

Case Studies: Application of DNA-based tools for cyanobacterial monitoring throughout the Klamath River

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Presenter Bio: Drawing upon 10 years of molecular microbial ecology experience conducted on a variety of cyanobacteria impacted lakes, reservoirs and rivers in the U.S. and China, Dr. Otten founded the laboratory services company—Bend Genetics—in order to provide water quality monitoring agencies with access to the latest technologies in algal bloom monitoring. Molecular tools are now being used to provide routine water quality monitoring for a number of California waterbodies that have a history of harmful algal bloom problems. Dr. Otten has been using DNA-based tools in order to gain novel insights into the ecology and physiology of cyanobacterial blooms in these systems. The long-term goals of this research are to validate new methods that improve public health protection and to identify the environmental or biological conditions that select for problematic taxa (i.e., toxic or taste-and-odor producing) over nontoxic strains; a mechanistic understanding of the latter could lead to novel management and mitigation strategies for dealing with algal blooms. This presentation will provide data on the efficacy of molecular methods relative to traditional monitoring approaches, and it will highlight some of the novel insights into toxicity and strain succession that have been obtained from these methods.

Credentials:

Postdoctoral Scholar – Department of Microbiology, Oregon State University

Ph.D. – Environmental Sciences & Engineering, University of North Carolina at Chapel Hill

M.P.H. – Environmental & Occupational Health, The George Washington University

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