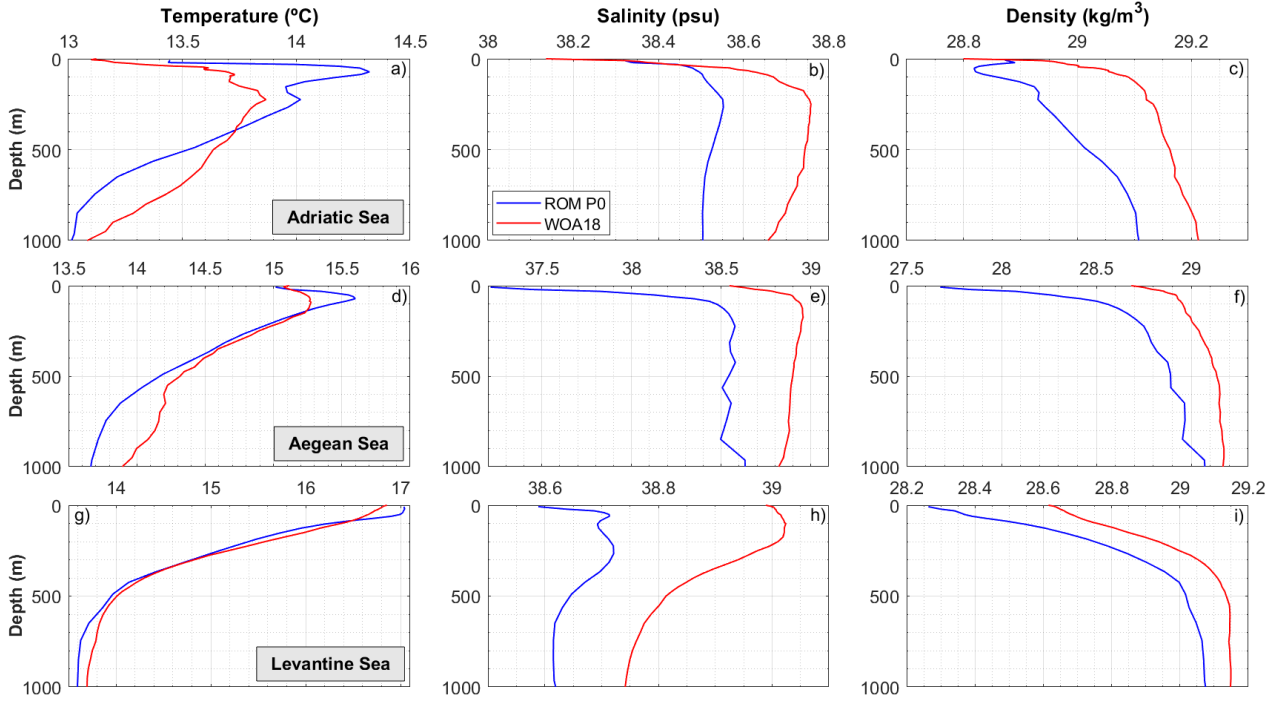## Supporting information

Figure S1. Winter spatially and temporally averaged vertical profiles of (a, d, g) temperature, (b, e, h) salinity (psu) and (c, f, i) density (kg/m³) in the Adriatic Sea (top), Aegean Sea (middle), and Levantine Sea (bottom) for the 1980-2012 period. ROM_P0 (blue) and WOA18 (red). Note different ranges in horizontal axes.
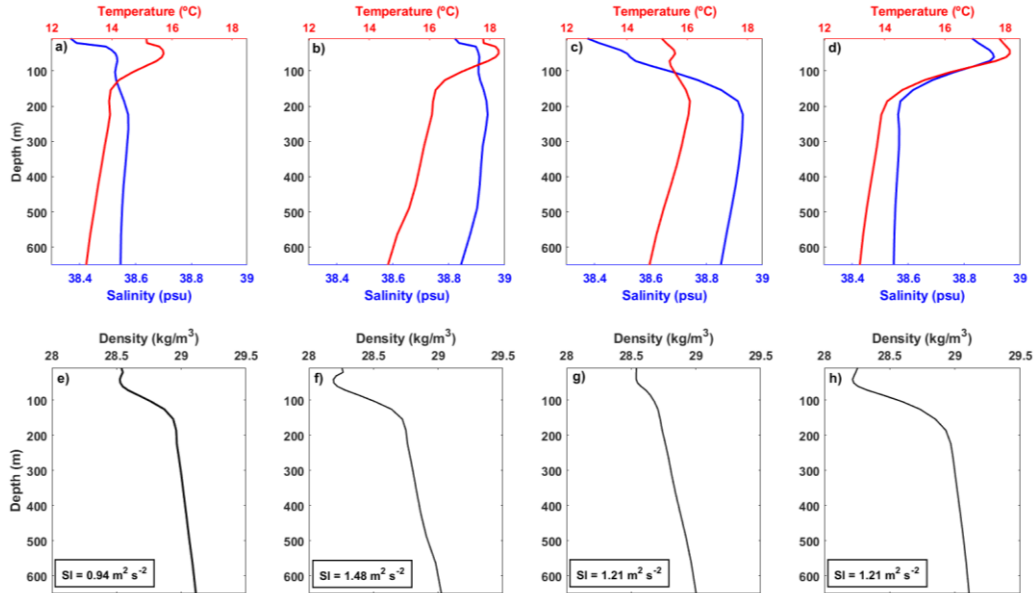

Figure S2. Spatially and temporally averaged vertical profiles of temperature, salinity and density in the Adriatic Sea values corresponding to the (a, e) historical period (1976-2005, Hist.), (b, f) future projection (2070-2099, Proj.) (c, g) Hist. features of AdSW (0-100 m depth) with the Proj. characteristics of LIW (100-650 m depth), and (d, h) Proj. properties of AdSW and Hist. for LIW. It is shown the stratification index (m²s⁻²) for each case (e, f, g, h).
