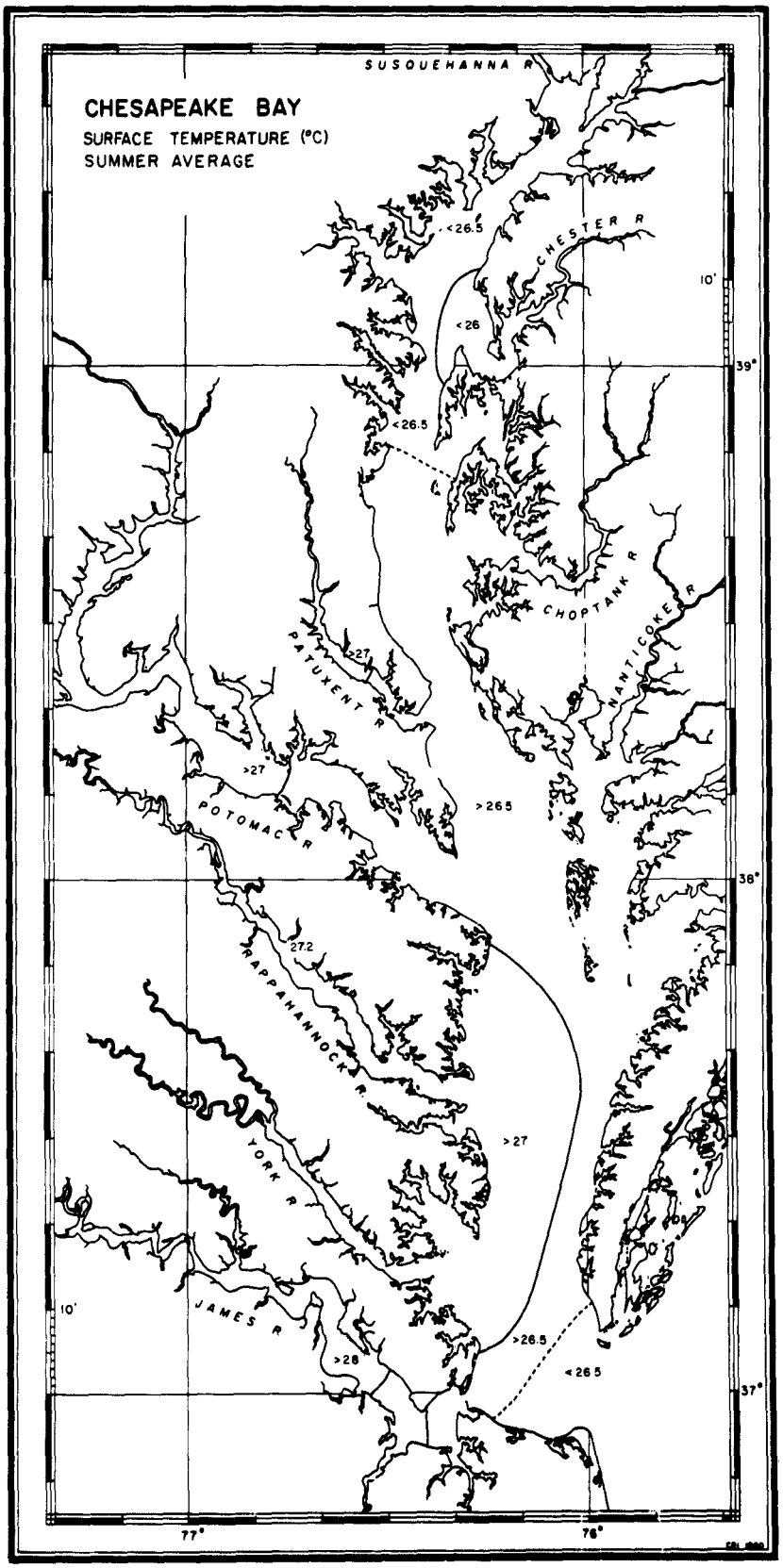
SALINITY (‰)

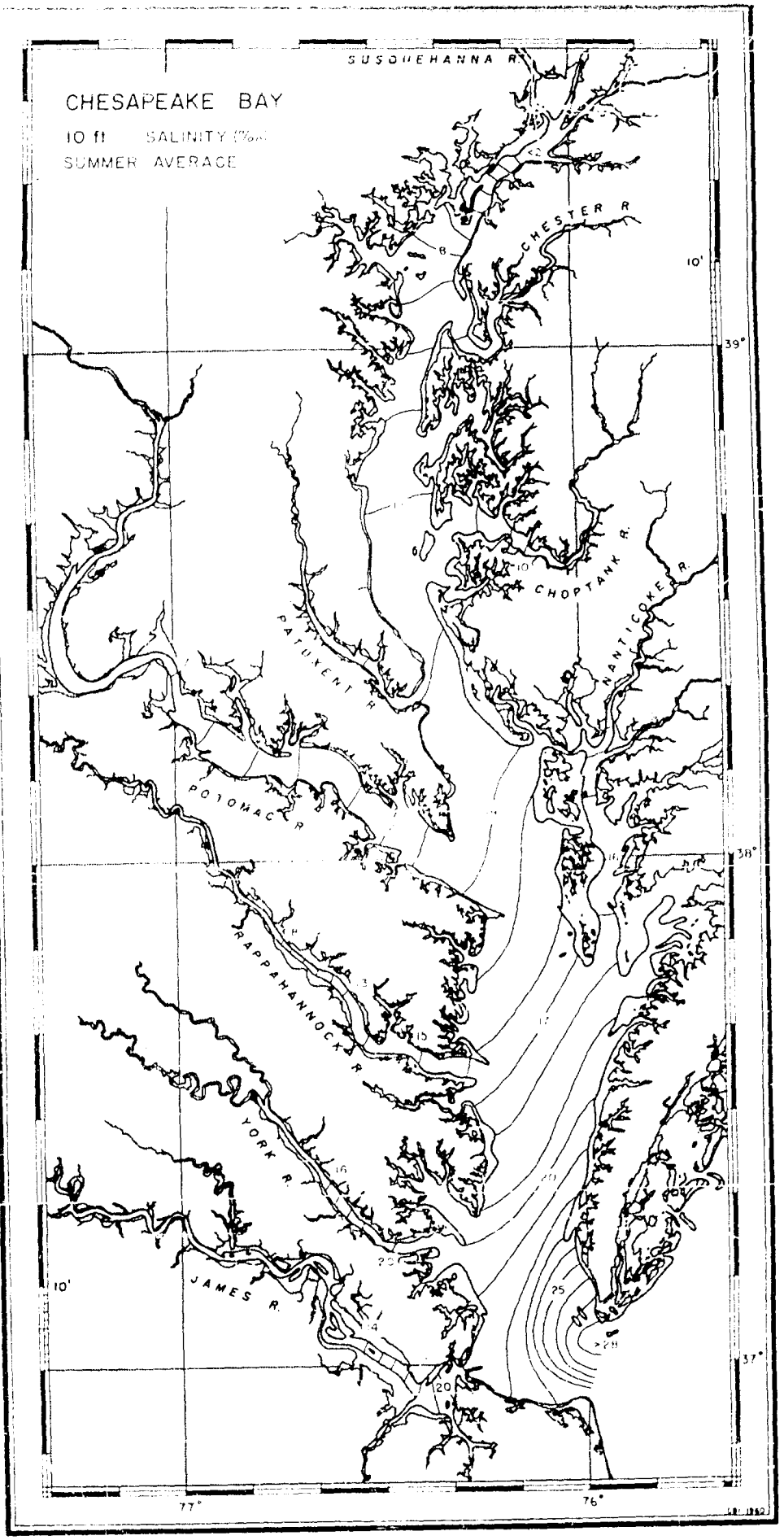


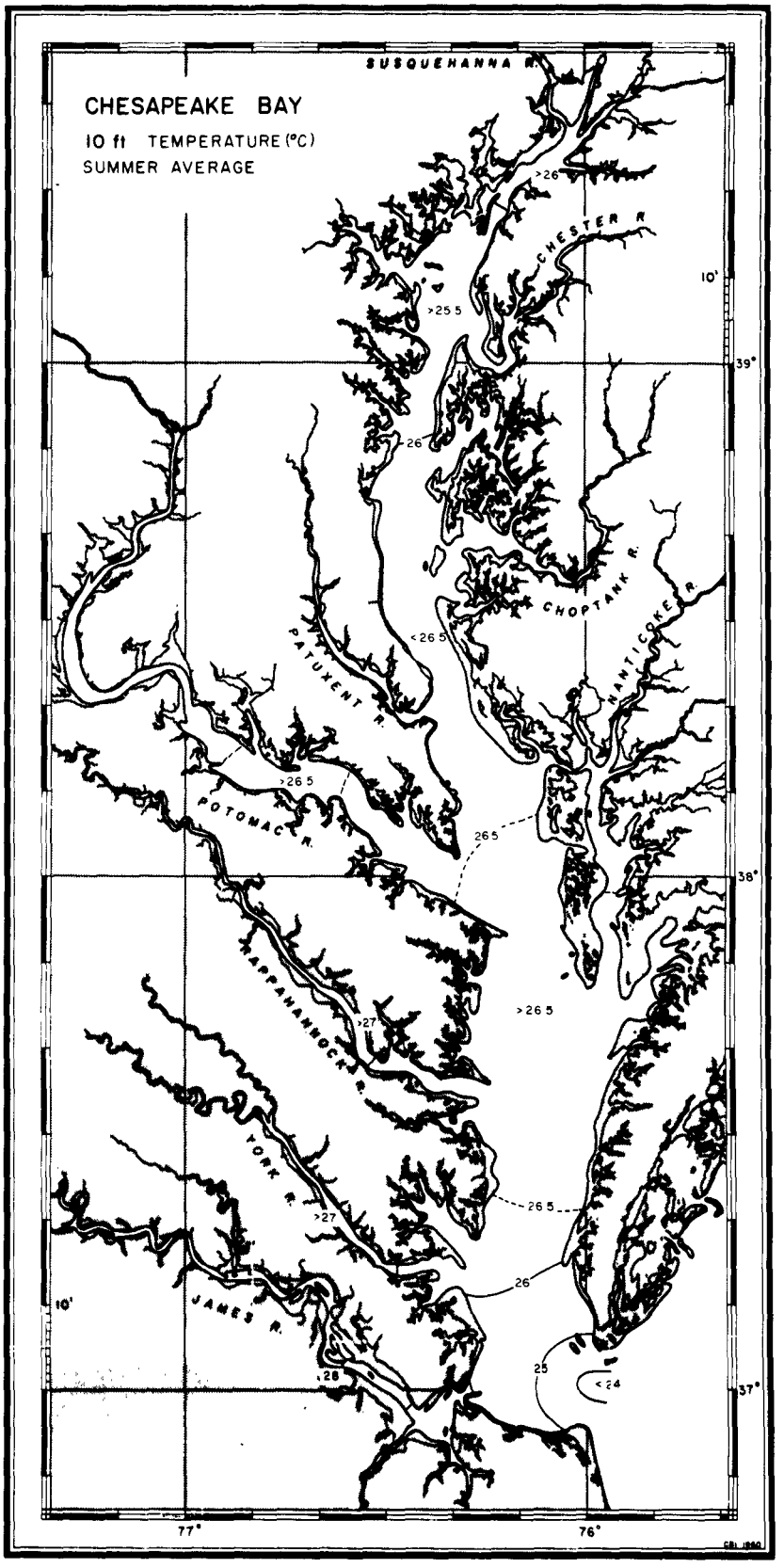


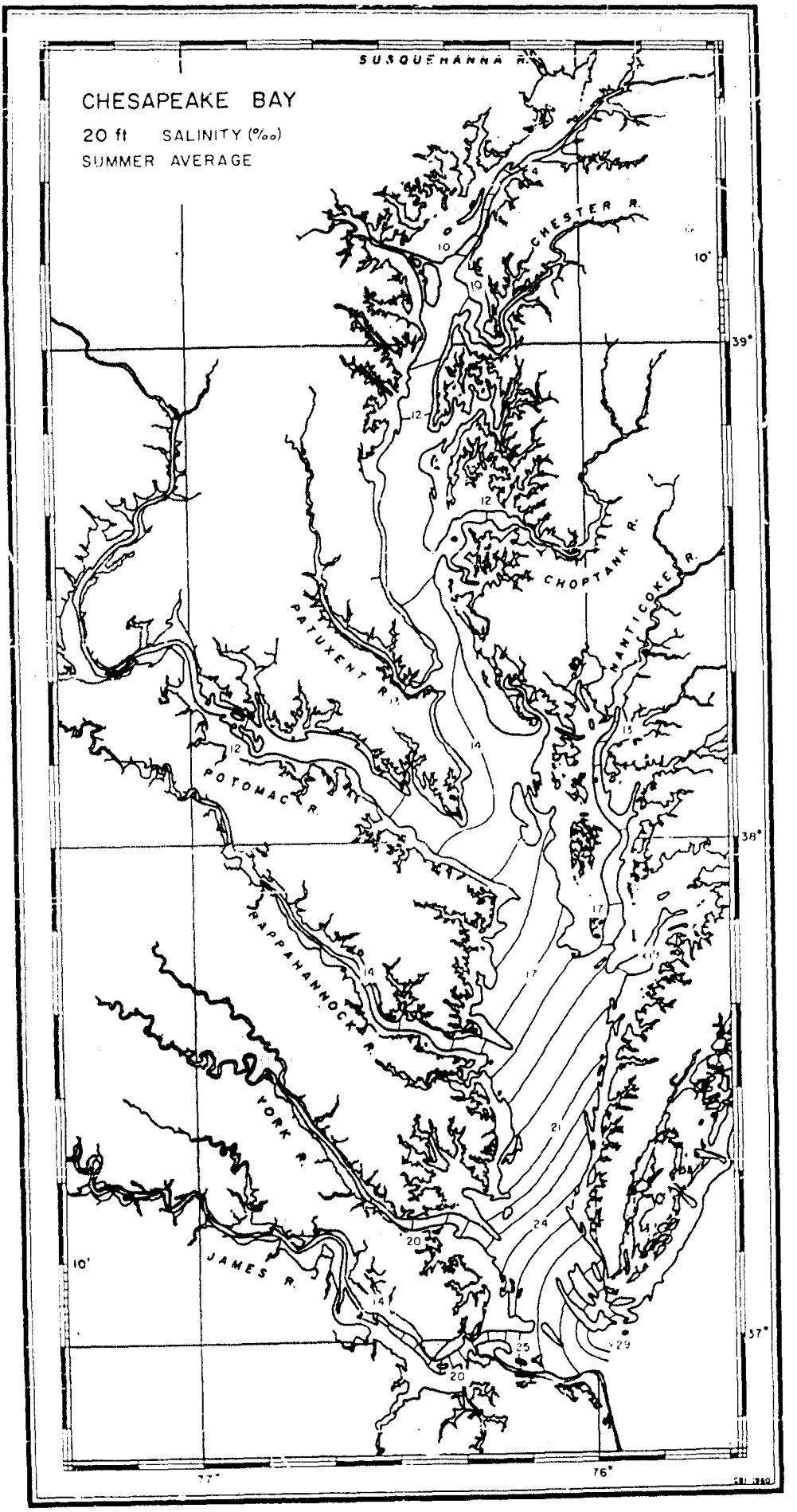

SPRING AVERAGE SECTION XIX
TEMPERATURE (°C)

