Mistaken identity: critical needs for improved taxonomic resolution to inform management responses to potentially harmful blooms

Glenn McGregor, Queensland Department of Environment and Science

Barbara Sendall, Queensland Health

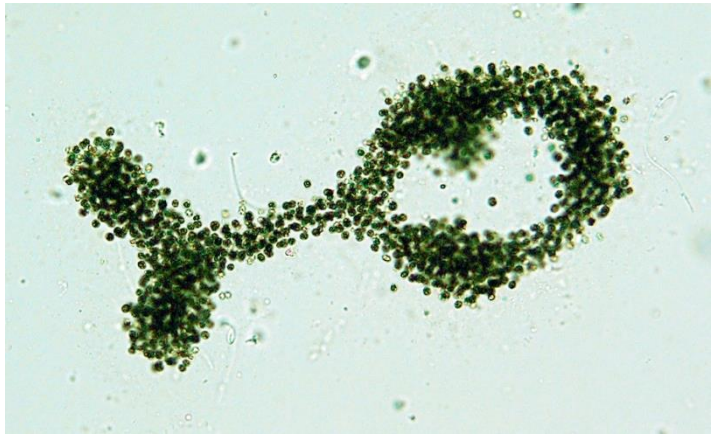
Anusuya Willis, CSIRO

Background

- What's out there that I need to be worried about?
- Modern taxonomic practice
- Constant revision and renewal
- Crypsis
- Phenotypic plasticity

I know it's frustrating, but names are important

- Confer ecological and functional attributes discerned through autecological or physiological observations
- Provides the entity with provenance that is traceable over time
- Confers information about an organism used in the management of water blooms to assess risk and implement strategies for their control
- Information may not necessarily be transferable from other taxa