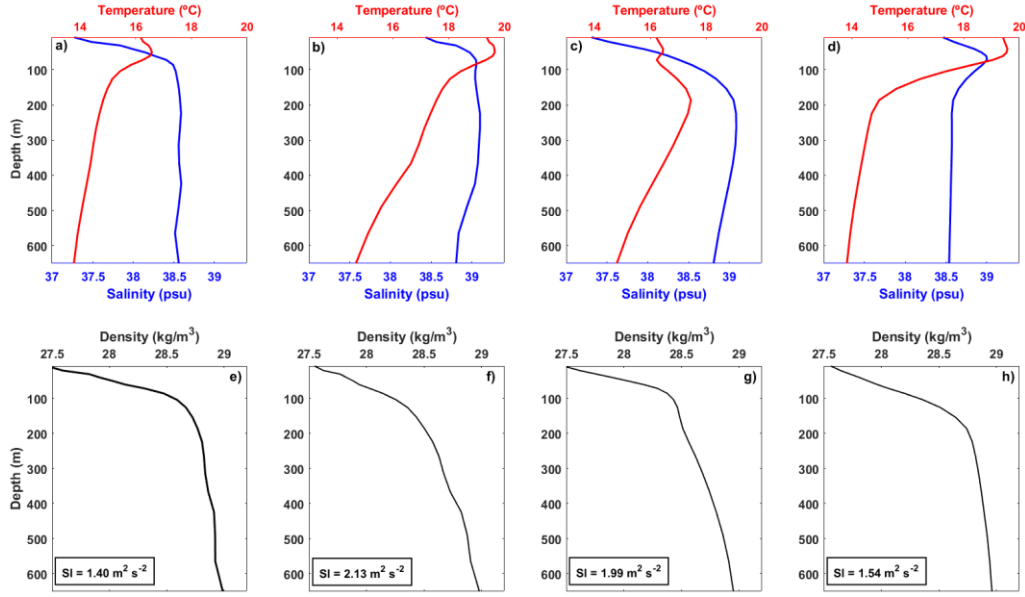
Figure S3. Spatially and temporally averaged vertical profiles of temperature, salinity and density in the Aegean Sea values corresponding to the (a, e) historical period (1976-2005, Hist.), (b, f) future projection (2070-2099, Proj.) (c, g) Hist. features of BSW/LSW (0-100 m depth) with the Proj. characteristics of CIW/LIW (100-650 m depth), and (d, h) Proj. properties of BSW/LSW and Hist. for CIW/LIW. It is shown the stratification index (m²s⁻²) for each case (e, f, g, h).