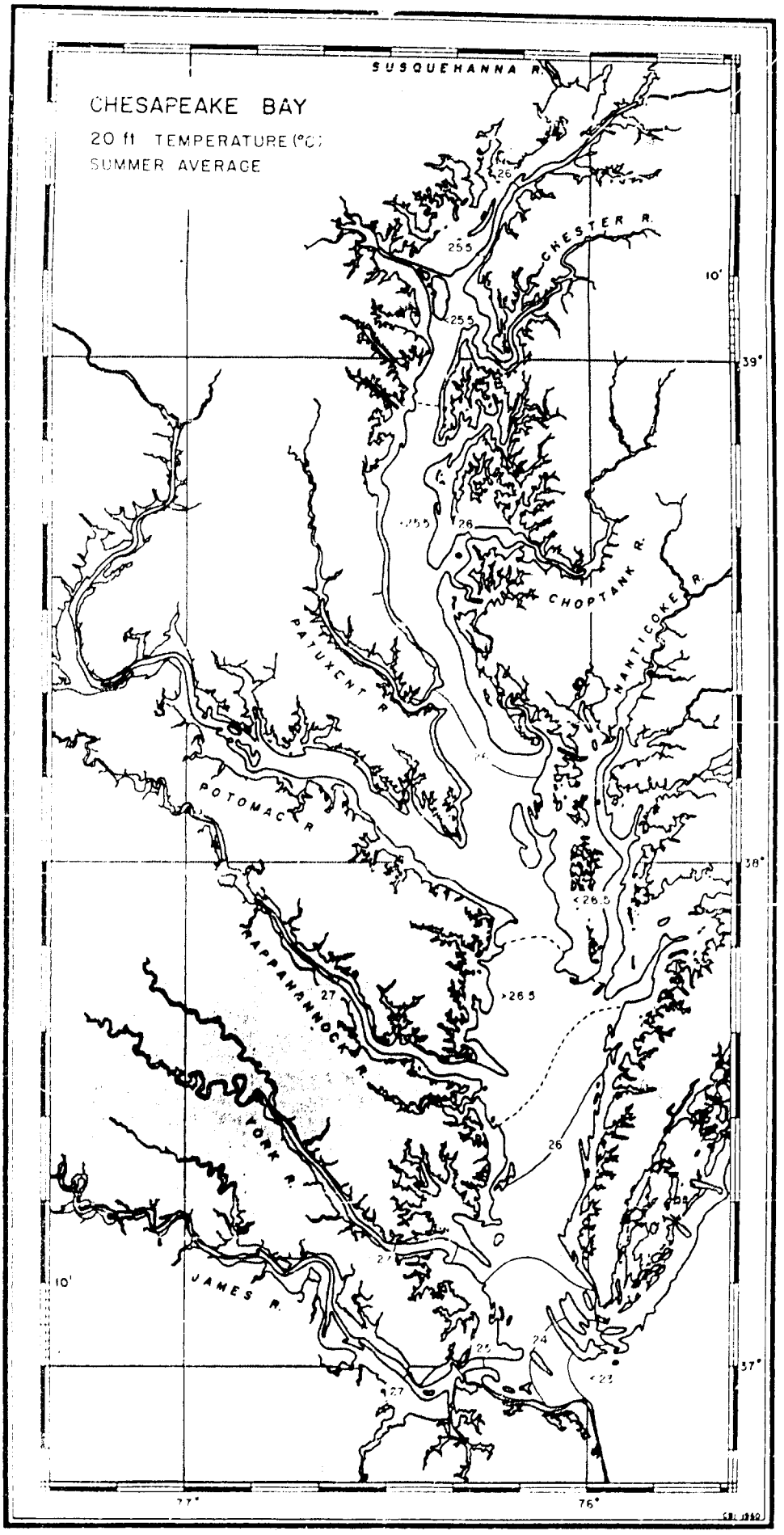

CHESAPEAKE BAY
SURFACE SALINITY (‰)
SUMMER AVERAGE
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
NANTICOKE R
<2
8
10
12
14
15
20
24
>26
<10
10'
39°
38°
37°
77°
76°

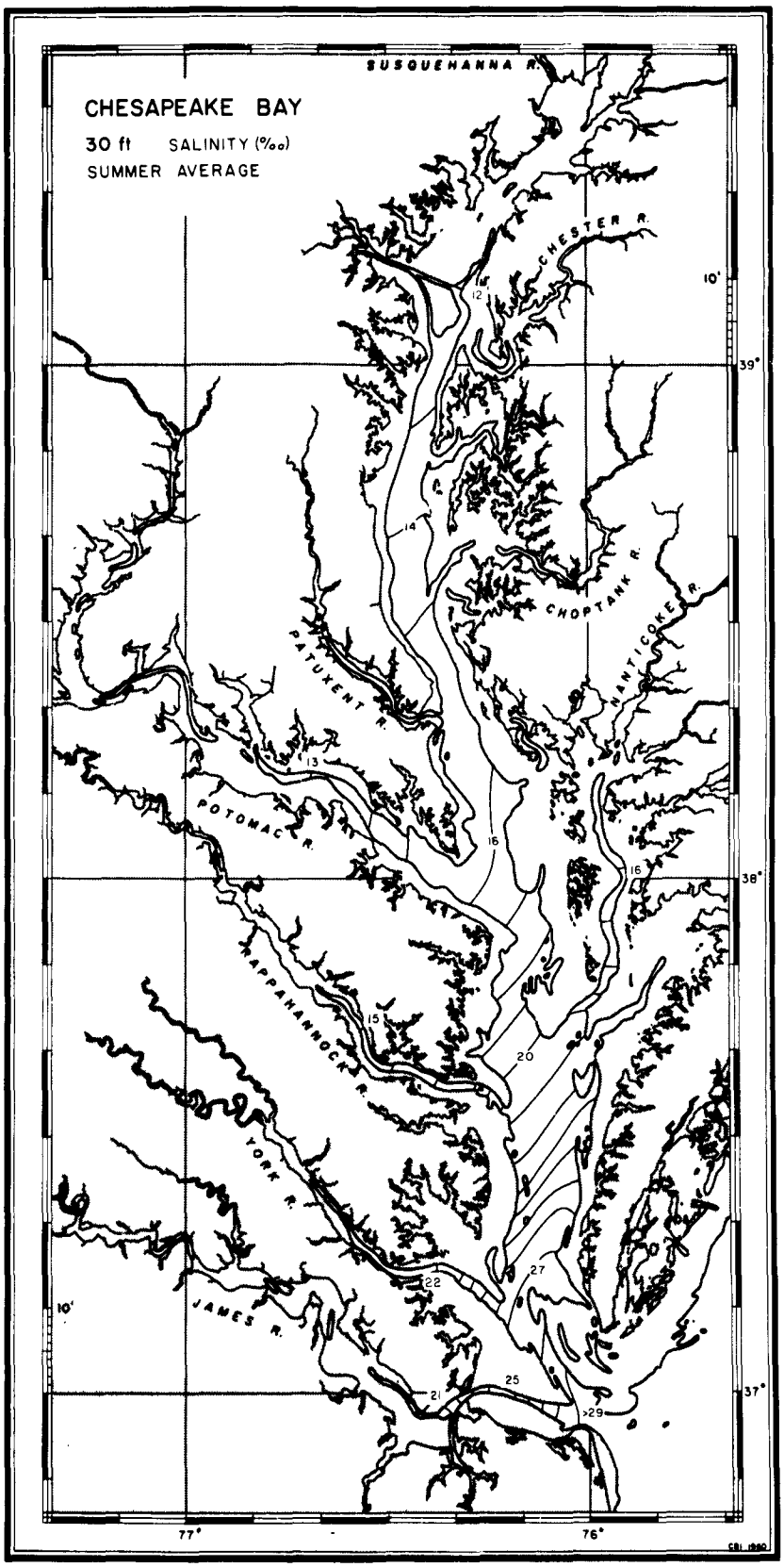

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
SUMMER AVERAGE
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
<26.5
<26
>27
>26.5
27.2
>28
10'
39°
38°
37°
77°
76°

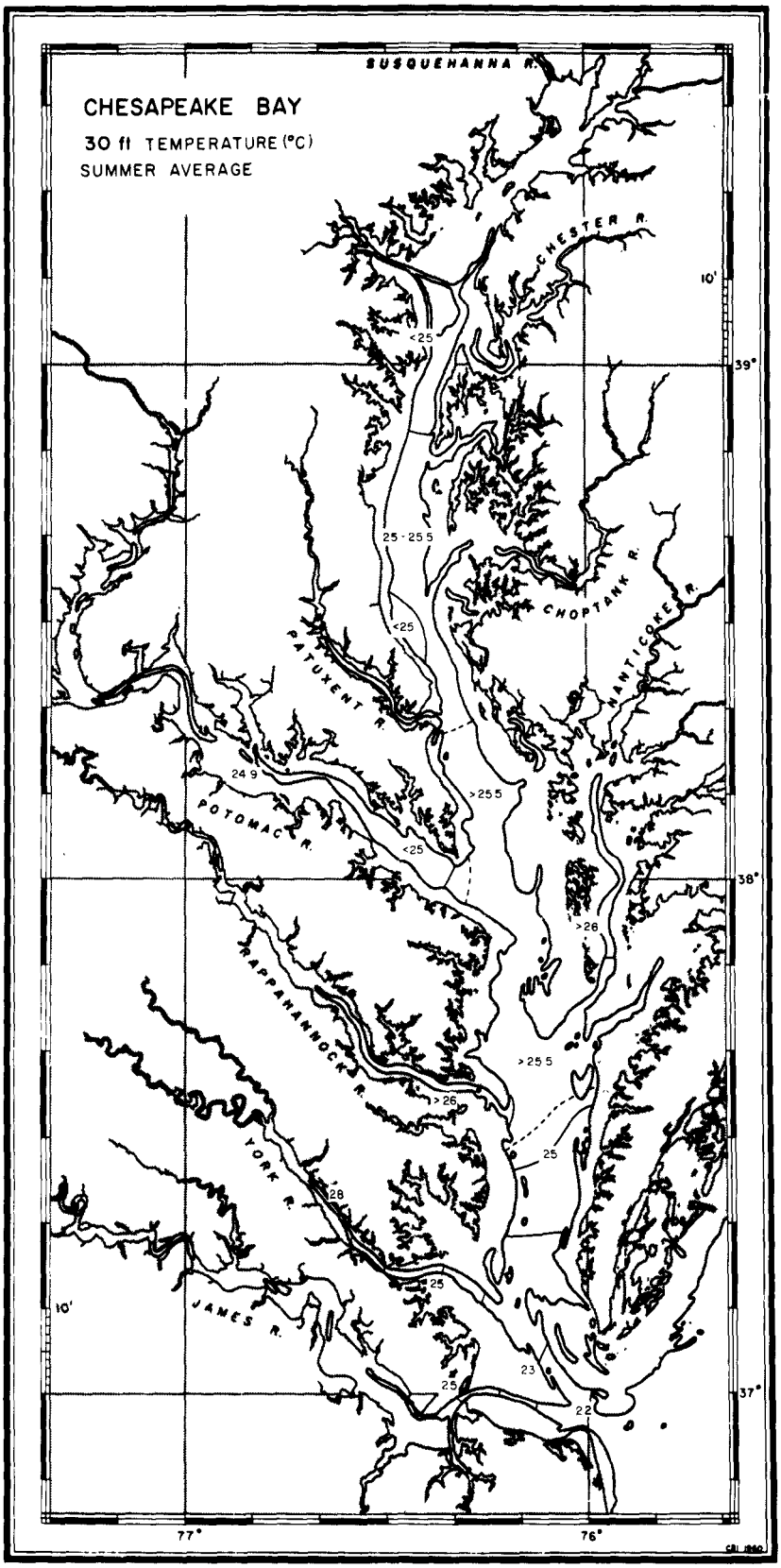

CHESAPEAKE BAY
10 ft SALINITY (‰)
SUMMER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

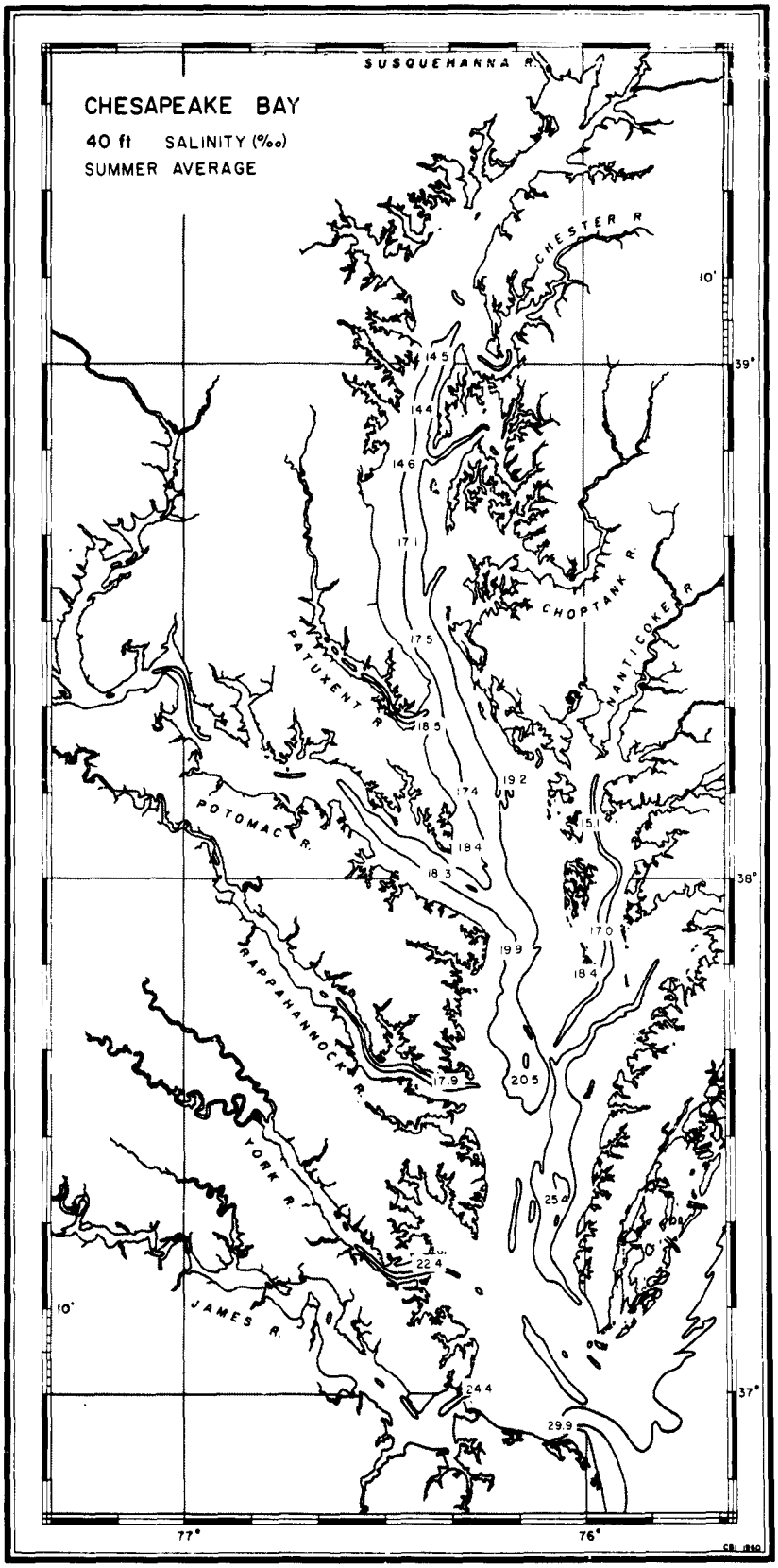

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
SUMMER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
>26
>25.5
26
<26.5
>26.5
26.5
>26.5
>27
>27
26.5
26
25
<24
28
10'
10'
39°
38°
37°
77°
76°

