

Blnd08: Growing season mean of water column chlorophyll-a concentration

Quality element: Phytoplankton

Water category and water body types: Lakes, large rivers, transitional waters; all types

Selection rationale: Commonly used water quality indicator with high data availability

Indicator type (DPSIR): State

Description: Chlorophyll-a has a long tradition as an indicator of the productivity and trophic condition of lakes and estuaries. It is a measure of phytoplankton biomass and reflects the net result (standing stock) of both growth and loss processes in pelagic waters. Chlorophyll-a is related to external nutrient loading, internal nutrient cycling, light availability, water residence time and grazing by zooplankton and benthic filter feeders.

The indicator is used to measure eutrophication pressure, featuring well-documented relationships with the water phosphorus concentration. As strong eutrophication leads to algal blooms, often followed by fish kills implying aesthetic and sanitary issues. The chlorophyll-a concentration is thus also relevant for provisioning and cultural services (water supply, recreation).

Spatio-temporal scale: Growing season mean, representative for water body

Unit: $\mu\text{g L}^{-1}$

Standardisation: To be standardised against type-specific reference conditions (e.g. Carvalho et al. 2008)

Data requirements: Field data

Other: none

MARS spatial scale: Experimental, river-basin and European scale

Reference

Carvalho, L., van Den Berg, M., Solimini, A., Phillips, G., Pietilainen, O. P., Solheim, A. L., Poikane, S., Mischke, U. (2008). Chlorophyll reference conditions for European lake types used for intercalibration of ecological status. *Aquatic Ecology*, 42(2), 203–211.