

Interactive comment on “Consequences of respiration in the light on the determination of production in pelagic systems” by O. Pringault et al.

Anonymous Referee #1

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General comments

The manuscript focuses on the impact of respiration in the light and how it influences production in coastal waters. Using microelectrodes to measure changes in oxygen concentration the authors show that respiration in light can be much higher than assuming that respiration in light equals respiration in the dark. They further show that the light induced respiration can be elevated over several hours. As a consequence this enhanced respiration affects the P:R ratio but does not change the net-trophy of an ecosystem.

The paper addresses a known phenomenon, especially in benthic ecosystems, which

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so far has not been considered in pelagic systems. Respiration measurements, however, are a prerequisite for the correct understanding of ecosystems. Microelectrode measurements of oxygen changes might be an appropriate way to investigate this process.

Since the authors compare daily rates a careful discussion on how changing light intensities would influence their results should be done.

The manuscript could improve by better structuring the Results (see comments below) and by providing more information about the incubation procedure. Careful editing should be done throughout the whole manuscript. There are a number of repetitions and phrasing errors.

Detailed comments

Abstract

Page 1367 Line 6 “*This light enhanced ...*” please change to The light enhanced

Material and methods

The authors should provide some more information how the incubations have been done; how many incubation (replicates with standard deviation), at which temperature.

Results

Page 1372 Line 16–21 repetition from MM, please delete

Page 1372 Line 21: “*When NP ...*” I don’t understand this sentence. I thought R light was measured, why has it then to be considered? Please explain or rewrite.

Page 1372 Line 25: “*Taking into ...*” What does in situ hourly rates mean, please explain

Page 1373 variable PFD: please provide more information on how this calculation with changing PFD has been made. In natural systems a fixed PFD over 12 hours is rather unusual and therefore an estimation how the rates change with changing light avail-

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ability is important.

Discussion

Page 1376 line 6–8 This sentence has to be rewritten. I guess the authors mean something like the decrease or increase of the oxygen concentration is not always linear.

Page 1376 line 22–24 repetition ; see comment above

Table 1 and 2

Please provide standard deviations (if possible)

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