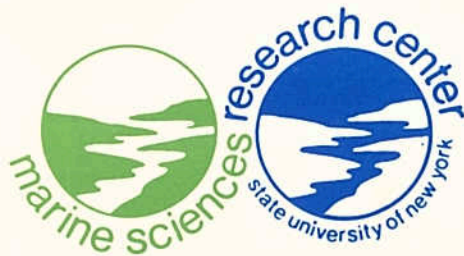


FINAL REPORT
Salinity Measurements
in Moriches Bay

D.W. Pritchard

October 1983



MARINE SCIENCES RESEARCH CENTER
STATE UNIVERSITY OF NEW YORK
STONY BROOK, N.Y. 11794

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Prepared For The
County of Suffolk
Department of Health Services
County Center
Riverhead, N.Y. 11901

Spec Rep #53
Rep #83-9
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INTRODUCTION

This document constitutes the final report to the County of Suffolk on the project entitled "Salinity Measurements in Moriches Bay". This project was initiated as a result of the development of a breach in the barrier island which separates the eastern half of Moriches Bay from the Atlantic Ocean. The breach first developed on 15 January, 1980, following a strong, but not unusually severe, storm, at a point some 1300 feet to the eastward from the midpoint of the east jetty of Moriches Inlet. For the most part, the breach developed from the Bay side of the barrier island outward, as a result of erosion during the period of strong ebb flow, as the excess water introduced into Moriches Bay by the storm surge exited the Bay following the return of coastal sea level to normal values. This area of the Bay side of the barrier island had been subjected to this erosional process during past storm surge events. The barrier island had therefore been narrowing for some time prior to the final breakthrough of the new inlet. There is a sharp bend in the east channel around Gull Island, bayward from Moriches Inlet. This sharp bend causes the ebb flow to impinge on the barrier island more strongly than would be the case were the channel straight, or at least less sharply bent. The break occurred just seaward of this bend in the East Channel.

A USACE survey made on 28, 29, and 30 January, 1980 showed the breach to be 725 feet wide, with a controlling depth of about $4\frac{1}{2}$ feet. A scour hole on the Bay side of the eastern end of the breach had depths greater than 16 feet. A small (800 foot long) island separated the breach from the east jetty of Moriches Inlet.

The new breach continued to grow throughout the remaining winter months, and throughout the spring and summer months of 1980. As of early September, 1980 the breach had a width of some 2275 feet, and extended westward to the east jetty of Moriches Inlet. Thus, except for that narrow rock structure, the new breach had effectively joined the existing Moriches Inlet. The controlling depth of the new breach at this time of near maximum extent was about 5 feet, and the mean depth across the throat of the breach was some 4.7 feet.

With the development and rapid growth of the new breach, various public officials, resource managers, waterman, and owners of homes located along the shores of Moriches Bay expressed a variety of concerns regarding the possible impact of the new opening on the ecology of Moriches Bay and on the safety of property adjacent to the Bay. Scientific and engineering knowledge was at that time insufficient to provide clear answers to the questions which were posed as a result of these concerns. In the absence of any clear proof that the existence of the new breach would not result in any significant increase in the danger of storm surge flooding of property adjacent to Moriches Bay, or in any detrimental impact on fisheries, the responsible public officials at the town, county and state level took the prudent view that the breach should be closed. The U.S. Army Corps of Engineers finally approved the filling project, and work began in early October, 1980. The breach was closed with the contract volume of sand in place by mid-December, 1980.

The history of the bays and barrier islands along the south shore of Long Island suggests that breaches of the barrier islands, such as that which occurred in January of 1980, have a reasonable possibility of occurring at any time. The Marine Sciences Research Center (MSRC) of the State University of New York viewed the new break as an opportunity to obtain knowledge concerning the consequences of such breaks, and to develop the tools and necessary to predict, with high confidence, the probable environmental consequences of any future breaches of the barrier islands which enclose Moriches Bay, Great South Bay, and Shinnecock Bay. As a result, within a few days following the new break MSRC began development of a program of study designed to accomplish these goals, and to seek the funding required to undertake the study.

It was evident that the development of the knowledge necessary to determine, with high confidence, the probable consequences of breaches of the barrier islands, would require the acquisition of a data base of environmental properties of Moriches Bay commencing as soon as possible after the opening of the breach east of Moriches Inlet. Consequently, by 22 January, 1980, just 7 days after the breach occurred, we had completed installation of a recording salinometer and a digital recording tide gauge at the U.S. Coast Guard Station just across Moriches Bay from Moriches Inlet. Soon thereafter The County of Suffolk agreed to provide funds to purchase a replacement for the above recording salinometer, which had previously been committed for future use on other research projects. The acquisition of this salinometer from County

supplied funds allowed us to obtain a nearly continuous record of temperature and salinity at the Moriches Coast Guard Station from mid-April, 1980 through early March, 1981. The instrument we had installed on the 22nd of January, 1980, collected temperature and salinity data through the 8th of February, 1980. Instrument failure led to a loss of data in the interval 9 February, 1980 through 16 April, 1980. In spite of this, during the more than thirteen month period from the 22 January, 1980 through 2 March, 1981, temperature and salinity records were successfully obtained for 304 days.

It is these temperature and salinity data, collected at the Moriches Coast Guard Station in the interval from 22 January, 1980, just 7 days after the opening of the breach through the barrier island to the east of Moriches Inlet, through 2 March, 1981, some two and one-half months after the breach had been closed, which are the subject matter of this report. These data were also used on other projects, jointly funded by The County of Suffolk and New York State, involving the development of numerical models of the hydrodynamics of Moriches Inlet and Bay, and involving the use of biological indicators of possible ecological stresses on the biota of Moriches Bay. The specific application of this data to those studies will be described in the final reports for those studies. Here, the processed data will be given in both tabular and graphic form, and comments will be made on information which can be obtained from the data set alone, without recourse to modeling. First, however, a description will be given of the nature of the raw (unprocessed) data, and of the procedures which were required to reduce this raw data to a usable form.

THE ACQUISITION, PROCESSING AND REDUCTION OF THE DATA SET

The instruments used to collect the data described in this report were Endeco Model 174 Current Meter/Salinometers. In the installation at the Moriches Coast Guard Station, the current velocity sensors were disabled, since the instrument was suspended from a pier in an area where the currents are weak and irregular. The salinometer portion of this device consists of a thermister bead thermometer and an inductive conductivity sensor. Digital readings from these sensors are recorded at two minute intervals on magnetic tape. The magnetic tape cartridge is capable of storing about 35 days of data at this acquisition rate. Unless there was some indication of malfunction based on several test procedures, or the sensors appeared badly fouled, serv-

icing of the instrument simply required pulling the device out of the water, opening the case, replacing the tape and batteries, closing the case, and returning the meter to its in situ position. At most, servicing in such cases involved the loss of only one hour of recorded data. In some instances, it was necessary to exchange the instrument in use with another, and a somewhat longer period of data loss occurred.

Recovery of the some 21,600 pairs of temperature and conductivity readings from a nominal 30 day deployment requires a special tape reader to translate the recording tape format to a format which can be processed by a computer. Individual calibration corrections must then be applied to each translated record of temperature and conductivity. The corrected temperature and conductivity data pairs were then input to an algorithm to compute the salinity in accord to the Practical Salinity Scale, 1978 (see Pritchard, 1983).

The processing of these data required a much longer time than we had anticipated because of excessive noise in the records, and because of certain inconsistencies in the original calibration data. Special techniques had to be developed to recover usable data from these records and to remove the calibration inconsistencies. Usable data could not be recovered from the deployments made during the period 8 February, 1980 through 16 April, 1980, nor from those made during the period 31 December, 1980 through 2 February, 1981.

A total of some 218,000 pairs of temperature and salinity values were obtained from the 304 days of usable recordings obtained during this study. This is far too much data to present in tabular form, and the two-minute sampling interval provides more detail than is normally required. The records from each deployment were therefore subjected to filtering to remove the high frequency fluctuations. These smoothed records were then decimated to provide tabular temperature and salinity values at one-half hour intervals.

DATA PRESENTATION

The filtered records from each deployment were, to the extent possible, merged to provide a single data file. The salinity values from this merged file were then plotted over one-half month intervals, and these graphs were reproduced and are included in Appendix A following the text portion of this report. The decimated half-hourly numerical values of both temperature and

salinity are listed in tabular form in Appendix B following the graphs described above.

The half hourly numerical values of temperature and of salinity were averaged over each of the 304 days of record. The daily averaged values of temperature were then plotted and are shown in Figure 1, and the daily averaged values of salinity were also plotted and are shown in Figure 2.

DATA INTERPRETATION

While it is not the purpose of this report to give an in-depth interpretation of these records, some comments as to the evident information provided by the salinity data set are included here.

The prime use of these data is for the adjustment and verification of the numerical model which has been developed to predict the impact of any future breach on the salinity distribution within the bays along the south shore of Long Island. That use of this data set will be described in the report on the numerical modeling project now nearing completion.

Values of temperature read from the corrected and filtered temperature record at one half hour intervals are listed in Appendix B. These half hourly values were averaged for each of the 304 calendar days for which usable data was obtained, and the resulting daily averaged temperature values are shown graphically in Figure 1. There is nothing unusual about the temperature record as shown in this figure. The seasonal temperature cycle is evident. Higher frequency variations, characteristic of those imposed by fluctuations in the weather on a body of water having a surface area and depth distribution characteristic of Moriches Bay, are also seen in the daily mean temperature curve shown on Figure 1.

The salinity distributions in space and time within the bays along the south shore of Long Island are primarily dependent upon two factors: (1) the fresh water inflow rate and the variations in this inflow with time; and (2), the rate of exchange of sea water with bay water through the inlets. This last factor depends upon the hydraulic efficiency of the inlet, but is also influenced by the intensity and frequency of storm surges, which vary seasonally and from year to year. The fresh water inflow comes via both surface runoff and percolation through the bay bottom of ground water. These sources are highly variable seasonally and more importantly often show large variations from year to year. Thus observations made over a period of only one or

even a few years are unlikely in themselves to demonstrate that some event, such as the development of a new breach in the barrier island, does or does not result in a change in the salinity distribution, unless such change is very large.

A comparison of this data set with the limited amount of data collected in Moriches Bay in years prior to the January, 1980 breach, and a comparison of that portion of this data set which was obtained during the period when the breach was open, to that portion which was obtained during the period after the breach had been closed, do not reveal any evident differences in the salinities at Moriches Coast Guard Station which are clearly related to the opening or closing of the breach. While this conclusion is supported by a detailed analysis of the half hourly averaged values shown graphically in Appendix A and listed in Appendix B, it is most easily seen by inspection of the graph of the daily averaged salinities given on Figure 2. The fact that an analysis of this data set does not in itself show a difference in the salinities at the Moriches Coast Guard Station which can be related to the opening or closing of the breach, does not imply that no such relationship exists. It simply means that the variability in the salinity record due to variations in such primary controlling factors as the fresh water inflow and the nontidal fluctuations in coastal sea level are so great as to mask any effect on the salinity variation with time which might have been caused by the opening and/or closing of the breach. Thus the resolution of the question of the impact of such a breach on the salinity distribution must await the completion of our modeling study, for which this data set provides a valuable contribution.

One obvious feature clearly evident from the graphs of salinity included in this report is the relatively large temporal variations in the salinity at the Moriches Coast Guard Station. This is a somewhat surprising feature for a location so close to the inlet. This temporal variation makes the task of determining the impact of events such as the breaching of the barrier island more difficult than would be the case if the time variation in salinity were less noisy.

REFERENCES

Pritchard, D.W. A summary concerning the newly adopted Practical Salinity Scale, 1978 and the International Equation of State of Seawater, 1980. Working Paper # 8, Reference 82-3, Marine Sciences Research Center, State University of New York, Stony Brook, New York.

MORICHES COAST GUARD STATION

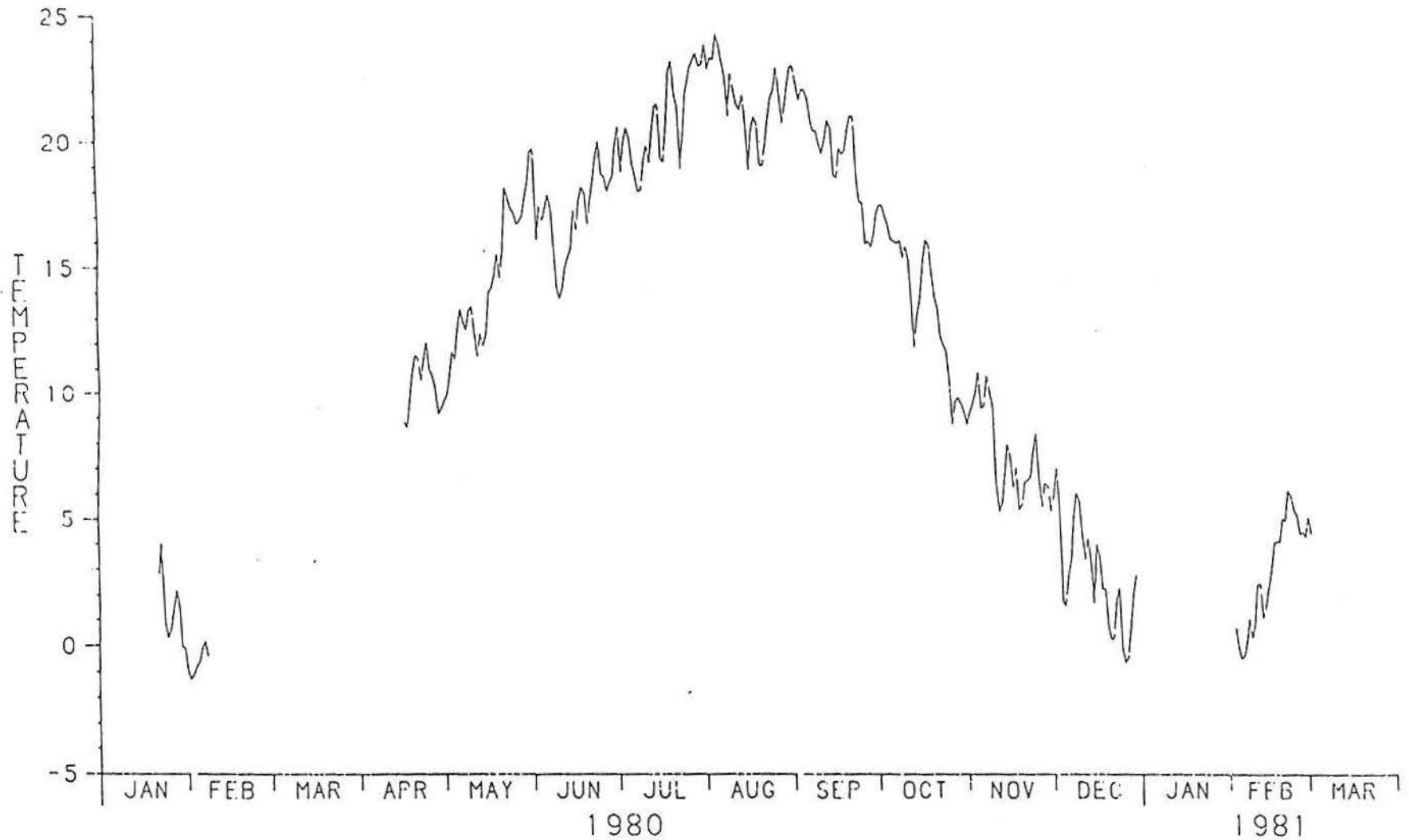


Figure 1. Daily average values of the temperature in Moriches Bay at the Moriches Coast Guard Station for the period 22 January, 1980 through 3 March, 1981.

