**Interactive comment on** “Coupling of heterotrophic bacteria to phytoplankton bloom development at different pCO$_2$ levels: a mesocosm study” *by M. Allgaier et al.*

Anonymous Referee #3

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The study was well-performed, the conclusions drawn appear justified. There are however some items which merit attention, described below:

**Introduction**

The Intro is long and full of relatively old citations (ex. = statement that grazing is substantially less in some systems is contradicted by Calbet & Landry, L & O 2004). I suggest that the intro could be shortened to 1.5 pages and focused on the already available mesocosm experiment papers (as regular or discussion papers); the papers should be summarized to place this work in context. Those who will read this know quite well the general ideas concerning bacteria, DOM and phytoplankton, etc., but are
not likely familiar with the other mesocosm results.

It is also somewhat dishonest to avoid mentioning the obvious fact that the study - in common with all others - subjects contemporary populations to a sudden shift in conditions and then draws conclusions from short-term observations. It would be nice to read a paper in which the drawbacks of such an approach are openly and honestly admitted in the intro.

Methods

The stats description is a little thin. Many of the parameters examined are likely to require non-parametric stats or some transformation. The ANOVA is then examining treatment and time? Some basic explanation of the null hypotheses should be added, it takes little space and clarifies considerably.

Results

Tables- give 'n' numbers in table or legend if the same for all parameters. Say if data were transformed or not

Figures- Use color!!! - no charge, ease for viewing

The DDGE bands can either be omitted or made larger as they are they are of little use or interest when tiny.

Interactive comment on Biogeosciences Discuss., 5, 317, 2008.