

Dangers of Algal Toxins

CAUTION

Public Health Advisory

A harmful algal bloom or algal toxin has been detected at this location. Users are encouraged to avoid ingesting the water and avoid surface scum.

For more information, please refer to our website calgoncarbon.com or contact:

Jack Adams

Director, Government
Affairs

412-787-6662

jadams@calgoncarbon.com

Doug Conley

Marketing Manager -
Municipal

412-787-6771

dconley@calgoncarbon.com

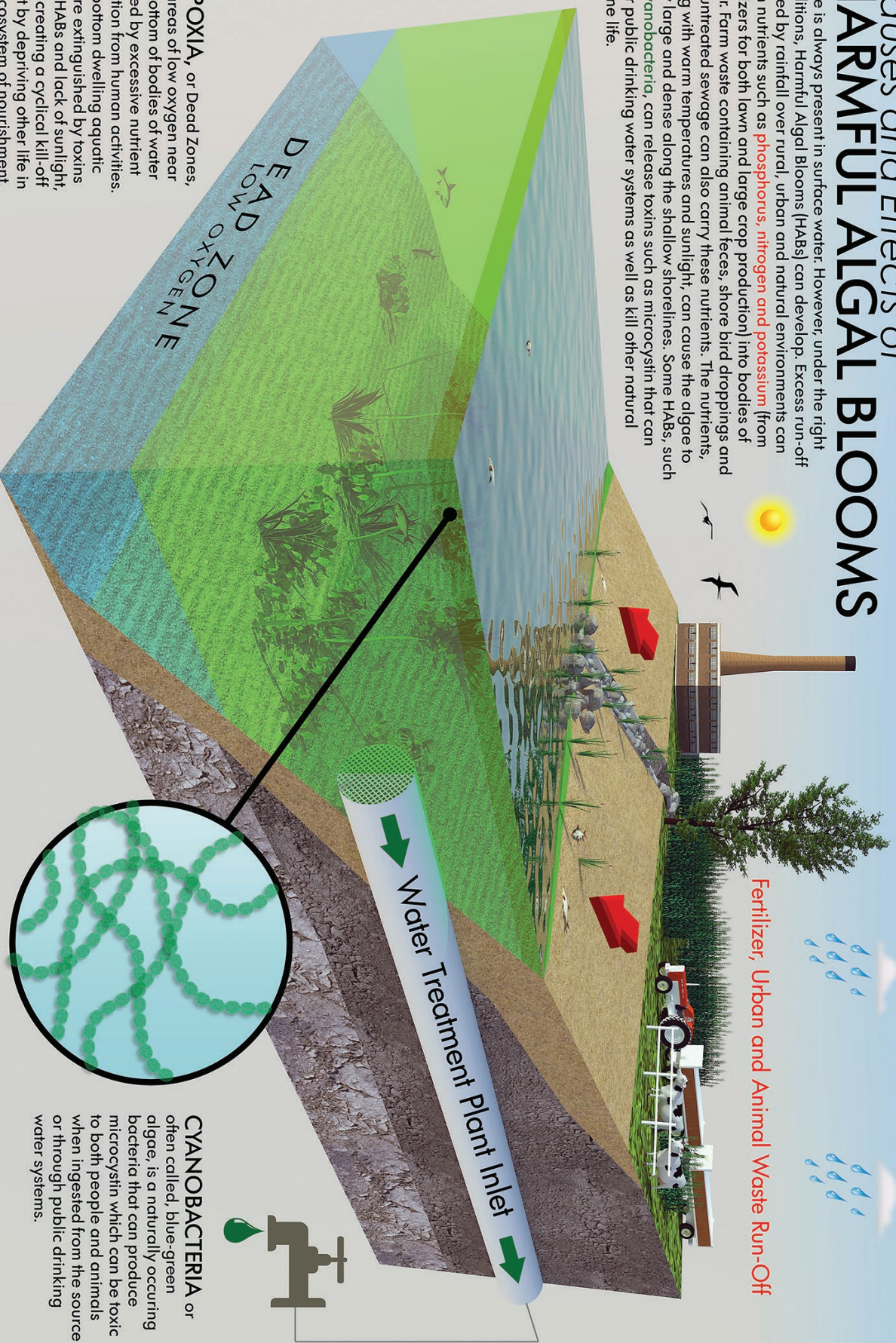
1. In August 2014, more than 400,000 residents in Toledo, OH lost access to drinking water when the Toledo Drinking Water Treatment System shut down because of algal blooms on Lake Erie.
2. Harmful algal blooms can cause a variety of problems to the environment, as well as posing a threat to human health.
3. There are over 3,000 known species of cyanobacteria and they can tolerate a wide range of environmental conditions.
4. The three most widely recognized cyanobacteria as being linked to human health issues are:
 - Microcystin-LR (hepatotoxin)
 - Cylindrospermopsin (hepatotoxin)
 - Anatoxin-A (neurotoxin)
5. The U.S. House of Representatives voted on February 24, 2015 to approve HR 212 which directs the U.S. Environmental Protection Agency (EPA) to develop a plan to assess and manage the risks associated with algal toxins in drinking water. The U.S. Senate has taken up a similar bill (S 460).
6. Many water treatment processes can help protect against the intrusion of algal toxins into drinking water systems. One of the most effective and affordable treatment options is granular activated carbon (GAC) which is already in use for such purposes in many locations across the United States.
7. Since the 1960s, GAC has been used to remove dissolved organic compounds from water, including those emanating from algal blooms, chemical spills, and oil spills.

Pure Water. Clean Air. Better World.



Causes and Effects of HARMFUL ALGAL BLOOMS

Algae is always present in surface water. However, under the right conditions, Harmful Algal Blooms (HABs) can develop. Excess run-off caused by rainfall over rural, urban and natural environments can wash nutrients such as **phosphorus**, **nitrogen** and **potassium** (from fertilizers for both lawn and large crop production) into bodies of water. Farm waste containing animal feces, shore bird droppings and raw untreated sewage can also carry these nutrients. The nutrients, along with warm temperatures and sunlight, can cause the algae to grow large and dense along the shallow shorelines. Some HABs, such as **cyanobacteria**, can release toxins such as microcystin that can enter public drinking water systems as well as kill other natural marine life.



HYPOXIA, or Dead Zones, are areas of low oxygen near the bottom of bodies of water caused by excessive nutrient pollution from human activities. The bottom dwelling aquatic life are extinguished by toxins from HABs and lack of sunlight, thus, creating a cyclical kill-off effect by depriving other life in the ecosystem of nourishment.

CYANOBACTERIA or often called, blue-green algae, is a naturally occurring bacteria that can produce microcystin which can be toxic to both people and animals when ingested from the source or through public drinking water systems.