

ANNUAL MEETING - JUNE 1969Temperatures and salinities, 1968, at Station 27
and in the St. John's-Flemish Cap section

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Station 27, 1968

At Station 27 off Cape Spear (Fig. 1), temperatures of the water column in late winter to spring and of the deep water in summer and autumn 1968 were higher and the surface and upper layer August-early winter temperatures lower than in 1967 (Templeman, 1968). They were also similar to those of 1966 (Templeman, 1967) except that in the latter year deep-water temperatures in summer and autumn were higher than in 1968.

Winter water-column temperatures and spring and summer bottom temperatures at Station 27 in 1968 were higher than and intermediate layer temperatures approximately the same as the average of 1950-62 (Templeman, 1965). The 1968 August-September surface temperatures were lower and the upper water layer late summer to autumn temperatures slightly higher than in 1950-62.

At Station 27, surface and upper water layer salinities in September-December were lower in 1968 than in 1967 (Templeman, 1968) and a little lower than in 1966 (Templeman, 1967). Also, at this Station, the upper half of the water column in January had salinities in 1968 higher than in 1967 but similar to those in 1966. Otherwise salinities in the three years were not greatly different.

Temperatures St. John's to Flemish Cap section, summer 1968

In the section St. John's to Flemish Cap (Fig. 2), taken at the usual time in late July, average surface temperatures were lower than the average of the lowest surface temperatures at each station in the period 1950-67.

In this section also, temperatures in 1968 at the 20-30 m level were higher than average in the Avalon Channel and were close to the 1951-65 average at the remaining stations. Temperatures of the deep water of the Avalon Channel and bottom temperatures over the surface of the Grand Bank were higher than the average for 1961-65 period but not as high as the highest temperatures of the 1950-67 period and not as high as in 1966 but considerably higher than in 1967. Temperatures in the cold-water offshore division of the Labrador Current on the eastern slope of the Grand Bank had a small central core, with temperatures of -1.5°C , as low as in any year of the 1950-67 period but the volume of very cold water was small and, on the average, temperatures of this below 0°C water were above the average for the 1951-65 period; a little higher than in 1967 but lower than in 1966. The temperatures of this eastern cold water body in 1968 were somewhat lower and the volume of below 0°C water greater than in the warmest years of the 1950-67 period.

Temperatures in the deep water of Flemish Channel in 1968 were well above average and approximately as high as the highest encountered in 1950-67, while temperatures immediately above the top of the Cap and those on the seaward slope of the Cap were higher than any of this period.

The not unusual situation existed seaward of the Cap in that temperatures immediately on the eastern slope of the Cap were higher and accompanied by higher salinities than those farther seaward from the slope.

Temperatures St. John's to Flemish Cap section, winter-spring 1968

In an earlier St. John's-Flemish Cap section taken on 29 February -6 March (Fig. 3), surface-layer temperatures were naturally lower than in July, but in general, deeper water temperatures were not greatly different from those in July. Temperatures at the core of the eastern branch of the Labrador Current, at the second station seaward of Flemish Cap, and some of the temperatures of the deeper water of the Avalon Channel were higher and those immediately above the Cap lower than in July.

This section has been taken previously in the early part of the year, on 25-27 March 1961 (Templeman, 1962). On this occasion, temperatures above the western slope of Flemish Cap were higher but most other temperatures considerably lower than in February-March 1968.

Salinities St. John's-Flemish Cap section, 1968

Apart from lower surface-layer salinities in July, there was little difference in the St. John's-Flemish Cap section in the general salinity picture between July and February-March 1968, or between July 1968 and July 1967.

Acknowledgements

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References

- Templeman, W., 1962. Canadian research report, 1961. A. Subareas 2 and 3. Int. Comm. Northw. Atlant. Fish., Redbook 1962, Part II, p. 3-20.
1965. Anomalies of sea temperature at Station 27 off Cape Spear and of air temperature at Torbay-St. John's. Ibid., Spec. Publ. No. 6, p. 795-806.
1967. Canadian research report, 1966. A. Subareas 1, 2 and 3. Ibid., Redbook 1967, Part II, p. 3-13.
1968. Temperatures and salinities, 1967 at Station 27 and in the St. John's-Flemish Cap section. Ibid., Redbook 1968, Part III, p. 37-39.

