FlowCam®

Common Source Water Taxa

A FlowCam image guide to freshwater algae and cyanobacteria

The FlowCam images in this guide were compiled using live water samples collected and identified with support from freshwater ecologists and drinking water utilities across North America. The purpose of this guide is to increase FlowCam operator familiarity with the cyanobacteria, diatoms, and microalgae that impact our drinking and recreational water bodies.

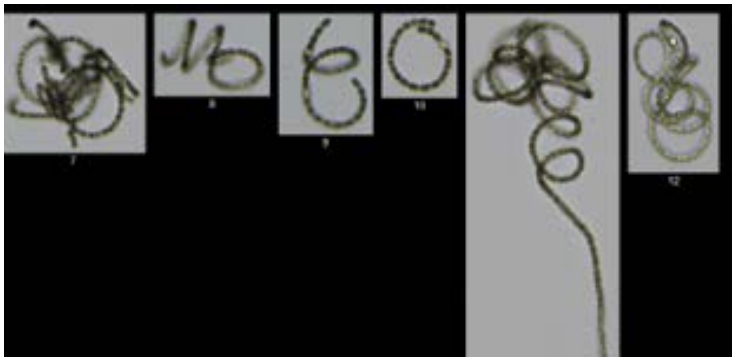
These images are example libraries only. Community composition and morphology will vary based on geography, environmental conditions, and FlowCam settings and it is recommended that these libraries be used as a starting point to building customer specific libraries. It is important to note that the FlowCam is not designed for speciation, but gives enough information to identify organisms to the genus level. The images featured below are not to scale.

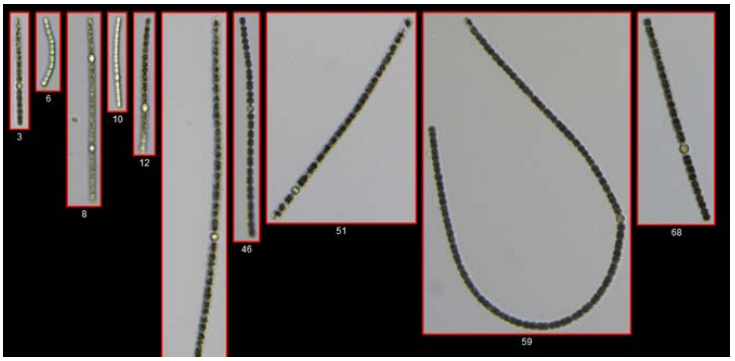
CYANOBACTERIA

Cyanobacteria, often referred to as blue/green algae are often responsible for harmful algal blooms. Some species are capable of producing cyanotoxins that can be harmful to human and animal health, while others can produces compounds associated that can cause significant taste and odor problems in finished drinking water.

Dolichospermum **(formerly** ***Anabaena*****)**

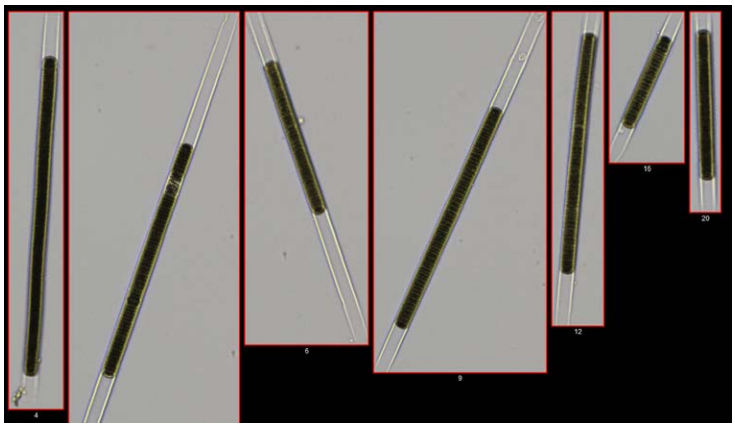
Cyanotoxin and taste & odor producer. Can produce anatoxin, microcystin, saxitoxin, and cylindrospermopsin.





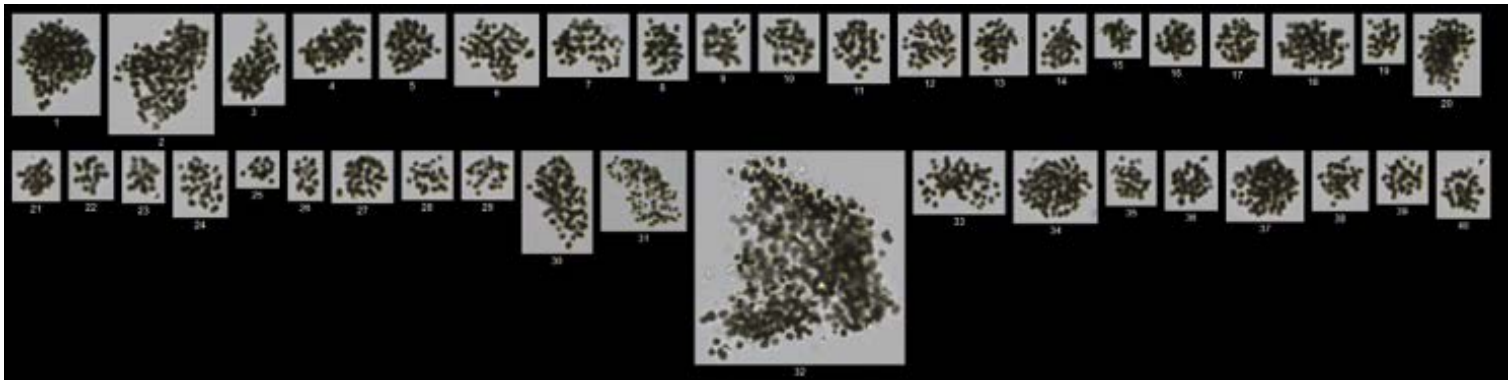
Lyngbya

Cyanotoxin (lyngbyatoxins) and taste & odor producer. Can produce cylindrospermopsin and saxitoxin.



