

# Water Framework Directive and Hydromorphology

17-19 October, 2005 Prague

Finnish risk criteria

# Used risk assessment criteria

- Similar approach: surface water units of the reported waters estimated.
- Two levels of impact assessment: influence on the (chemical) quality and on biological factors.
- Quality estimation
  - Status of the water in the water usability classification in 2003 (nationally five classes from poor to excellent, physico-chemical elements & usability for humans).
  - Deviation of medians of water colour, total P, a-chlorophyll in representative sampling point(s) from selected reference water.
  - Deviation classes <30%, 30-50 %, 50-100%, > 100 %.
  - Known problems (such as algal blooms & increased pollutant levels in sediment, biota or water) included.
  - In rivers also deviation in total nitrogen and chemical oxygen demand are estimated.

# Used risk assessment criteria (2)

- Biological status estimation
  - Simplified evaluation based on deviation in taxa composition and species number when compared with selected reference water(s) of the same type.
  - Information sources: a) Monitoring data or research studies, b) Modelling or c) **Expert judgement**.
  - Estimated elements: phytoplankton, macrophytes, benthic invertebrates, fish.
    - Score from 1-3 (1= minor influence, 2 = moderate influence, 3 = great influence).
  - Not ecological classification at this stage.
  - Ecological status is assessed in more detailed regional planning phase (management plan preparation) according to the new official classification system from 2005 onwards.

# Used risk assessment criteria (3)

- The quality estimate and the biological estimate are given overall ratings.
- Scores for each overall estimate
  - 1= no or only minor human impacts
  - 2= moderate human impacts
  - 3= significant human impacts
- The final estimate is based on both the quality estimate and biological estimate.
- Result ON/OFF i.e. the water unit is either impacted or not.

# Hydromorphological risk assessment criteria (4)

- Hydromorphological risk criteria used in first phase mainly in designating pHMWB
- Lakes
  - Morphological changes at reporting level ( $> 40\text{km}^2$ ) are considered insignificant.
  - Simple hydrological factor is applied: winter drawdown (m)
- Rivers
  - Hydrological changes
    - Amount of unnatural pools of river length due to hydropower production or
    - Variation in daily discharge rate compared to average mean discharge rate (MQ) or
    - Change of mean maximum discharge or mean low-water discharge
  - Morphological changes
    - Proportion of clearing out rapids or cut-offs in the river of after 1950's
    - Proportion of embankments from double river length after 1950's