

PRELIMINARY HYDROLOGICAL RESULTS OF THE "SPANISH NAMIBIAN ENVIRONMENTAL CRUISE" SURVEY, SNEC-1

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The survey cruise SNEC-1 took place between 16th September and 3rd October 1985 off Namibia (Figure 1). 59 CTD casts were made. Oxygen, nitrate, nitrite and ammonium distribution was analyzed at standard levels. In order to study temporal fluctuations, the transects off Walvis Bay and Lüderitz were repeated.

As preliminary data, distribution charts of surface temperature, salinity, nitrates and oxygen, as well as their vertical distribution in the longest transects, are presented in this paper.

Surface isotherms run parallel to the coastline, with a narrow belt of cold water being observed close to the coast along the whole area studied. The most intensive upwelling centre was found north of Lüderitz at 26° S. Salinity distribution shows a similar pattern with low values (34,8-35,1 ‰) throughout the area; the highest were found in the north.

Nitrate distribution shows three areas of high concentration: north of Lüderitz (coinciding with the most intense upwelling centre)

and around Walvis Bay and Möwe Point.

The vertical sections of temperature show transitory stability off Lüderitz (between stations 7 and 8) since the isotherms in the repeated transect (line IB) show active upwelling with water from a depth of 200-300 m. Temperature was more stratified off Walvis Bay and in the north.

The isohalines show a more saline water mass 55-75 miles offshore indicating mixing between surface and sub-surface waters.

The sections of dissolved oxygen show the characteristic anoxic or very low level zone, located on the continental shelf below 100 m. This anoxic zone spreads offshore into an intermediate oceanic layer between 200-400 m depth. This phenomenon is more pronounced in the north and may be related to the stratification found there.

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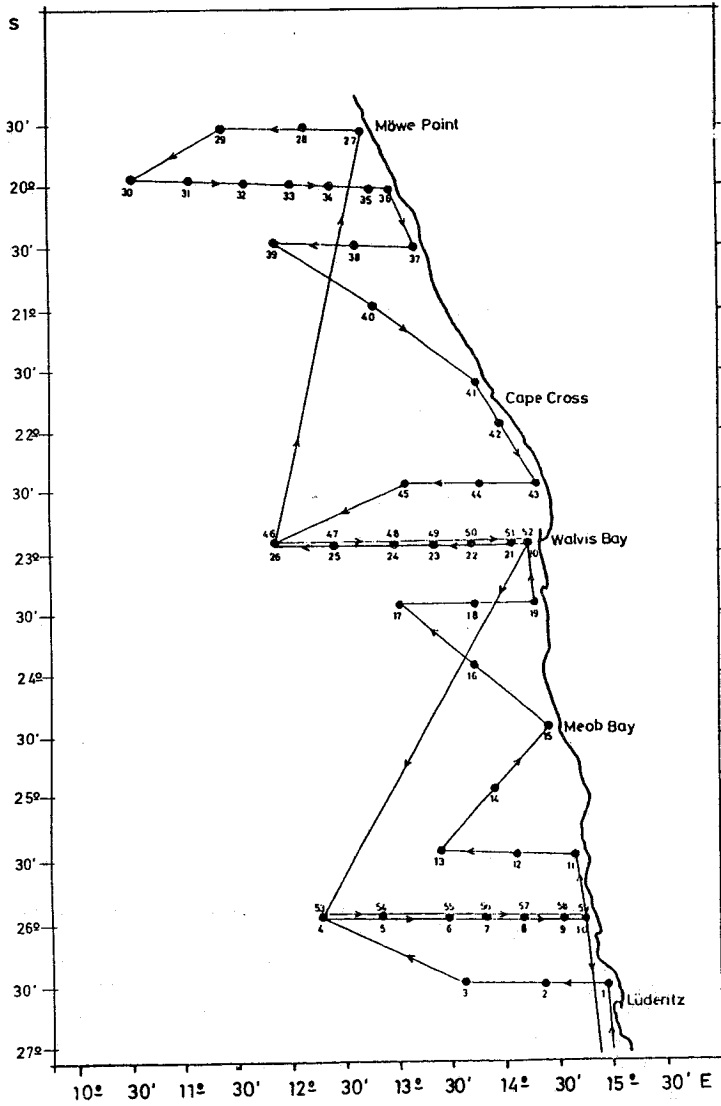


