

**A HYDROGRAPHIC SURVEY  
OF THE AMMEN ROCK AREA OF THE GULF OF MAINE:  
RESULTS OF R/V CAPE HATTERAS CRUISE  
21-26 APRIL 1990**

**By**

**David W. Townsend**

**Bigelow Laboratory for Ocean Sciences  
McKown Point  
W. Boothbay Harbor, Maine 04575**

**May 2, 1990**

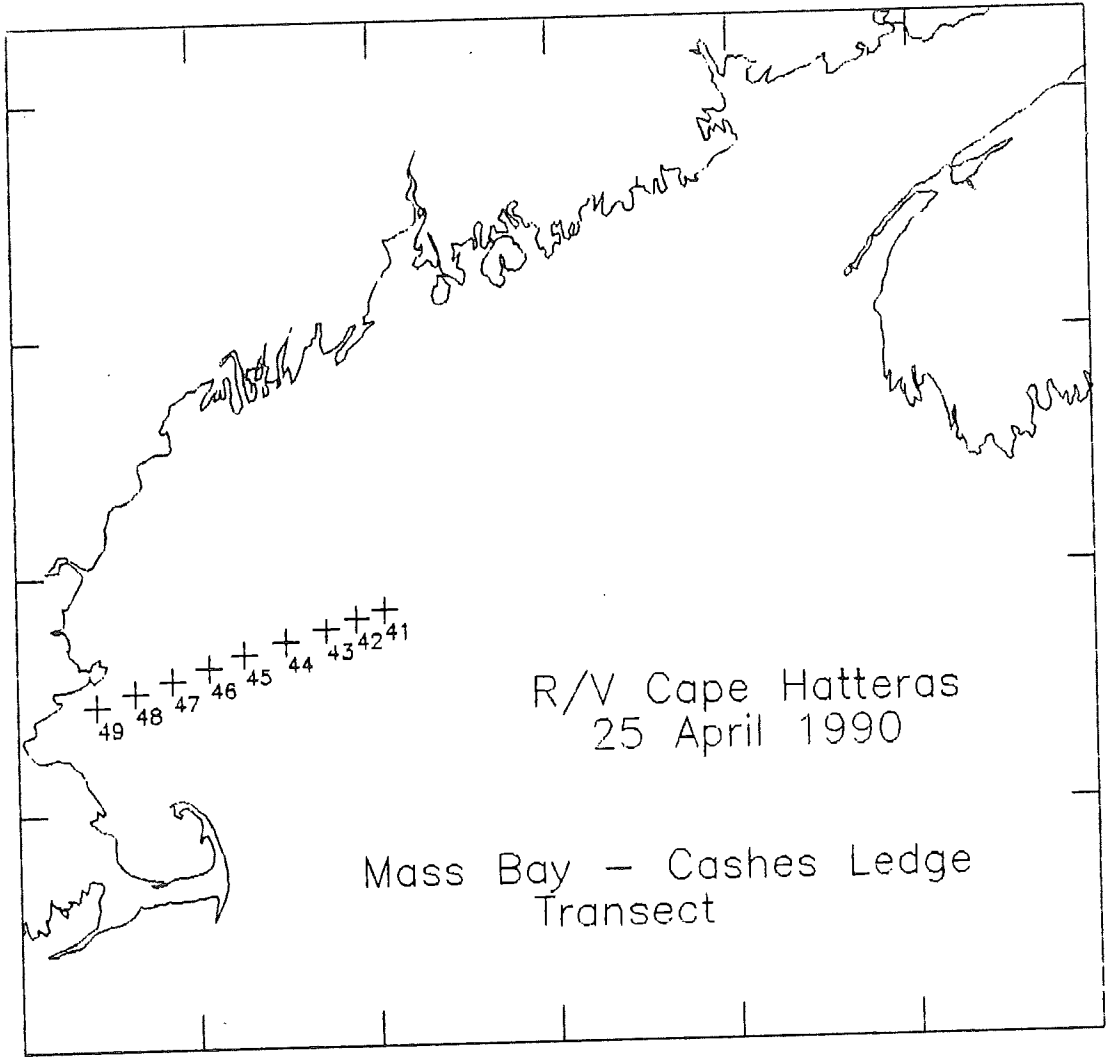
## Introduction:

This report presents the results of hydrographic profiles taken in the vicinity of Ammen Rock in the Gulf of Maine aboard the R/V Cape Hatteras, April 21 to 26, 1990. This work was part of a project headed by J. Witman of Northeastern University and comprises a subcontract on NSF Grant No. OCE-8800640.

Two sites on Ammen Rock were studied in detail: North Ammen Rock Pinnacle, located at  $42^{\circ} 55.15'N$ ,  $68^{\circ} 58.18'W$ , and Ammen Rock Pinnacle, located approximately 5 miles to the south at  $42^{\circ} 50.78'N$ ,  $68^{\circ} 57.26'W$ . A time series of seven hourly CTD/transmissometer/in situ fluorometer casts was made at each site, as were two transects (north-south and east-west) of seven stations each; the stations were spaced one mile apart, with the middle station centered at the sample site. The west to east transect on Ammen Rock Pinnacle was cut short and includes only 5 stations; station number 18 was over the pinnacle area. The cruise was concluded with a transect from Ammen Rock to Massachusetts Bay, which was conducted in order to put the offshore sampling into context with more inshore Gulf of Maine conditions.

Vertical profiles of temperature, salinity, density ( $\sigma_t$ ), beam transmission and in situ chlorophyll a fluorescence were measured with the ship's CTD package that included a Neil Brown Smart CTD, Sea Tech 25 cm transmissometer, and Sea Tech in situ fluorometer. The transmissometer data are presented as percent transmission and the fluorometer data are given as equivalent chlorophyll a using the manufacturer's calibration, which we have found in the past to be quite accurate against discrete water samples. Discrete samples for particulate carbon and nitrogen, and phytoplankton pigments, were collected at some stations and will be presented by C. Arnold of Northeastern University at a later date.

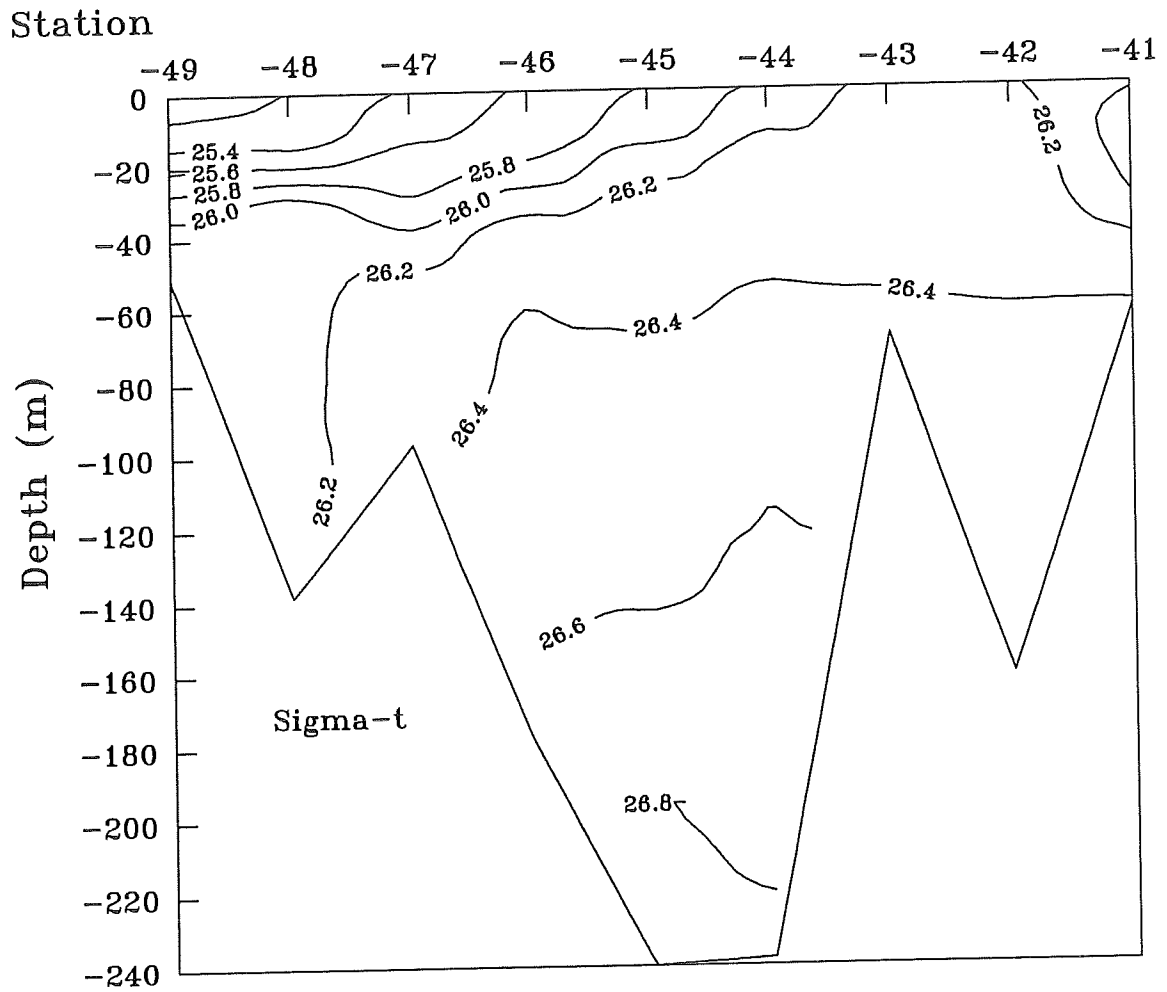
The data are presented here as vertical section plots generated using Surfer software. Salinity data were checked against water samples analyzed on an Autosol on the ship and found to be too low by 0.09 ppt. All salinity data are presented uncorrected in these plots, except for the Massachusetts Bay - Ammen Rock transect which has been corrected and noted as so on that plot.



