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Interactive comment on “Phytoplankton distribution in the Western Arctic Ocean during a summer of exceptional ice retreat” by P. Coupel et al.

Anonymous Referee #2

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The manuscript of Coupel and co-workers represents a descriptive paper on the phytoplankton distribution in the central Arctic Ocean here called Western Arctic (WA) Ocean during August until September 8th 2008, one year after the largest sea ice decrease in 2007 was observed. An enormous data set is presented. The authors try to relate different environmental settings to the distribution pattern of phytoplankton biomass and species composition. The data presented here comprise an important database for future research in the central Arctic Ocean in order to properly follow the expected upcoming changes in primary producers/production and in the Arctic food web interactions. Reading the title I was enthusiastic about the content since almost no detailed information exists about the phytoplankton in that particular area, as far as I know.

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However, the more I read, the more disappointed I got. I expected something like information on species distribution of phytoplankton not only on HPLC data and thus on genus and groups only. I also did not expect a paper where methods (HPLC and only few counts of filters) are compared so explicitly. The discussion is overloaded with a methodological discussion on CHEMTAX, way too little information is given on species counts. The authors differentiate certain areas with specific ecological features like ice free, covered with ice and so on. However, instead to follow their own classifications of the different regions in the results and discussion parts, one by one, they are jumping back and forth causing confusion to the reader.

The manuscript presents a considerable amount of data worth being published. However, the manuscript is not so easy to read and not easy to understand, because the authors sometimes use strange English words being not common expressions - I assume. As I am not an English native speaker I cannot help with the corrections. Another point leading to confusion is all the abbreviations the authors are using as well as the introduction of non-common new abbreviations in the manuscript. Some are okay - but not so many, please! I always had to go back in the text to find them. In the discussion it is especially exhausting. Exhausting, in such a way, is the whole manuscript. In this regard, also a third point has to be mentioned: the figures. There are too many of them. In addition, different data sets shown have similar color codes. Although, most of them are nicely drawn with ocean data view, but in total, this is again very confusing to my point of view. Furthermore scales are not always the same. All figures should have captions directly above the graph. I am also afraid the figures are too small to clearly see details discussed in the text. Too many oceanographic data are shown in great detail. The discussion is more a sort of interpretation of the results; too many repetitions and thus boring. The cell counts are mentioned here for the first time, better to write a detailed chapter in results. More work of other authors, more recent literature should be cited, compare your data with others in the central Arctic Ocean (in one or two tables).

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All in all, an interesting data set, but the manuscript should be only published after major revision. The ms could considerably be improved by shorten the text, by focusing on less figures as well as by a stiff structure. Perhaps it makes sense to write two papers out of it. Because I recommend a major revision, I do not go into all the tiny little details of the text but few:

-I do not like the expression Western Arctic Ocean, call it central and call the regions by their proper names. -Chlorophyll (a?) values are given in mg m-3; I would prefer μ g or ng per liter. -Depict more details on figures themselves -Conclusions are too detailed too long, half or $\frac{3}{4}$ page is enough -More information on cell counts is desirable

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