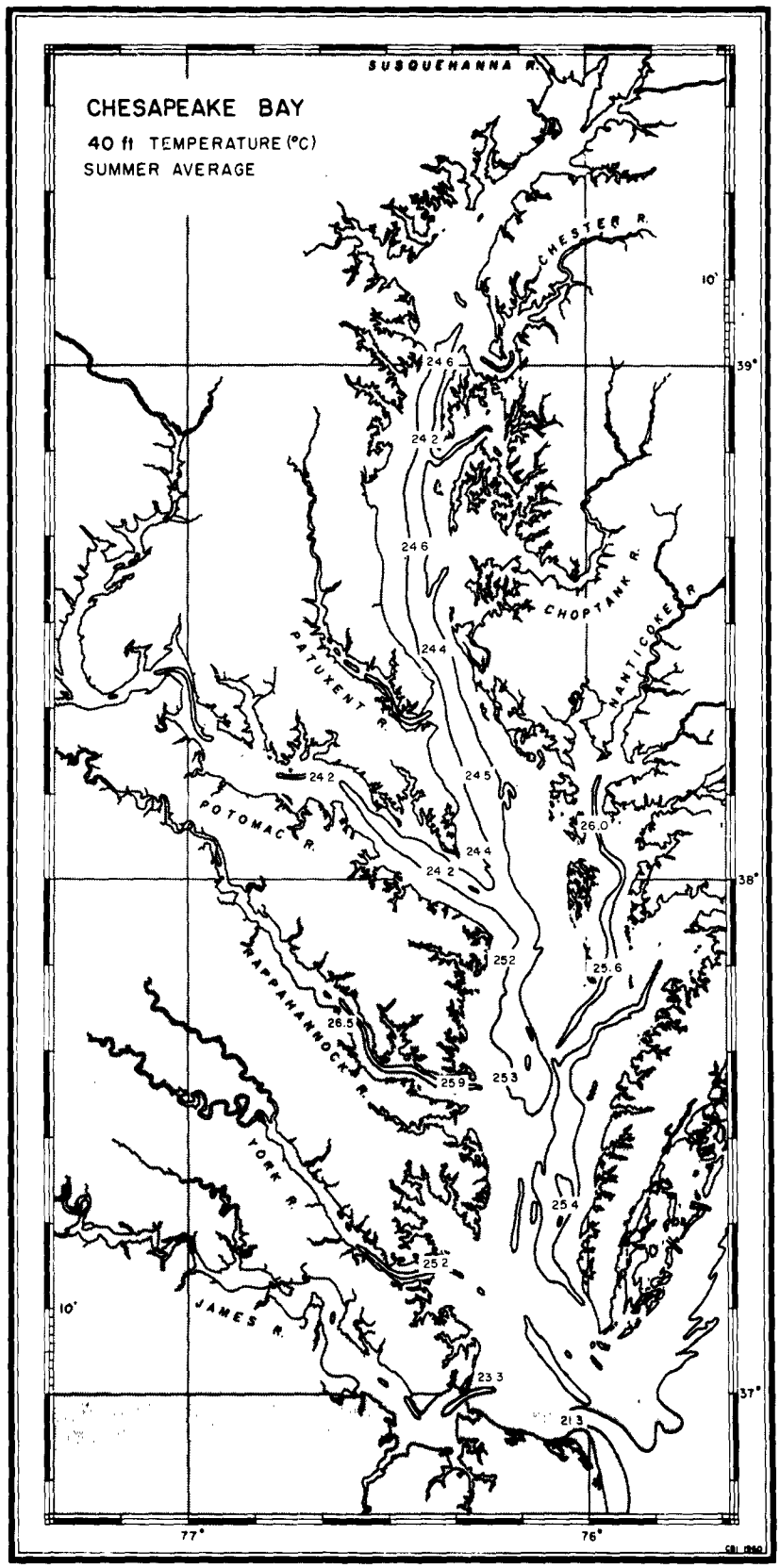

CHESAPEAKE BAY
20 ft SALINITY (‰)
SUMMER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

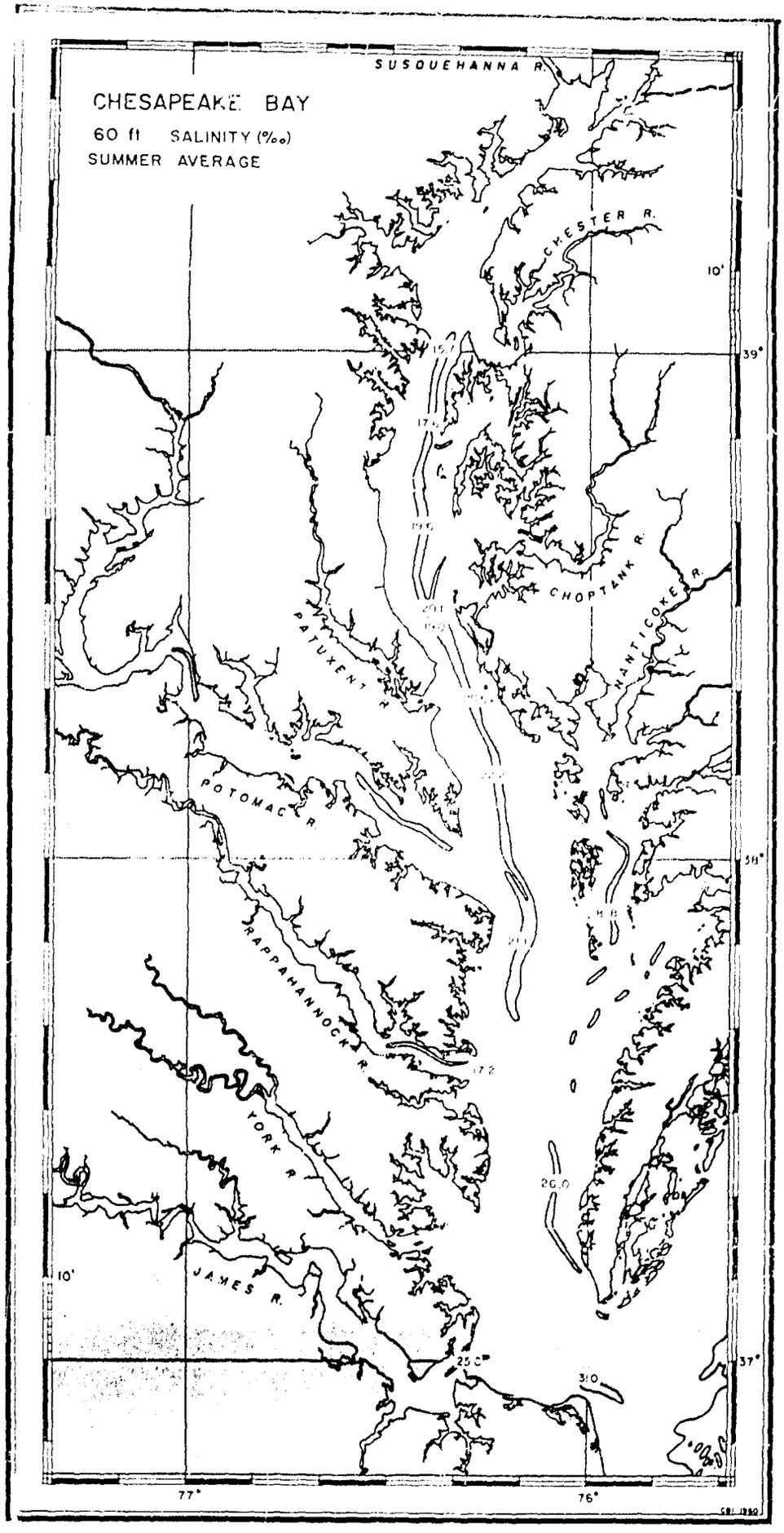

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
SUMMER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
MANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
<25.5
25.5
26
>26.5
27
24
<23
39°
38°
37°
10'
77°
76°

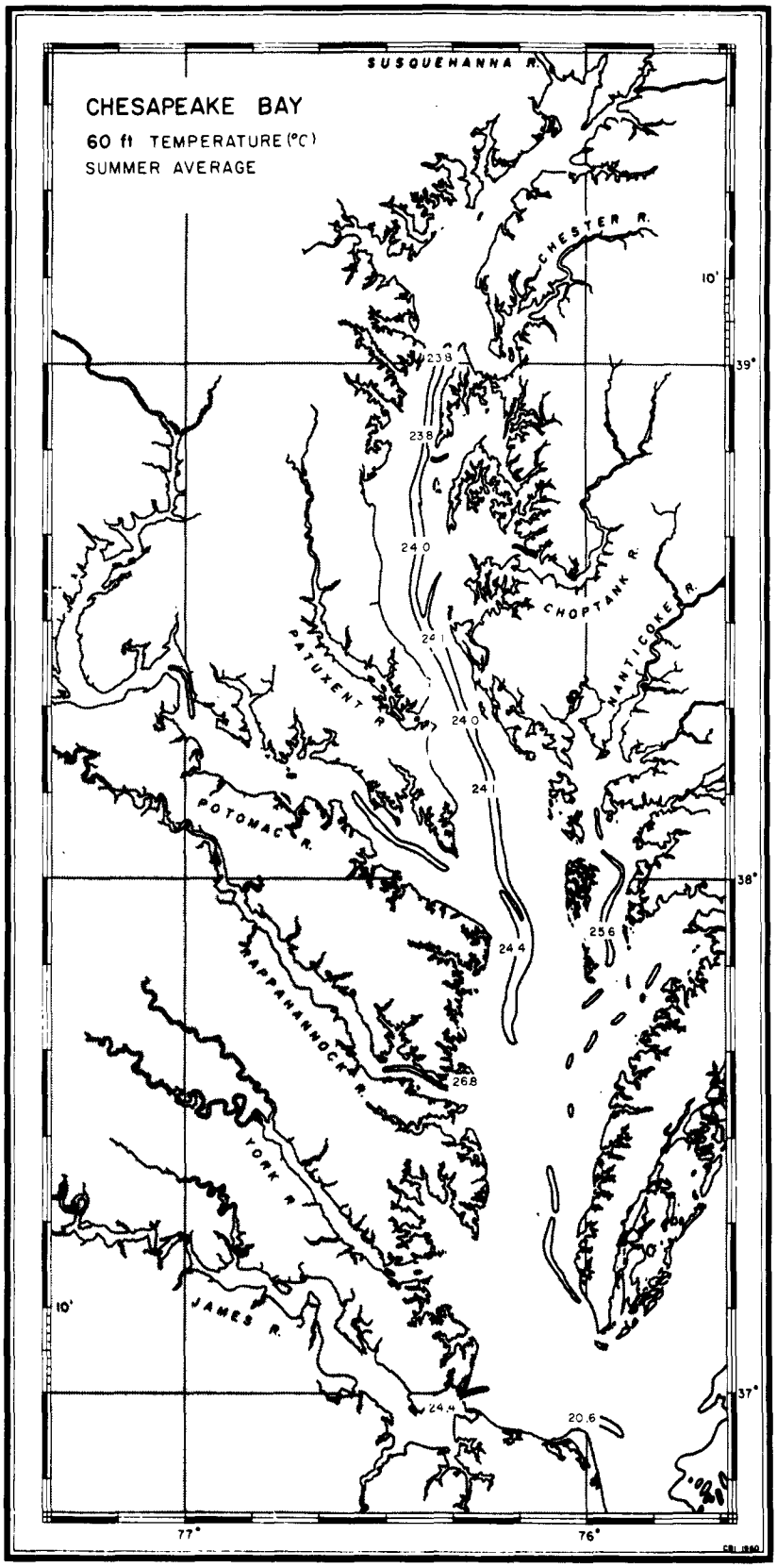

CHESAPEAKE BAY
30 ft SALINITY (‰)
SUMMER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
MANTICOKE R.
12
14
13
16
16
15
20
22
27
21
25
>29
39°
38°
37°
10'
10'
77°
76°
CBL 1980


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
SUMMER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
MANTICOKE R.
<25
25-25.5
24.9
>25.5
>26
25
28
23
22
10'
39°
38°
37°
77°
76°

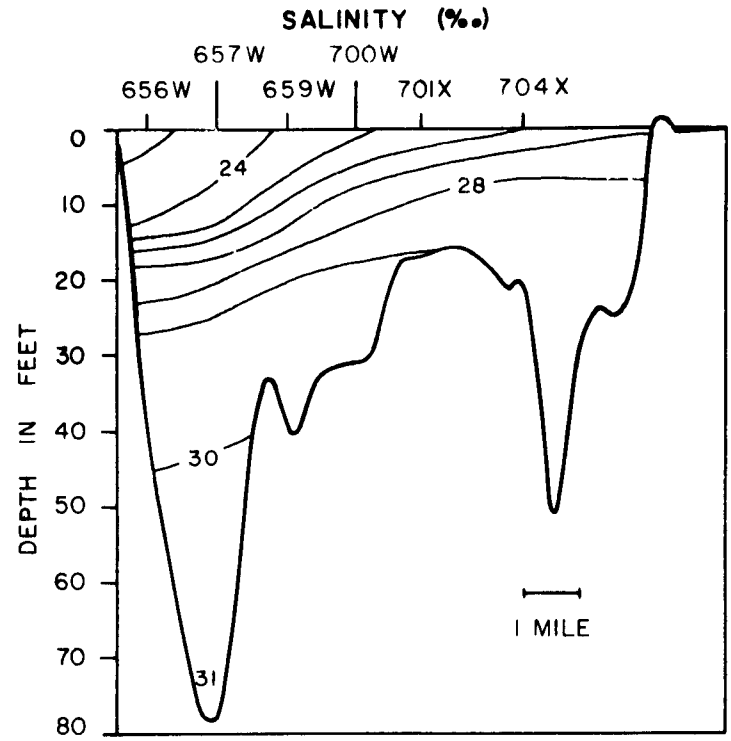

CHESAPEAKE BAY
40 ft SALINITY (‰)
SUMMER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
MANTICOKE R.
10'
39°
38°
37°
77°
76°
14.5
14.4
14.6
17.1
17.5
18.5
17.4
19.2
18.4
18.3
15.1
17.0
19.9
18.4
17.9
20.5
25.4
22.4
24.4
29.9

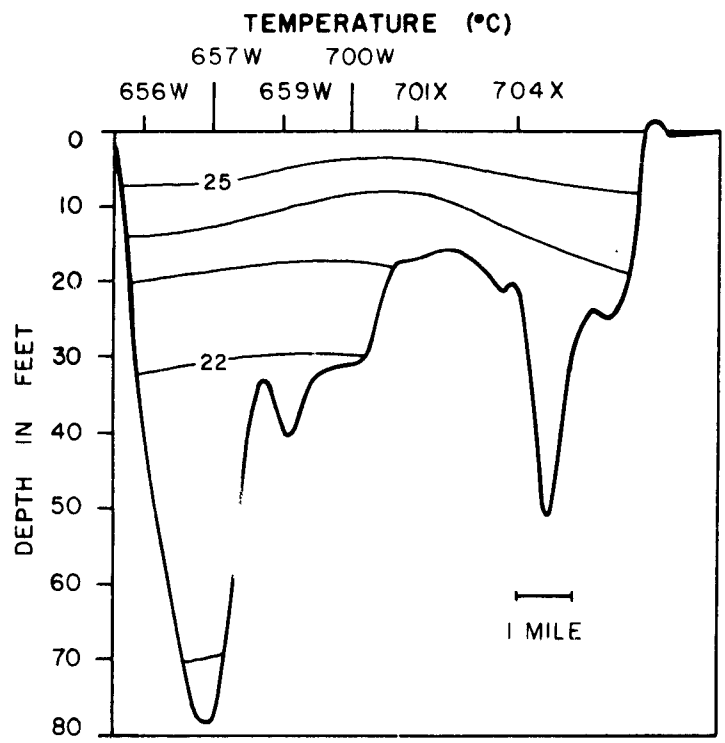

CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
SUMMER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
24.6
24.2
24.4
24.5
26.0
25.2
25.6
26.5
25.9
25.3
25.4
23.3
21.3
39°
38°
37°
10'
77°
76°


CHESAPEAKE BAY
60 ft SALINITY (‰)
SUMMER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
10'
39°
38°
37°
77°
76°
15.7
17.5
19.5
21.1
17.2
26.0
25.0
31.0

