

Toward Regulatory Monitoring with Passive sampling : French experience

Jean-Philippe Ghestem (BRGM), Cécile Miège (INRAE), Sophie Lardy Fontan (?), Anne Togola (BRGM), Aymeric Dabrin (INRAE), Isabelle Amouroux (IFREMER) Jean Louis Gonzalez (IFREMER), Azziz Assoumani (INERIS) Bertille Bonnaud (LNE), Lauriane Gréaud (INERIS)

For over 20 years, the European Water Framework Directive (2000/60/EC) has strengthened the monitoring of water bodies, including surface waters. Ambitious monitoring programmes have been set up to monitor 45 priority substances or families of substances. Among the difficulties regularly identified in these programmes are those of ensuring that sampling is representative for substances showing significant temporal variability, such as pesticides, or of achieving, using conventional laboratory techniques, the quantification limits required for a reliable comparison with the Environmental Quality Standards (EQS). The current revision of this directive could further increase the latter difficulty by adding new priority substances for which the EQS are particularly low (e.g. pyrethrinoid compounds).

Passive sampling tools are likely to provide solutions to these difficulties. The Directive 2013/39/EU recommends further development of passive sampling techniques as a promising tool for future application in compliance checking and trend monitoring of priority substances.

In France, a very recent regulatory text ("monitoring" decree of 26/4/22) officially authorised the use of passive sampling as part of monitoring programs for surface water bodies. In the framework of the French Prospective Monitoring Network ('RSP'), this authorization follows a major demonstration campaign coordinated by [Aquaref](#) (French national reference laboratory for aquatic environment monitoring), which demonstrated the usefulness of these tools for large-scale application in a regulatory context. It follows also the results of MONITOOL project – New tools for water quality monitoring - European Atlantic Area project (2017-2023), regarding EQS_{marine water} adaptation to DGT (Diffusive Gradient in thin Films) for priority substances (Pb, Cd, Ni).

As part of its support for the Ministry, Aquaref produced a note in 2024 defining a first set of substances for which the use of passive samplers (DGT, POCIS, silicone rubber) was possible in the context of monitoring (fresh and marine water).

In order to ensure the successful use of passive samplers in this context (in particular the comparability of data at a national scale), and in cooperation with the Ministry of the Environment and the French Biodiversity Agency, Aquaref has developed various guidance documents or "tools" to help river basin authorities in charge of the implementation of the WFD monitoring programmes and laboratories operating this monitoring.

The aim of this presentation is to present the various actions that have been necessary in order to achieve the implementation of passive sampling tools in a regulatory context, from scientific developments to policy support. In particular, we will describe the national technical guides relating to sampling and analysis for passive sampling, the organisation and responsibility defined for passive sampling operation separating laboratory operations from field and calculation operations when necessary, the rules for data banking and, finally, the requirements in terms of quality assurance and analytical performance. We finally highlight some of the questions that are still pending.