MORICHES COAST GUARD STATION

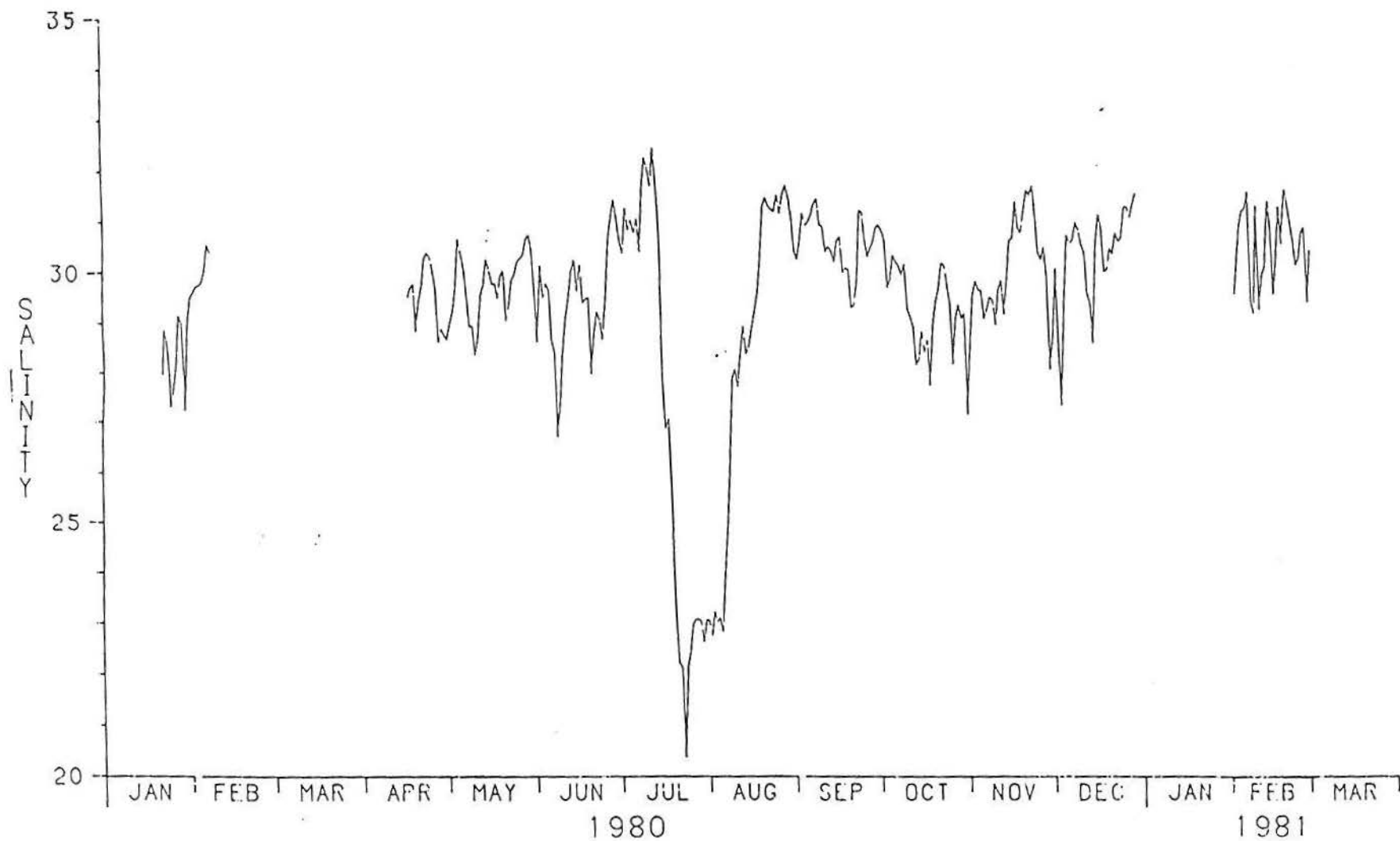


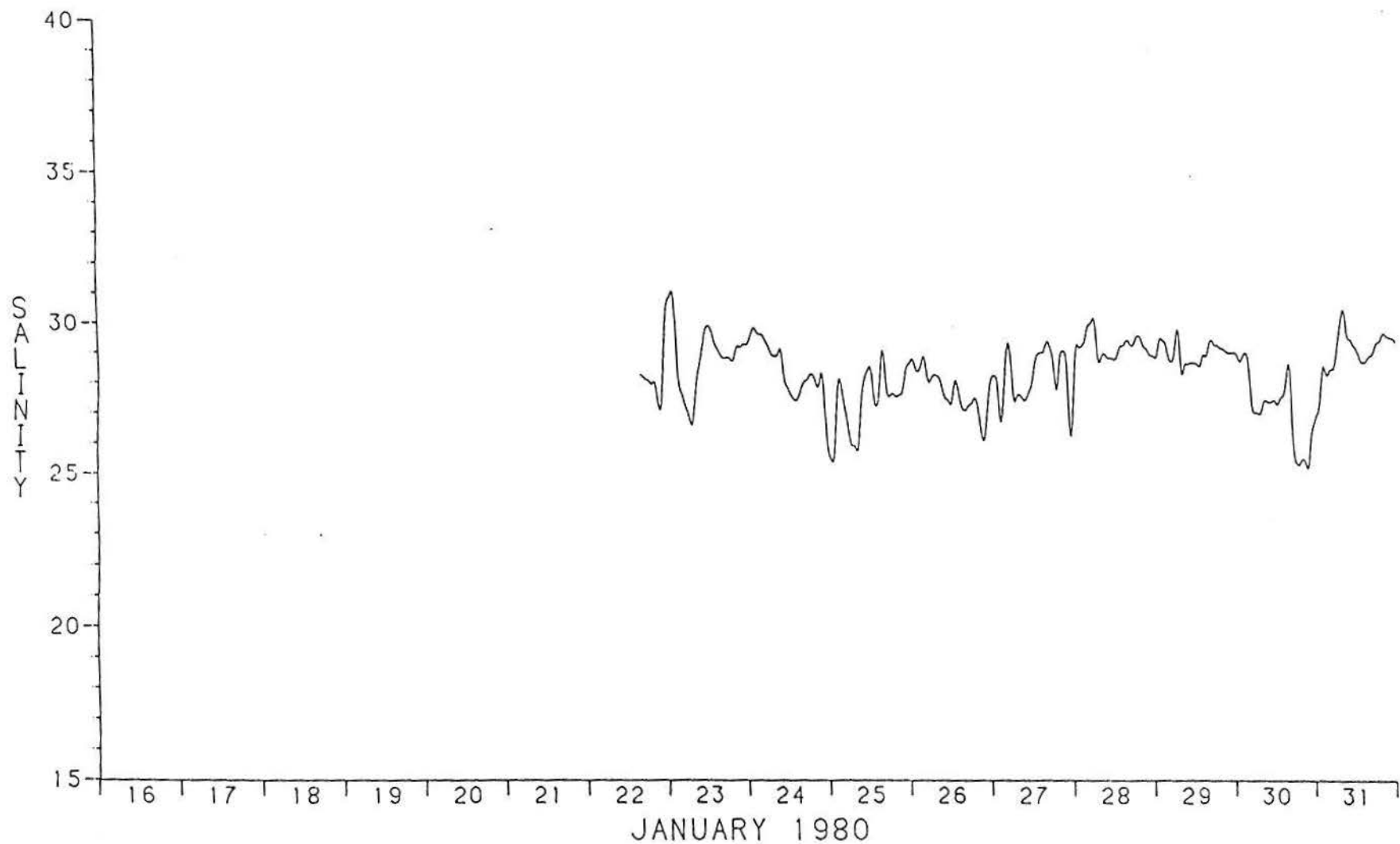
Figure 2. Daily average values of the salinity in Moriches Bay at the Moriches Coast Guard Station for the period 22 January, 1980 through 3 March, 1981.

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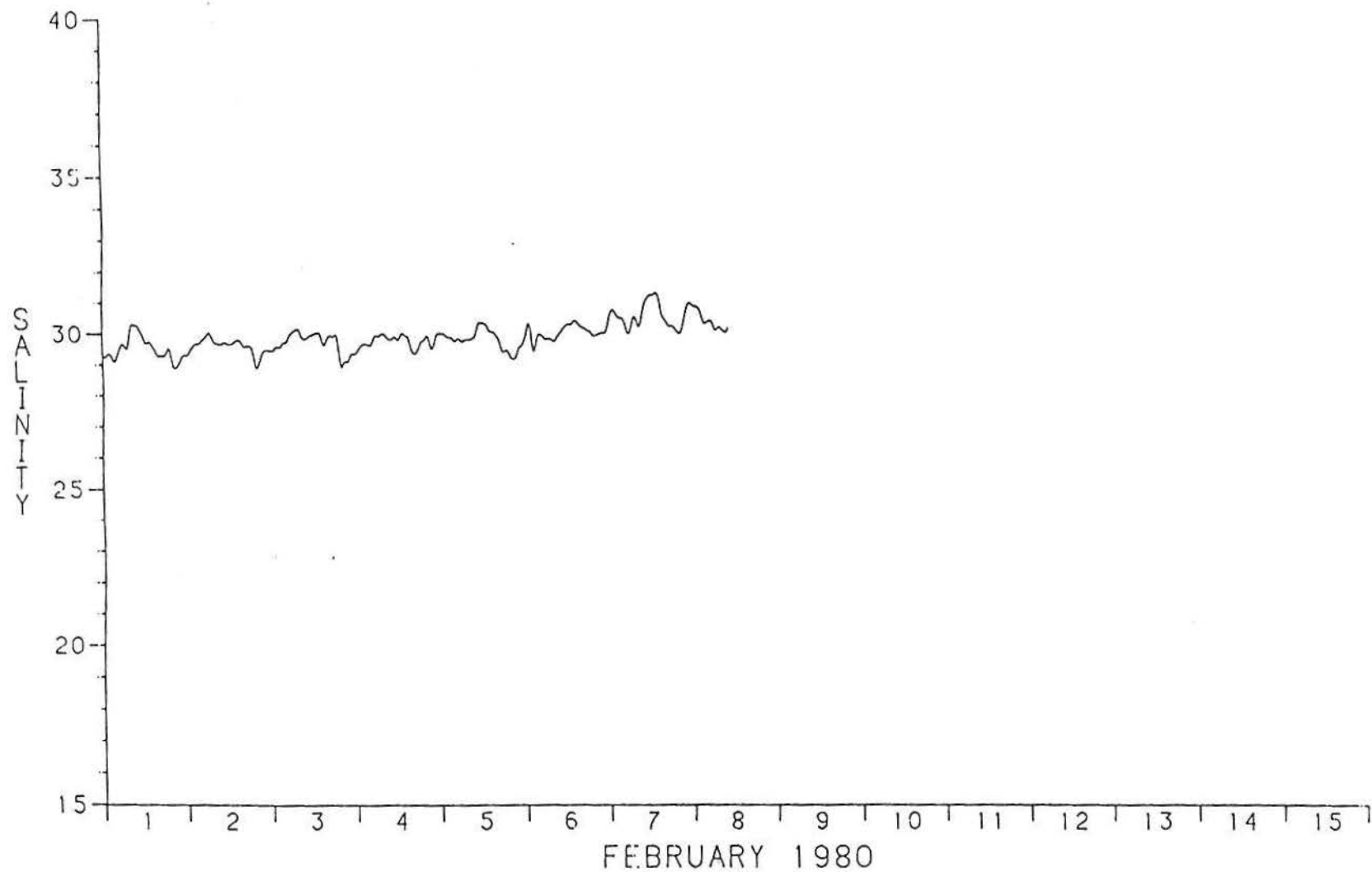
APPENDIX A

Graphs of the Half-Hourly Values of the
Salinity at Moriches Coast Guard Station
Plotted Over Half-Monthly Intervals for the
Period 22 January, 1980 through 2 March, 1981

