Figure 1. Maps showing the study areas in the NE Atlantic Ocean (A) and the bathymetry of B) the Nordic Seas (NO), C) the North Sea (NS) and D) the Baltic Sea (BS). Bathymetry was obtained from GEBCO (www.gebco.net) and Natural Earth (www.naturalearthdata.com) datasets.

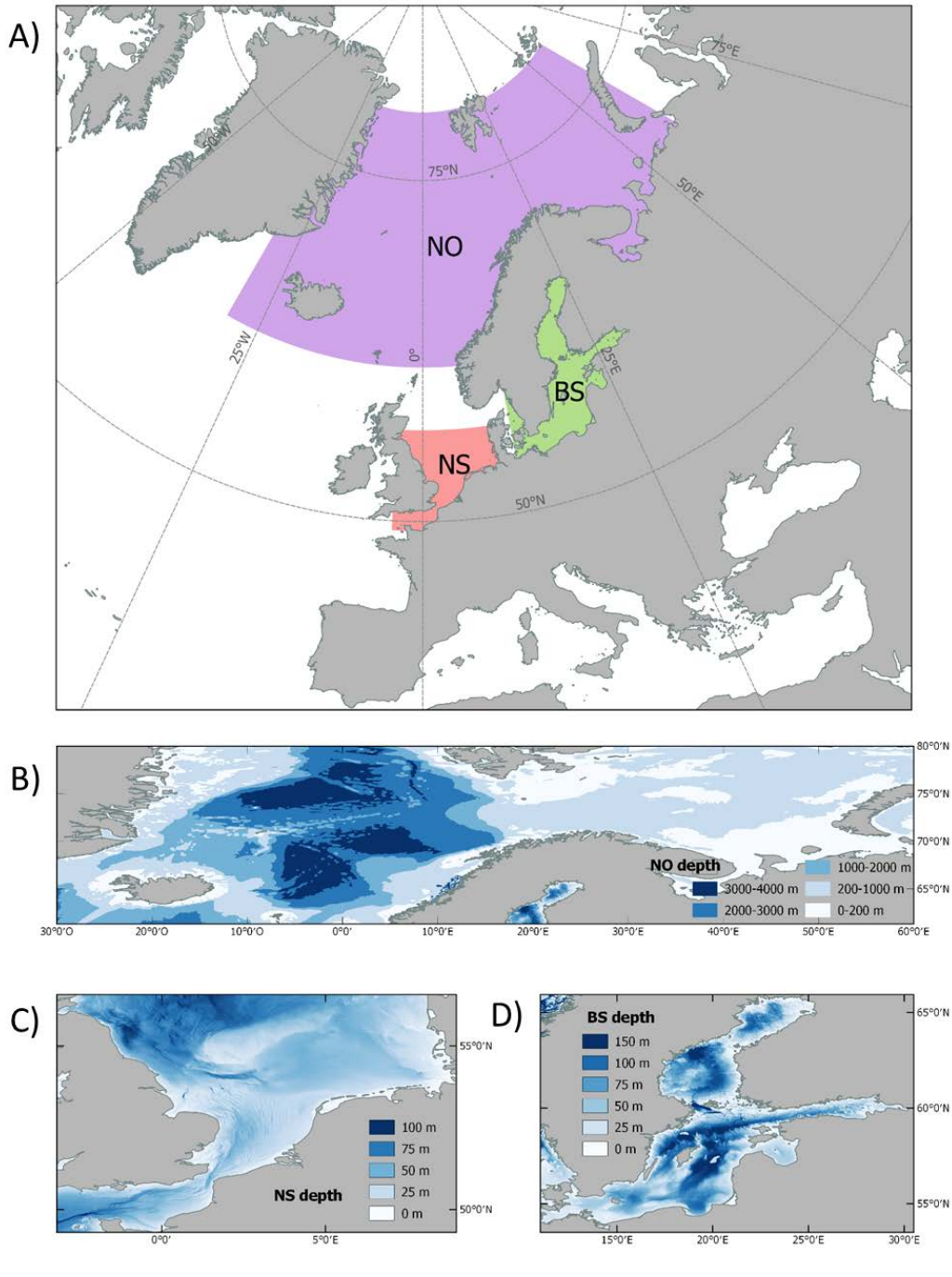

Figure 2. Conceptual diagrams of the four (A-D) food web types applied in the models. Circles indicate the nutrient resource (R) and the different zoo- (Z) and phyto- (P) plankton functional types (PFTs). Arrows show the direction of the energy transfer. The grey arrow at the top indicates the modified background mortality of the highest trophic level (Z1). PFTs and trophic links with highest responses to changes in Z1 mortality are highlighted in bold. PFT responses opposite to that of Z1 are highlighted with grey background.

