WG2: Hydromorphology

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Part I: Preparation of next program of measures regarding designing of measures that aim to mitigate physical impact

National hydromorphological assessment method

- The hydromorphological assessment method is included in the separate national guideline, not in legislation
  - Old guideline with small updates will applied
  - Importance of changes in hydromorphology will be highlighted in classification of all water bodies as a supporting quality element
  - Assessment of modification needed as a result of new EU GEP guidance still under discussion
- More focus on HyMo assessment in small stream water bodies
  - In many small stream WBs was not assessed at all or was assessed by using the guidelines prepared for big streams
  - Alternative assessment methods for small stream WBs have been developed
    - Methods for example for stream channel winding, potential migration barriers (e.g. road culverts), silting of channels, hydrological changes due to land-use

Criteria for evaluation of hydromorphological changes in rivers (HyMo)

	1. Upstream migration barriers	2. Constructed head loss (%)	3. Constructed part (%) of river length (cleaning, embanking, new channels, dry stretches) and its effects	4. The magnitude of short-time regulation [1] (HQwk- NQwk)/MQ under normal water conditions or frequency of 0-discharge	5. Change (%) in the spring HQ compared with the natural discharge
Very high (4 points)	Completely closed [3] (90-100 %)	Over 50	over 50, This has caused destruction/significant negative changes in natural underwater habitats (e.g. rapids)	Case-specific evaluation [2]	Over 75
High (3 points)	50-90 % closed	>30-50	30-50 Natural underwater habitats largely destroyed / significantly changed	Case-specific evaluation[2]	> 50-75
Moderate (2 points)	25-50 % closed	>15-30	15-30 At maximum third of natural habitats destroyed/ significantly changed	Case-specific evaluation[2]	>25-50
Slight (1 point)	10-25 % closed	5-15	5-15 Minor negative changes in natural habitats	Case-specific evaluation[2]	10-25
No change (0 points)	Less than 10 %	Less than 5	Less than 5 Natural habitats	Case-specific evaluation[2]	Less than 10

1) Short-time regulation contains weekly and annual regulation. HQ-NQ can be calculated from a weeks period.
2) The effects on the water levels on down stream water courses shall be taken into account.
3) Excluding the short period possibilities to upstream migration. Can be evaluated in several discharge situations if necessary.

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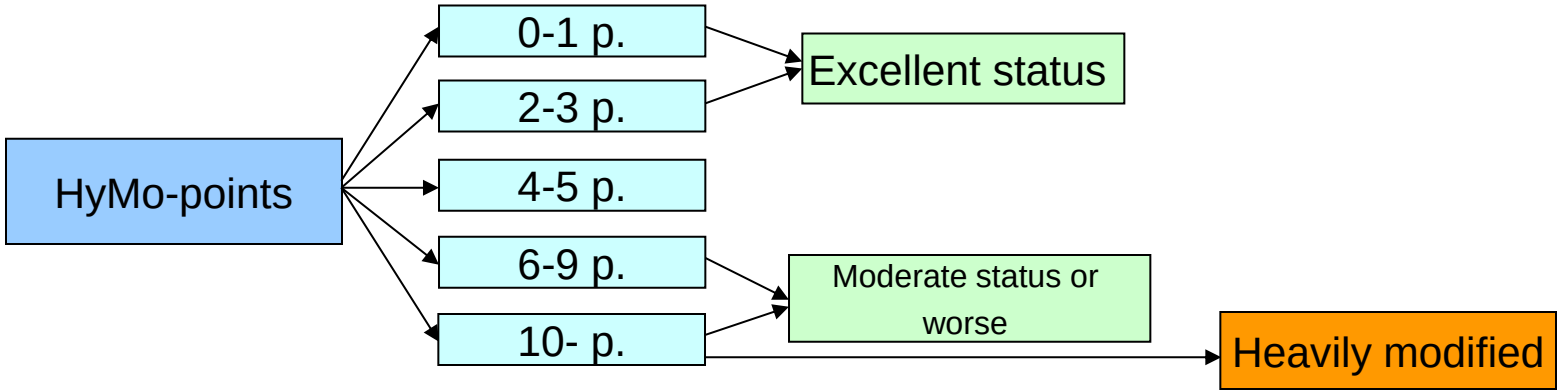
Evaluation of hydromorphological change by Hymo-criteria – total scoring

Level of hydro-morphological change	Changes in the hydro-morphological status	HyMo-points
0	No change	0 – 1
1	Slight change	2 – 3
2	Quite significant change	4 – 5
3	Significant change	6 – 9
4	Very significant change	10 ->



More focus for monitoring of morphological quality elements

- EU Commission's feedback
  - *"morphological conditions in lakes and rivers and river continuity were not monitored"*
  - *"monitoring should be extended to include hydromorphological quality elements and an increased level of monitoring should lead to a lower dependence on expert judgement in the classification"*
  - What about other countries?

