

Harmful algal blooms and water quality

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Harmful algal blooms (HABs) occur naturally, but their outbreaks are influenced by climate change and droughts, nutrient enrichment and manmade factors, such as contaminants from sewage and stormwater discharge, natural resource extraction or agricultural runoff, to name a few. When an outbreak occurs, it causes restrictions on fisheries, recreation and drinking water, and it can have significant economic consequences. In developed countries, HABs cause more severe acute environmental impacts than conventional contaminant events, yet water quality criteria for aquatic life or human health often do not exist.

An article in *Environmental Toxicology and Chemistry* explores inland surface water quality assessment, research on HABs and management practices in an effort to identify the current challenges and seek solutions to the threats HABs present to public health and the environment.

The magnitude, frequency and duration of HABs appear to be increasing at a global scale. These HAB events are difficult to predict and vary among species and environmental conditions; however, the ecological and health risks some of these blooms present are well documented. Yet in the US and Canada many states, tribes and territories do not have formal HAB or algal toxin monitoring programs for inland surface waters. HAB observations from Africa, Asia and Latin America are occasional, and the environmental assessment and management programs there are less developed. What's more, in Europe and in some cases in the US, water quality is checked for priority substances, which do not include HABs or their toxins.

Coastal monitoring of HABs and their impacts to fisheries, agriculture and potable water supplies are routinely observed. Recently, some programs are starting to also focus on freshwaters, but the limited efforts, lack of criteria, predictive modeling, and availability of scientific tools and techniques hinder the ability to protect inland water ecosystem functions and services. "There is little doubt that inland HABs present the greatest threat to inland [water quality](#) in some places, in some cases and at some times. Unfortunately, we are not effectively delivering the essential services of environmental public health and ecosystem protection. We must adapt environmental assessment and management efforts to address this potentially transformative threat," said Bryan Brooks, the primary author and Baylor University researcher. Brooks and co-authors from government agencies, academia and business call on environmental chemists, toxicologists, risk assessment professionals, ecologists, medical professionals and [public health](#) practitioners to work together to expand fundamental understanding of HABs, increase monitoring of inland waters and set explicit environmental protection goals.

More information: *Environmental Toxicology and Chemistry* ,
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