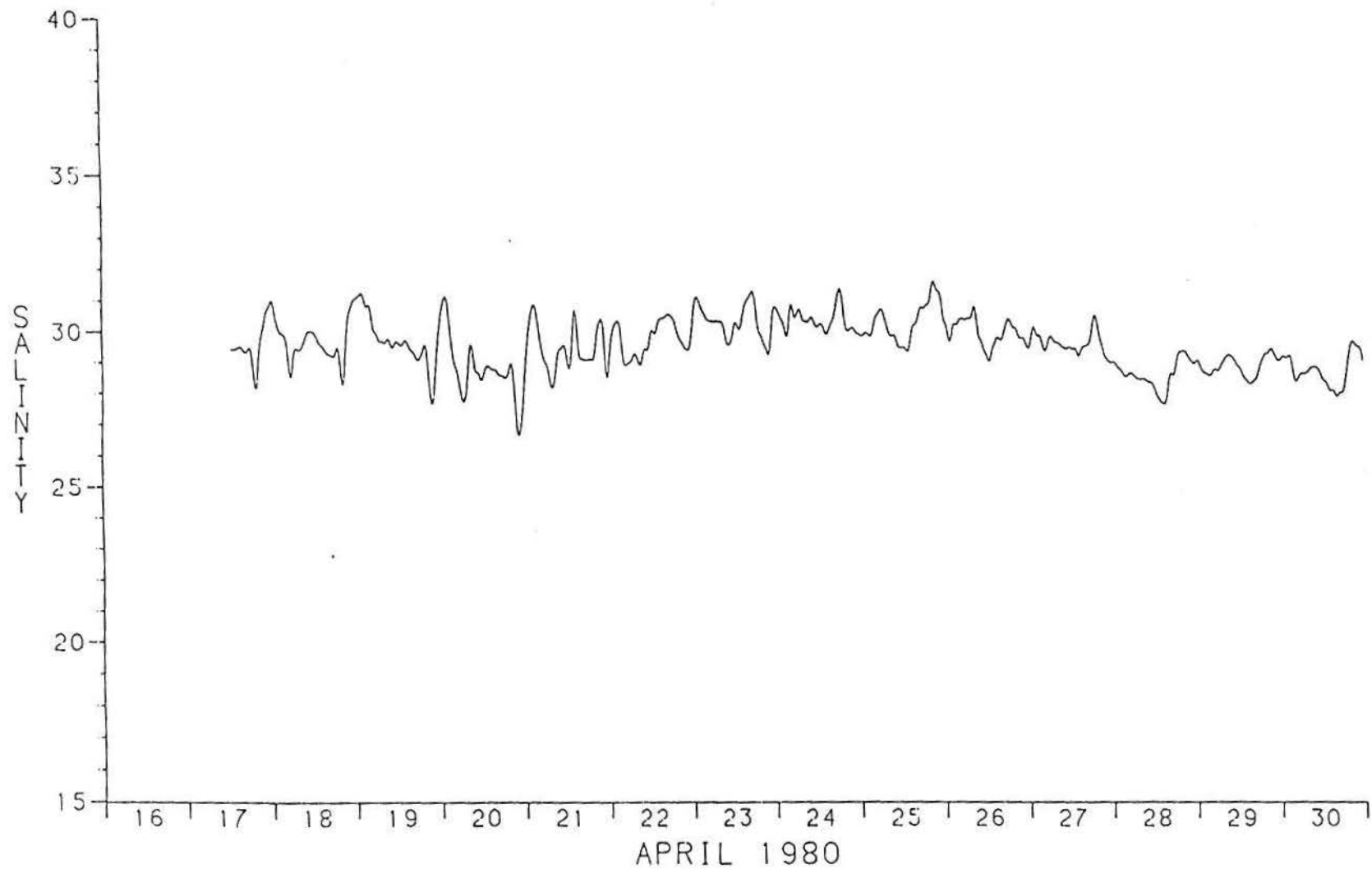
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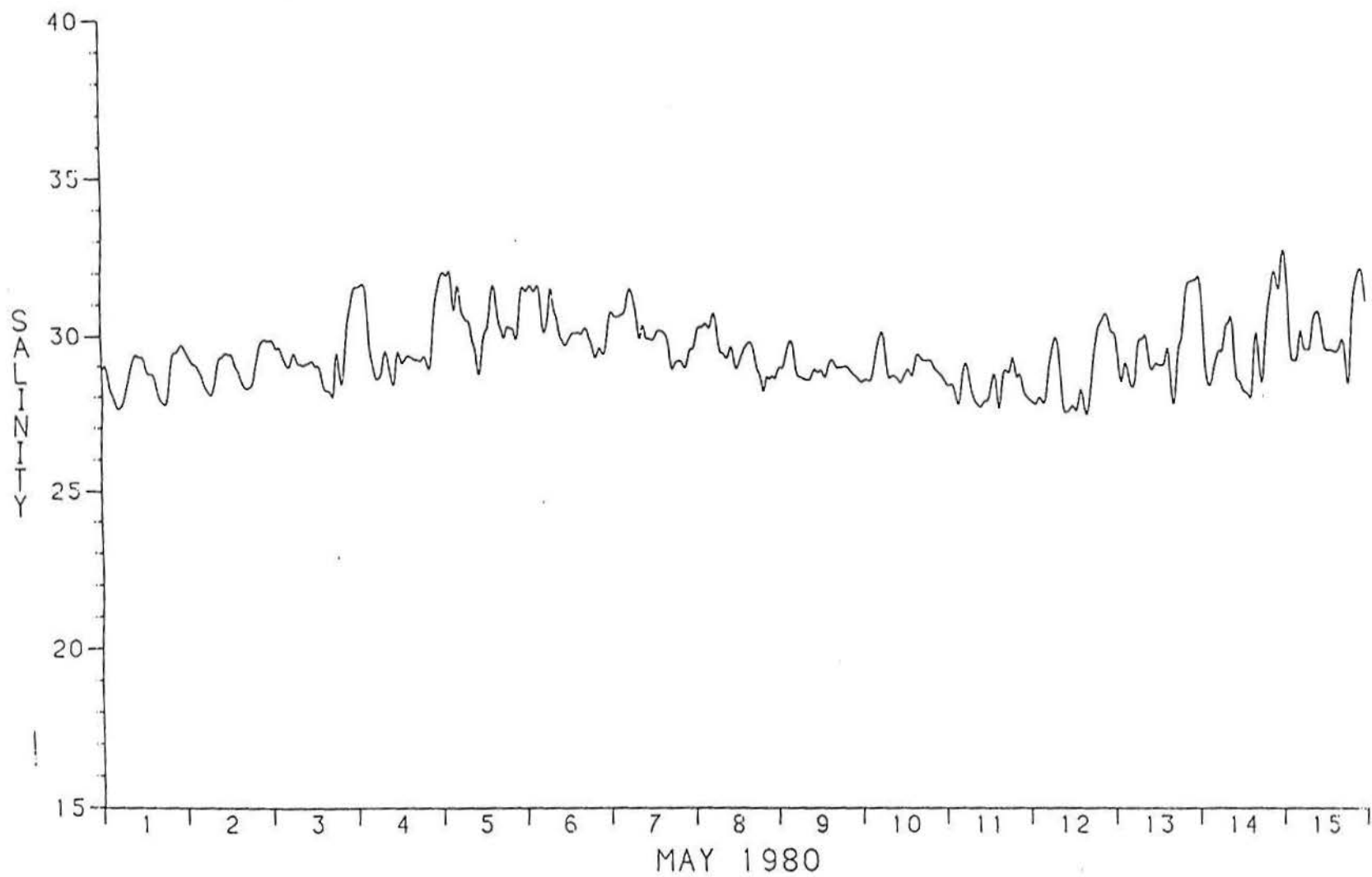
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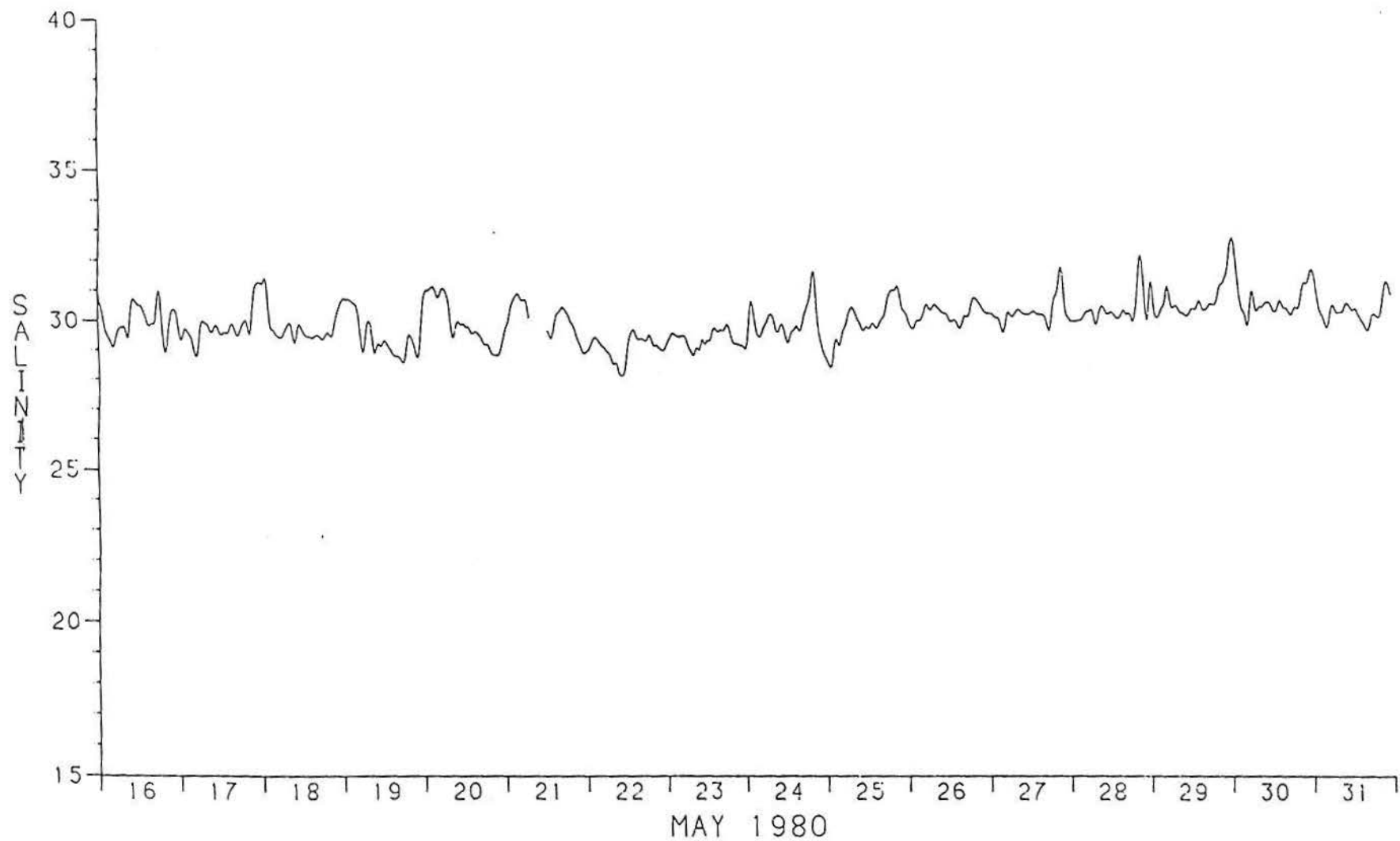
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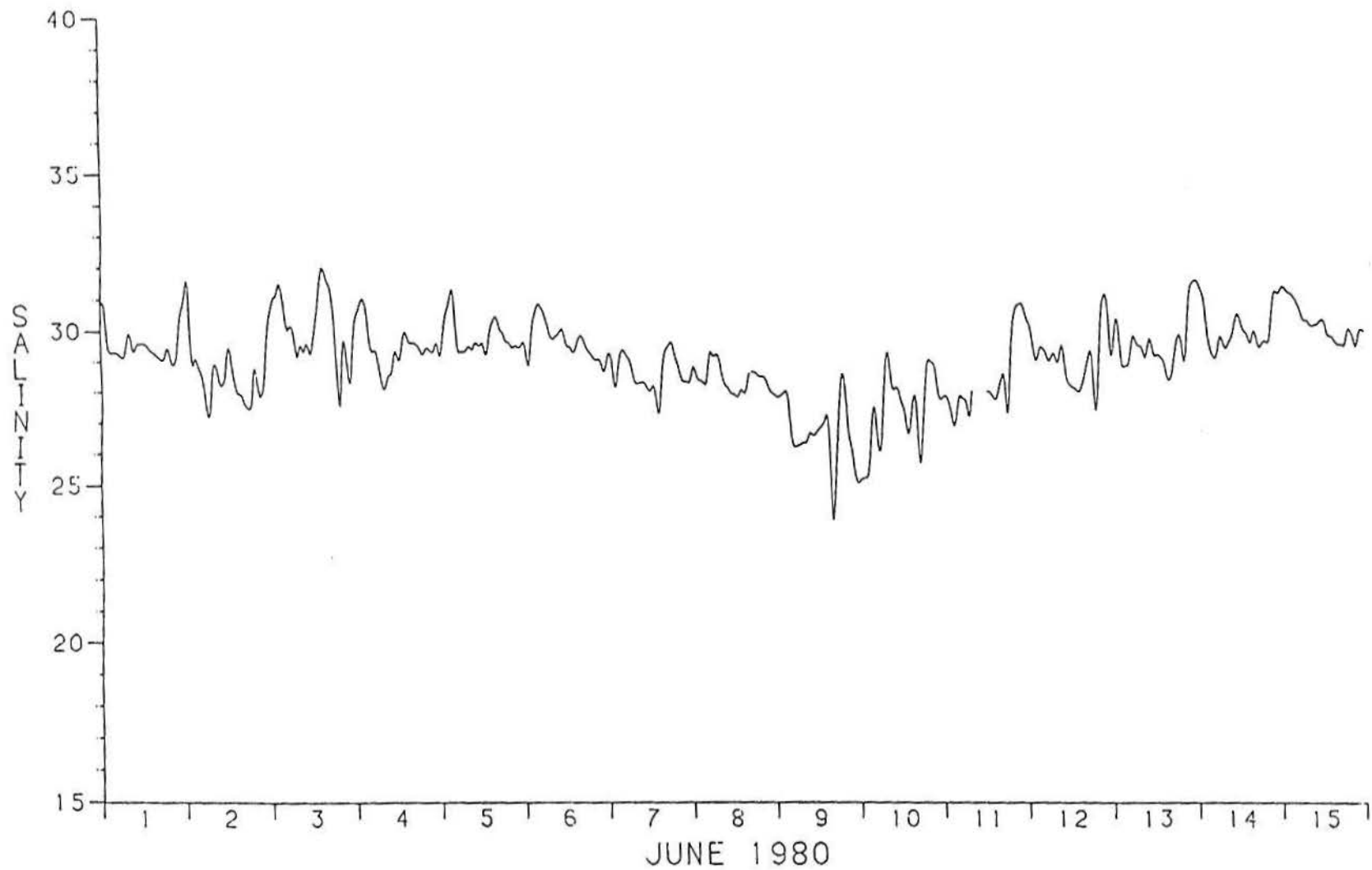
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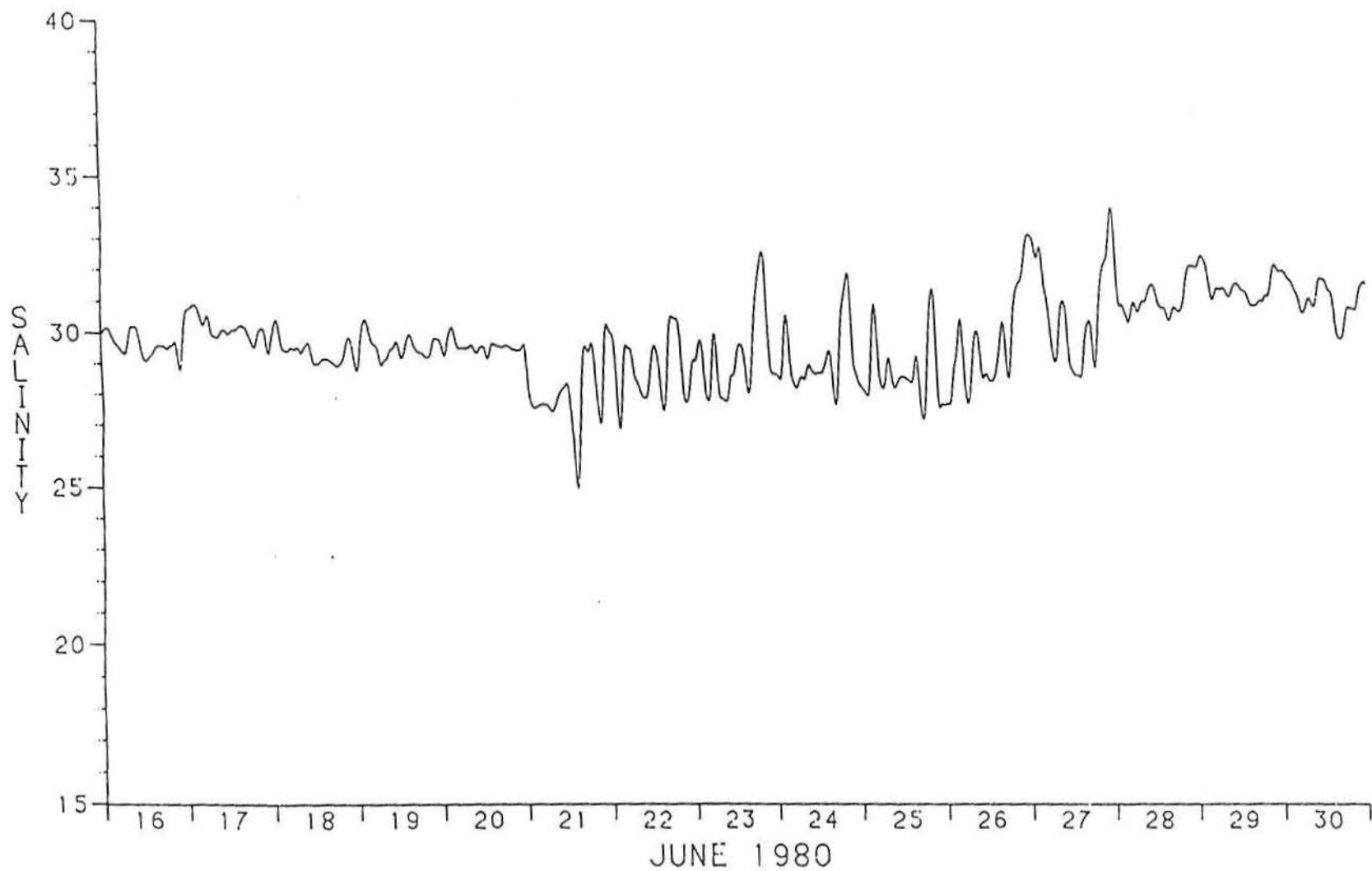
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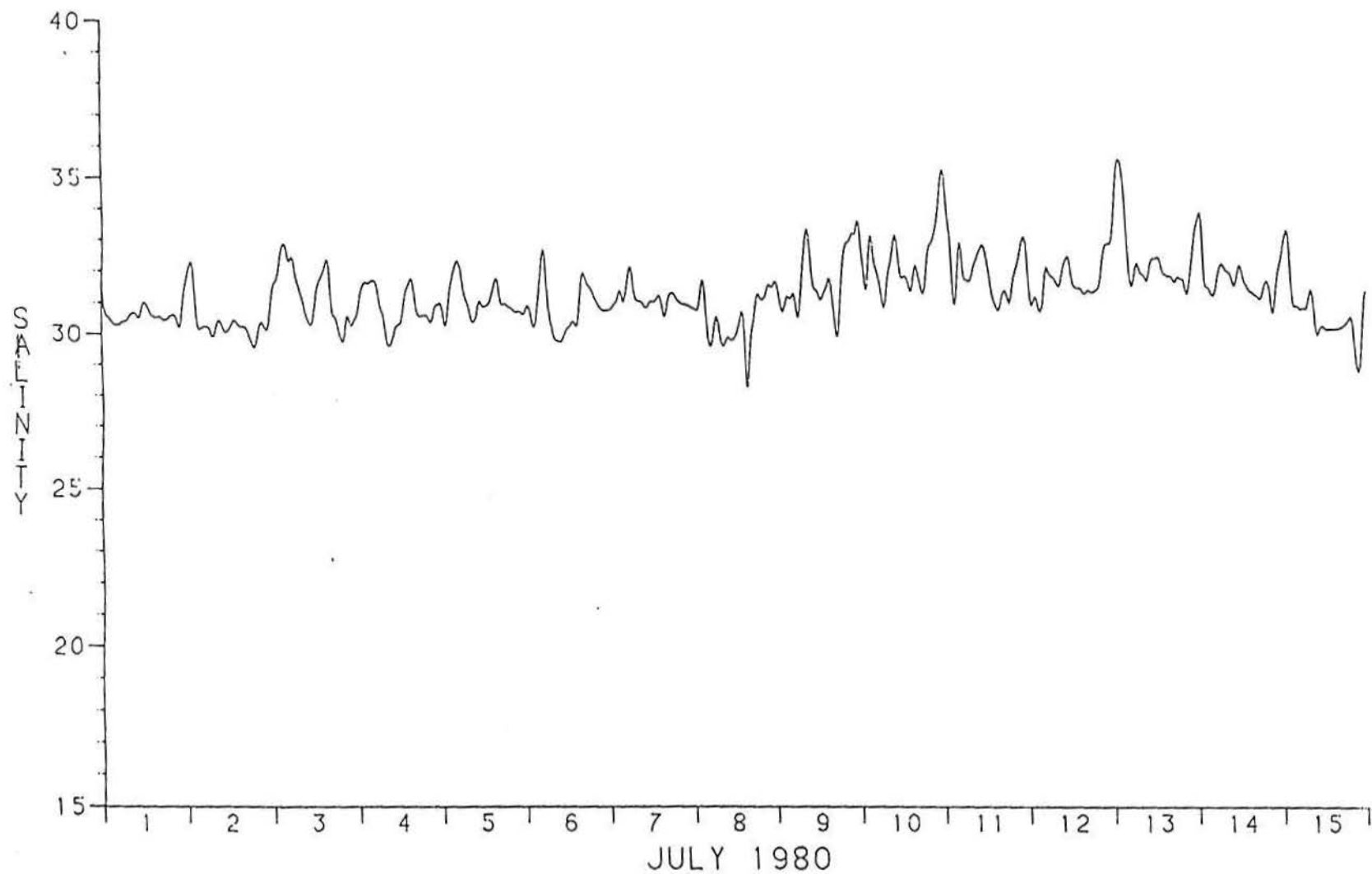