- Preparation of monitoring program for morphology is about to start
  - Utilizing existing measurements
  - Developing new methods
  - Experiences from other countries very welcome!

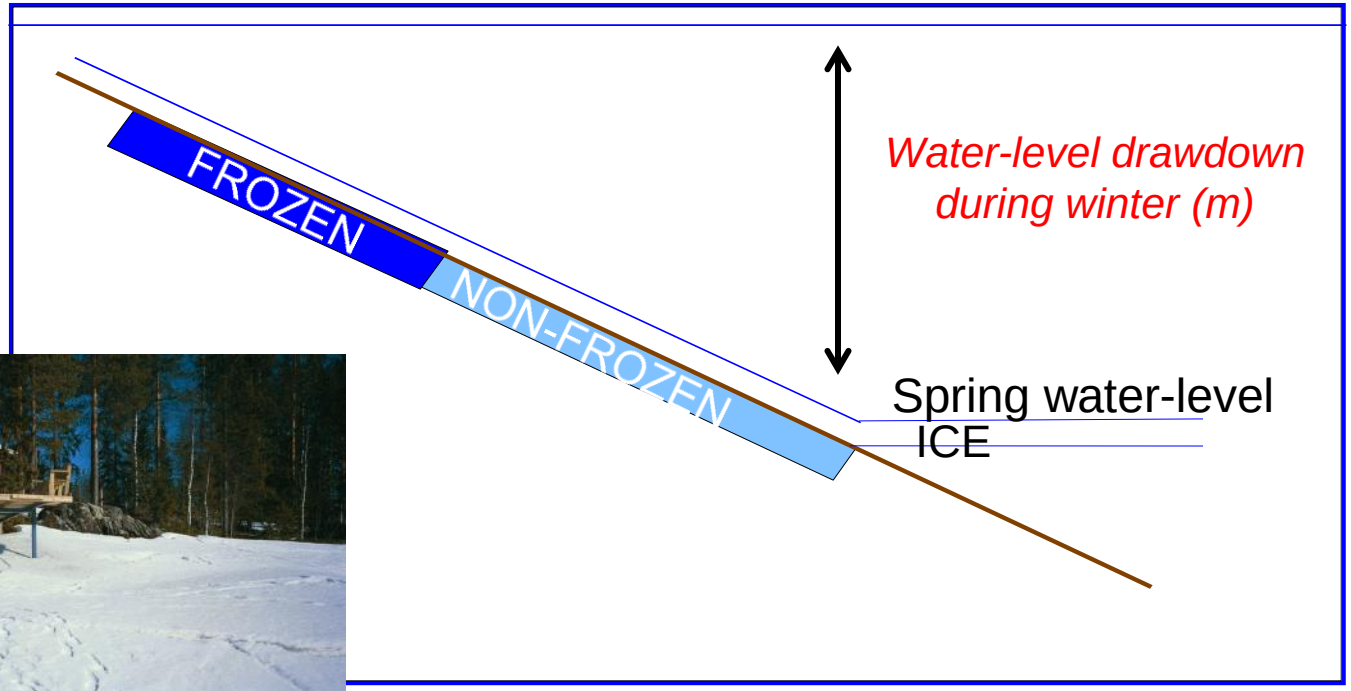
Lessons learned using hydromorphological assessment methods that are able to predict the risk of not achieving good ecological status due to hydromorphological pressures (CIS guidance no 36)