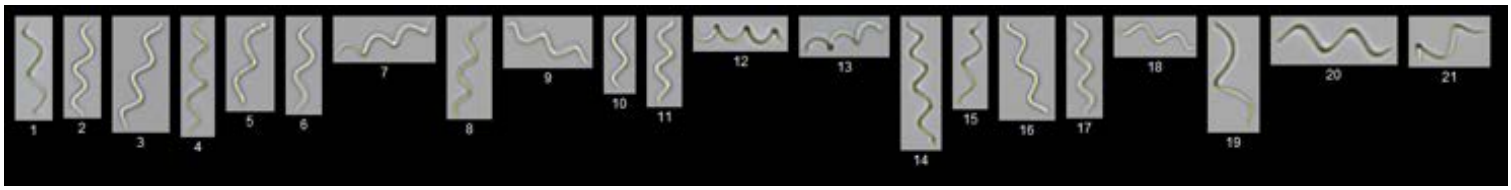
Microcystis

Cyanotoxin and taste & odor producer. Can produce microcystin and anatoxin.



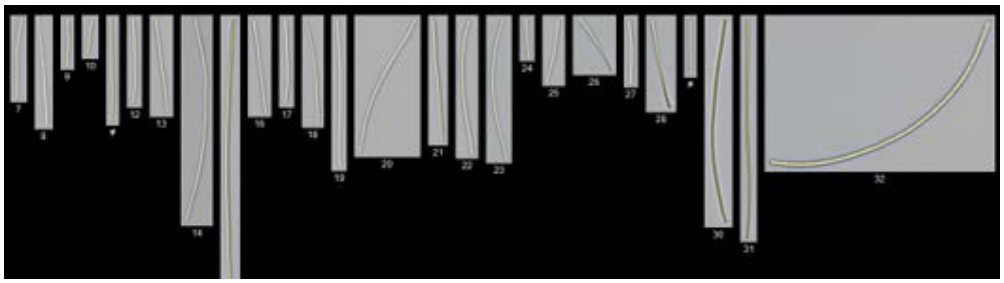
Cylindrospermopsis

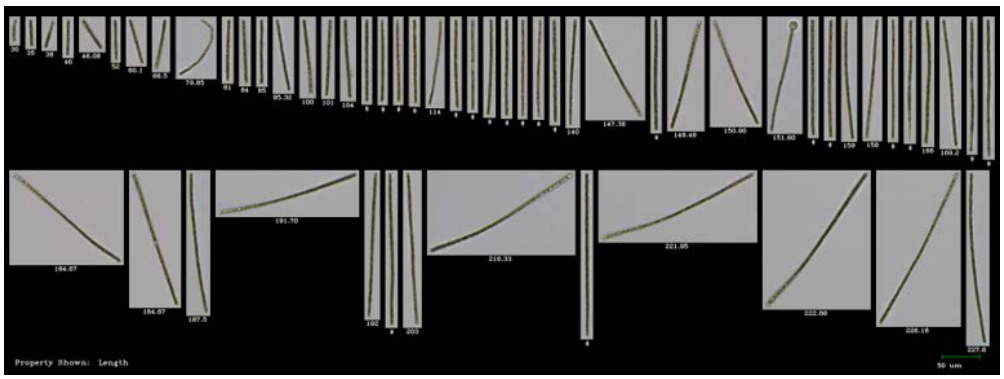
Cyanotoxin producer, including saxitoxin and cylindrospermopsin.

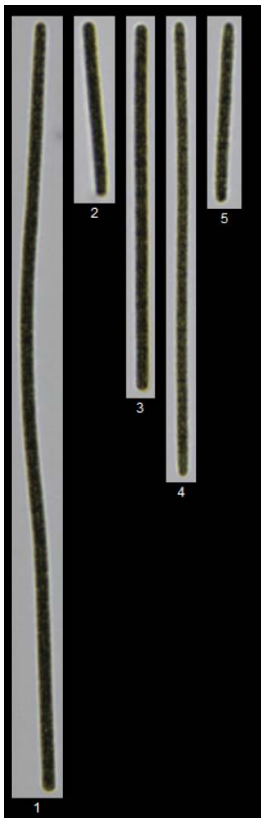


Planktothrix

Cyanotoxin (lyngbyatoxins) and taste & odor producer. Can produce microcystin, anatoxin, and saxitoxin. The morphology varies considerably. *Planktothrix* and *Phormidium* (see page 3) are frequently confused with one another.

