After the main sequence, the now-inert cores of low-mass stars (*M* ≤ 1.5 *M*\_sun) become degenerate. The hydrogen-rich shell around the core ignites, causing the outer layers of the star to expand. The star is now on the red giant branch (RGB). During the initial stages on the RGB, the star undergoes a significant mixing event, known as the first dredge-up, in which the convective behaviour of the outer regions extends inwards almost to the H-burning shell. This means that the outer layers will display features typically found in fusion regions. When looking at the surfaces of stars at later stages of the RGB, however, there is a further deviation of certain elements’ abundances. It is hypothesised that thermohaline mixing, an effect already known in oceanography and related laboratory tests, is responsible, due to a molecular weight gradient inversion from 3He fusion. Here, based on parameters from the FRANEC stellar evolution code for a 1 *M*\_sun star at solar metallicity, the coefficients of diffusion due to thermohaline mixing are calculated and plotted at different luminosities as functions of radius. They are then compared to the abundance gradient of 3He and other elements which trace the location of the fusion shell. It is shown that the peak value of the coefficients are similar to values obtained by others, the coefficients’ peak value grows over time and the regions where thermohaline mixing is significant are also those where 3He is being burnt, just outside the H-burning shell.