

# HARMFUL ALGAL BLOOMS IN ABU DHABI EMIRATE

## FACT SHEET

### HARMFUL ALGAL BLOOM:



Algal blooms are a naturally occurring phenomena resulting from a rapid increase in algae concentration. This can result in harmful effects such as: fouling, deoxygenation, and even toxicity. In such cases, the bloom is referred to as a Harmful Algal Bloom (HAB). HABs can impact public health (toxins causing human illness), biodiversity (fish kill), and the economy (desalination plants closure).

### DRIVERS

Population growth is the main driver contributing to the frequency and intensity of HAB incidents. Human activities play a role in HAB formation as well, such as coastal developments and industrial activities, which results in pollution, nutrient loadings, and water flow modifications.

### PRESSURE



HAB formation starts with blocking sunlight from reaching marine flora influencing their growth. In addition, HAB incidents result in reduction of oxygen concentration that increases pressure on the marine ecosystem and leads to mass mortality of marine organisms. Some algal species are toxin producing and could also develop pressure on public health and marine biodiversity.

### STATUS

EAD started HAB monitoring in 2002. A total of 268 incidents were investigated. The most dominant species involved are *Ossillatoria sp* and *Tricodesmium erythreum*, both are cyanobacteria. *Prorocentrum minimum*, *Cochlodinium polycriformes*, *Gyrodinium striatum*, and *Peridinium quinquearia* also produce blooms and impact the marine environment. Most HAB incidents were recorded in confined areas particularly in Mussafah Channels.

Number of species that cause HAB in Abu Dhabi Emirate:



34

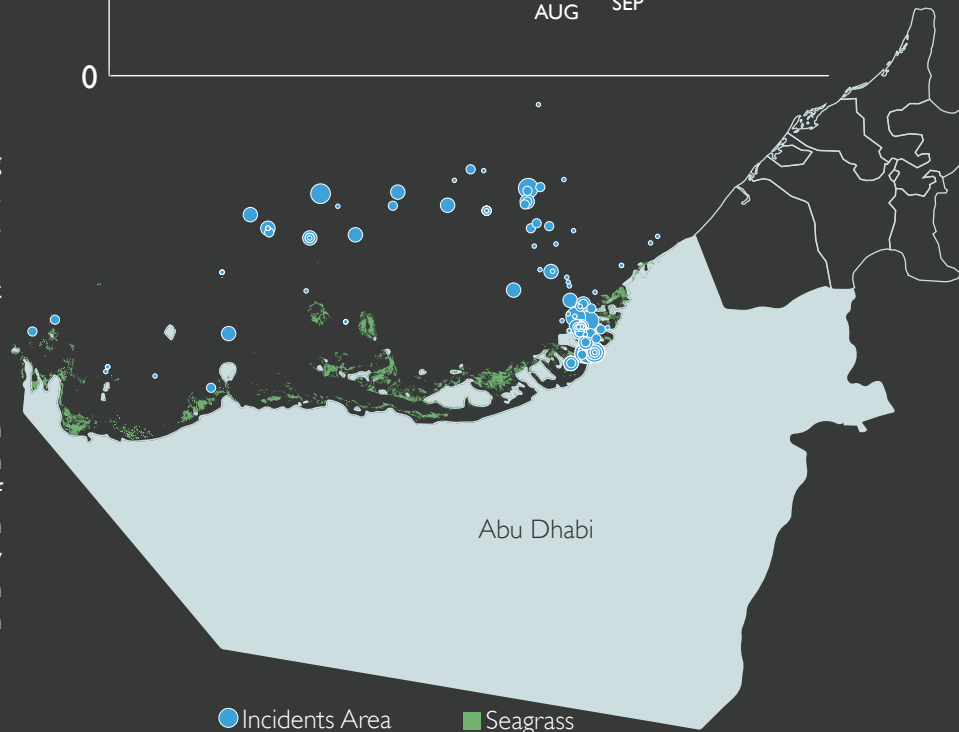
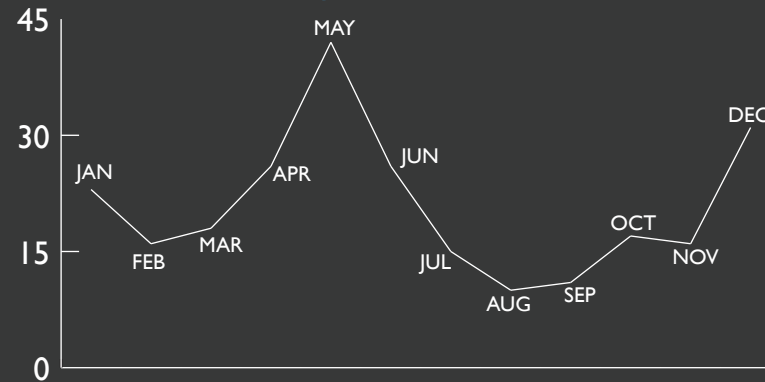
BLOOM FORMING SPECIES



11

TOXIN PRODUCING SPECIES

Total HAB incidents per month from 2002 to 2018



### IMPACTS

Harmful algal blooms can cause environmental damage, biodiversity loss, and affect public health. In Abu Dhabi Emirate some HAB incidents cause fish kills, shellfish poisoning, degraded corals and beach closures. It can also disrupt the normal operation of desalination plants by blocking seawater filtration systems.

### EAD RESPONSE:

The importance of Abu Dhabi Emirate's marine water quality is rising with the increasing developmental pressures on the marine environment. To ensure that the emirate's coastal waters remain safe for people, plants and animals, EAD has developed an early warning system to forecast the formation of HABs using real-time monitoring buoys. In addition, EAD established standards and regulations to manage discharge into the marine environment. Environmental permits and compliance inspections are performed for industrial facilities and developmental projects to mitigate environmental impacts.