12TH U.S. SYMPOSIUM ON HARMFUL ALGAE

CHARACTERIZING CYANOBACTERIAL HABS MICROBIOMES

SESSION: MICROBIAL INTERACTIONS

ABSTRACT: Cyanobacterial harmful algal blooms (cyanoHABs) are a global phenomenon, degrading water quality and aquatic ecosystems. Several genera of cyanobacteria are known to form cyanoHABs (e.g., Dolichospermum, Microcystis, Raphidiopsis). Though dominated by cyanobacteria, these cyanoHABS are a diverse collection of microbes including archaea, bacteria, fungi, and protists, including eukaryotic phytoplankton. However, these communities are more than the sum of their taxa. These organisms act in concert, relying on each other for nutrient recycling and/or auxotrophy to fill in missing genomic gaps and thus benefitting the community and potentially increasing bloom proliferation and intensity. Here we explore metagenomic data from Dolichospermum and Microcystis dominated blooms collected in various lakes across Florida, including Lake Okeechobee, to evaluate their taxonomic composition as well as their toxic and metabolic capabilities. Results indicate that there are distinct associated microbiomes between these bloom-forming taxa, primarily unknown genera belonging to Bacteroidia and Gammaproteobacteria, as well as several co-occurring protists. Furthermore, the functional roles of these taxa are explored to identify which traits are unique and shared among bloom communities to gain further insights into their relationships.

SPEAKER: **Forrest Lefler, University of Florida | flefler@ufl.edu**

SPEAKER BIO: Forrest Lefler is a postdoctoral researcher at the University of Florida in the Laughinghouse Applied Phycology lab. His research foci includes systematics, diversity, and ecology of cyanobacteria with an emphasis on cyanoHABs

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