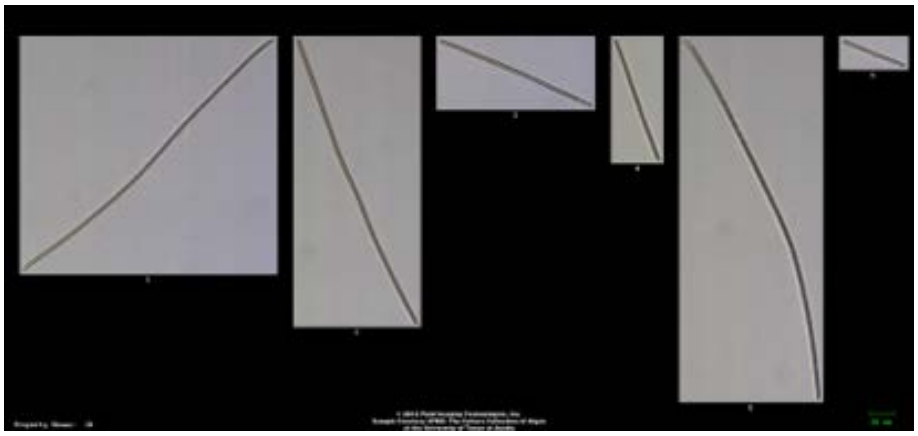






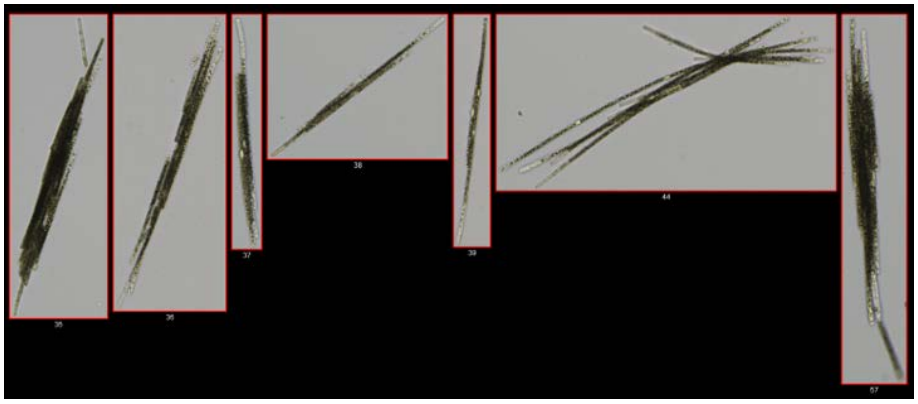
Phormidium

Can produce saxitoxin and microcystin.

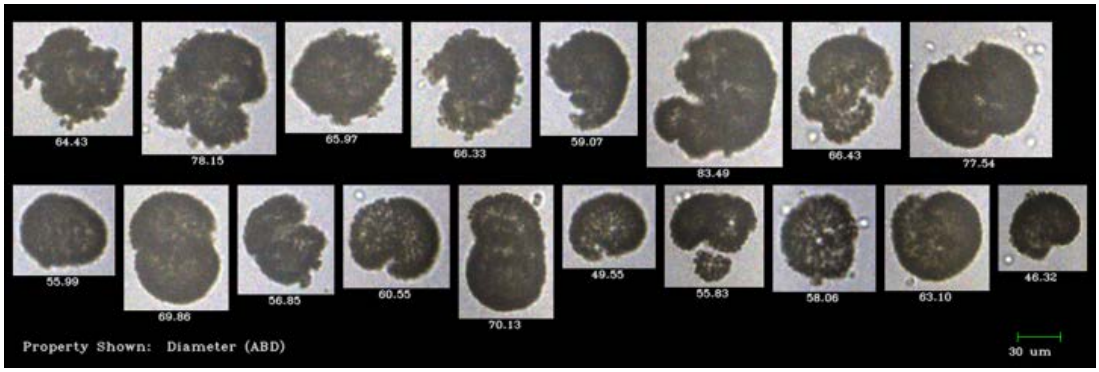


Aphanizomenon (*Cuspidothrix*)

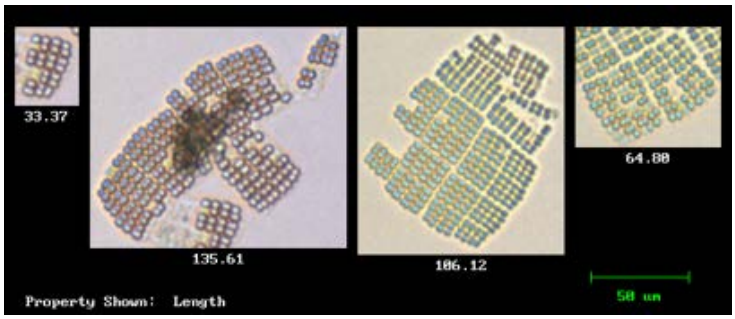
Taste and odor producer. Can produce anatoxin, saxitoxin, and cylindrospermopsin.