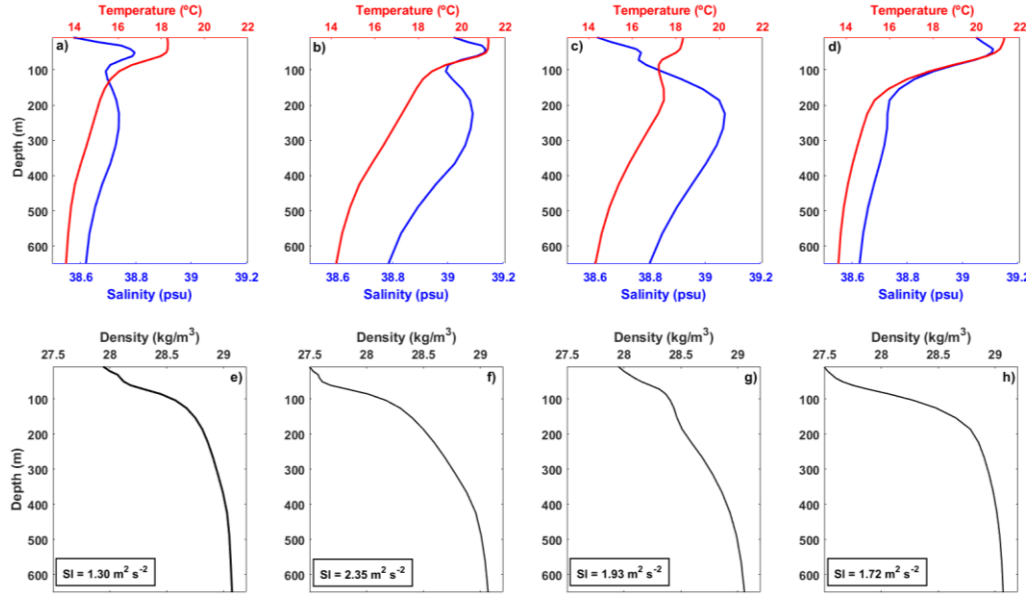

Figure S4. Spatially and temporally averaged vertical profiles of temperature, salinity and density in the Levantine Sea values corresponding to the (a, e) historical period (1976-2005, Hist.), (b, f) future projection (2070-2099, Proj.) (c, g) Hist. features of MAW/LSW (0-100 m depth) with the Proj. characteristics of LIW (100-650 m depth), and (d, h) Proj. properties of MAW/LSW and Hist. for LIW. It is shown the stratification index (m²s⁻²) for each case (e, f, g, h).
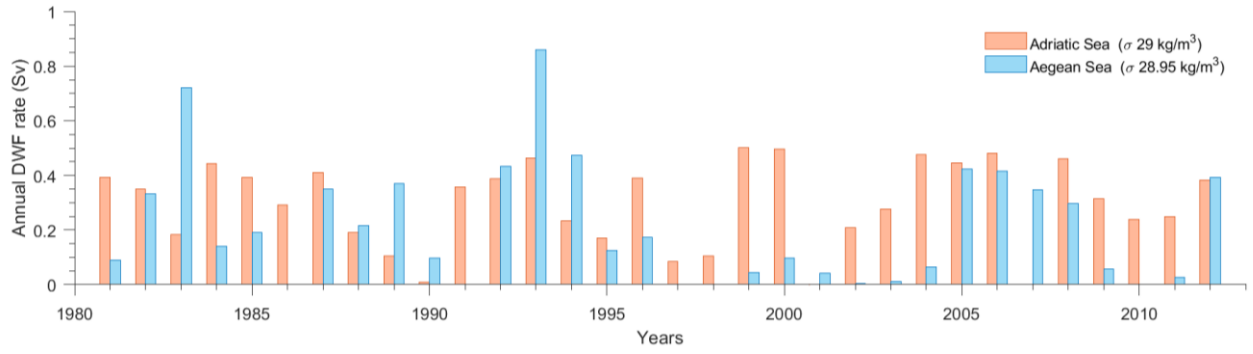
Figure S5. ROM_P0 annual formation rate (Sv) of deep water in the (a) Adriatic Sea and (b) Aegean Sea for the 1980-2012 period.
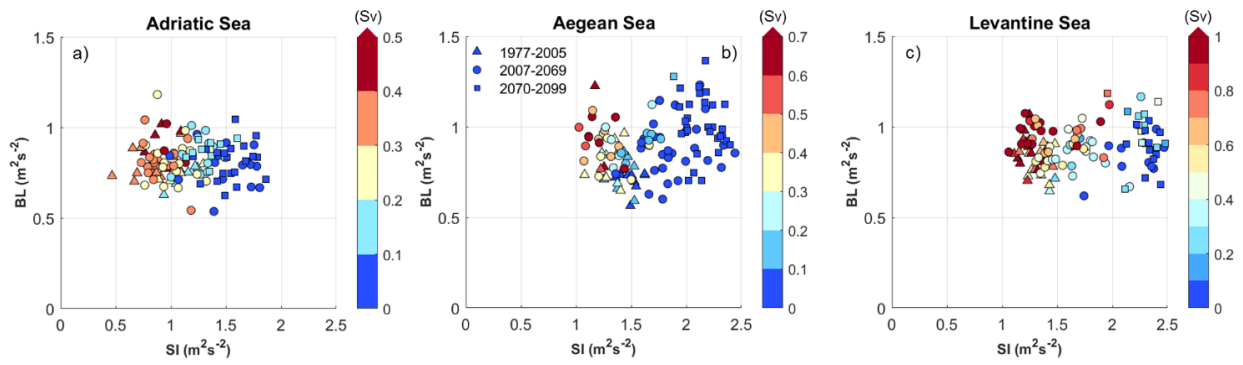

Figure S6. Scatterplots (1 marker per year) of the DWF rate (Sv) with respect to the SI in x-axis and BL in y-axis (m²s⁻²) for (a) Adriatic, (b) Aegean and (c) Levantine Seas. Triangles represent historical period (ROM_P1) from 1977 to 2005 while circles (2007-2069) and squares (2070-2099) represent RCP8.5 projection (ROM_P2).
