

Pollution monitoring at extreme low concentration levels: is it still feasible?

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Marine environmental concentrations of known organic pollutants show a decreasing trend over the past decade. On the other hand, regulatory environmental quality standards against which pollution levels are compared, are becoming increasingly stringent. To measure these pollutants at the challenging low levels, cutting edge and very expensive analytical equipment is needed to meet both the analytical requirements as the quality standards.

To overcome these problems, a novel monitoring technique is proposed, called passive sampling. The measuring device integrates organic pollutants in marine water over a certain period of time, after which the pollutants can be extracted from the device and quantified analytically.

A four-year monitoring was performed to study the freely dissolved water concentrations of PAHs and PCBs in three Belgian coastal harbours and at an offshore station in the North Sea. The results are part of a more extensive study to provide information on occurrence, distribution and effects of pollutants in the Belgian coastal zone.

Estimated freely dissolved concentrations for sum 15 PAHs varied between 3.9 and 170 ng l⁻¹ and for sum 14 PCBs between 0.030 and 3.1 ng l⁻¹. The stations located within marinas showed the highest level of contamination, while the offshore station (5 mile from coastline) exhibited the lowest level.

References

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