- Tähän tulee vielä antolta jotain tänään

Pressure: Power-production

Stressor: Shoreline freezes

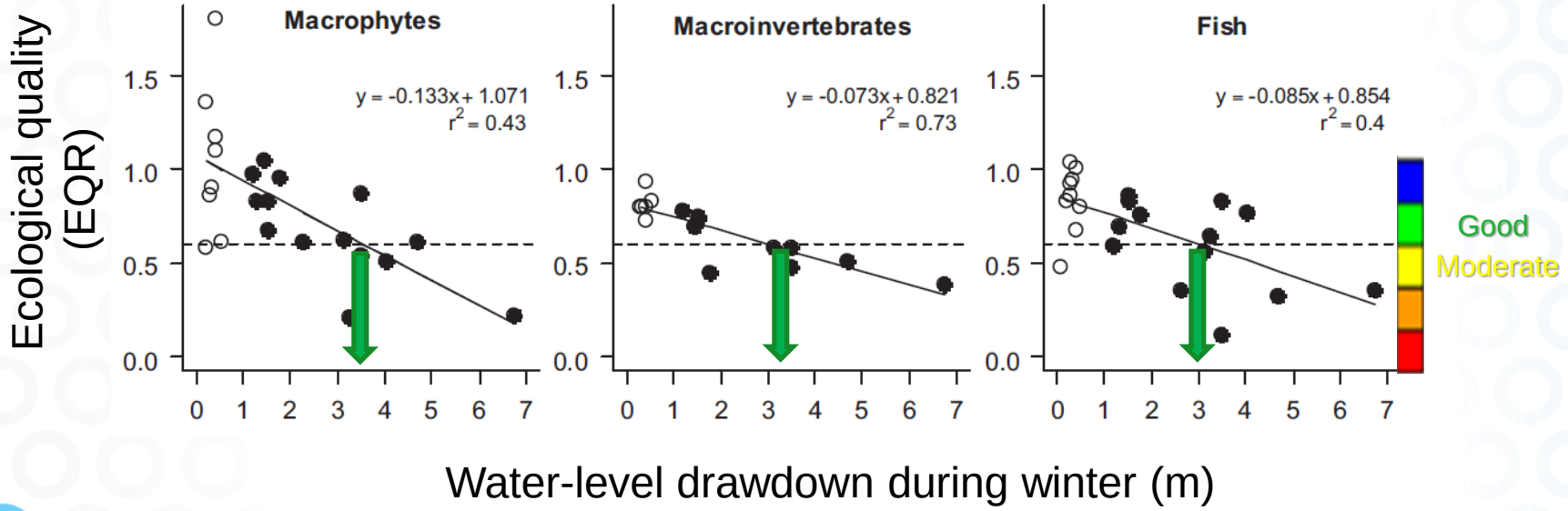
Response: Biota changes



Seppo Hellsten

One pressure => predictable responses?
How to define acceptable stressor levels?

Example from Finnish lakes regulated for water-level



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Aroviita & Hämäläinen 2008. Hydrobiologia 613:45–., Sutela ym. 2013. Ecological Indicators 24: 185–.

If there are multiple stressors, hydro-morphology seldom relevant

- Stressors acting at larger scales (usually catchment land use) overrule the effects of local degradation

  => Hydromorphological pressure may be relevant ONLY once water quality has been enhanced to a level not severely degrading ecological status

- The degradation of hydrology and morphology affects the biota through various and often complex pathways (such as alterations in habitat composition, flow dynamics, shading or food sources)

  => Strong dose–response relationships between HyMo degradation and ecological quality are rare

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Process for updating program of measures regarding identifying measures designed to mitigate physical impact and/or preventing deterioration

- National guidance documents for planning of measures for different sectors will be updated this year
  - Sectors: groundwaters, municipalities and industry, agriculture, forestry (incl. peat mining), regulation and restoration of waters
- All measures and instructions for planning process are described in the sectoral guidance documents
  - Some measures having impact on hydromorphology are available in all sectors
- Main contents of the guidances
  - Policy instruments and strategies, measure descriptions, monitoring of implementation, cost estimation, selection of measures, assessment of environmental and social impacts, justifications for exemptions, responsible parties in implementation, cost allocation

Part II: Objectives and exemptions for ecological status/potential due to physical impact according to article 4.5 WFD

2nd cycle interpretation of exemptions (article 4.5), presentation on if and how hydromorphology is used to support the identification of exemptions (article 4.5) for ecological status/potential and possibilities to develop approaches for 3rd cycle

- It is possible to exempt from WFD status requirements if there are
  - 1) unforeseen or exceptional circumstances (like floods or droughts) or
  - 2) overriding public interests for modifications to the physical characteristics of a WB
- It has been also possible to postpone the achieving of the GES/GEP until 2027
  - Must be justified by technical feasibility, disproportionate expenses or natural conditions
  - Only exemption applied in Finland so far -> **can not be used anymore in the 3rd cycle**
- In 2nd cycle PoM planning guidelines for restoration and regulation of waters the measures can be designated for 4 stages: 1) pre-planning, 2) planning, 3) realisation, 4) maintenance
  - **Only realisation and maintenance can be applied in the 3rd cycle**
- We have just started discussions on article 4.5 procedures, not yet any answers on use of hydromorphology to support the identification of exemptions but interested on cooperation with other Nordic countries

