

Interactive comment on “Dynamics and distribution of natural and human-caused coastal hypoxia” by N. N. Rabalais et al.

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Received and published: 29 January 2010

We have made the changes as requested, with the exception of the yellow highlighted (lost in text file) that have been modified in certain ways or defended. Nancy Rabalais

Editor Initial Decision: Publish subject to technical corrections (24 Jan 2010) by S.W.A. Naqvi
Comments to the Author: Please consider the following suggestions/comments for final revision:

Page 2, abstract, line 3: Change “create enough carbon” to “produce enough organic carbon”

Page 2, abstract, line 4: Change “re-aeration” to “re-supply”.

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Page 2, abstract, line 19: Change “waste waters” to “waste water generation”.

Page 5, line 7: Change “were not when first studied” to “were not so when first studied”.

Page 11, line 18: Change “GCC” to “global climate change (GCC)”

Page 15, line 7: Change “Godvari” to “Godavari”

Page 15, last line and line 2 on page 16: Change “bight” to “Bight” Prefer Not To Change This. bight is like delta and not part of a geographic name but a geographic feature, even though Boesch and Rabalais have it capitalized in the citation.

Page 17, line 7: Change “remineralization” to “reduction”

Page 17, line 18: Change “Global Climate Change (GCC)” to “GCC”.

Page 17, lines 19-22: The minimum oxygen concentrations in the three major OMZs (eastern tropical North Pacific, eastern tropical South Pacific and the Arabian Sea) are very similar (< 1 micromolar). The different values cited here are analytical artefacts. Thus, in the eastern tropical North Pacific also [see, for example, Cline & Richards (Limnology & Oceanography, 17, 885-900, 1972) and Yamagishi et al. (JGR, 112, G02015, doi: 10.1029/2006JG000227, 2007)] dissolved oxygen is below 1 micromolar within the depth range ~200-700 m. I took out the offending values, not knowing how they were artifacts or a reference to such, and limited the discussion to the depth zone.

Page 18, line 4: Change “also develop” to “also experience”

Page 18, line 12: (...better oxygenated El Nino conditions.): Please mention where (off Peru?).

Page 18, line 13: Change “incredibly” to “highly”.

Page 20, line 12: Expand anammox (anaerobic ammonium oxidation).

Page 20, lines 15-17: What about North America (California, Oregon) and Northwest Africa (Mauritania)?

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Page 22, lines 6-7: Change “Oregon Pacific, USA, coast” to “Oregon (USA) coast”.

Page 24, line 12: The basins along the Southern California coast are not anoxic (sulphate reducing) – they should not be categorized along with the Black Sea and Cariaco Basin. The wording was changed to make this more obvious, although we did state that there was periodic flushing.

Page 27, line 20: Change “the carbon” to “it” Used other wording

Page 27, line 22: Change “concentration overlying the sediments becomes hypoxic and approaches anoxia” to “concentration in water overlying the sediments becomes hypoxic/anoxic”

Page 30, lines 3-4: The inflows should lead to a decrease in hypoxia. Is it ok? Wording to make it clearer. The data in the following sentence clearly show an increase in N and P loads, despite water extraction.

Page 30, line 11: Change “has lead to” to “has led to”

Page 32, paragraph 2: I would use BSi and Corg instead of %BSi and %carbon. Changed the %carbon, but the biogenic silica method is measured as a % and is in the regression and is how the authors reported the diatom remains indicator.

Page 33, line 18: Delete “as is the case of most river effluents”.

Page 34, line 10: Change “likely lead” to “likely led”.

Page 34, line 20: Change “six United States” to “six states of USA”. Just deleted this, the number of states is not relevant, and one is a district and not a state. Doubt that anyone cares.

Page 44, line 15: Change “that likely” to “that are likely”

Page 50, line 13: high emissions of what?

Page 79, references: Rao et al. (1994) is cited in the text and Rao (2009) in the

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reference. The correct reference is:

Rao, C. K., Naqvi, S. W. A., Kumar, M. D., Varaprasad, S. J. D., Jayakumar, D. A., George, M. D., and Singbal, S. Y. S.: Hydrochemistry of the Bay of Bengal: Possible reasons for a different water column cycling of carbon and nitrogen from the Arabian Sea, *Mar. Chem.*, 47, 279 290, 1994.

Interactive comment on Biogeosciences Discuss., 6, 9359, 2009.

BGD

6, C4208–C4211, 2010

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