Figure S1: The 1970-2022 CORE-CFS hindcast is shown as the black solid line while the 1970-2003 CORE-extended simulation is the blue solid line. The three trends are calculated over the 1970-2022 CORE-CFS timeframe (black dashed line), the 1970-2003 CORE timeframe (blue dashed line), and the 1998-2022 CFS timeframe (red dashed line).
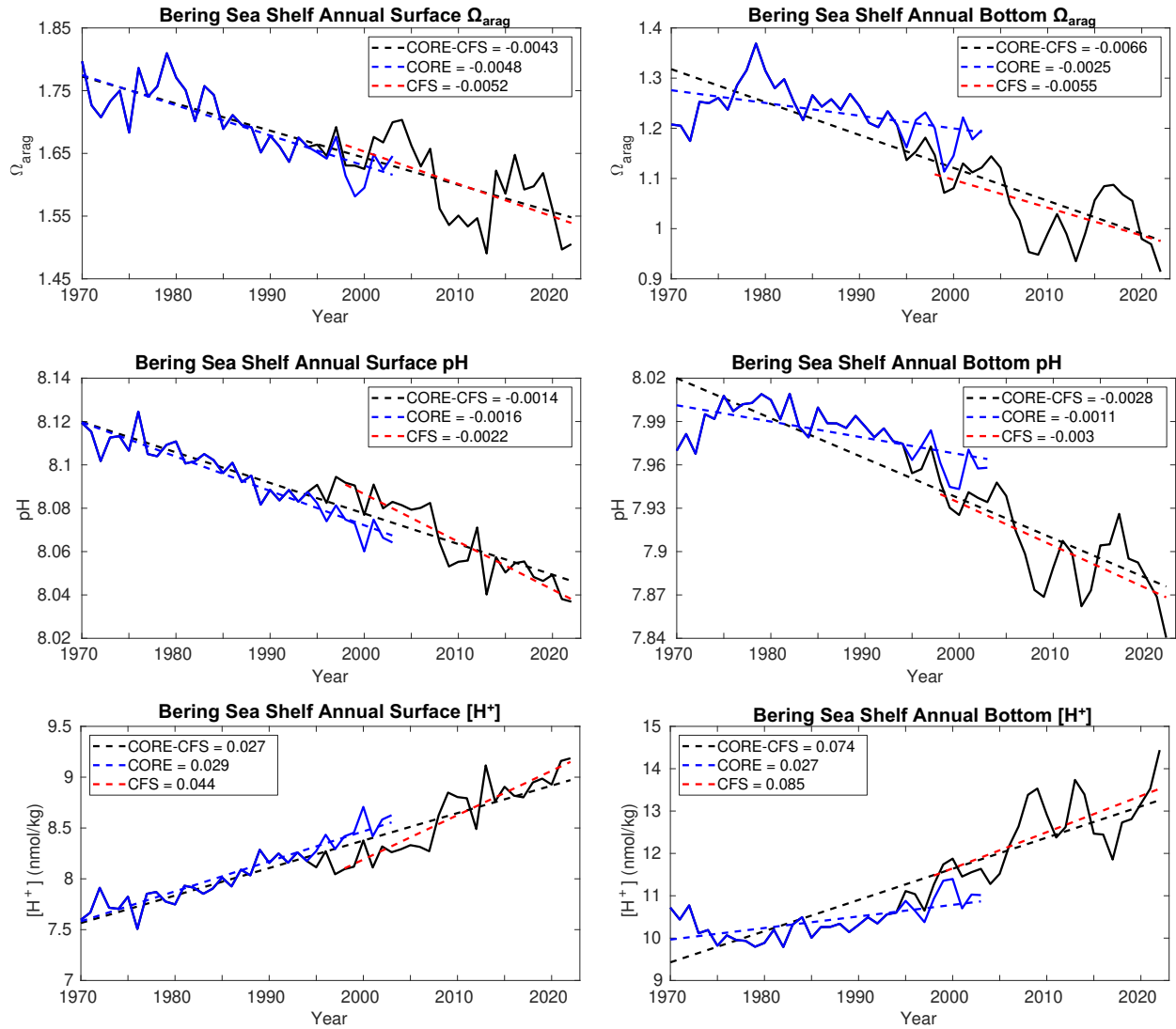
Figure S2: Timeseries plots of model annual average surface (left) and bottom (right) Ω_{arag} (top), pH (middle), and [H$^+$] (bottom) averaged over the Bering Sea shelf region. Also shown are the linear trend values over three different timeframes. The 1970-2022 CORE-CFS hindcast is shown as the black solid line while the 1970-2003 CORE-extended simulation is the blue solid line.
