Engaging Communities for Better Water: Lake Harku Restoration Case Study

LIFE GoodWater IP Conference

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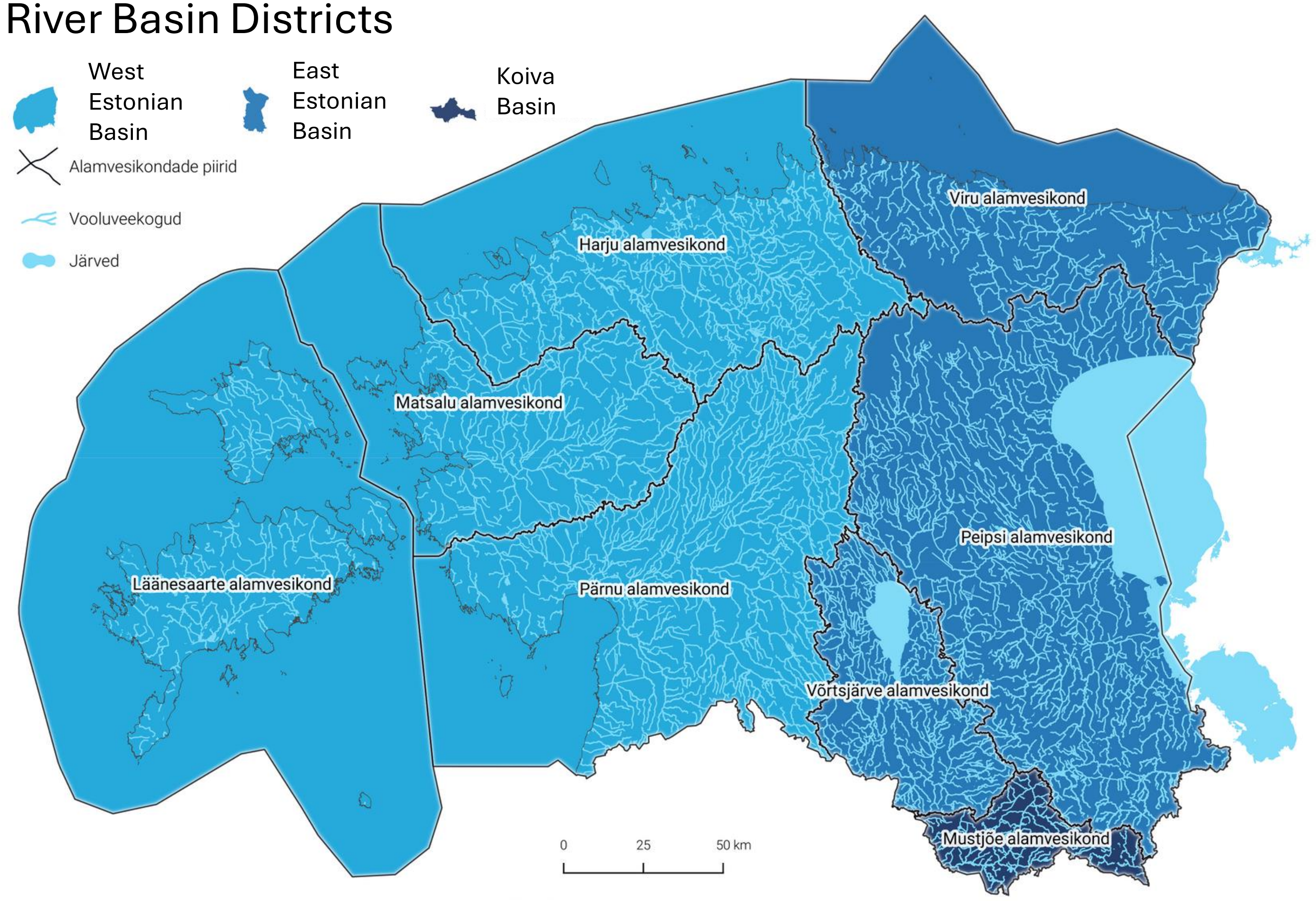
River Basin Districts