FIG. 1. Track of SNEC-I cruise, showing Transects I, II and III

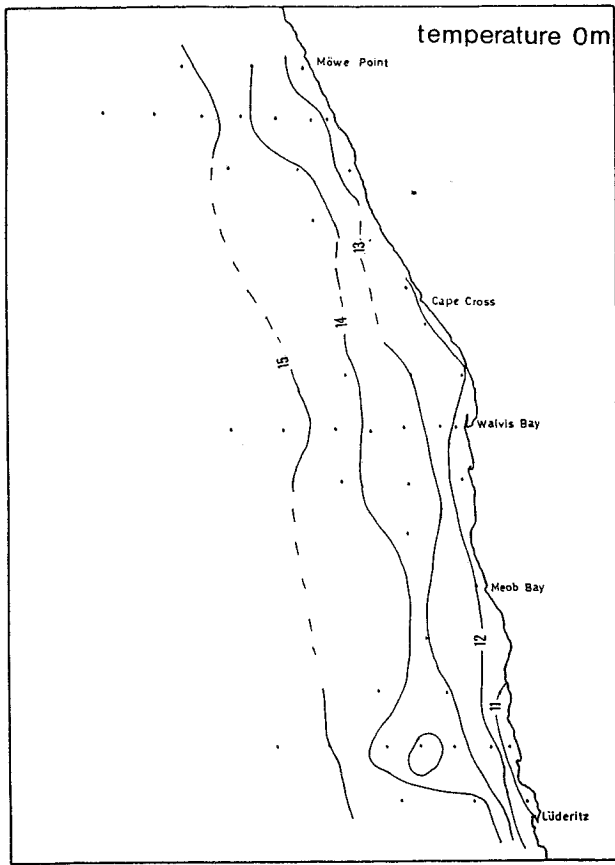
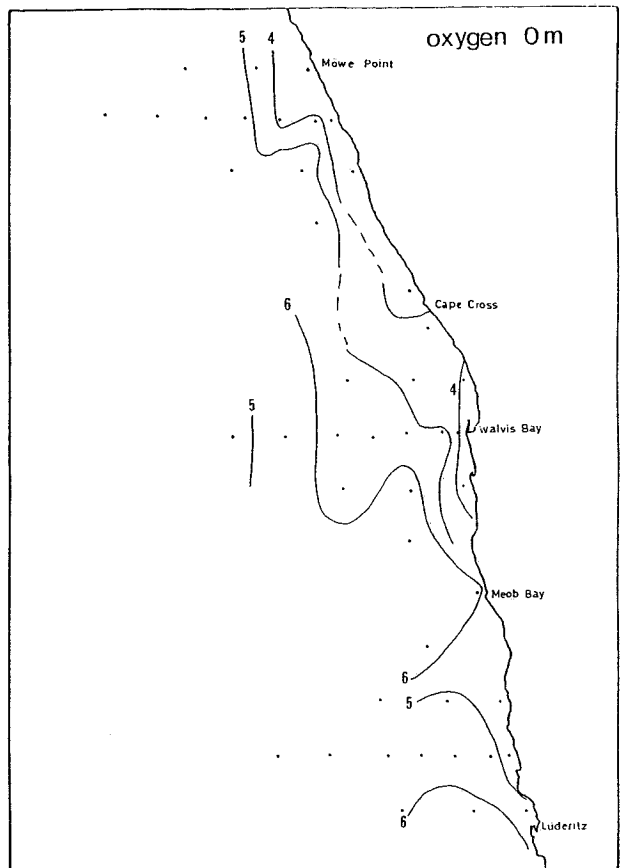


FIG. 2. Surface isotherms ($^{\circ}\text{C}$)

FIG. 3. Surface oxygen concentrations (ml/l)



