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The status of harmful algae in the Arabian Gulf

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In the ocean, microscopic plankton algae constitute a crucial food supply for filter-feeding bivalves, shellfish (oyster, mussels, scallop and clams), as well as larvae of commercially important crustaceans and finfish. In most areas, the proliferation of plankton algae (so called "algal blooms"; consisting of millions of cells per liter) is beneficial for aquaculture, recreational and commercial fisheries. However, sometimes algal blooms may have a negative impact. Mass occurrences of harmful microalgae, harmful algal blooms (HABs), are a globally growing concern. Most HAB species cause harm due to their production of toxins. HAB species may kill marine wildlife directly, or the algal toxins may accumulate in the food web, causing illness and mortality of fish, seabirds, marine mammals and humans consuming the toxic seafood products. There is scientific consensus that the HAB problem is increasing globally, with increasing numbers of toxic blooms and associated economical loss. The most significant reasons for the increased occurrence of HABs are increased eutrophication of marine coastal areas and spreading of harmful species to new areas.

During the last three decades, the Arabian Gulf area has experienced massive marine mortalities, resulting in serious economic losses (Kuwait, Saudi Arabia, Iran, U A E, Oman, Bahrain and Qatar). A documented example is an eight-month-bloom during 2008-2009 of the dinoflagellate *Cochlodinium polykrikoides*, killing thousands of tons of fish, hampering traditional fisheries, impacting tourism, forcing closure of desalination plants, and damaging coral reefs. The frequency and severity of HAB events are increasing in the Arabian Gulf, and the distribution of harmful species within the region appears to be expanding. In this situation, exchange of information and cooperative research has become obvious to scientists working in the Gulf region.

To date, only a small number of studies have been conducted on diversity, distribution and toxicity of HABs in the Arabian Gulf, including Qatari waters. A project on harmful algae is needed here, focusing on biodiversity and ecology based on state of the art techniques, and involving capacity building of local Qatari staff.

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