2025-2033

INNOVATIVE METHODS

30 MILLION EUROS

105 MEASURES

17 PARTNERS

4 WATER RANGERS

PARTNERS

- Ministry of Climate
- The Environmental Agency
- The Environmental Board
- Environmental Investment Centre
- Tallinn University of Technology
- The Estonian Environmental Research Center
- Estonian University of Life Sciences
- The Estonian Land and Spatial Development Board
- Tallinn University
- University of Tartu
- The Information Technology Centre of the Ministry of the Environment
- Baltic Environmental Forum
- The Centre of Estonian Rural Research and Knowledge
- NGO Wildlife Estonia
- Estonian Chamber of Agriculture and Commerce
- Estonian Public Broadcasting
- Estonian Environmental Law Center

- Pilot area in Harjumaa
- Lies between City of Tallinn and Harku Municipality
- Multiple interests: nature vs. human activities
- Water quality is poor due to high nutrient levels

Physical parameters of Lake Harku

Lake Harku	Value
Area, ha	164,8
Max depth, m	2,5
Average depth, m	1,8
Shoreline length, m	6440
Residence time	2.4 months
Limnologic type	Hypertrophic
Catchment area, km^2	52,3

Focus area: Lake Harku river basin

Watershed:

Forest (33%)

Fields, natural grassland (29%)

Lake Harku in the past

- 100 years ago, soft water
- 1950s decline begins
- 1970s hypertrophic status (wastewater)
- Mud layer thickened, P oversaturation

