SURFACE WATER STATUS ASSESSMENT ESTONIA 2016 WAY FORWARD?

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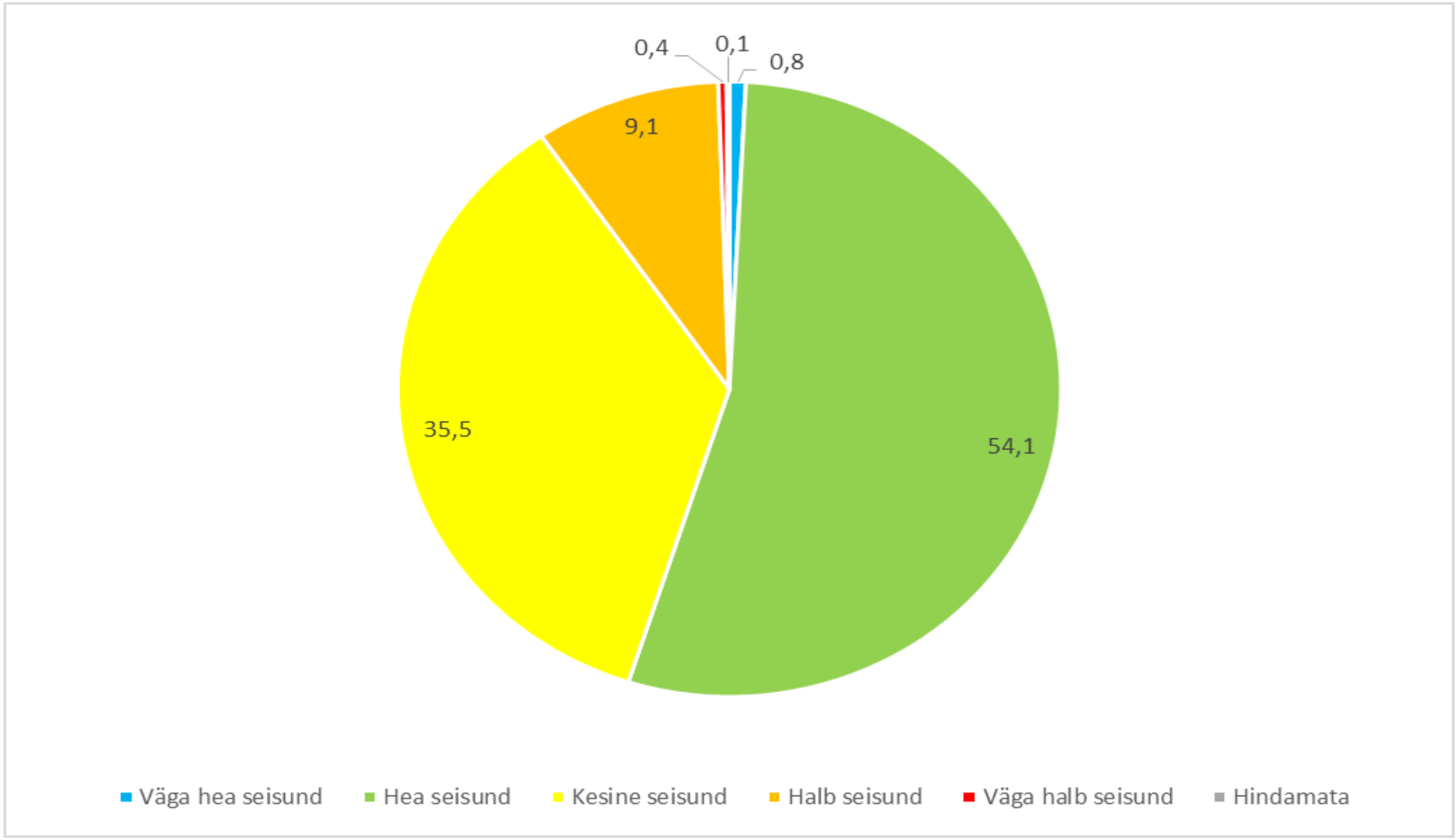
Surface water status 2016 assessment

- 2016. a status assessment – Estonia

- There is 337 surface water bodies of 750
that are at moderate, bad or poor status
(ecological or chemical or both ecological or chemical)


0,4
0,1
0,8
9,1
35,5
54,1
Väga hea seisund
Hea seisund
Kesine seisund
Halb seisund
Väga halb seisund
Hindamata

River bodies not good 272

- Moderate 220 river bodies
- Bad 50 river bodies
- Poor 2 river bodies

River bodies not good 272 – way forward

Basic information :

- Problematic quality elements, problematic pollutants

*Is the not good status permanent, proven by several monitoring series

*Are all pressures mapped for the water body scale, subcatchment scale, wider scale

*Are all technical measures planned for status improvement done?

