

# 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.

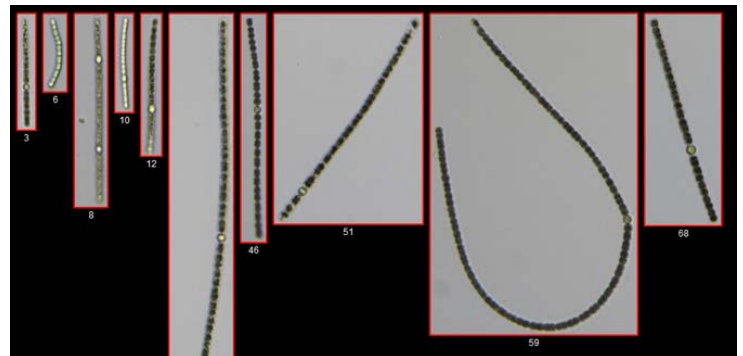
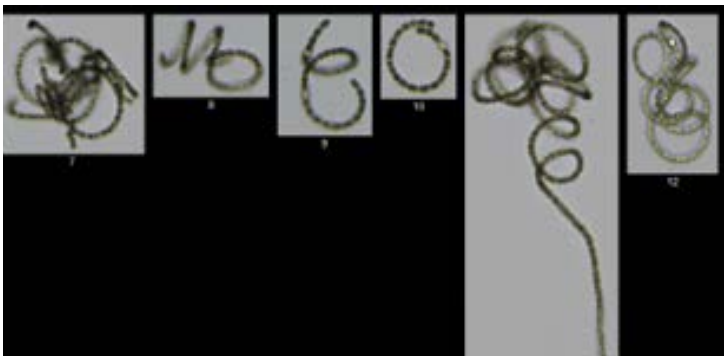
These images are example libraries only. Community composition and morphology will vary based on geography, environmental conditions, and FlowCam settings and it is recommended that these libraries be used as a starting point to building customer specific libraries. It is important to note that the FlowCam 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 produce compounds associated that can cause significant taste and odor problems in finished drinking water.

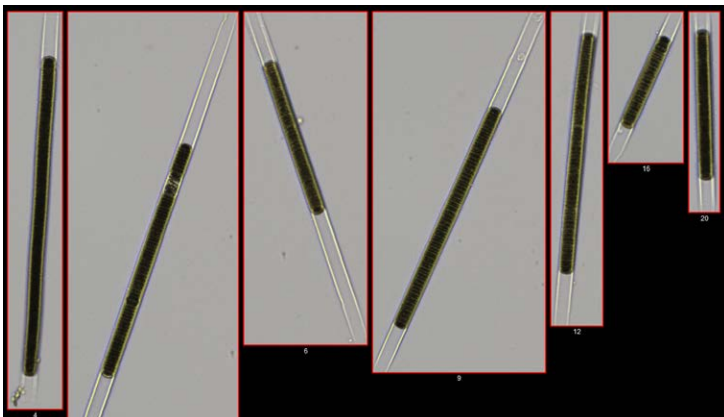
### *Dolichospermum (formerly Anabaena)*