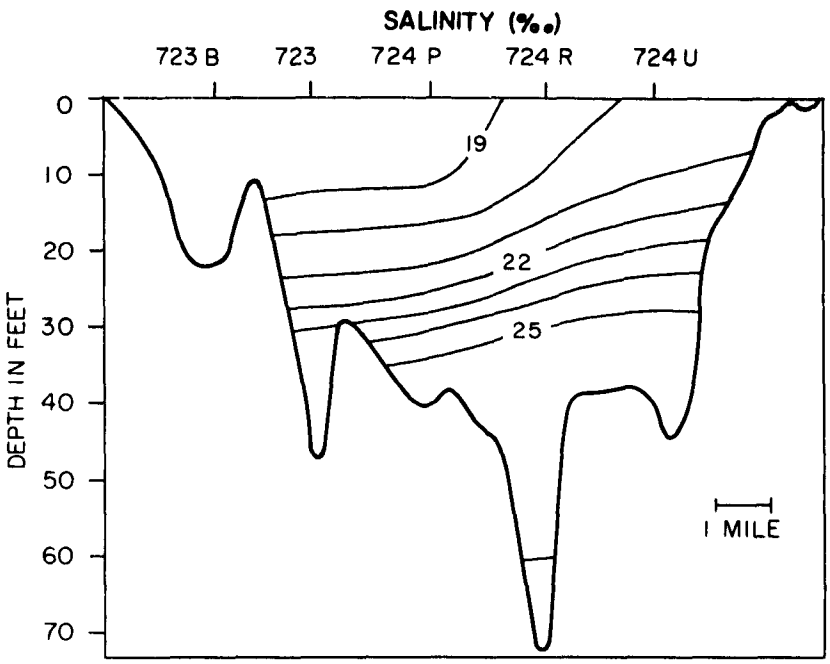

CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
SUMMER AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
23.8
23.8
24.0
24
24.0
24
24.4
25.6
26.8
24.4
20.6
10'
39°
38°
37°
77°
76°

