

## ***Interactive comment on “High growth potential and activity of 0.2 $\mu\text{m}$ filterable bacteria habitually present in coastal seawater” by Yumiko Obayashi and Satoru Suzuki***

**Anonymous Referee #1**

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The article of Obayashi and Suzuki describes two long experiments (at different temperatures) focusing on the growth of marine coastal 0.2  $\mu\text{m}$  filterable bacteria in the absence of grazers (but in the presence of viruses!). As the authors state, the experimental setup was designed to study the lifetime of the dissolved extracellular hydrolytic enzyme activities in seawater.

Due to this change of plan, I do not find the experimental design being optimal to address the high growth potential of 0.2  $\mu\text{m}$  filterable coastal bacteria. The volume is too small given the long incubation time (19 days). It is not clear how at T0 the authors can estimate the <0.2  $\mu\text{m}$  bacterial abundance if all or most of the cells escape in the filtrate if they are using 0.2  $\mu\text{m}$  polycarbonate filters (there is no mention in the text,

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that they have used 0.02  $\mu\text{m}$  alumina oxide filters to solve this issue or alternatively flow cytometry).

Measurements of bacterial volume or bacterial size would have been important to show.

Within the microbial community, fundamental players (that were present in the experimental water, since water has been filtered onto 0.2  $\mu\text{m}$ ) like viruses and their role in shaping the microbial community have not been considered (no viral abundance data, no discussion on their role).

I feel that this manuscript for "non-expert readers" will offer partial and incorrect information on the microbial dynamics that regulate the growth on marine bacteria.

The references are not updated. If the field of ultra-micro bacteria is not popular in these days, grazing and viral lysis are still very hot-topics. Furthermore, given the next-generation sequencing technologies (NGS), it is necessary to compare the DGGE results (and interpretation) with NGS, also if it is challenging.

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