River bodies not good 272 – way forward

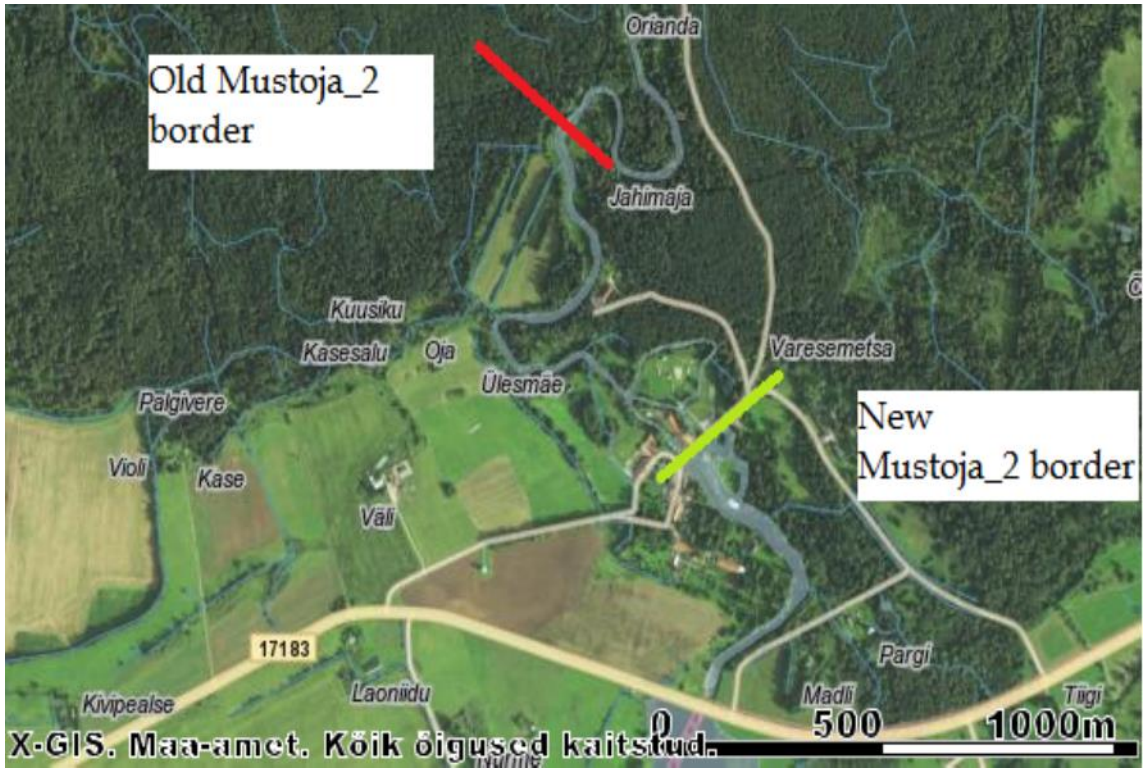
Administrative measures rivers with not good fish status - 241 river bodies

- **Water body border to habitat border**

*** Damaged habitat with no suitable measure will stay heavily modified**

- **Put more effort to productive fish habitat improvement**

River Mustoja at Vihula manor - important sea trout river



- One dam (red line) removed – 6,7 km habitat is at GES for fish
- Vihula dam (green line) cannot be removed – landscape, wider environment, rural employment
- Vihula dam - fishpass ?

no feasible solution with significant positive impact to fish

HMWB example -Mustoja stream 43,23 km

- Mustoja_1 type 1B

(catchment up to 100 km2)