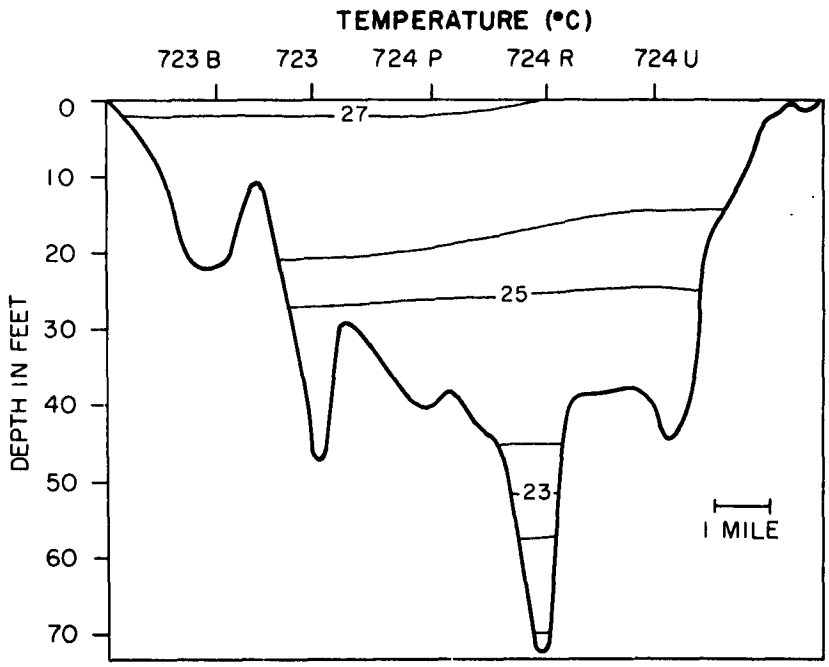
## SUMMER AVERAGE SECTION II



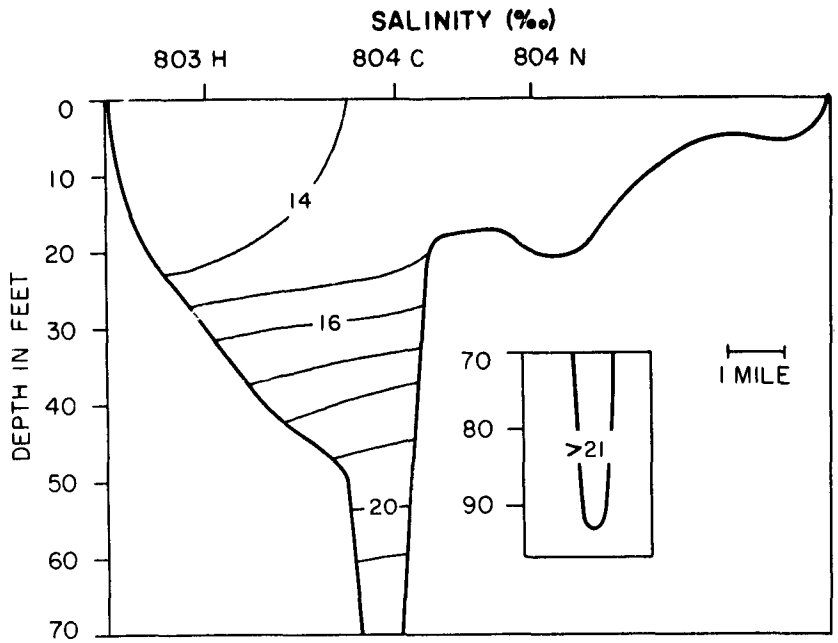



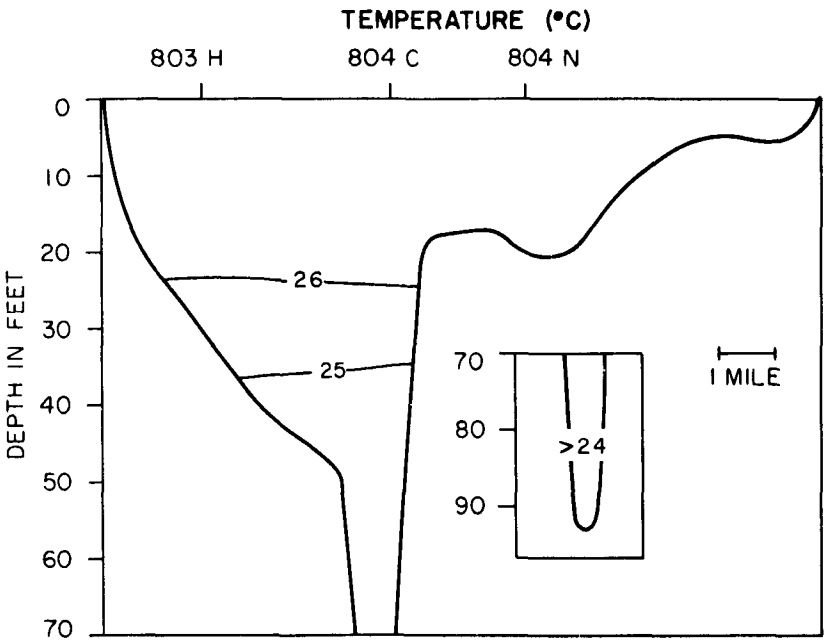
# SUMMER AVERAGE SECTION IV



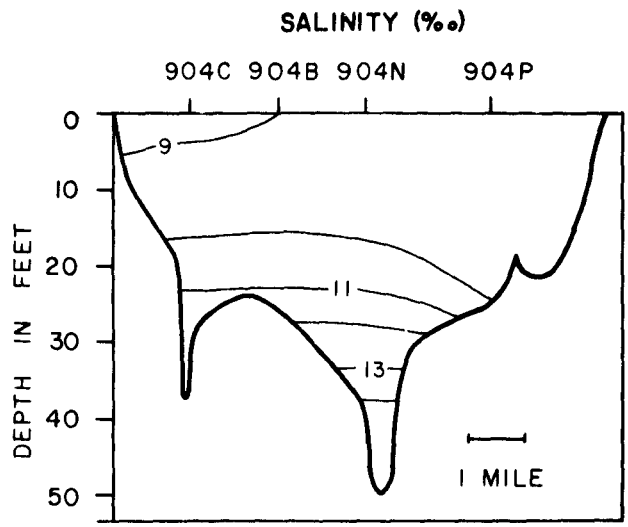



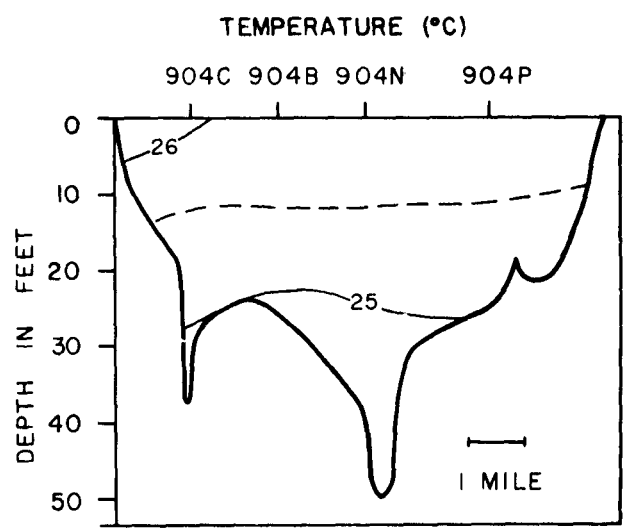
# SUMMER AVERAGE SECTION VI



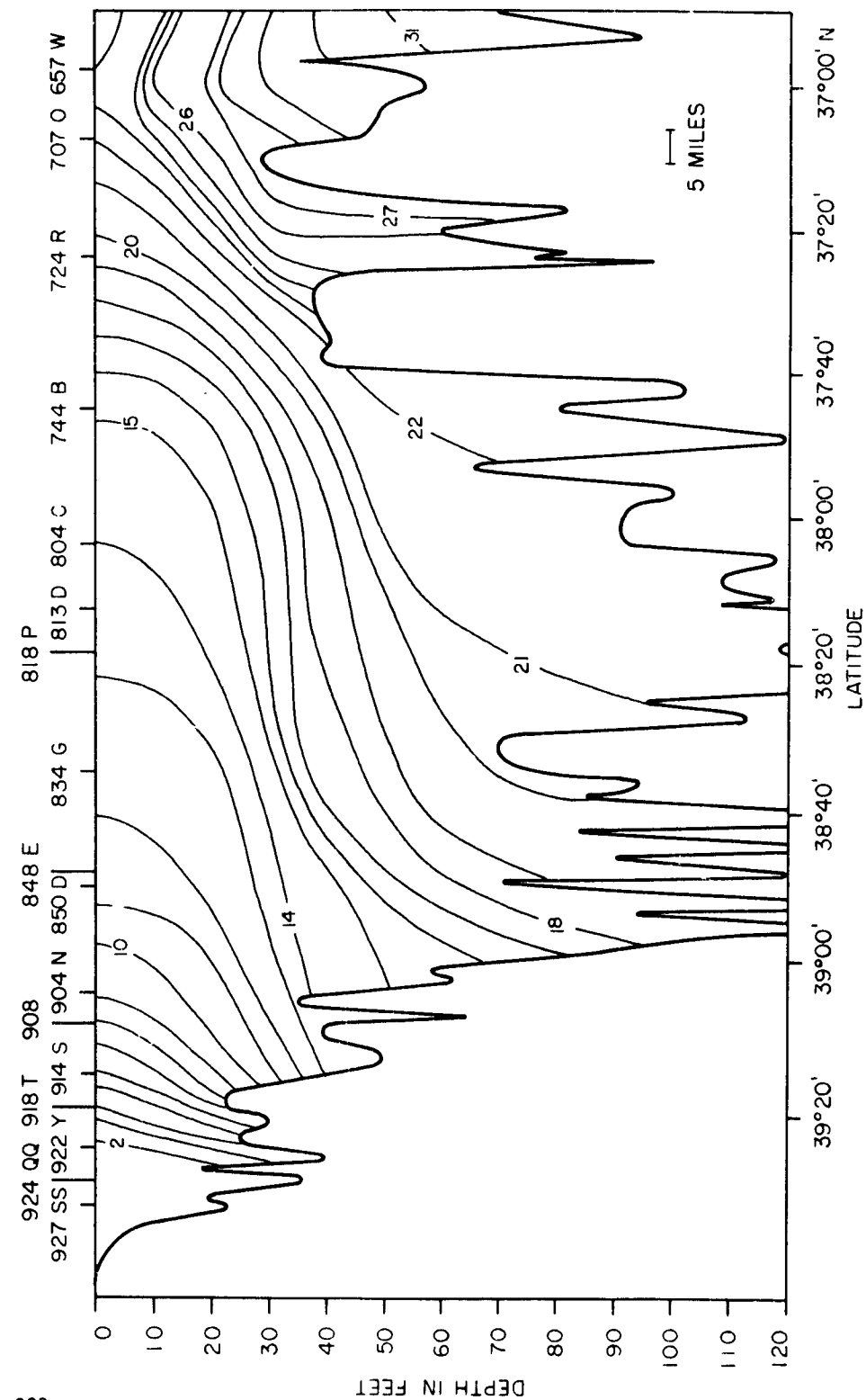



SUMMER AVERAGE SECTION X

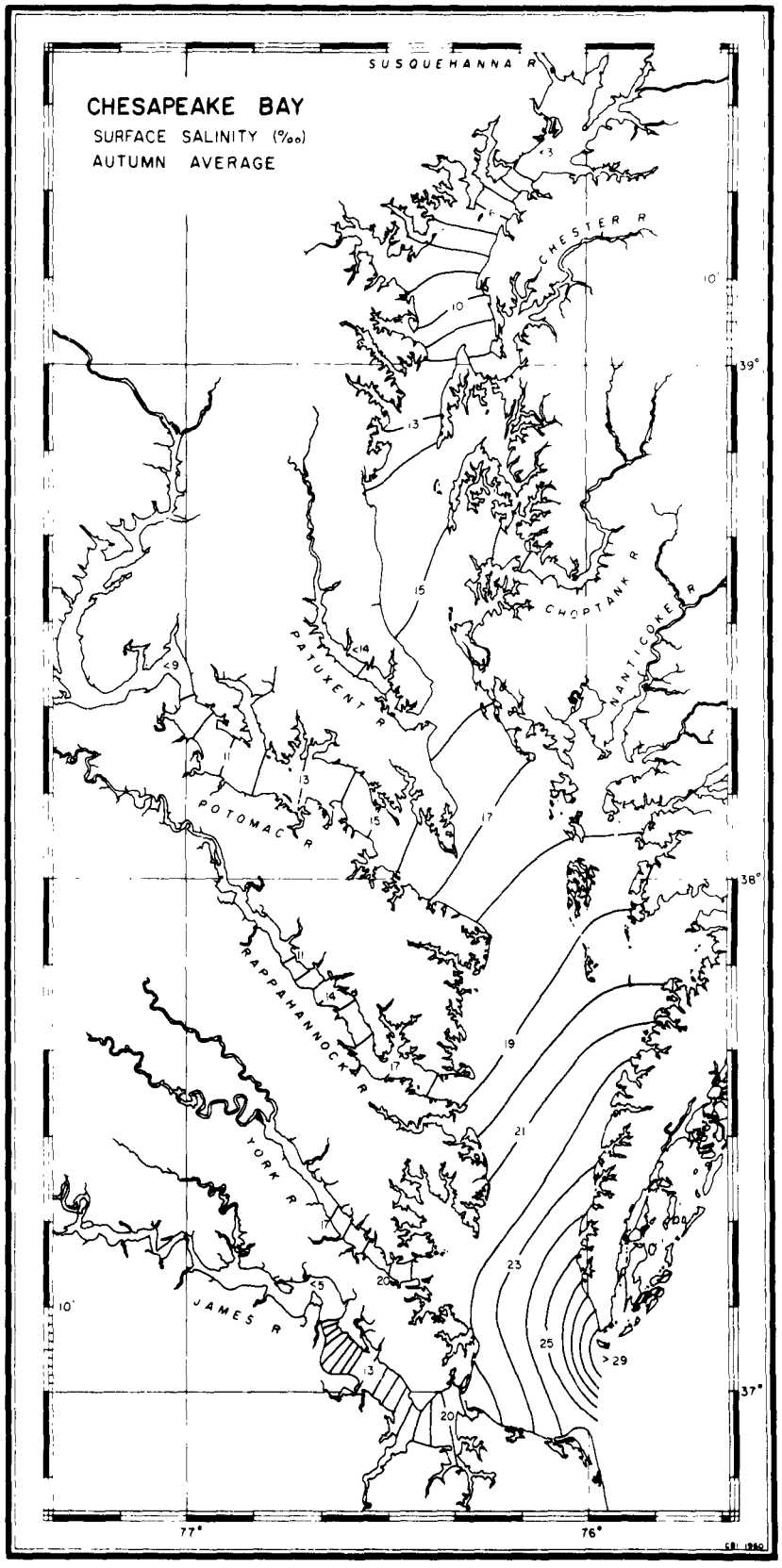


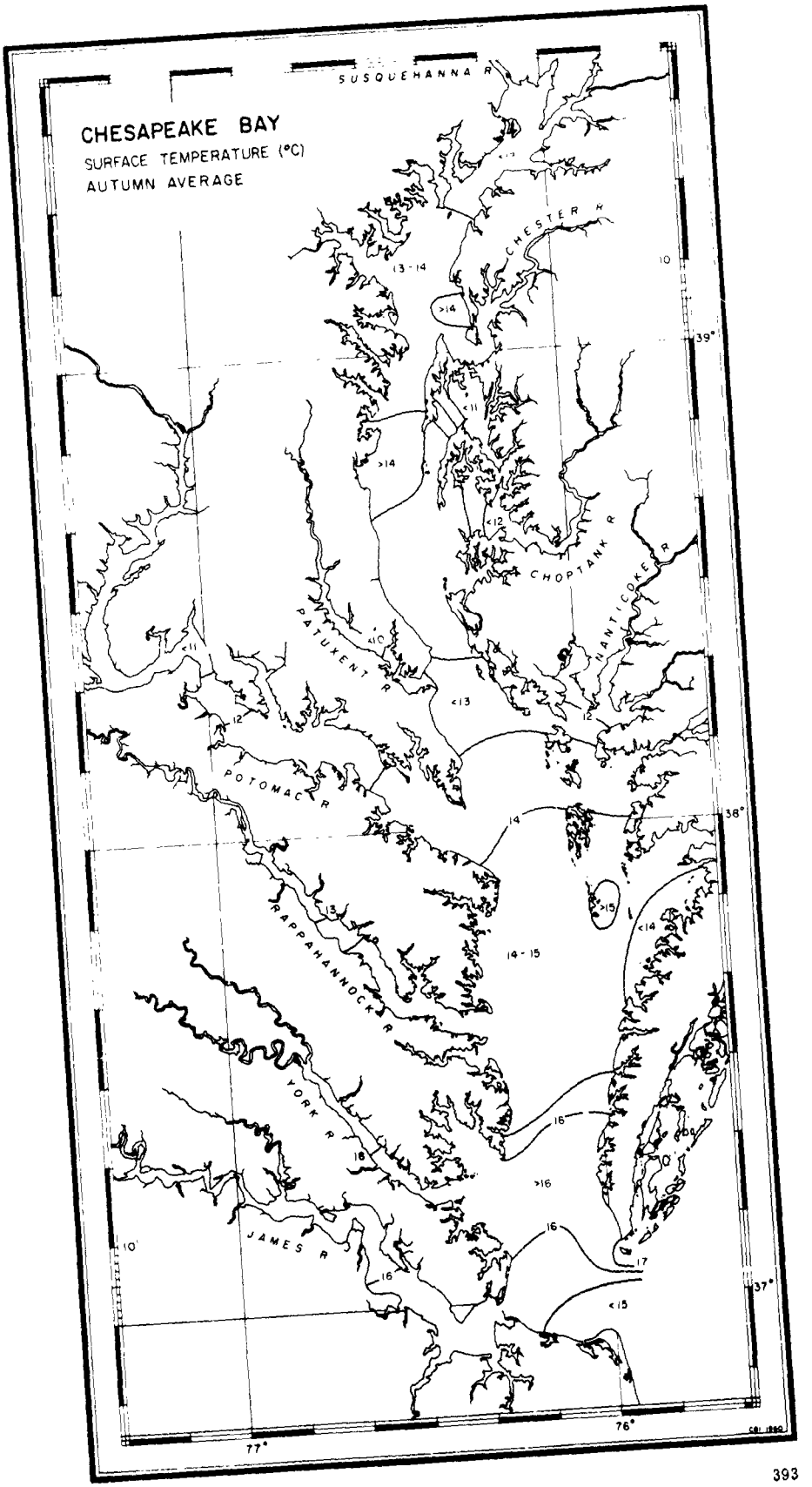



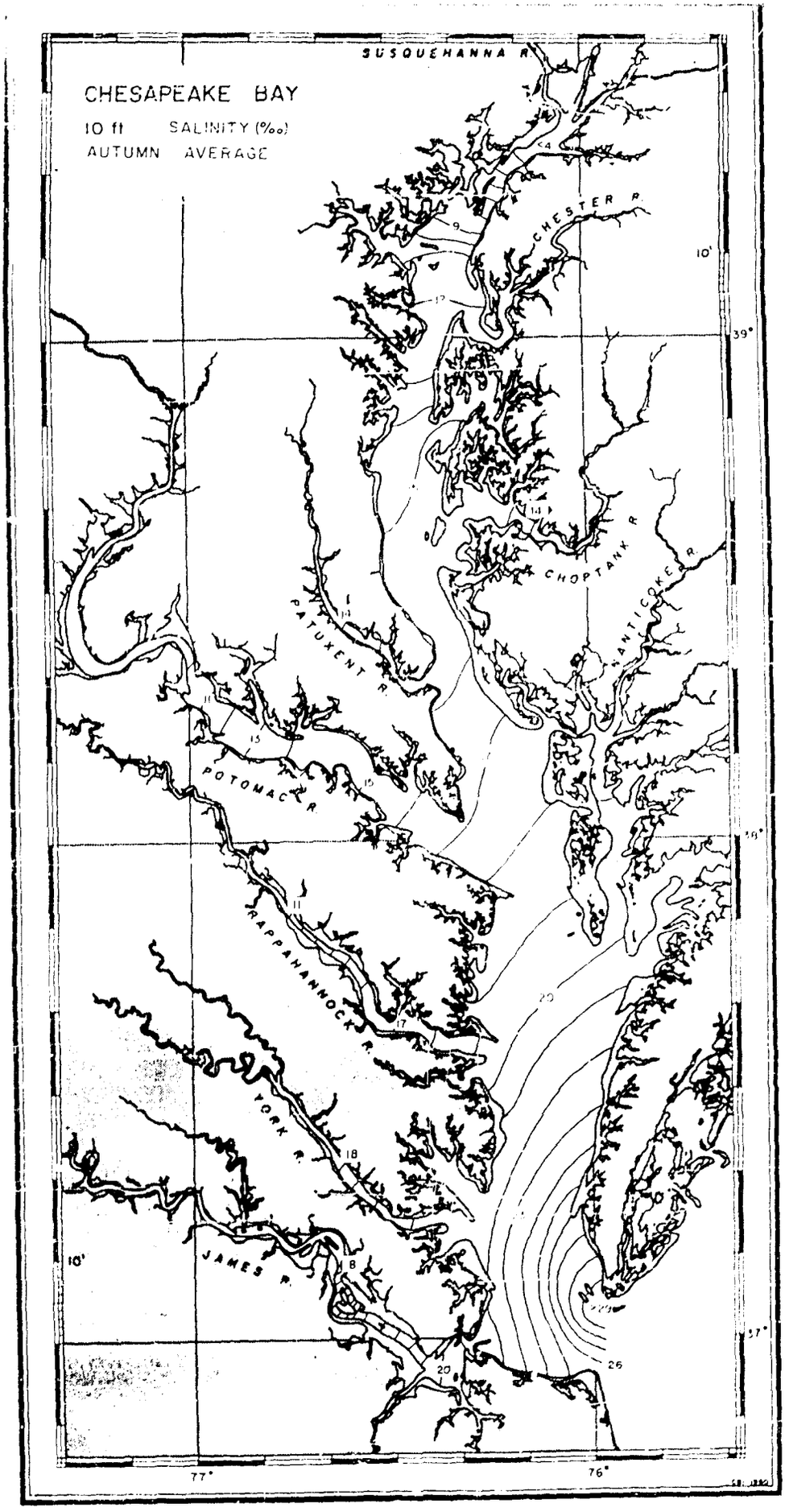
# SUMMER AVERAGE SECTION XIX
SALINITY (‰)

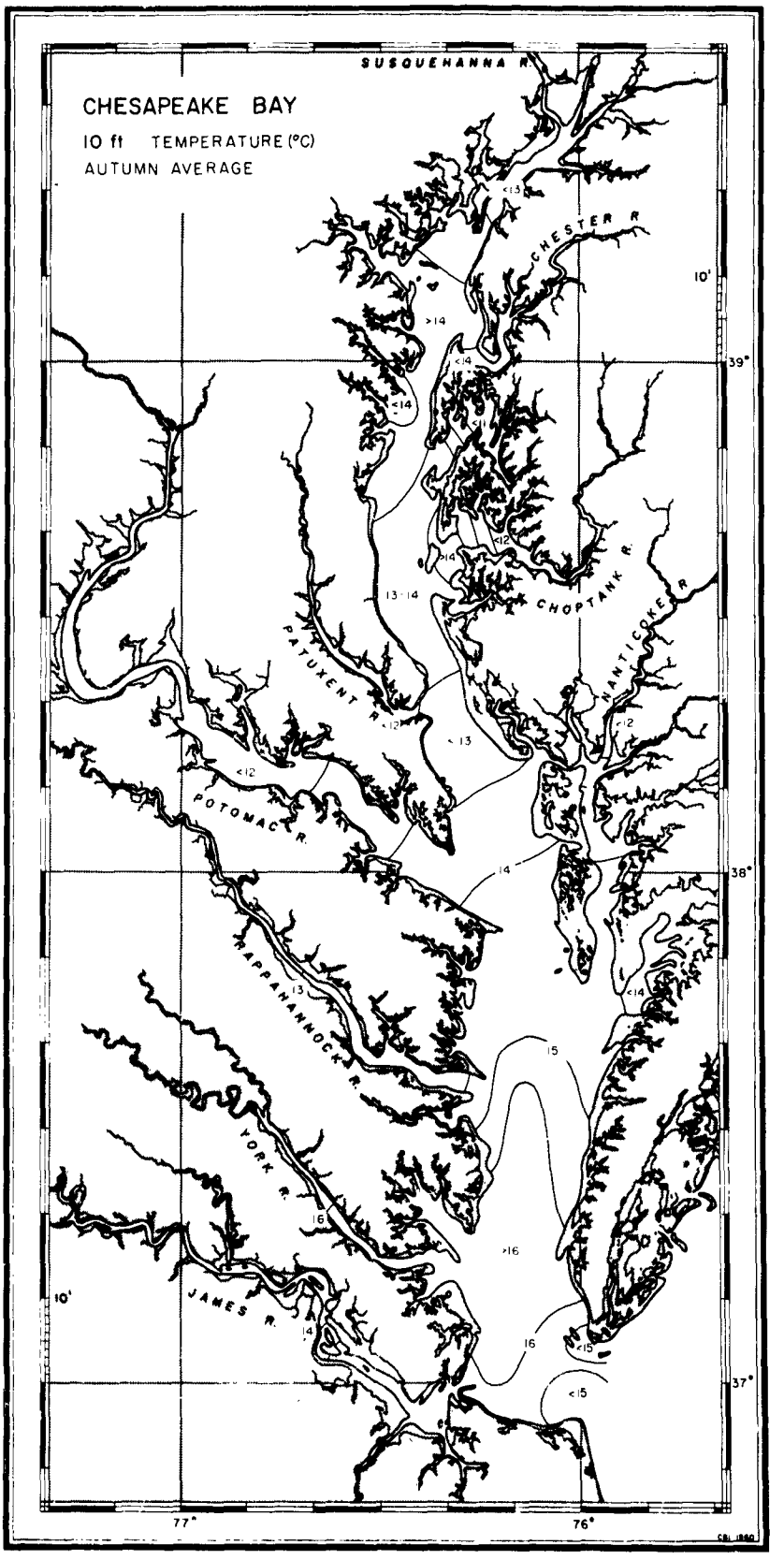


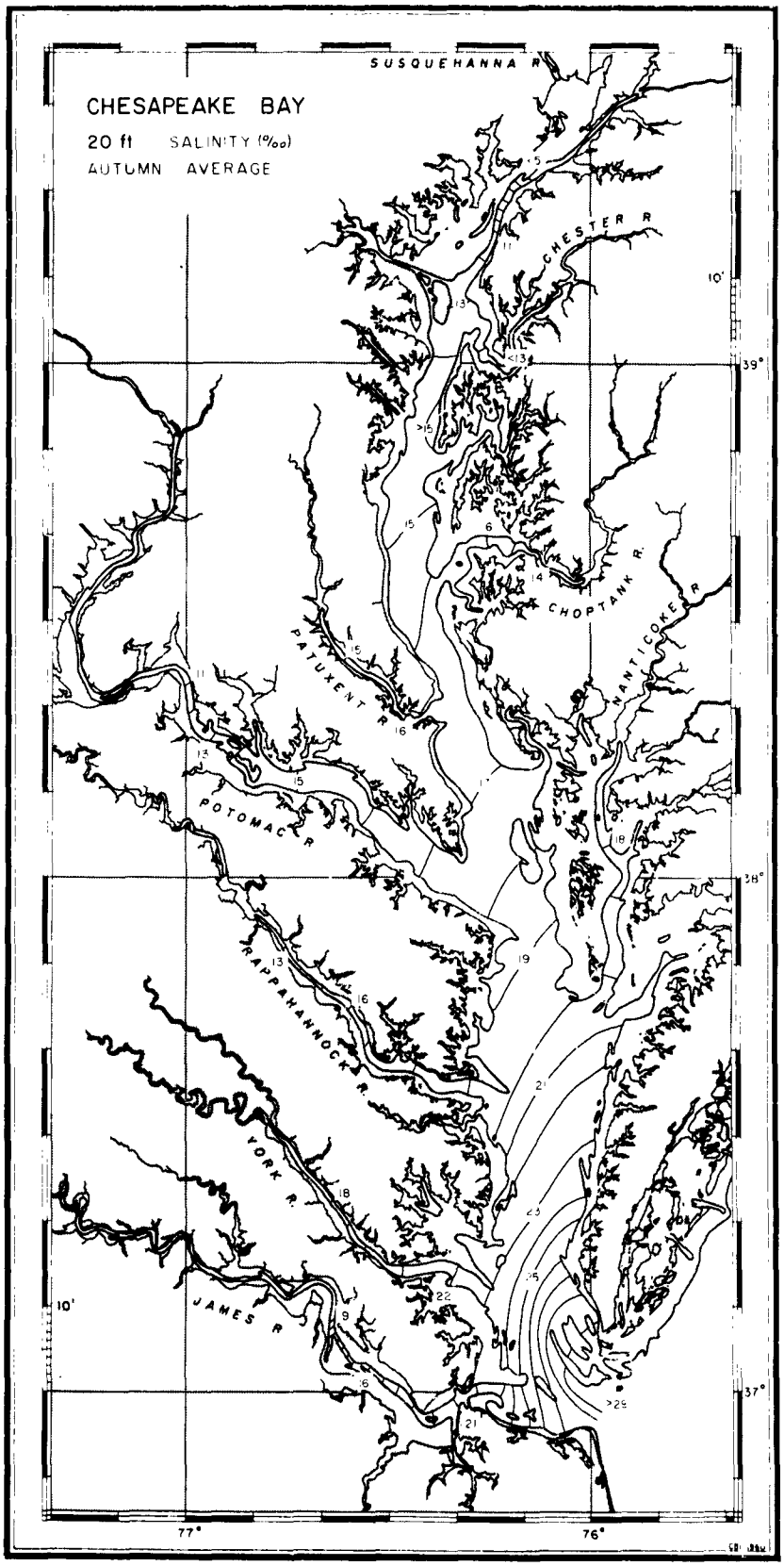
SUMMER AVERAGE SECTION XIX
TEMPERATURE (°C)
927 SS
924 QQ
922 Y
918 T
914 S
908
904 N
850 D
848 E
834 G
818 P
813 D
804 C
744 B
724 R
707 O
657 W
21
24
25
26
27
<24
5 MILES
39°20'
39°00'
38°40'
38°20'
38°00'
37°40'
37°20'
37°00' N
LATITUDE
DEPTH IN FEET
0
10
20
30
40
50
60
70
80
90
100
110
120

