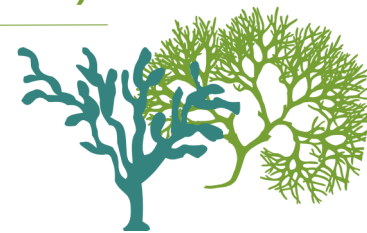


VIDEO 4. Impacts and Examples of Harmful Algal Blooms (HABs)

What are harmful algal blooms (HABs)?

- HABs are algal blooms that threaten the health of people, animals, and aquatic ecosystems.
- Only some HABs are known to produce toxins, but HABs do not need to produce toxins to be considered harmful or have negative effects.



Impacts of HABs

- Health impacts
 - Toxins produced by HABs can have minor to life-threatening health effects.
 - The type of toxins produced depends on the species of algae. Different types of toxins affect specific systems within the body.
- Economic impacts
 - Increased costs associated with HABs may be in the billions of dollars due to:
 - Beach closures and loss of tourism revenue;
 - Increased medical expenses and lost work days due to respiratory and gastrointestinal illnesses from toxin exposure;
 - Declining property values;
 - Loss revenue when commercial fisheries and aquaculture are shut down;
 - Increased cost of water treatment for drinking water.
- Ecological impacts
 - Algae can clog fish gills and prevent light from reaching aquatic plants and coral reefs during a HAB event.
 - Toxins produced by HABs can kill fish, manatees, dolphins, birds, and turtles.
 - HABs can also deplete oxygen levels and cause fish kills.

Examples of HABs

- Red tide
 - Red tides are caused by a species of dinoflagellates in saltwater.
 - The water can appear red to brown or even purple, green, or have no change in color.
 - Red tides can contain toxins.
 - *Karenia brevis* is a species of dinoflagellate that causes red tide on Florida's west coast and can produce brevetoxins.



Red Tide
Photo credit: NOAA

- Cyanobacteria blooms
 - Cyanobacteria blooms are also referred to as blue-green algae or cyanoHABs.
 - These blooms are caused by certain species of cyanobacteria in freshwater ecosystems.
 - Cyanobacteria blooms can contain cyanotoxins.



Cyanobacteria
Photo credit: NOAA

References

Health impacts

- [HAB-associated illness](#), CDC.

Economic impacts

- [Harmful algae economic impacts](#). (2016, July 11). Woods Hole Oceanographic Institute
- Anderson, D.M., Kaoru, Y., & White, A.W. (2000). [Estimated annual economic impacts from harmful algal blooms \(HABs\) in the United States](#). Woods Hole Oceanographic Institute, WHOI-2000-11 Technical Report.
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- Lewitus, A.J., Horner, R.A., Caron, D.A., Garcia-Mendoza, E., Hickey, B.M., Tweddle, J.F. (2012, September). [Harmful algal blooms along the North American west coast region: History, trends, causes, and impacts](#). *Harmful algae*, 19, 133-159.