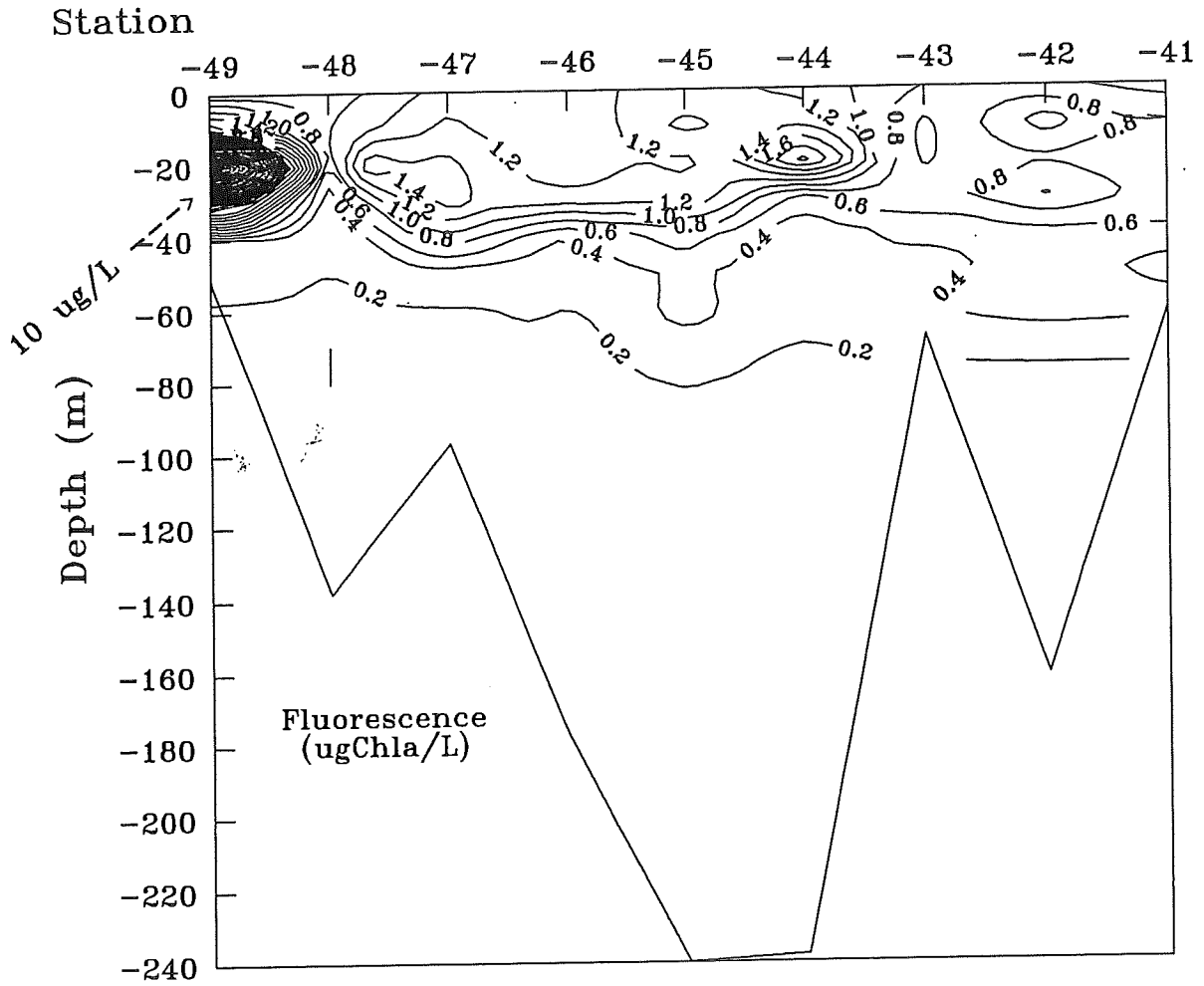




# Mass Bay to Cashes Ledge 25 April 1990



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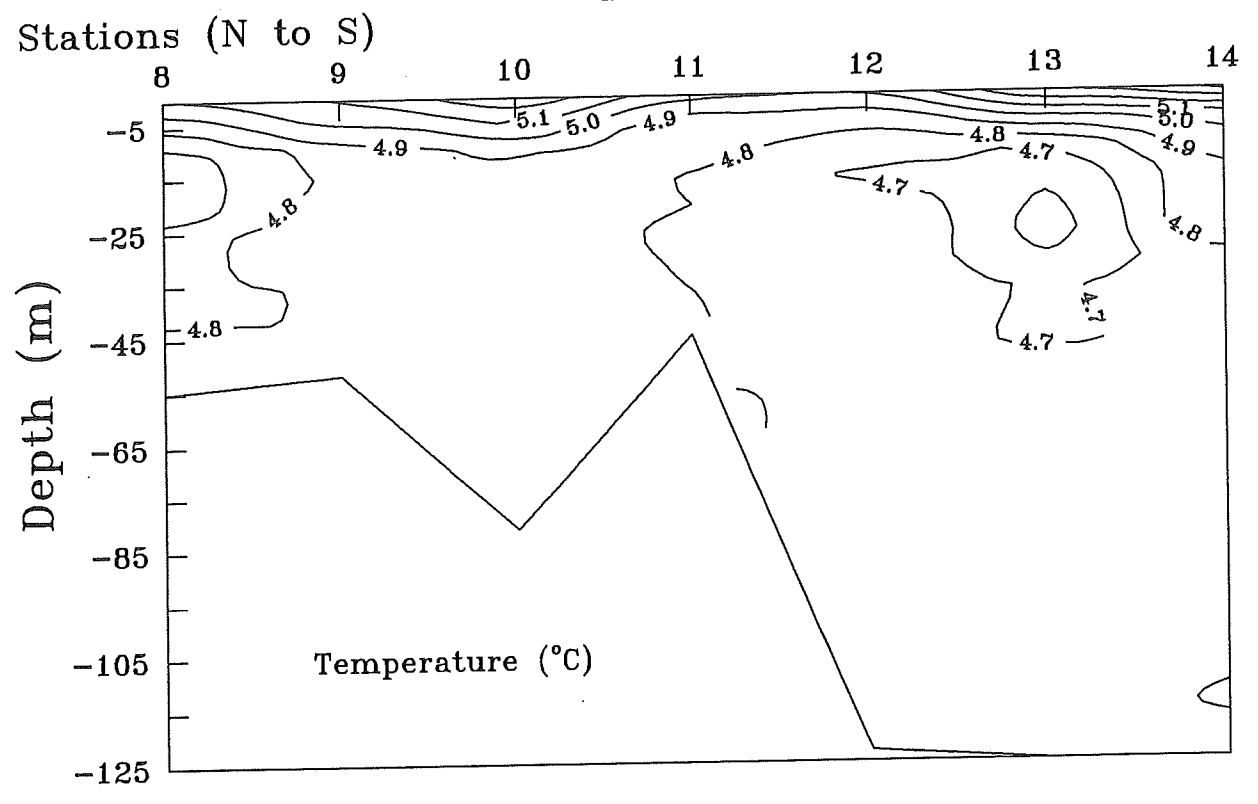