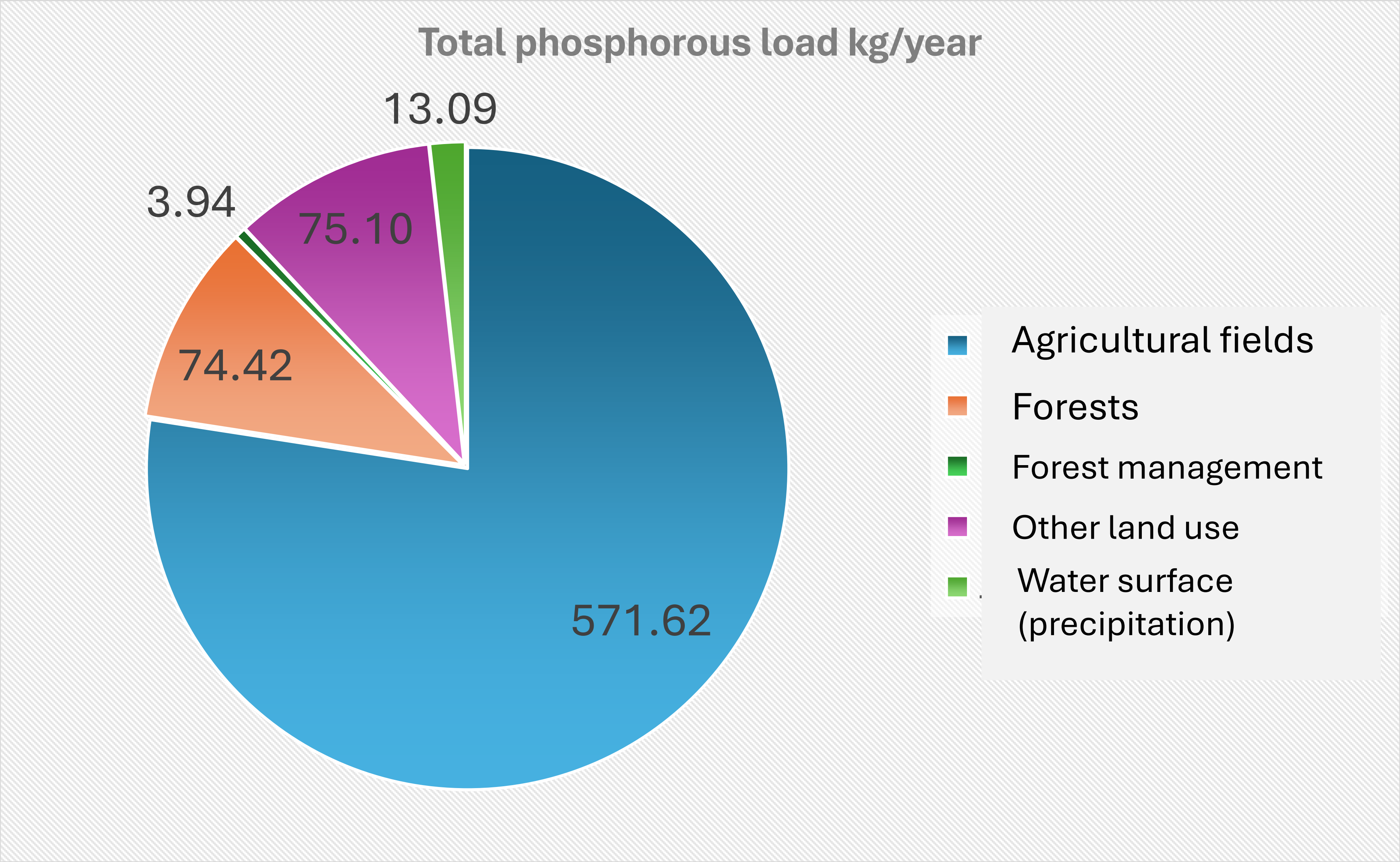
Phophorous load in Lake Harku

Annual P load 0,45 gP/m^2

(Environmental Board)

Annual P load 0,74 gP/m^2

(Prof. Ingmar Ott)



Lake Harku abiotic indicators

Abiotic indicators all in bad state according to EU Water Frame Directive

Secchi depth 6 cm!

Water stratified in august

Indicator	13.05.2025	03.07.2025	14.08.2025
Secchi depth, m	0,9	0,45	0,25
Water temperature, °C	14,2	21,3	22,6
pH	8,76	8,8	9,14
Total nitrogen (mg/l)	1,38	2,35	3,18
Total phosphorus (mg/l)	0,079	0,206	0,106
Chlorophyll A, mg/m^3	21,8	71,2	134,7

Lake Harku is in poor condition

Photos by: Aimar Rakko, Maili Lehtpuu

Lake Harku restoration options

- Sediment (mud) removal
- Geobag/Geotube method
- Use of floating islands
- COAGULANTS:

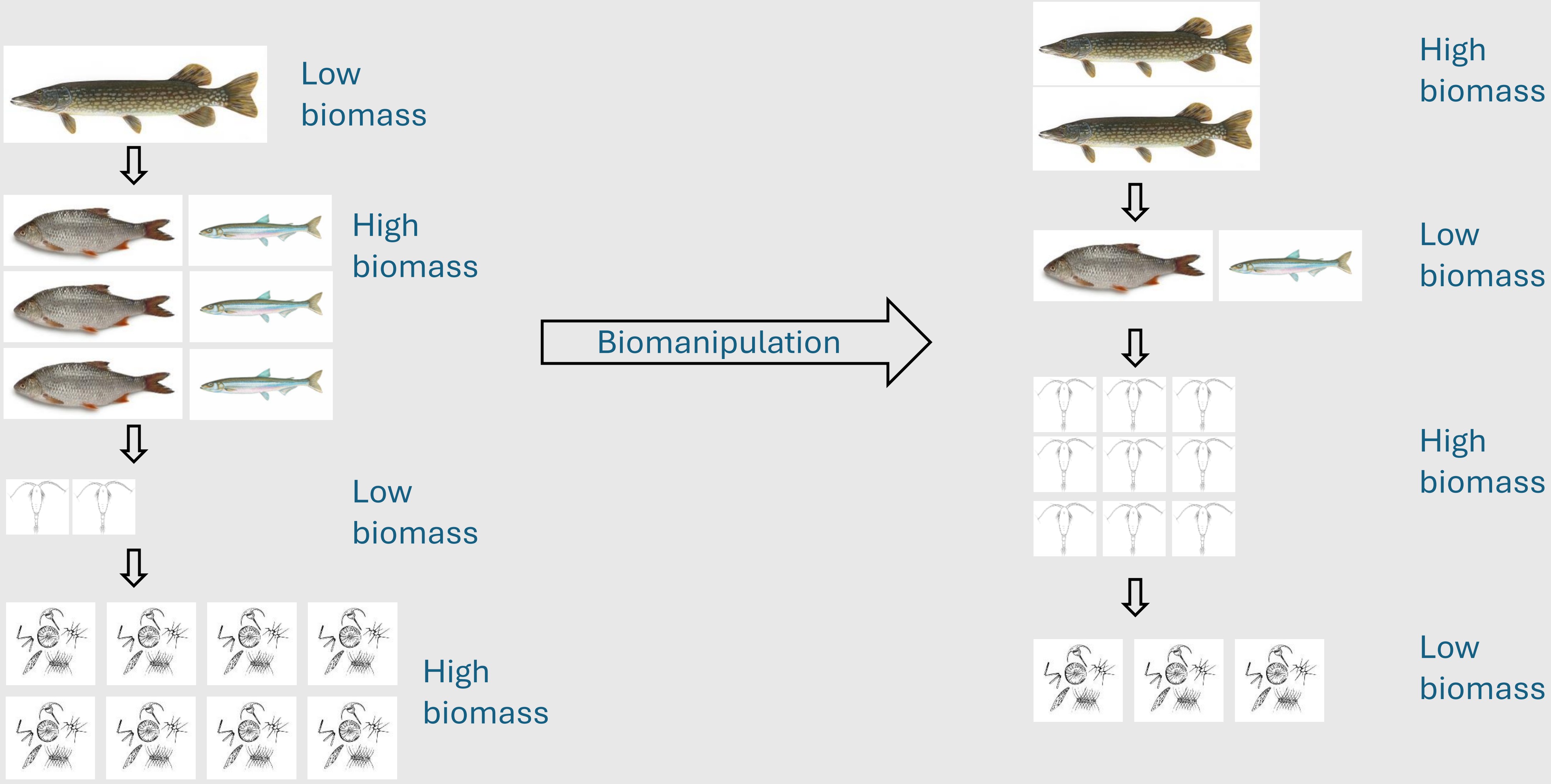
RIPLOX method (chemical oxidation)