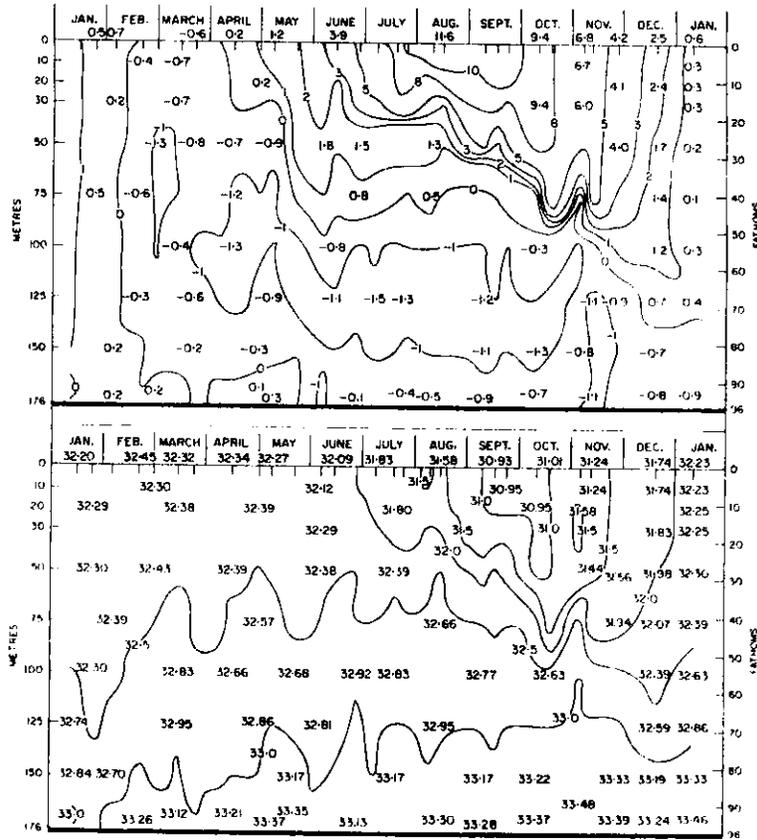


Fig. 1. Above, temperature, °C, and below, salinity, ‰, from surface to bottom at Station 27 (see Fig. 2 insert), 2 nautical miles off Cape Spear near St. John's, January 1968 to January 1969.