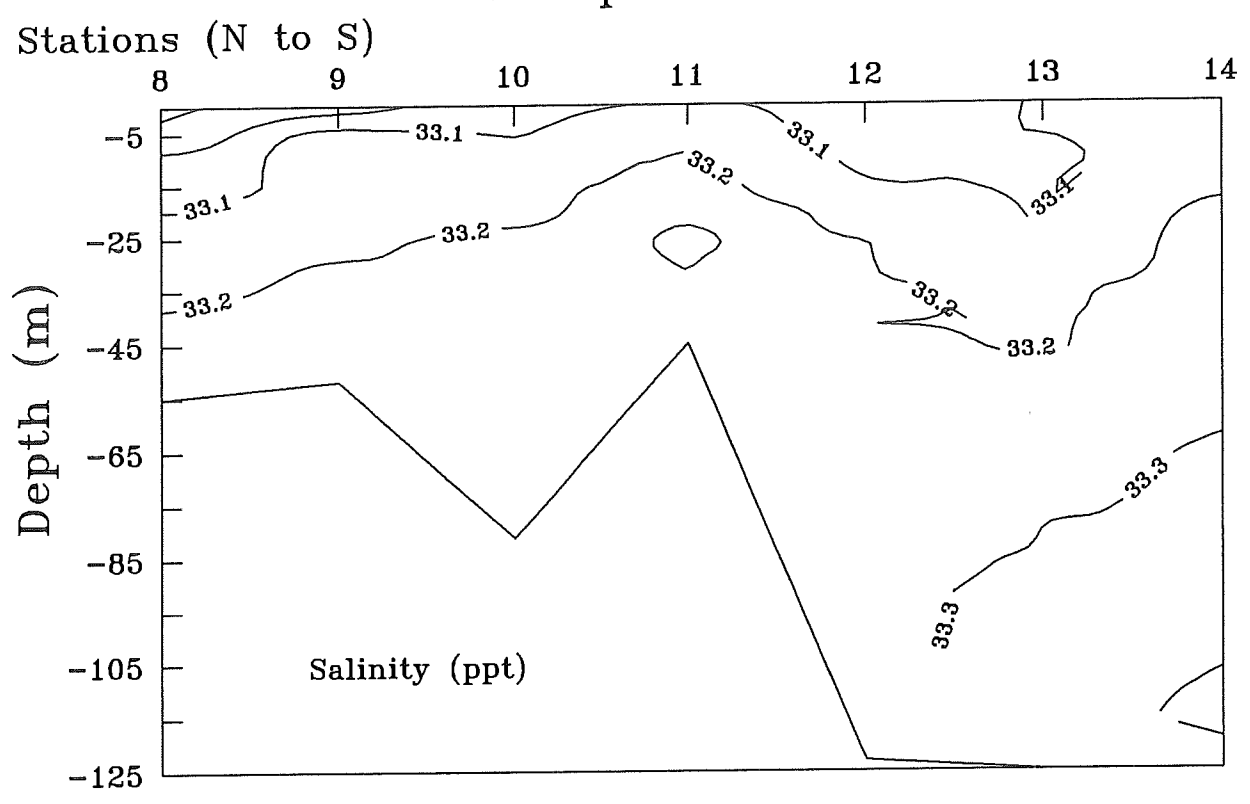
# Ammen Rock Pinnacle

23 April 1990

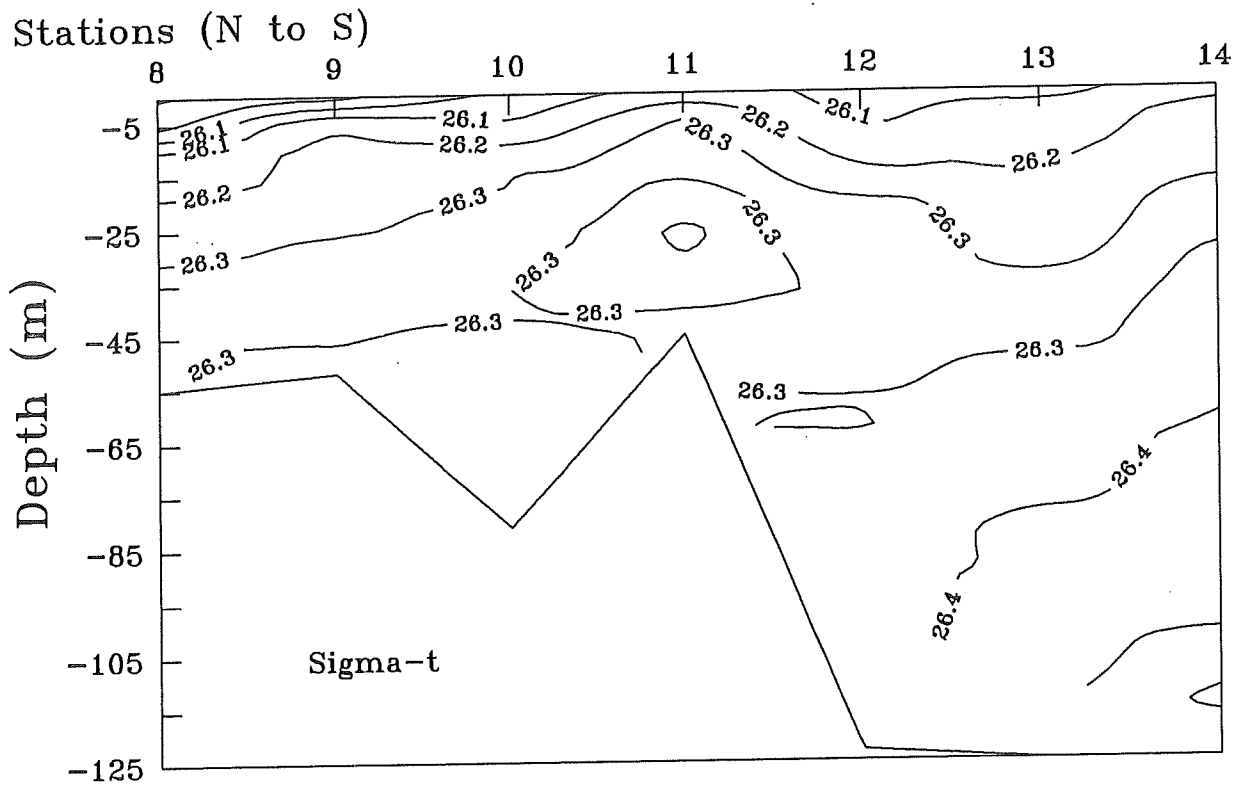


# Ammen Rock Pinnacle

## 23 April 1990

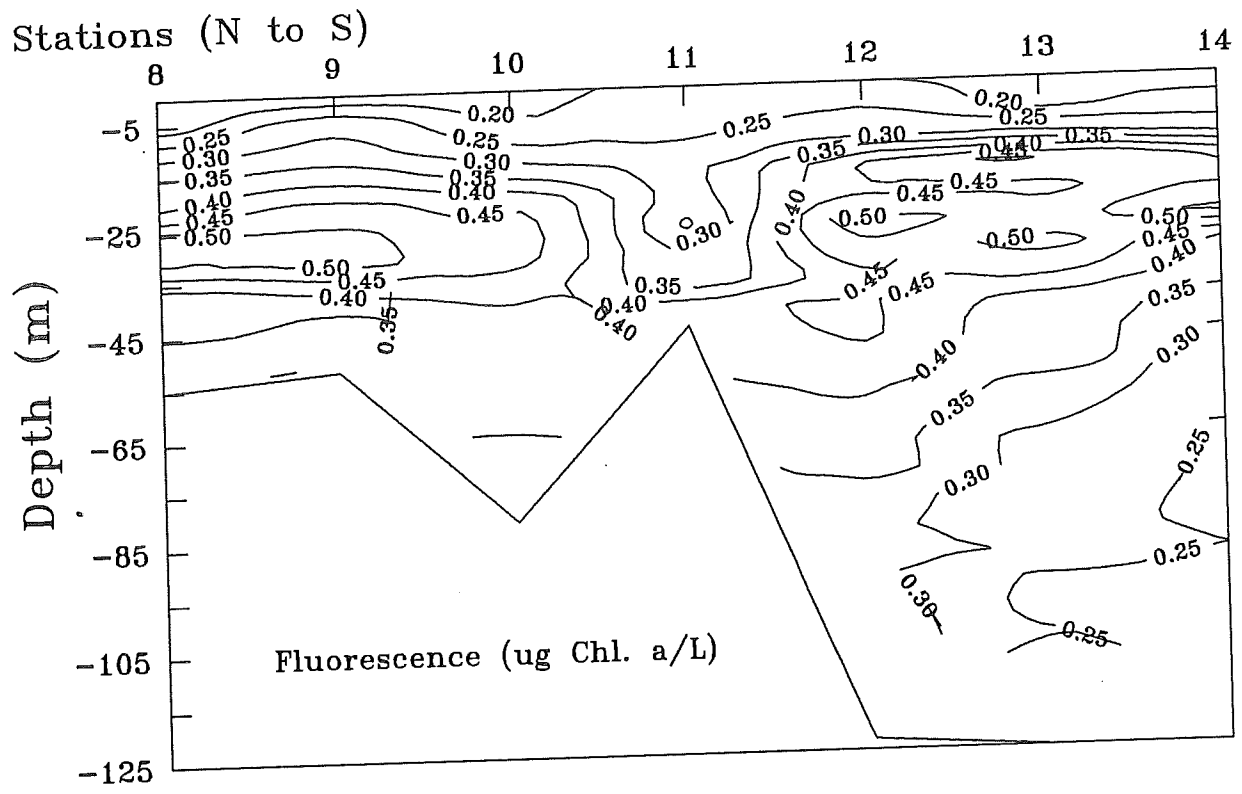


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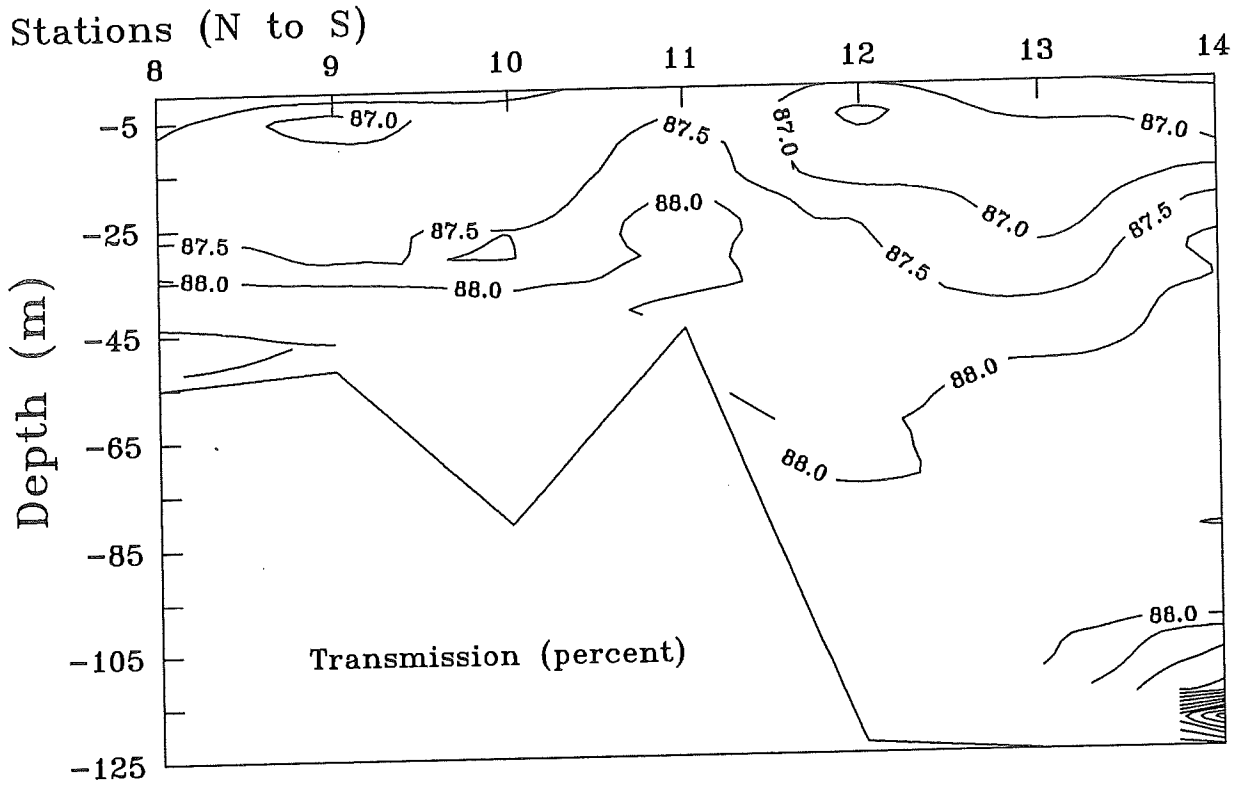
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23 April 1990



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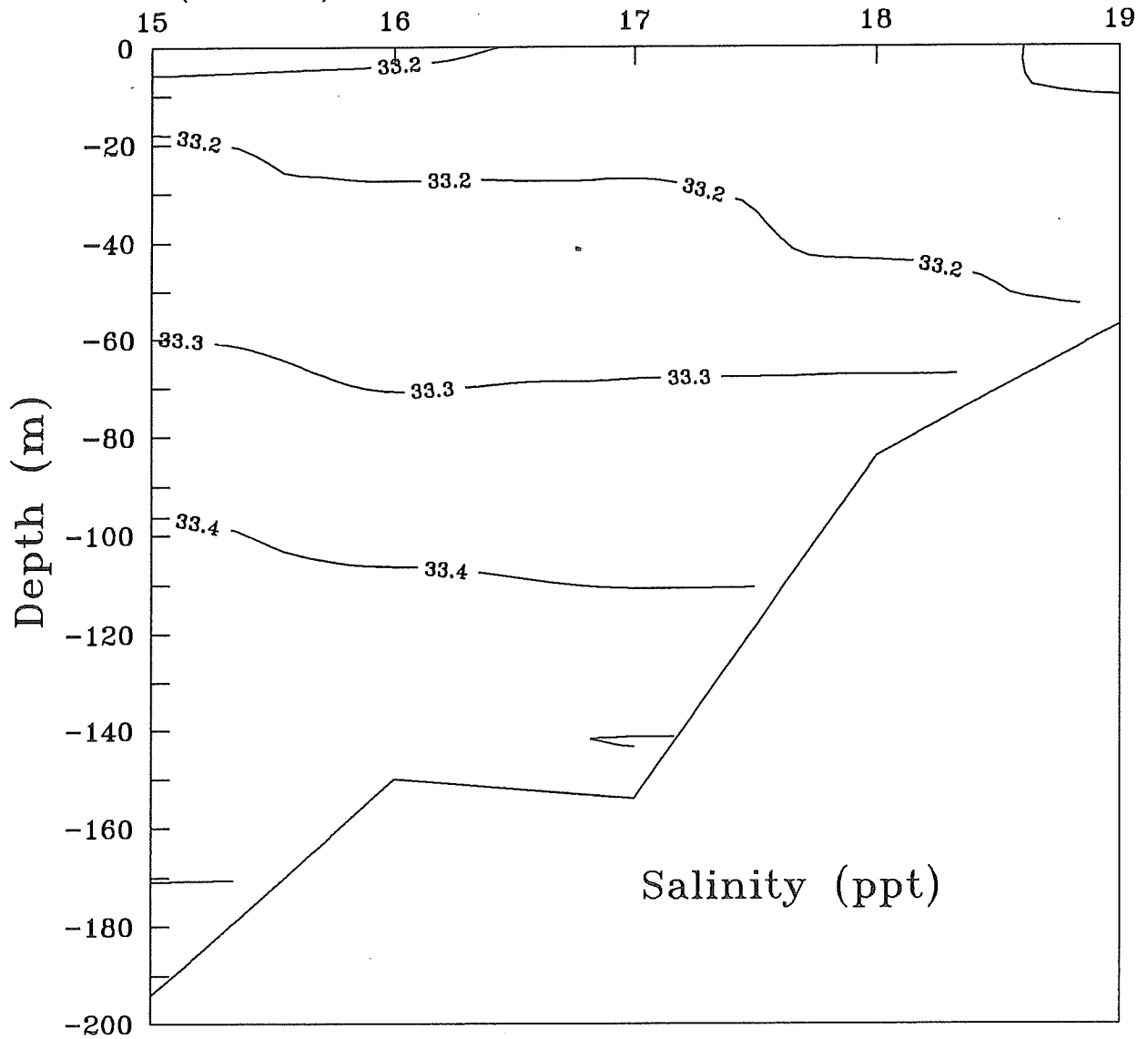
23 April 1990





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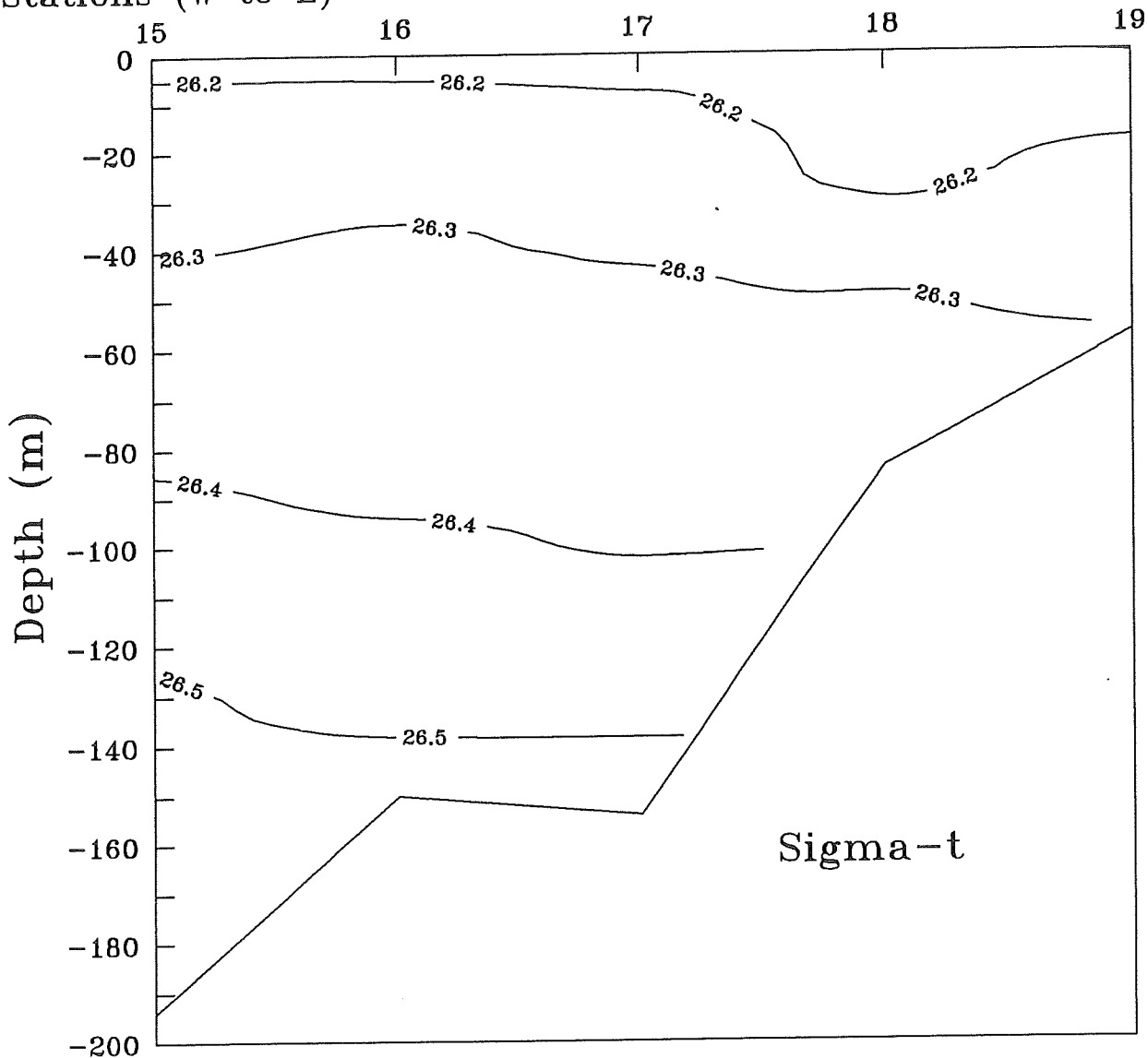
Stations (W to E)