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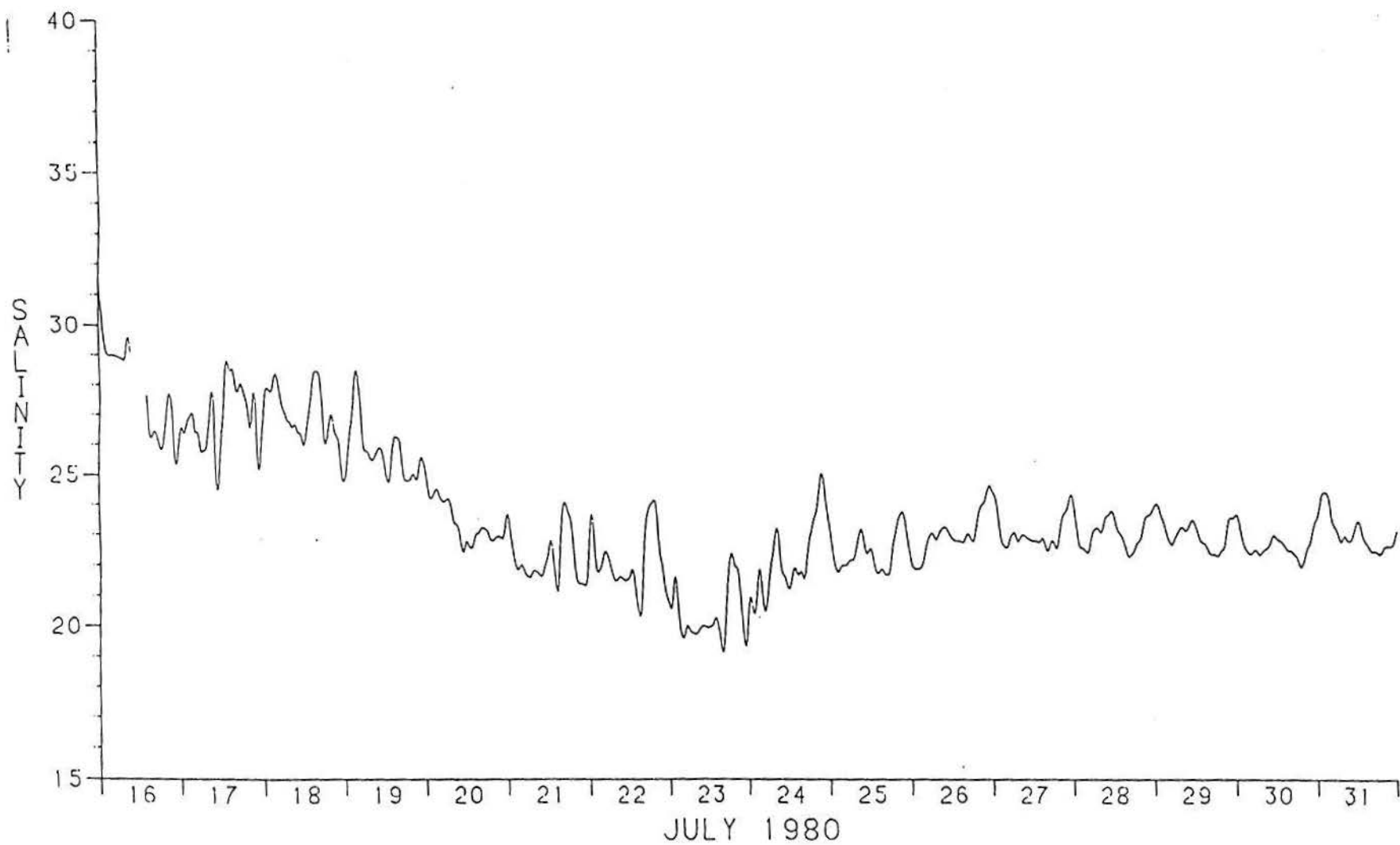
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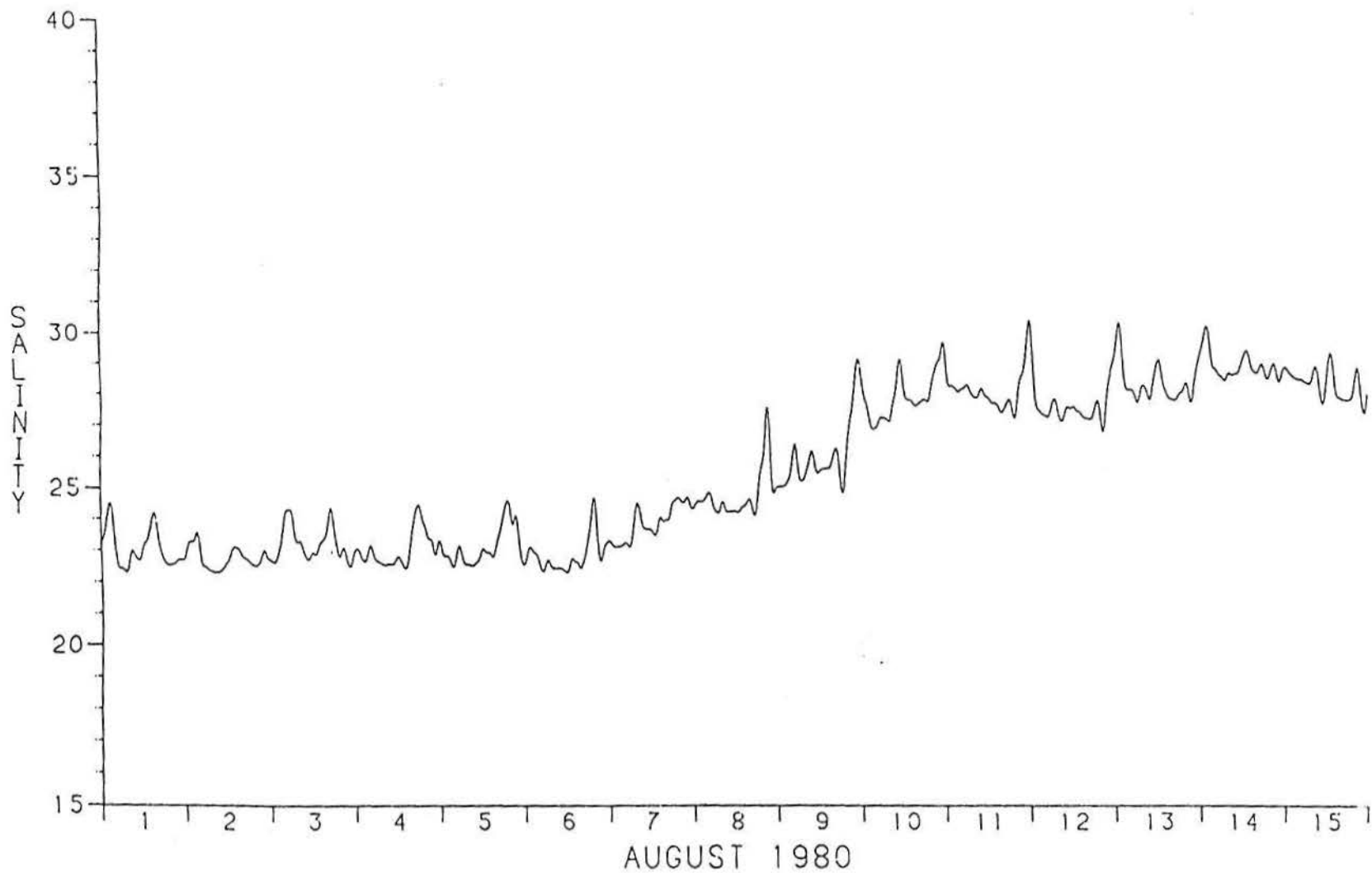
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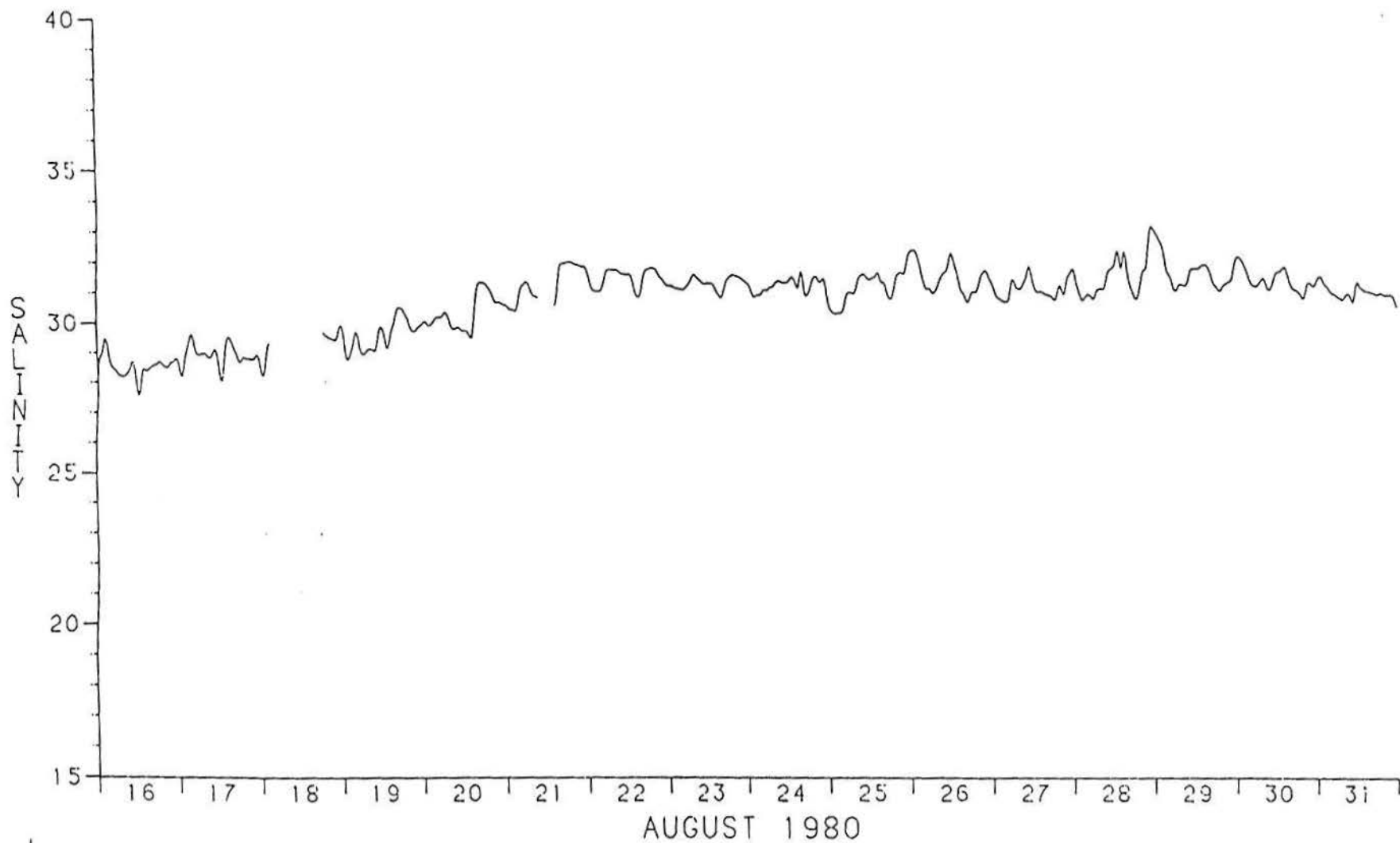
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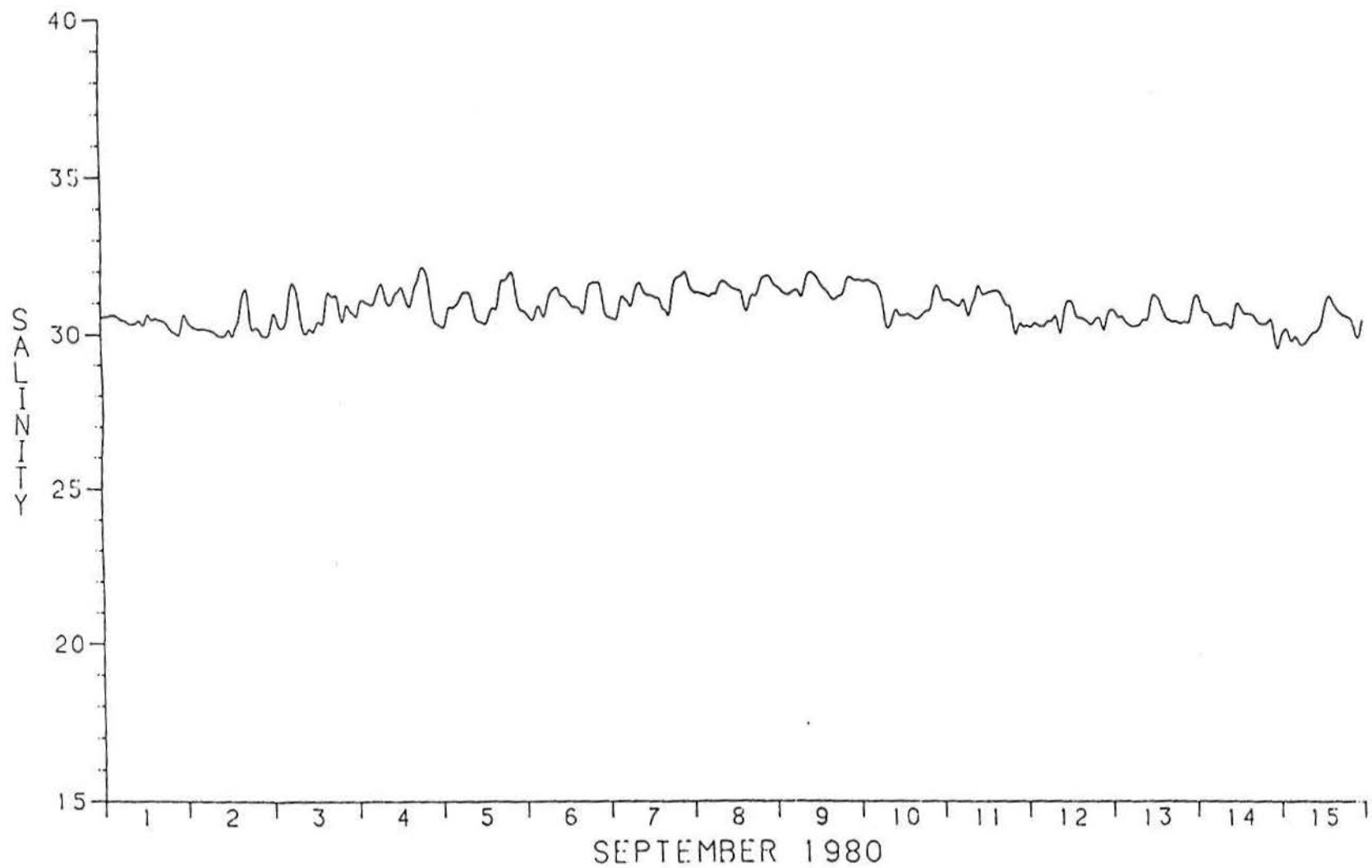