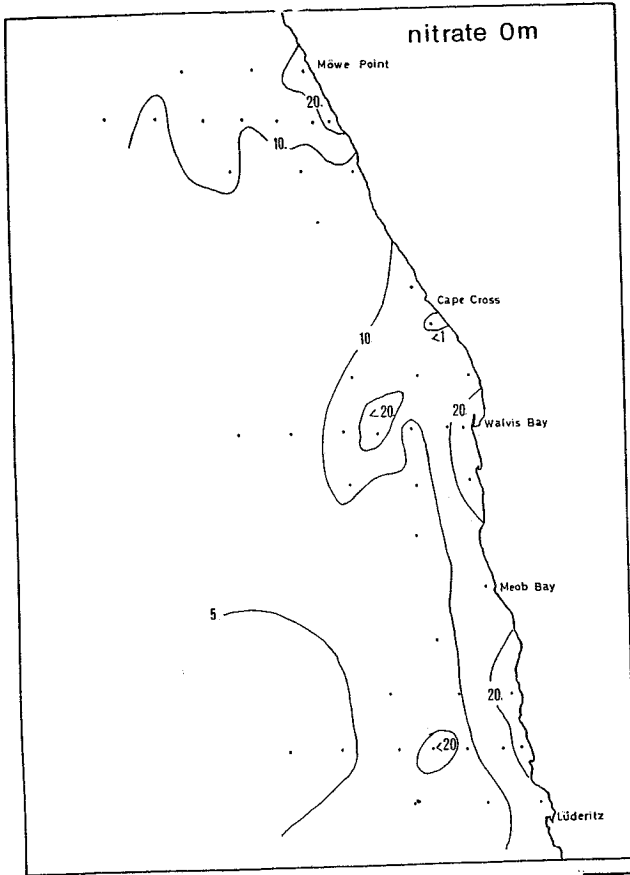
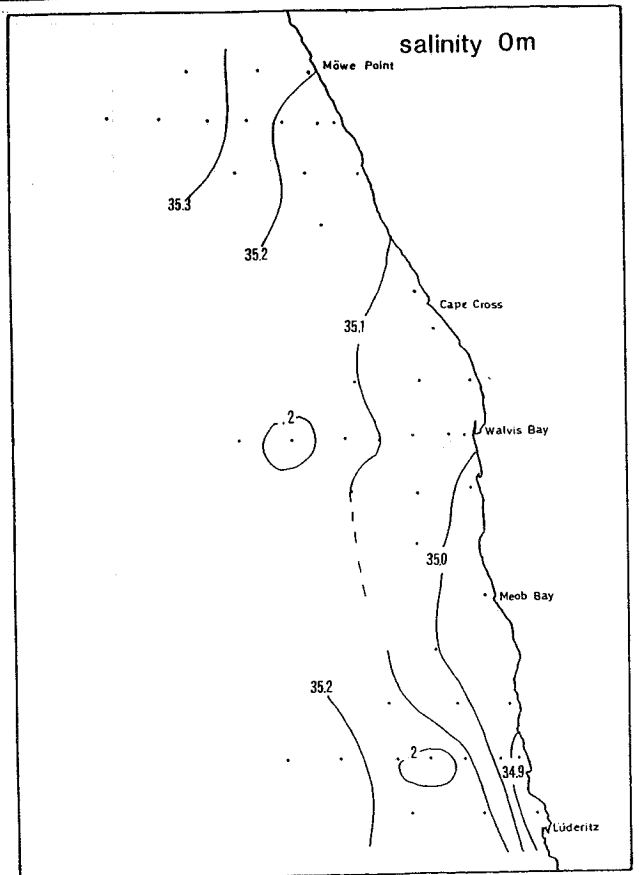


FIG. 4. Surface nitrate concentrations ($\mu\text{g atom/l}$)

FIG. 5. Surface isohalines (‰)



