

**Assessing & mitigating the risks of Harmful Algal Blooms in sustainable shellfish aquaculture**

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**Abstract**

Harmful Algal Blooms (HABs) can have a detrimental effect on marine aquaculture (mariculture) businesses, often with little warning. UK shellfish mariculture businesses are dependent on weekly water quality tests and analysis of HAB toxins in shellfish tissue samples conducted by the Food Standards Agency, which determine whether shellfish farms are open or closed for harvesting. Spatial and temporal monitoring of HAB species in designated shellfish waters of SW England, during summer 2018, revealed significant local variations in the abundance of toxic species. *Dinophysis* toxins significantly breached safe levels in mussels, closing some shellfish farms, but were barely above detection levels in others. These results are discussed in relation to site location and variations in the local physical environment and plankton community succession at each site. This study will further advance our ability to forecast toxin events for local businesses. It will furthermore help to identify locations which are less susceptible to the impact of HABs, prior to further development and expansion of sustainable shellfish mariculture in SW England.

**Keywords:**

mariculture, development, HABs, plankton, toxic algae

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