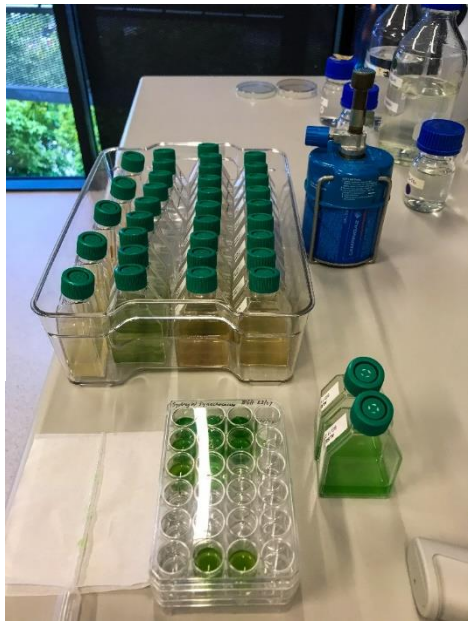
Case study: *Chrysosporum ovalisporum*

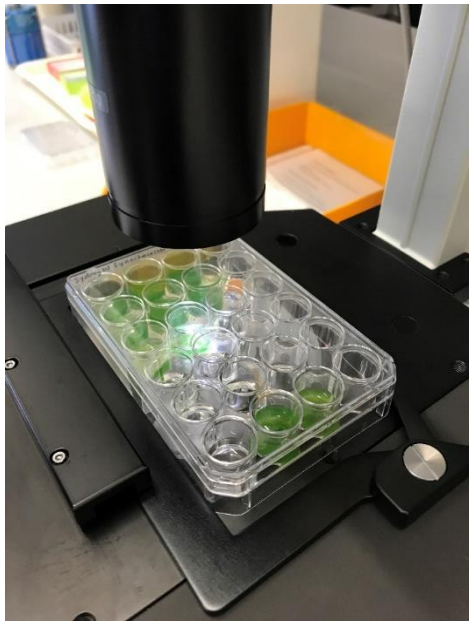
Fottea 11(1): 163–169, 2011

Umezakia natans M.WATAN. does not belong to Stigonemataceae but to Nostocaceae

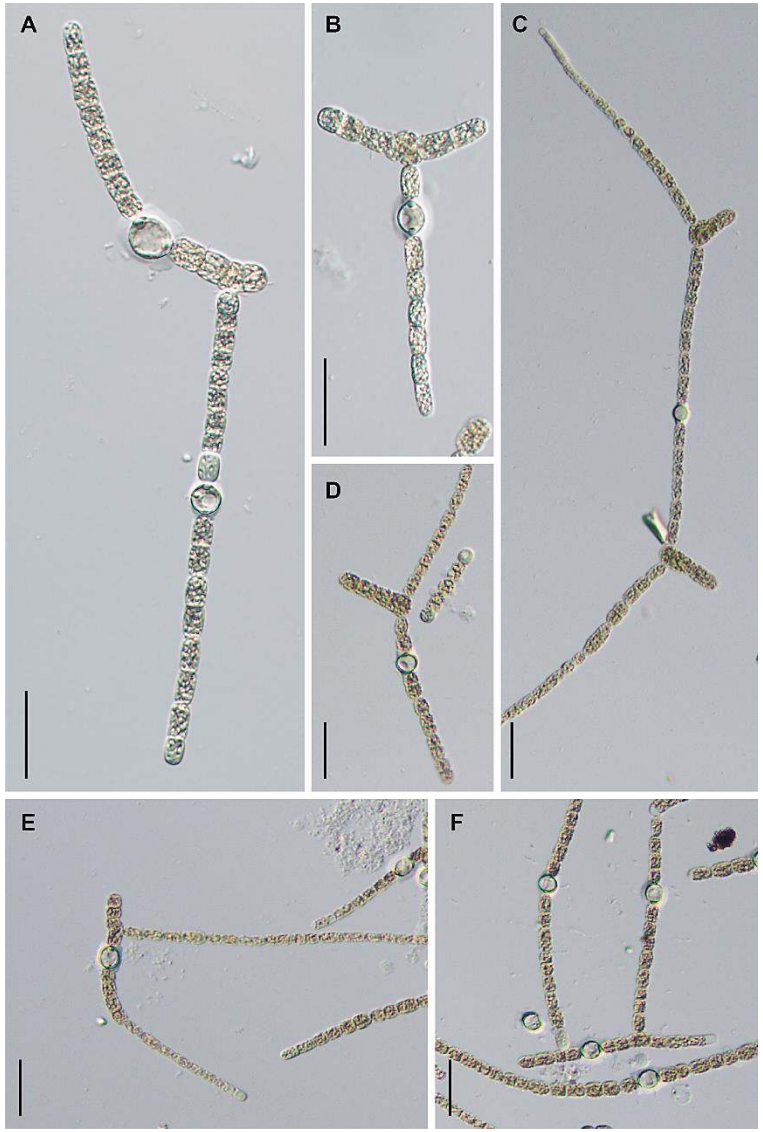
Yuko NIIYAMA[1], Akihiro TUJI[1] & Shigeo TSUJIMURA[2]

[1]*Department of Botany, National Museum of Nature and Science, 4–1–1 Amakubo, Tsukuba, Ibaraki 305–0005, Japan; e–mail: 3ken@kahaku.go.jp*
[2]*Lake Biwa Environmental Research Institute, 5–34 Yanagasaki, Otsu, Shiga 520–0022, Japan*



