

US EPA ARCHIVE DOCUMENT

Field and Laboratory Guide to harmful Cyanobacteria for Native American Tribes in the United States

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Background

- Presented Harmful Algal Bloom 101 to USET
- Obvious concern about exposure of tribal members to cyanobacteria and their associated cyanotoxins
- After the presentation, one-on-one conversations lead to the vision on this Guide
- Field recognition of a bloom and laboratory identification of key organisms

Field and Laboratory Guide to Freshwater Cyanobacteria Harmful Algal Blooms for Native American and Alaska Native Communities



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Open-File Report 2015–1164

U.S. Department of the Interior
U.S. Geological Survey

Recognizing a cyanobacteria bloom: field images (blue-green to greenish in color)

Dolichospermum lemmermannii



Recognizing a cyanobacteria bloom: field images (blue-green to greenish in color)

Microcystis aeruginosa



Recognizing a cyanobacteria bloom: field images (blue-green to greenish in color)

Gloeotrichia echinulata



Recognizing a cyanobacteria bloom: field images (blue-green to greenish in color)

Aphanizomenon flos-aquae



Recognizing a cyanobacteria bloom: field images (blue-green to greenish in color)

Aphanizomenon flos-aquae, etc.



Lake water subsample containing colonies of *Aphanizomenon flos-aquae* (A), *Microcystis* (B), and *Gloeotrichia* (C). Magnification = 3×. Photograph by Sara Eldridge, U.S. Geological

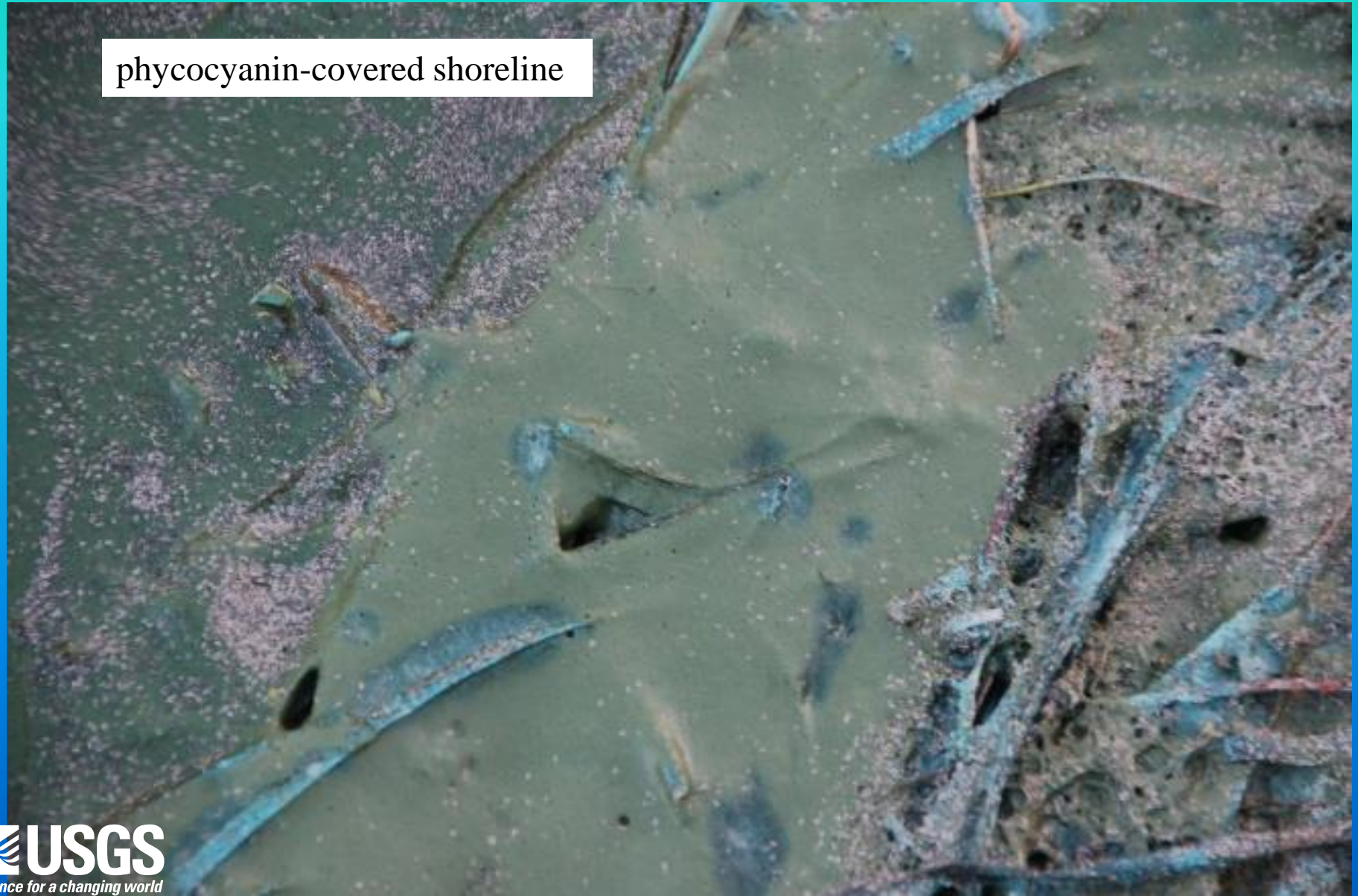
Recognizing a cyanobacteria bloom: field images (blue-green to greenish in color)