Aluminium chemicals

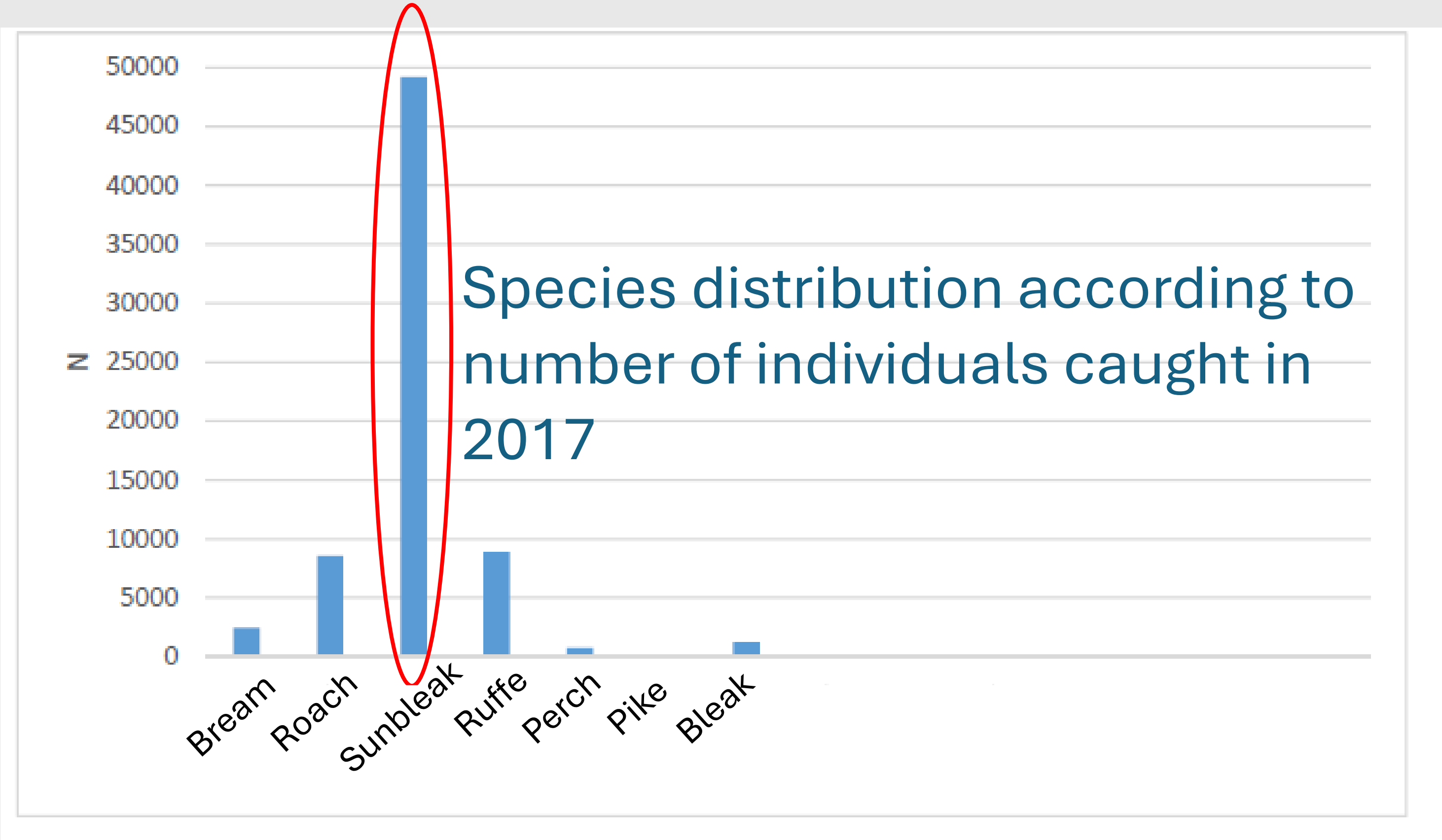
Phoslock

BIOMANIPULATION?