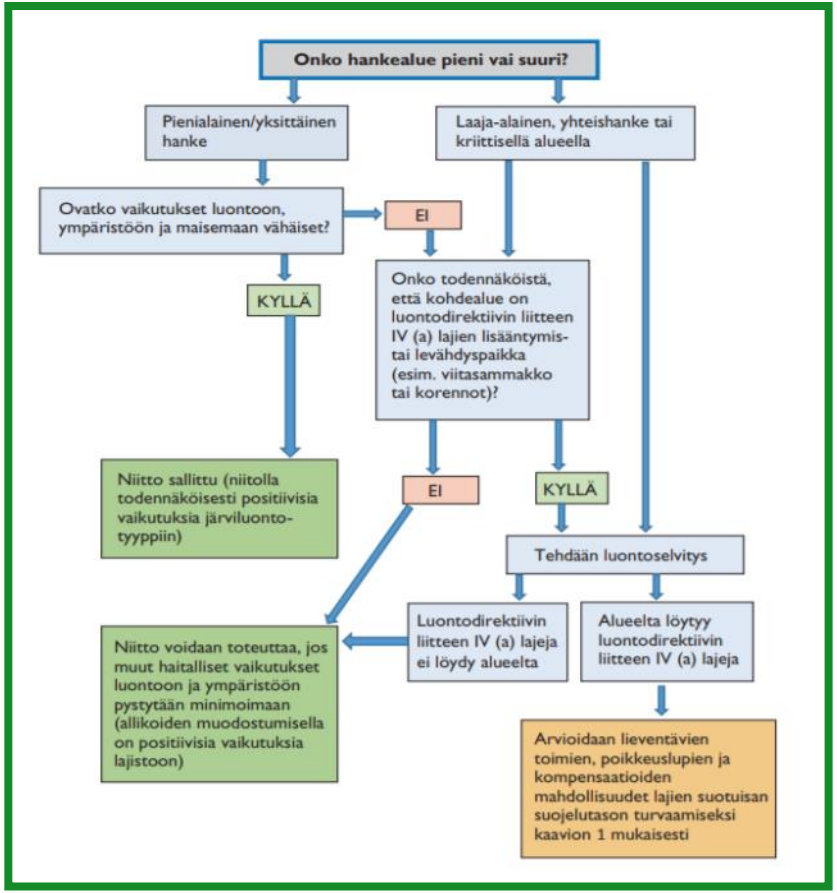
Experiences of or thoughts on implement the necessary measures to prevent deterioration of protected areas according to art 4.1.a.i

- Restoration of protected areas is a separate measure in the PoM planning guidance for restoration and regulation of waters
  - Concern areas designated as requiring special protection of their surface and groundwater or for the conservation of habitats and species depending on water
  - Measure consists of actions that only focus on water status and mainly aim to maintain or improve the protected natural values
  - Although the protection goals are prioritised in protected areas, the goal of GES should also be taken into account

Situation in Finland

- More than 464 specific designated areas
  - the links between the goals of WFD and Habitats directive are still pretty fuzzy in the planning process
- More clear joint guidelines are needed, have been handled case-by-case so far
- There are several conflicting interests between protected species (for example freshwater pearl mussel, moor frog) and implementing of measures

- Example how to deal with moor frog in lake restoration by mowing.



INFO: Project

- Background
  - Idea came fro… …wledge Conversion Fo… …Riparian Ecosystems Ar…
  - Starting point:… …d and provide multip… …improving the state of rip… …d
  - A main goal of… …based best practice in ripa…
  - A key finding:… …f riparian ecosystems ar… …but the information ha…


RIPARIAN ZONE / RIPARIAN VEGETATION DEFINITION: PRINCIPLES AND RECOMMENDATIONS

Date: Version 1, March 2019

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

CONVERGES

Contents and goals of Riparian project

- Riparian - The possibilities and barriers for use, management and restoration riparian zones in Nordic countries
- Main contents
  - Legislation, spatial plans and land-use, housing, financial subsidy systems in agriculture and forestry, ownership of land and water areas, flood protection, regulation etc. can have a big role in the use and management of riparian zones
  - A comparison of legislation and practices at general level
- Realisation (very tentative plan)
  - Web-based questionnaire
  - Workshop (if possible?)

KIITOS!

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