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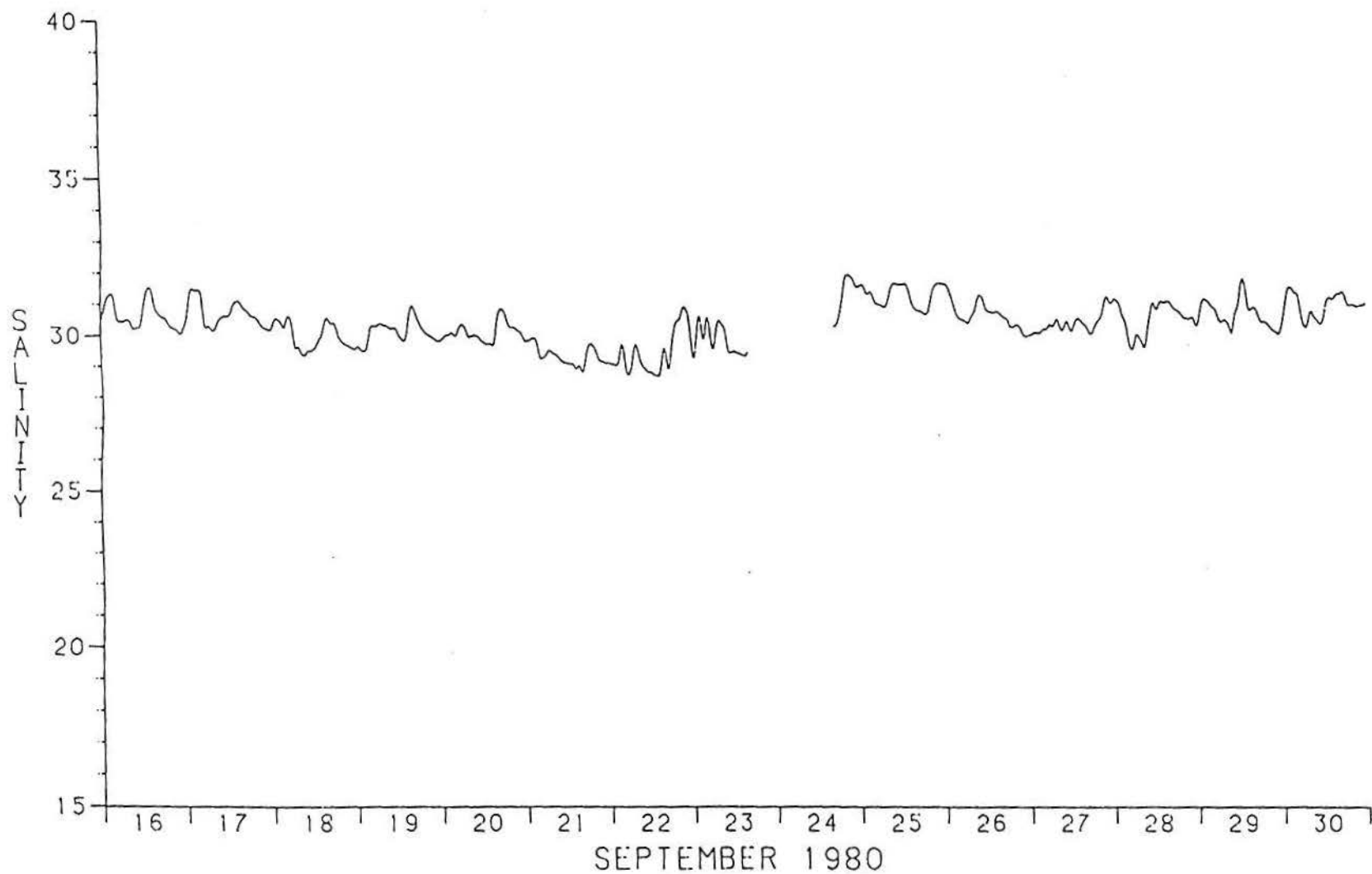
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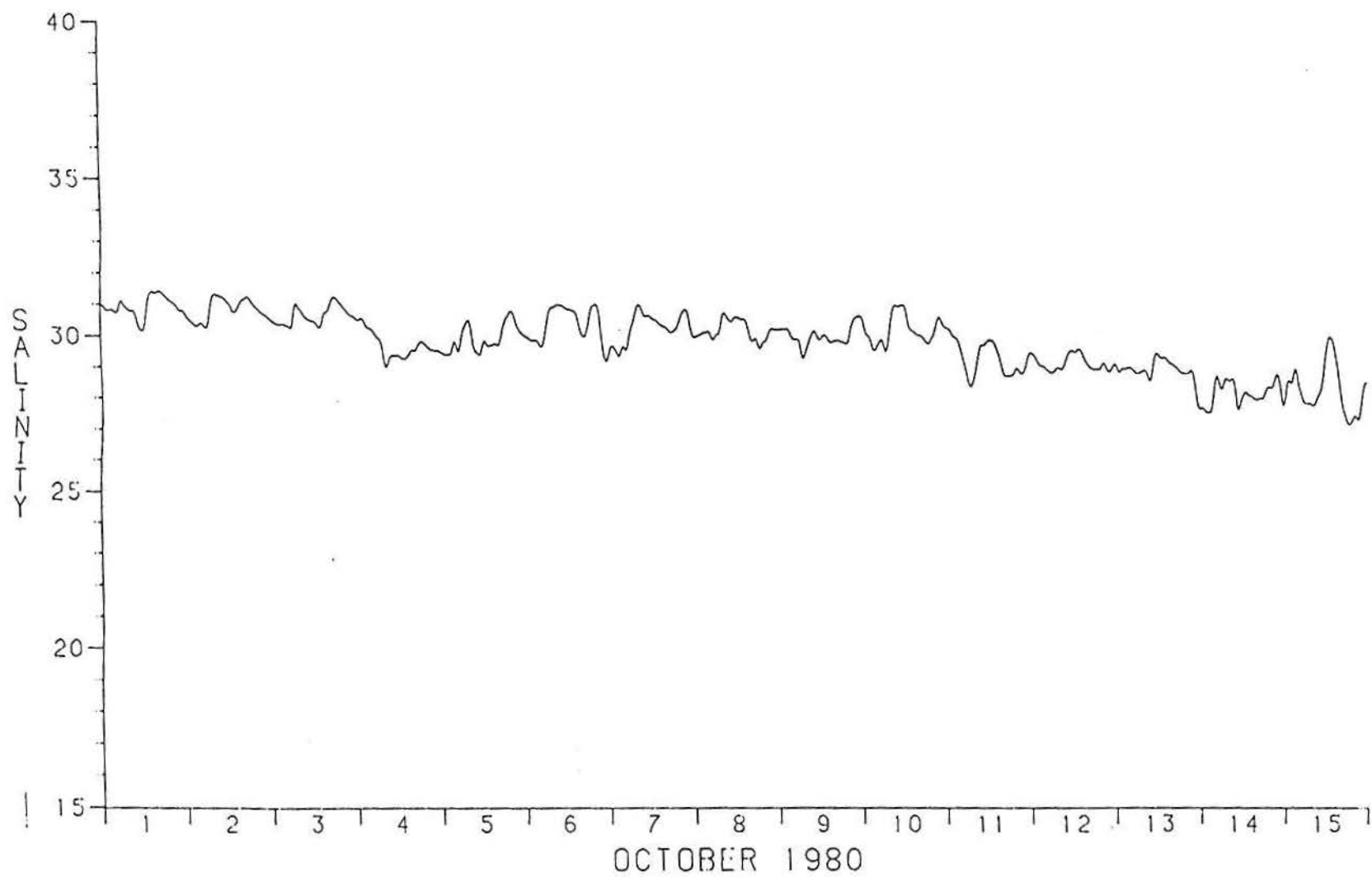
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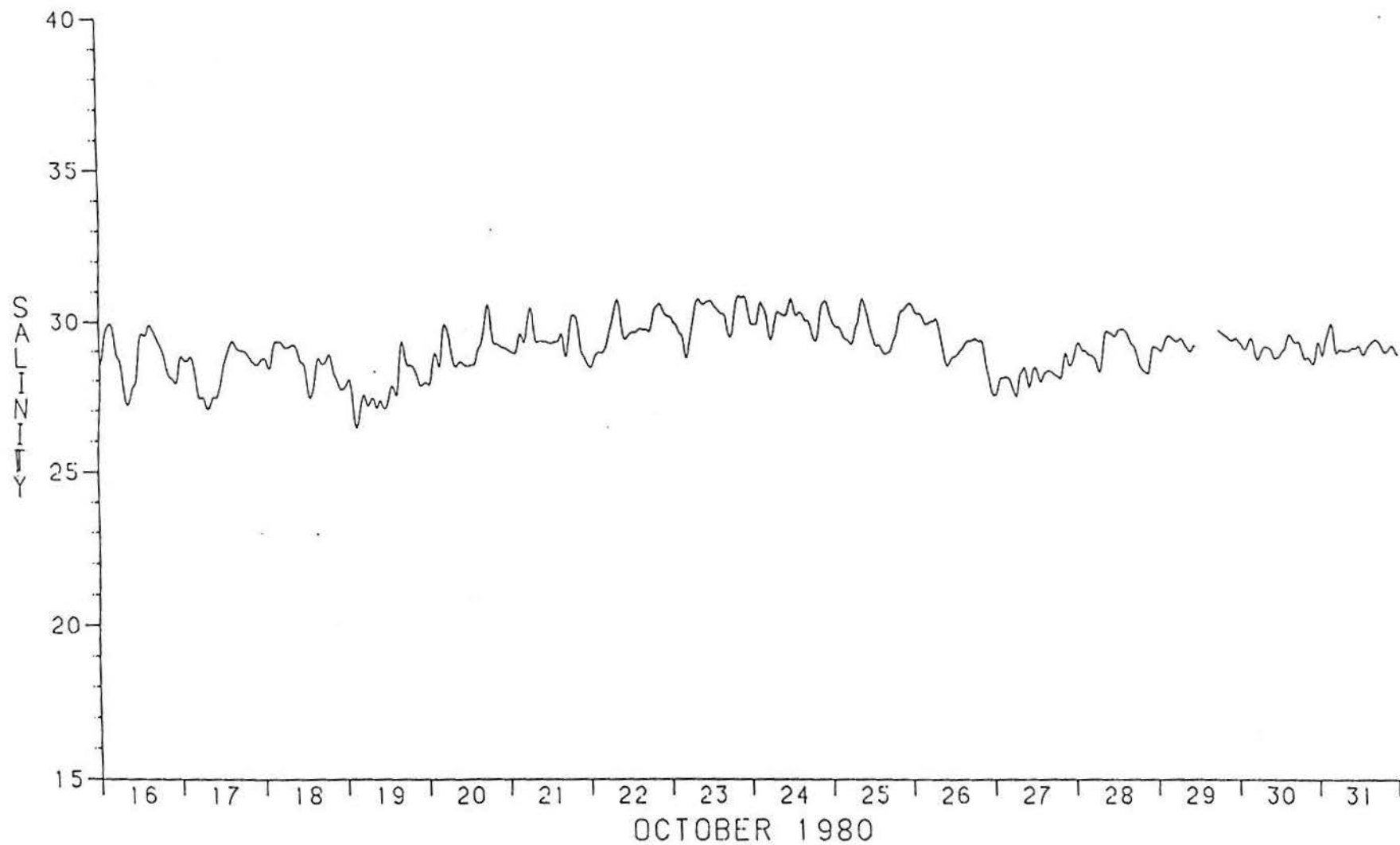
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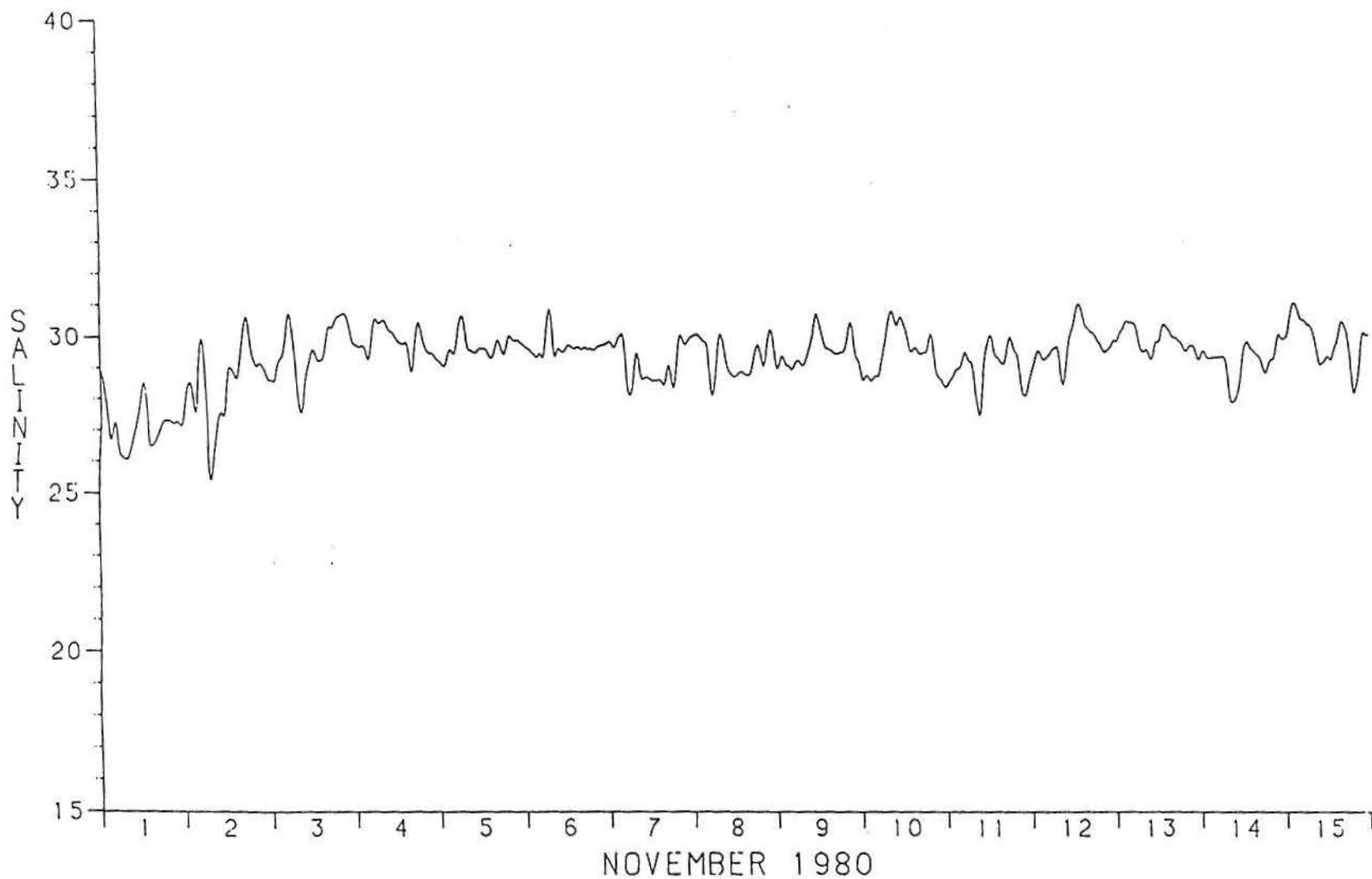
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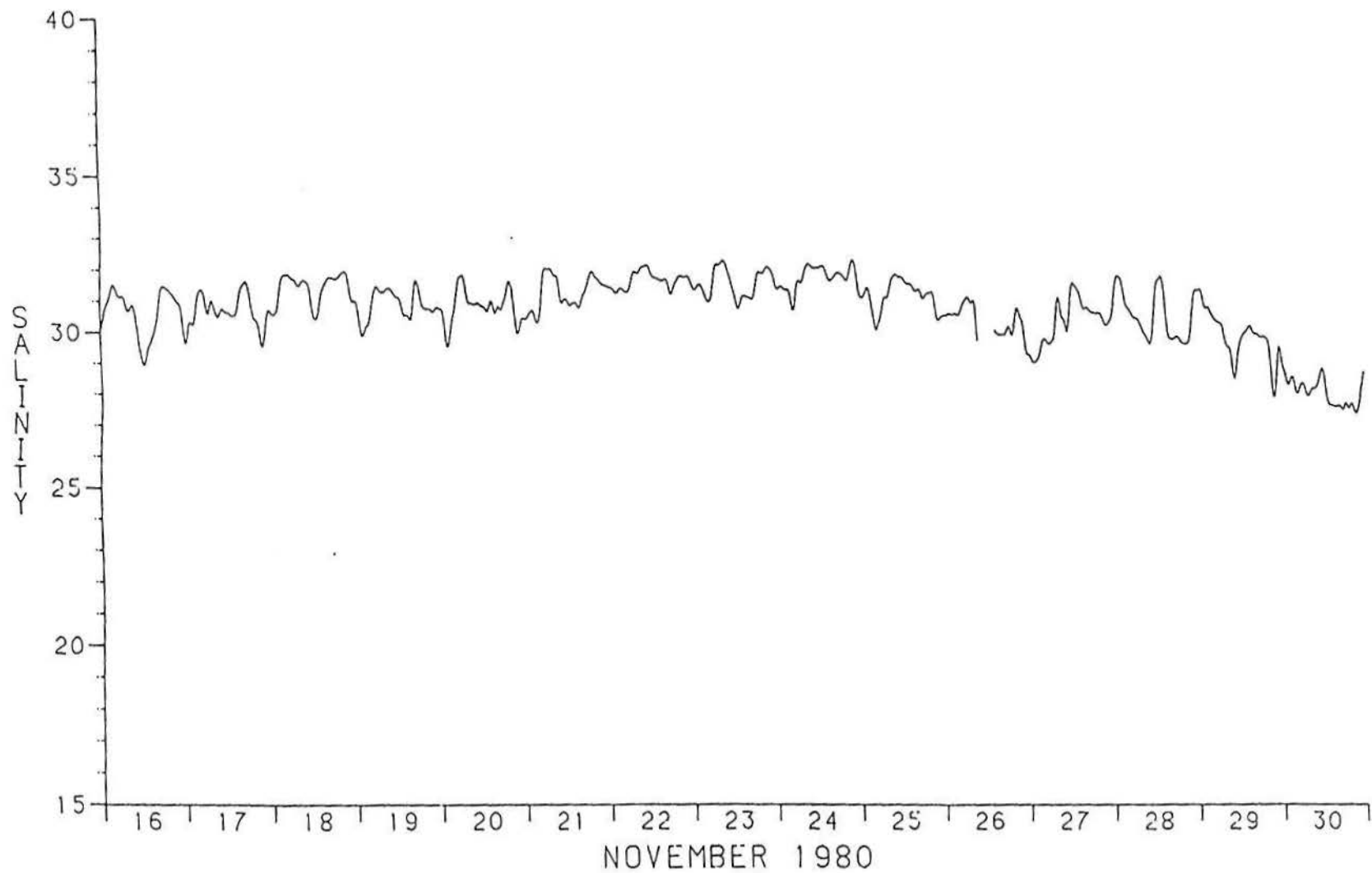