Biomanipulation concept

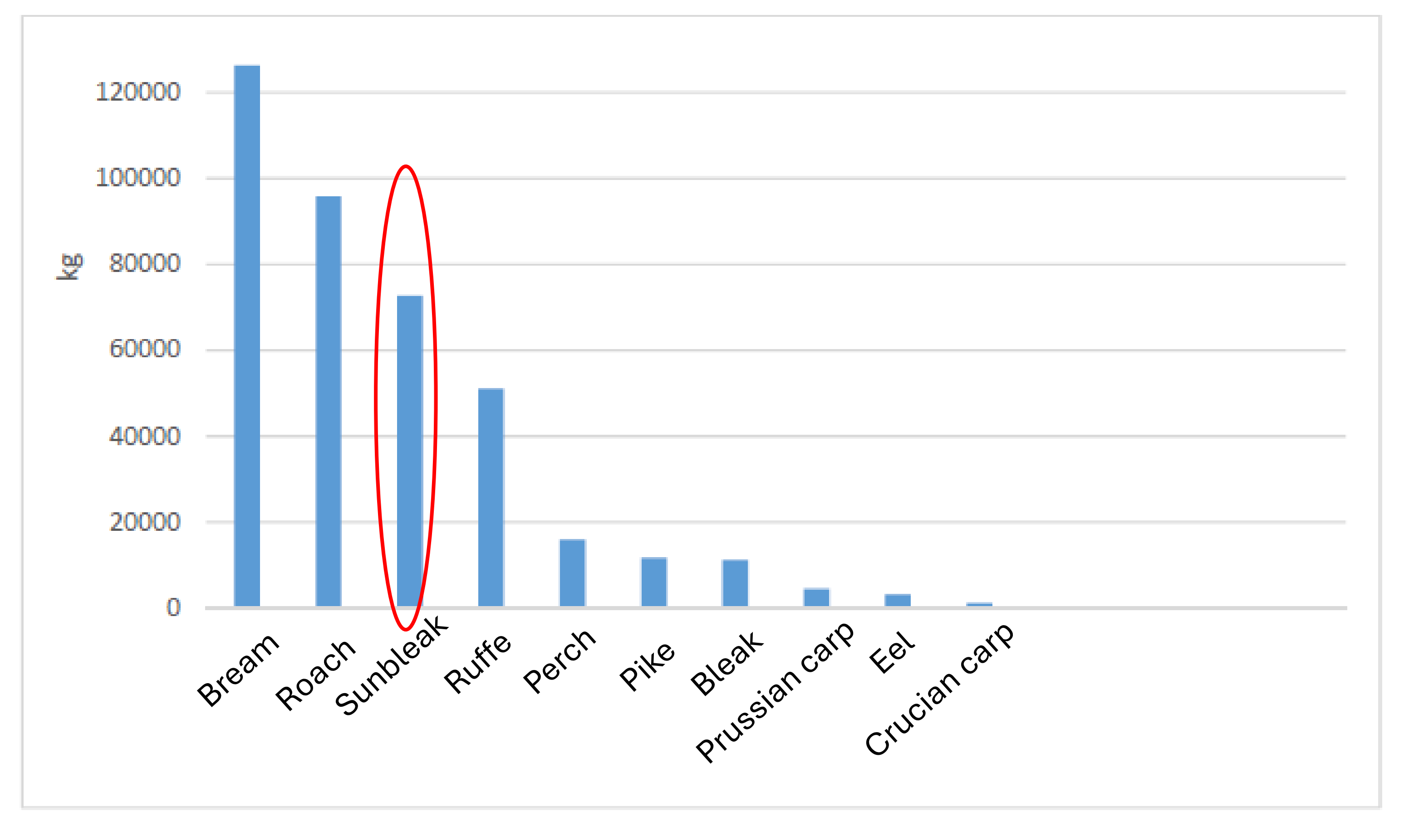


Harku fish sampling in 2017 – species abundance

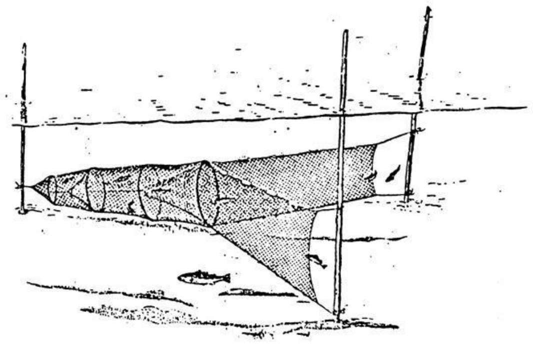