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



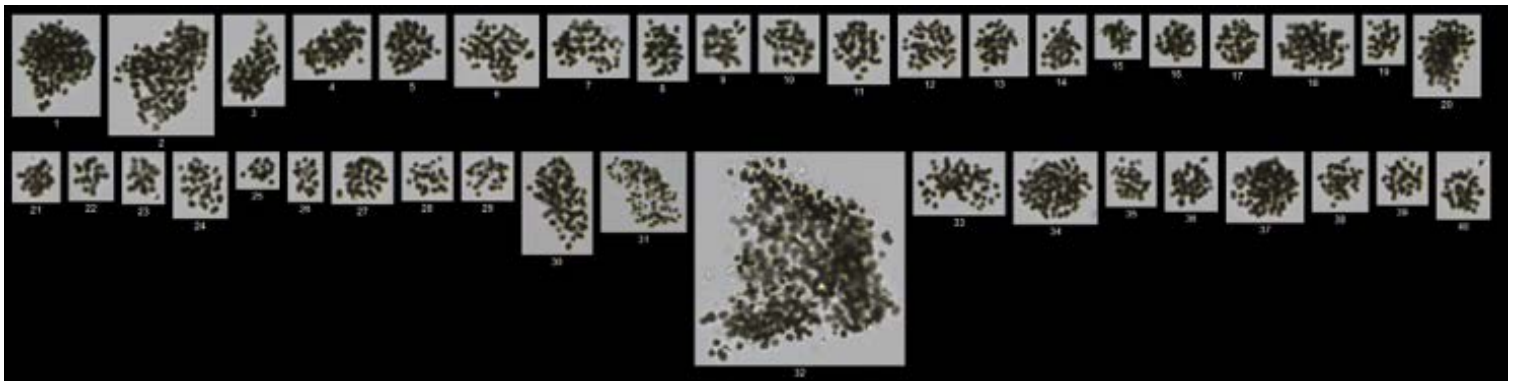
### *Lyngbya*

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



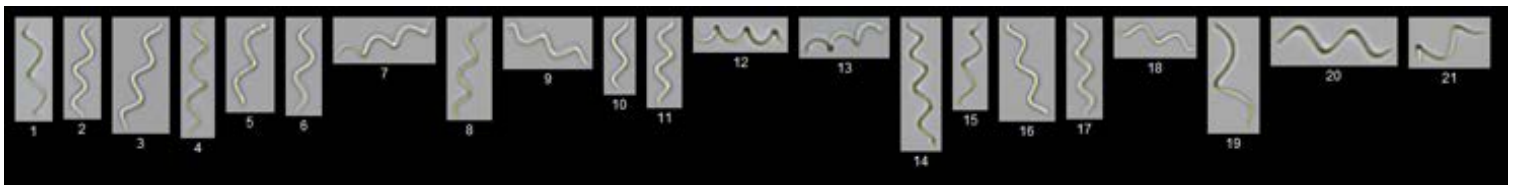
### ***Microcystis***

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



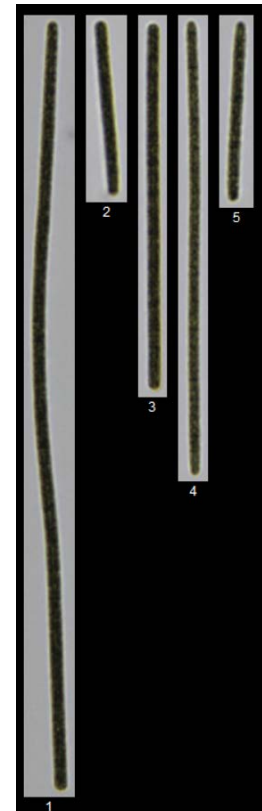
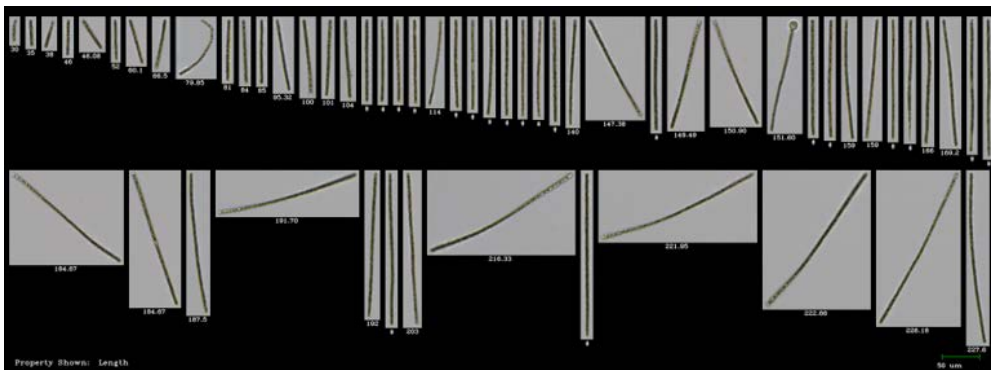
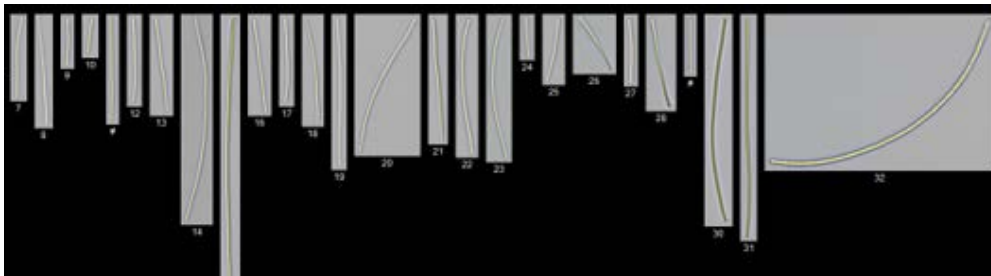
### ***Cylindrospermopsis***

Cyanotoxin producer, including saxitoxin and cylindrospermopsis.



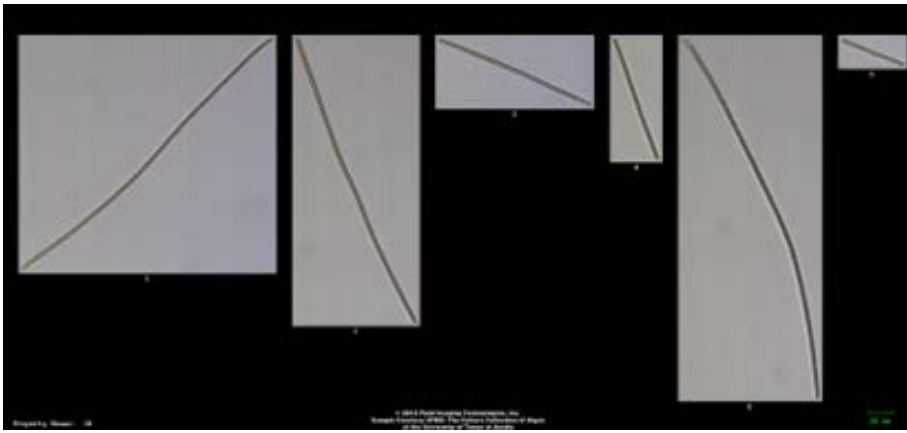
### ***Planktothrix***

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.



