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Corrigendum to "DOM consumption and demethylation of MeHg as potential drivers of low MeHg in Mediterranean Sea sponges and benthic fish: a modeling perspective" published in Biogeosciences, 23, 4057–4081, 2026

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Some errors were identified in this manuscript. None of these corrections affect the results, interpretation or conclusions of the paper. The errors are discussed first, and the full corrections of the affected sections are shown and discussed afterwards.

1 Unit error

The major error in the manuscript is that some bioaccumulation values are given in the wrong unit. The correct unit is $\mathrm{ng\,Hg\,g\,C^{-1}}$. This affects Fig. 7, Tables 2, 3 and A2, and Sect. 4.3 and 4.4. Additionally, the rDOM concentration is set at $2.5\,\mathrm{g\,C\,m^{-3}}$ but is stated once in Sect. 5.2 as $2.5\,\mathrm{mg\,C\,m^{-3}}$.

2 Minor corrections

In addition to the unit error some other errors were found that would have led to minor differences in reported value but would not have influenced any conclusions of the paper.

Data from Orani et al. (2020) were used for model validation. In that study they measured Hg concentrations in both Mediterranean and Celtic Sea sponges. Celtic Sea sponges were omitted, but some Mediterranean Sea LMA sponges were omitted when they should have been used. In total 12 LMA samples were available compared to the 7 used. The difference between the used and available data is shown in Table C1. This affects only the LMA sponges, and the full dataset would have shown a marginally better agreement with the model as discussed below. Therefore, this would not have affected the conclusions or findings of the paper in any way.

Table C1. The min, mean, and max of the used LMA samples measured by Orani et al. (2020) and the data of all Mediterranean Sea LMA sponges that were available in their study. The manuscript reports $n = 6$; the correct number of samples used is 7.

	iHg		MeHg	
	Used	Available	Used	Available
min	328	328	10	10
mean	696	624	31	30
max	1255	1255	45	55
n	7	12	7	12

The bioaccumulation values of 1448 and 592 for HMA and LMA sponges respectively in the LR scenario, and the corresponding MPB of 5 % and 15 %, mentioned in Sect. 4.4 derive from an earlier model setup. The correct values of 1397 and 556, with an MPB of −8 % and −20 %, are given correctly in Table 3. Had the MPB been based on the full dataset of Orani et al. (2020), as discussed above, the MPB of LMA

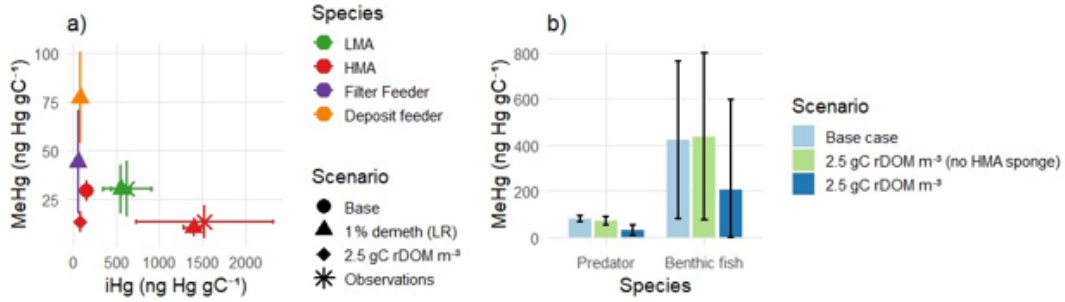

Figure 7. Summary of key results. Panel **(a)** shows the modeled bioaccumulation of iHg and MeHg in megabenthos compared with observed bioaccumulation in LMA and HMA sponges, where triangles indicate model values and circles indicate observations. The scenario with a demethylation rate of 1 % d^{-1} and reduced Hg release shows strong agreement with the observed sponges. Panel **(b)** shows the modeled bioaccumulation of MeHg in predators and benthic fish, with concentrations in fish (blue) reduced by 53 % in the scenario with 2.5 g C rDOM m^{-3} compared to the same simulation without sponges.

Table 2. Observed and modeled bioaccumulation of MeHg in LMA and HMA sponges. The values for LMA sponges are based on the full dataset made available by Orani et al. (2020) while the HMA sponges are the same as in the manuscript. The mean, minimum, and maximum observed and modeled values are shown. Bioaccumulation values are shown in ng Hg g C^{-1}. For the model scenarios, the mean percentile bias (MPB), the Kolmogorov–Smirnov p values (KS-p) and D-statistic (D) are shown, as well as the Wilcoxon p value (W-p). A * marks a significant difference at the 95 % confidence level between the model and observations.