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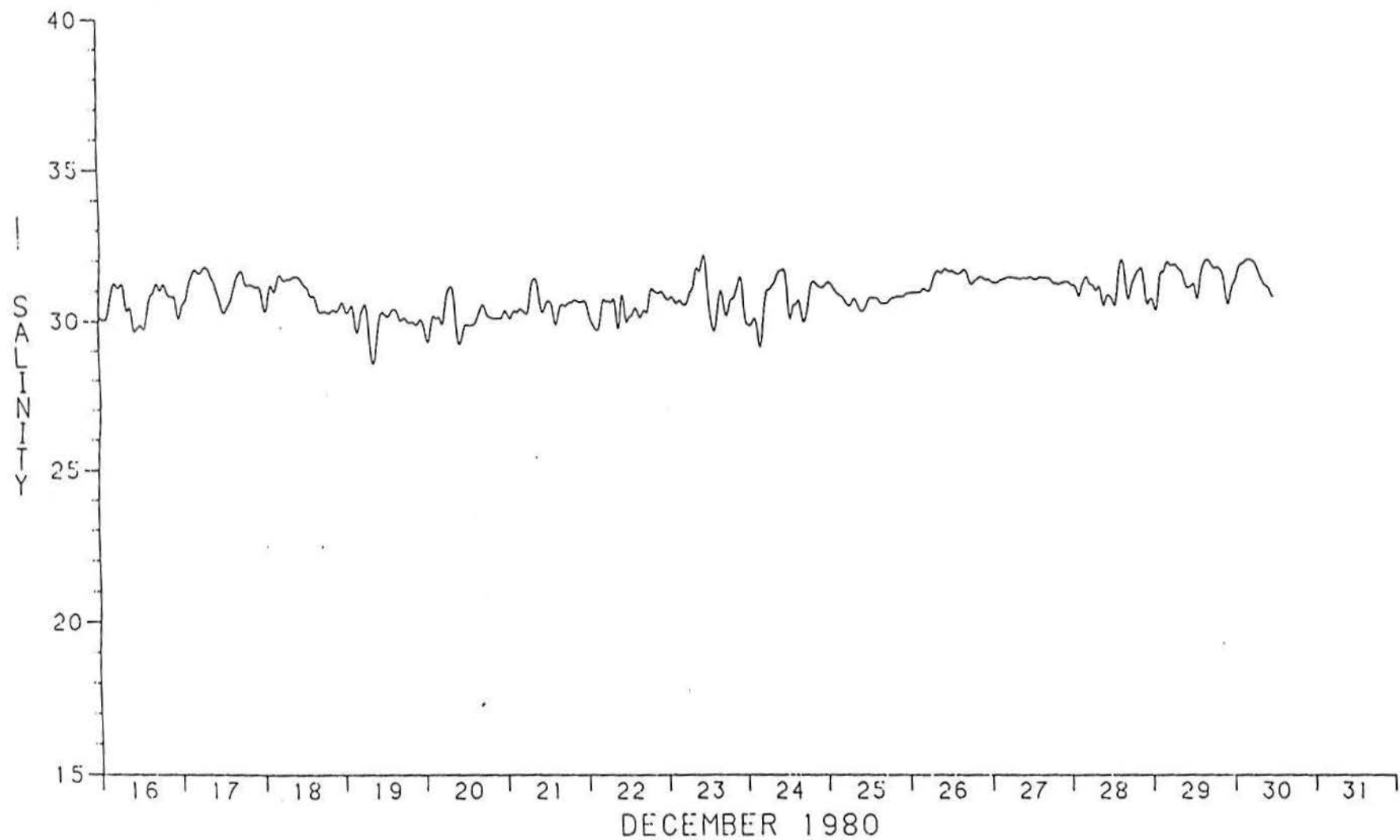
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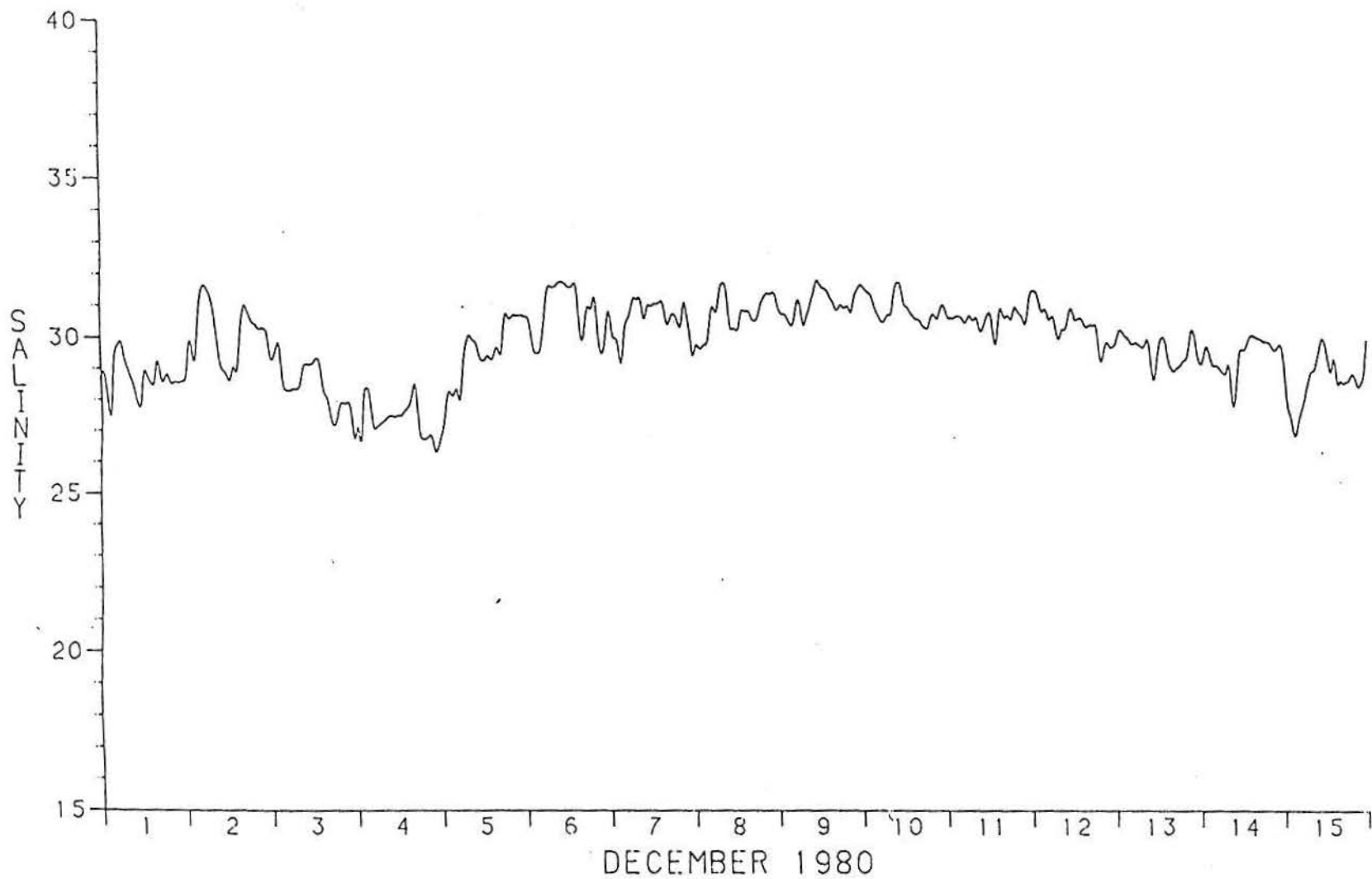
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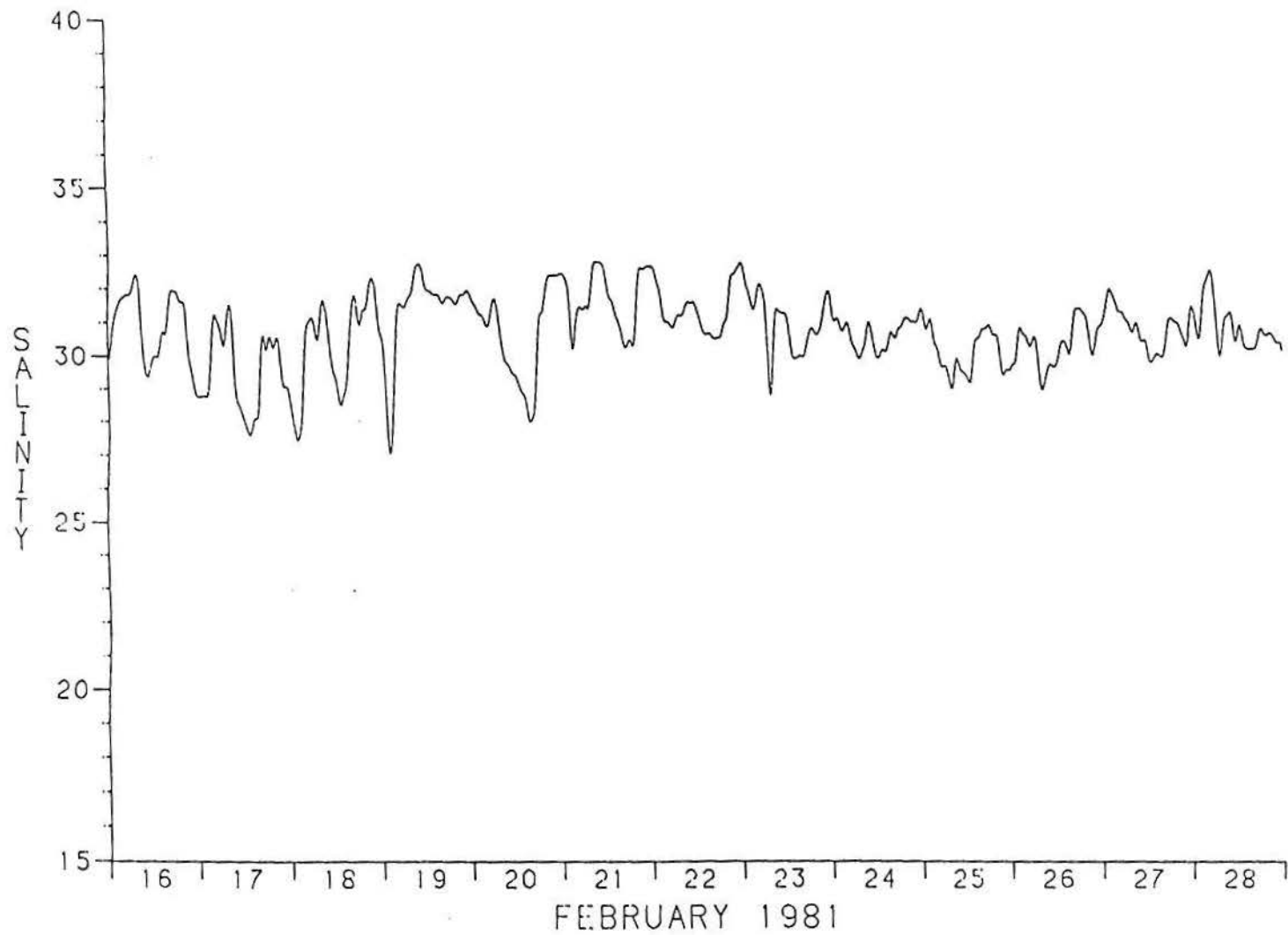
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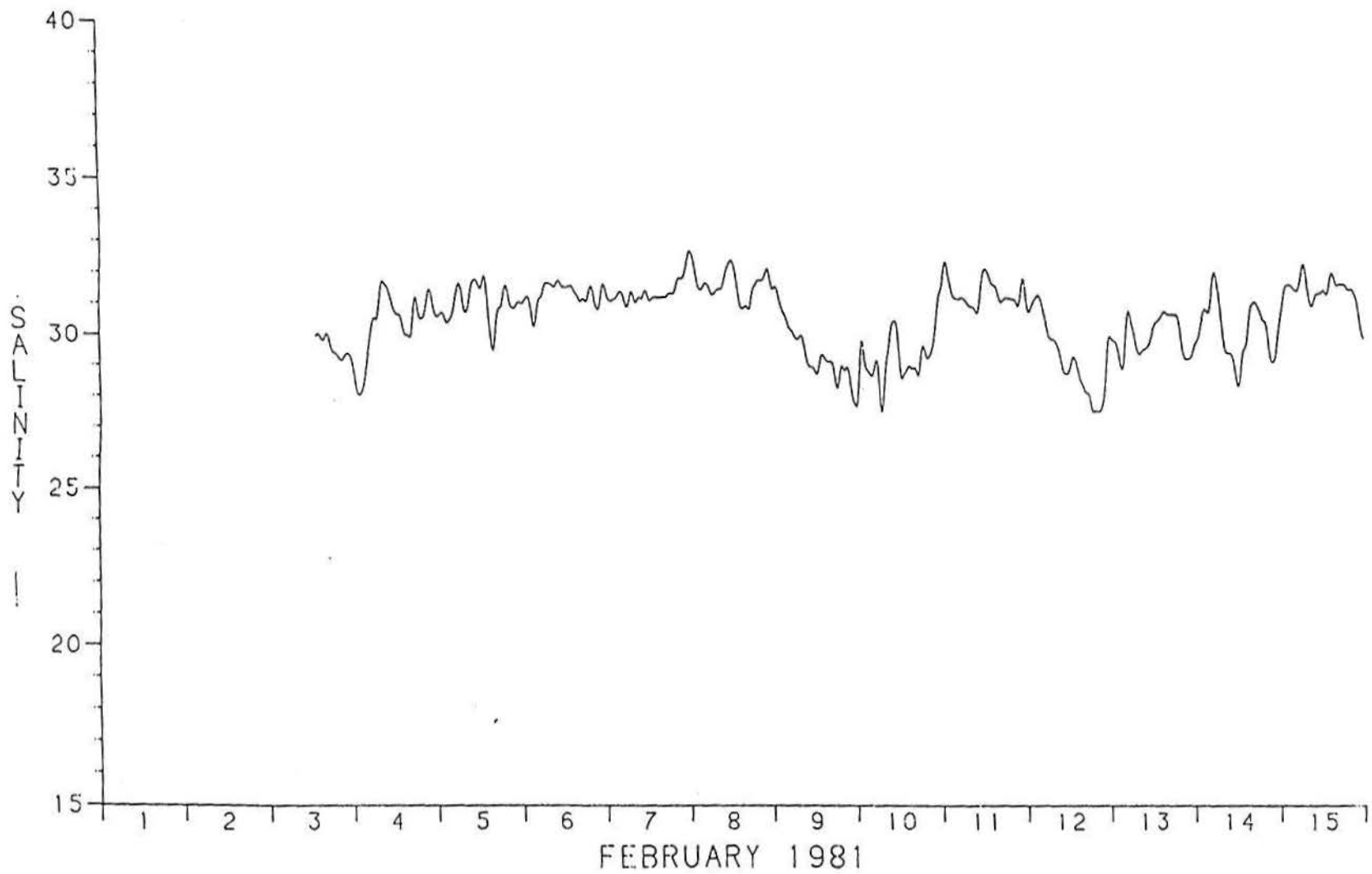
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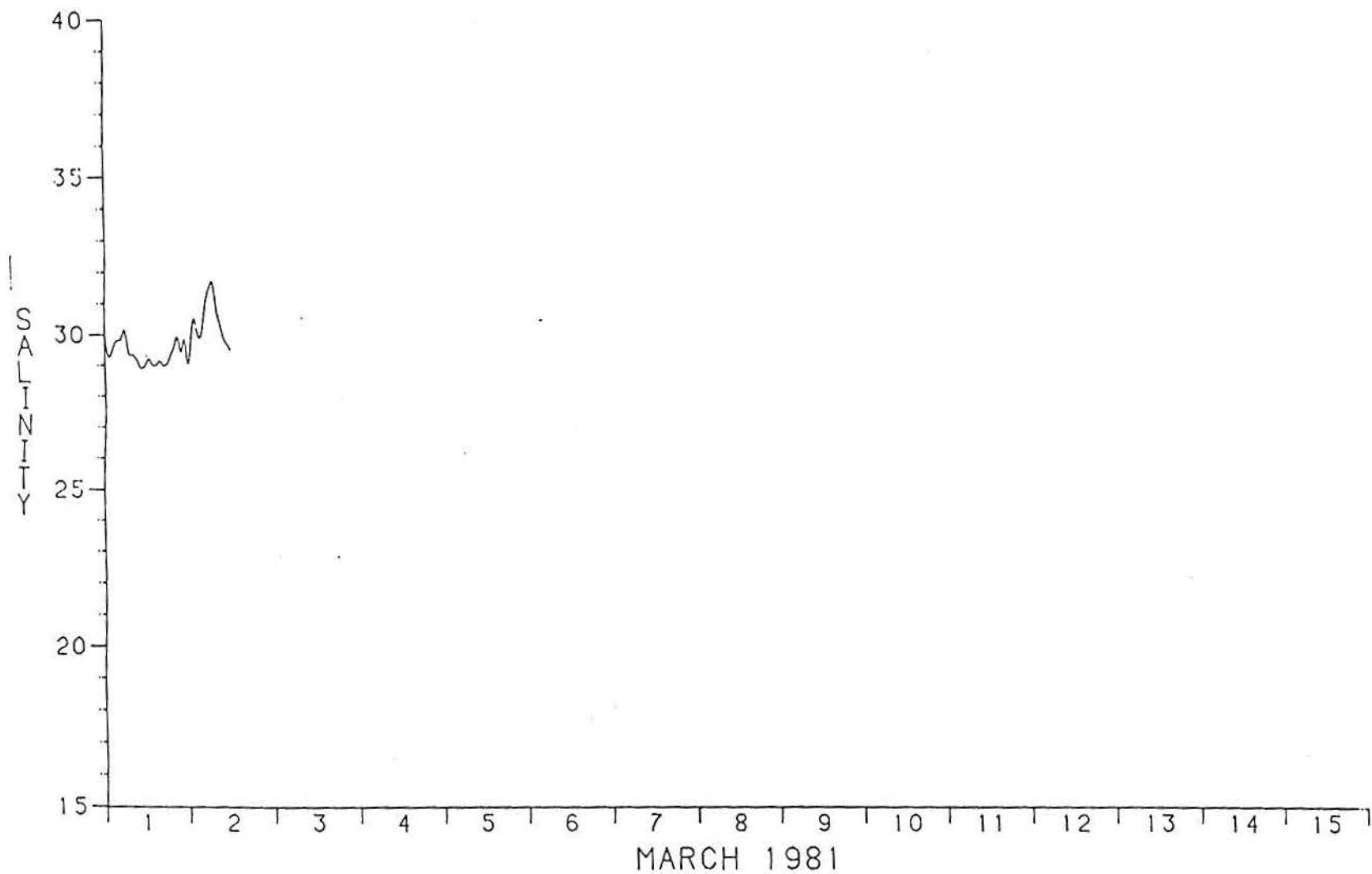
MORICHES COAST GUARD STATION