Microcystis viridis



Recognizing a cyanobacteria bloom: field images (blue-green to greenish in color)

phycocyanin-covered shoreline



Recognizing a cyanobacteria bloom: field images (brown in color)



Nodularia spumigena



Woronichinia naegeliana

Recognizing a cyanobacteria bloom: field images (reddish/pink color)



Planktothrix



Euglena sanguinea



Azolla

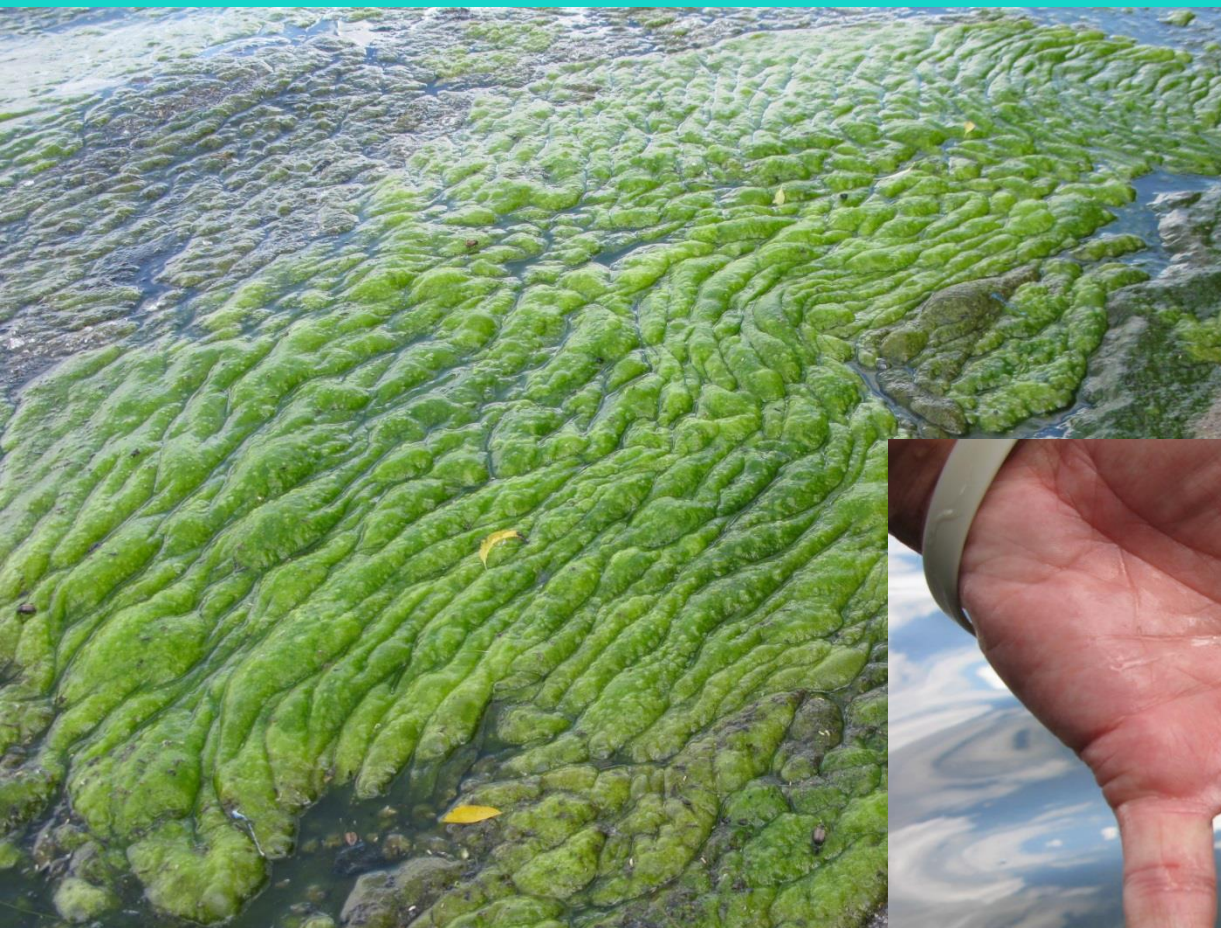
Not Cyanobacteria



Not Cyanobacteria



Not Cyanobacteria



Prokaryotes (Bacteria)