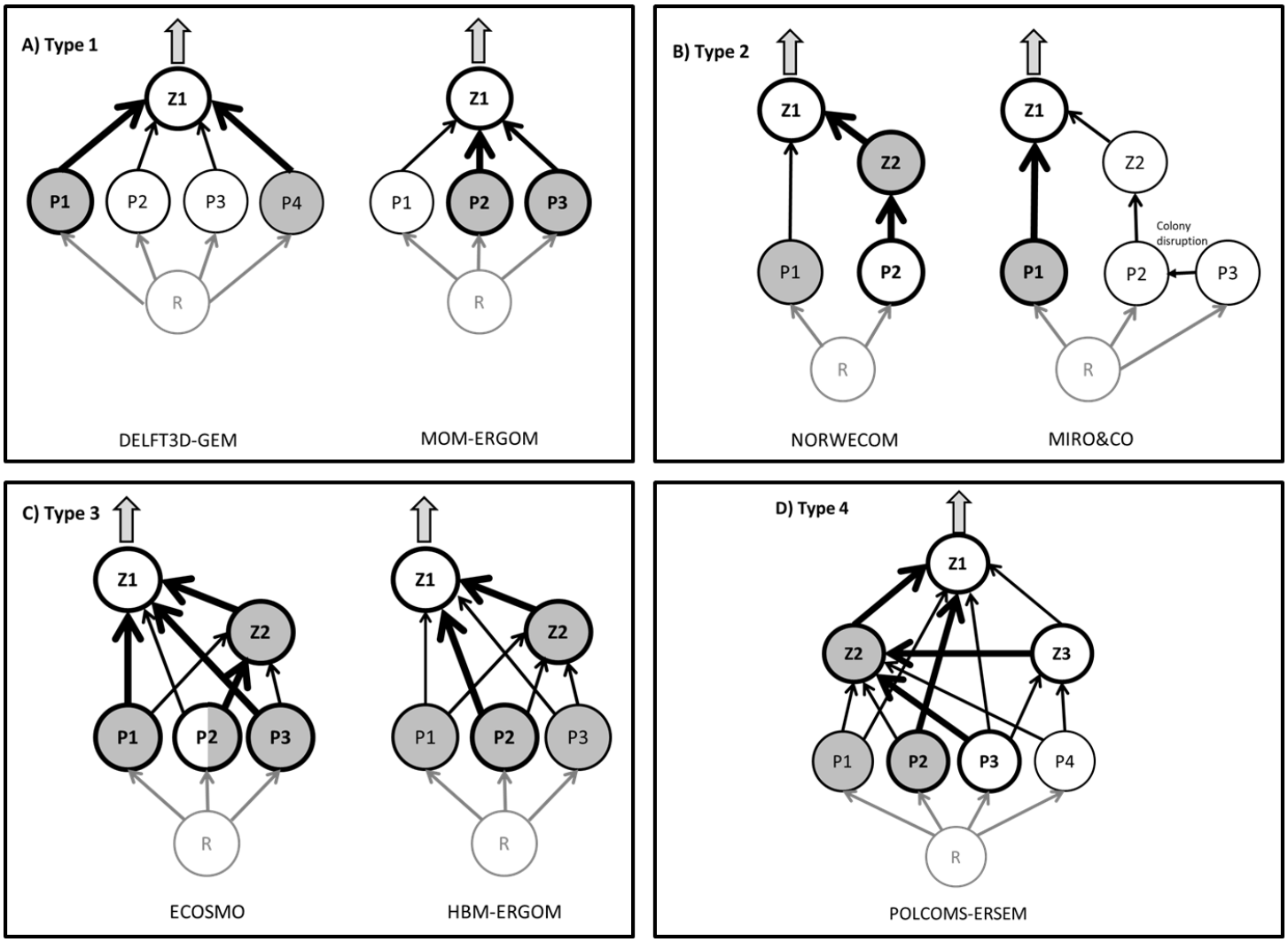

Figure 3. Summer means of A) relative change in the biomass of the highest trophic level (ΔC_{Z1}), B) relative change of total phytoplankton biomass (ΔC_{PHY}) and C) the *TC*-ratio for the two scenarios (P20 and M20). The vertical separations indicate the different areas and the bottom numbers in A) indicate the food web type.

