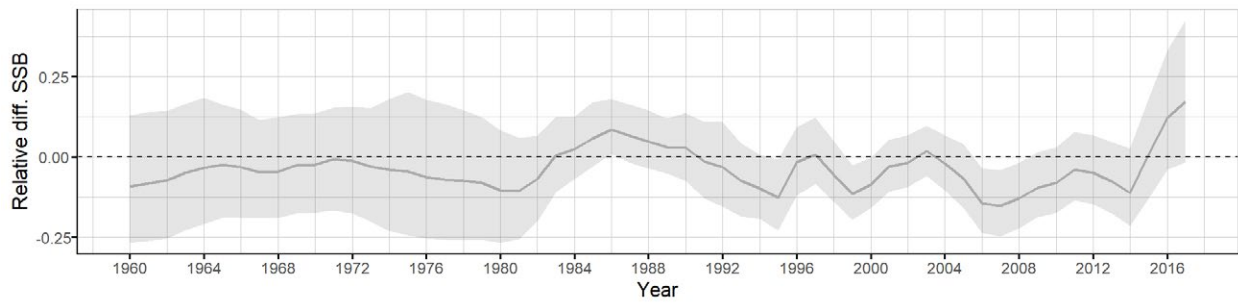
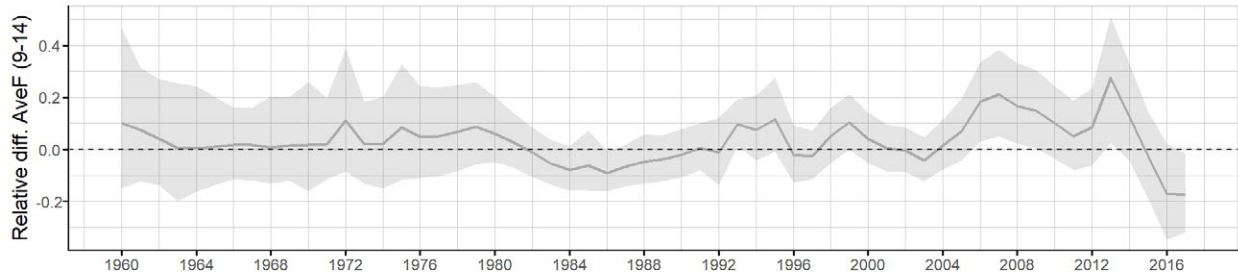


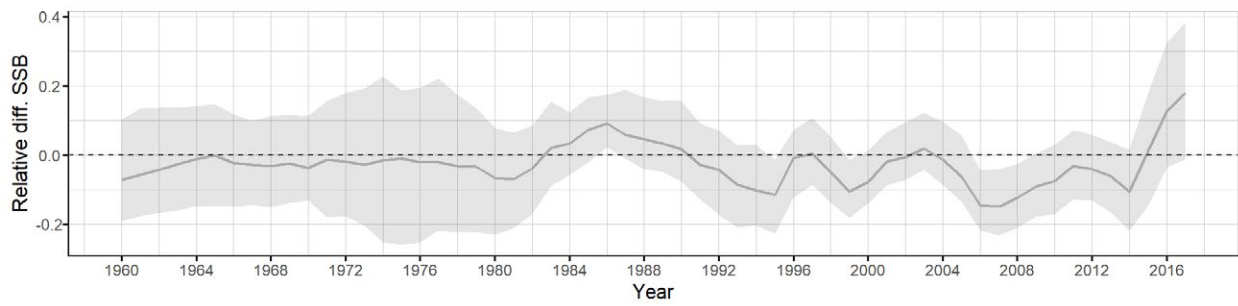
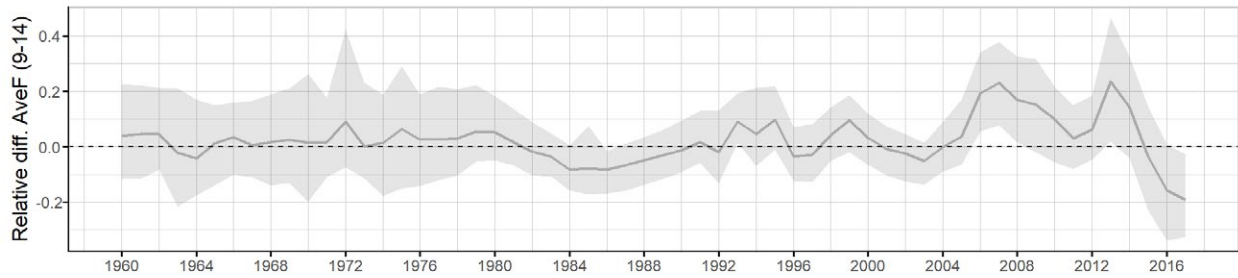
Supplementary Materials 4

