

The manuscript is very well written; clear, precise, and easy to understand. Some text is repetitive and there tends to be a bit of Discussion creeping into the Results. A very large amount of work was involved in the study, and as far as I can determine, the work is solid. The results are not always new or interesting. As I read the manuscript, I was thinking about someone who went into a Canadian forest and was reporting all the trees they found at their sample sites; accurate reporting of the trees, but not really too interesting or insightful. Below are some specific points.

P. 17: basionym is misspelled as basyonim.

P. 17. Please see Article 33.4 and related ICBN rules; the proposed combination (*Biecheleria cincta*) is invalid as proposed.

P. 18. Regarding *Dinobryon faculiferum*, we found the same thing but never got around to publishing it. We lost the culture. Also, we obtained gene sequences for the marine *Dinobryon* that did fit with the freshwater spp (also unpublished). I think it is a new genus. We never observed this to form colonies, and I didn't see where the authors commented on its colony or single-cell status.

p. 23. I consider the remarks about nitrate concentration to be incomplete. First, the nitrate measurements are for "standing crop" of nitrate, not its flux. That is, if microbes are rapidly shuffling nitrate molecules, then a small amount of free nitrate in the water doesn't measure the nitrate activity of the flux. A large "standing crop" of nitrate in the water provides no information about the use of the nitrate. Perhaps most importantly, all algae will utilize ammonia and the flux for ammonia can be very high – almost none measurable in the water but because of the high flux, it is sufficient for growth. In summary, total nitrogen in the system is an indicator of potential system production because all cells have nitrogen and they have nitrogen in roughly the same amounts (of course, higher in organisms with biliproteins, lower in cells with lots of fat, etc.). One should keep in mind the great story that unveiled during the discovery and culture of *Prochlorococcus*. It was found in greatest cell numbers when nitrate values were high, and therefore it was concluded that it needed lots of nitrate. However, it requires ammonia (rarely nitrite), it cannot use nitrate, and the high nitrate measurements were completely misleading.

Table 1. This information could be placed in a supplemental table; it has little impact on the meat of the manuscript.

Table 1. Salinity is a unitless measure; the units cancel in the ratio; psu is not recognized.

Fig. 1 could be a supplemental image in my opinion; the latitude – longitude coordinates are more valuable, I think. Also, within minutes, the water mass has moved, something new has replace it, .....

Fig. 2. The colour images are beautiful; the graytones of the background could be balanced a bit, but excellent images.

Does the paper address relevant scientific questions within the scope of BG?

I am not sure what question was asked?

Does the paper present novel concepts, ideas, tools, or data?

There isn't anything novel, but the work is solid.

Are substantial conclusions reached?

They found one *Micromonas* in the samples, but I am not sure if this is substantial.

Are the scientific methods and assumptions valid and clearly outlined?

I think they are valid and clearly outlined.

Are the results sufficient to support the interpretations and conclusions?

As I mentioned above, the nitrate interpretations are dubious at best. But when one conducts a floristic study, it is almost always impossible to expand the study in any meaningful way with regard to biochemistry, ecology, molecular biology, etc. It is a floristic study, full stop.

Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)?

If one obtains the cultures, then yes. If one goes to the sample sites and recollections, then perhaps yes, perhaps no.

Do the authors give proper credit to related work and clearly indicate their own new/original contribution?

I think so.

Does the title clearly reflect the contents of the paper?

Yes

Does the abstract provide a concise and complete summary?

Yes

Is the overall presentation well structured and clear?

Yes, some material could be placed as supplemental materials.

Is the language fluent and precise?

Yes, it is very well written.

Are mathematical formulae, symbols, abbreviations, and units correctly defined and used?

Yes, as far as I could determine.

Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated?

There is some repetition that could be removed.

Are the number and quality of references appropriate?

I think so.

Is the amount and quality of supplementary material appropriate?

OK