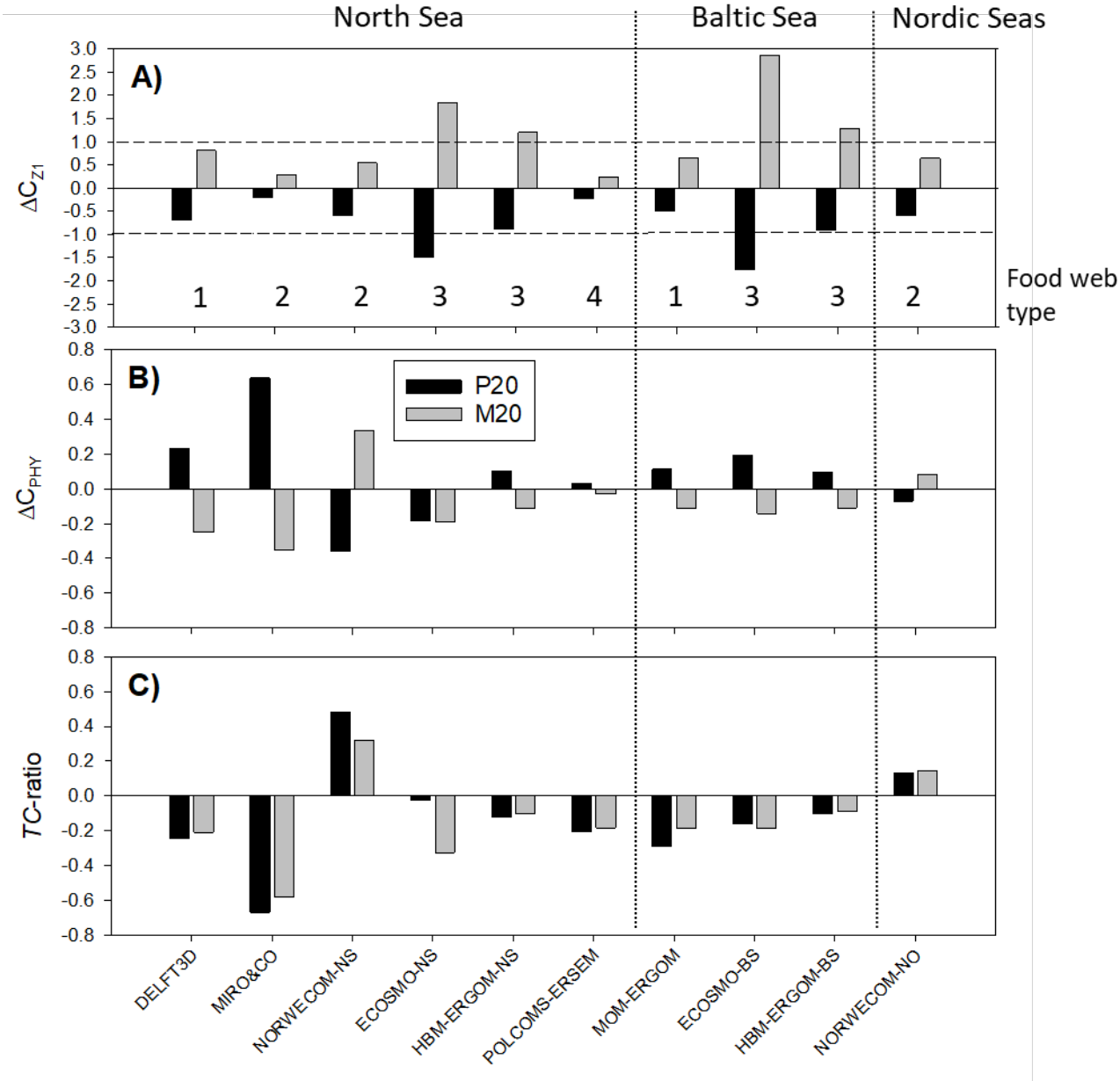

Figure 4. The %-contributions of the different PFTs to total summer biomass of either zooplankton (A) or phytoplankton (B). The vertical separations indicate the different areas.

