Evaluation of the hydromorphological state of rivers – first stage

I. Coefficients for the evaluation of the hydrological state of the water body

N°	Description of the coefficient	Definition of the coefficient	Threshold value
1.	Ratio of the total active capacity of the retention reservoirs V_a to the mean annual outflow in the cross-section closing the water body catchment V_{MA}.	$e_1 = \Sigma V_a / V_{MA}$	0.03 (3%)
2.	Ratio of the total unreturnable water abstraction P_{ua} to the mean annual flow (MAF)	$e_2 = \Sigma P_{ua} / MAF$	0.05 (5%)
3.	Absolute value of the complement to 1 of the ratio of the mean annual flow (MAF) calculated for the last period (e.g. years 1981 – 2000) to the mean annual flow for the period acknowledged as natural MAF_n	$e_3 = \lvert 1 - MAF / MAF_n \rvert$	0.1 (10%)

II. Coefficients for the evaluation of the morphological state of the water body

N°	Description of the coefficient	Definition of the coefficient	Threshold value
1.	Ratio of the total levee length L_l to the total length of rivers L_r	$e_4 = \Sigma L_l / \Sigma L_r$	0.3 (30%)
2.	Ratio of the total height of the structures H_s to the total fall of the rivers H_r	$e_5 = \Sigma H_s / \Sigma H_r$	0.1 (10%)
3.	Ratio of the total length of the river riches L_c cut off by the cross structures having the height h>0,7 m to the total length of rivers L_r	$e_6 = \Sigma L_c / \Sigma L_r$	0,30 (30%)
4.	Ratio of the total length of the regulated river riches (longitudinal structures and/or alteration of the river course) L_{reg} to the total length of rivers L_r	$e_7 = \Sigma L_{regul} / \Sigma L_r$	0.2 (20%)

Evaluation of the hydromorphological state of rivers – second stage

Identification of risk causes (significant pressures) and possibilities to prevent this risk - expert assessment

Significant pressures on the hydrological state

Water abstractions in the area of the water body:

a) identification of water intakes (great number of small, dispersed water intakes or specified number of great, listed water intakes);
b) assessment of the range of impact of the significant water abstractions on the hydrological regime of the water bodies downstream;
c) identification of the causes of the outflow regime changes.

The evaluation of the hydrological changes caused by the **retention reservoirs** have to be based on a case-by-case analysis.

Significant pressures on the morphological state

Identification and evaluation of the significant morphological pressures have to be done by expert assessments at the present time. Criteria of this evaluation are adjusted to the particular cases.

The connections between morphological parameters and biological elements (fishes) are now being investigated.