



Serial No. 959
(D.a. 61)

Document No. 21

ANNUAL MEETING - JUNE 1962

Canadian Research Report, 1961

C. Subareas 4 and 5 -- Oceanography
by L.M. Lauzier

Co-ordination of oceanographic research in Subareas 4 and 5 made possible a concentrated study by the scientists of various disciplines; physics, geology, chemistry and biology. The co-operating organizations were: the various establishments of the Fisheries Research Board of Canada on the east coast, the Institute of Oceanography of Dalhousie University, the Division of Oceanographic Research and the Canadian Hydrographic Service of the Department of Mines and Technical Surveys. Vessels employed in the research programs were: C.N.A.V. Sackville, C.G.S. A. T. Cameron and C.H.S. Baffin.

The monitoring sections off Halifax, N.S., and across Cabot Strait were covered four times in 1961. The temperature and salinity distributions of the section off Halifax are given in Figure 1. In general, the conditions in 1961 off Halifax were similar to those of 1959 with below average temperatures on the bottom. The intermediate cold-water layer was well developed from spring to autumn. Along the edge of the continental shelf an intrusion of warm water in February brought about a steep temperature gradient along the bottom. In Cabot Strait, the intermediate cold-water layer, with below zero temperature, was more developed in 1961 than in the previous two years. The volume of the warm deep layer had somewhat decreased since 1959. The zone on the slopes, covered by water between 1.0 and 4.0°C, has been observed to be deeper in the last three years as compared to previous years. Early winter observations on the western slopes of the Laurentian Channel north of the Magdalen Islands also show a deepening of this zone. The extent of the cold water (-1.0 to 0.0°C) over the Magdalen Shallows in mid summer seemed to be greater than in recent years.

Monitoring of surface and bottom temperatures along the Canadian Atlantic coast was continued during the year. The 1961 temperatures, at all stations, revealed a general decrease from the 1960 values. The seasonal variations of temperatures in 1961 were featured by a slow vernal and aestival warming followed by a slow cooling in the last four months of the year. The bottom temperatures in the coastal waters off Nova Scotia were the lowest observed since 1950.

The circulation of surface and bottom waters was studied on the Scotian Shelf, the Gulf of Maine-Bay of Fundy area and the Gulf of St. Lawrence. Surface drift bottles and sea-bed drifters were used as well as Pisa tubes, plywood drifters, radar drift poles, current meters and G.E.K. The various phases of the circulation studies have been undertaken to gain a better knowledge of the tidal streams and the non-tidal drift and their effects on the environment.

The marine geology studies of the Gulf of St. Lawrence and of the Scotian Shelf have indicated the broad distribution features of the soft sediments and the hardness of the bottom. The studies of bottom organisms are providing a preliminary assessment of the relationships of biomass, depth distribution and bottom types.

Geochemical and chemical studies of the sediments and the waters of the Gulf of St. Lawrence were initiated this year. The turbidity of the waters of the Gulf is being examined as an additional parameter for indentifying and tracing the water masses and their movements.

---oooOooo---

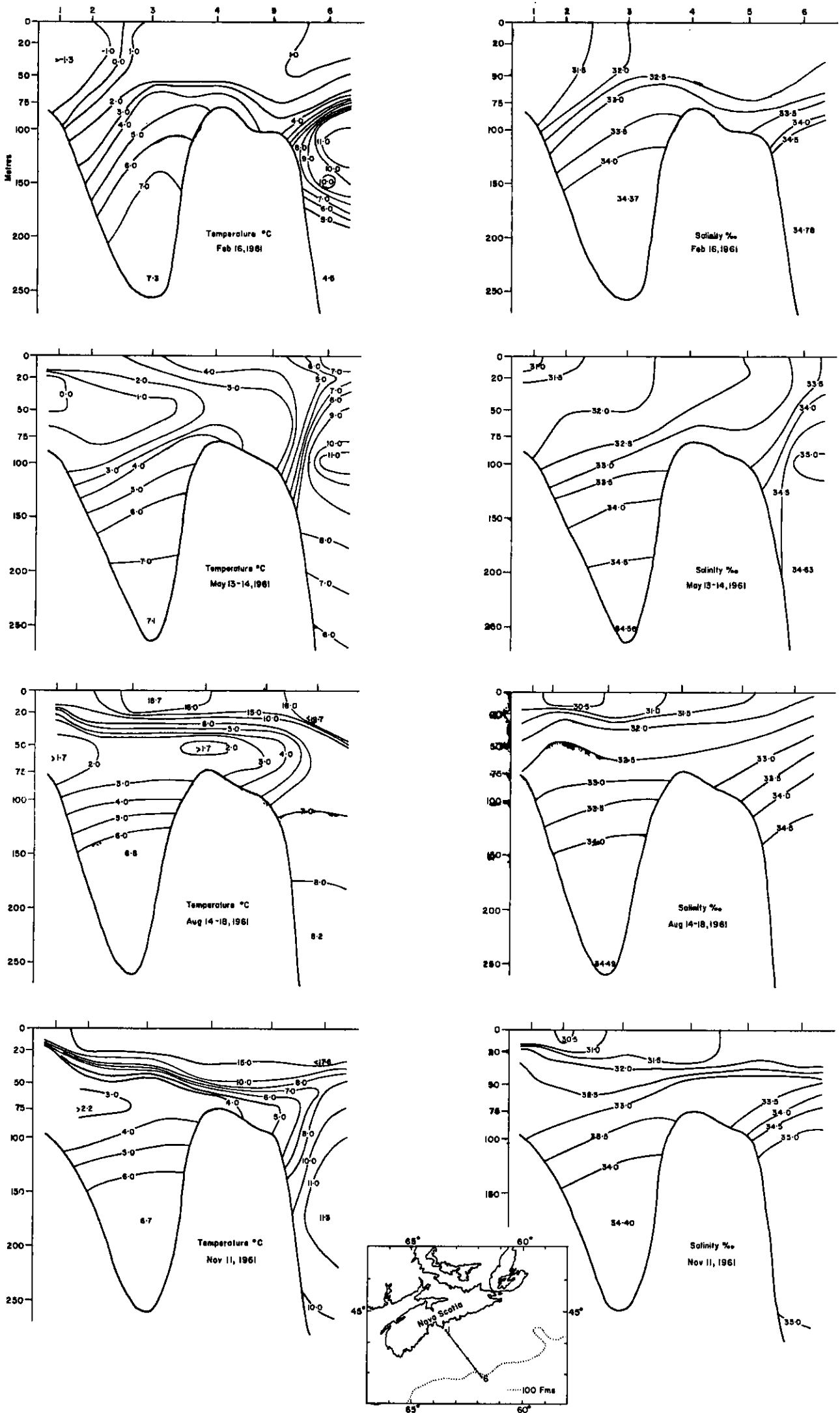


Figure 1. Hydrographic sections off Halifax, N. S., 1961; Temperature °C; Salinity ‰.