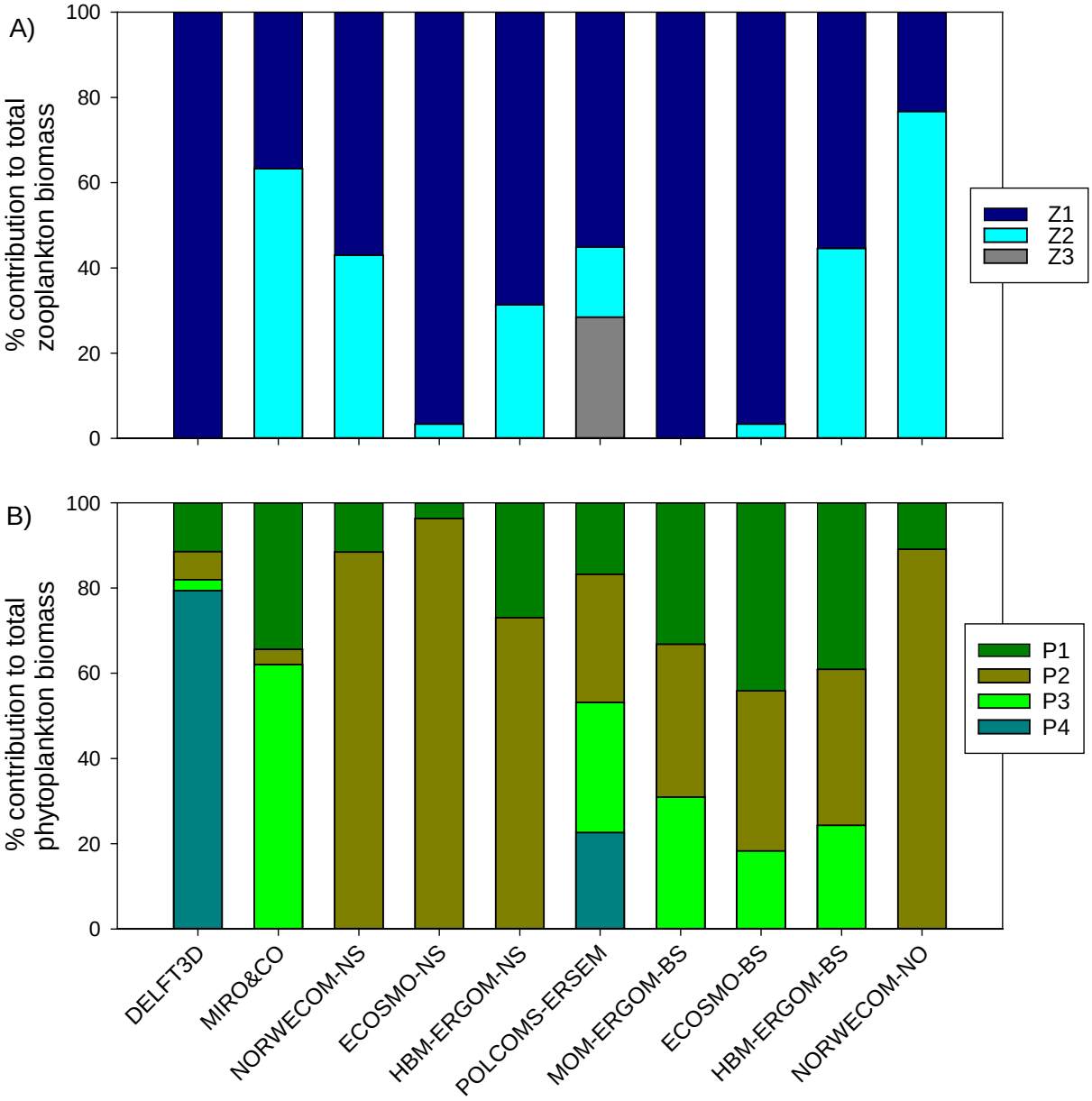

Figure 5. Spatial patterns of ΔC_{PHY} (total summer phytoplankton biomass) in the North Sea models; A) DELFT3D-GEM, B) MIRO&CO, C) NORWECOM-NS, D) ECOSMO-NS), HBM-ERGOM-NS and POLCOMS-ERSEM for the scenarios P20 (left) and M20 (right). Please note the different scales.