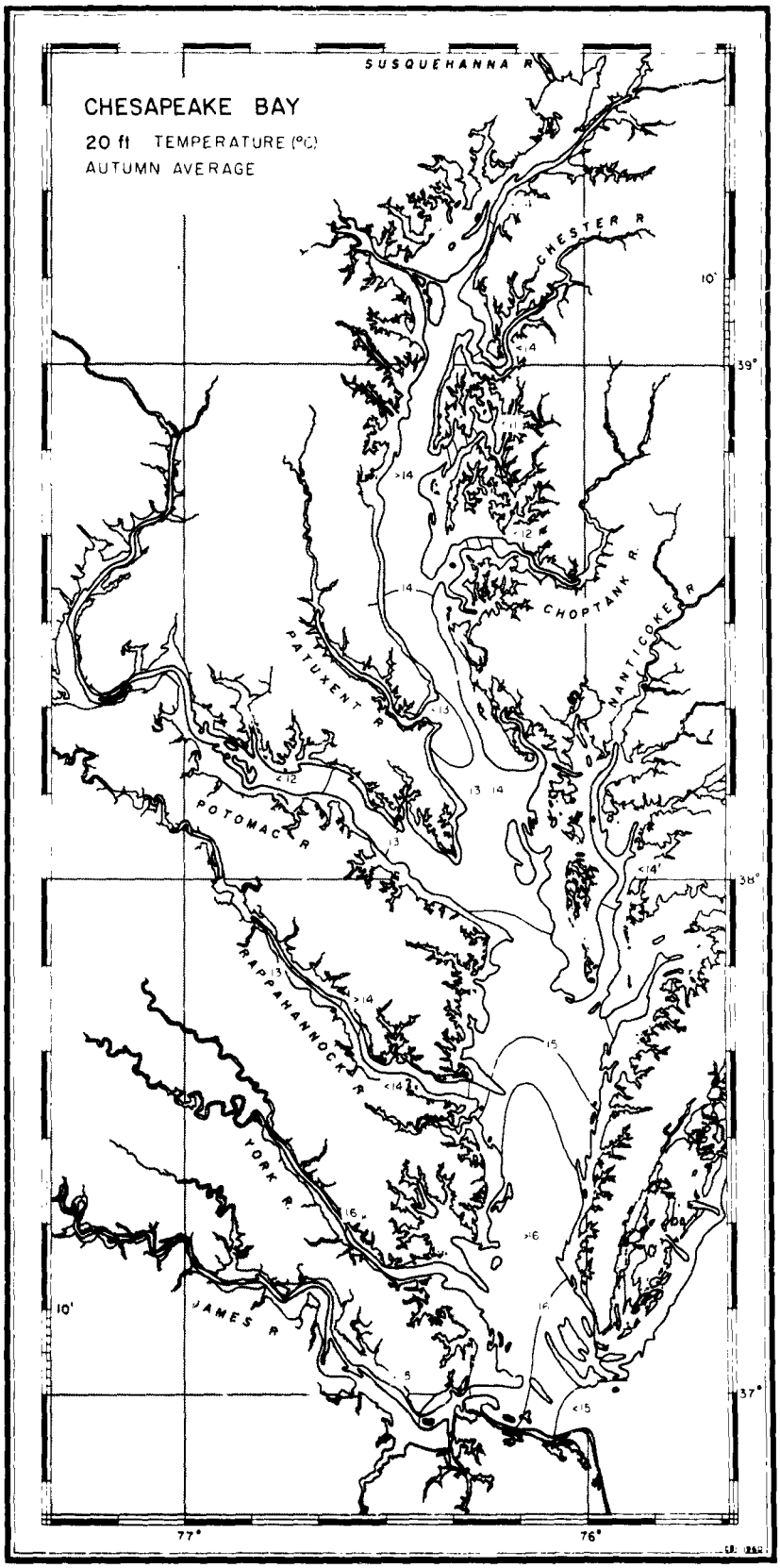

CHESAPEAKE BAY
SURFACE SALINITY (‰)
AUTUMN AVERAGE
SUSQUEHANNA R
CHESTER R
CHOPTANK R
NANTICOKE R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
39°
38°
37°
77°
76°

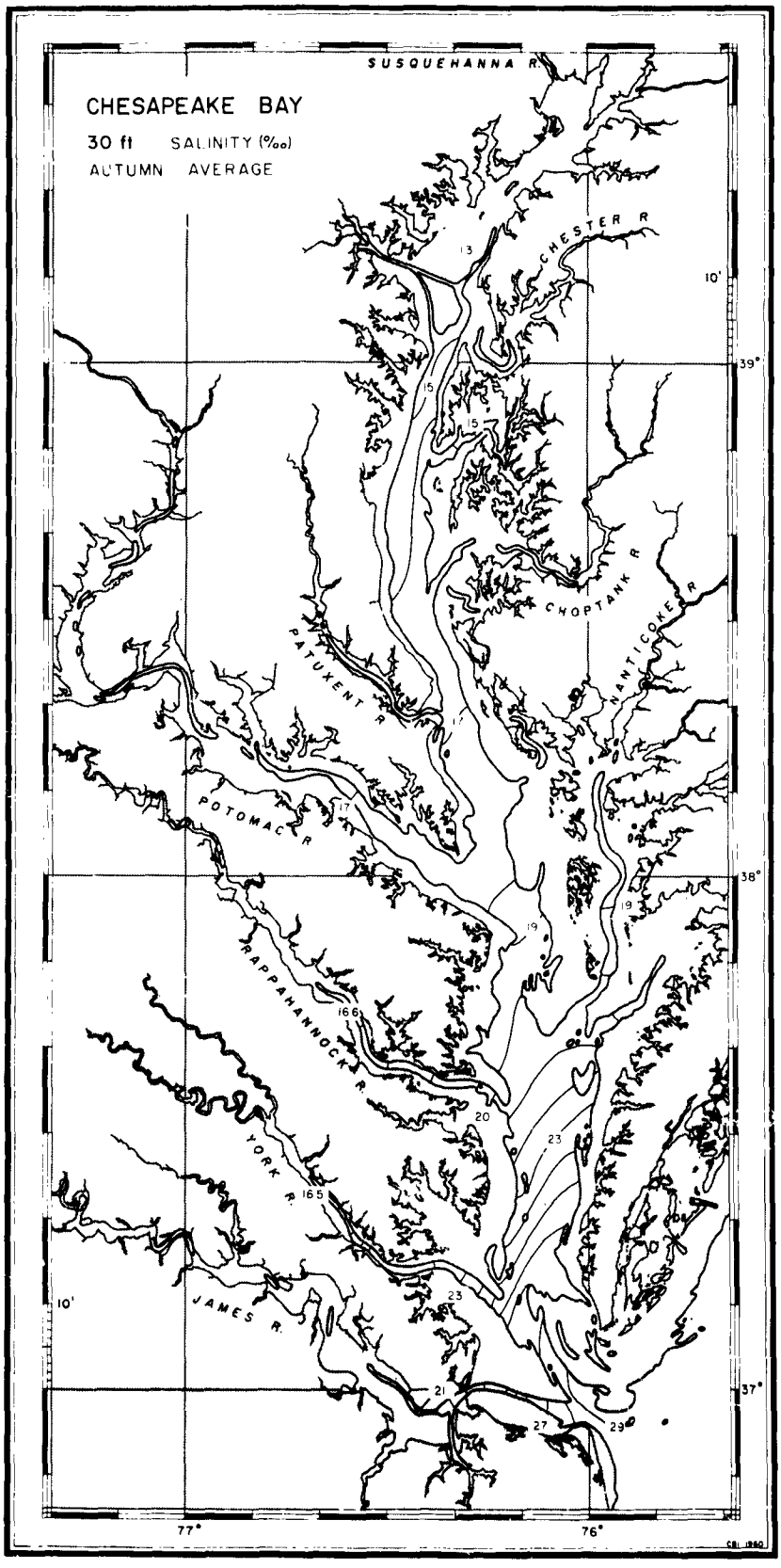

CHESAPEAKE BAY
SURFACE TEMPERATURE (°C)
AUTUMN AVERAGE
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
HANTICOKE R
39°
38°
37°
77°
76°

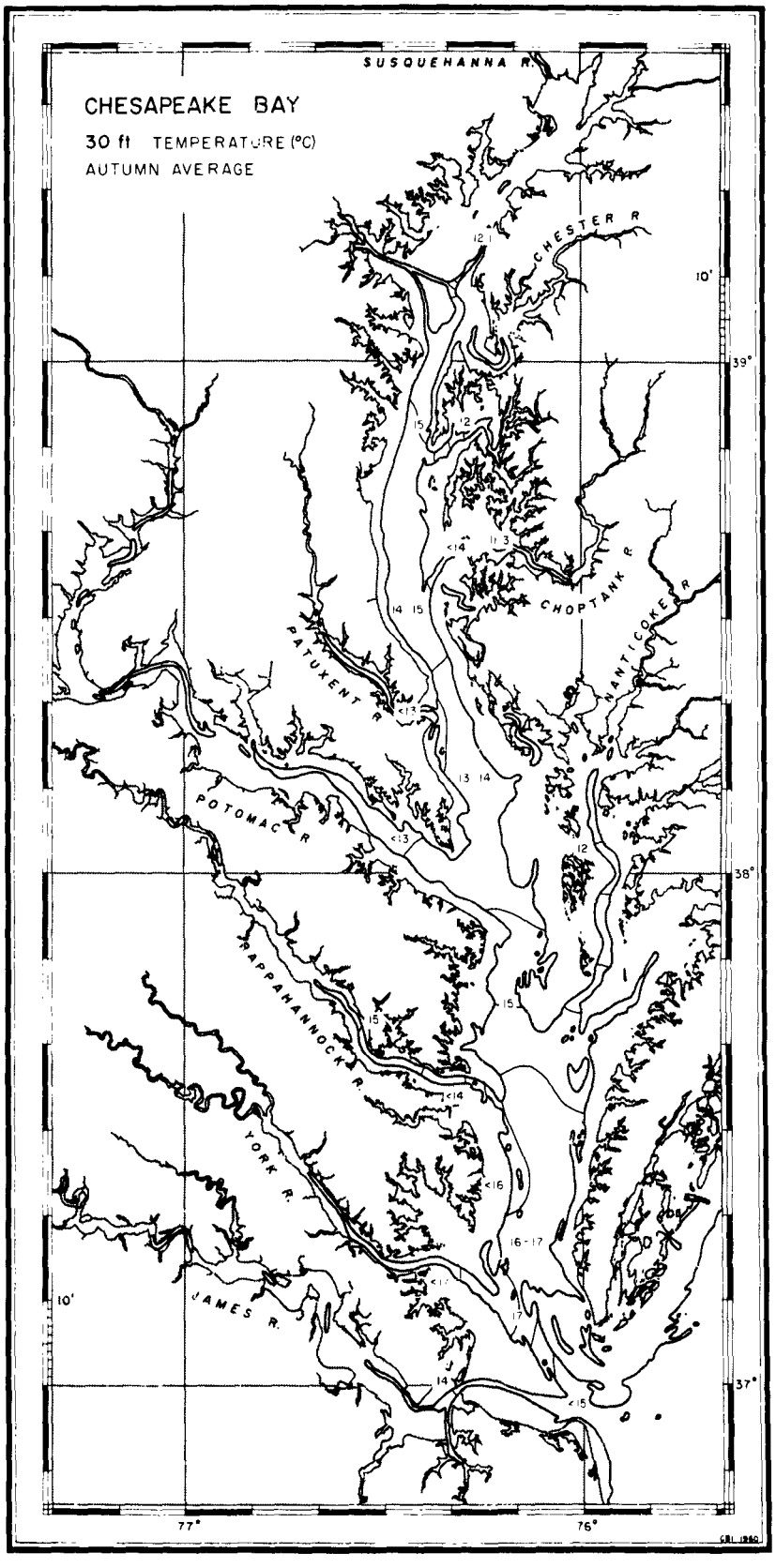

CHESAPEAKE BAY
10 ft SALINITY (‰)
AUTUMN AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
39°
38°
37°
77°
76°

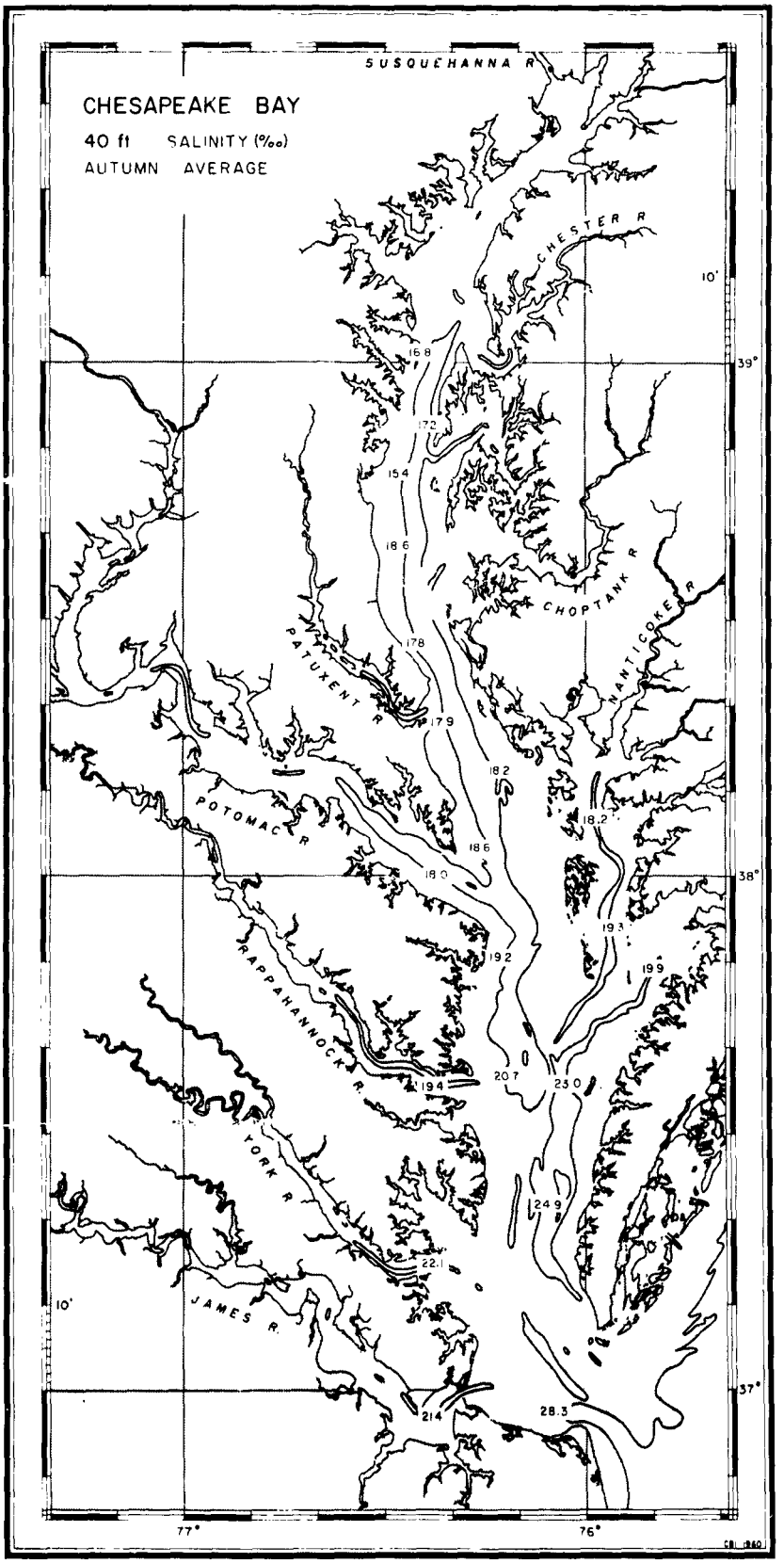

CHESAPEAKE BAY
10 ft TEMPERATURE (°C)
AUTUMN AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
<13
<14
>14
13-14
<12
>12
<13
14
13
15
16
>16
<15
10'
39°
38°
37°
77°
76°