Woronichinia



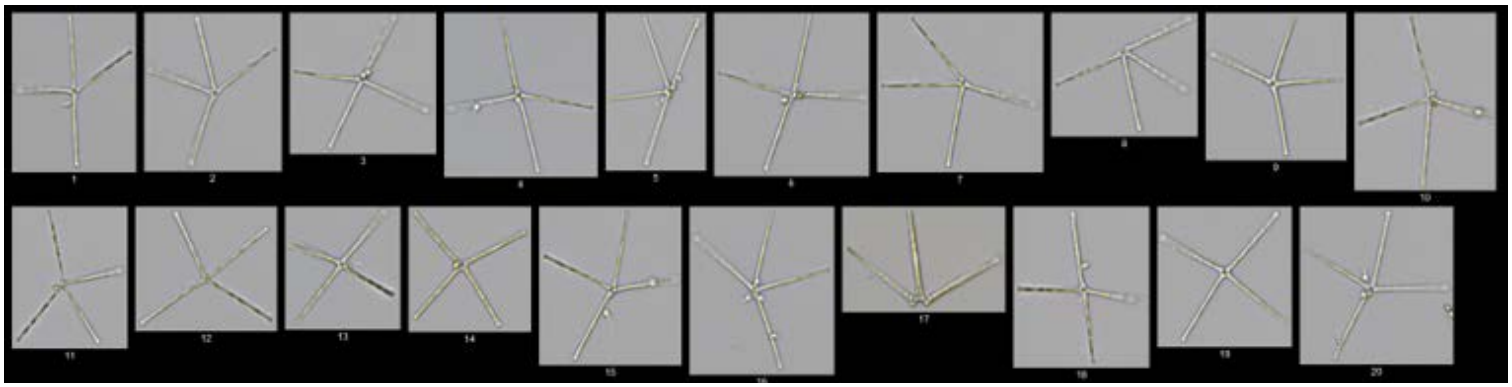
Merismopedia



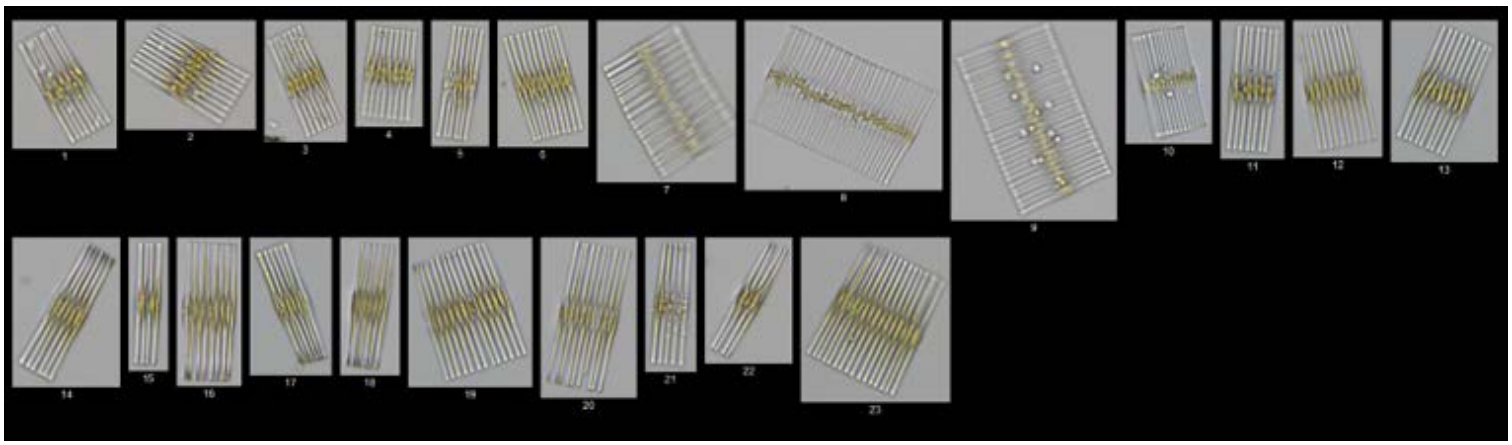
DIATOMS

Diatoms are phytoplankton that are known for having cell walls, or frustules, made of silica. They can be found as solitary cells or in colonies/chains. Diatoms are often grouped together based on their shape and type of symmetry. Diatoms do not produce toxins, but are capable of clogging filters.