MORICHES COAST GUARD STATION



MORICHES COAST GUARD STATION



FINAL REPORT

Salinity Measurements
in Moriches Bay

APPENDIX B

Tables of the Half-Hourly Values of the
Temperature and Salinity at Moriches
Coast Guard Station for the Period
22 January, 1980 through 2 March, 1981

MORICHES COAST GUARD STATION
TEMPERATURE AND SALINITY DATA

METER #032

HOURS	05/10/80		05/09/80		05/10/80		05/11/80		05/12/80		05/13/80		05/14/80	
	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL
00	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
01	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
02	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
03	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
04	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
05	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
06	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
07	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
08	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
09	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
10	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
11	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
12	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
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14	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
15	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
16	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
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22	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5
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24	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5	11.1	34.5

MORICHES COAST GUARD STATION
TEMPERATURE AND SALINITY DATA

METER #032

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00:00	12	27.5	27.9
01:00	12	27.6	27.8
01:00	12	27.9	27.7
02:00	13	27.2	27.4
02:00	13	27.3	27.1
03:00	13	27.4	26.9
03:00	13	27.4	27.0
04:00	13	27.5	27.4
04:00	13	27.6	27.8
05:00	13	27.7	27.9
05:00	13	27.8	27.8
06:00	13	27.7	27.8
06:00	13	27.7	27.7
07:00	13	27.6	27.7
07:00	13	27.5	27.7
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08:00	13	27.5	27.7
09:00	13	27.5	27.7
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22:00	13	27.5	27.7
23:00	13	27.5	27.7
23:00	13	27.5	27.7