- 37,64 km heavily modified
- Dams (Vihula I -*removed, Vihula II manor, Vihula III road)*
- Agricultural melioration

1,1 km good trout habitat

(from Vihula I -removed to Vihula II)

- Ecological potential not good

because of Fish

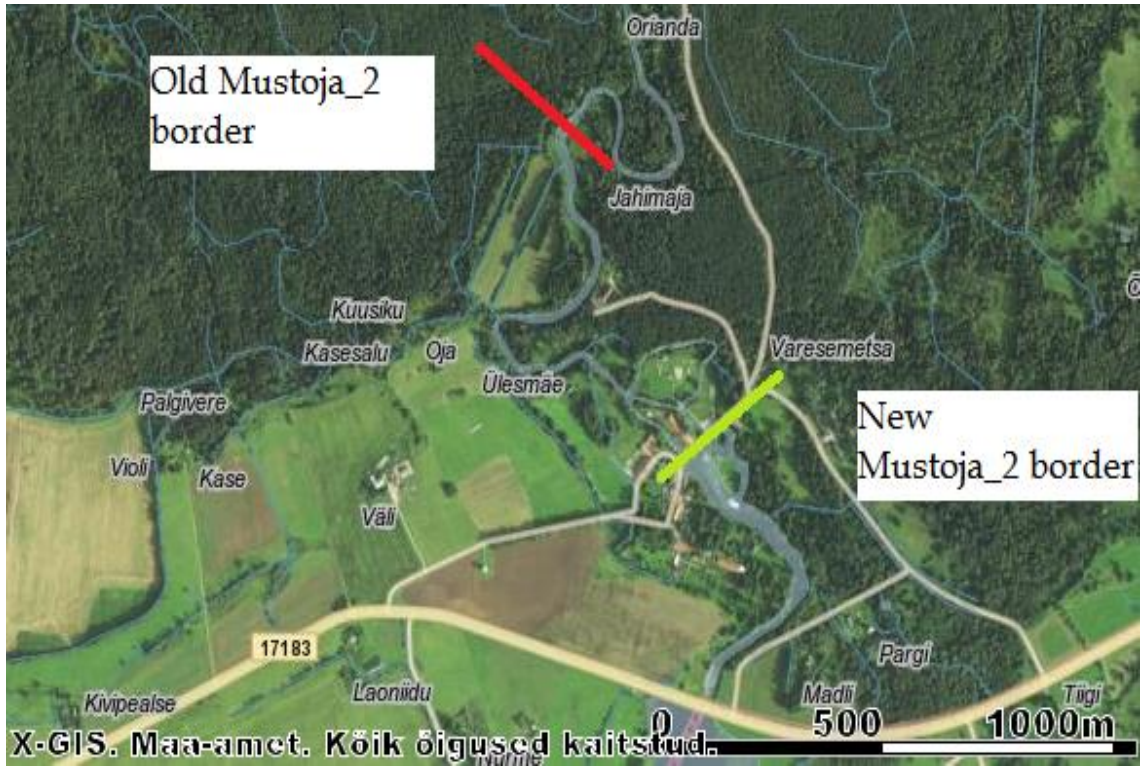
- Mustoja_2 type 2B

(catchment >=100 km2)

- 5,6 km natural , sea trout spawning habitat

Ecological status good

Impact on wider environment , use and technical infeasibility – River Mustoja at Vihula manor



- Mustoja_1 GES has SAEoE (wider environment –cultural heritage, rural employment)
- Mustoja_1 GES has SAEoU

(recreational use)

* Fishpass in Vihula II infeasible

*Change the border of HMWB

River Mustoja natural part WB Mustoja_2

6,7 km from the sea

Natural WB

GES is achieved

at all biological quality elements

Measures – remove beaver dams

River Mustoja WB Mustoja _1 - heavily modified WB upstream from Vihula manor dam (Vihula II)

River Mustoja WB Mustoja _1
(heavily modified water body for fish) 36,54 km

- GES Fish is impossible GEP is possible
- SAEoE (wider environment –cultural heritage, rural employment)
  SAEoU (recreational use)
- Measures for Mustoja _1 GEP
- regular removal of sediments, higher plants from impoundments;
- natural buffer zones at field areas,
- stones and gravel to the drainage system for ecosystem diversity