	LMA							HMA						
	Mean	MPB	Min	Max	KS-p	D	W-p	Mean	MPB	Min	Max	KS-p	D	W-p
Observation	30	–	10	55	–	–	–	13	–	5	20	–	–	–
Base model	27	−10 %	18	71	0.029*	0.421	0.354	29	113 %	22	52	< 0.001*	1.00	< 0.001*
2.5 g C rDOM m^{-3}	–	–	–	–	–	–	–	13	−2 %	12	18	0.770	0.332	0.867
1 % demethylation	27	−10 %	18	72	0.023*	0.431	0.332	9	−30 %	7	30	0.309	0.483	0.758
2.5 % demethylation	27	−11 %	18	71	0.022*	0.434	0.328	5	−65 %	3	16	0.023	0.747	0.003*

sponges would have been −11 %, note that this correct value is used in the corrected section below.

Finally, some typographical errors were identified. *Arenicola* is written as *Arenicula* and Riisgård is misspelled in the text and reference list. In the caption of Fig. 2, the photograph of the LMA sponge was taken by Erik Wurz and shared for use in this publication.

3 Corrected sections

Section 4.3 should read:

> The concentration of MeHg in benthic fish is 422 ng Hg g C^{-1} in the base model and only 205 ng Hg g C^{-1} in the setup with 2.5 g C rDOM m^{-3}. If we run the model with 2.5 g C rDOM m^{-3}, but without HMA sponges, the bioaccumulation of MeHg in fish is 437 ng Hg g C^{-1}, so comparable to the base case.

Section 4.4:

> Sponges are observed to have an extremely high iHg content. Orani et al. (2020) observed a mean iHg content of 1523 and 624 ng Hg g C^{-1} in HMA and LMA sponges, respectively, assuming a carbon to dry weight ratio of 1 : 5. Even assuming an AE of 0.95 iHg when DOM is consumed, our modeled iHg bioaccumulation is still an order of magnitude lower than observations. Although fully understanding this is out of the scope of the model, we reproduced the observed concentrations only when the turnover and release rate of iHg in LMA and HMA sponges was completely removed. Under these circumstances, we obtained a bioaccumulation of 1397 and 556 ng Hg g C^{-1}, or a MPB of −8 % and −11 % in HMA and LMA sponges.

Section 5.2:

> As mentioned in the model development segment, an rDOM concentration of 2.5 g C m^{-3} is observed.

Tables 2, 3, and A2: Bioaccumulation values are shown in ng Hg g C^{-1}.

4 Updated statistics

As mentioned before, some available data based on Orani et al. (2020) was not used for the validation of the LMA

sponges, had this been used it would have changed the MPB shown in Table 3 and statistics shown in Table 2 for LMA sponges. The modelled mean iHg and MeHg in LMA sponges is closer to the observed mean of the full dataset than to the subset used in the manuscript, lowering the MPB. For iHg it would have resulted in an MPB of 0 % for the HU scenario and −11 % for the LR model. For MeHg it would have resulted in an MPB of 255 % for the HU model with an MPB of 0 % for the LR model. Overall, it would have improved the model fit of the LR model. For transparency the statistics were rerun and are shown in Table 2. The larger sample size does mean the KS-p values for LMA sponges fall below the 0.05 threshold, reflecting the increased statistical power rather than a change in model performance. These LMA statistics are not discussed in the text, and the conclusions of the paper remain unaffected.

As a final note, the LMA MeHg error bar in Fig. 5 would have extended to 55 ng Hg g C^{-1} had the full dataset been included. As mentioned above, the observations of the full dataset show better agreement with the model than the partial dataset that was used. This would also have influenced Fig. 7 where the observed and modelled LMA sponges have better agreement than originally reported. Above the correct Fig. 7 is shown as it was already reproduced because of the axis unit error.

References

Orani, A. M., Vassileva, E., Azemard, S., and Thomas, O. P.: Comparative study on Hg bioaccumulation and biotransformation in Mediterranean and Atlantic sponge species, Chemosphere, 260, 127515, https://doi.org/10.1016/J.CHEMOSPHERE.2020.127515, 2020.