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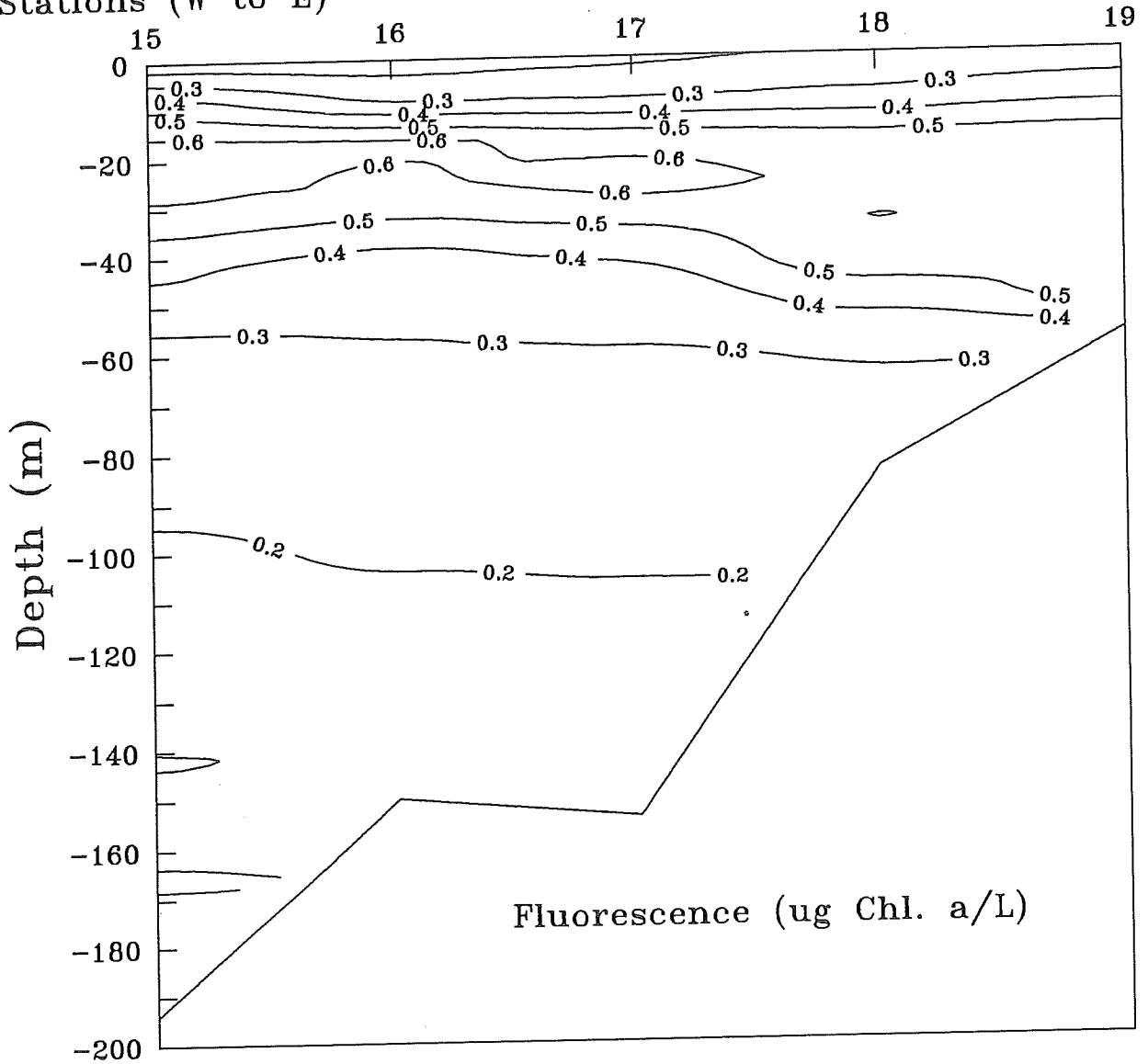
Stations (W to E)





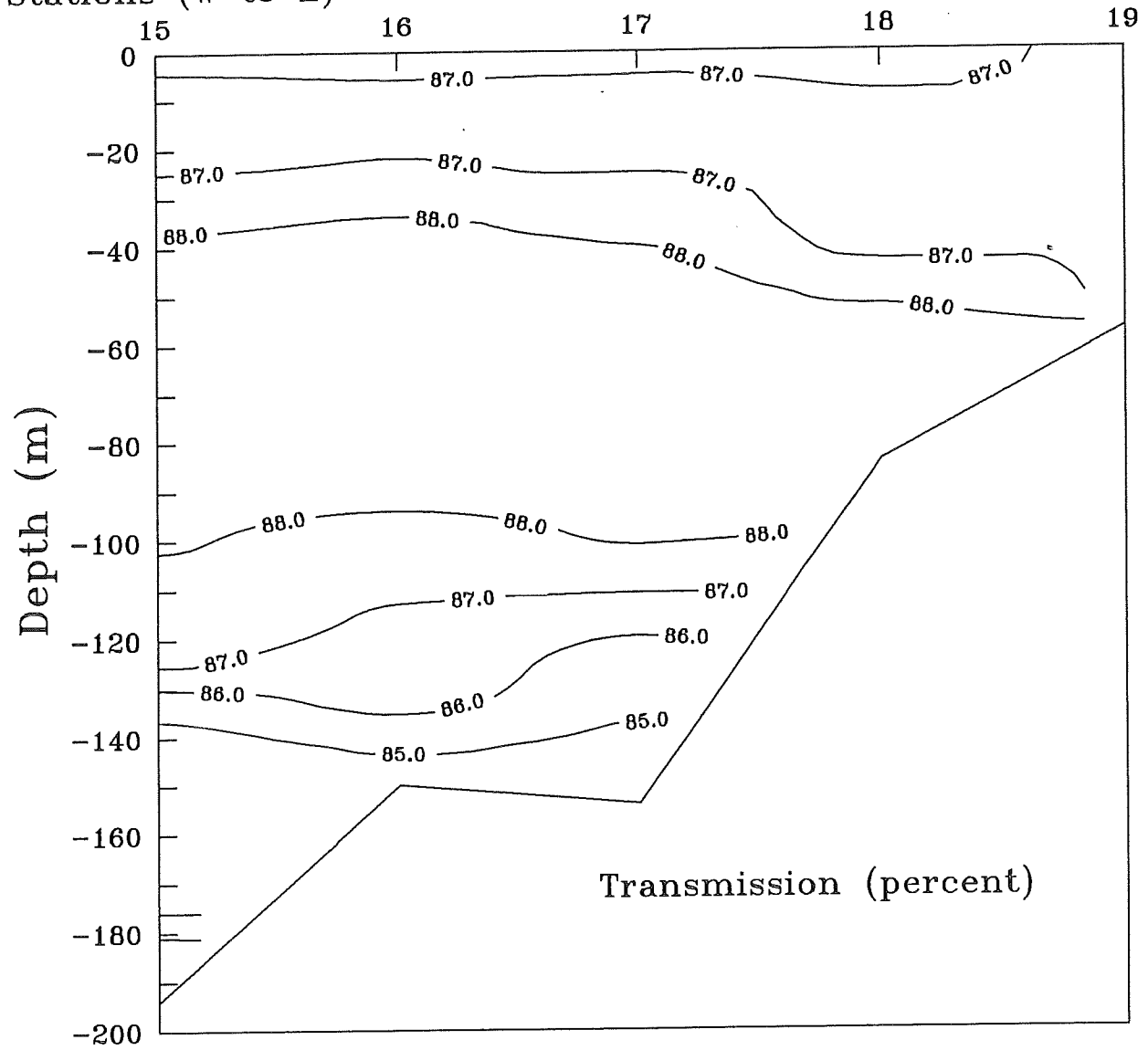
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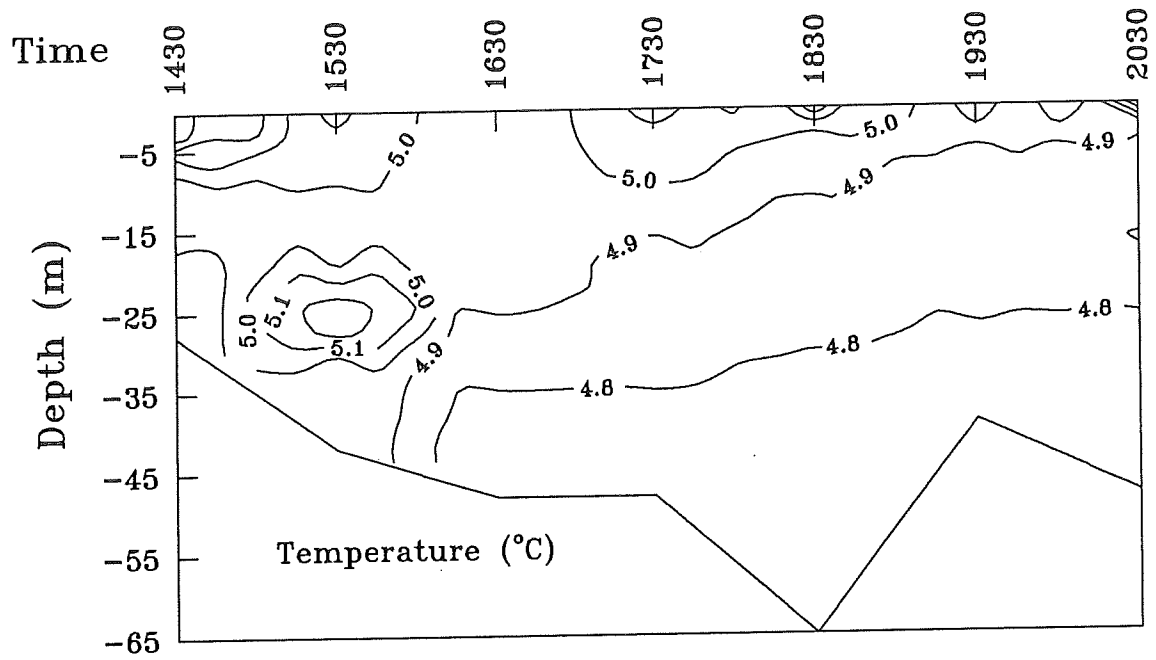


