

Interactive comment on “Diversity of Arctic Pelagic Prokaryotes with an emphasis on photoheterotrophic bacteria: a review” by D. Boeuf et al.

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Due to its remoteness and harsh climate, the Arctic Ocean has been traditionally undersampled. In the case of microorganisms the lack of knowledge was aggravated by the very rudimentary techniques available until the last decade. In the last few years, however, a series of major cruises have taken place in the Arctic, reaching the different basins and sampling even during the winter. In parallel, high-throughput sequencing techniques have allowed an unprecedented in depth look at the diversity of microorganisms. These two facts together have resulted in several novel studies looking at the diversity of bacteria, archaea and eukaryotic microbes in the Polar zones. Moreover,

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the depth of sequencing allowed by the new techniques has enabled an analysis of the rare biosphere: the large number of microbial taxa found in very low concentrations (two to three orders of magnitude less abundant than the dominant taxa).

The paper by Boeuf et al. does a very nice job at recapitulating the earlier literature and reviewing the most recent papers. This review will be useful to microbial ecologists working in the Polar areas, of course, but it will also be useful to all microbial ecologists and to Polar scientist with an interest in learning about the microbes in their ocean.

There are only three minor questions that require fixing. 1. The sentence in lines 13-16 is not supported by any evidence or reference, and the issue is not taken up in the rest of the paper. I find the statement interesting and I was hoping there would be some discussion. 2. In line 25, page 2424 reference is made to Fig 1, but the rarefaction analysis is not shown in this figure. 3. Finally, I find it surprising that the paper by Galand et al. (2009) in PNAS is not cited. I think it represented an extremely interesting contribution to the knowledge of the diversity of Arctic microbes and deserves being mentioned.

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