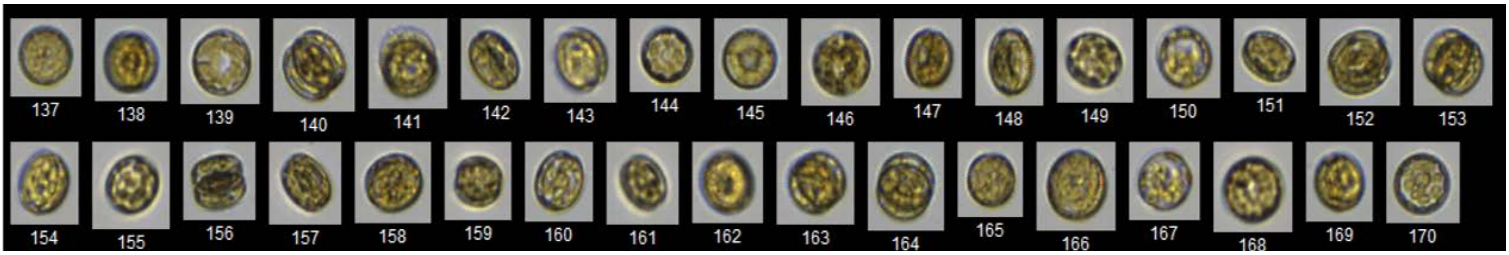
Asterionella



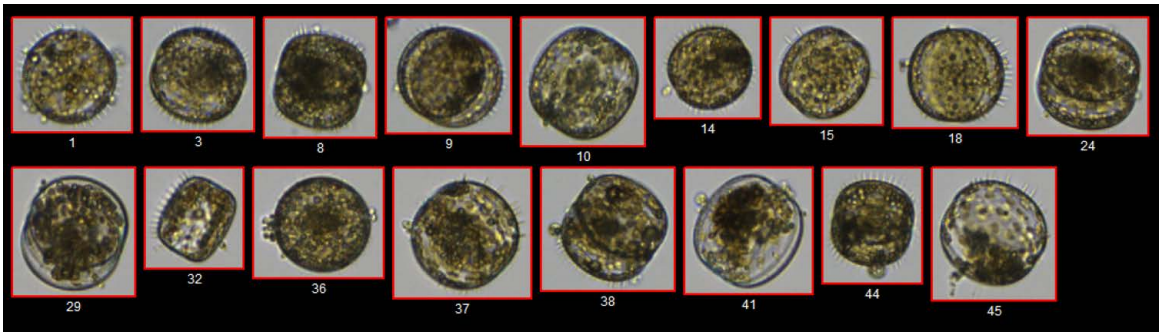
Fragilaria



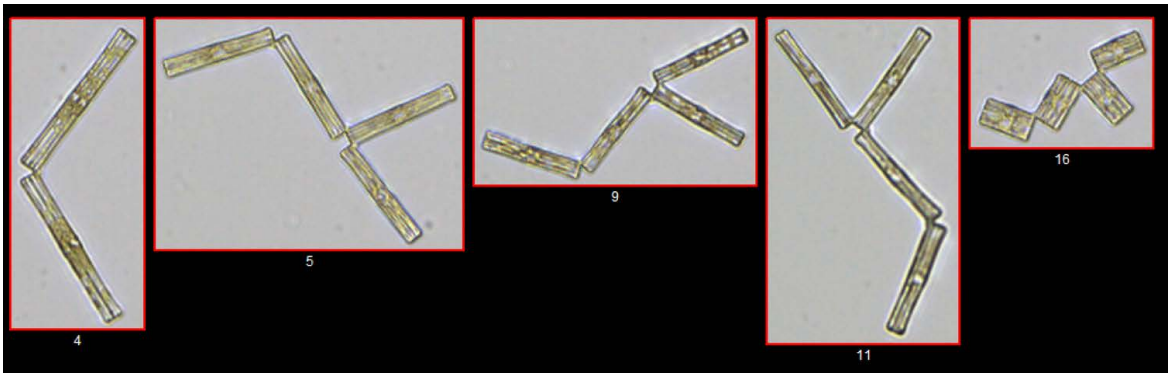
Cyclotella



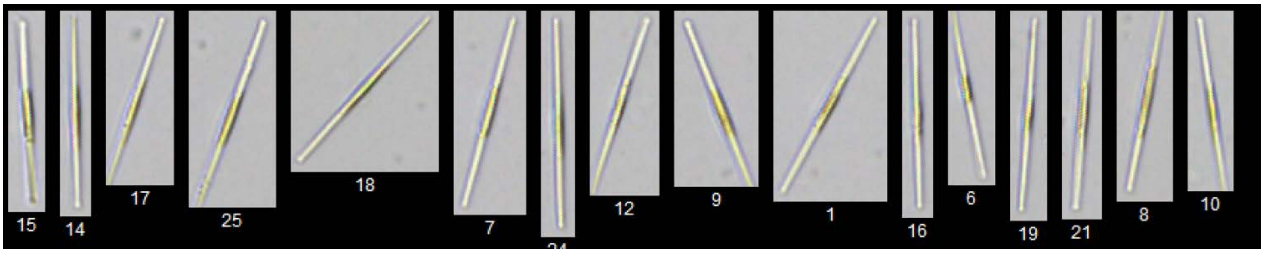
Stephanodiscus



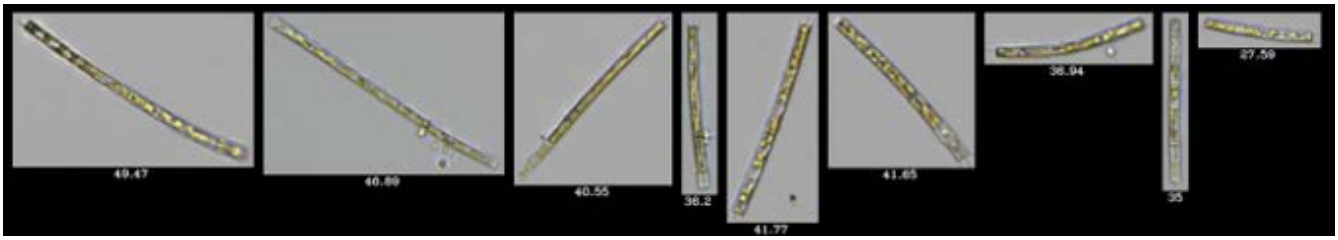
Tabellaria



Synedra



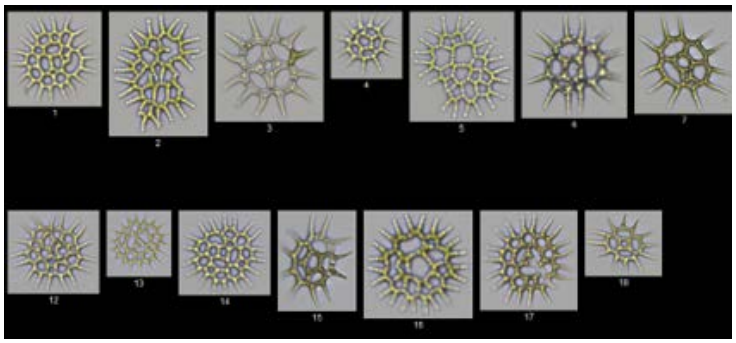
Aulacoseira

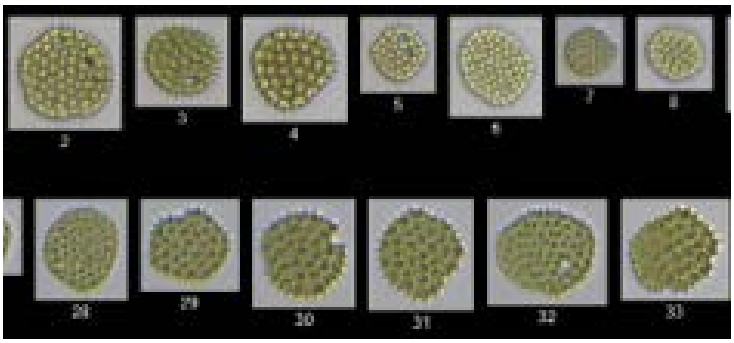


GREEN ALGAE