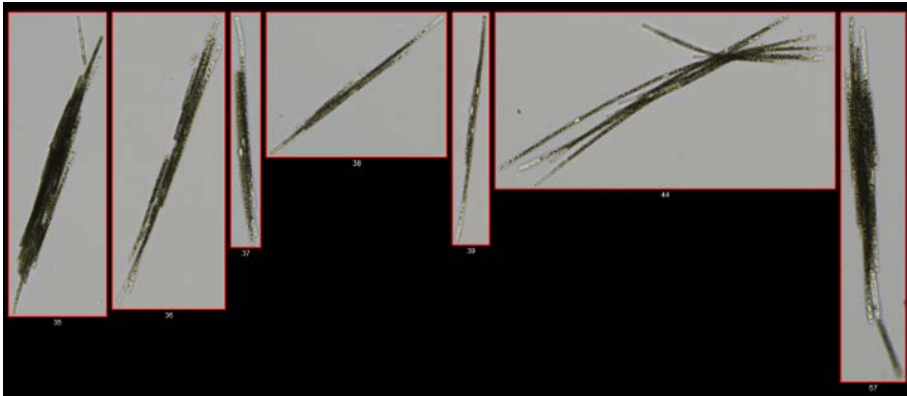
### *Phormidium*

Can produce saxitoxin and microcystin.

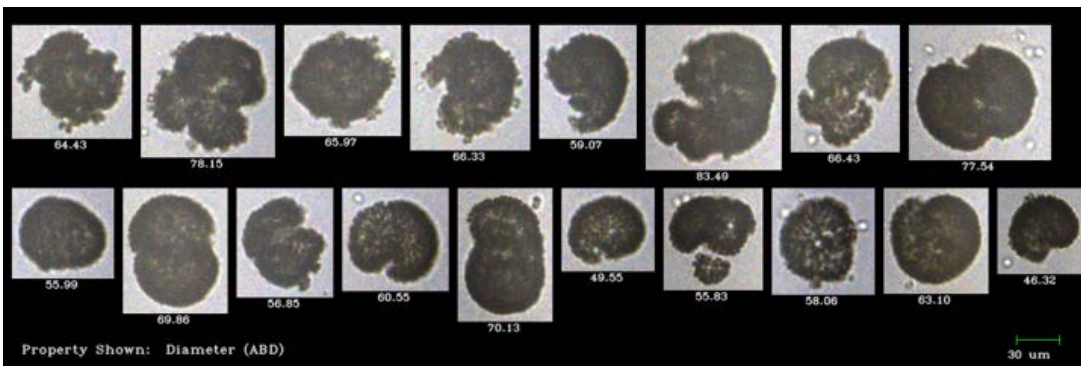


### *Aphanizomenon (Cuspidothrix)*

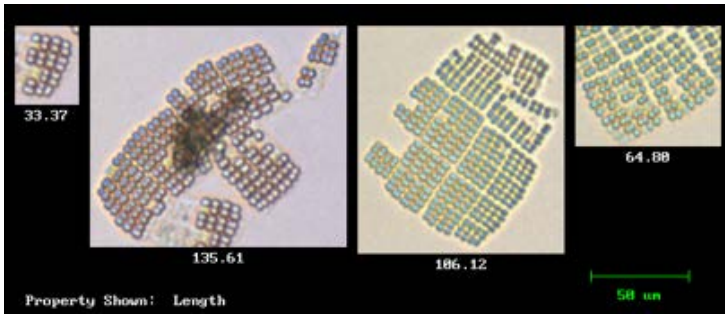
Taste and odor producer. Can produce anatoxin, saxitoxin, and cylindrospermopsin.