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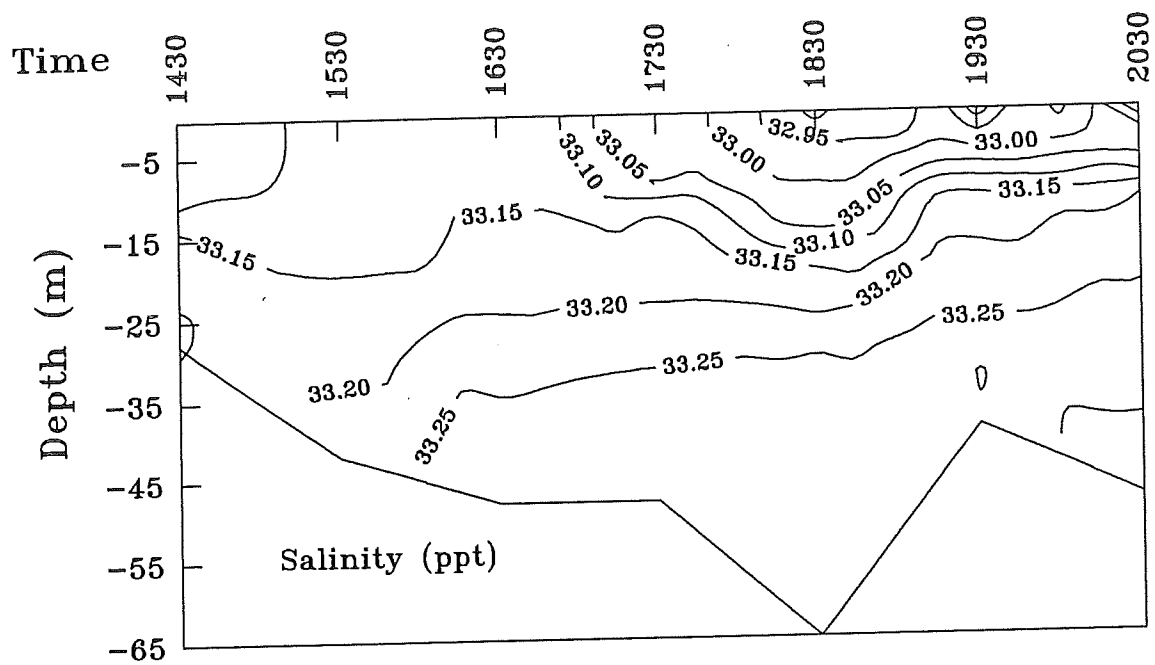
Stations (W to E)



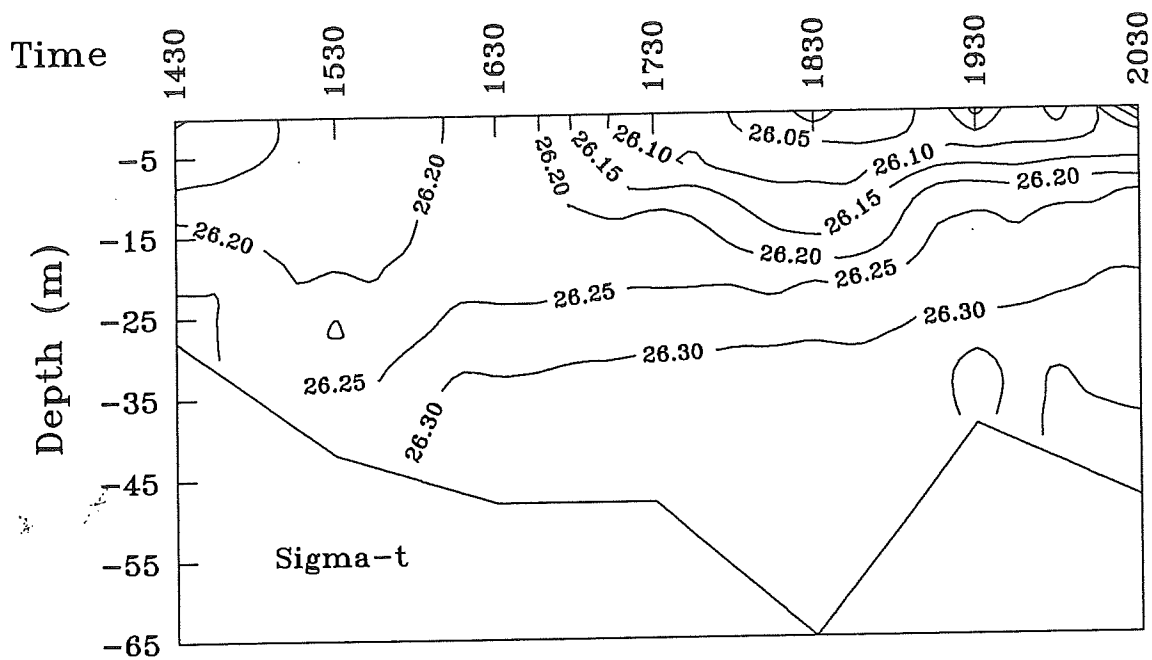
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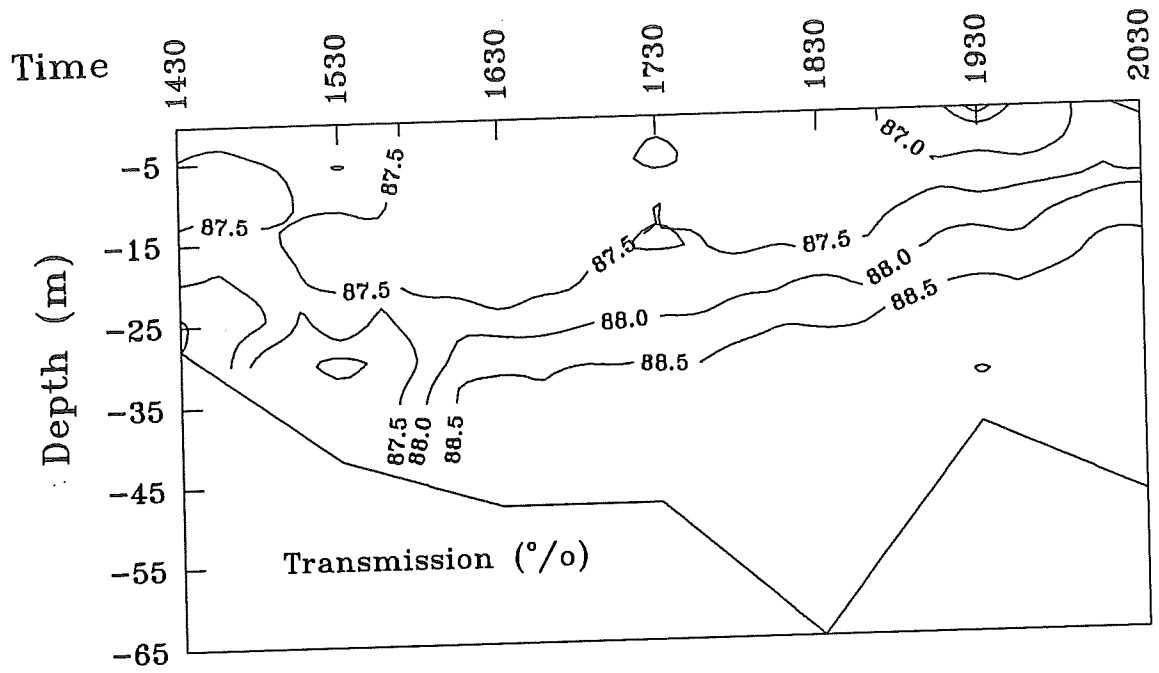


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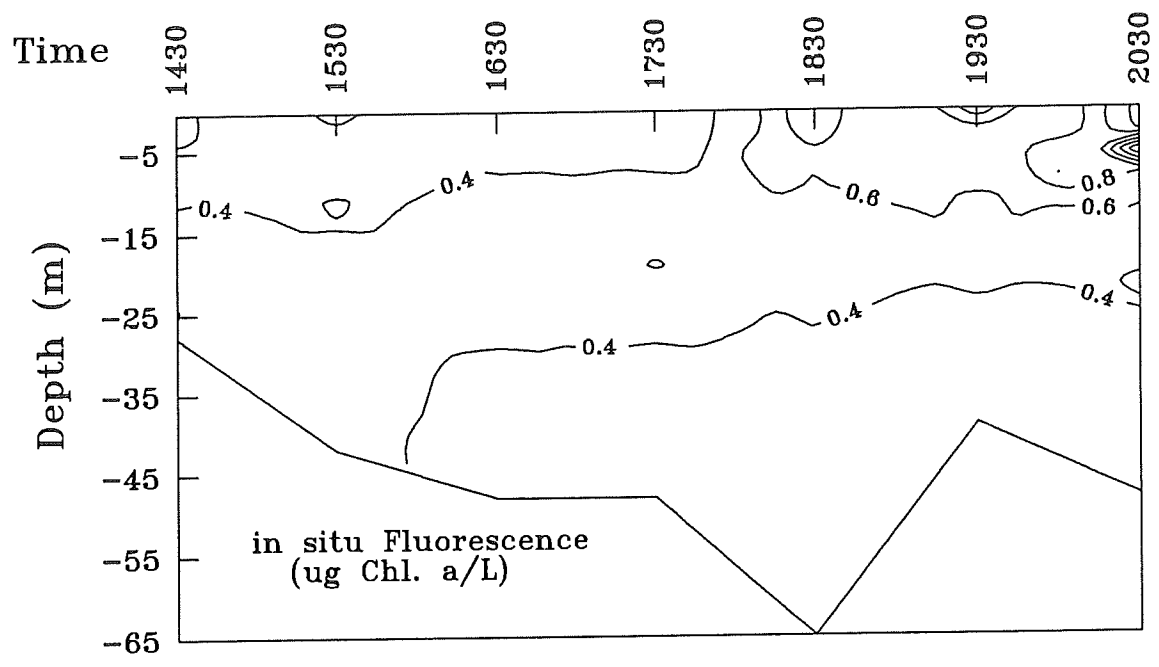


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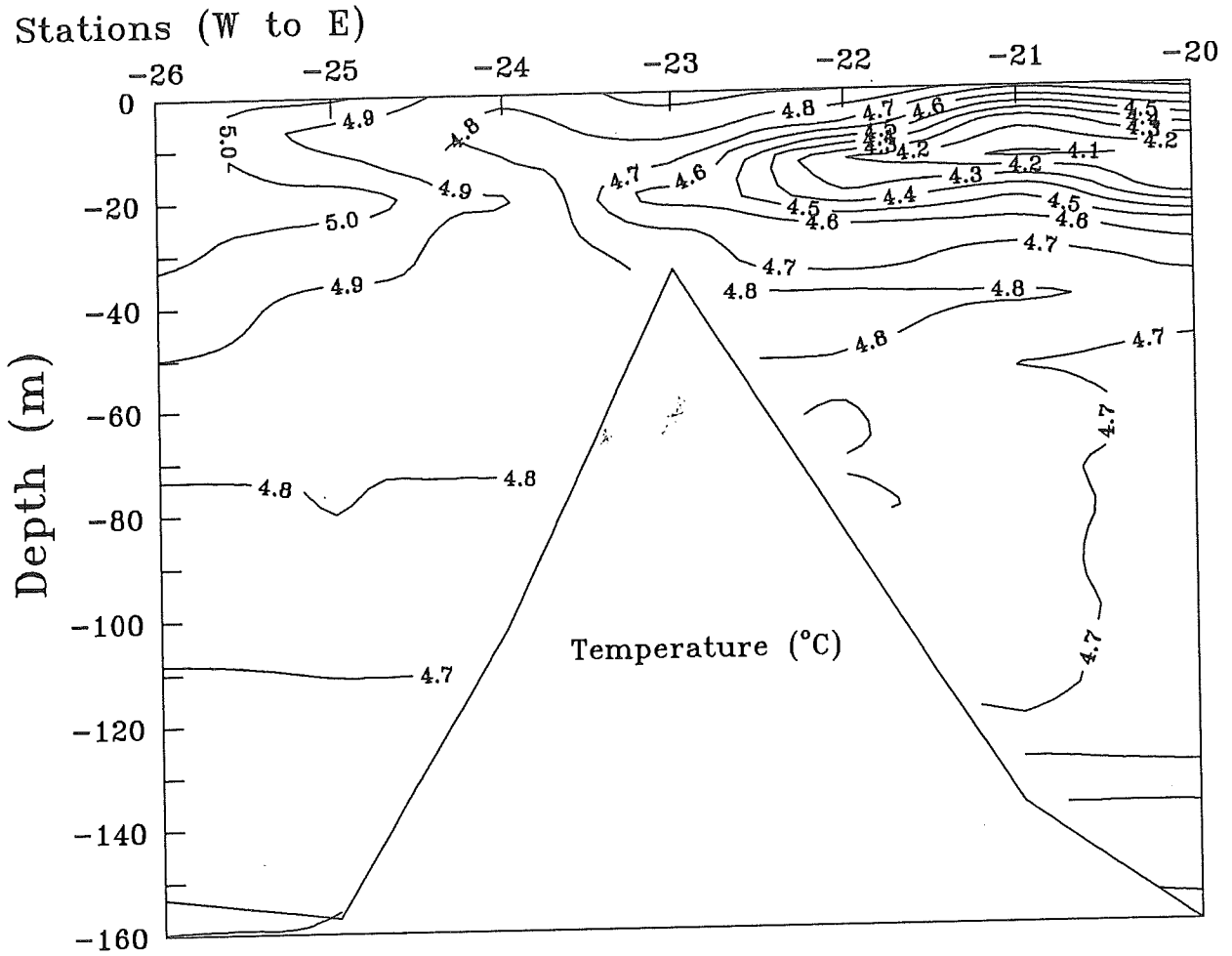
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Ammen Rock Pinnacle  
22 April 1990



