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Interactive comment on "Projected climate change impacts on North Sea and Baltic Sea: CMIP3 and CMIP5 model based scenarios" *by* D. Pushpadas et al.

Anonymous Referee #1

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Pushpadas et al. have carried out projection scenarios for the Baltic Sea and North Sea based on CMIP3 (with emission scenario A1B) and CMIP5 (with emission scenario RCP4.5) models. Specifically, the output of different Earth System models was used to force a regional coupled physical-biogochemical model (downscaling approach). The authors have compared the changes in biological and physical quantities for the different model runs and addressed the uncertainty in regional climate projections. A new aspect here is that regional downscaling has been simultaneously performed in a consistent way for both coastal seas using two types of different forcing fields (A1B and RCP4.5).

While such kind of studies are of interest for climate scientists and necessary for man-

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agement purposes, I do not think that publication in "Biogeosciences" is appropriate. The study is merely a technical exercise and there are no new scientific insights about changes in biogeochemical cycling. In addition, the use of two different emission scenarios makes meaningful comparison impossible. Finally, to address uncertainty in biological or biogeochemical quantities requires more effort, because organisms will adapt but it is unclear how. Many model formulations are based on the current state which is not necessarily valid in the future.

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