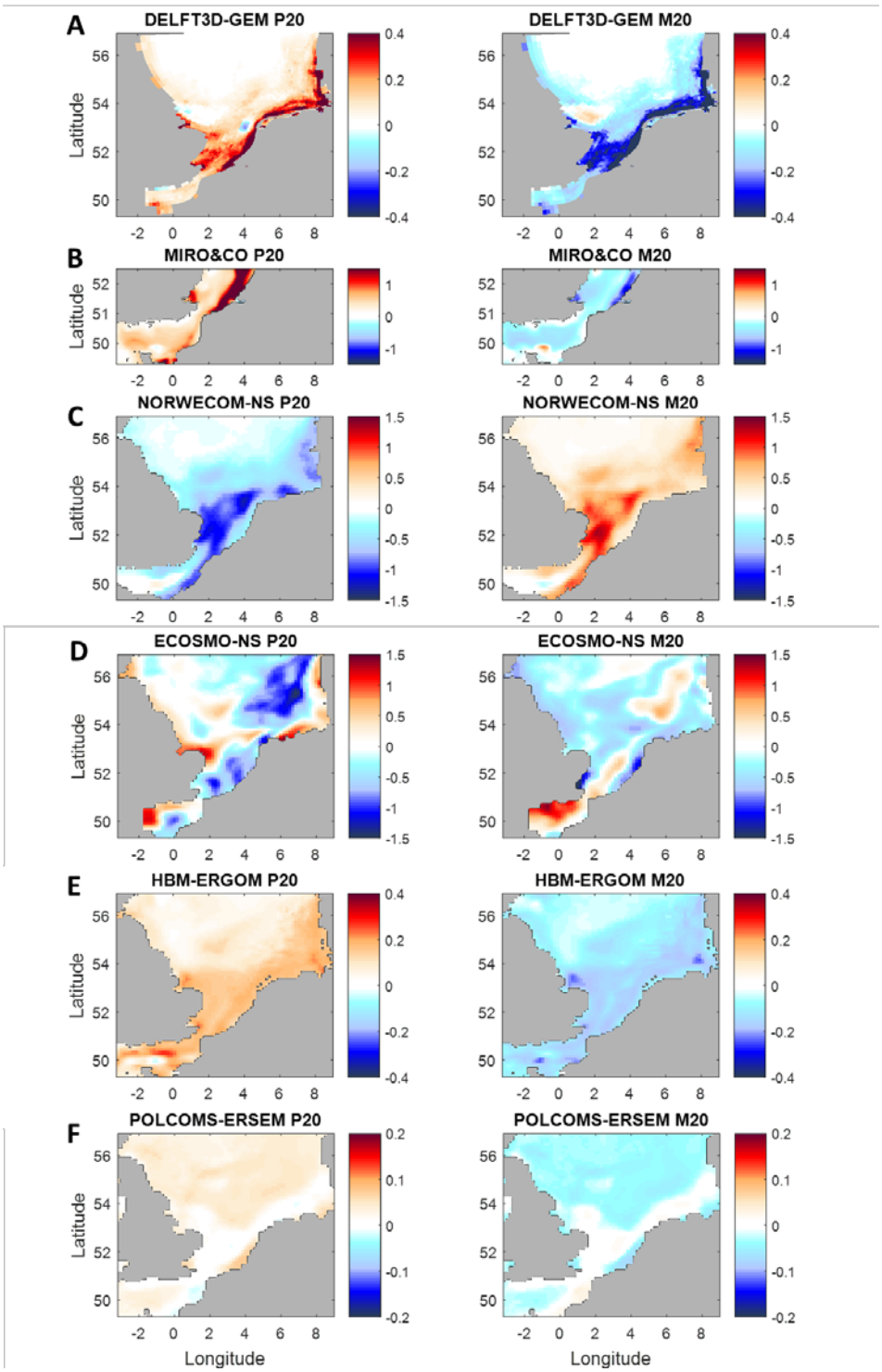
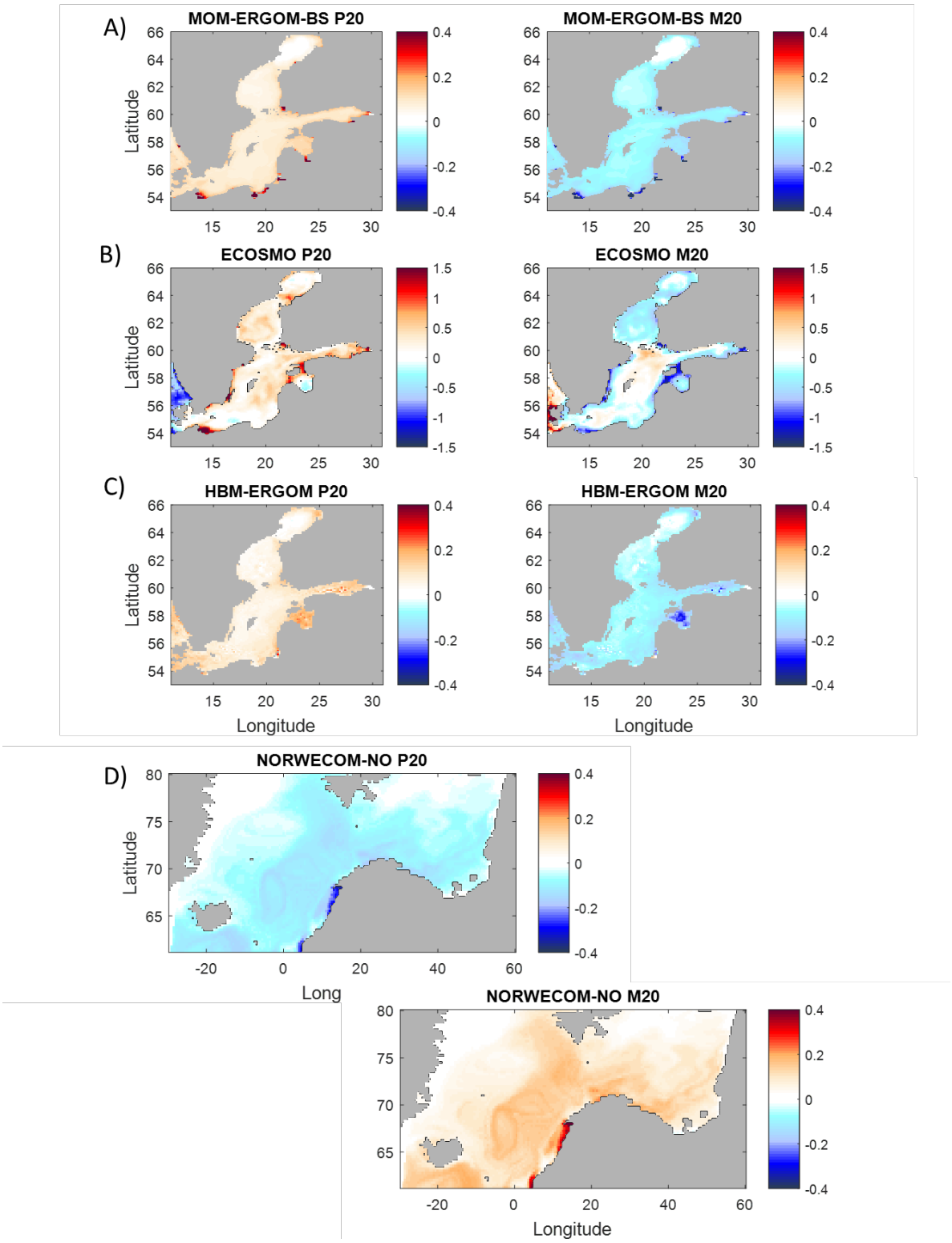
Figure 6. Spatial patterns of ΔC_{PHY} (total summer phytoplankton biomass) in the Baltic Sea models; A) MOM-ERGOM, B) ECOSMO-BS, C) HBM-ERGOM-BS and the Nordic Seas D) NORWECOM-NO for the scenarios P20 (left) and M20 (right). Please note the different scales.