Self-simulation runs

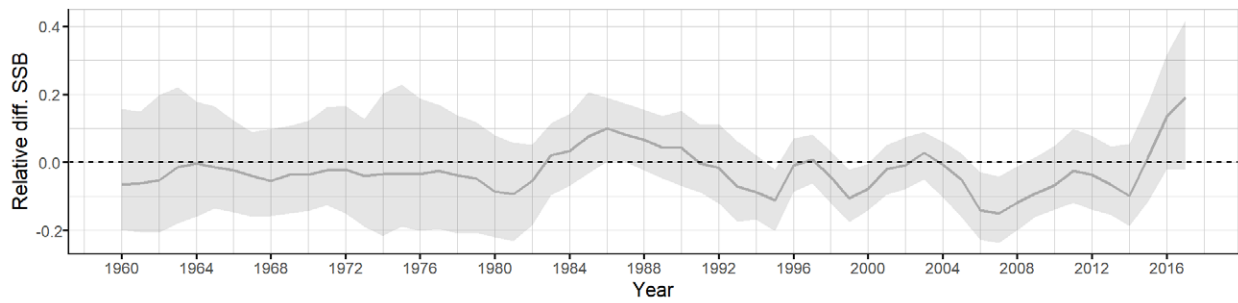
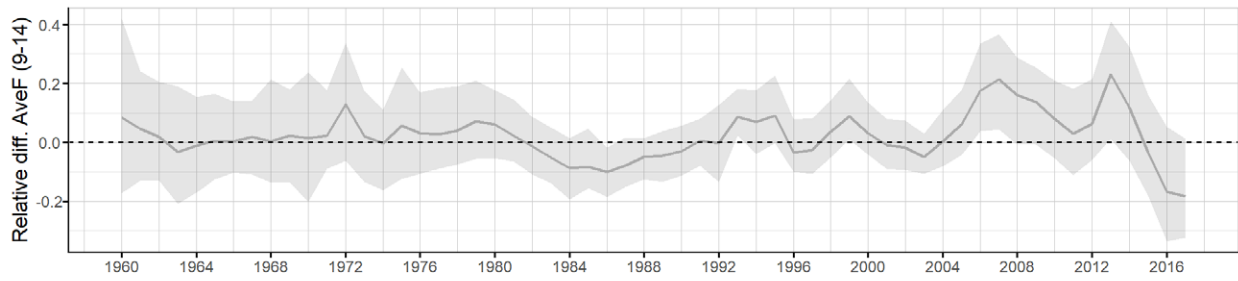
SSM