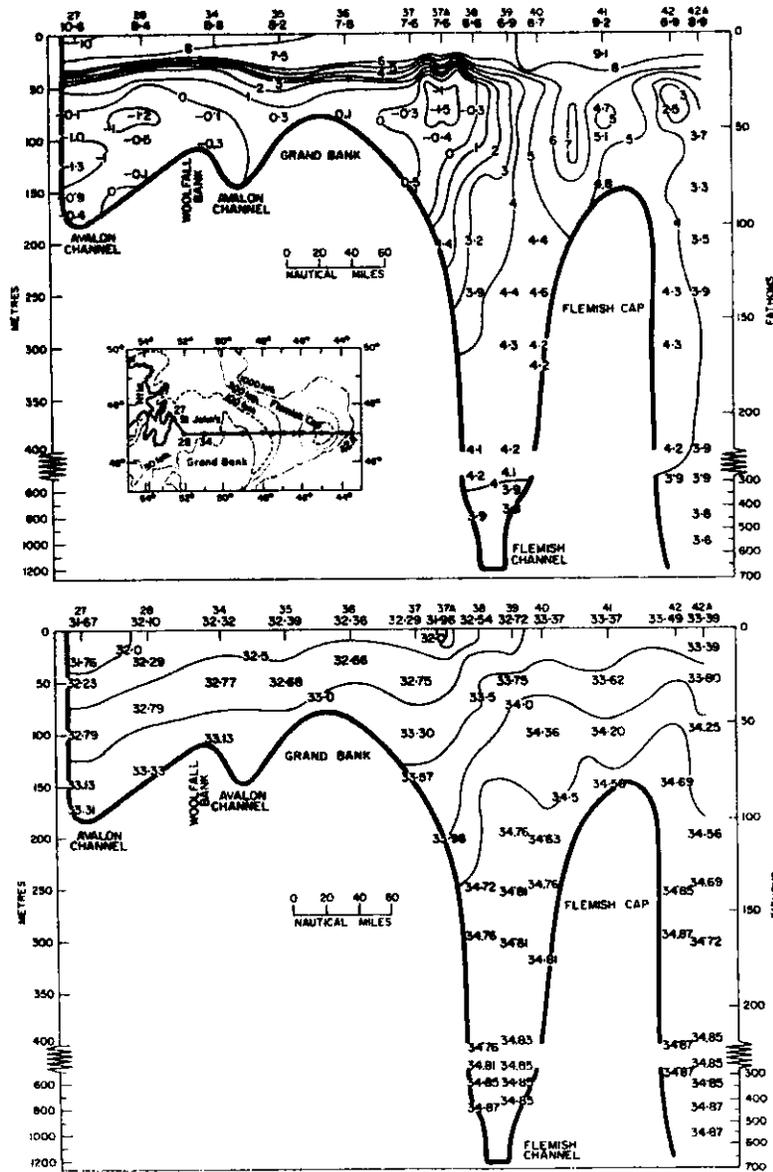


Fig. 2. Above, temperature, °C, and below, salinity, ‰, sections, St. John's-Flemish Cap, 25-27 July 1968.

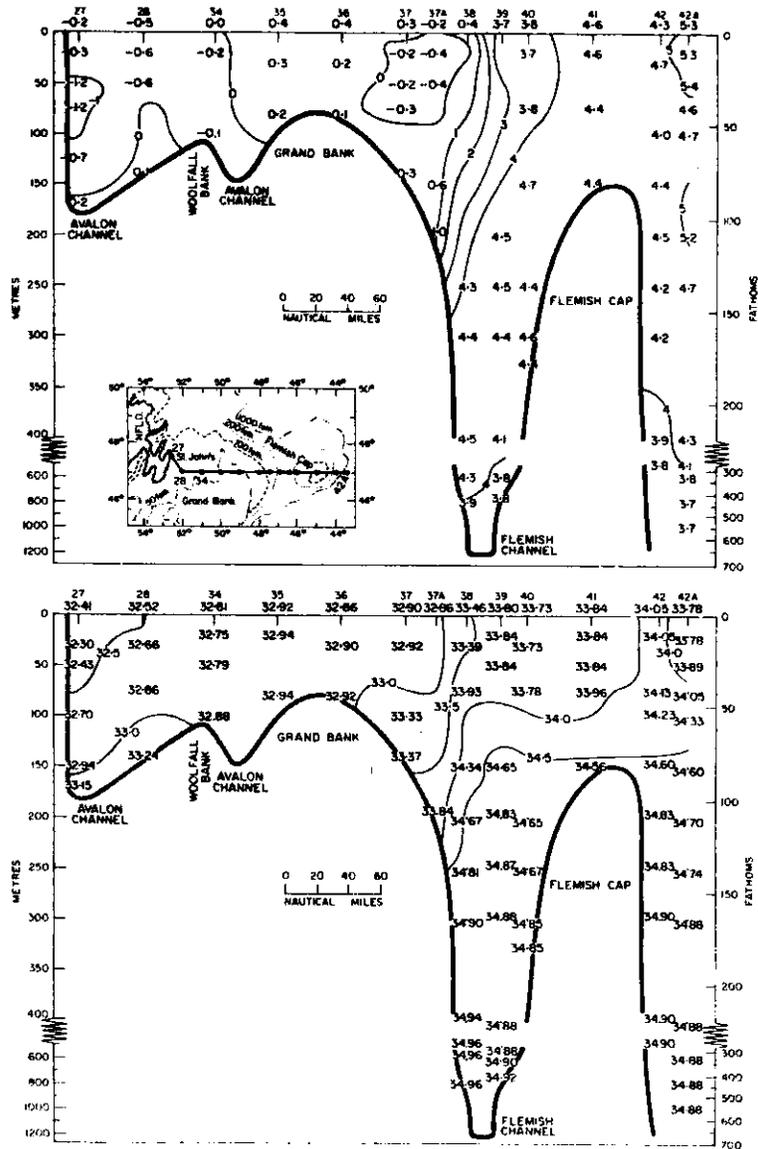


Fig. 3. Above, temperature, °C, and below, salinity, ‰, sections, St.

John's-Flemish Cap, 29 February-5 March 1968.