Supplementary material

Fig. S1: Upper: AT-SSS relationship based on data from 4-40 m from the coastal carbon timeseries of Ali (2017); lower: AT-SSS relationship based on data from 0-50 m from the three MEROU stations (no. 10, 149, and 153), which are closest to the mooring site in the current study.

Fig. S2: SST – pCO2 relationship based on daily mooring data from coastal Red Sea (this study).

Fig. S3: Monthly surface pCO2 from the Red Sea (19.7°N 37.4°E) reconstructed based on a neural network method (Denvil-Sommer et al., 2019) and downloaded from Copernicus Marine Service (CMEMS, 2019; product: MULTIOBS\_GLO\_BIO\_CARBON\_SURFACE\_REP\_015\_008).

Fig. S4: Winter (December, January, and February) surface pCO2 from the Red Sea (19.7°N 37.4°E) reconstructed based on a neural network method (Denvil-Sommer et al., 2019) and downloaded from Copernicus Marine Service (CMEMS, 2019; product: MULTIOBS\_GLO\_BIO\_CARBON\_SURFACE\_REP\_015\_008).