### *Woronichinia*



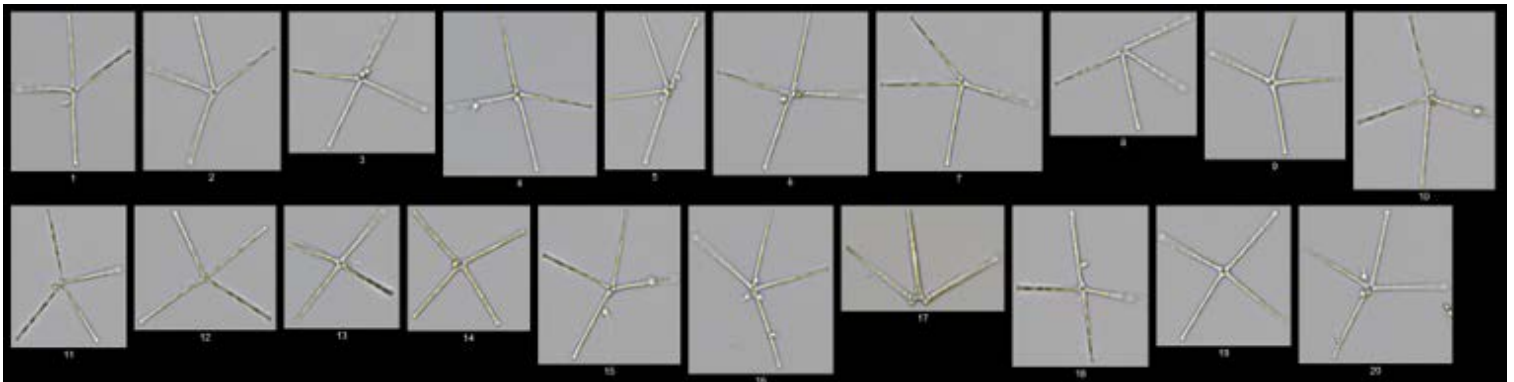
## *Merismopedia*



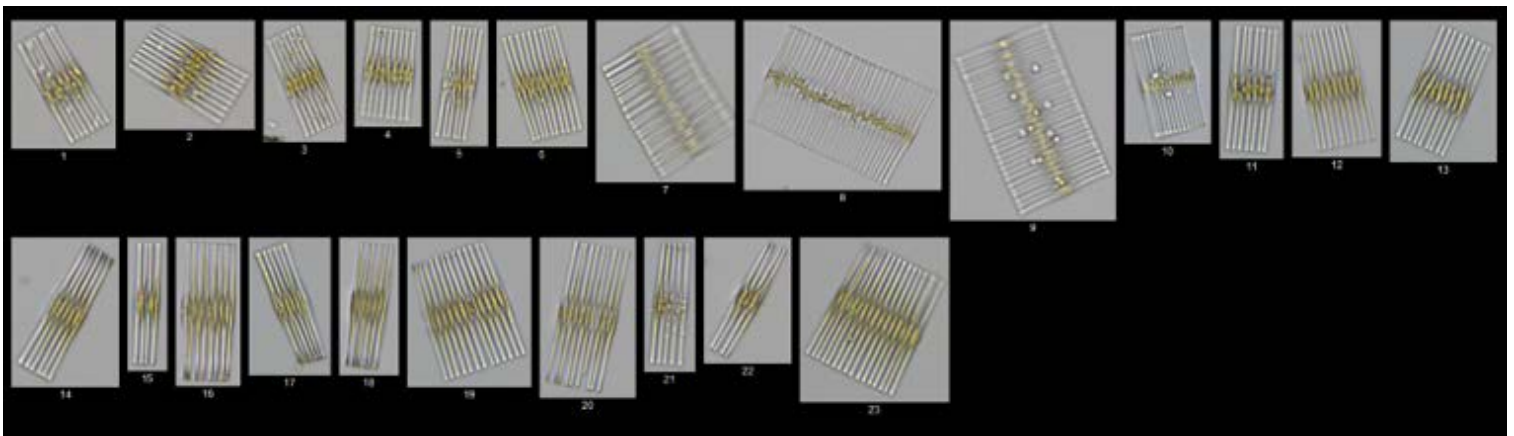
## DIATOMS

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.

