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Interactive comment on "Seasonal cycling of phosphorus in the southern bight of the North Sea" *by* C. van der Zee and L. Chou

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We will quote the response of Anonymous Referee #2 and answer to his/her comments one by one.

"Dear Claar, thanks for you comment. I indeed appologize for not having read graph correctly. The combination of the graphs (and the legend) is however very misleading."

We would have appreciated it if Anonymous Referee #2 had indicated what exactly is "very misleading". We assume that Anonymous Referee #2 is referring to figure 4. This figure shows the seasonal trends in the concentrations of PO4 and dissolved organic phosphorus (DOP), and in the particulate organic phosphorus (POP) content in the suspended matter for each station. The legend shows that the closed circles, the open circles and the crosses refer to PO4, DOP and POP, respectively. We do not know what about this legend was "very misleading". The symbols do refer to the indicated phosphorus species. Perhaps, Anonymous Referee #2 meant that the figure

caption was “very misleading”. The figure caption is the title of a figure, whereas the legend indicates the meaning of the symbols used in the figure. The caption of figure 4 reads as follows: “Seasonal trends in the PO4 and DOP concentrations and in the POP content for the Nieuwpoort transect (120, 215 and ZG02), Oostende transect (130, 230 and 330) and Scheldt transect (B07, 700, 710 and 780).” The word “concentration” is used for dissolved species (on a per volume basis) and the word “content” is used for particulate species (on a per mass basis). This is also reflected in the units used on the y-axes: PO4 and DOP in μM and POP in μmol/g. Again, we do not know what about this was “very misleading”. It is certainly not our intention to mislead readers in any way. Furthermore, the first author does not appreciate to be called by her first name by a referee, who has chosen to be anonymous.

“I do suggest to add graphs that shows the total P C and N content in the water column instead of the relative composition. This can be discussed in the light of butler The relative composition of the suspended matter is interesting and could be presented and commented separately.”

We are not sure whether Anonymous Referee #2 suggests to add graphs of the total P, C and N content or that he/she wants us to replace the graphs with the relative composition with the graphs of the total P, C and N content, as is suggested by the use of “instead”. Either way, the particulate organic carbon content is given in figure 2. The particulate inorganic carbon and the particulate nitrogen contents were not measured. Therefore we cannot add any graphs with the total particulate C and N contents and to make graphs with only the total particulate phosphorus content is perhaps not very informative. Even if we could make graphs with the total P, C and N content, we would not be able to discus them “in the light of Butler”, because in the paper of Butler et al. (1979) total P, C and N contents are not presented nor discussed. Butler et al. (1979) presented data on dissolved species only.

“For instance assuming only fresh diatoms maxing up the suspended matter a composition of about 25 mmol C/gram can be expected (if I calculate correctly).”

BGD

1, S369–S371, 2004

Unfortunately, we are unfamiliar with the meaning of “maxing up”. We do not assume that the suspended matter will only consist of fresh diatoms, but we expect Phaeocystis sp. to contribute to the suspended matter as well as resuspended sediment.

Interactive comment on Biogeosciences Discussions, 1, 681, 2004.