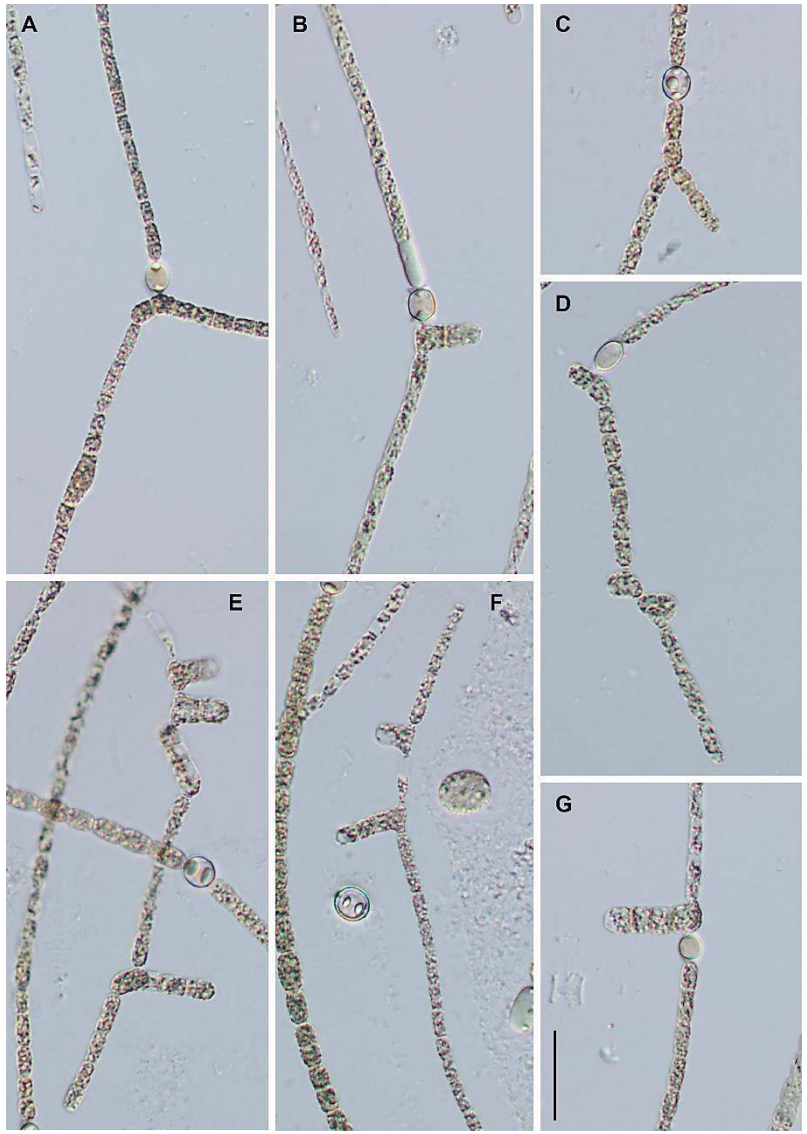


T-type



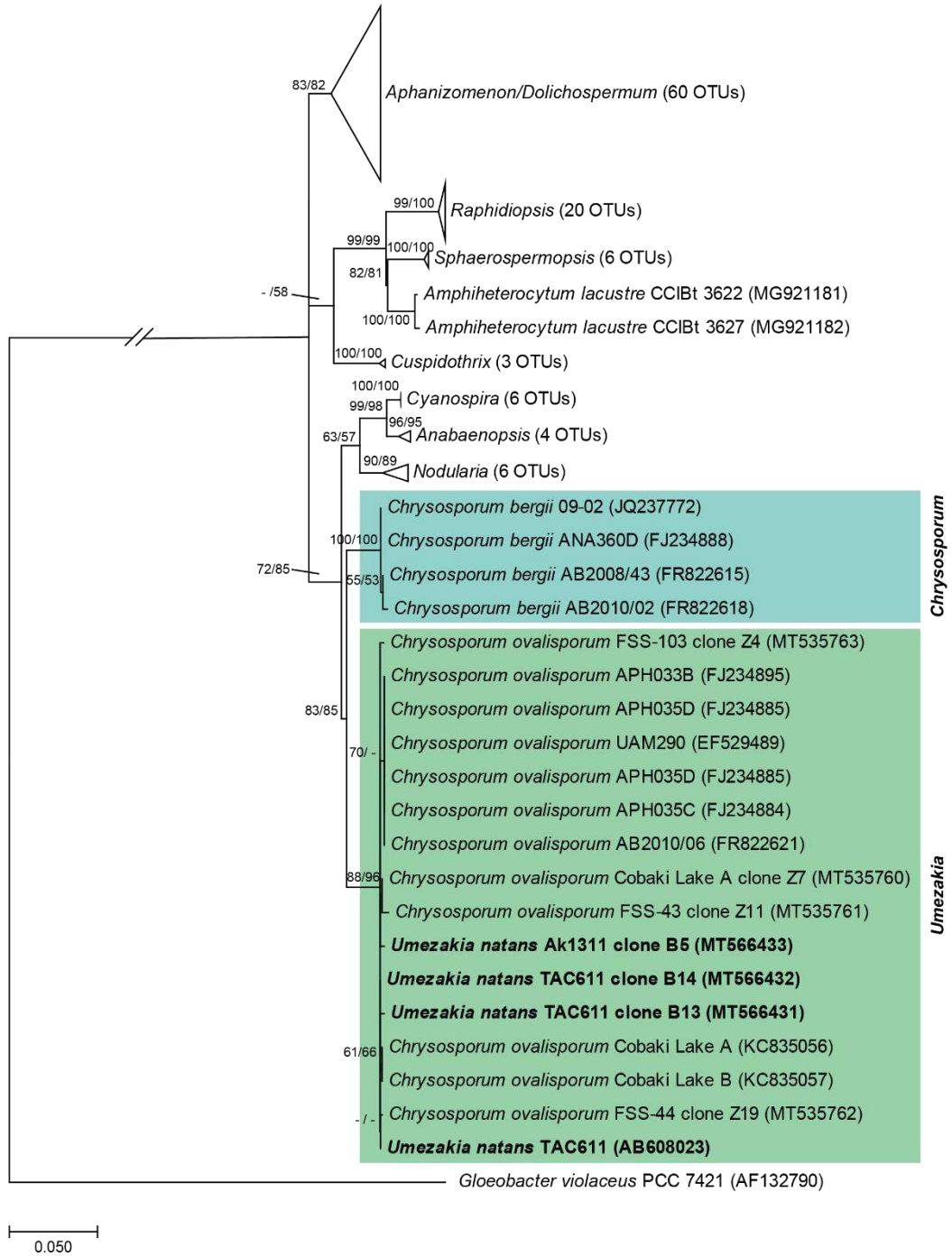
C. ovalisporum (FSS-43)