River bodies not good 272 – way forward

Administrative measures – streams not important for fish

Stop fish monitoring and stop using fish for status assessment at streams with temporary water regime – unimportant streams for fish

Review the fererence conditions at the Fish monitoring sites

In 2017 analysis of fish reference communities at the monitored sites 2007-2014 ; EMÜ PKI Leping 4-1/16/15 aruanne „Pinnavee ökoloogilise seisundi hindamismetoodika arendamine ja ajakohastamine“ 1. Võrdlustingimused riikliku seire käigus aastatel 2007-2014 teostatud kalastiku katsepüükidele lk 27

River bodies not good 272 – way forward

Administrative measures - unimportant streams for fish

1) Sites with catchment <40 km², if not feeded by well (upper layer of ground water)

WB with total catchment >= 40 km2 that are not defined as salmonid habitats, are unimportant for fish

2) Sites with catchment 40…60 km² unimprtant fish habitats are at the rivers with low proportion of ground water (less than 50 % of total annual discharge);

3) Sites with catchment >60 km² - all sites are important fish habitats.

4) Investigated sites, protected by decree of MoE nr 73 „Protected habitats of salmon, trout and grayling (lamprey)“ (15.06.2004) all areas are important fish habitats

River bodies not good 272 – way forward

Administrative measures - unimportant streams for fish

Defining the new river body subtype –temporary streams, unimportant habitats for fish and macrophytes

Summer season is without water and that leads to poor Fish community and occasional macrophyte community.

Status assessment by combining water samples, macroinvertebrate samples and ESTMODEL nutrient TN and TP content modelling

Estonia is not planning to cancel these WB-s for the III RBMP to ensure continuity of status assessment.

Delineation principles and possible correction of WB-s needs analyze at EE-LV borders

Moderate GES ----- Good EP (11 HMWB in 2018)

- HYMO –not good
- Nutrients, pH and BOD-5 are good or high

- Specific substances – low risk -not monitored
- Specific substances – high risk – monitored- good
- EQS substances – low risk -not monitored
- EQS substances - high risk – monitored- good

Moderate GES ----- Good EP (11 HMWB in 2018)

- HYMO –not good
- Nutrients, pH and BOD-5 are good or high
- One or several Biological quality elements not good

- All relevant and feasible mitigation measures are done
- at small scale river body level
- at larger scale (connection between spawning and feeding areas for anadromic Fish)

Moderate GES -----
Good EP (11 HMWB in 2018)

- All relevant and feasible mitigation measures for BQE are done

(both small and large scale)

*review of water permits, include feasible mitigation measures to permits

* review of the PoM, finding out what has done at what not done

Moderate GES -----
Good EP (11 TMV-d in 2018)

- All relevant and feasible mitigation measures are done

- Usual way of use stay at place – no SAEoU

(Significant Adverse Effect on Use)

- Wider environment stay not changing – no SAEoE

(Significant Adverse Effect on Environment,
included wider environment)

Moderate ES --- Good EP
pounded river

Water

- TN , TP, BOD-5, pH –level –river good
- O2 content – suitable for cyprinides or salmonides (if protected as salmon river)

Moderate ES --- Good EP
pounded river

Macroinverts – moderate to poor

Fish

*not monitored at smaller ponded river stretch

*at bigger ponded stretches –

Fish catch like in lake, current situation is GEP

Benthic diatomes - usually responds to river good at that situation

Macrophytes - usually responds to river good at that situation

Moderate-ES– Good EP- interrupted river with small ponding

Water

- TN , TP, BOD-5, pH –level –river good
- O2 content – suitable for cyprinides or salmonides (if protected as salmon river)

Macroinverts – current situation

Fish – current situation, no monitoring at rivers not important to fish
Benthic diatomes - usually responds to river good at that situation

