

SUSPENDED MATTER IN SURFACE WATER

WATER 11

Natural phenomena (e.g. soil and bank erosion) and anthropogenic factors (practices which aggravate erosion, waste water discharges, navigation, dredging, etc.) are responsible for the presence of suspended matter (SM) in surface water, whether they are new inputs or sedimented particles which become suspended again. These substances and the pollutants they transport influence water quality and disturb aquatic life.

Significant inputs by water erosion

Water erosion of soils is the main source of SM in surface water. The average annual yields of sediment were estimated¹ at 0.31 t/(ha.year) for the period 2011-2015, which corresponds to a total input of (dry) sediment in the waters of almost 525,500 t/year at the Walloon level. These yields vary from one year to the next, depending in particular on the erosive action of rainfall and the rate of land cover².

More SM in loamy and sandy-loamy regions

In 2015³, water status was good to high in terms of SM⁴ content for 79% of the 210 monitoring sites; it was poor or bad for 8% of them. Over the period 2006-2015 (56 monitoring sites), the proportion of sites with good to high status tended to increase. SM content are highly dependent on flows and their variations in line with rainy periods. They also vary according to the typology and land-use of the river basin, which, among other factors, determine their susceptibility to erosion. This may explain why the SM content corresponding to moderate to bad status were more often found in rivers in loamy and sandy-loamy regions that are more sensitive to erosion^{2,3}. Soil erosion is compounded by the erosion of banks and point source inputs. It should be noted that the status considered here is related to the impact of SM on water turbidity and not to the presence of pollutants (trace metals, plant protection products, etc.)

carried to water courses by eroded soil particles. The quality of the SM, which was monitored for a time (2007-2010), is no longer monitored at the present time.

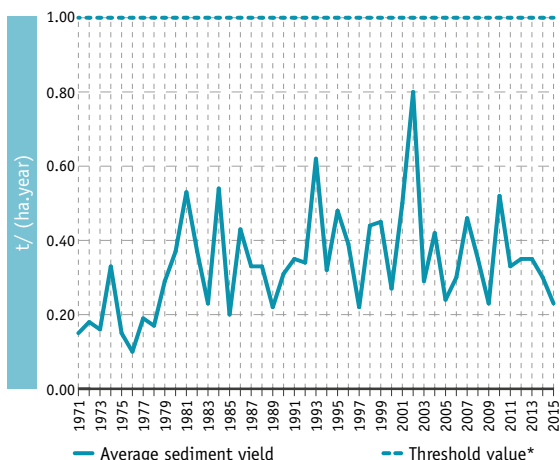
Reducing SM inputs and improving their quality

Preventive measures must be continued. These include in particular:

- preserving the integrity of banks (revegetation, fencing along grazing land⁵, etc);
- reducing water erosion of soil and runoff (planting and maintenance of hedgerows, embankments, groves and grass strips, cover of cultivated soils, installation of more permeable coverings, etc.)²; these measures are included in particular in the RBMPs⁶, the FRMPs⁷ and the Walloon Agriculture Code⁸;
- combating diffuse pollution resulting from agricultural practices and atmospheric deposition (industrial activities, heating, transport, etc.), as envisaged in the RBMPs⁶;
- continuing to clean up urban and industrial waste water⁹.

[1] EPICgrid Model (ULg-GxABT - BIOSE Unit, 2015) | [2] → SOILS 3 | [3] → Map 33 | [4] According to the Walloon Government Decree of 13/09/2012 | [5] Walloon Government Decree of 17/10/2013 | [6] → WATER 21 | [7] → TRANSV 1 | [8] Decree of 27/03/2014, Title XI, chap. II | [9] → WATER 4, WATER 18, WATER 19 & WATER 20

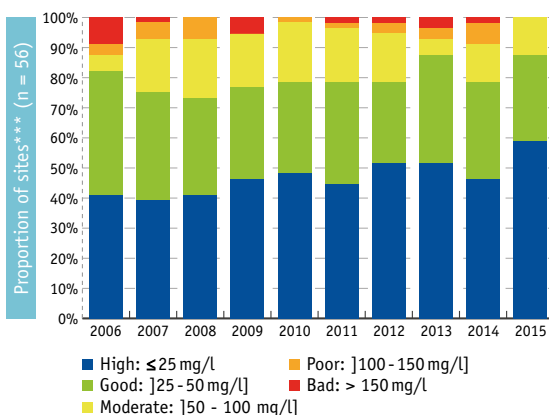
Fig. WATER 11-1 Average sediment yield in Wallonia



* Threshold agreed on at 1/10 of the severe erosion threshold (maximum acceptable soil loss) set at 10 t/(ha.year) (FUSAGx - UHAGx, 2006)

SOERW 2017 – Source: ULg-GxABT (EPICgrid model)

Fig. WATER 11-2 Status* of Walloon water courses according to suspended matter content (SM)**



* According to the Walloon Government Decree of 13/09/2012

** 90th percentile of annual contents (13 measurements/year)

*** Monitoring sites for which data were available annually over the period 2006-2015

SOERW 2017 – Source: SPW - DG03 - DEE (AQUAPHYC database)