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**Quantitative criteria for evaluation of
pressures in order to designate the HMWB**

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Presentation's content

- **Designation criteria used to identify provisional HMWBs**
- **Steps to be taken to confirm the designation of HMWBs**
- **Issues that could usefully be undertaken as part of the CIS**

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- **Designation criteria used to identify provisional HMWBs**
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**Romanian approach for HMWBs designation
(Phases A + B + C) :**

- Quantitative criteria** for evaluation of pressures, relying on physical alterations type (*steps 1- 4*)
- Expert judgement** on “substantial changes in character“ (*steps 5 - 6*)
- Designation tests** (*steps 7 - 9*) - not yet begun



Phase A. Quantitative criteria for evaluation of pressures, relying on physical alterations

Physical alterations :

1. Transversal river works – dams, weirs, sills
2. Longitudinal river works – embankments, banks regulation / consolidation works, etc
3. Navigation channels
4. Water intakes, discharges, river derivation

The quantitative **criteria for hydromorphological pressures assessment** are based on :

- **hydraulic works types ;**
- **effects on aquatic ecosystems ;**
- **parameters reflecting the pressures.**

For **each** hydromorphological alteration type, **effects** and **parameters reflecting the pressure**, by **threshold values**, have been identified

Hydromorpho alterations	Effects	Parameters reflecting the pressure	Pressure		
			High	Middle	Low
Transversal river works	Each alteration => diff. effects : changes of hydrol. regime, sedim. transp., biota migration, disruption of lateral connectivity, etc	Quantitative abiotic criteria which define the hydromorphological pressure	Threshold values for assessing potentially significant pressures of hydromorphological changes		
Longitudinal works					
Navigation channels					
Water intakes, discharges					

1. Transversal river works

1.1 Weirs , sills



- **Effect** : on hydrological regime, on sediment transport and migration of biota
- **Parameters** : **(a) Sills density (no. / km);**
(b) Height of the structure (cm)

	Low pressure	Middle pressure	High pressure
(a)	≤ 1	2	≥ 3
(b)	< 20	20 - 50	> 50

- **Transversal river works**
1.2 Dams, reservoirs



- **Effect** : on the flow downstream reservoir and biota
- **Parameter** : **Low flow in river bed / Q* (%)**

Low pressure	Middle pressure	High pressure
> 100	100 - 50	< 50

$$Q^* = Q_{95\%} \text{ (m}^3\text{/s)} + 0,1 \quad \text{for } Q_{95\%} > 200 \text{ l/s}$$

$$Q^* = 1,3 \times Q_{95\%} \text{ (m}^3\text{/s)} + 0,04 \quad \text{for } Q_{95\%} < 200 \text{ l/s}$$

2. Longitudinal river works

2.1 Embankments, ...



- **Effect** : on lateral connectivity, the floodplain vegetation and spawning habitat
- **Parameters** : **(a) Length of dikes / Length of WB (%)**
(b) Flood protected surface (in the floodplain) / Total floodplain surface (%)

Low pressure	Middle pressure	High pressure
(a), (b) < 30	30 - 70	> 70

2. Longitudinal river works

2.2 Banks regulation / consolidation works



- **Effect** : on river longitudinal profile, on substrate structure and biota
- **Parameter** : **Length of hydraulic works / Length of water body (%)**

Low pressure	Middle pressure	High pressure
< 30	30 - 70	> 70

3. Navigation channels



- **Effect** : on bed stability and biota
- **Parameter** : **Width of (dredged) channel / Width of river bed (%)**

Low pressure	Middle pressure	High pressure
< 20	20 - 50	> 50

4. Water intakes, discharges, river derivation



- **Effect** : on the low flow, bed stability and biota
- **Parameters** : (a) **Abstracted or returned discharge / Multiannual mean flow (%)**
 (b) **Low flow in river bed / Q* (%)**

	Low pressure	Middle pressure	High pressure
(a)	< 10	10 - 50	> 50
(b)	> 100	100 - 50	< 50

$$Q^* = Q_{95\%} (\text{m}^3/\text{s}) + 0,1 \quad \text{for } Q_{95\%} > 200 \text{ l/s ;}$$

$$Q^* = 1,3 \times Q_{95\%} (\text{m}^3/\text{s}) + 0,04 \quad \text{for } Q_{95\%} < 200 \text{ l/s}$$



Conclusions on Phase A

- Application of the quantitative criteria for hydro-morphological pressures assessment = **the first stage of the provisionally HMWB designation (Phase A)**

- **Output of phase A** => first approximation / classification of the water bodies in three categories :
 - Low pressure : non-HMWB
 - Middle pressure : “candidate to HMWB”
 - High pressure : “possibly” or “probably” HMWB



Phase B. Expert judgement

Remark : ES is unknown

B1. Where available biological data confirmed substantial changes in character for WBs “possibly HM” and “candidate to heavily modified”, they were *identified provisionally as HMWB*.

B2. Where not available biological data

Approach based on expert judgement (estimations of presumable impacts) => WBs “possibly HM” have been divided in :

- WBs *identified provisionally as HMWB* or
- WBs “*candidate to heavily modified*” (identification after 2004 with more information about biological quality elements)



Results. Gaps and uncertainties (Phase A & B)

Results – Romania (inland waters)

- 17,6 % provisionally HMWB; 15,5 % candidate to HMWB ; 63,6 % non-HMWB ; 3,3 % artificial WB.

Gaps and uncertainties

- There is not enough monitoring data on biological quality elements (e.g. macrophytes and fish fauna)
- Lack of studies concerning the correlation between pressures and their effects / impacts on biota
- Lack of studies concerning the impacts of habitats alterations on species.



2. Steps to be taken to confirm the designation of HMWBs

- In all RBA of Romania, there are **on-going activities on the development of monitoring networks**, according to the WFD requirements
- For the **WBs “candidate to heavily modified”**, an **appropriate monitoring program** will be set-up for obtaining supplementary data (monitoring during 2006) in order to redefine the WB category : either non-HMWB or provisionally HMWB.
- **Designation tests** - applied to all WBs identified provisionally as HMWB



3. Any issues that could usefully be addressed at EU-level

- **EU Guideline**
 - Indicate **restoration measures** for **each type of hydromorphological alteration**
 - Propose a **pragmatic approach for the designation tests procedure** (does every case need quantitative economic analysis ?)
- **Development of some researches at EU level** for
 - a better knowledge of the **correlation between habitats alterations and species**
 - the characterization and the setting-up of the environmental objectives for the **temporary streams**

Thank you for your attention !