Sunbleak (*Leucaspius delineatus*) is a very dominant fish species in Harku

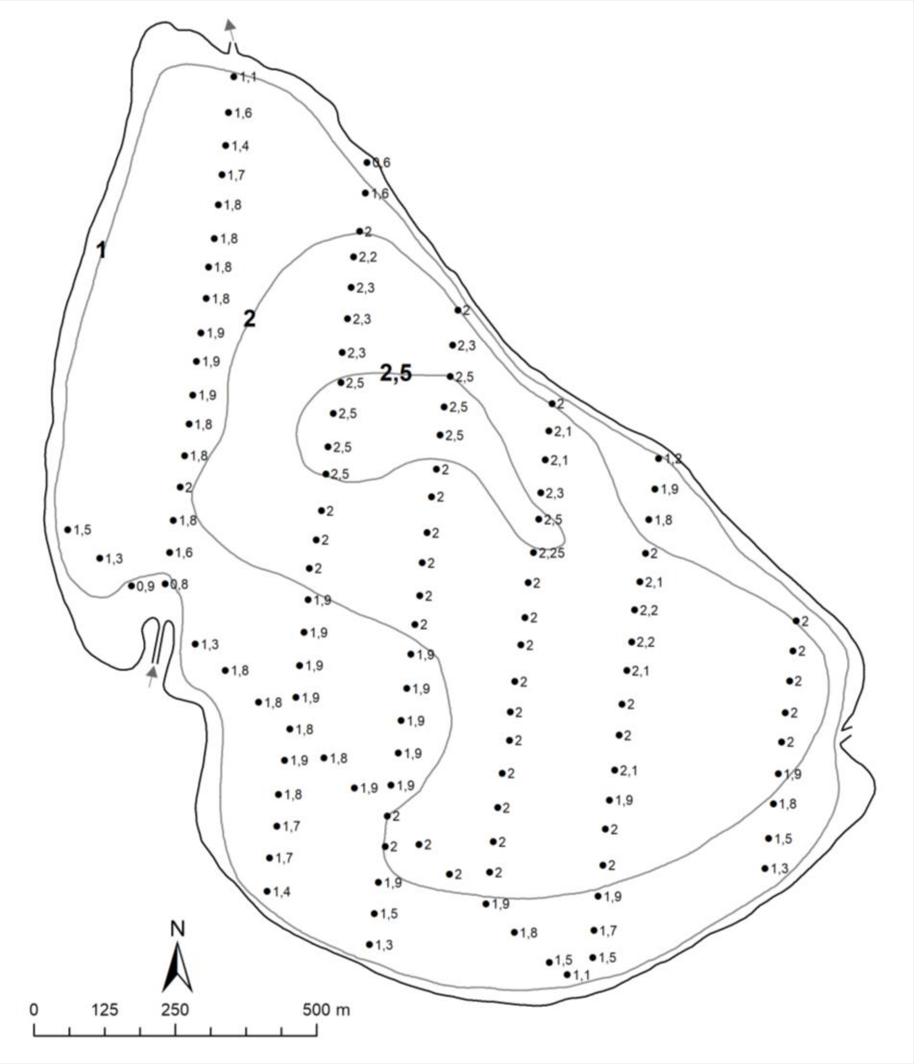
Harku fish sampling in 2017 – species biomass