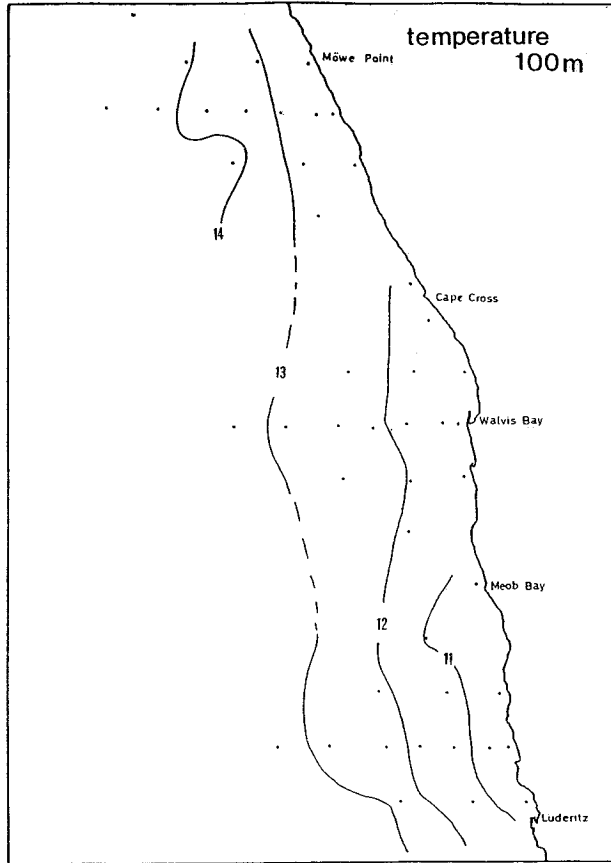


FIG. 6. Isotherms (°C) at 100 m

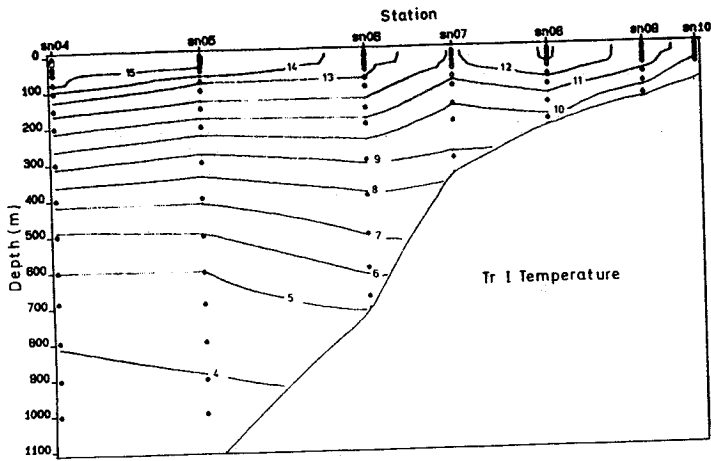


FIG. 7. Vertical temperature ($^{\circ}$ C) distribution at Transect I

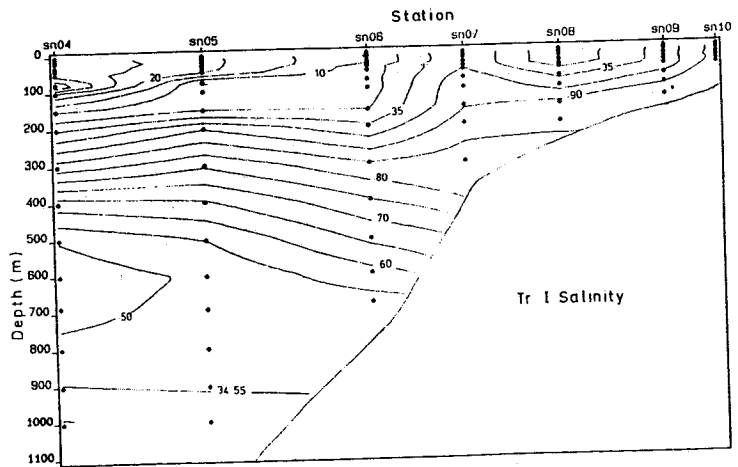


FIG. 8. Vertical salinity ($\%$) distribution at Transect I

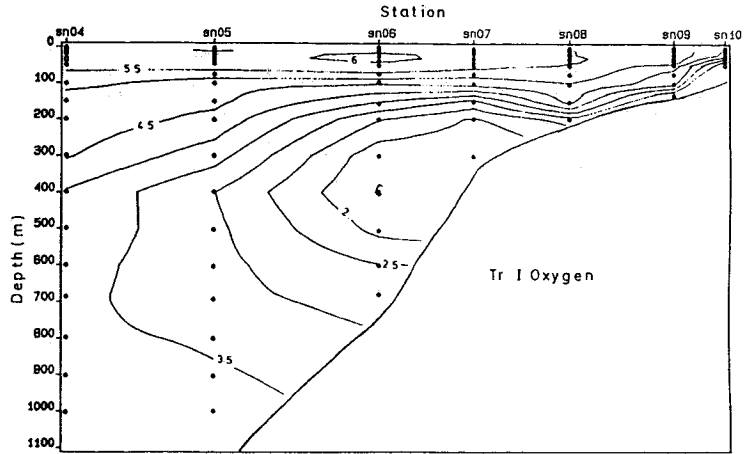


FIG. 9. Vertical oxygen concentration (ml/l)

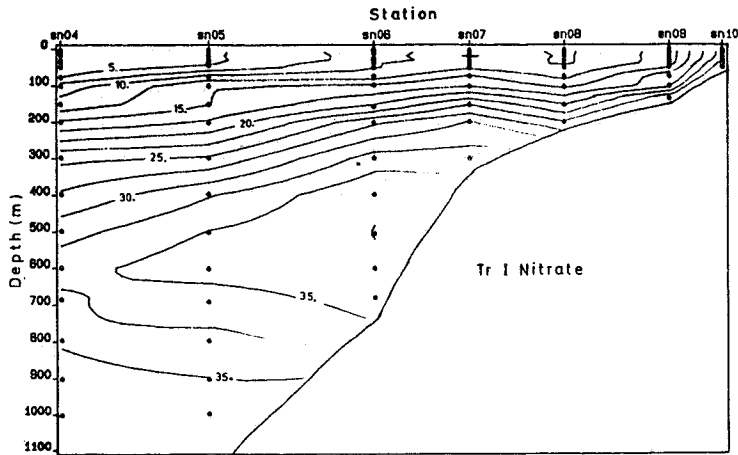


FIG. 10. Vertical nitrate concentration ($\mu\text{g atom/l}$)

