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## BioDry: An inexpensive, low-power method to preserve aquatic microbial biomass at room temperature

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This report describes BioDry (patent pending), a method for reliably preserving the biomolecules associated with aquatic microbial biomass samples, without the need of hazardous materials (e.g. liquid nitrogen, preservatives, etc.), freezing, or bulky storage/sampling equipment. Gel electrophoresis analysis of nucleic acid extracts from samples treated in the lab with the BioDry method indicated that molecular integrity was protected in samples stored at room temperature for up to 30 days. Analysis of *16S/18S rRNA* genes for presence/absence and relative abundance of microorganisms using both 454-pyrosequencing and TRFLP profiling revealed statistically indistinguishable communities from control samples that were frozen in liquid nitrogen immediately after collection. Seawater and river water biomass samples collected with a portable BioDry "field unit", constructed from off-the-shelf materials and a battery-operated pumping system, also displayed high levels of community rRNA preservation, despite a slight decrease in nucleic acid recovery over the course of storage for 30 days. Functional mRNA and protein pools from the field samples were also effectively conserved with BioDry, as assessed by respective RT-PCR amplification and western blot of ribulose-1-5-bisphosphate carboxylase/oxygenase. Collectively, these results demonstrate that BioDry can adequately preserve a suite of biomolecules from aquatic biomass at ambient temperatures for up to a month, giving it great potential for high resolution sampling in remote locations or on autonomous platforms where space and power are limited.

### Biography

Lee Kerkhof is currently working as Chair in Department of Marine and Coastal Sciences, Rutgers University, USA. He has international experience includes various programs, contributions and participation in different countries for diverse fields of study. His research interests reflect wide range of publications in various national and international journals.

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