



Is worm counting on the way out?

December 1, 2020 | Andri Bryner
Topics: Biodiversity | Ecosystems

The analysis of DNA fragments and their assignment to individual species – an increasingly well-established approach – is transforming biodiversity assessment. Samples collected from waterbodies permit rapid biomonitoring of aquatic ecosystems. However, environmental DNA (eDNA) analysis is not without pitfalls. For this reason, guidelines for practitioners have now been developed by a group of experts – including Eawag scientists – coordinated by the Federal Office for the Environment. These guidelines, covering the whole process from sampling to data interpretation, should help to ensure that eDNA applications produce reliable results.

Even though eDNA studies can never wholly replace conventional species identification and enumeration, this new approach is more than just an additional tool. But what are its advantages and disadvantages, what methods are available, and what best practices and routine standards are to be recommended? Answers to these questions are provided by the new guidelines on “Environmental DNA applications in biomonitoring and bioassessment of aquatic ecosystems” (published in English, French and German).

[Watch the video on Youtube](#)

The publication – addressed to environmental consultancies, federal and cantonal agencies, as well as researchers – provides an introduction to the new techniques and an overview of the latest developments and possible applications. While advances in eDNA analysis are ongoing, the adoption of standard methods should ensure that scientifically reliable results can be obtained today. Case studies, detailed protocols and established practices should facilitate eDNA sample processing and enhance the comparability of eDNA methods. Finally, the

guidelines should lead to harmonised enforcement practice and promote compliance with the relevant legal requirements on biodiversity monitoring across Switzerland. The new guidelines were prepared, under the aegis of the FOEN, by Eawag in collaboration with the Universities of Zurich and Geneva.



[FOEN press release and publication](#)

Cover picture: Eawag, Elvira Mächler

Original publication

Pawlowski J., Apothéloz-Perret-Gentil L., Mächler E. & Altermatt F. 2020. Anwendung von eDNA-Methoden in biologischen Untersuchungen und bei der biologischen Bewertung von aquatischen Ökosystemen. Richtlinien. Bundesamt für Umwelt, Bern. Umwelt-Wissen Nr. 2010.

Related Links

European Commission, Science for Environment Policy News Alert, Issue 552, 9 November 2020: New eDNA-modelling approach accurately maps biodiversity of rivers

Contact



Florian Altermatt

Tel. +41 58 765 5592

florian.altermatt@eawag.ch



Andri Bryner

Media officer

Tel. +41 58 765 5104

andri.bryner@eawag.ch

<https://www.eawag.ch/en/info/portal/news/news-archive/archive-detail/is-worm-counting-on-the-way-out>