



**Supplementary Figure 2.** Biomass (g C m<sup>-2</sup>) changes for functional groups during 1950-2013 for modelled (model M10, continuous blue line) and observed (circles, absolute biomasses; triangles, relative biomasses). Blue line shows mean value and blue bands shows 2.5 and 97.5 % percentiles from 200 Monte Carlo replicates. Green line in plot for mesozooplankton shows mean biomass value (sum of values for functional groups small copepods, medium sized copepods and large calanoids).