An Investigation Into Anthropogenic Drivers Exacerbating Harmful Algal Blooms in Coastal and Freshwater Ecosystems

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Within bodies of water, a red tide is rising. Due to high levels of nitrogen and phosphorus, algae tends to proliferate at high levels. These high levels of algae within bodies of water are referred to as harmful algae blooms (HAB). HABs consume the oxygen in the water, and their condensed form prevents sunlight from reaching the deep sea, thereby killing sub-aquatic/marine life. HABs can accumulate in any body of water, and the toxins they release contaminate water (including drinking water), which, when ingested, is harmful to humans and animals. While nutrient management is a common strategy, these blooms often persist. This study investigates why HABs return to natural environments despite mitigation efforts, analyzing nutrient-driven mechanisms through a combination of experimental data and research reviews.

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