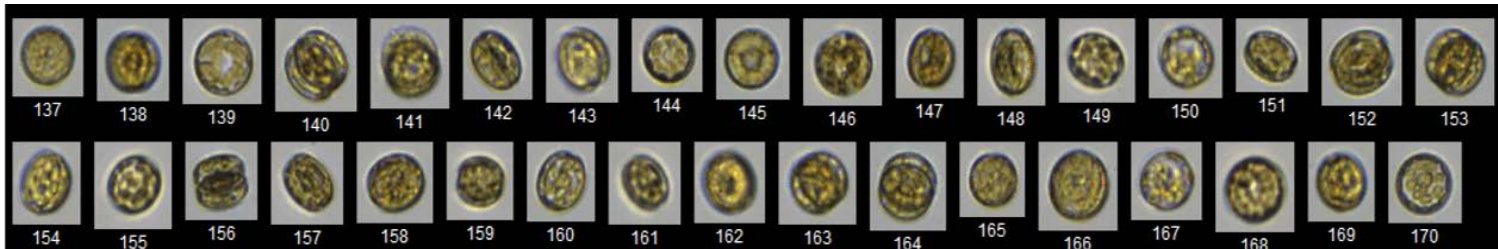
## *Asterionella*



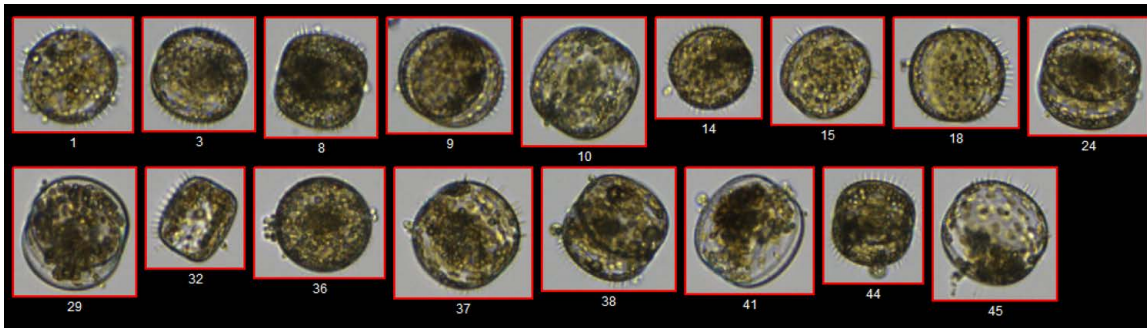
## *Fragilaria*



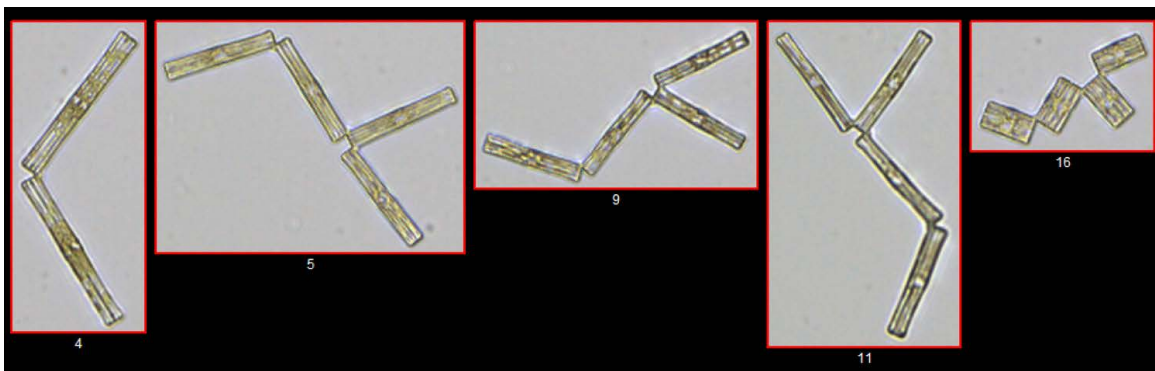
*Cyclotella*



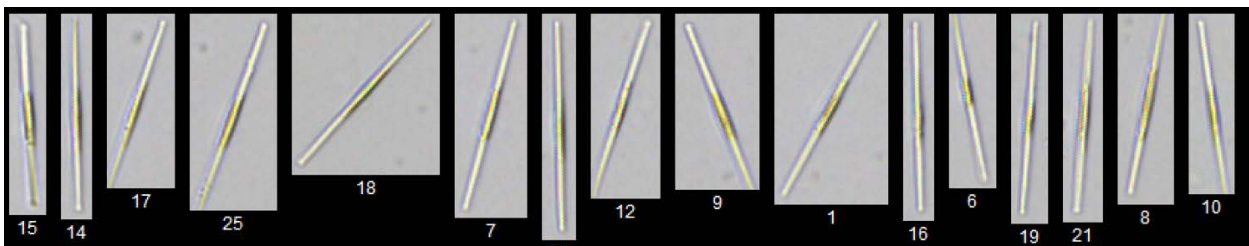
*Stephanodiscus*



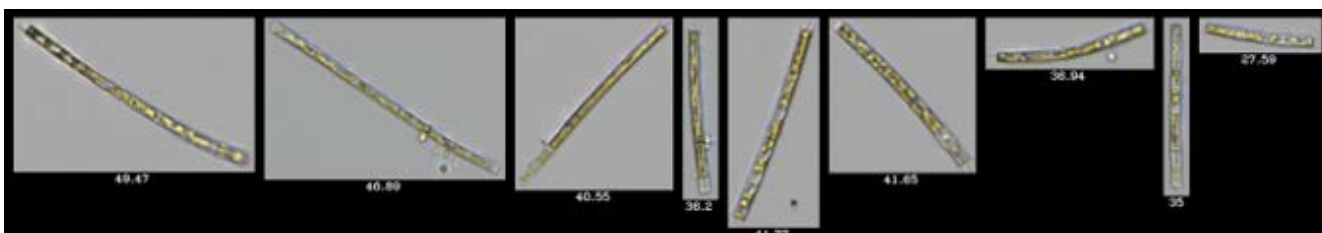
*Tabellaria*



*Synedra*



*Aulacoseira*

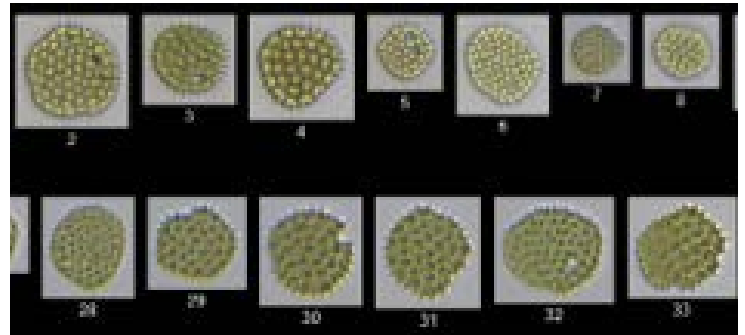
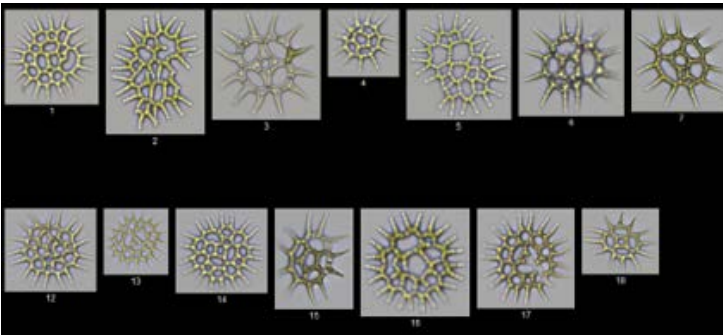