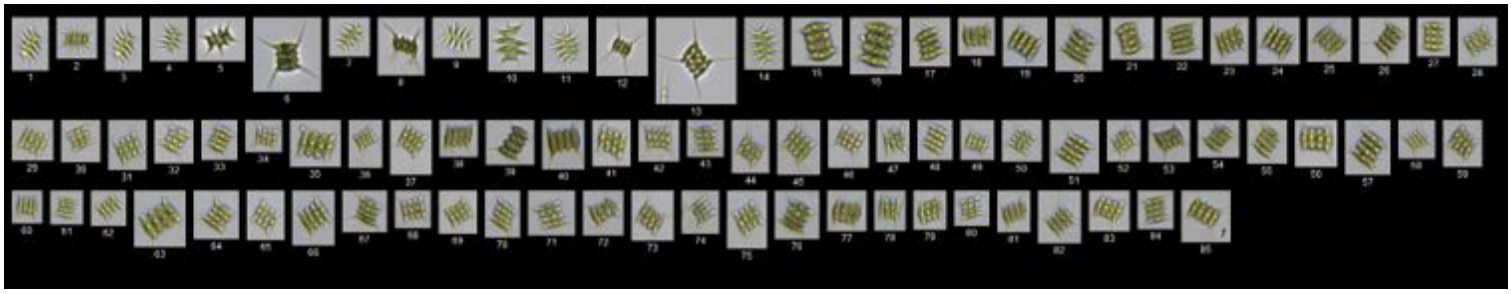
Closterium

Pediastrum

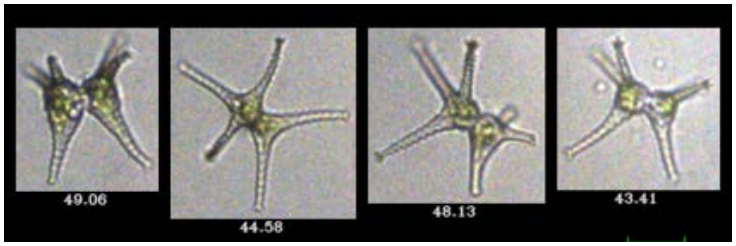


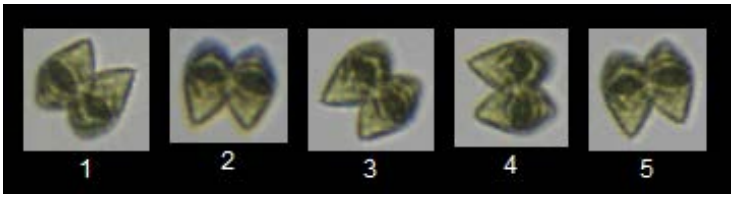


Scenedesmus

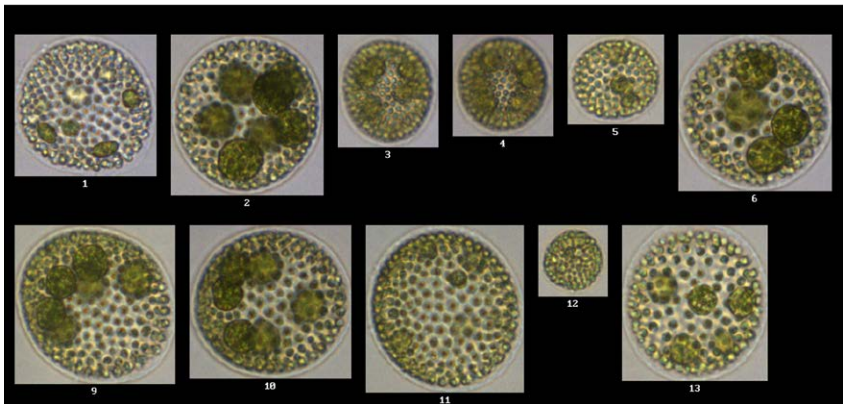


Staurastrum





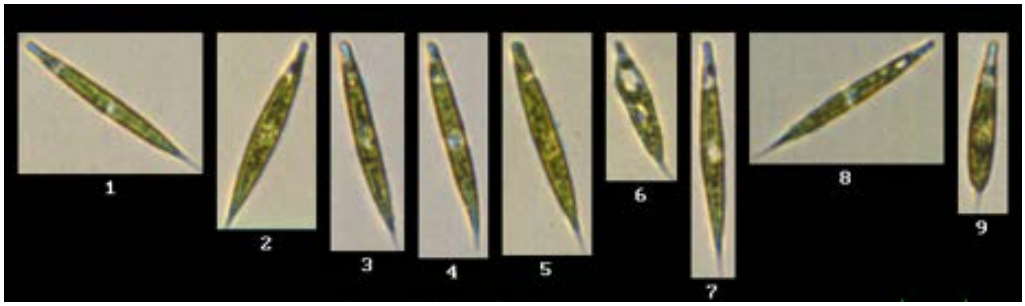
Volvox



OTHER COMMON ORGANISMS

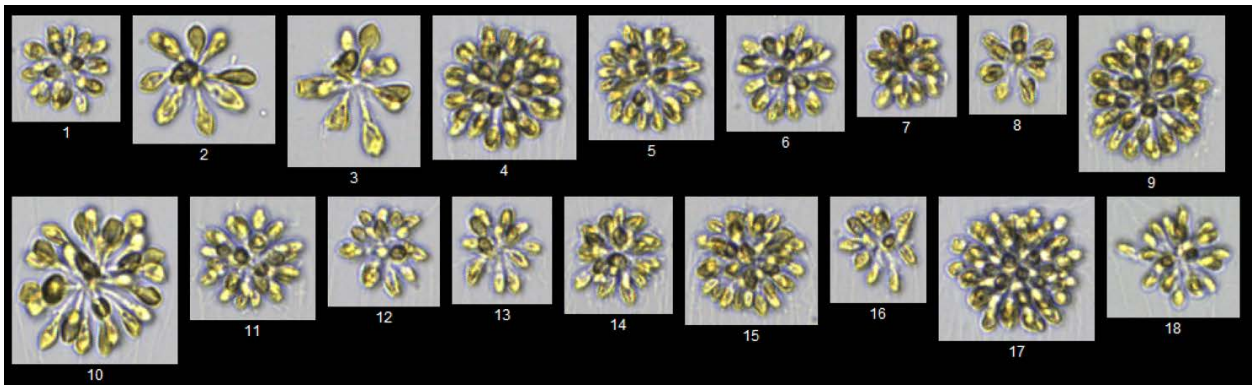
Euglena

Not a green algae, but has chlorophylls a and b.



