

Interactive comment on “Anthropogenic stressors and eutrophication processes as recorded by stable isotopes compositions in coral skeletons” by O. Levy et al.

O. Levy et al.

oren.levy@biu.ac.il

Received and published: 5 April 2011

The Editor Biogeosciences

Re: Revised manuscript bg-2010-255

Dear Prof. Antje Boetius: Enclosed please find the revised version of the manuscript by O. Levy et al., entitled “Anthropogenic stressors and eutrophication processes as recorded by stable isotope compositions in coral skeletons in the Gulf of Aqaba”. We thank the two anonymous reviewers for the constructive comments. We have accepted most of the comments and have changed the manuscript accordingly. We think that the manuscript is suitable for publication in Biogeosciences in its present form.

C5309

We provide below the changes that we have made in response to the review comments and in the order it appears in their review.

Reviewer 1: 1. The text was edited by a professional science editor. 2. A clear presentation of the problem and working hypothesis were re-written. 3. We wish it was so simple, that the $\delta^{13}\text{C}$ of coral skeleton was in direct relation to the seawater DIC. This issue was addressed by many papers and the role of calcification rates, symbiotic algae, internal carbon pools, kinetic effects and inter-species variance is still not clear. We have cited the relevant references and addressed this issue. We have referred to the review by P. Swart that points to the complexity of skeletal carbon isotopes. 4. The statistical information was added regarding the t-test. 5. We moved the figure to be the first in the text, making clear the nature of the problem under investigation. 6. It is a gradient from the most contaminated area to the pristine area. The drilling locations are determined by the presence of large colonies and drilling permits in a nature reserve. 7. The sewage input history was specified in the text. 8. The figure caption was changed. 9. An explanation about growth rates and tissue thickening was added also as part as figure 1 (Fig 1 b,c). 10. Technical comments were accepted. 11. We have incorporated into the text most of the references suggested by the reviewer.

Reviewer 2

1. The title was changed to make it specific to the Gulf of Aqaba (Eilat). The rationale and methodology was better explained (Rev 1 point 2). We did not work on C and N isotopes, as the reviewer states. Rather C and O isotopes were measured. 2. The introduction was changed and the new Fig. 1 explains the nature of the problem. 3. The text was clear from unclear terms. All used terms are defined. N isotopes were not measured as there is no available reservoir to obtain a long record. The reason why we did not measure N isotopes in the skeleton is that the amount of carbonate needed did not allow sufficient time resolution that we seek. 4. 6-7 years records include years prior to the transfer under the fish cages. Hence, the isotope record is longer than the experiment period of 2001-2005. 5. The text was edited (Rev.1, point 1).

C5310

Please let us know if more information is needed.

Oren Levy

Interactive comment on Biogeosciences Discuss., 7, 7657, 2010.

C5311