

Chemical indicators of water quality

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There are many potential chemical indicators of water quality. In the EU Water Framework Directive (WFD) a number of such indicators for surface waters have been implemented. The general approach taken by the WFD and the derived monitoring strategies are introduced. Still existing analytical limitations need to be overcome in order to meet the monitoring and reporting obligations defined in the WFD. Examples of such limitations are the low EQS values defined for some priority substances not yet achievable in monitoring studies, or the not very well defined parameter C10- to C13 chlorinated alkanes, for which neither marker compounds out of the thousands of congeners nor matrix requirements (whole water sample criterion) have been clearly defined. In addition to that there is a lack of suitable analytical methods and no harmonisation of existing approaches.

Focus of the WFD is surface water but the derived groundwater directive (GWD) is discussed as well. Furthermore, beyond the priority substance list of the WFD, “emerging contaminants” in surface waters in Europe and, to a lesser extent, the US are highlighted. Actually, many of these are already known for more than a decade but nevertheless have not yet been included in official monitoring requirements.

The presentation is meant as a primer in a discussion of approaches in the US and Europe to identify the most relevant chemical indicators of water quality. Is it possible and meaningful to define chemical water quality according to a debatable set of priority substances that might expand endless in the future?