

University of Groningen

Reply to "Comments on the Mediterranean alien harmful algal blooms"

Marampouti, Christina; Buma, Anita G. J.; de Boer, M. Karin

Published in:
Environmental Science and Pollution Research

DOI:
[10.1007/s11356-021-12527-3](https://doi.org/10.1007/s11356-021-12527-3)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2021

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Marampouti, C., Buma, A. G. J., & de Boer, M. K. (2021). Reply to "Comments on the Mediterranean alien harmful algal blooms". *Environmental Science and Pollution Research*, 28, 58807–58808.
<https://doi.org/10.1007/s11356-021-12527-3>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.



Reply to "Comments on the Mediterranean alien harmful algal blooms"

Christina Marampouti¹ · Anita G. J. Buma¹ · M. Karin de Boer²

Received: 29 December 2020 / Accepted: 13 January 2021 / Published online: 19 February 2021

© The Author(s), under exclusive licence to Springer-Verlag GmbH, DE part of Springer Nature 2021, corrected publication 2021

Dear editor:

On behalf of me and my co-authors, I herewith would like to respond to the comments of Fernando Gomez and Bella Galil, on our review article: Marampouti C., Buma A.G.J., de Boer M.K. (2020). Mediterranean alien harmful algal blooms: origins and impacts. *Environmental Science and Pollution Research*. DOI: 10.1007/s11356-020-10383-1.

It is important to mention that the article is a review article and is an attempt to collect the scattered information on alien harmful algal bloom (HAB) causing species in the Mediterranean, as explained in the abstract.

The article's section "Strength of evidence" discusses uncertainties surrounding the topic of HABs, such as lack of evidence, invasiveness status uncertainties, and most of the concerns are addressed in that section.

The first paragraph of the comment questions our terminology with respect to the terms alien versus invasive species. To clarify that, the terminology is presented in fig.2 which is in accordance with EU regulations as referenced in the article. To further clarify, the term "nonnative" refers to all species that are alien, invasive and/or cryptogenic.

The second, most important concern deals with our "Final list of invasive species" which is an attempt to assemble the most well-documented nonnative algal species of the Mediterranean. Furthermore, it presents basic information

about the species' invasiveness status and origins. The evidence provided is listed as the references provided in table 2. We agree with Gomez and Galil that invasiveness could be debated for some species, (see also below in section about origin) and molecular evidence in particular has sometimes indicated otherwise, as stated by the commentators. Therefore, in retrospect, we might have given the table a less bold title for example by changing it into "Final list of assessed species" after all, the section "strength of evidence" discusses potential uncertainties related with invasiveness. Since this is a review paper, the species status has not been attributed by the current article's authors. Also, to clarify, the list contains toxic and nontoxic species. As it is also explained in the article, harmful blooms could be either toxic, or nontoxic, and their harmful impact could be their density. All species listed have shown impacts either toxic or nontoxic in their native environments. Some have not yet shown toxic or high-density behavior in the Mediterranean, however, that does not provide a reason to exclude them.

The term "tropicalization" of the Mediterranean is not our statement, but merely a characterization that has been given from other authors referenced in the article such as Bianchi and Morri 2003. CIESM (Mediterranean Science Commission) has also been examining the "tropicalization" of the Mediterranean with the "CIESM Tropicalization programme" since 2008. The "borealization" characterization has not been found in relative papers, thus not used. Also, it is nowhere stated in our review that the introductions of nonnative species are caused by tropicalization.

The term "origin" is in accordance with WoRMS terminology about the type locality/introduction origin of a species. We agree that in table 2 the term first sighting would have been more appropriate, since, as explained by the commentators, first sightings/descriptions may have been biased towards certain geographic areas (North Sea, Baltic). Yet, on the other hand, databases like WoRMS are of great importance for its worldwide overview of species. Therefore, using the same terminology is essential for scientific discussions like this as well as using most recent species names.

The original online version of this article was revised: The correct Title is shown in this paper.

Responsible editor: Philippe Garrigues

✉ Christina Marampouti
ch.marampouti@gmail.com

¹ Department of Ocean Ecosystems, Energy and Sustainability Research Institute Groningen, University of Groningen, Nijenborgh 7, AG 9747 Groningen, The Netherlands

² Bèta Science Shop, Faculty of Science and Engineering and Department of Ocean Ecosystems, Energy and Sustainability Research Institute Groningen, University of Groningen, Nijenborgh 6, AG 9747 Groningen, The Netherlands

As for the comment on the species *Chaetoceros bacteriaströides*: in the article it is merely suggested that thick spines “can” damage fish gills (Sunesen et al. 2008) since species from the same genus, such as *Chaetoceros danicus* have been recorded to cause such an impact. In retrospect, rephrasing this sentence by using the wording *could potentially damage other organisms’ gills* would have been more appropriate.

The phylogenetic input of the listed species described in the Annex provided by the commenters, is valuable and

interesting. As stated, our review is an attempt of collecting the scattered information on alien HABs in the Mediterranean, work that can only grow and become more accurate and specific once science is progressing.

Publisher’s Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.