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***Interactive comment on* “Succession of the sea-surface microlayer in the Baltic Sea under natural and experimentally induced low-wind conditions” by C. Stolle et al.**

Anonymous Referee #2

Received and published: 8 July 2010

Review of the paper “Succession of the sea-surface microlayer in the the Baltic Sea under natural and experimentally induced low-wind conditions” by Stolle et al. (bg-2010-90)

General comments

In order to examine the effects of minimized influence of the sea surface microlayer (SML), Stolle and co-workers did two types of experiments with the SML of the Baltic Sea. The first one was constituted of an in situ survey of the SML during 4 days. The second one was a mesocosm experiment where the SML was artificially “calmed. In order to estimate if the wind has an influence on the abundance, activity, productivity and

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diversity of the bacterioneuston, they analysed and compared for each experiments the biotic and abiotic parameters of the SML and the underlying water (ULW). Overall, they found that the bacterial abundance, productivity and particulate organic matter were enriched in the SML during slick formation in the Baltic Sea but also in artificially calmed sea surfaces. The bacterioneuston community was also strongly modified.

Surface microlayer assemblages are still poorly known in aquatic ecosystems despite their widespread distribution. The originality of the study is the in situ survey of the SML during a slick formation and the comparison of the bacterioneuston inside and outside the slick. Both structure (abundance, composition) and activity/productivity of bacterioneuston were analyzed and compared. Moreover, a lot of physicochemical and environmental parameters were also characterized in order to identify factors potentially controlling the bacterioneuston and the enrichment during slick formation.

As the biotic and abiotic parameters of the SML and ULW were analyzed and discussed in the ms, they need to be included in supplementary information.

The manuscript is well structured and clear, the language is fluent and precise.

Based on the data presented and after some technical corrections, the paper is acceptable for publication.

Specific comments

Methods P 5, lines 124-125. Not clear, if you write this sentence you need to explain why only one mesocosm remained intact during the 4 days period, but I don't think that this need to be mentioned.

P 6, lines 133-136. Same remark as above, you cut it down or, if not, you need to explain which kind of "material" was adhering to the mesocosm.

P 8, line 190. 16S rRNA and 16S rRNA gene fingerprintings : not clear, please rewrite.

P12, line 282-283, same remark as above, not clear, please precise that you want to

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compare the total and the active community.

Figure 2 and figure 4 : be coherent, if you put the photo of the DGGE gel for the dendrogram in fig 4 you need to do it also for fig 2.

Technical corrections

P 6, line 149 : typing error : mesocosm P 6, line 151 : in situ should be in italic

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