# GREEN ALGAE

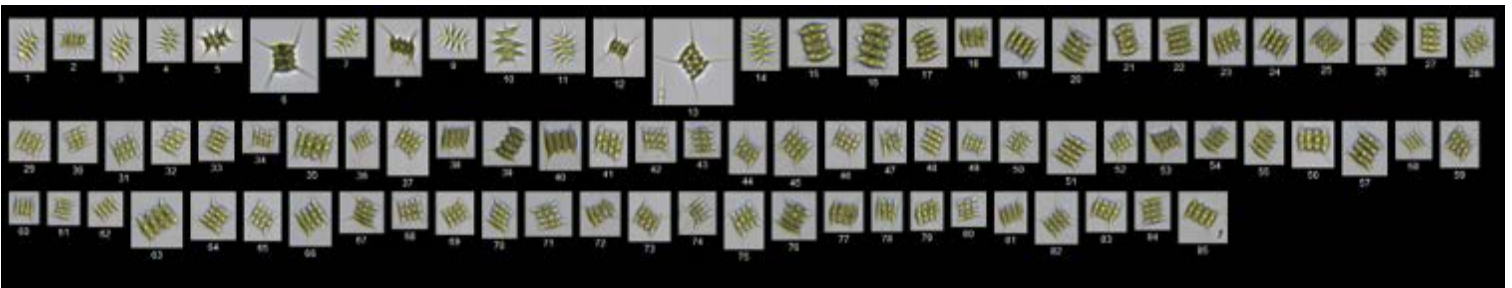
## *Closterium*



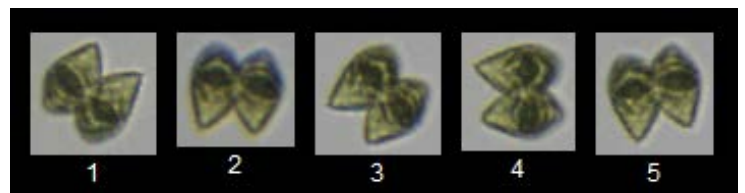
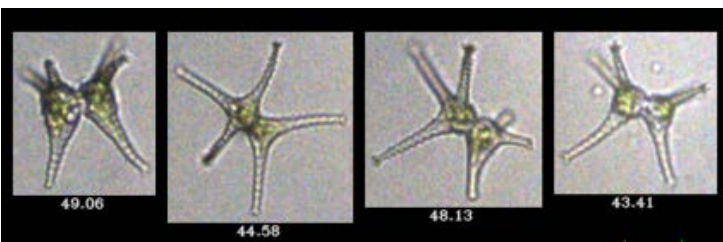
## *Pediastrum*