T-type
Y-type



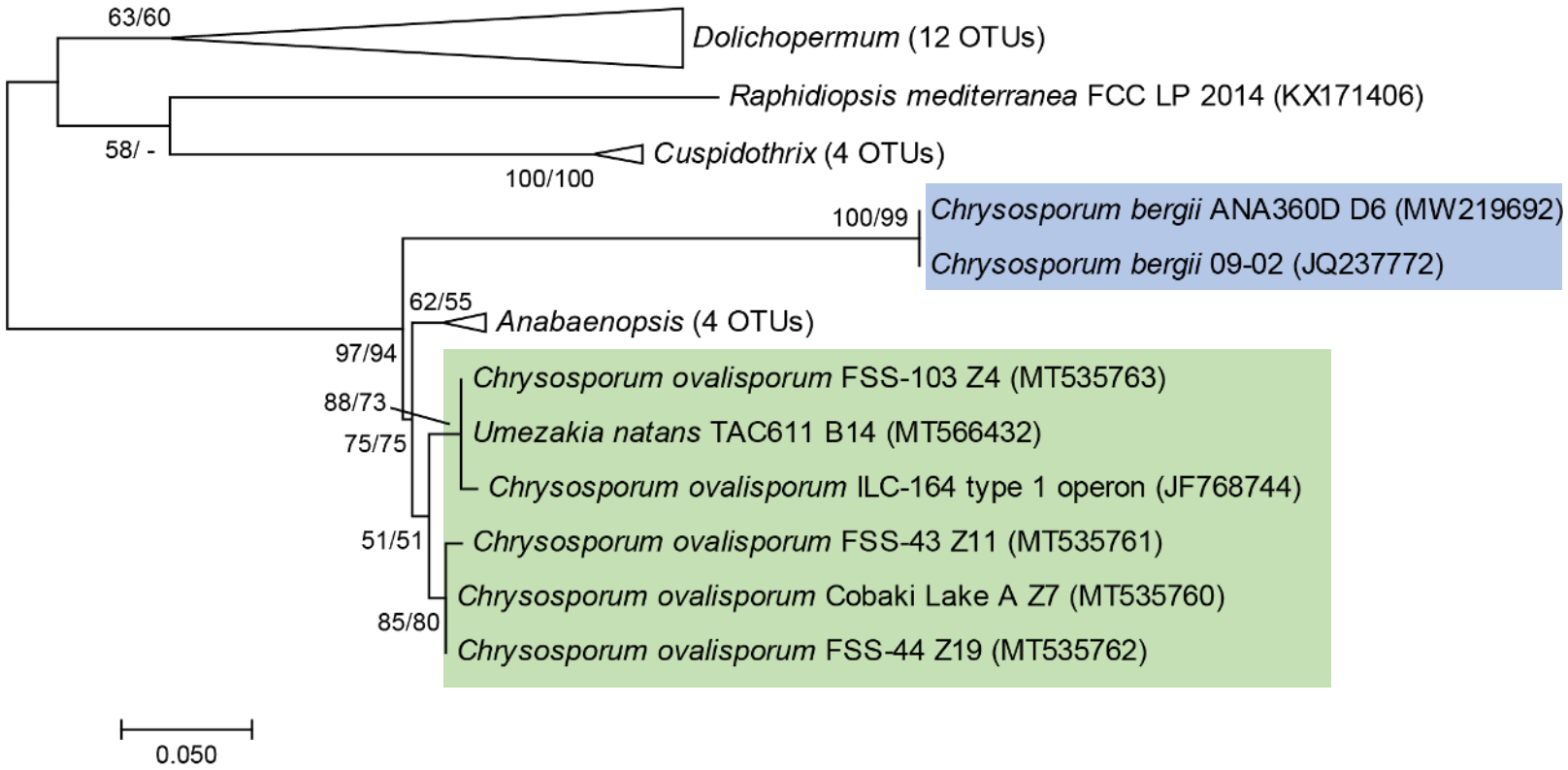
Umezakia natans (HU2)