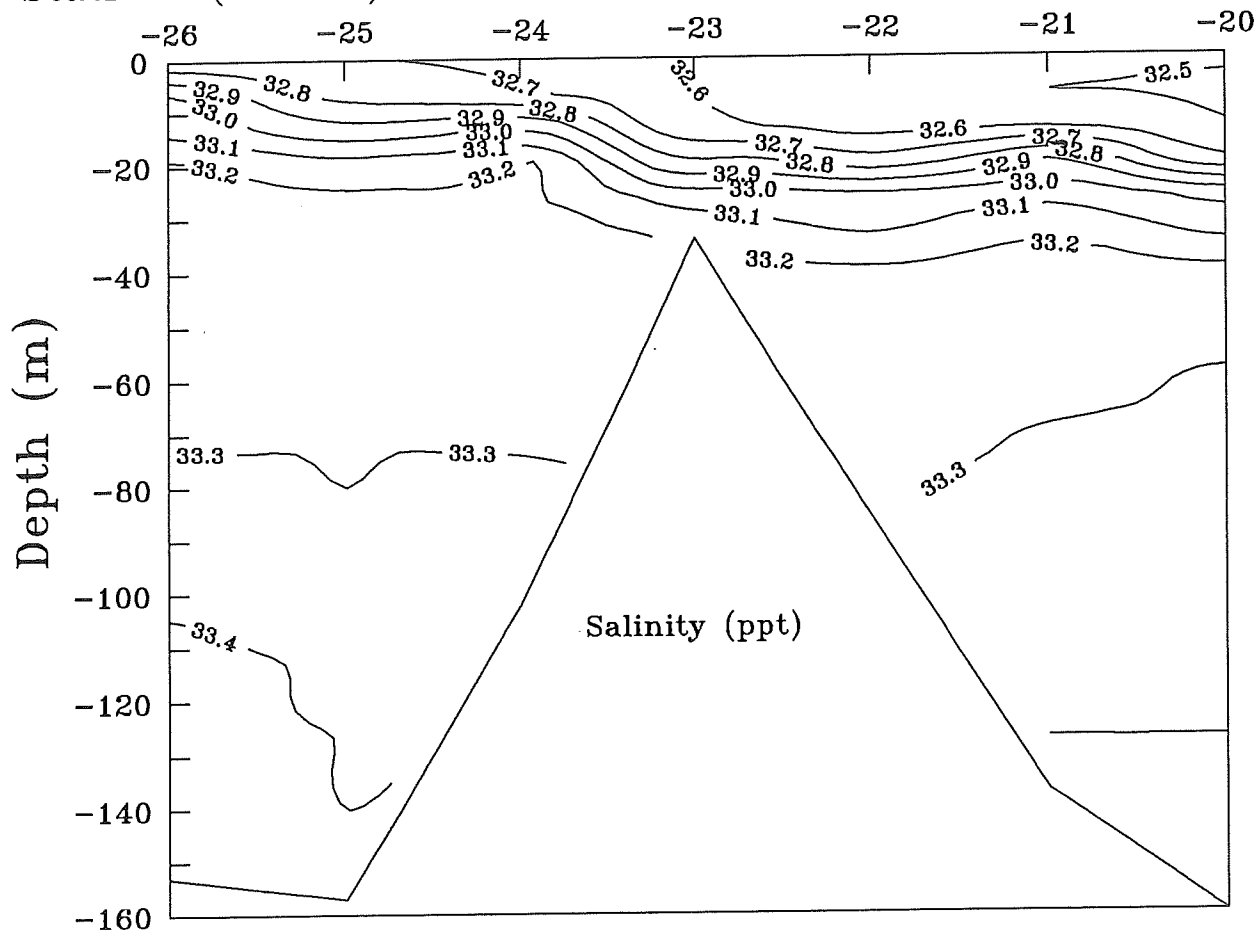
# North Ammen Rock Pinnacle 24 April 1990





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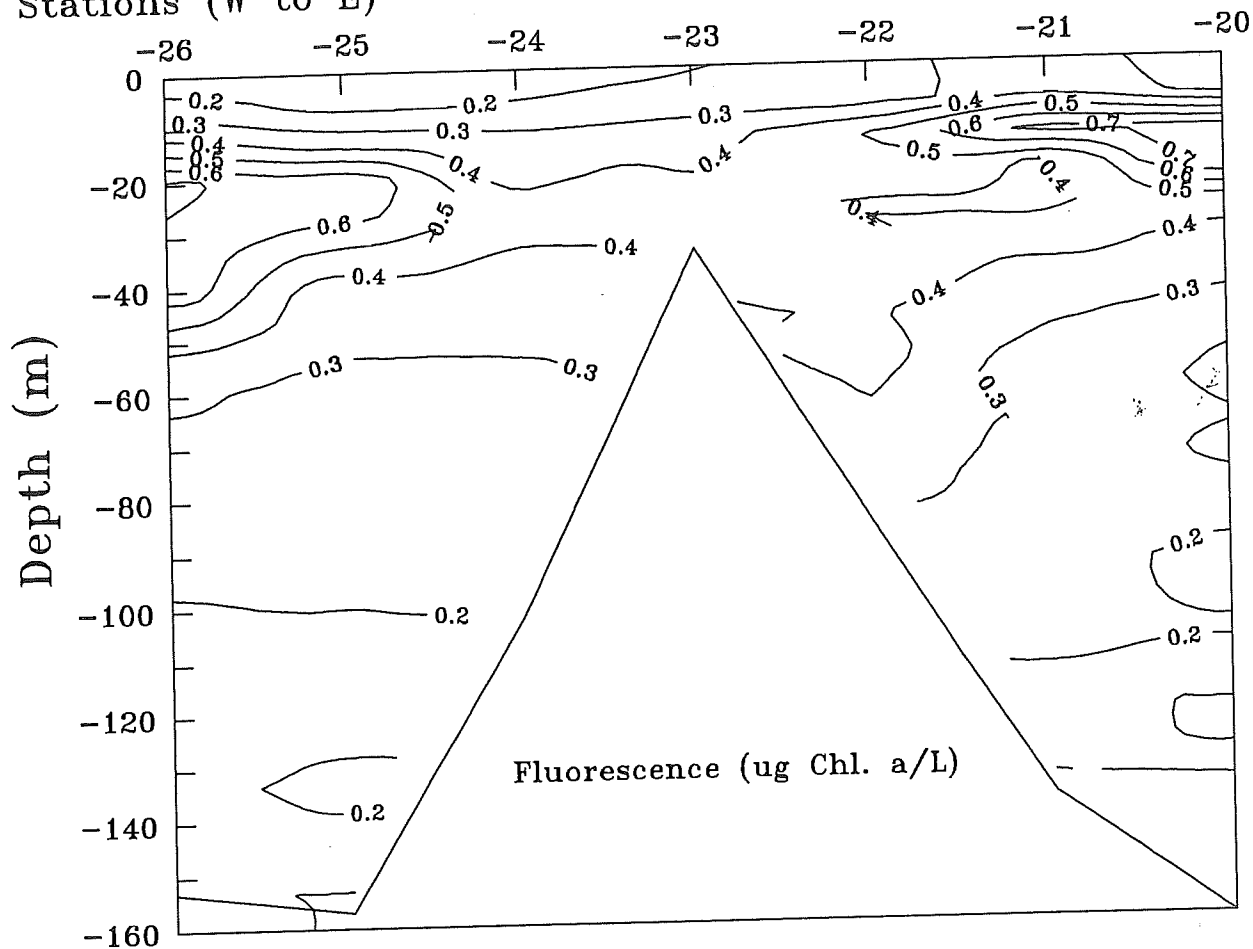
Stations (W to E)





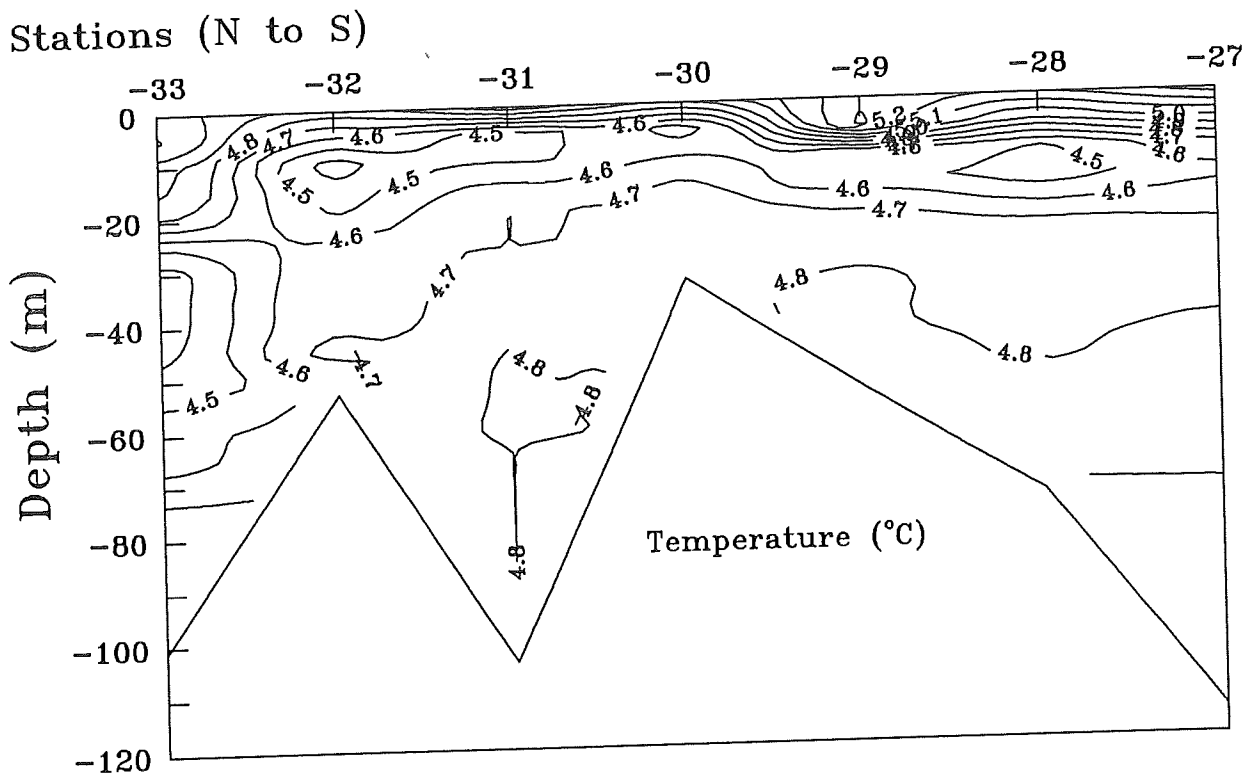
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Stations (W to E)