Macrophytes - usually responds to river good at that situation

Moderate-ES– Good EP- interrupted river with small ponding

Macroinvertebrates – current situation

Fish – current situation, no monitoring at rivers not important to fish

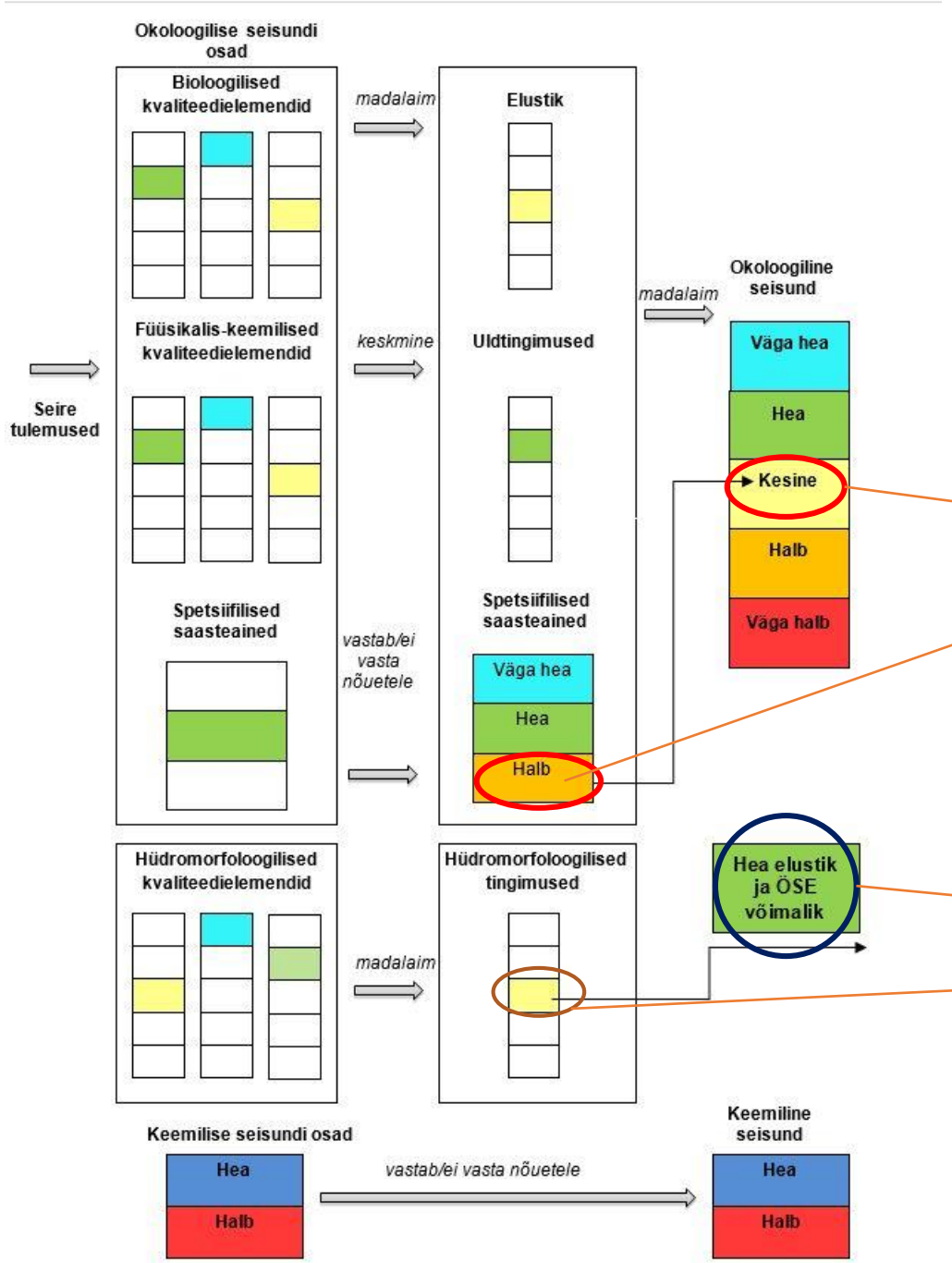
Benthic diatomes - usually responds to river good at that situation

Macrophytes - usually responds to river good at that situation

Administrative measures – specific substances

- Combination rules of Specific substances to generate Esological Status
- Statistical analysis of samples at Specific substances at river, sampling point
- Does one sample change Ecological status totally ?