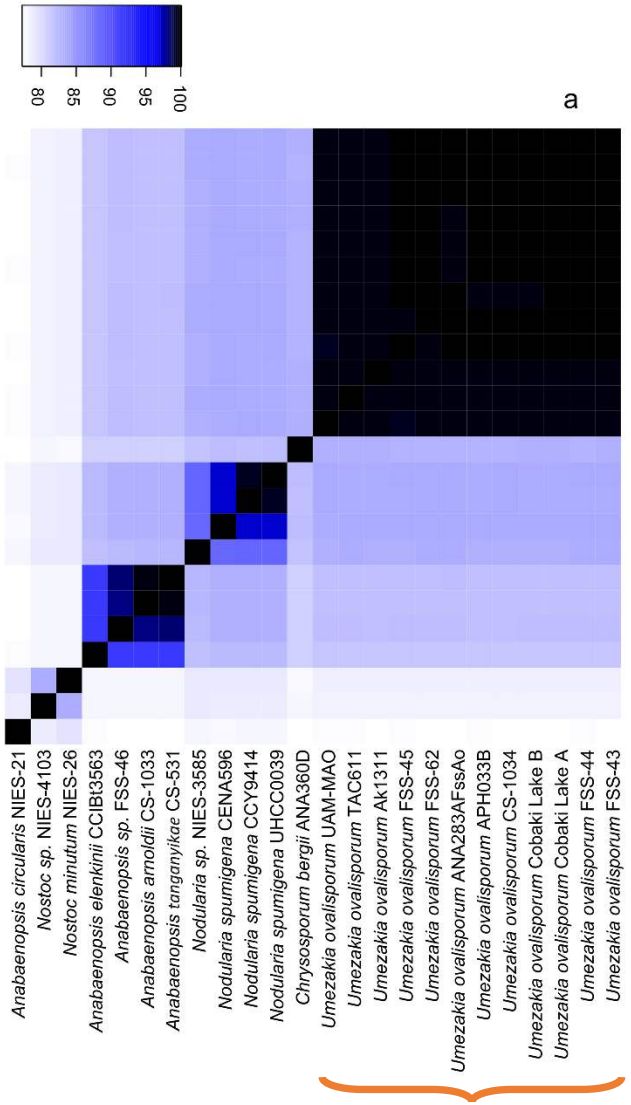
16S rRNA

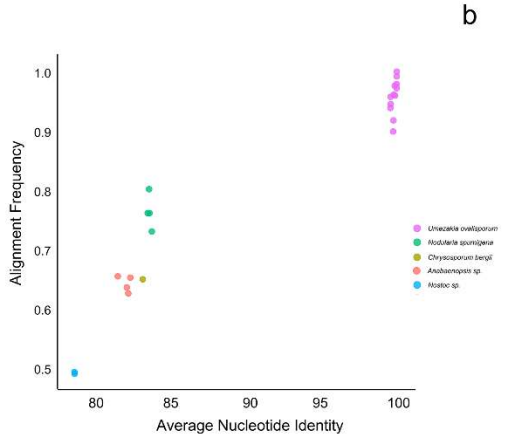


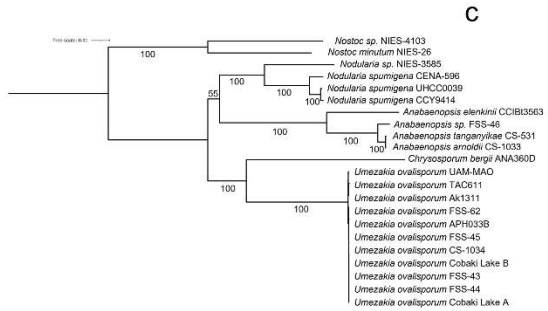
Queensland Government

16S-23S rRNA ITS









Average nucleotide identity (ANI) of > 99.5

Nomenclatural changes

Umezakia M. Watanabe emend. McGregor, Sendall, Niiyama, Tuji & Willis

Type species: *Umezakia ovalisporum* (Forti) McGregor, Sendall, Niiyama, Tuji & Willis comb. nov.