Cyanobacteria



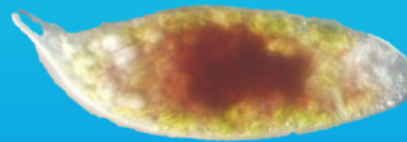
Eukaryotes



Haptophytes



Dinoflagellates



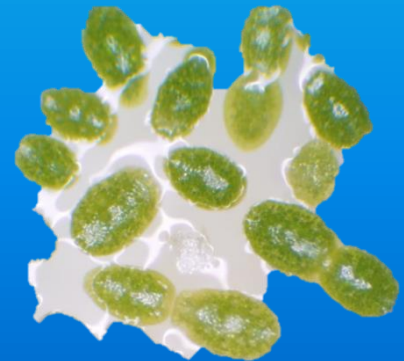
Euglenophytes



Chlorophytes

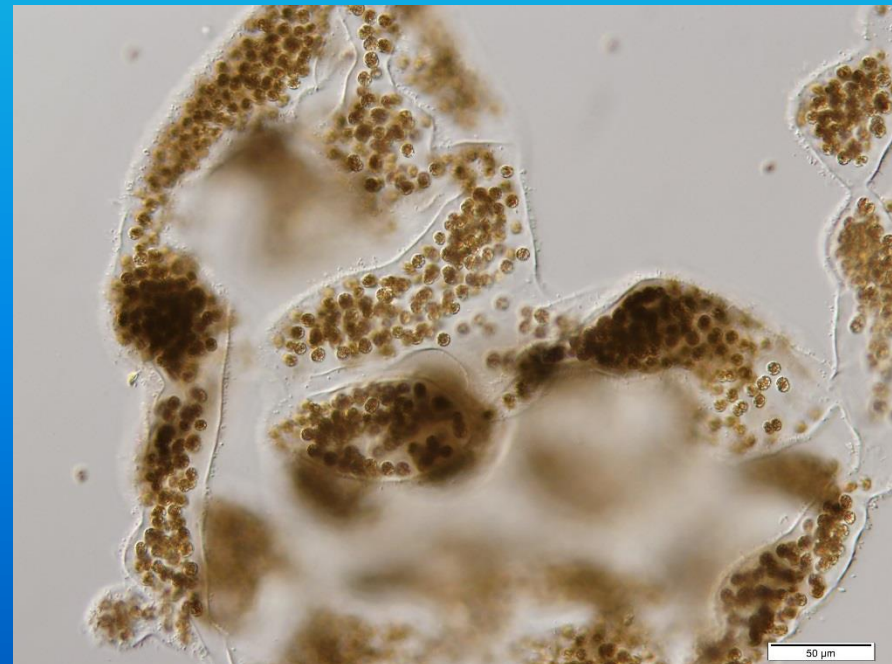
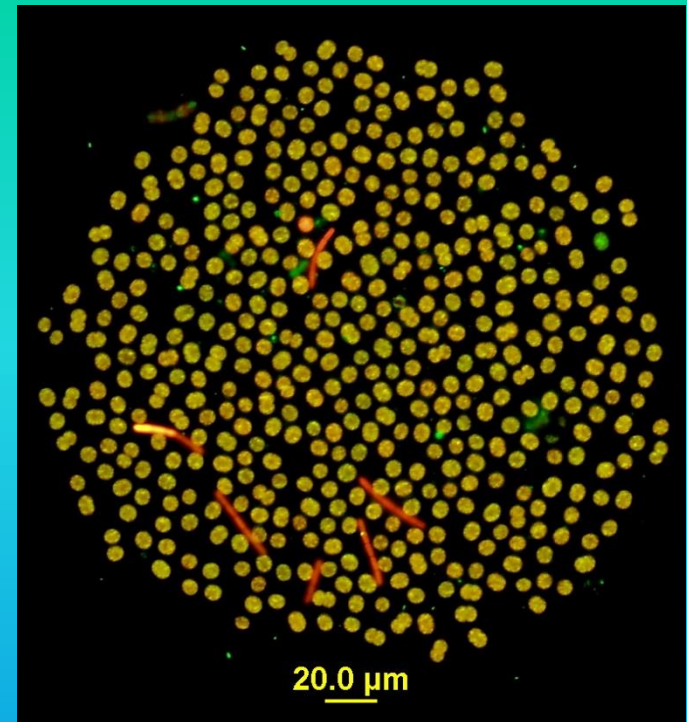


