

SILICATE

What is silicate?

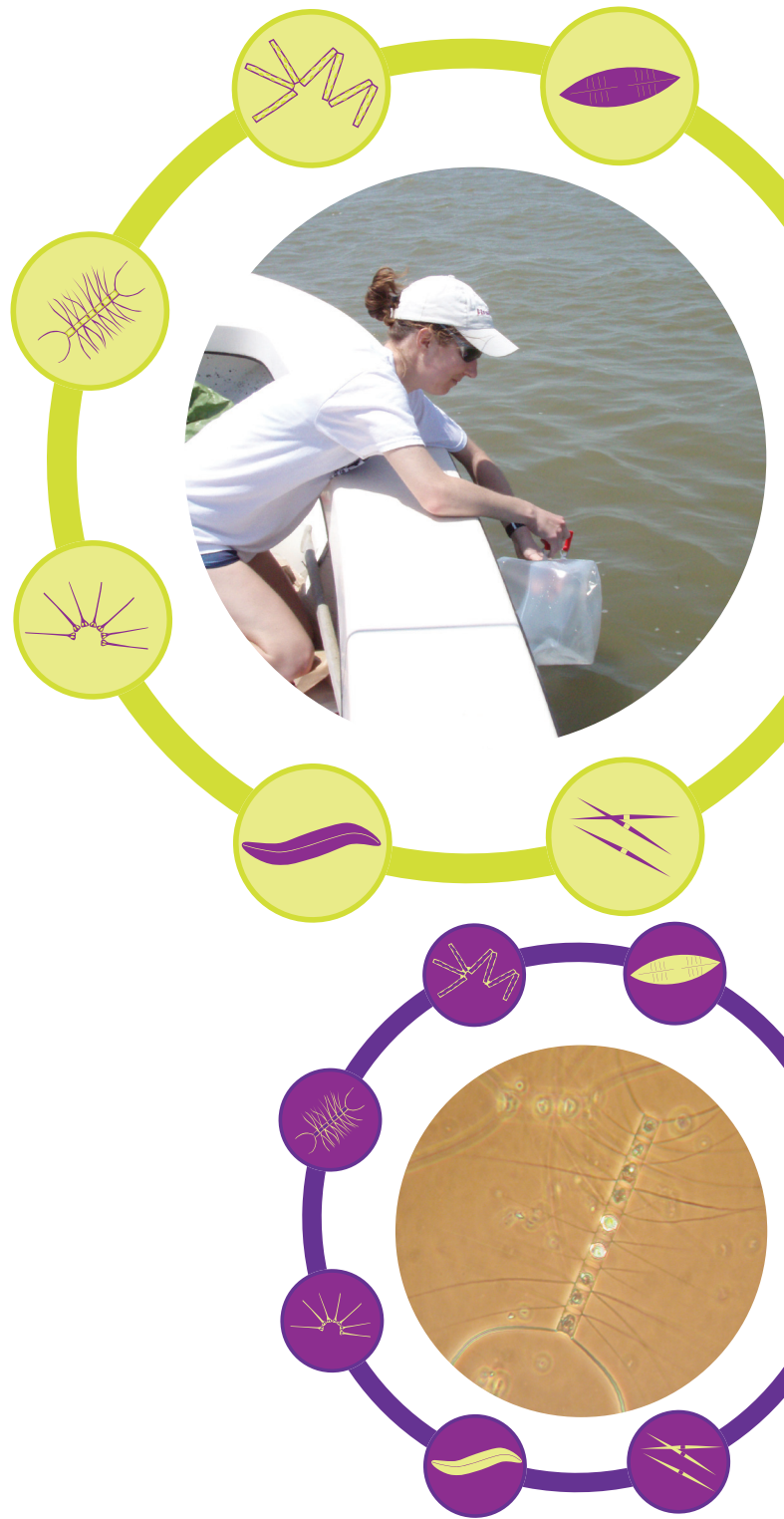
Silicate is a measure of the amount of water-soluble (dissolved) silica in the water. Natural weathering of silicate minerals on the land leads to silicate running off the land and into local waterways.

How is silicate measured?

The amount of dissolved silica, or silicic acid (Si/L), in the water is measured using spectrophotometry. To measure silicate, a water sample is collected in a bottle and sent to a laboratory equipped with a spectrophotometer.

What can silicate tell us about the Bay?

Some types of microalgae, called diatoms, use dissolved silica as a structural component in their cell walls. Microalgae blooms in the Bay and its tributaries can be dominated by diatoms. The blooms are fueled by excess nutrients, such as nitrogen and phosphorus. Diatom blooms are silica-limited because when silica is used up and becomes less available in the water column, diatom blooms decline. When large amounts of diatoms die, the decomposition process can lead to low dissolved oxygen conditions, which are harmful to aquatic organisms, such as macroinvertebrates and fish.



Top: Collecting a water sample in Maryland (T. Carruthers). Bottom: Diatoms under magnification ("*Chaetoceros affinis* + resting spore" by bioqi is licensed under [CC BY-NC-ND 2.0](https://creativecommons.org/licenses/by-nc-nd/2.0/)).