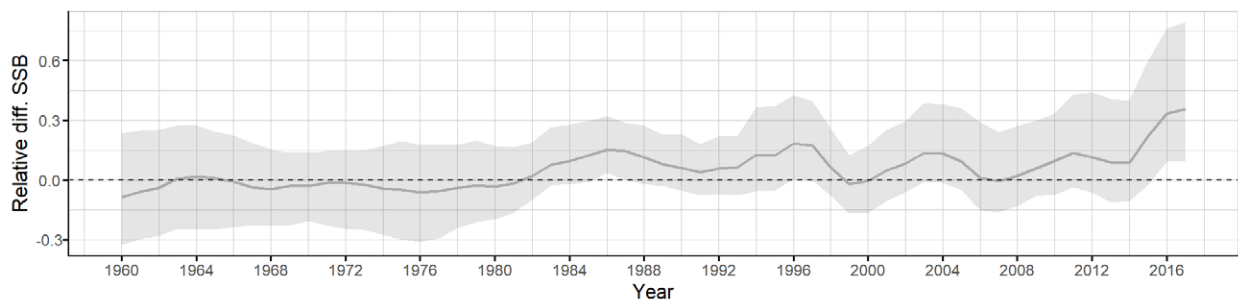
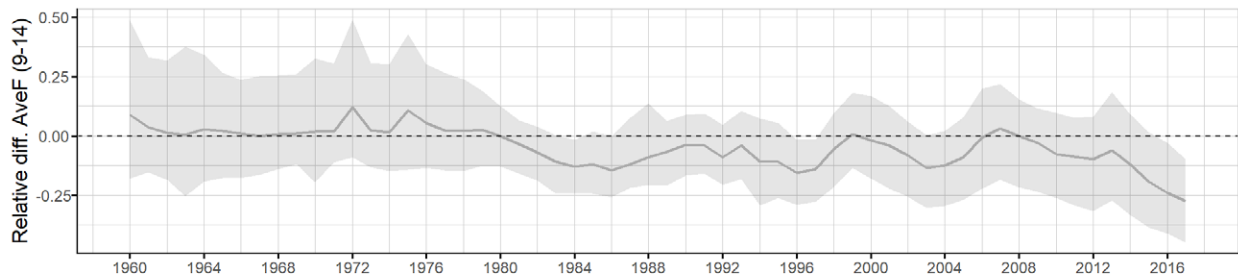
O1



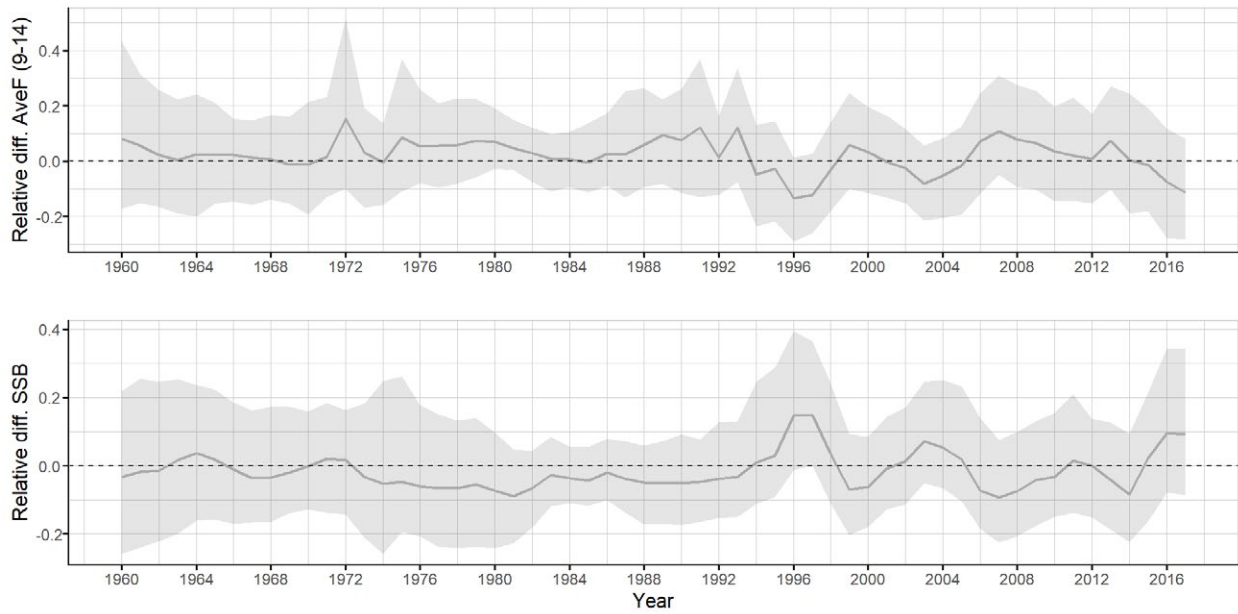
**O2**



**SSM with  $M_{a,y} = M + 0.20$**



**SSM with  $M_{a,y} = M + 0.33$  for years 1989–2017; *i.e.* Morgan and Brodie increase for rest of time series**



**M4 (with TMB bias correction on)**