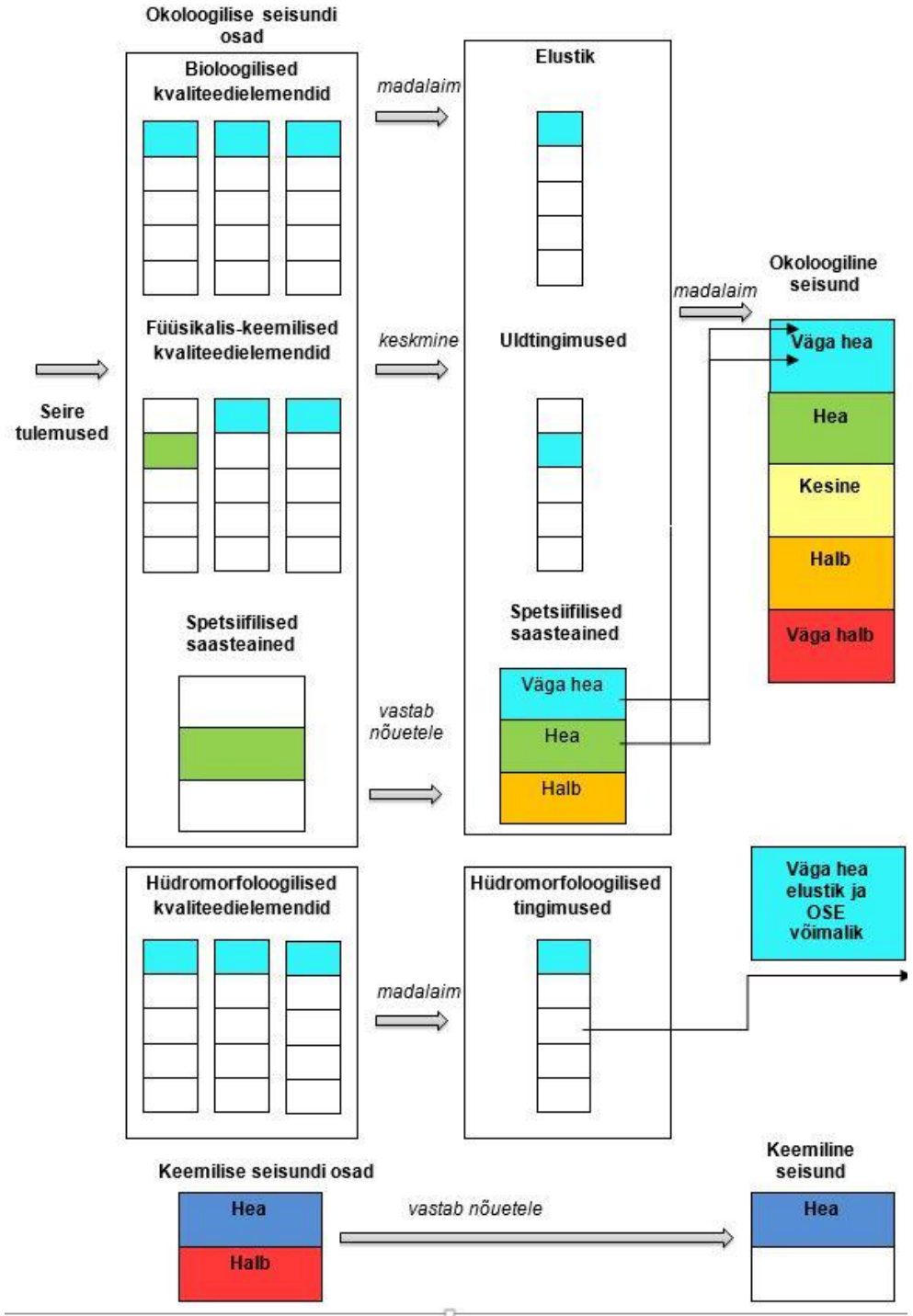
Correction of combination rules 2017 I



*Specific substances poor
*Biology moderate, good or high –
Ecological status moderate

Moderate HYMO allows good ecological status if biology is good or high

Correction of combination rules 2017 II



For HIGH ecological status
*high biology,
*good or high specific substances and
*high HYMO is obligatory

Administrative measures – spacial analysis?

