

Minimum requirements for reporting analytical data from marine environmental samples

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Data concerning chemical pollutants in the various environmental compartments find high attention by the general press and the public and may even be used to support advisory or regulatory measures. Obviously, there is a need to publish data with a proven quality, known uncertainty and sufficient additional information about the sample history. The minimum information should include all the factors that might have an impact on the result or are important for the interpretation of the result. The present recommendations address the marine environmental samples.

The researcher must develop a suitable sampling strategy and the location of sampling sites must be reported, by indication of their longitude and latitude. At least, the sampling day must be reported. A description of the technique used for sampling is mandatory, including a description of the equipment and the type of samples. The sample size has to be chosen carefully depending on whether the sampling should maintain or average out the possible inhomogeneity. Additional information about circumstances that may affect the concentrations, like meteorological conditions during sampling and prior to sampling should be recorded.

The following information should be provided for the analytical procedure: the storage conditions including the material of the sample containers; any pre-treatment of chemical or physical nature; reported details of the method used for homogenization and taking sub-samples.

The entire analytical method must be described. It must include a sufficiently detailed description of the calibration of the analytical system. An estimate of the uncertainty of the final analytical result must be reported. Preferably, the estimate should be based on regularly repeated validation tests, such as recovery experiments or analysis of reference materials. It should be clearly indicated whether the reported results are single measurements or averages of replicates. In case of replicates make clear whether they refer to replicate samples, replicate analysis, or replicate determination. Internationally accepted SI-units must be used, and traditional units such as pounds, acres, inches avoided. Concentrations should be reported in units such as ng/L, µg/kg or mmol/l rather than in ratio numbers like %, ppm, or ppb which may lead to misunderstandings. Figures have to be rounded to significant number of digits; no more than the last of the given digits should be uncertain due to the variability of the method.

Minimum information for seawater samples consists of sampling depth and total sea depth at the sampling site; salinity; temperature; dissolved oxygen; pH; separation method, if suspended material is separated.

Minimum information for marine sediment samples consists of: 'Horizon' sampled, height of overlaying water column; sediment texture (% clay, % silt, % sand); organic and inorganic carbon content; pH, redox potential.