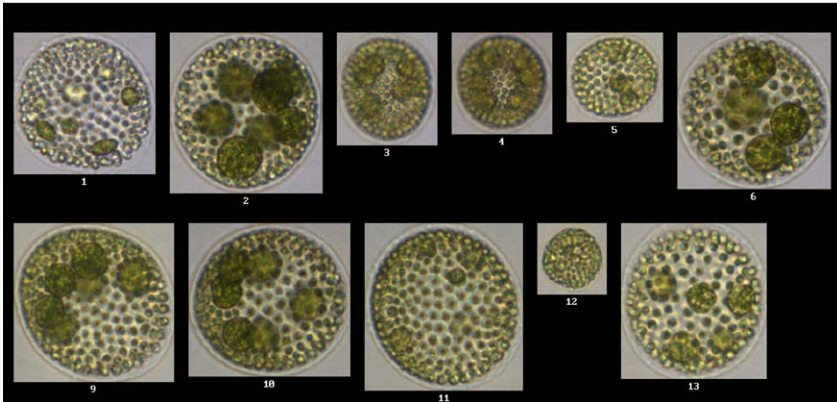
## *Scenedesmus*



## *Staurastrum*



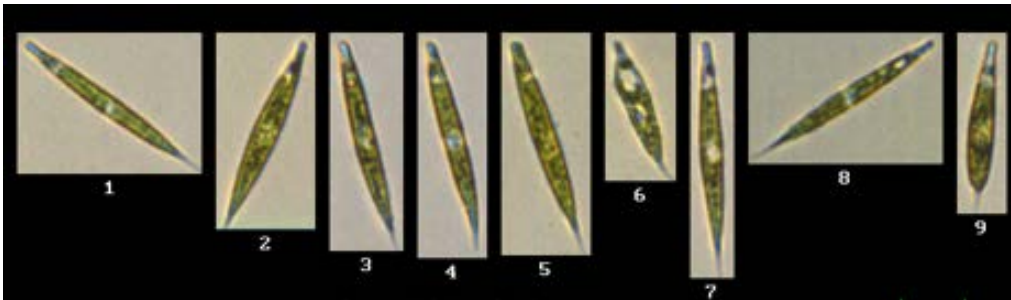
## *Volvox*



## OTHER COMMON ORGANISMS

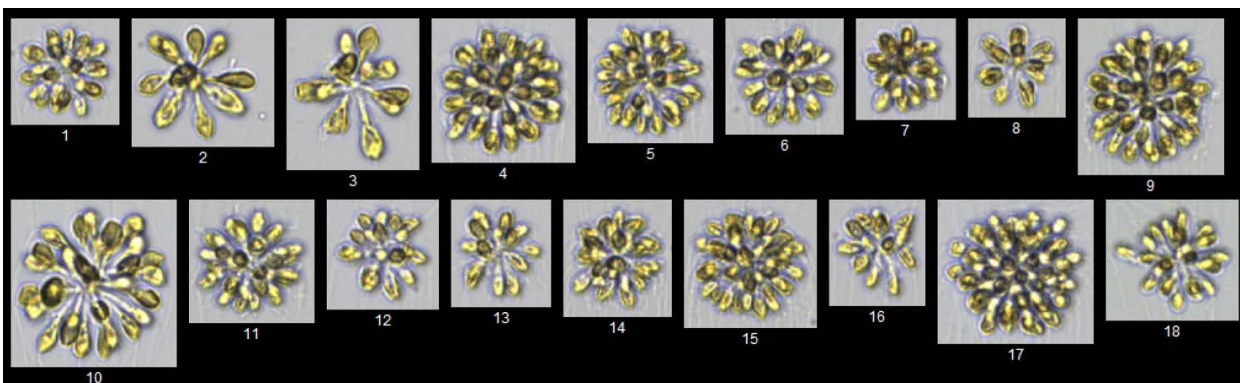
### *Euglena*

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



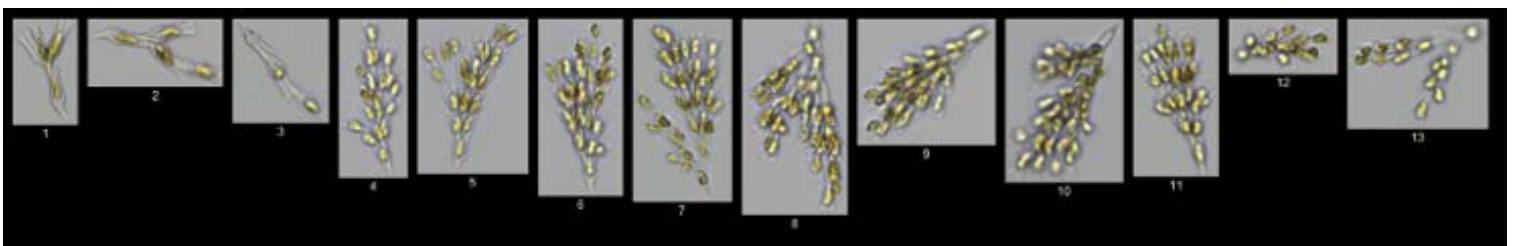
### *Synura*

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



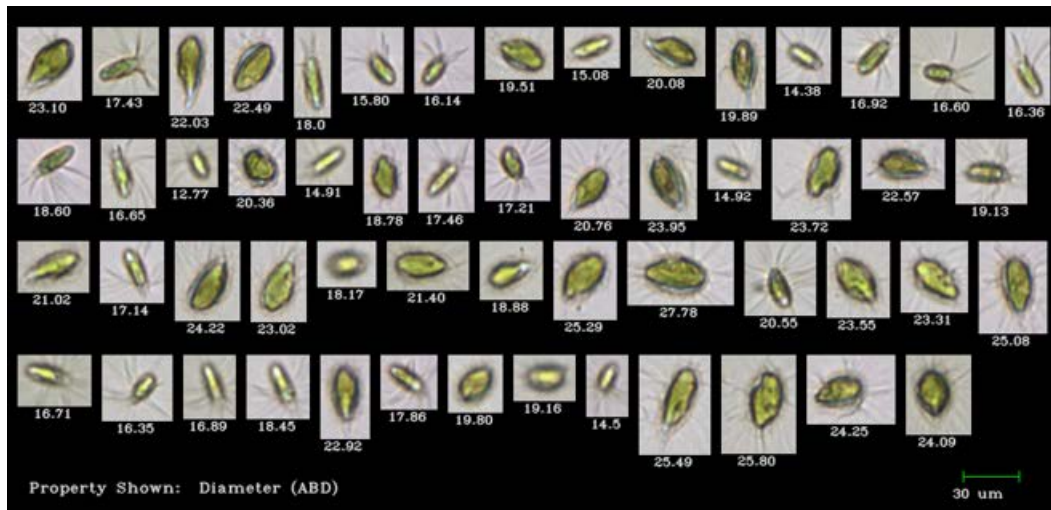
### *Dinobryon*

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



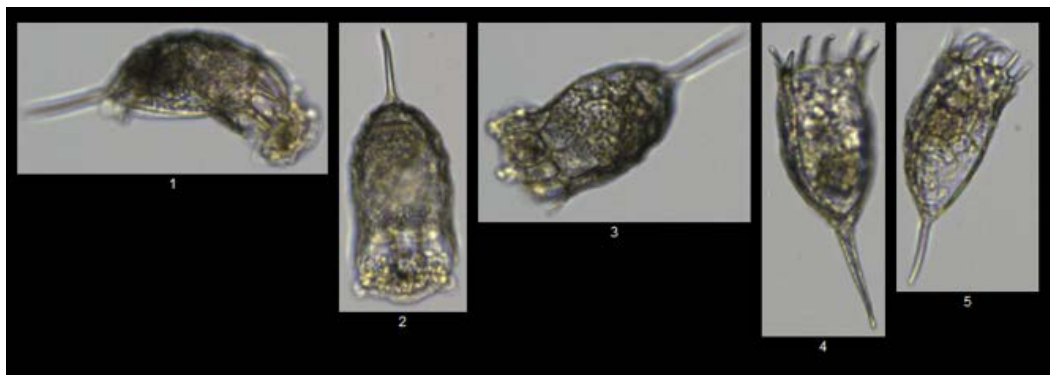
### *Mallomonas*

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

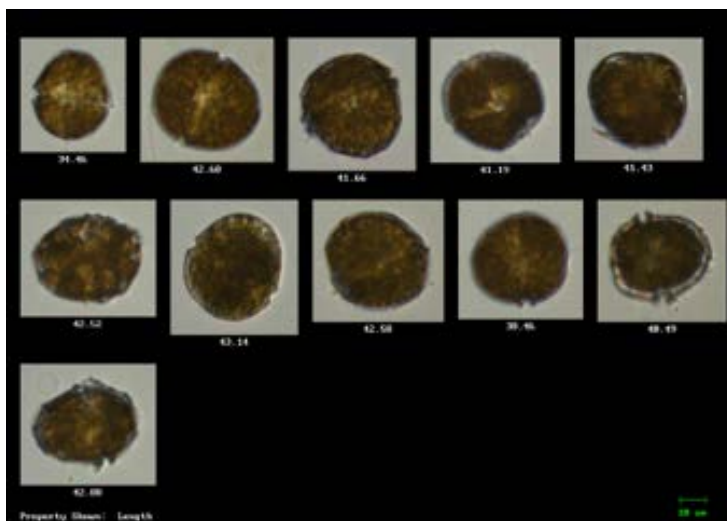


