

Are HABs and their societal impacts expanding and intensifying? A call for answers from the HAB scientific community

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Abstract

Hypotheses, evidence and questions about the global expansion and increasing impacts of HABs have been put forward since the first recognition of these phenomena by international scientific fora. After about four decades of ever intensifying research and monitoring activity, the HAB scientific community is called to put together the data on the occurrence of harmful species and on their impacts that have so far been collected at local scales and analyze them in a regional and global perspective. The Global HAB Status Report Initiative (GHSR) aims at producing an overview of HAB events and their societal impacts; GHSR will combine the effort of Regional Groups, International Agencies, ISSHA and individual scientists in a large scale exercise towards a worldwide appraisal of the occurrence of toxin-producing microalgae, along with an assessment of the status and probability of change in HAB frequencies, intensities, and range resulting from environmental changes at the local and global scale.

Keywords: Global HAB status; OBIS; HAEDAT

Introduction

Harmful algal blooms (HABs) are long known natural phenomena which have attracted increasing attention of scientists (Fig. 1), environmental agencies, fishermen and citizens over the years. The first surge in interest coincided with the 1st Conference on Toxic Dinoflagellates held in Boston (Ma, USA) in 1974 (LoCicero 1975), which was convened in recognition of the need to integrate different fields of research in order to study these events, understand their driving factors and manage their impacts. The names of scientists – and also of microalgal species – involved in HABs have dramatically changed since then, yet the Boston Conference marks the birth of the interdisciplinary scientific community which regularly keeps on meeting at ICHA conferences. In addition to this Conference series, over the years other important steps have been made towards coordinated research and management of HABs: the establishment of the IOC Intergovernmental Panel on HABs (in 1992), the International Society for the Study of Harmful Algae (1997) and the research programs GEOHAB (1998) and GlobalHAB (2015), as well as the publication of

the newsletter Harmful Algae News (1992) and of the journal Harmful Algae (2002).

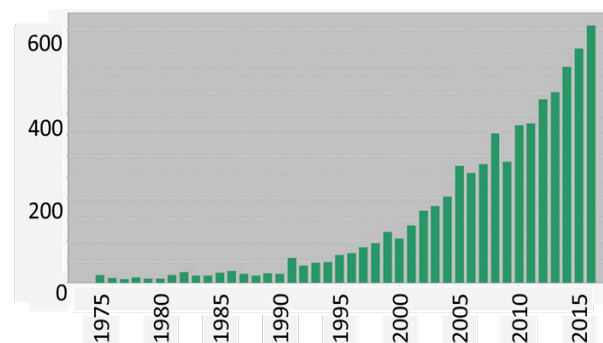


Fig. 1. Exponential increase in HAB publications in the period 1975 to 2016. Search in the Web of Knowledge for titles including the words “harmful blooms or harmful algal blooms” or “red tides” or “toxic algae” or “toxic phytoplankton”. Indexes: SCI-EXPANDED, SSCI, A&HCI, ESCI.

Are HABs increasing and expanding?

Interestingly, the possible increase in frequency of red tides outbreaks is mentioned already in the