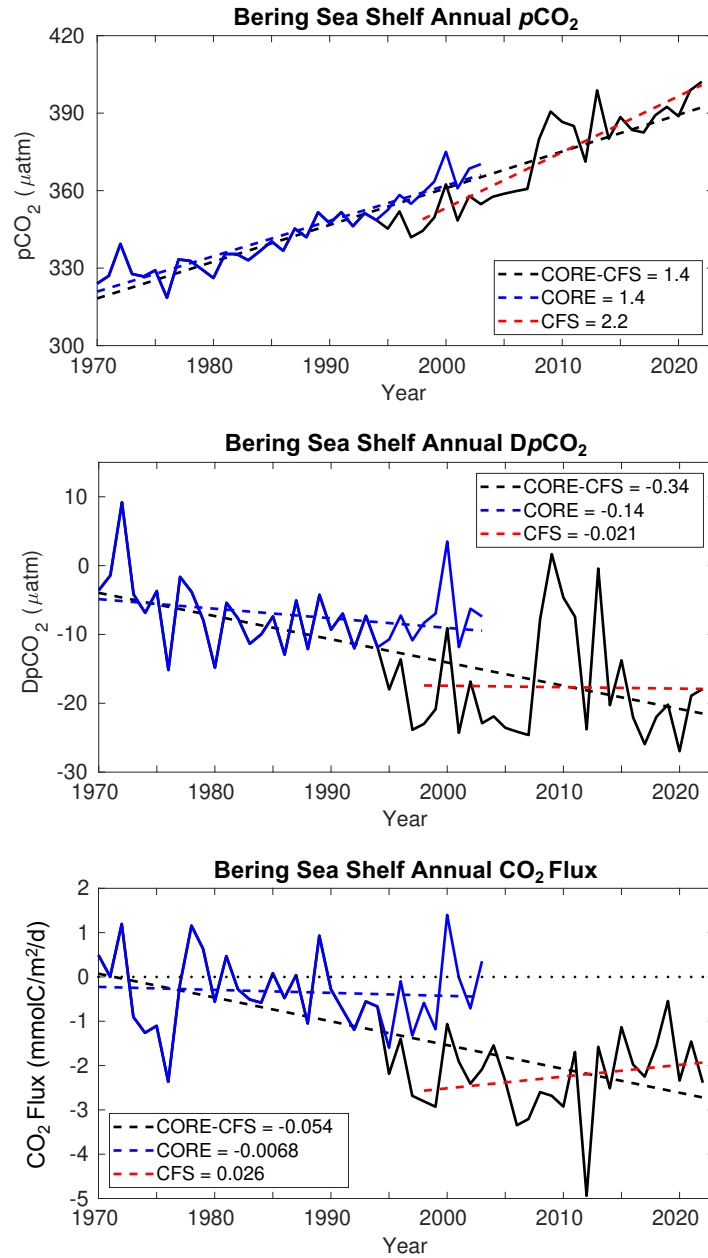
Figure S3: Timeseries of model annual average (top) surface ocean pCO$_2$, DpCO$_2$ (middle), and CO$_2$ flux (bottom). Here, DpCO$_2$ is defined as pCO$_2^{ocean}$ – pCO$_2^{atmo}$ and a negative CO$_2$ flux signifies a flux of carbon into the ocean. The 1970-2022 CORE-CFS hindcast is shown as the black solid line while the 1970-2003 CORE-extended simulation is the blue solid line.