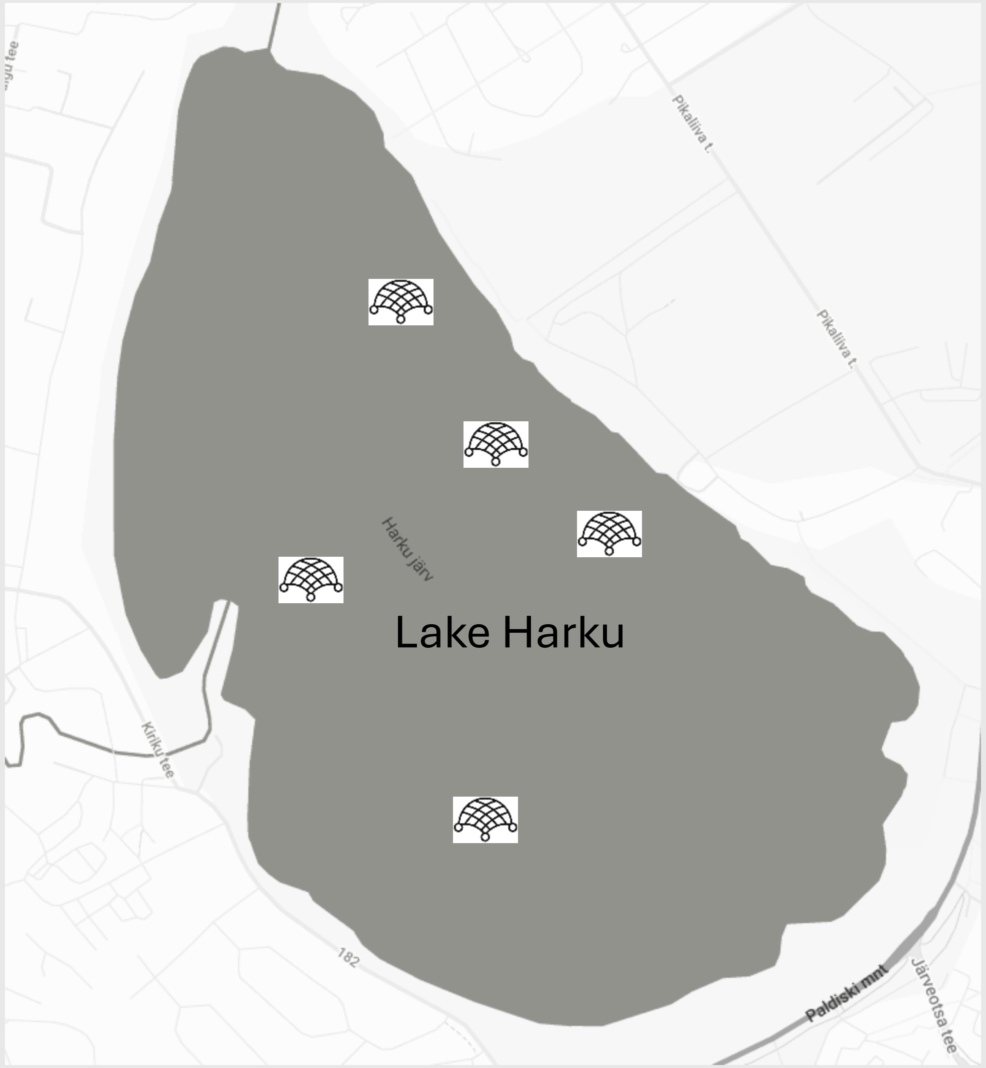


- In 2017, fyke nets were used to conduct fish assessments
- With a 8 mm cod-end, most sunbleak escaped the fykes
- New approach upon conducting biomanipulation – use an extremely small mesh size 5-6 mm



Biomanipulation from 2026-2031





Fyke nets placed in 5 locations

Biomanipulation from 2026-2031

- Primary objective – remove as many cyprinids (most importantly sunbleak) as possible in 5 years!

- Potential catch decreases in increments: 30-25-20-15-10 tons/year

- All large predatory fish will be released back into the lake.

Stakeholder engagement so far

- **Stakeholder mapping and initial contacts by water ranger**
- **Meetings with:**
- **Harku Municipality: stormwater plan 2025–2036, infrastructure upgrades.**
- **Tallinn City: continuous monitoring, action plan in development.**
- **Early cooperation with water companies (Strantum OÜ, Tallinna Vesi AS).**
- **Other groups mapped: sports organizers, clubs, schools, kindergartens, NGOs, businesses.**
- **Face-to-face meetings planned.**


Foto: Sven Zacek

- Convene a cooperation group to discuss water issues.
- Communicate the River Basin Management Plan clearly and directly.
- Connect stakeholders with authorities and funding sources.

Principles of engagement

- Two-way communication builds trust
- Early information sharing helps public and private sectors plan
- Broad community involvement increases motivation to contribute
- Provide ongoing support for implementing measures

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Key challenges

- Stakeholder contacts change after elections → need to re-engage
- Haabersti: rapid growth, pressure on land and water
- Private sector often unaware of obligations → more explanation required

Project goals

- Establish cooperation group with municipalities, businesses, communities, experts
- Explain plan and measures in simple language via groups and information days
- Engage schools and kindergartens for early awareness
- Develop user-friendly digital platform for data access
- Provide guidance and funding info to support implementation

Thank you!
Questions welcome.