

P1.09**Global biogeographic patterns of harmful algal blooms: trends and hotspots**

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Abstract

Harmful algal blooms (HABs) are natural occurrences, generated from the rapid growth of algae, that may negatively impact aquatic ecosystems and human health. Depending on the species, many toxins can be produced, potentially causing different illnesses, i.e. Paralytic Shellfish Poisoning (PSP), Amnesic Shellfish Poisoning (ASP), Diarrhetic Shellfish Poisoning (DSP), Neurotoxic Shellfish Poisoning (NSP), Cyanotoxin effects (CTX) or Ciguatera Fish Poisoning (CFP). These toxic events can cause morbidity and mortality in marine wildlife via direct bioaccumulation of toxins in filter-feeding organisms as well as through consumption of contaminated prey by higher trophic level organisms. Trophic transfer of toxins during HABs also presents risks to human and overall ecosystem health. Additionally, HAB events are responsible for shellfish harvesting closures, leading to major economic and sociological impacts. In the present study, we aim to identify the hotspots of the different HABs groups worldwide, and discuss patterns of bloom frequency and duration. To this end, data were collected from the Harmful Algae Event Database (HAEDAT), compiled, filtered, and standardized for the period between 1978 and 2018. This database compiles the data fed through monitoring programs worldwide by ICES and PICES member states. Preliminary results point to European waters constituting the major hotspot regarding most toxins analyzed, bearing in mind that HAB events may be underestimated in some areas of the globe. Analysis of the total number of events reported revealed that most events reported PSP occurrences, followed by DSP, with NSP occurrences being the least abundant. The results of the present work contribute to a better understanding of the dynamics, geographical distribution, and temporal patterns of HAB events globally over the last four decades.

Keywords

Harmful algal blooms, Global biogeography, Marine toxins, Spatial patterns