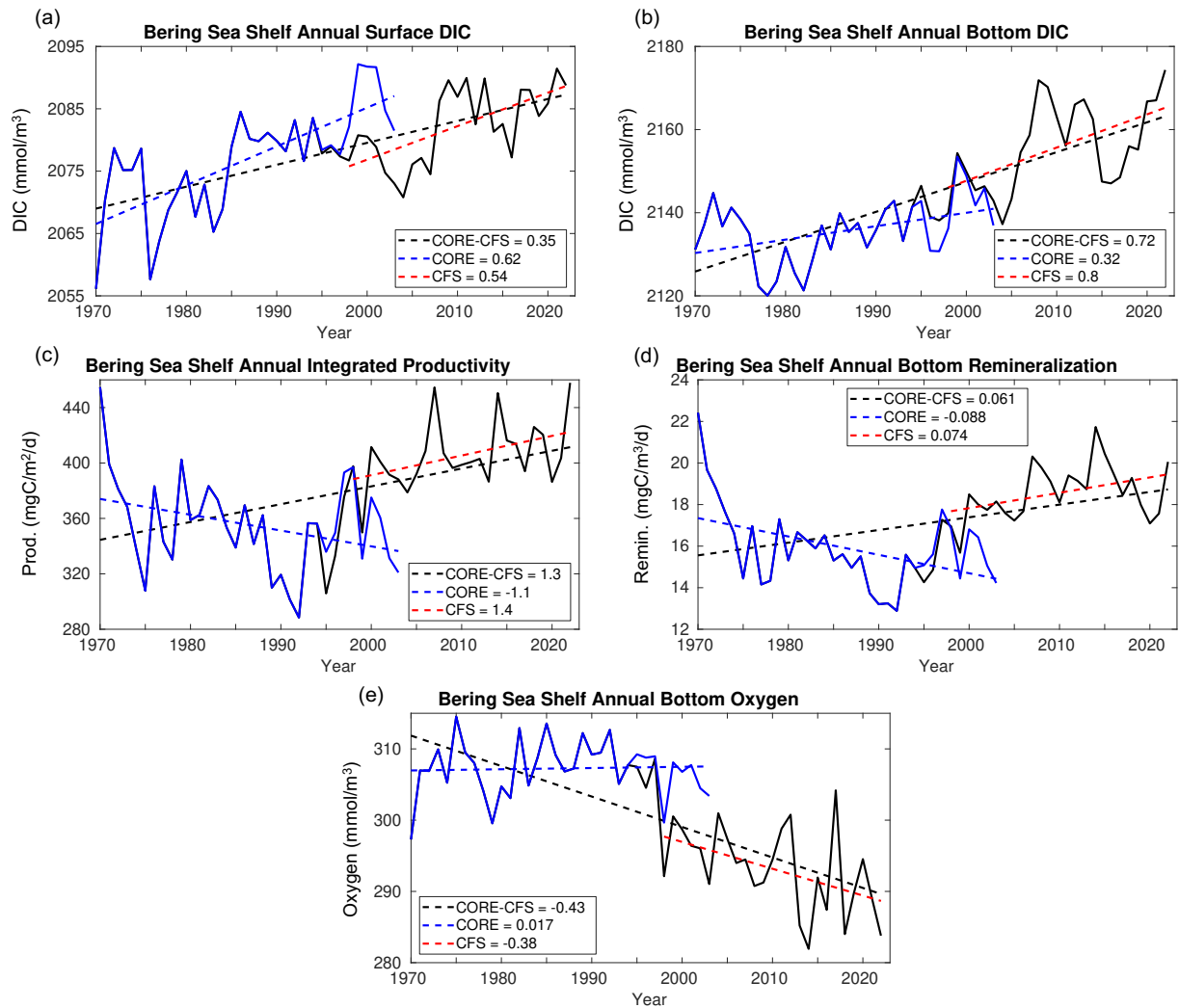
Figure S4: Timeseries plots of Bering Sea shelf model annual average (a) surface DIC, (b) bottom DIC, (c) depth integrated primary productivity, (d) bottom water remineralization, and (e) bottom water oxygen concentration. Also shown are the linear trend values over three different timeframes. The 1970-2022 CORE-CFS hindcast is shown as the black solid line while the 1970-2003 CORE-extended simulation is the blue solid line.