

Interactive comment on “N/P ratio of nutrient uptake in the Baltic Sea” by Z. Wan et al.

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Thanks a lot for your further comments. This is a quick reply. Your comments will be further answered after my business trip.

A new version with improved English will be available in final form. The time was a little tight for the language editor.

Regarding 'why over time and space fixed N/P ratios were used and not a variable one (like in the work of Kuznetsov et al.)?', it really might be a good idea to use a spatial variable N/P ratio. This manuscript is mainly to document a Redfield ratio is unsuitable, tends to be too big, especially in the Baltic Proper.

Too high oxygen in bottom was caused by circulation model problems. We made experiments to justify the analysis, which may be presented later on. As you may see the

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large and sudden changes happened to bottom oxygen, this sudden change is unlikely caused by a biochemical factor.

The revised version explained why 20m is used. If 40m is used, N/P ratio will be smaller. In other words, atmospheric deposition plays minor role.

Regarding to 'why did you not run the simulation with a N/P-uptake rate of 16:1 but a non-Redfield remineralization, resp. what are your results worth if the remineralization is missing?', there is technical difficulty to realize this idea. The N/P ratio of uptake has to equal that of remineralization overall, otherwise mass doesn't conserve.

Regarding to 'In fig. 5 I'm missing some curve of the wind stress, what about inflows of saltier and oxygen-richer water? ...', the revised context doesn't attribute this to vertical mixing. The circulation model caused too high bottom oxygen. This model deficit won't break the conclusion. Further answer will be provided soon.

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