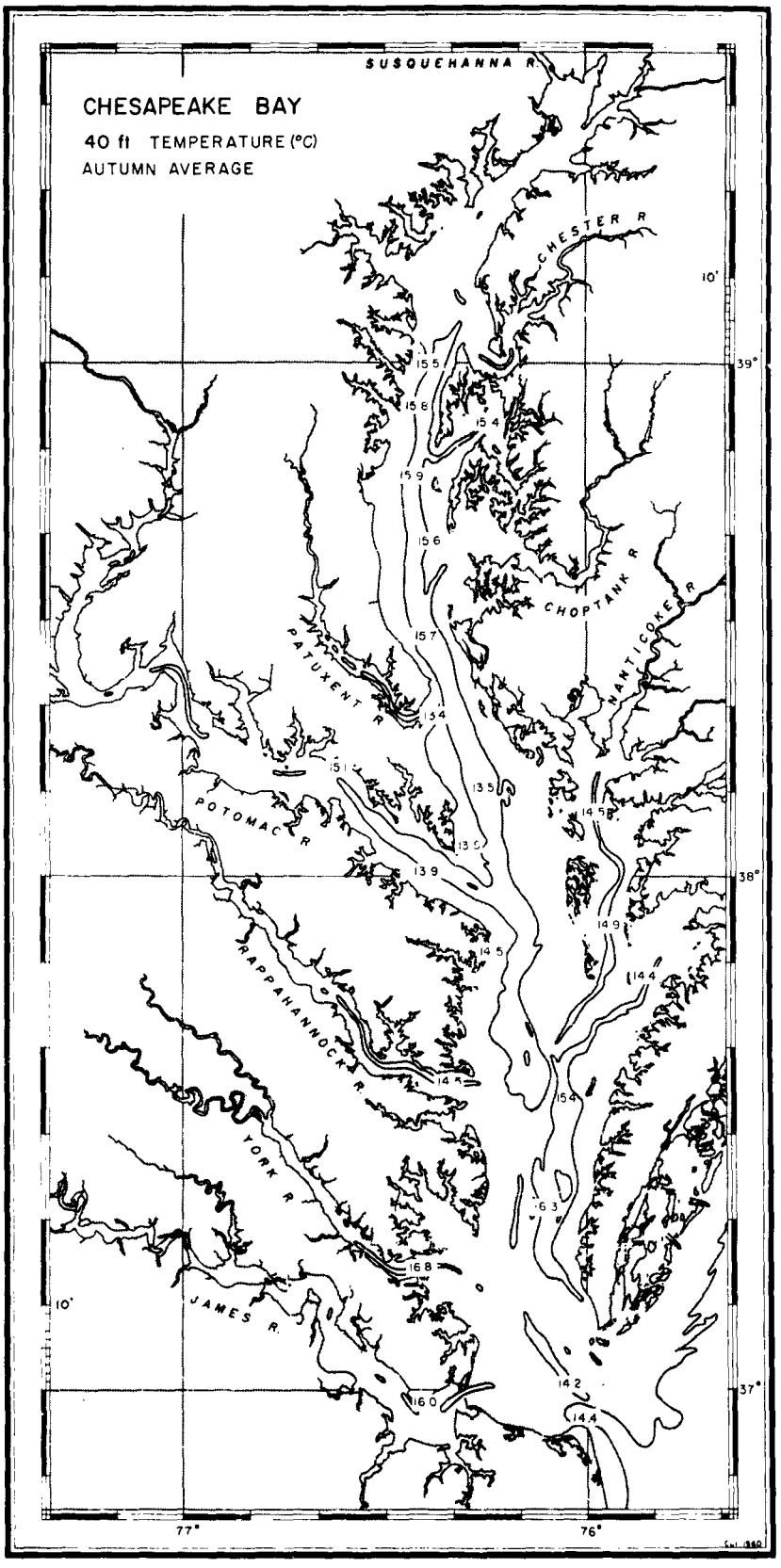

CHESAPEAKE BAY
20 ft SALINITY (‰)
AUTUMN AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
77°
76°

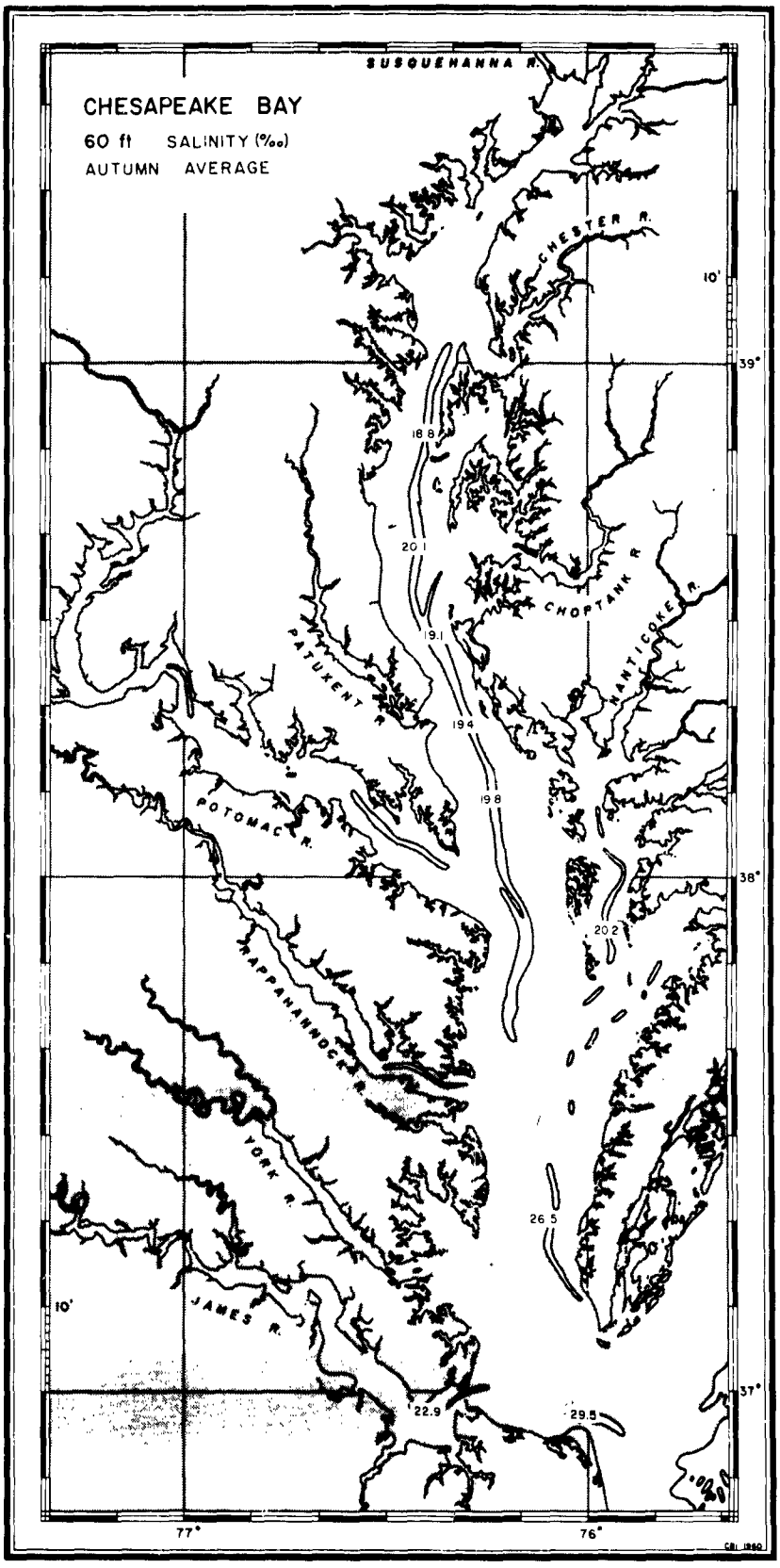

CHESAPEAKE BAY
20 ft TEMPERATURE (°C)
AUTUMN AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
39°
38°
37°
10'
77°
76°

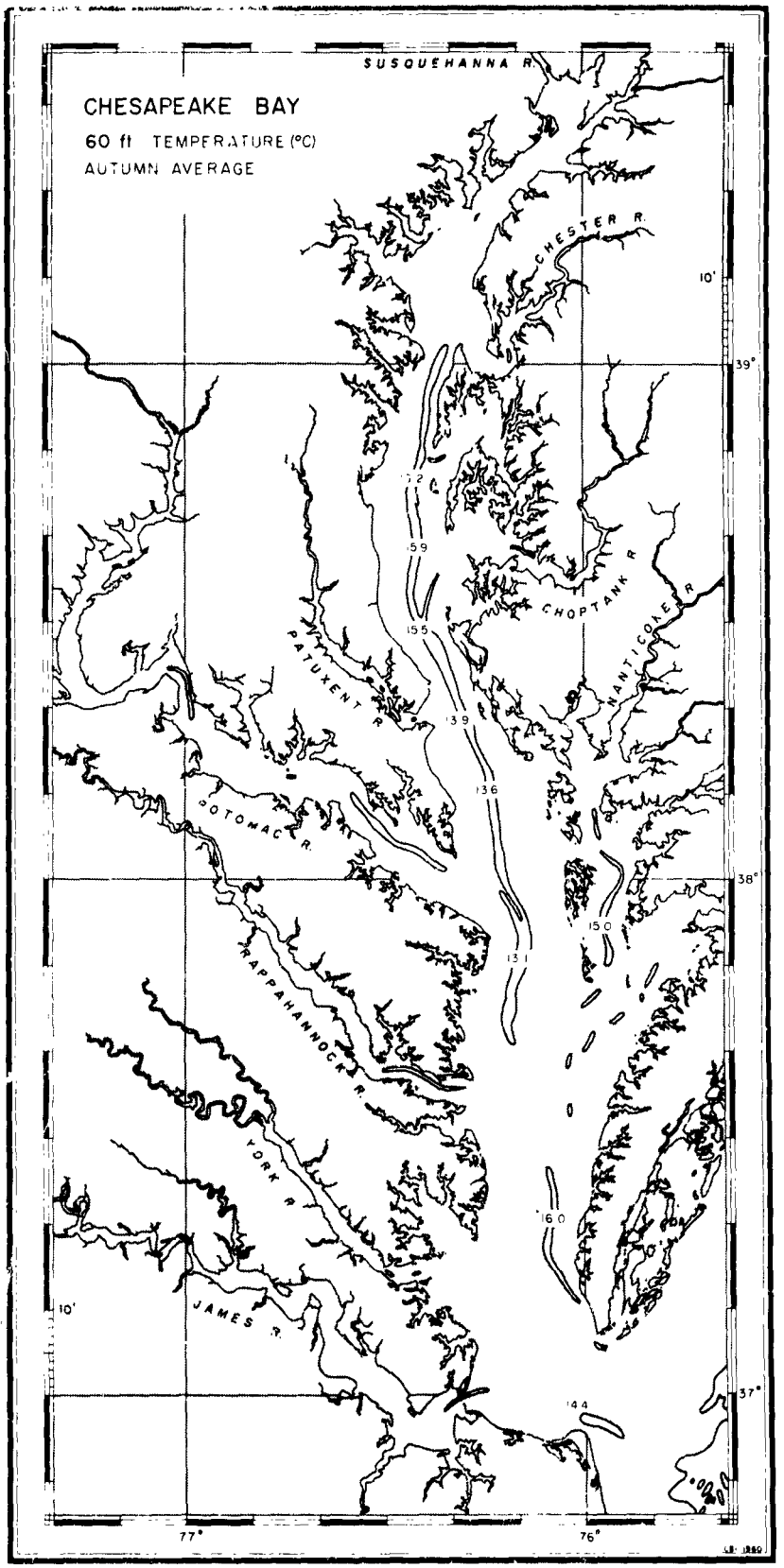

CHESAPEAKE BAY
30 ft SALINITY (‰)
AUTUMN AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
NANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
13
15
15
17
17
19
19
16.6
16.5
20
23
23
21
27
29
10'
10'
39°
38°
37°
77°
76°
CBI 1960


CHESAPEAKE BAY
30 ft TEMPERATURE (°C)
AUTUMN AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
39°
38°
37°
77°
76°

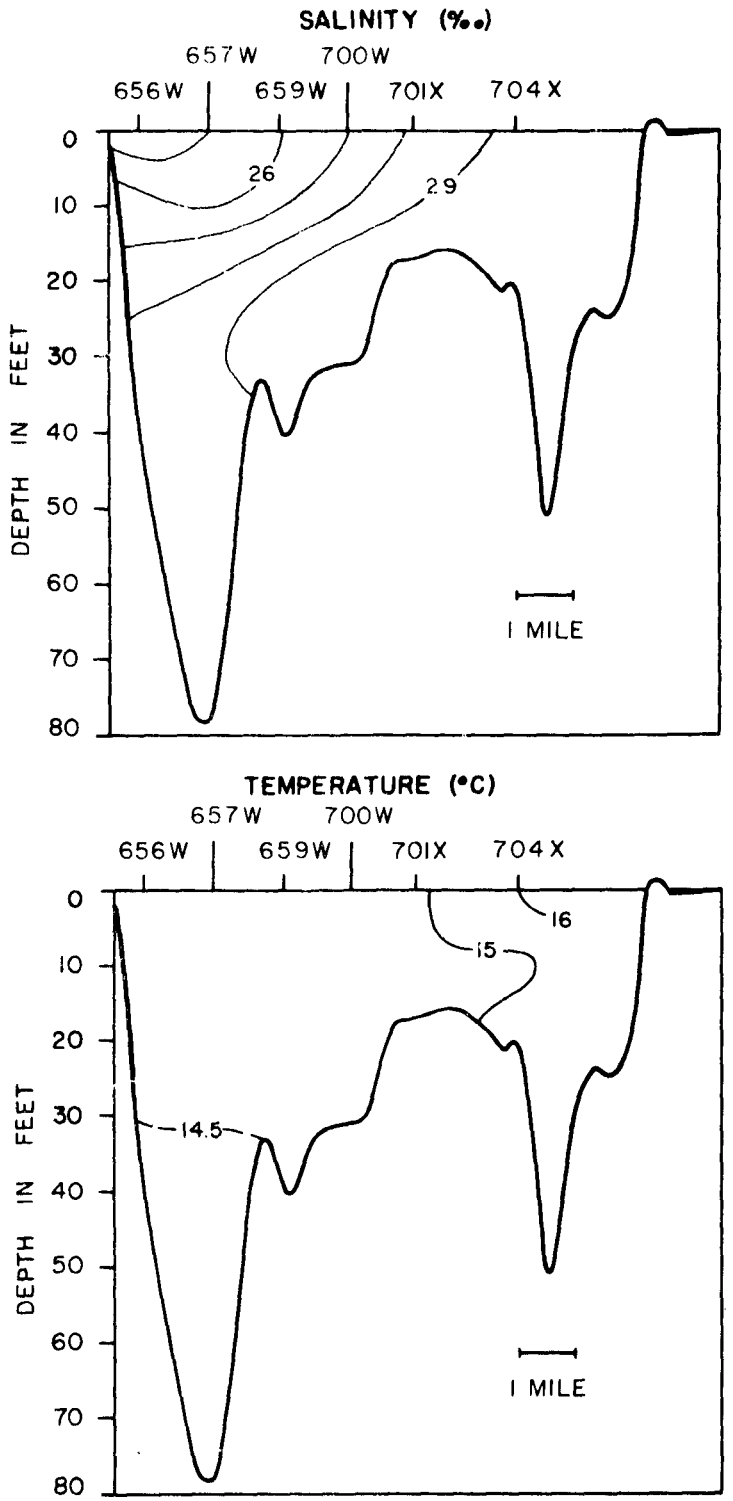

CHESAPEAKE BAY
40 ft SALINITY (‰)
AUTUMN AVERAGE
SUSQUEHANNA R
CHESTER R
CHOPTANK R
PATUXENT R
POTOMAC R
RAPPAHANNOCK R
YORK R
JAMES R
NANTICOKE R
168
172
154
186
178
179
182
186
180
18.2
193
192
199
194
207
230
249
22.1
214
28.3
39°
38°
37°
10'
77°
76°