Received: 11 August 2022 | Accepted: 18 December 2022

DOI: 10.1111/jpy.13317

Phycological Society of America

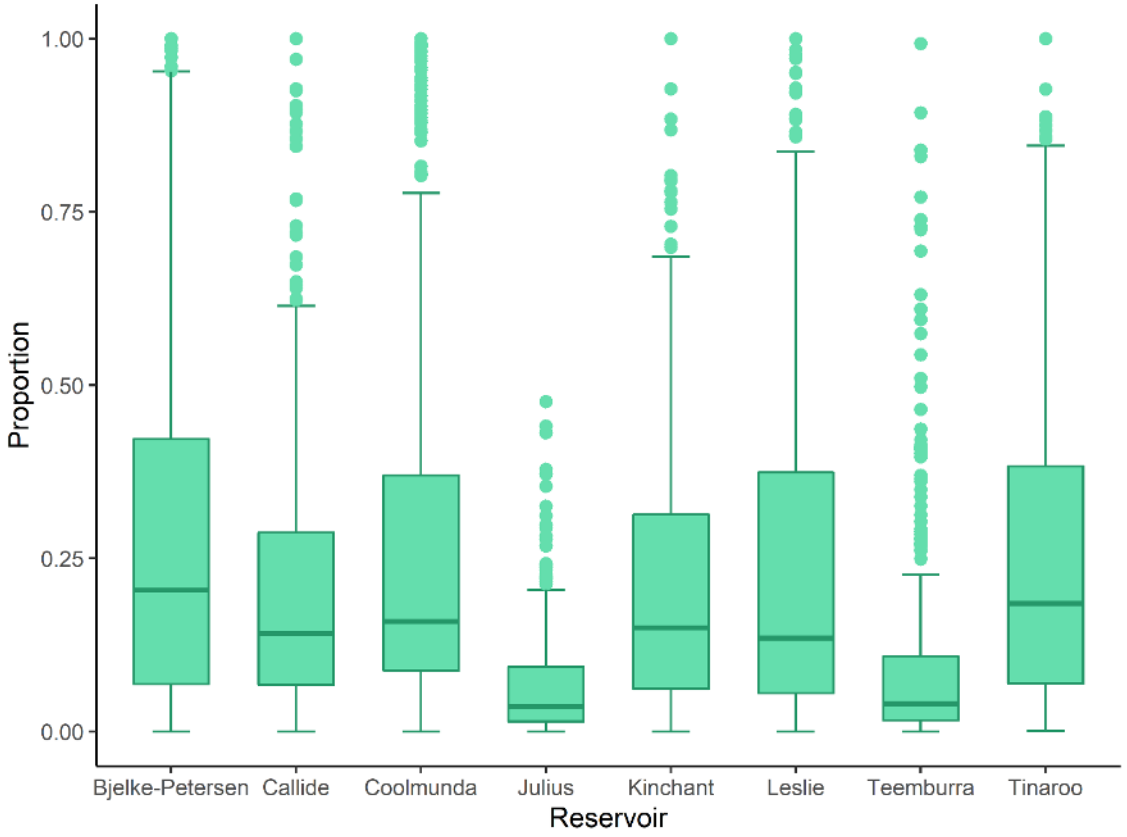
RESEARCH ARTICLE

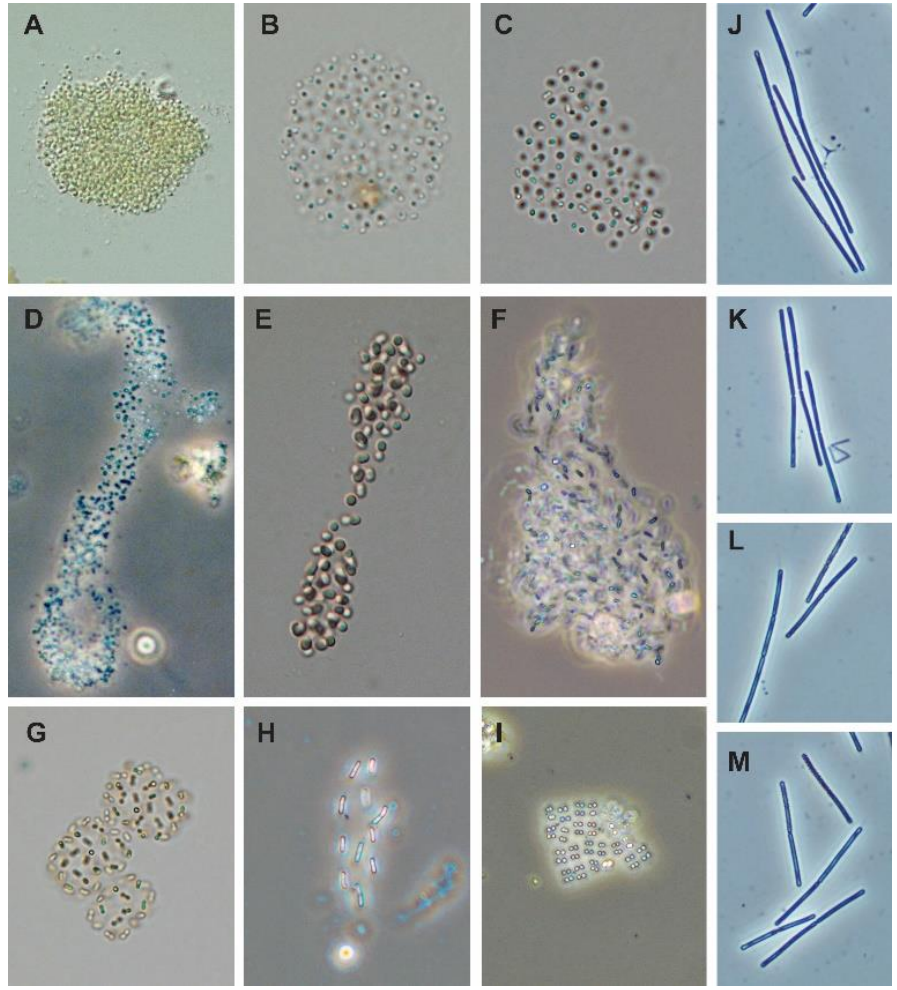
Chrysosporum ovalisporum is synonymous with the true-branching cyanobacterium *Umezakia natans* (Nostocales/Aphanizomenonaceae)