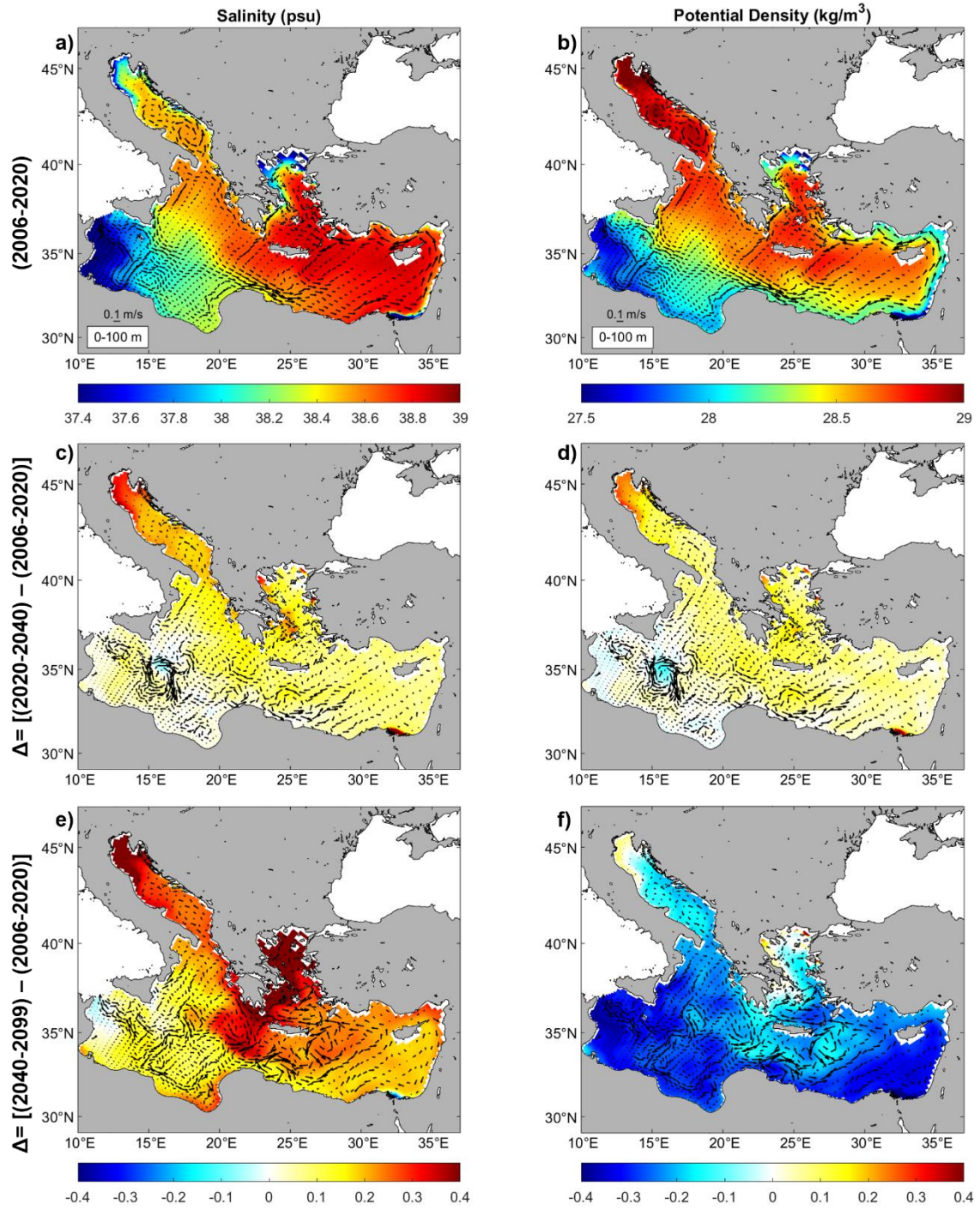
Figure S7. Winter mean (2006-2020) a) salinity (psu), b) density (kg/m3) and currents (m/s) averaged over the upper 100 m in the EMed. Differences between winter mean for the periods: (c, d) 2020-2040 and (d, f) 2040-2020 respect to 2006-2020.