

Dear editor,

We are deeply grateful for the efforts of you and reviewers to improve the quality of our manuscript. We have made our efforts to revise the manuscript with clarifications/elaborations as following. A list of all the changes made can be found in the point-by-point response to your comments.

Our response is in **normal font** and colored in **blue**, and *the revised text* is in *italic font* and colored in *blue*.

Comments to the author:

This manuscript is much improved but still has some sentences that are not currently correct. These will need to be fixed before I can recommend for publication. Line numbers correspond to the track changes version of the MS:

(1) L 293 – Nutrients in the sampled lakes were in general quite low in concentration with values of ...

Response: Revised. “Nutrients in five lakes showed lower values of...” to “*Nutrients in the sampled lakes were in general quite low in concentration with values of...*”

(2) L299 Sal should be spelled out to Salinity

Response: Revised. “Sal” to “*Salinity*”

(3) L338 YO_18 “compared to other samples”

Response: Revised. “than in the other samples” to “*compared to other samples*”

(4) L340 significantly “lower relative abundance” than in YO...

Response: Revised. “significantly lower than in YO” to “*significantly lower relative abundance than in YO*”.

(5) L343; species richness was highest in 2017 and lowest in 2018.

Response: Revised. “; the species richness were highest during the expedition season 2017 and lowest in 2018” to “; *species richness was highest in 2017 and lowest in 2018*”

(6) L349 “exhibited a relatively”

Response: Revised. “exhibited relatively” to “*exhibited a relatively*”

(7) L380 delete with

Response: Revised. “comprising with 81.82%” to “*comprising 81.82%*”

(8) L464 – “The diversity of the microorganisms reported here decreases from mid-

latitude to the poles.” This study did not sample from mid latitude to the poles. This statement is incorrectly modified.

Response: Thanks for your comments. We agreed with you and revised it. The diversity of the five lakes studied was lower by comparing with other regions. The previous revision was incorrect; thus, we have removed this sentence.

(9) L469 – with => within

Response: “with a specific area” to “*within a specific area*”

(10) L485 warming has the risk of reducing the abundance and diversity of microorganisms,

Response: Revised. “warming had the...” to “*warming has the...*”

(11) L543 Above the role of environmental conditions is identified on community structure and here it is said to not be important. I’d suggest “at the OTU level only 8% of the taxa correlated with environmental conditions, identifying these factors act on the community level while maybe not the

Response: Thanks for your comments. We agree with you. This sentence was confusing and we deleted it.

(12) L594 – if the lakes were covered by ice that would reduce transmission but a limited geographical range would increase the transmission rate. The first and second half of this sentence point to different factors for dispersal so the sentence should be modified.

Response: Thanks for your comments. Dispersal is considered limited in cases where microbial migration in space is restricted and/or impeded (Zhou and Ning, 2017). The five studied lakes are disconnected, and as the long geographical distance between the lakes here, resulting in the limited dispersal of microorganisms.

To improve clarity, we have modified the sentence to “*In addition, the five studied lakes were covered in ice for most of the year and there were long geographical distances between the lakes, resulting in the limited dispersal of microorganisms (0.95%).*”

1) Zhou, J. Z. and Ning, D. L.: Stochastic Community Assembly: Does It Matter in Microbial Ecology?, Microbiol. Mol. Biol. Rev., 81, <https://doi.org/10.1128/MMBR.00002-17>, 2017.