

## ***Interactive comment on “Dynamics of environmental conditions during a decline of a *Cymodocea nodosa* meadow” by Mirjana Najdek et al.***

### **Anonymous Referee #1**

Received and published: 1 February 2020

The authors investigated the dynamics of environmental conditions during a decline of a *Cymodocea nodosa* meadow in the northern Adriatic Sea, analyzed the correlation between those physicochemical and biological parameters, and concluded that the reduced light availability and following photosynthesis was the most likely reason leading to the decay of seagrass meadow. The experiments seem to be conducted carefully and the results were thoroughly discussed. This study supplies helpful information on understanding the decline of seagrass globally. However, there are some points that the authors need to attend to before it can be published in Biogeosciences.

I have two general concerns about this study.

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1. The loss of seagrass meadow is attributed to reduced light availability and thus photosynthesis in this study. However, it seems that there is no direct data to support this conclusion. Have the light intensity in water column and photosynthetic rate of seagrasses were measured? The solar radiation in April should not be the lowest level compared to other months.

2. The authors mentioned that from July 2017 to March 2018, *C. nodosa* successfully adapted to the changes of environmental conditions and prevented H<sub>2</sub>S accumulation by its re-oxidation, supplying the sediment with O<sub>2</sub> from the water column and/or leaf photosynthesis. Then why did not *C. nodosa* adapt to the environmental changes from April 2018 onwards? I am wondering that the decline of seagrass meadow in the northern Adriatic Sea is a natural process or caused by other drivers?

#### Specific comments

Line 22 Why did light availability decrease in April 2018?

Line 30 The data in Figure 2 did not show the recovery of the below-ground tissue.

Line 37 Better to supply latest literature as there are loads.

Line 41 Add a comma after matter.

Line 85 A introduction about seagrass meadows in Saline Bay or Adriatic Sea should be supplied here. Meanwhile, it would be helpful to add research gap here.

Line 98 Better to supply a map for the study site.

Line 116 Sampling time/frequency needs to be stated. What is the depth for *C. nodosa* living?

Line 320 This is true as shown in the green macroalgae *Ulva linza* (Gao et al. 2018 Food Chemistry, 2018, 258: 71-78).

Line 386 What are these prokaryotic organism?

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Lines 485-487 How did you know it? Any data or literature to support this speculation?

Line 680 Conclusion should not be a repetition of Abstract. The purpose of a conclusion is to tie together, or integrate the various issues, findings, arguments etc., covered in the body of the paper, and to make comments upon the meaning of all of it. This includes noting any implications resulting from your discussion of the topic, as well as recommendations, forecasting future trends, and the need for further research.

Line 950 Please annotate which year for the months and explain why it ends in Feb in the legends.

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