Glenn B. McGregor[1] | Barbara C. Sendall[2] | Yuko Niiyama[3] | Akihiro Tuji[3] | Anusuya Willis[4]

Queensland Government

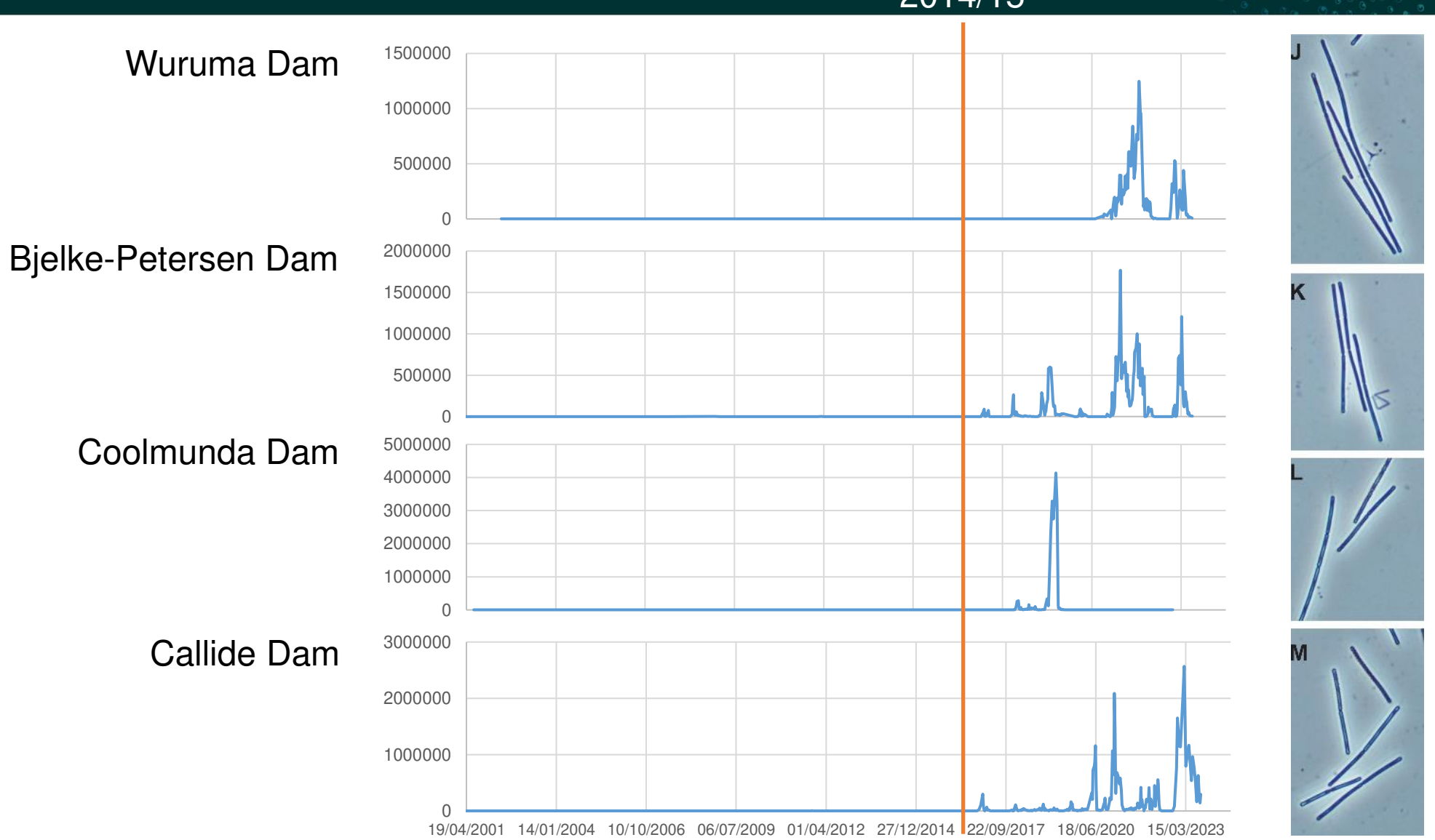
Case study: Picocyanobacteria



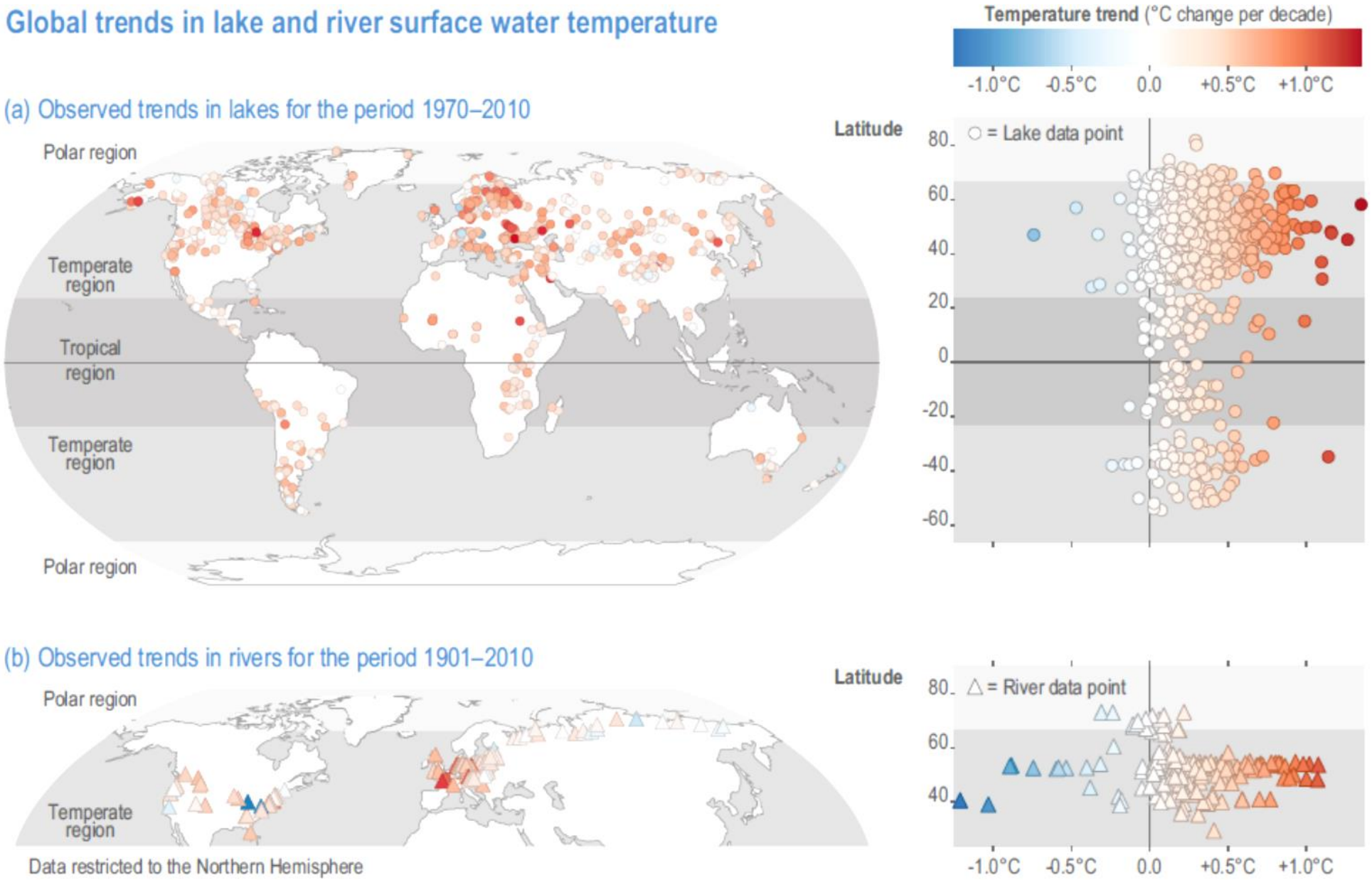


Picocyanobacteria as a proportion of total cyanobacteria biomass since 2010

"Synechococcus" (2001-2023)



Global trends in lake and river surface water temperature



IPCC (2022)

Summary

- Taxonomy is iterative and revisions will certainly continue to occur
- Names mean something, they should not be used in an arbitrary manner
- Australia remains relatively understudied; our taxonomic capacity and output is very low by comparison to other continents
- Climate change may facilitate range or niche expansion

Acknowledgements

- Priya Muhid and Natasha Chan, DES
- Yuko Niiyama and Akihiro Tuji, National Museum of Nature and Science, Japan
- Sunwater