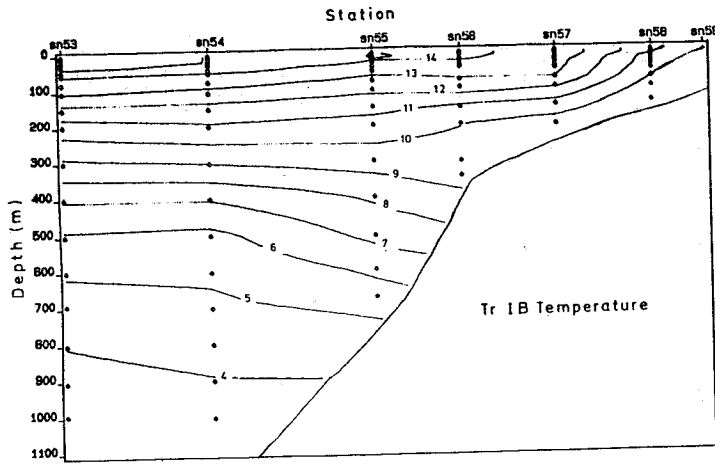


FIG. 11. Vertical temperature ($^{\circ}\text{C}$) distribution at Transect IB

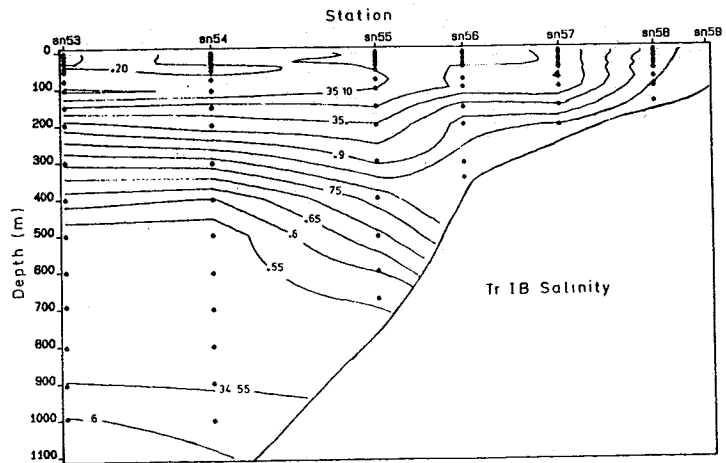


FIG. 12. Vertical salinity (‰) distribution at Transect IB

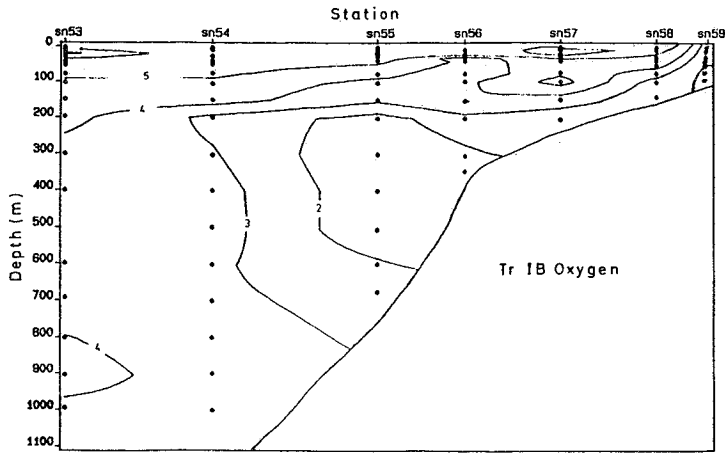


FIG. 13. Vertical oxygen concentration (ml/l) distribution at Transect IB

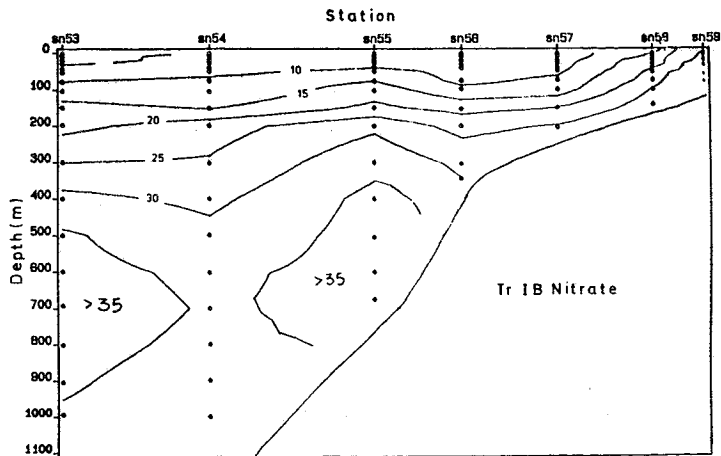


FIG. 14. Vertical nitrate concentration ($\mu\text{g atom/l}$) distribution at Transect IB

