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Book review: Toxic and Harmful Microalgae of the World Ocean

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1 **Book Review: Toxic and Harmful Microalgae of the World Ocean**

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3 **Patrick Lassus, Nicolas Chomérat, Philip Hess, Elizabeth Nézan, 2016.**

4 Denmark. International Society for the study of Harmful Algae/Intergovernmental

5 Oceanographic Commission of UNESCO. IOC manuals and Guides 68. (Bilingual

6 English/French.

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13 Getting started on understanding harmful algal blooms (HABs) with the burgeoning

14 literature can be daunting. Over the last twenty years a quick survey shows that

15 publications in this field have increased just short of twenty fold per annum. This

16 volume is aimed to be a comprehensive review to make this field accessible, to

17 appeal both to the scientific community and managers. A further stated aim was to

18 explore the question: *is there really a global increase in harmful algal bloom*

19 *worldwide and are these phenomena significantly related to the marked*

20 *environmental changes taking place in coastal areas?*

21

22 So how do the authors go about such a challenging task? The first chapter sets out

23 the context of harmful algal blooms, interrogating the question posed through

24 exploration of seven reasons the authors identify that might cause an increase or

25 perceived increase in HABs. These reasons include improved awareness, additional

26 exploitation of coastal areas, eutrophication, unusual climatic conditions, ballast
27 water and shellfish transport, global warming and overfishing. This chapter holds a
28 wealth of historical material and case studies illustrating the different potential
29 causes. The chapter concludes that there is a scientific consensus that HABs have
30 increased but that a more rigorous examination is required. There follows an
31 alphabetical inventory by genus/species including 174 taxa and giving a description
32 of each species, its distribution, its role in regional events and its
33 toxinology/toxicology. The authors have classified species into five categories: non-
34 toxic but high biomass (causing harm through deoxygenation or physical effects);
35 toxin producers associated with food poisoning (gastrointestinal or neurological
36 effects); harmful to fish/marine invertebrates (but no known harm to humans); toxin
37 producers associated with contact effects in humans (aerosols in particular); toxin
38 producers in bioassay but at present no documented effect on humans. The final
39 chapter explores regional case studies with a decadal scale, considers emerging
40 species and seeks to more rigorously interrogate the question posed at the
41 beginning of the book and draw a conclusion. Finally, although this is not designed
42 to be a taxonomic guide, we are treated to 54 plates illustrating key taxa and genera
43 with light and scanning micrographs including some colour plates. The book has text
44 first in English, then after the plates, in French. So what appears a rather weighty
45 volume at first sight, is actually quite compact. At the very end it is completed with a
46 list of species and their toxic effects.

47

48 Do the authors meet the challenges they set themselves? I am not sure they
49 answered the question they posed at the outset to their satisfaction. As they
50 indicate, the assertion that HABs are increasing globally, has been extensively

51 explored and debated. It is easily confounded by the multiplicity of factors that
52 contribute to the complex ecosystems where HABs occur. I think the message this
53 text brings out is that it is impossible to generalise – so on a local scale and
54 considering the local context - trends can be discerned and sometimes explained,
55 but these cannot be generalised at the global scale. Regarding the overarching aim
56 - as a conduit to the field of harmful algal blooms this book is certainly a tour de force
57 in terms of literature coverage. I estimate that just under 1200 references have been
58 included. These cover working group reports, conferences and other examples of
59 grey literature that hold valuable information on species occurrence and behaviour.
60 Importantly there is extensive coverage of older literature that we all have a tendency
61 to overlook in this electronic age. The cut off point for the authors was December
62 2014 which means that some parts are already feeling dated. Sadly, there is no
63 index so although each chapter is clearly arranged it might be challenging to locate
64 specific information in the narrative chapters should one wish to. However, this book
65 is an excellent 'go to' guide to get started on any particular taxon or to harmful algae
66 in general and I would certainly recommend it to students and managers as a
67 jumping off point for their studies.

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