### *Keratella* (Rotifer)

Zooplankton grazers that consume algae.

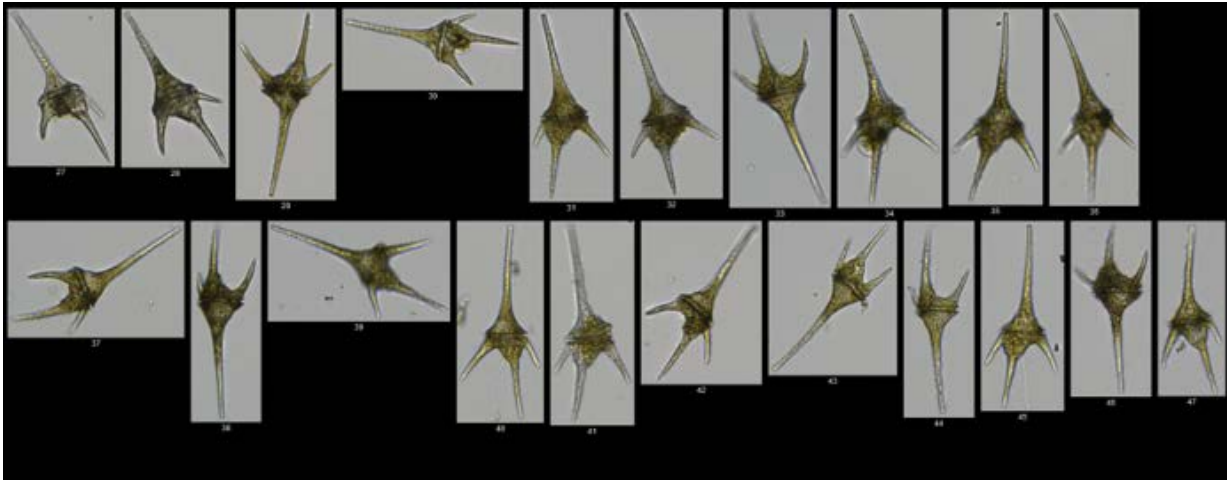


### *Peridinium* (Dinoflagellate)

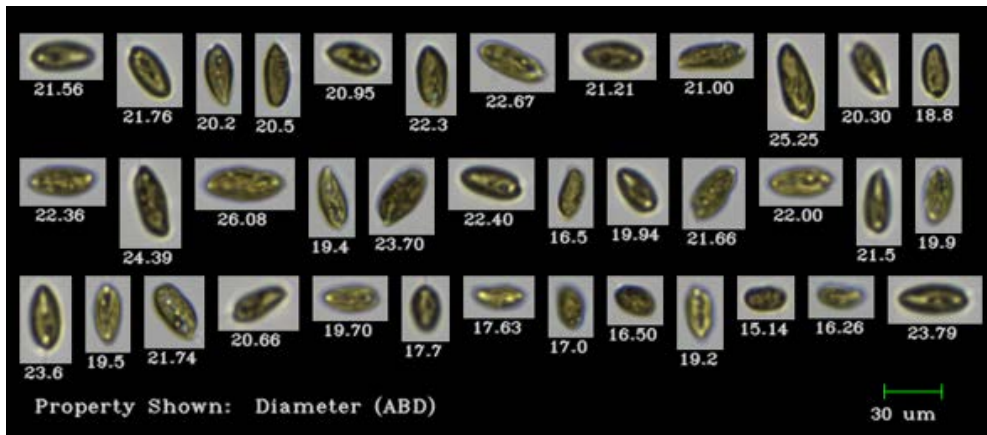




## *Ceratium* (Dinoflagellate)



## *Cryptomonas*



## ACKNOWLEDGMENTS

We would like to thank the following people for sharing their expertise in the creation of this guide:

### **Mike McKay**

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City of Aurora, Colorado

### **Hunter Adams**

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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](http://epa.gov) as well as the aforementioned scientists.