**Ocean Science
Discussions**

Interactive comment on "Model study on horizontal variability of nutrient N/P ratio in the Baltic Sea and its impacts on primary production, nitrogen fixation and nutrient limitation" *by* Z. Wan et al.

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We are giving a short answer in another way convenient to readers from different back-grounds other than ecological modelling, in response to the referee's main critcism "As ERGOM are using fixed ratios for nutrient uptake and remineralization (the same ratio for both processes) it can not be used for a study like this.".

In principal, the biological N/P ratios vary across processes biochemically, across seasons temporally and across basins regionally. The focus of this study is the regional

variability of the bulk biological N/P ratio. A model is always a simplification to a reality. We can simpfy the biological community's actions on nutrients with two processes: to take up and to release. From the perspective of nutrient dynamics, the biological community's actions on nutrients can be regarded as a biological nutrient pumper. Let's assume we use one biological nutrient pumper for each basin to simulate the biological community's actions on nutrients in the Baltic Sea. This study is to investigate the variability across basins regarding to bulk N/P ratios of biological nutrient pumper. Each basin has one bulk N/P ratio. We investigate how the bulk N/P ratios vary across basins. Say we have two kinds of biological nutrient pumpers: one has only a single N/P ratio and another has two N/P ratios for taking up and releasing respectively. We think either kind of pumpers can be used to carry out this study, because the concern is the effects of bulk N/P ratios.

Interactive comment on Ocean Sci. Discuss., 9, 385, 2012.