

**Decision: minor revision**

**Title: Water column biogeochemistry of oxygen minimum zones in the eastern tropical North Atlantic and eastern tropical South Pacific Oceans (version 5)**

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**MS No.: bg-2015-30**

**MS Type: Reviews and Syntheses**

**Checks from previous decision:**

Following rewriting of the ms according to reviewer comment, I am satisfied that referee comments have resulted in a version that sufficiently follows the low-oxygen theme (whilst relating the various processes, feedbacks and consequences) according to the re-worded abstract. The sections of the review now link to one another more logically; all link directly or indirectly to the low oxygen environments in the ETNA and the ETSP (albeit with more attention given to the ETSP).

Revision of this version will require only minor improvement of clumsy wording and grammar in places, in order to better convey the meaning.

**Abstract:** now satisfactorily redefines the content according to what is presented in the review. A theme relating process-related dynamics in the sections, to oxygen dynamics, is obvious.

**Sections:** The flow of sections is fine. I suggest shortening of headings without so many of them in question form (see some suggestions highlighted below).

**1. Introduction**

**2. Primary production in the ETSP and ETNA**

2.1. **The impact of changing N:P ratios:** as a result of ocean deoxygenation: What can we learn from mesocosm experiments and bioassay studies (shorten – suggest delete some wording)

2.2. What is the role of N<sub>2</sub> fixation for primary production in the ETNA and ETSP?

2.3. In how far is N<sub>2</sub> fixation in the ETSP OMZ coupled to N loss?

**3. What part is lost from the upwelling region: Organic matter export and remineralization in the ETSP OMZ (shorten – suggest delete some wording)**

**3.1. Sinking of particles**

**3.2 Physical fluxes of DOM** (not in order – after 3.3?)

**3.2. In how far could viruses impact primary production and organic matter feedback?** (Suggest shorten)

**4. What role do sulfidic events play in the ETSP?** (suggest shorten without question)

**5. The impact of extreme anoxia: Trace gases in the ETSP** (your text is more general: suggest you revise/shorten heading accordingly – such as “generation of trace gases”)

**5.1. Nitrous oxide (N<sub>2</sub>O) in OMZ**

**5.2. The role of OMZs in trace gas emissions**

**5.3. Trace gas production in OMZ and environmental changes**

## 6. Conclusions

## 7. Outlook

### Some specifics:

p. 3: l.4: covering only l. 29 conditions play

p. 8: l. 24 Sentence starting ? verb – sentence incomplete

p. 10 l. “raised the fact” – replace with better wording

p. 16 l.34 “in three of the five OMZs” – do you mean the five coastal upwelling OMZs?

p. 19 l change “is increasing” to increases

p. 22 l. 10 ??

p. 22 l. 30 onwards – jumbled: break sentence to make sense; l. 32 need more dedicated...

p. 23 l. 15 host for

**Spelling:** (use of capitals; choose US or UK spelling - don't mix) : *some examples:*

ocean

sulfide/sulphide

## References

Reference list needs attention:

- unify style
- some repeated words, numbers
- check (cross-reference) from text: some missing references e.g. Löscher et al 2015?