

Blnd07: Amount of naturally-forested land in the riparian corridor of water body

Quality element: Hydromorphology

Water category and water body types: Rivers, lakes, transitional waters²; all types

Selection rationale: Indicator of riparian state of high relevance for water body status and ecosystem services

Indicator type (DPSIR): Pressure, State, Impact

Description: Riparian corridors represent key habitats linking aquatic and terrestrial ecosystems. They can provide important natural and social services. Natural riparian zones encompass valuable natural habitats and are often characterized by high productivity and biodiversity. Riparian areas can reduce non-point-nutrient and pollution sources via plant uptake, physical filtering and chemical transformation (e.g. denitrification), together with trapping sediment-bound pollutants and waters coming from upstream. Riparian corridors play a major role in maintaining landscape connectivity, functioning as ‘dispersal corridors’ within fragmented landscapes. From a hydrological risk perspective, riparian environments supply river bank stabilization and provide resistance to runoff during flood events.

The amount of naturally-forested land in the riparian corridor of the water body quantifies the relative coverage of native woody riparian vegetation (e.g. deciduous forest in Central Europe) in the buffer zone bordering the river stretch, lake or transitional water. Areas of non-native vegetation (e.g. coniferous or eucalyptus plantations) are to be excluded. If access is granted by JRC to use the modelled map on the Maximum Potential Riparian Extent (Clerici et al. 2013), the land use data can be processed on the basis of functionally delineated riparian corridors. Alternatively, a fixed buffer width depending on the water body size is to be applied. Sweeney & Newbold (2014), for instance, postulate forest buffers ≥ 30 m wide are needed to protect the physical, chemical, and biological integrity of streams.

Spatio-temporal scale: Continuously mapped along riparian corridor (covering entire water body or area upstream of sampling site), single point in time

Unit: Percent naturally-forested land in the riparian corridor

Standardisation: none

Data requirements:

1. CORINE Land Cover (or comparable, higher resolution national databases)
2. Map on Maximum Potential Riparian Extent according to Clerici et al. (2013)
→ subject to data access granted by JRC
2. (*alternative*) Delineation of fixed buffer widths (50 metres)

² **Alternative indicator for transitional waters:** Changes in intertidal areas measured by the ratio of intertidal to subtidal areas.

Other: none

MARS spatial scale: River-basin and European scale

References

- Clerici, N., Weissteiner, C. J., Paracchini, M. L., Boschetti, L., Baraldi, A., & Strobl, P. (2013). Pan-European distribution modelling of stream riparian zones based on multi-source Earth Observation data. *Ecological Indicators*, 24, 211–223.
- Feld, C. K. (2013). Response of three lotic assemblages to riparian and catchment-scale land use: implications for designing catchment monitoring programmes. *Freshwater Biology*, 58, 715–729.
- Sweeney, B. W., & Newbold, J. D. (2014). Streamside Forest Buffer Width Needed to Protect Stream Water Quality, Habitat, and Organisms: A Literature Review. *Journal of the American Water Resources Association*, 50(3), 560–584.