Charophytes



Plants

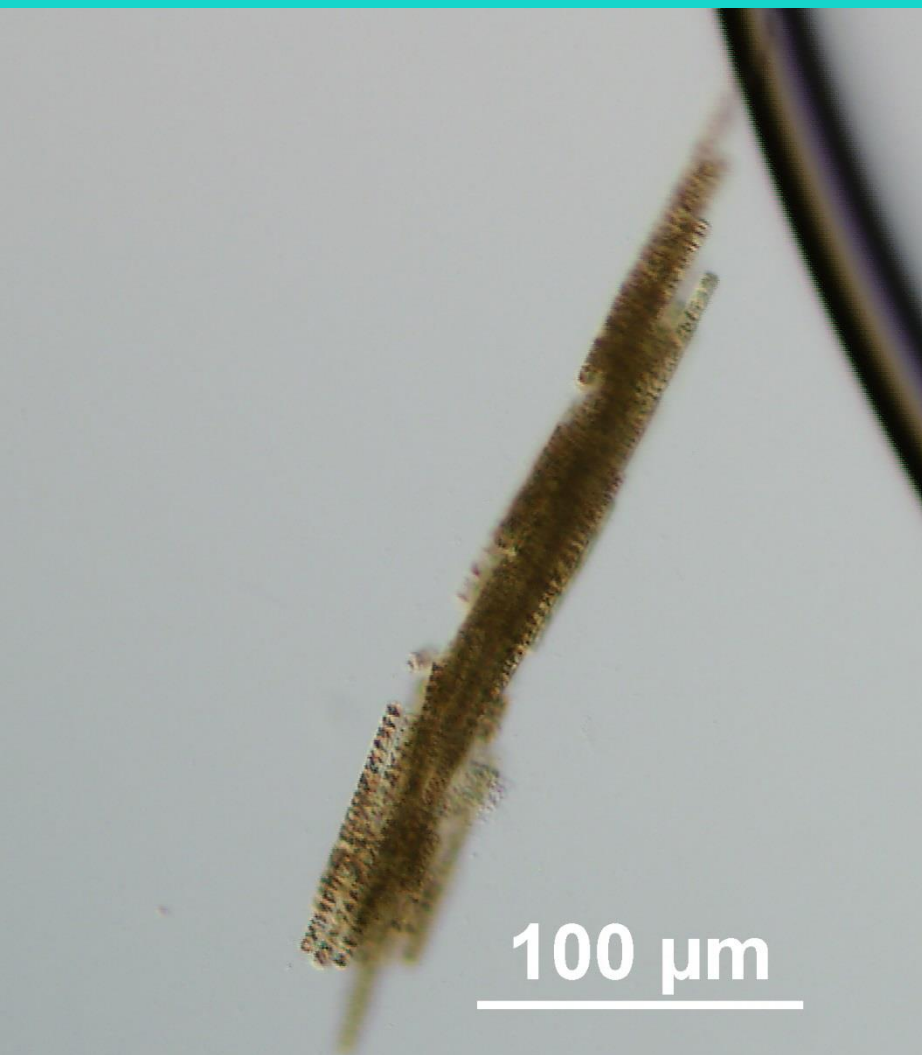
Microcystis



Dolichospermum



Aphanizomenon



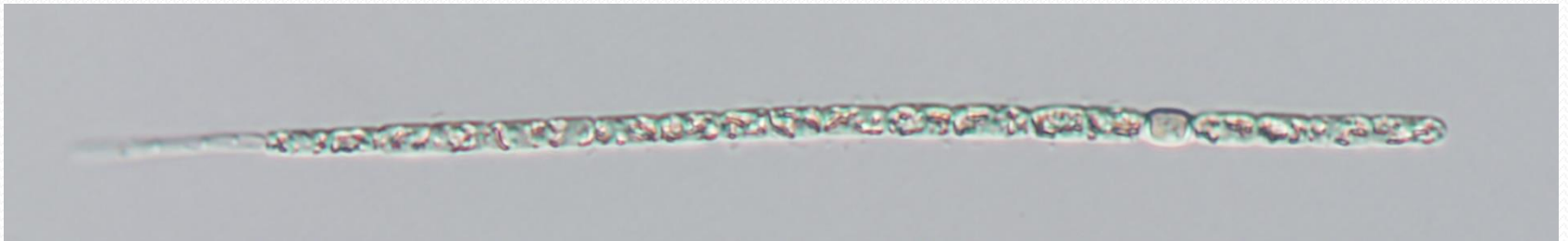
Aphanizomenon



Planktothrix



Cuspidothrix issatschenkoi





Thank You!

50.0 μm