MORICHES COAST GUARD STATION
TEMPERATURE AND SALINITY DATA

METER #110

HOURS	07/09/80		07/10/80		07/11/80		07/12/80		07/13/80		07/14/80		07/15/80	
	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL
00	17.6	34.7	17.5	34.6	17.4	34.5	17.3	34.4	17.2	34.3	17.1	34.2	17.0	34.1
01	17.7	34.8	17.6	34.7	17.5	34.6	17.4	34.5	17.3	34.4	17.2	34.3	17.1	34.2
02	17.8	34.9	17.7	34.8	17.6	34.7	17.5	34.6	17.4	34.5	17.3	34.4	17.2	34.3
03	17.9	35.0	17.8	34.9	17.7	34.8	17.6	34.7	17.5	34.6	17.4	34.5	17.3	34.4
04	18.0	35.1	17.9	35.0	17.8	34.9	17.7	34.8	17.6	34.7	17.5	34.6	17.4	34.5
05	18.1	35.2	18.0	35.1	17.9	35.0	17.8	34.9	17.7	34.8	17.6	34.7	17.5	34.6
06	18.2	35.3	18.1	35.2	18.0	35.1	17.9	35.0	17.8	34.9	17.7	34.8	17.6	34.7
07	18.3	35.4	18.2	35.3	18.1	35.2	18.0	35.1	17.9	35.0	17.8	34.9	17.7	34.8
08	18.4	35.5	18.3	35.4	18.2	35.3	18.1	35.2	18.0	35.1	17.9	35.0	17.8	34.9
09	18.5	35.6	18.4	35.5	18.3	35.4	18.2	35.3	18.1	35.2	18.0	35.1	17.9	35.0
10	18.6	35.7	18.5	35.6	18.4	35.5	18.3	35.4	18.2	35.3	18.1	35.2	18.0	35.1
11	18.7	35.8	18.6	35.7	18.5	35.6	18.4	35.5	18.3	35.4	18.2	35.3	18.1	35.2
12	18.8	35.9	18.7	35.8	18.6	35.7	18.5	35.6	18.4	35.5	18.3	35.4	18.2	35.3
13	18.9	36.0	18.8	35.9	18.7	35.8	18.6	35.7	18.5	35.6	18.4	35.5	18.3	35.4
14	19.0	36.1	18.9	36.0	18.8	35.9	18.7	35.8	18.6	35.7	18.5	35.6	18.4	35.5
15	19.1	36.2	19.0	36.1	18.9	36.0	18.8	35.9	18.7	35.8	18.6	35.7	18.5	35.6
16	19.2	36.3	19.1	36.2	19.0	36.1	18.9	36.0	18.8	35.9	18.7	35.8	18.6	35.7
17	19.3	36.4	19.2	36.3	19.1	36.2	19.0	36.1	18.9	36.0	18.8	35.9	18.7	35.8
18	19.4	36.5	19.3	36.4	19.2	36.3	19.1	36.2	19.0	36.1	18.9	36.0	18.8	35.9
19	19.5	36.6	19.4	36.5	19.3	36.4	19.2	36.3	19.1	36.2	19.0	36.1	18.9	36.0
20	19.6	36.7	19.5	36.6	19.4	36.5	19.3	36.4	19.2	36.3	19.1	36.2	19.0	36.1
21	19.7	36.8	19.6	36.7	19.5	36.6	19.4	36.5	19.3	36.4	19.2	36.3	19.1	36.2
22	19.8	36.9	19.7	36.8	19.6	36.7	19.5	36.6	19.4	36.5	19.3	36.4	19.2	36.3
23	19.9	37.0	19.8	36.9	19.7	36.8	19.6	36.7	19.5	36.6	19.4	36.5	19.3	36.4
24	20.0	37.1	19.9	37.0	19.8	36.9	19.7	36.8	19.6	36.7	19.5	36.6	19.4	36.5
25	20.1	37.2	20.0	37.1	19.9	37.0	19.8	36.9	19.7	36.8	19.6	36.7	19.5	36.6
26	20.2	37.3	20.1	37.2	20.0	37.1	19.9	37.0	19.8	36.9	19.7	36.8	19.6	36.7
27	20.3	37.4	20.2	37.3	20.1	37.2	20.0	37.1	19.9	37.0	19.8	36.9	19.7	36.8
28	20.4	37.5	20.3	37.4	20.2	37.3	20.1	37.2	20.0	37.1	19.9	37.0	19.8	36.9
29	20.5	37.6	20.4	37.5	20.3	37.4	20.2	37.3	20.1	37.2	20.0	37.1	19.9	37.0
30	20.6	37.7	20.5	37.6	20.4	37.5	20.3	37.4	20.2	37.3	20.1	37.2	20.0	37.1
31	20.7	37.8	20.6	37.7	20.5	37.6	20.4	37.5	20.3	37.4	20.2	37.3	20.1	37.2
32	20.8	37.9	20.7	37.8	20.6	37.7	20.5	37.6	20.4	37.5	20.3	37.4	20.2	37.3
33	20.9	38.0	20.8	37.9	20.7	37.8	20.6	37.7	20.5	37.6	20.4	37.5	20.3	37.4
34	21.0	38.1	20.9	38.0	20.8	37.9	20.7	37.8	20.6	37.7	20.5	37.6	20.4	37.5
35	21.1	38.2	21.0	38.1	20.9	38.0	20.8	37.9	20.7	37.8	20.6	37.7	20.5	37.6
36	21.2	38.3	21.1	38.2	21.0	38.1	20.9	38.0	20.8	37.9	20.7	37.8	20.6	37.7
37	21.3	38.4	21.2	38.3	21.1	38.2	21.0	38.1	20.9	38.0	20.8	37.9	20.7	37.8
38	21.4	38.5	21.3	38.4	21.2	38.3	21.1	38.2	21.0	38.1	20.9	38.0	20.8	37.9
39	21.5	38.6	21.4	38.5	21.3	38.4	21.2	38.3	21.1	38.2	21.0	38.1	20.9	38.0
40	21.6	38.7	21.5	38.6	21.4	38.5	21.3	38.4	21.2	38.3	21.1	38.2	21.0	38.1
41	21.7	38.8	21.6	38.7	21.5	38.6	21.4	38.5	21.3	38.4	21.2	38.3	21.1	38.2
42	21.8	38.9	21.7	38.8	21.6	38.7	21.5	38.6	21.4	38.5	21.3	38.4	21.2	38.3
43	21.9	39.0	21.8	38.9	21.7	38.8	21.6	38.7	21.5	38.6	21.4	38.5	21.3	38.4
44	22.0	39.1	21.9	39.0	21.8	38.9	21.7	38.8	21.6	38.7	21.5	38.6	21.4	38.5
45	22.1	39.2	22.0	39.1	21.9	39.0	21.8	38.9	21.7	38.8	21.6	38.7	21.5	38.6
46	22.2	39.3	22.1	39.2	22.0	39.1	21.9	39.0	21.8	38.9	21.7	38.8	21.6	38.7
47	22.3	39.4	22.2	39.3	22.1	39.2	22.0	39.1	21.9	39.0	21.8	38.9	21.7	38.8
48	22.4	39.5	22.3	39.4	22.2	39.3	22.1	39.2	22.0	39.1	21.9	39.0	21.8	38.9
49	22.5	39.6	22.4	39.5	22.3	39.4	22.2	39.3	22.1	39.2	22.0	39.1	21.9	39.0
50	22.6	39.7	22.5	39.6	22.4	39.5	22.3	39.4	22.2	39.3	22.1	39.2	22.0	39.1
51	22.7	39.8	22.6	39.7	22.5	39.6	22.4	39.5	22.3	39.4	22.2	39.3	22.1	39.2
52	22.8	39.9	22.7	39.8	22.6	39.7	22.5	39.6	22.4	39.5	22.3	39.4	22.2	39.3
53	22.9	40.0	22.8	39.9	22.7	39.8	22.6	39.7	22.5	39.6	22.4	39.5	22.3	39.4
54	23.0	40.1	22.9	40.0	22.8	39.9	22.7	39.8	22.6	39.7	22.5	39.6	22.4	39.5
55	23.1	40.2	23.0	40.1	22.9	40.0	22.8	39.9	22.7	39.8	22.6	39.7	22.5	39.6
56	23.2	40.3	23.1	40.2	23.0	40.1	22.9	40.0	22.8	39.9	22.7	39.8	22.6	39.7
57	23.3	40.4	23.2	40.3	23.1	40.2	23.0	40.1	22.9	40.0	22.8	39.9	22.7	39.8
58	23.4	40.5	23.3	40.4	23.2	40.3	23.1	40.2	23.0	40.1	22.9	40.0	22.8	39.9
59	23.5	40.6	23.4	40.5	23.3	40.4	23.2	40.3	23.1	40.2	23.0	40.1	22.9	40.0
60	23.6	40.7	23.5	40.6	23.4	40.5	23.3	40.4	23.2	40.3	23.1	40.2	23.0	40.1

MORICHES COAST GUARD STATION
 TEMPERATURE AND SALINITY DATA

METER #110

07/16/90
 TEMP SAL

HOURS

HOURS	TEMP	SAL
00	18.7	31.4
01	19.0	31.3
02	20.0	31.3
03	21.1	31.3
04	21.1	31.3
05	21.1	31.3
06	21.1	31.3
07	21.1	31.3
08	21.1	31.3
09	21.1	31.3
10	21.1	31.3
11	21.1	31.3
12	21.1	31.3
13	21.1	31.3
14	21.1	31.3
15	21.1	31.3
16	21.1	31.3
17	21.1	31.3
18	21.1	31.3
19	21.1	31.3
20	21.1	31.3
21	21.1	31.3
22	21.1	31.3
23	21.1	31.3
24	21.1	31.3

MORICHES COAST GUARD STATION
TEMPERATURE AND SALINITY DATA

METER #110

HOURS	08/06/80		08/07/80		08/08/80		08/09/80		08/10/80		08/11/80		08/12/80	
	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL
00	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
01	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
02	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
03	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
04	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
05	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
06	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
07	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
08	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
09	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
10	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
11	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
12	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
13	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
14	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
15	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
16	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
17	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
18	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
19	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
20	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
21	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
22	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5
23	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5	22.0	35.5

MORICHES COAST GUARD STATION
TEMPERATURE AND SALINITY DATA

METER #112

HOURS	09/11/80		09/12/80		09/13/80		09/14/80		09/15/80		09/16/80		09/17/80	
	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL
00	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
01	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
02	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
03	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
04	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
05	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
06	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
07	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
08	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
09	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
10	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
11	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
12	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
13	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
14	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
15	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
16	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
17	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
18	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
19	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
20	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
21	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
22	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
23	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0
24	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0	11.1	35.0

MORICHES COAST GUARD STATION
TEMPERATURE AND SALINITY DATA

METER #112

HOURS	10/22/90 TEMP SAL	10/23/90 TEMP SAL	10/24/90 TEMP SAL	10/25/90 TEMP SAL	10/26/90 TEMP SAL	10/27/90 TEMP SAL	10/28/90 TEMP SAL
00	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
01	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
02	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
03	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
04	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
05	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
06	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
07	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
08	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
09	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
10	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
11	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
12	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
13	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
14	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
15	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
16	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
17	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
18	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
19	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
20	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
21	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
22	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
23	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0

MORICHES COAST GUARD STATION
TEMPERATURE AND SALINITY DATA

METER #112

HOURS	10/20/80	TEMP	SAL
00:00	0000	9.9	29.1
00:01	0000	9.9	29.1
00:02	0000	9.9	29.0
00:03	0000	9.9	29.1
00:04	0000	9.9	29.2
00:05	0000	9.9	29.4
00:06	0000	9.9	29.5
00:07	0000	9.9	29.4
00:08	0000	9.9	29.4
00:09	0000	9.9	29.3
00:10	0000	9.9	29.4
00:11	0000	9.9	29.4
00:12	0000	9.9	29.4
00:13	0000	9.9	29.4
00:14	0000	9.9	29.4
00:15	0000	9.9	29.4
00:16	0000	9.9	29.4
00:17	0000	9.9	29.4
00:18	0000	9.9	29.4
00:19	0000	9.9	29.4
00:20	0000	9.9	29.4
00:21	0000	9.9	29.4
00:22	0000	9.9	29.4
00:23	0000	9.9	29.4
00:24	0000	9.9	29.4

MORICHES COAST GUARD STATION
TEMPERATURE AND SALINITY DATA

METER #112

HOURS	11/05/90 TEMP SAL	11/06/90 TEMP SAL	11/07/90 TEMP SAL	11/08/90 TEMP SAL	11/09/90 TEMP SAL	11/10/90 TEMP SAL	11/11/90 TEMP SAL
00	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
01	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
02	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
03	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
04	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
05	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
06	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
07	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
08	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
09	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
10	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
11	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
12	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
13	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
14	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
15	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
16	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
17	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
18	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
19	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
20	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
21	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
22	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
23	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0
24	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0	11.1 35.0

MORICHES COAST GUARD STATION
TEMPERATURE AND SALINITY DATA

METER #112

HOURS	11/26/90 TEMP	SAL
00:00	7.4	30.5
00:01	7.3	30.5
01:00	7.3	30.5
01:01	7.2	30.5
02:00	7.1	30.5
02:01	7.0	30.5
03:00	7.0	30.5
03:01	7.0	30.5
04:00	7.0	30.5
04:01	7.0	30.5
05:00	6.8	30.5
05:01	6.6	30.5
06:00	6.4	30.5
06:01	6.2	30.5
07:00	6.0	30.5
07:01	6.0	30.5
08:00	5.9	30.5
08:01	5.8	30.5
09:00		
09:01		
10:00		
10:01		
11:00		
11:01		
12:00		
12:01		
13:00		
13:01		
14:00		
14:01		
15:00		
15:01		
16:00		
16:01		
17:00		
17:01		
18:00		
18:01		
19:00		
19:01		
20:00		
20:01		
21:00		
21:01		
22:00		
22:01		
23:00		
23:01		

MORICHES COAST GUARD STATION
TEMPERATURE AND SALINITY DATA

METER #112

HOURS	12/10/80		12/11/80		12/12/80		12/13/80		12/14/80		12/15/80		12/16/80	
	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL
00	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
01	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
02	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
03	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
04	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
05	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
06	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
07	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
08	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
09	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
10	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
11	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
12	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
13	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
14	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
15	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
16	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
17	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
18	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
19	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
20	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
21	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
22	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0
23	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0	20.0	35.0

MORICHES COAST GUARD STATION
TEMPERATURE AND SALINITY DATA

METER #112

HOURS	12/17/80		12/18/80		12/19/80		12/20/80		12/21/80		12/22/80		12/23/80	
	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL	TEMP	SAL
0000	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
0100	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
0200	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
0300	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
0400	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
0500	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
0600	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
0700	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
0800	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
0900	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
1000	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
1100	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
1200	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
1300	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
1400	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
1500	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
1600	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
1700	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
1800	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
1900	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
2000	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
2100	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
2200	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5
2300	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5	17.0	35.5