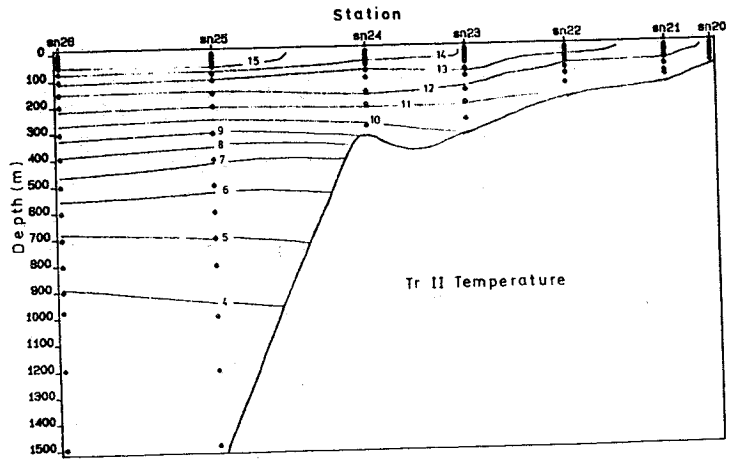


FIG. 15. Vertical temperature ($^{\circ}$ C) distribution at Transect II

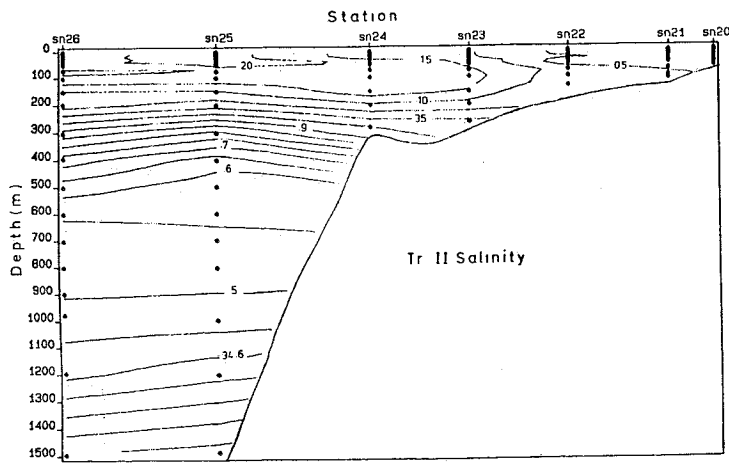


FIG. 16. Vertical salinity ($\%$) distribution at Transect II

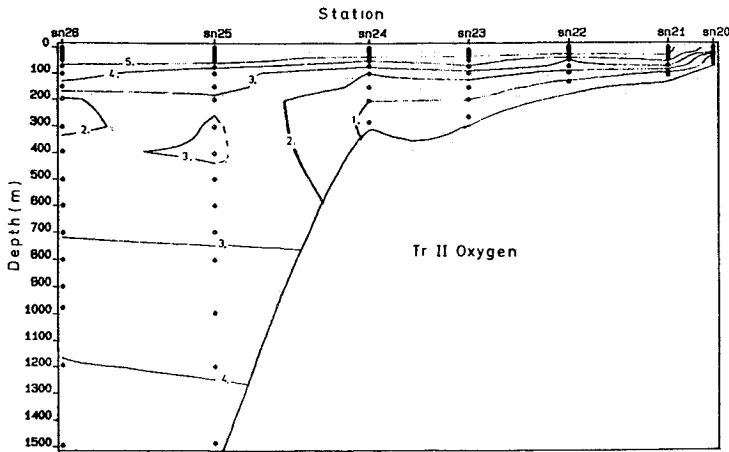


FIG. 17. Vertical oxygen concentration (ml/l) distribution at Transect II

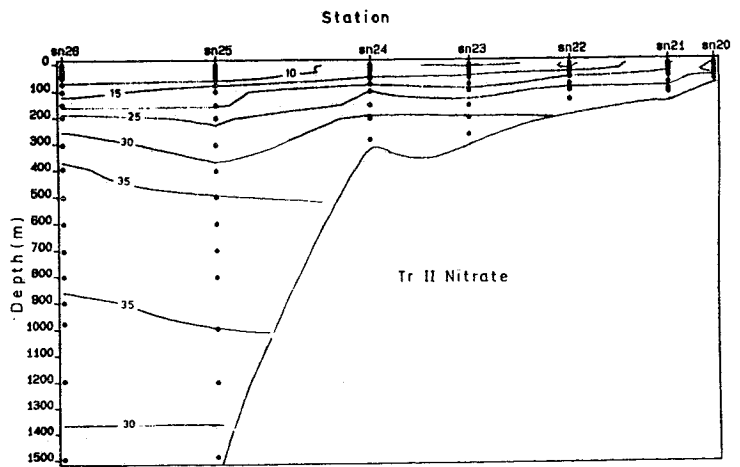


FIG. 18. Vertical nitrate concentration ($\mu\text{g atom/l}$) distribution at Transect II