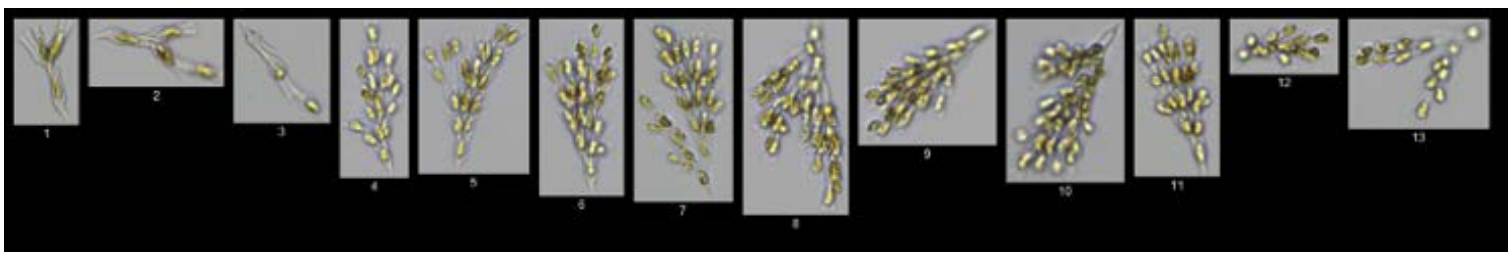
Synura

Golden brown algae. Taste and odor producer (cucumber smell).



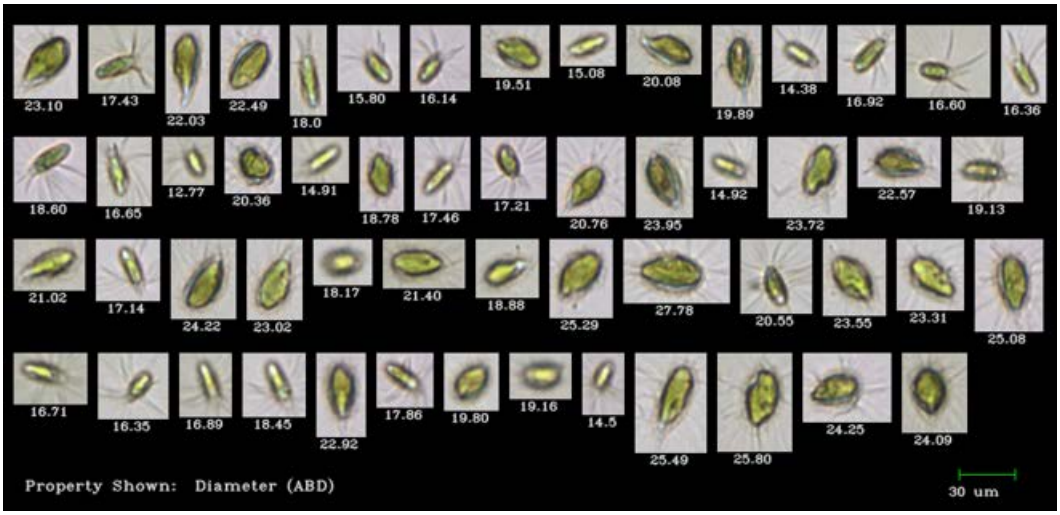
Dinobryon

Chrysophyte. Taste and odor producer (fishy cucumber smell). Capable of clogging filters.



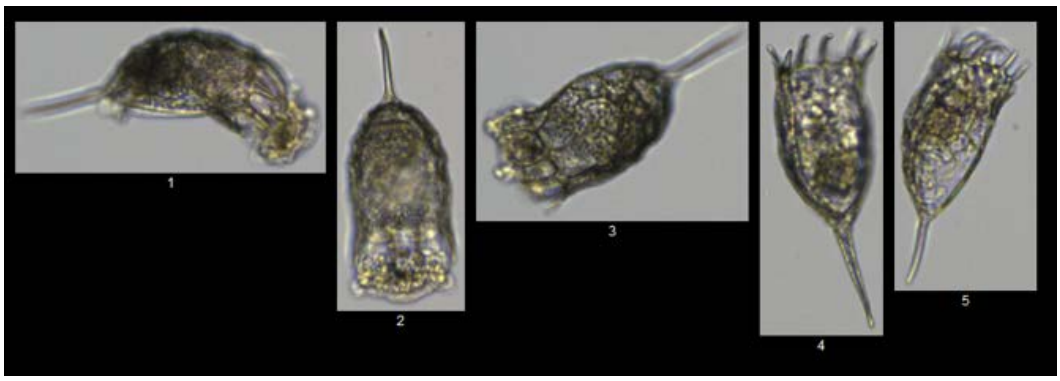
Mallomonas

Similar to *Synura*, but unicellular in nature and containing silica bristles.