CHESAPEAKE BAY
40 ft TEMPERATURE (°C)
AUTUMN AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
MANTICOKE R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
155
158
154
159
156
157
154
151
135
145
130
139
149
145
144
141
154
163
168
160
142
144
39°
38°
37°
10'
10'
77°
76°

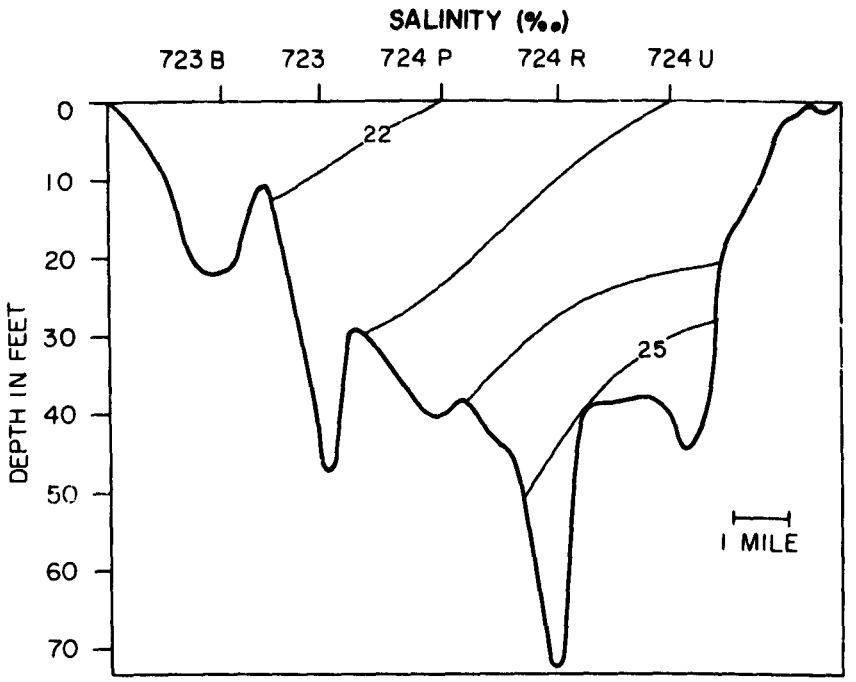

CHESAPEAKE BAY
60 ft SALINITY (‰)
AUTUMN AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
ANTICOKE R.
18.8
20.1
19.1
19.4
19.8
20.2
26.5
22.9
29.5
39°
38°
37°
10'
77°
76°
CBI 1960

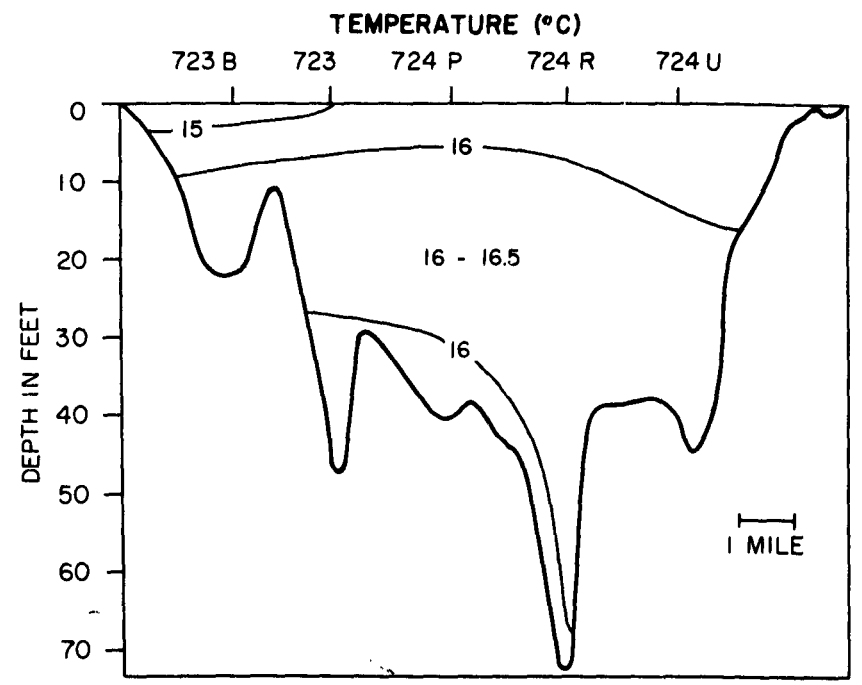

CHESAPEAKE BAY
60 ft TEMPERATURE (°C)
AUTUMN AVERAGE
SUSQUEHANNA R.
CHESTER R.
CHOPTANK R.
PATUXENT R.
POTOMAC R.
RAPPAHANNOCK R.
YORK R.
JAMES R.
NANTICOKE R.
10'
39°
38°
37°
77°
76°
159
155
139
136
150
131
160
144

# AUTUMN AVERAGE SECTION II

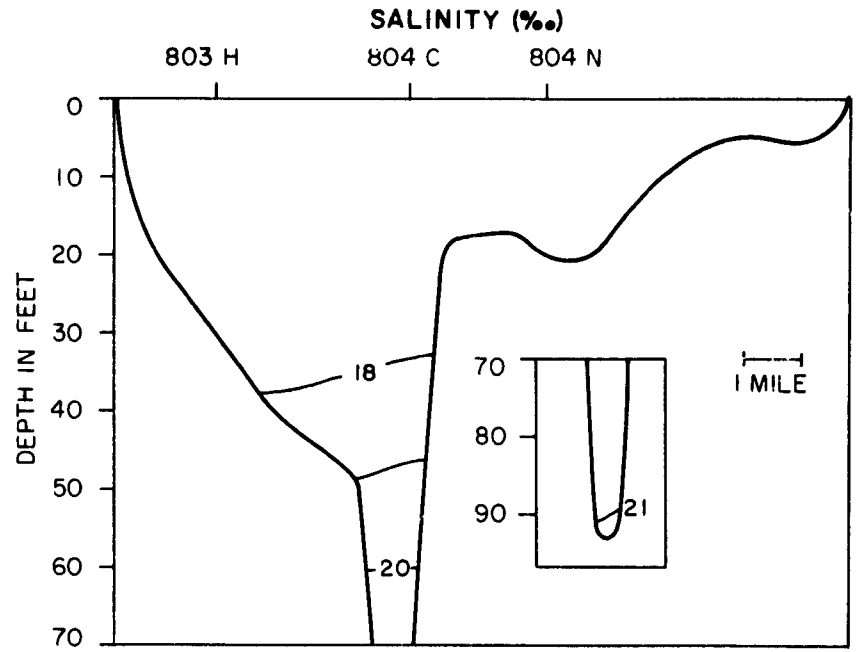


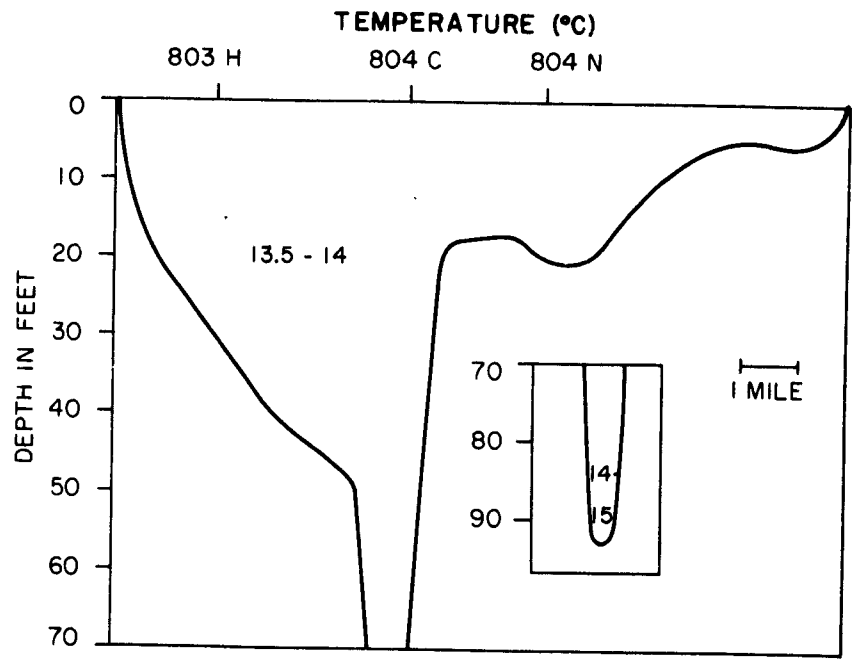
# AUTUMN AVERAGE SECTION IV



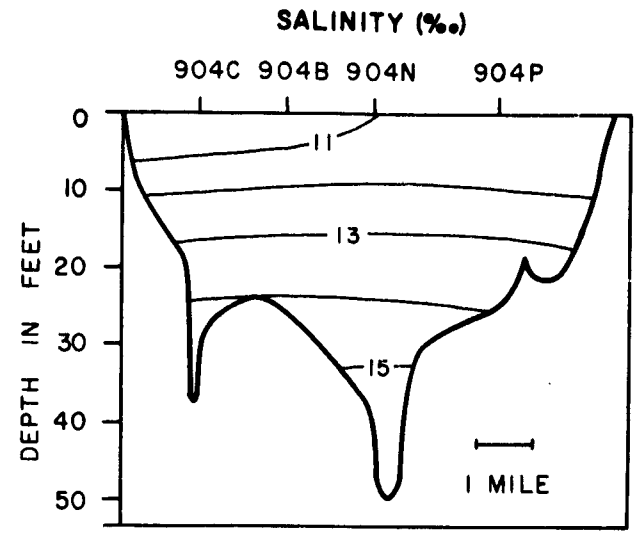



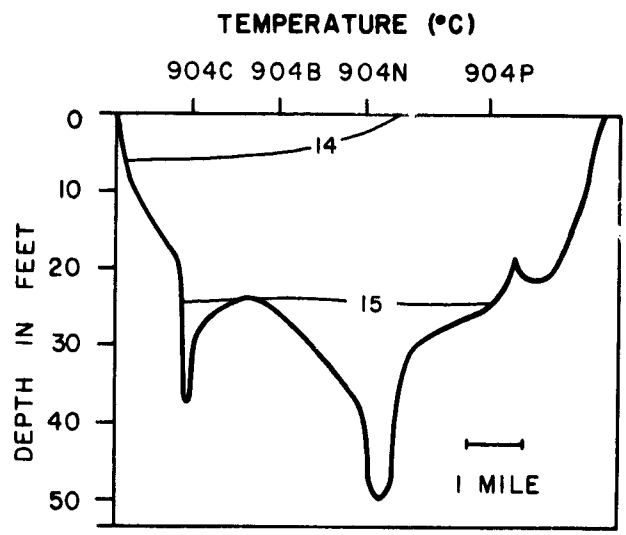
# AUTUMN AVERAGE SECTION VI



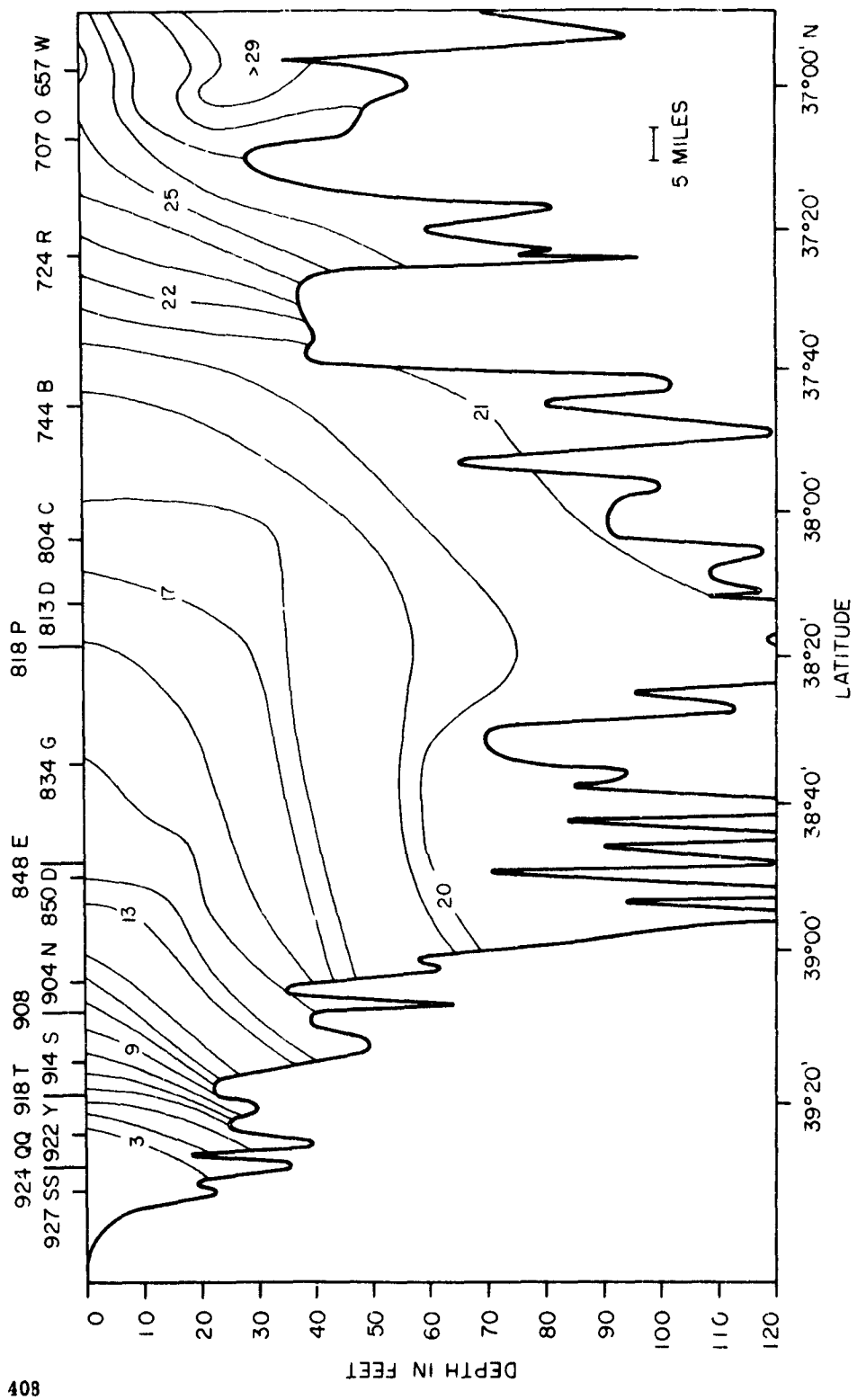



## AUTUMN AVERAGE SECTION X



# AUTUMN AVERAGE SECTION XIX
SALINITY (‰)



# AUTUMN AVERAGE SECTION XIX
TEMPERATURE (°C)