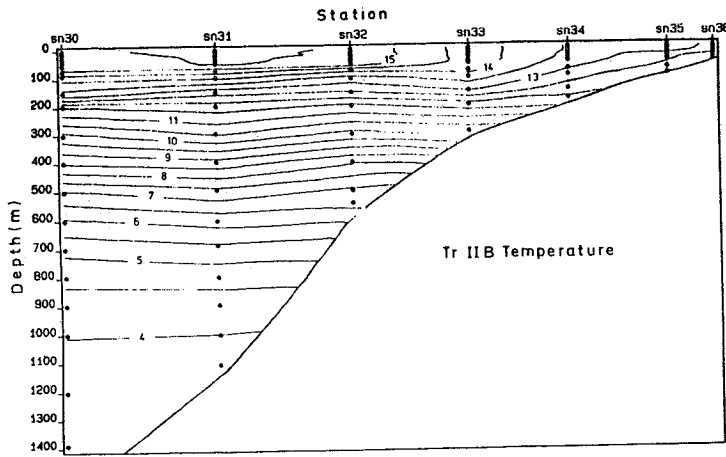


FIG. 19. Vertical temperature ($^{\circ}\text{C}$) distribution at Transect IIB

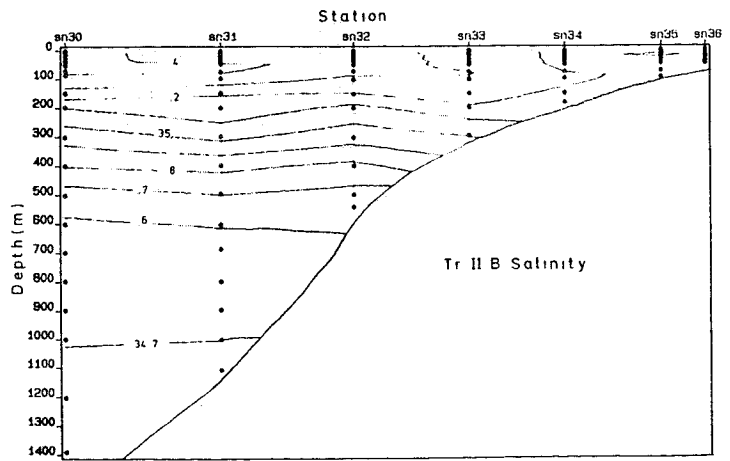


FIG. 20. Vertical salinity (‰) distribution at Transect IIB

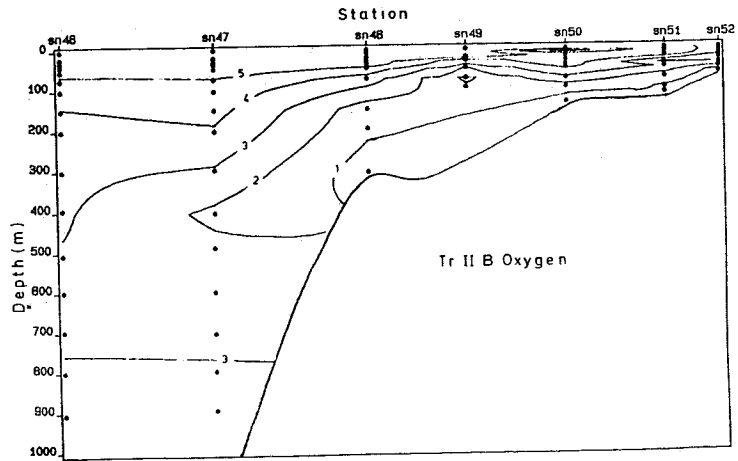


FIG. 21. Vertical oxygen concentration (ml/l) distribution at Transect IIB

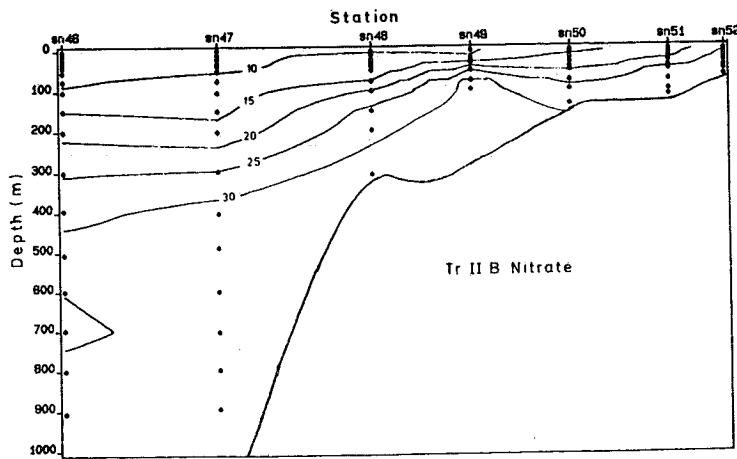


FIG. 22. Vertical nitrate concentration ($\mu\text{g atom/l}$) distribution at Transect III