- Spacial extent of point source mixing zones? Proportion of mixing zone area/total area of WB?

- Proportion of damaged habitats that leads to desigh WB as heavily modified

- Discussion options:
- more than 50% of WB length HYMO damaged for bio elements
- more than 75% of WB length HYMO damaged for bio elements

Typical ponded stretches in Estonian rivers

Visela-Punde impounded WB at Visela river

- Fish farming
- Recreation
- Landscapes
- Upstream part - unimportant fish habitat

Typical ponded stretches in Estonian rivers

Visela-Punde impounded WB at Visela river

- ca 10 km from river mouth (Väike Emajõgi) 85 km from lake Võrtsjärv
- 10 km Natural WB Visela 2
- 9,5 km heavily modified WB Visela_1

(ponded part 7,8 km + small stretch unimportant to fish 1,7 km)

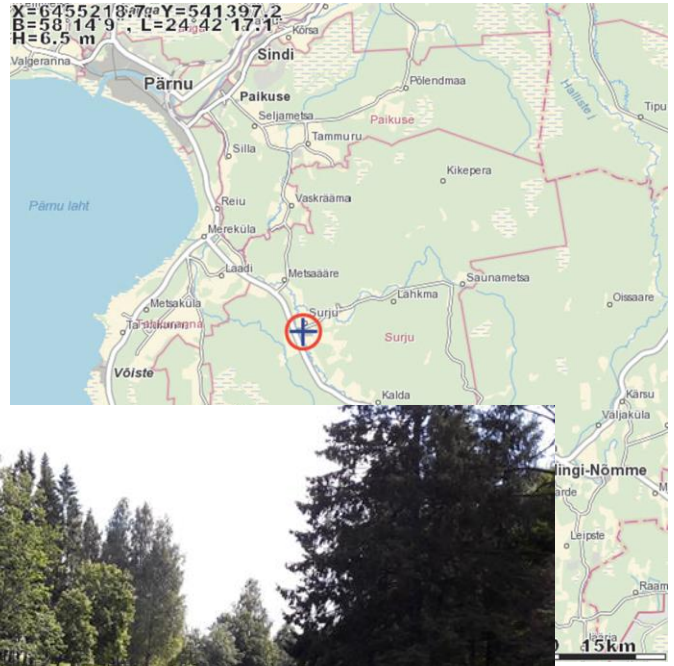
Typical ponded stretches in Estonian rivers

Visela-Punde impounded WB at Visela river GEP is achieved

- HYMO status - poor
- Water quality -high
- Benthic diatomes –high
- Macrophytes –good
- Macroinverts –moderate
- Fish moderate (at stretch with naturally low quality for Fish)

Surju case –Natural WB to HMWB with GEP

Surju impoundment at Surju stream (natural WB) 15 m from river mouth, total length 18 km, catchment 49 km2



Typical ponded stretches in Estonian rivers

Surju impoundment at Surju stream (Natural WB) 15 m from river mouth,
total length 18 km, catchment 49 km2

- Recreational use, landscapes
- Unimportant fish habitat
- Dam removal could damage landscape (SAEoE), bathing possibilities (SAEoU)
- Fish pass do not bring significant fish improvement

Typical ponded stretches in Estonian rivers

Surju impoundment at Surju streem (natural WB) 15 m from river mouth,
total length 18 km, catchment 49 km2

- HYMO status - poor
- Modelled water quality high
- Pressure group 2 – very low pressure to water, dams
- Expert opinion – unimportant Fish habitat
- Water permit – no fishpass

Typical ponded stretches in Estonian rivers

Surju impoundment at Surju stretch 15 m from river mouth,
total length 18 km, catchment 49 km2

- Design as HMWB
- Main uses landscape, recreation
- Decision for III rd RMBP
- GEP is gained
- Moderate ES == Good EP
- Fish do not need achieve GES – sampling necessary at wadeable part

Puhas vesi hoiab elu!
Clean water keeps life

Longitudinal connectivity keeps life

Natural banks keep life

Thank you !

- Puhas vesi hoiab elu!
- Clean water keeps life!
- Tīrs ūdens saglabā dzīvi !

Irja Truumaa
Ministry of the Environment of Estonia