

Long-term Bottom Temperature and Salinity Variability along the Northwest Atlantic Shelf

JONATHAN COYNE¹, FRÉDÉRIC CYR¹

¹ *Fisheries and Oceans Canada, Newfoundland and Labrador Region*

Two new long-term temperature and salinity data products have been created specifically for the Northwest Atlantic region. Canadian Atlantic Shelf Temperature and Salinity (CASTS) consists of approximately 782,000 individual temperature and salinity profiles taken in the Northwest Atlantic and Eastern Arctic between 1912 and 2023. Canadian Atlantic Shelf Bottom Ocean Temperature and Salinity (CABOTS) is a bottom temperature and salinity gridded data product covering the Northwest Atlantic shelf from 1980 to 2023. Using these two new publicly available data products, the long-term climatology and variability of temperature and salinity at the ocean surface and seafloor was determined. While the results show large natural variation of hydrographic properties over decadal time scales, further evidence has also been found showing the recent protrusion of warm bottom water onto the Scotian Shelf and Western Grand Banks, possibly the influence of a meandering Gulf Stream. Southern regions bottom temperatures show a larger amount of multi-year variability when compared to northern regions. Steady increases in bottom temperature have been found over the last 40 years, especially in more northern regions. The Scotian Shelf experienced increases in bottom temperature anomalies starting around 2010.