



Conference Abstract

Evolution of a high-throughput environmental DNA sampling platform

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Abstract

With the rise of environmental DNA as a surveillance tool for aquatic species, a need has also arisen for professionally engineered research tools specifically designed for eDNA applications. We created the first portable, purpose-built eDNA sampling system in the form of a backpack smart-pump filtration apparatus and custom made eDNA filter packets for each sample. The eDNA-Sampler (previously ANDe) enables both point-location sampling and mobile sampling over a spatial distance, with the ability to standardize filtration parameters (e.g. flow rate, pressure, water volume, etc.). In this presentation we will describe the evolution of the eDNA sampling backpack and associated components, each designed to help streamline the eDNA sampling process and increase sampling efficiency. We have optimized the platform for mobile sampling by integrating GPS and data logging capabilities, in addition to modifying the chemistry of the eDNA filter packets to minimize the effort required for sample preservation. Results will be presented from a series of pilot studies in which the eDNA-Sampler capabilities were evaluated. Combined, the innovations described herein should help remove barriers to entry for potential eDNA practitioners and also improve overall eDNA data quality.

Keywords

eDNA, Sampling, Filtration

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