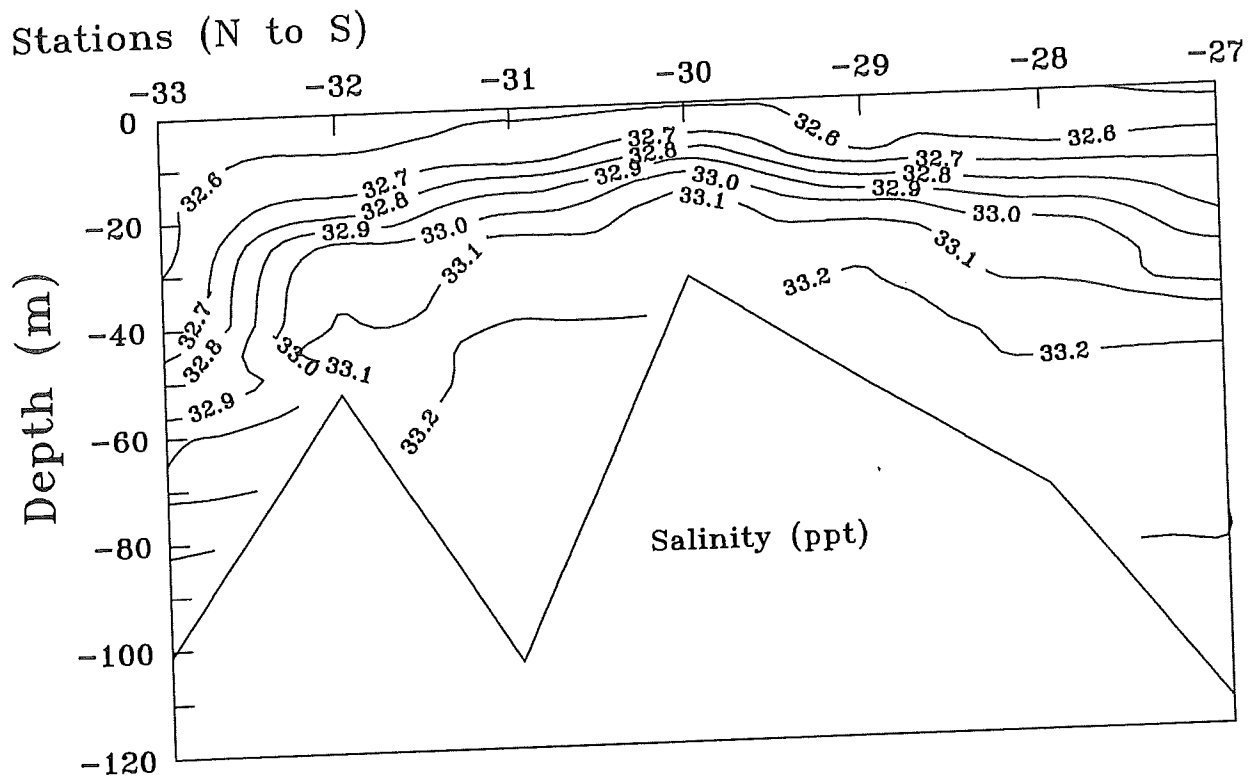




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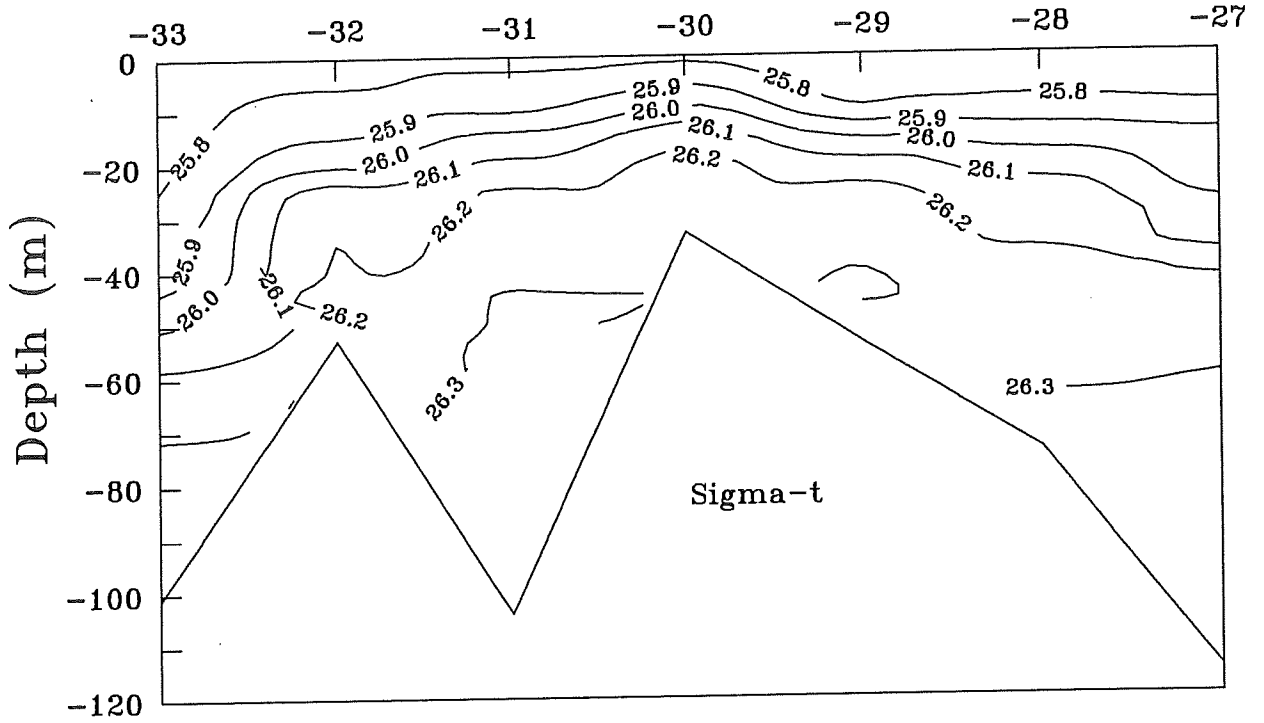


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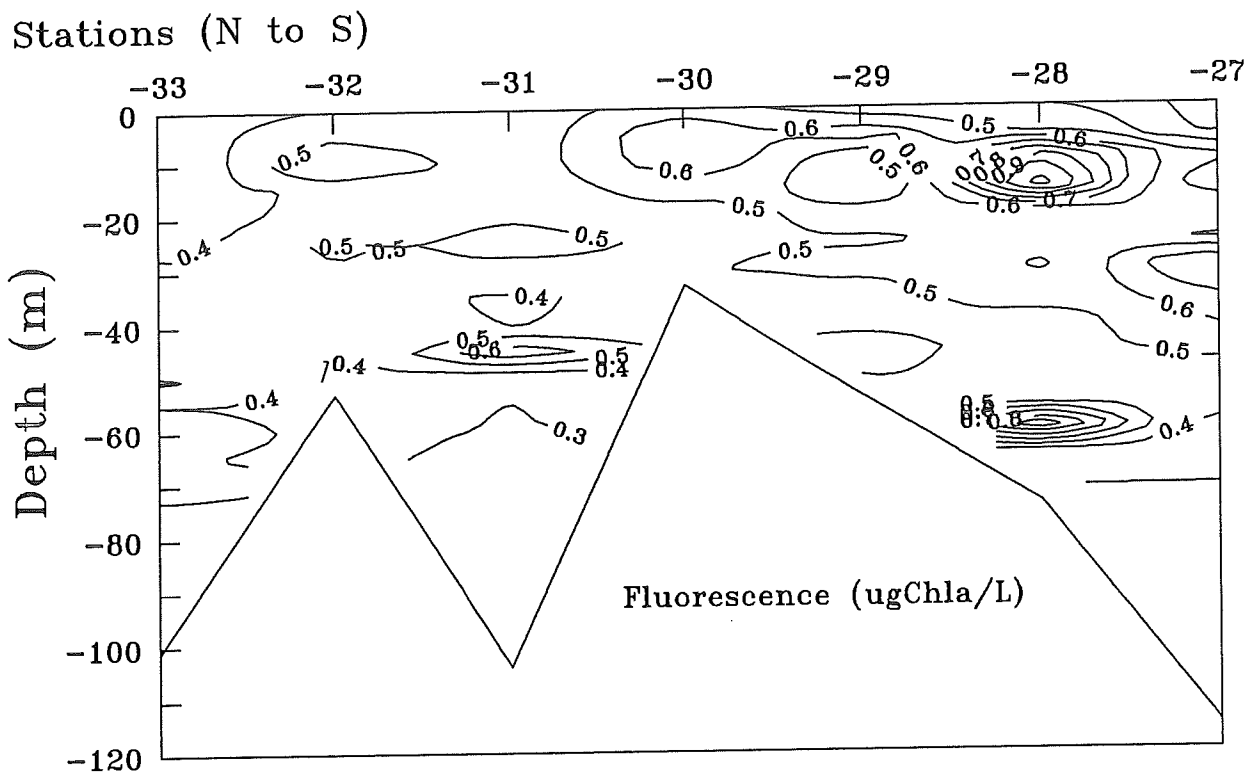


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Stations (N to S)



