



Conference Abstract

Implementation and legal issues of DNA-based monitoring

Pieter Boets[‡], Daniel Hering[§], Patricia Mergen^{|,¶}

[‡] Provincial Centre of Environmental Research, Ghent, Belgium

[§] University of Duisburg-Essen, Essen, Germany

[|] Meise Botanic Garden, Meise, Belgium

[¶] Royal Museum for Central Africa, Tervuren, Belgium

Corresponding author: Pieter Boets (pieter.boets@oost-vlaanderen.be)

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Abstract

DNA-based methods are at the edge of being implemented into routine monitoring systems. WG5 aimed to develop implementation options for DNA-based methods under a range of environmental directives and legal frameworks, in particular the Water Framework Directive (WFD), the EU Marine Strategy Framework Directive, the UN SDGs, the Global Biodiversity Assessment under the IPBES, the CBD Nagoya Protocol on Access and Benefit Sharing, the digital sequence information on genetic resources (DSI), the Biodiversity Indicator Partnership, and the Essential Biodiversity Variables. It further aimed at starting the standardisation process for DNA-based methods.

In the talk, we will give an overview of all WG5 activities, with a focus on the options to use DNA-based methods for the implementation of the WFD. Overall, suitability of DNA-based identification is particularly high for fish, as eDNA is a well-suited sampling approach which can replace expensive and potentially harmful methods. For invertebrates and phytobenthos, the main challenges include the modification of indices and completing barcode libraries. For phytoplankton, the barcode libraries are even more problematic, due to the high taxonomic diversity in plankton samples. If current assessment concepts are kept, DNA-based identification is least appropriate for macrophytes (rivers, lakes) and angiosperms/macroalgae (transitional and coastal waters), which are surveyed rather than sampled. We discuss the challenges and opportunities of implementing DNA-based

identification into standard ecological assessment, in particular considering any adaptations to existing legislation that may be required to facilitate the transition to using molecular data.

Presenting author

Pieter Boets

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