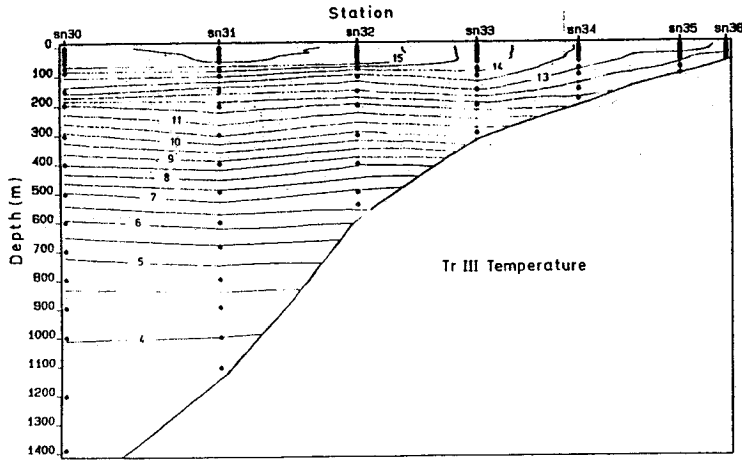


FIG. 23. Vertical temperature ($^{\circ}\text{C}$) distribution at Transect III

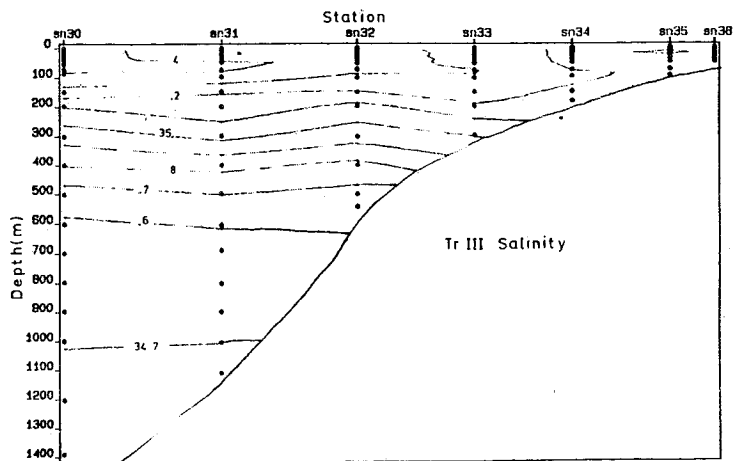


FIG. 24. Vertical salinity (‰) distribution at Transect III

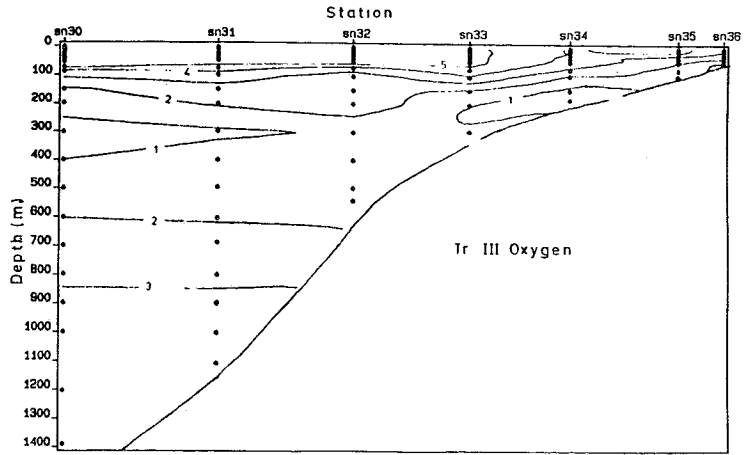


FIG. 25. Vertical oxygen concentration (ml/l) distribution at Transect III

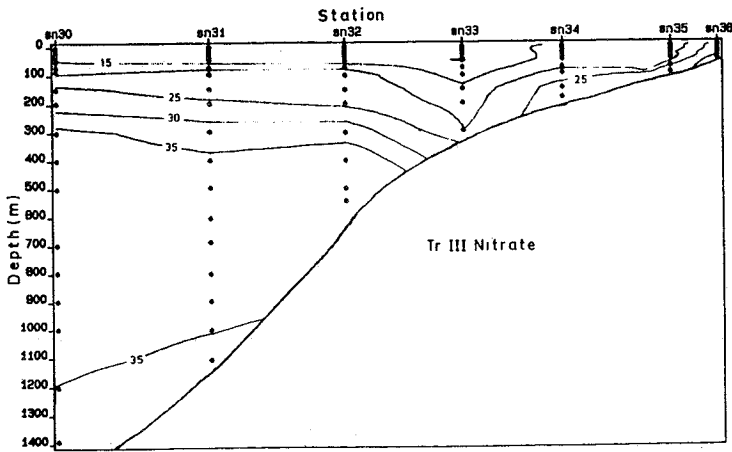


FIG. 26. Vertical nitrate concentration ($\mu\text{g atom/l}$) distribution at Transect III