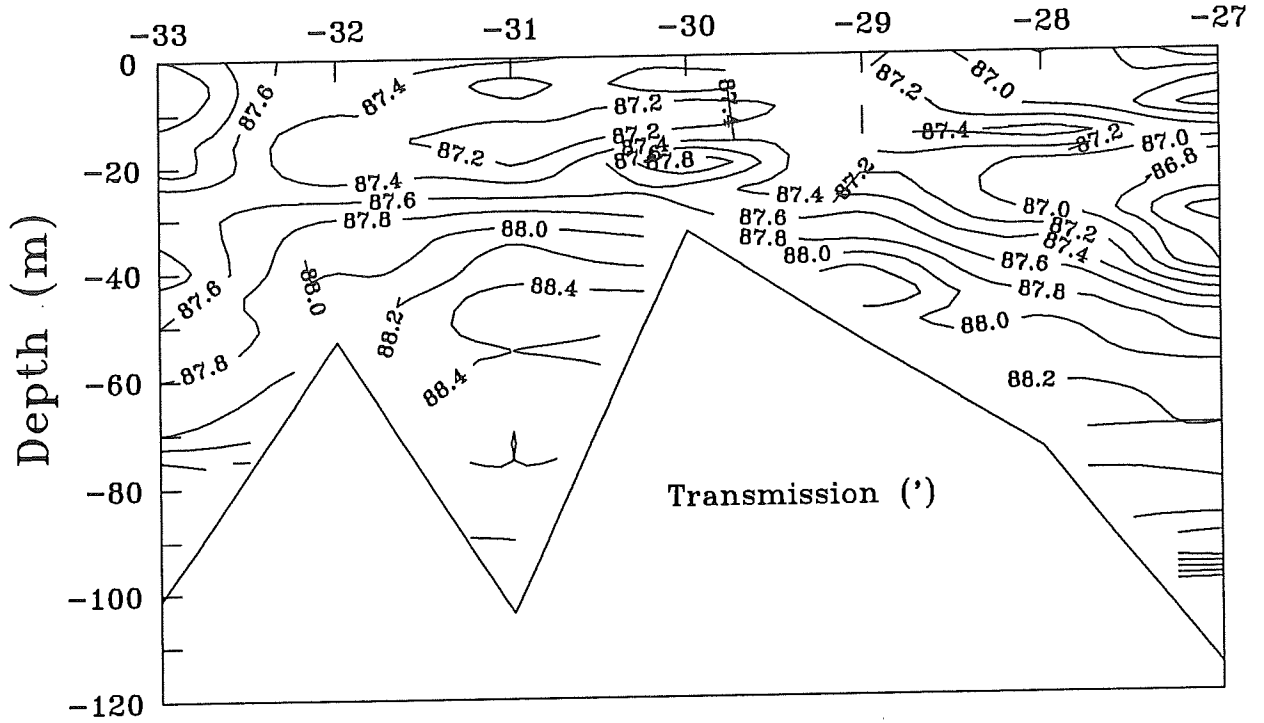
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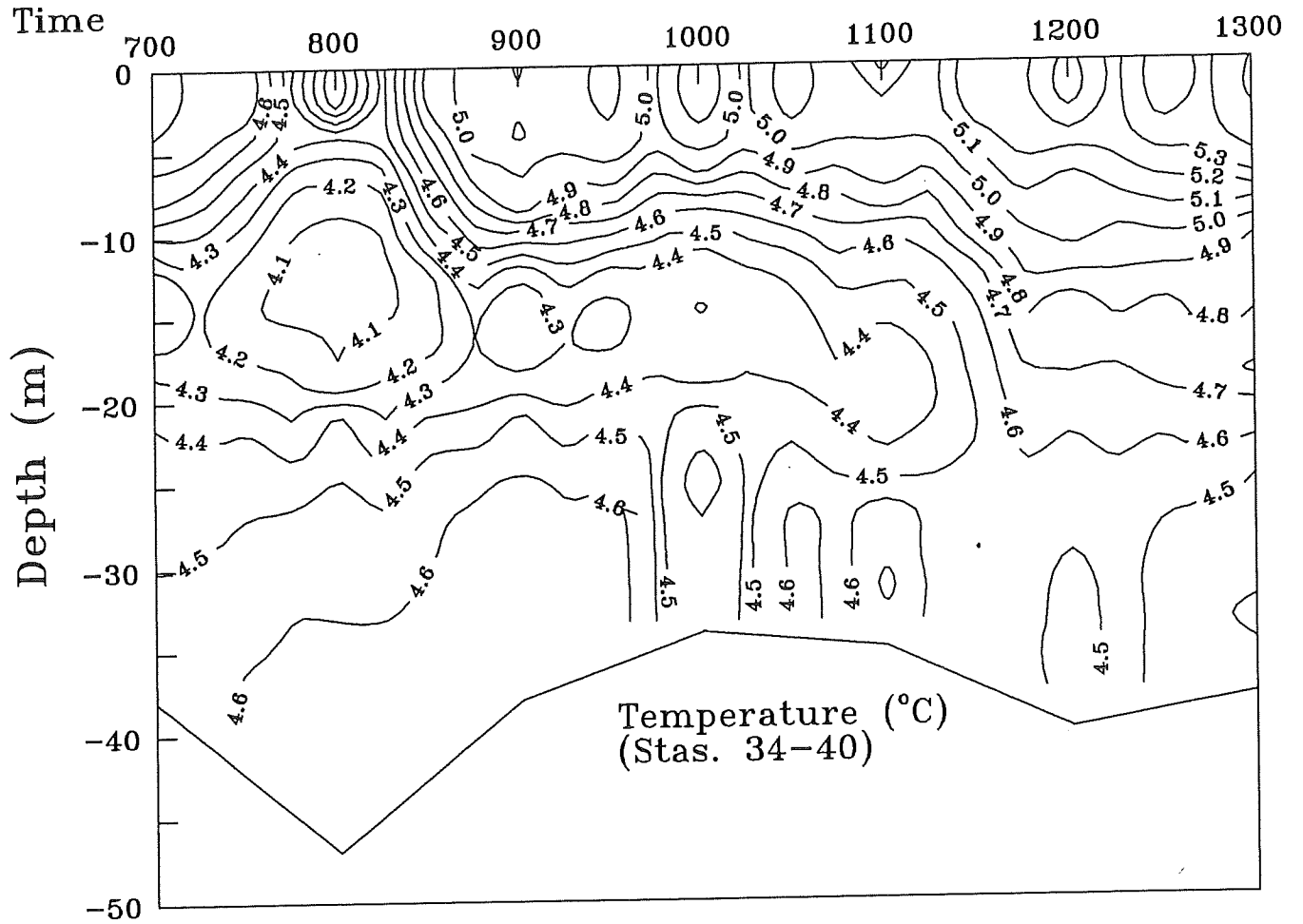


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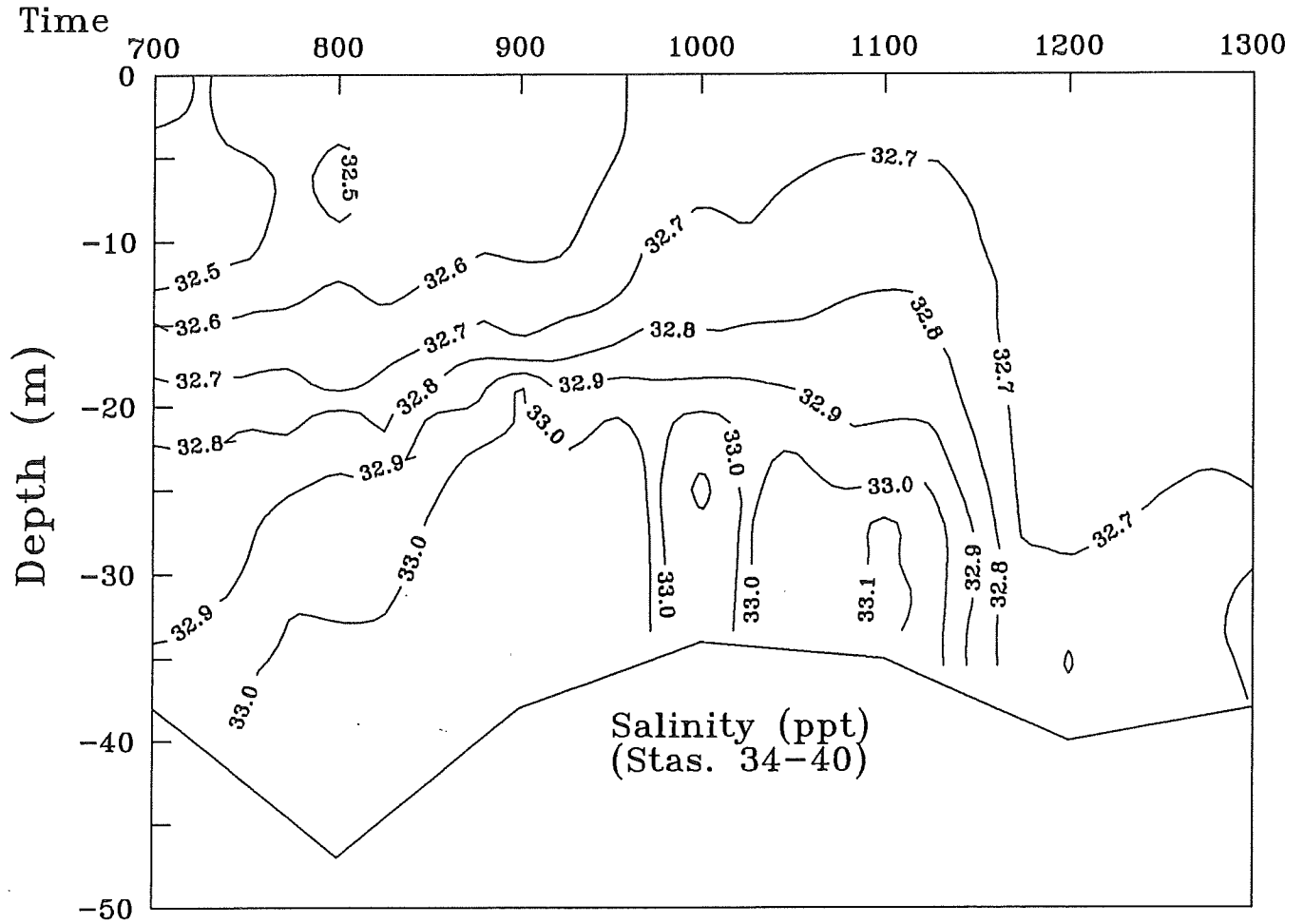
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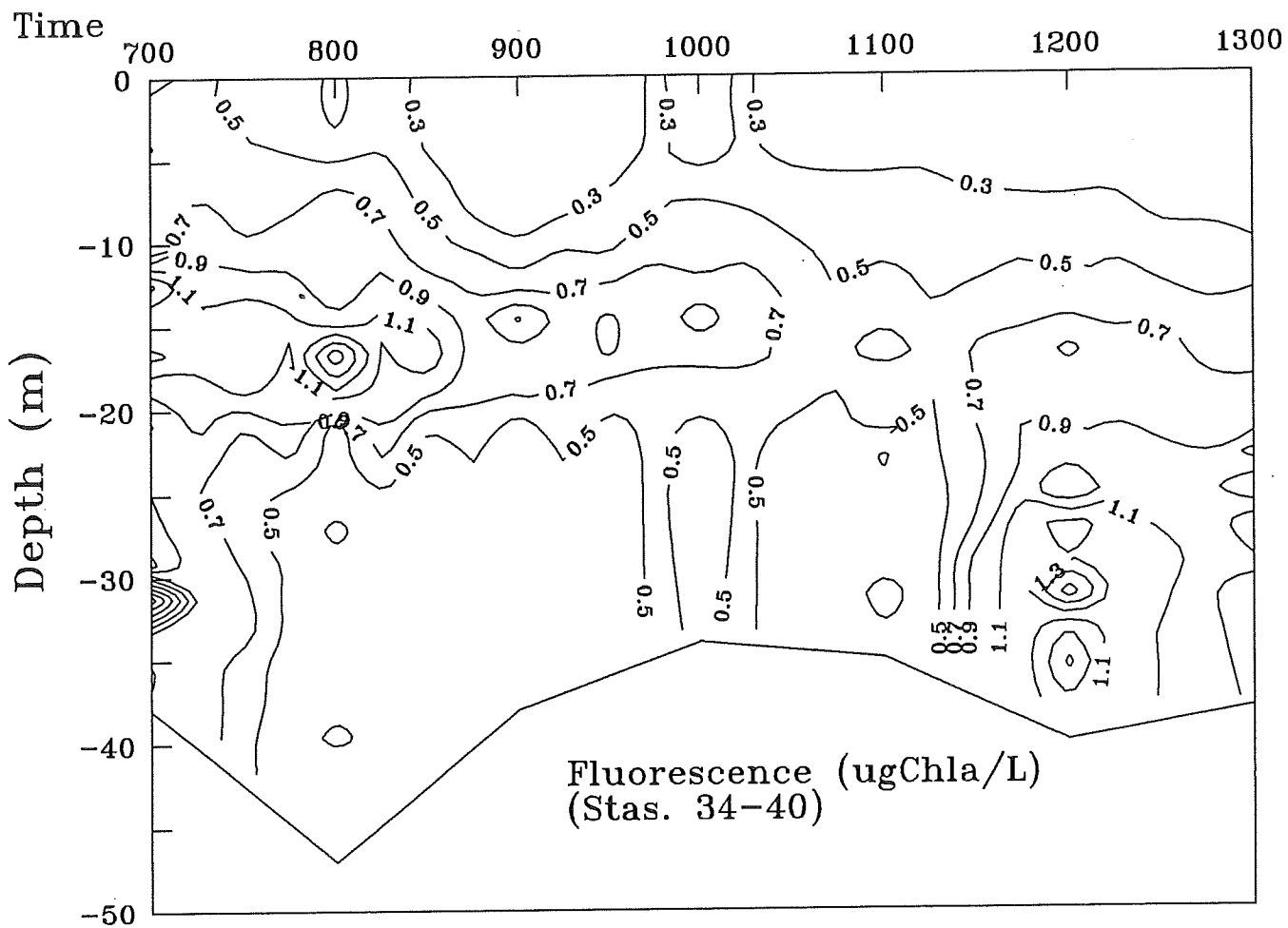


North Ammen Rock Pinnacle  
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