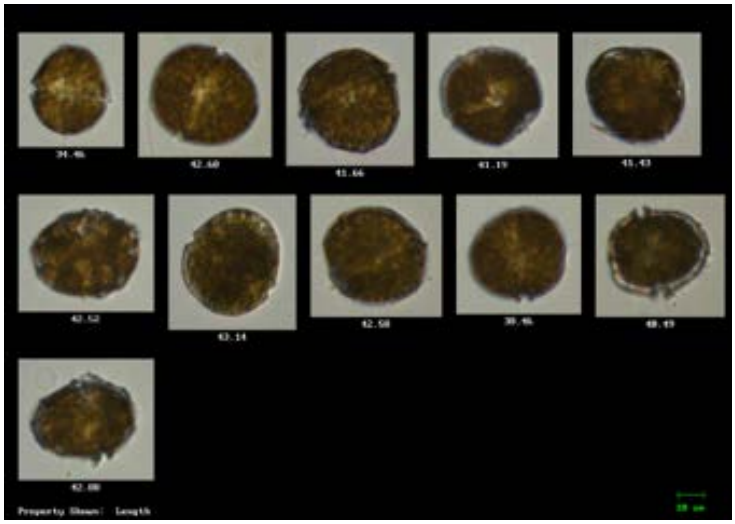


***Keratella* (Rotifer)**

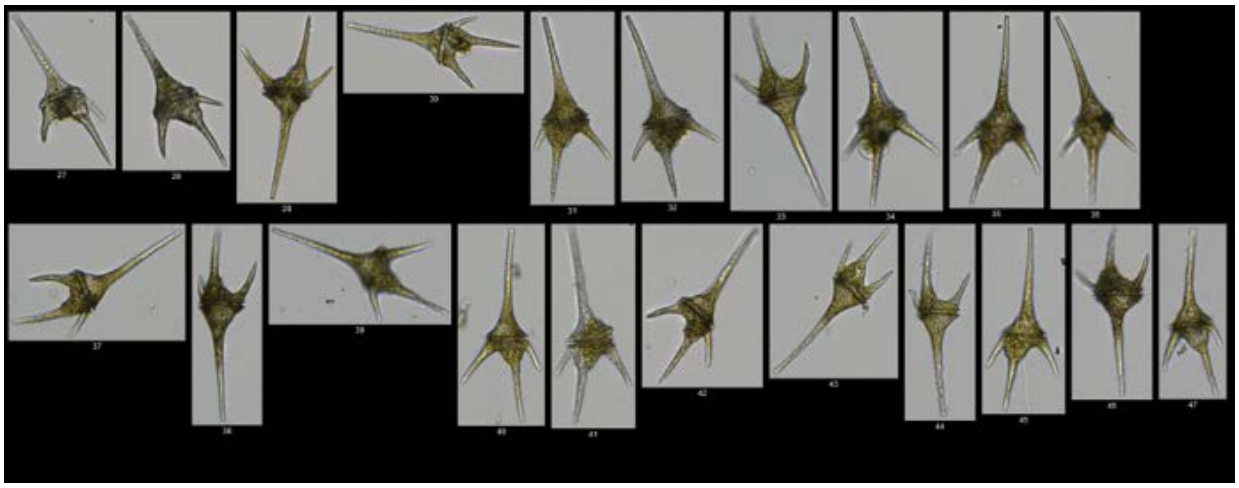
Zooplankton grazers that consume algae.



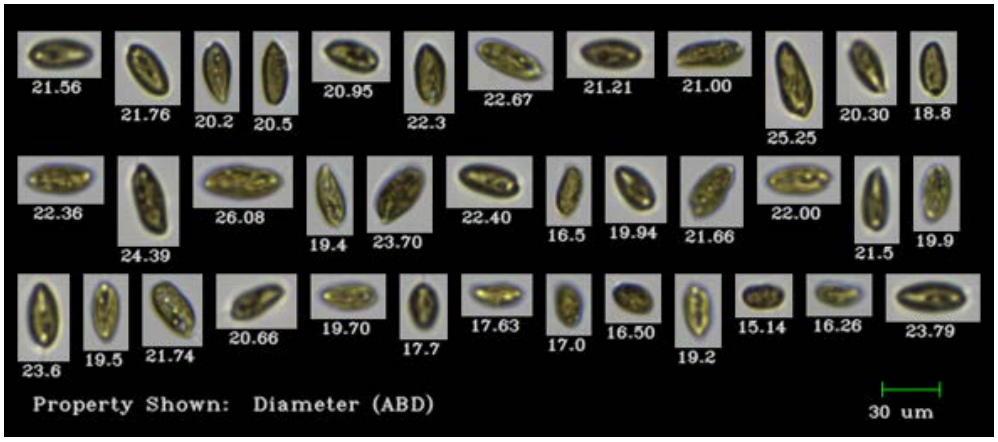
***Peridinium* (Dinoflagellate)**



Ceratium (Dinoflagellate)



Cryptomonas



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City of Wichita Falls, Texas

Images were captured using FlowCam. Information about toxins and the impact on water utilities was compiled from reputable online sources, including epa.gov as well as the aforementioned scientists.