

# Peldošās salas kā bioloģiskās daudzveidības pieturas un piesārņojuma mazinātāji “BioFloat”

(Interreg EST-LAT)

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SIA ALPS ainavu darbnīca,  
arhitekta, telpiskās plānošanas speciāliste

# BioFloat projekts

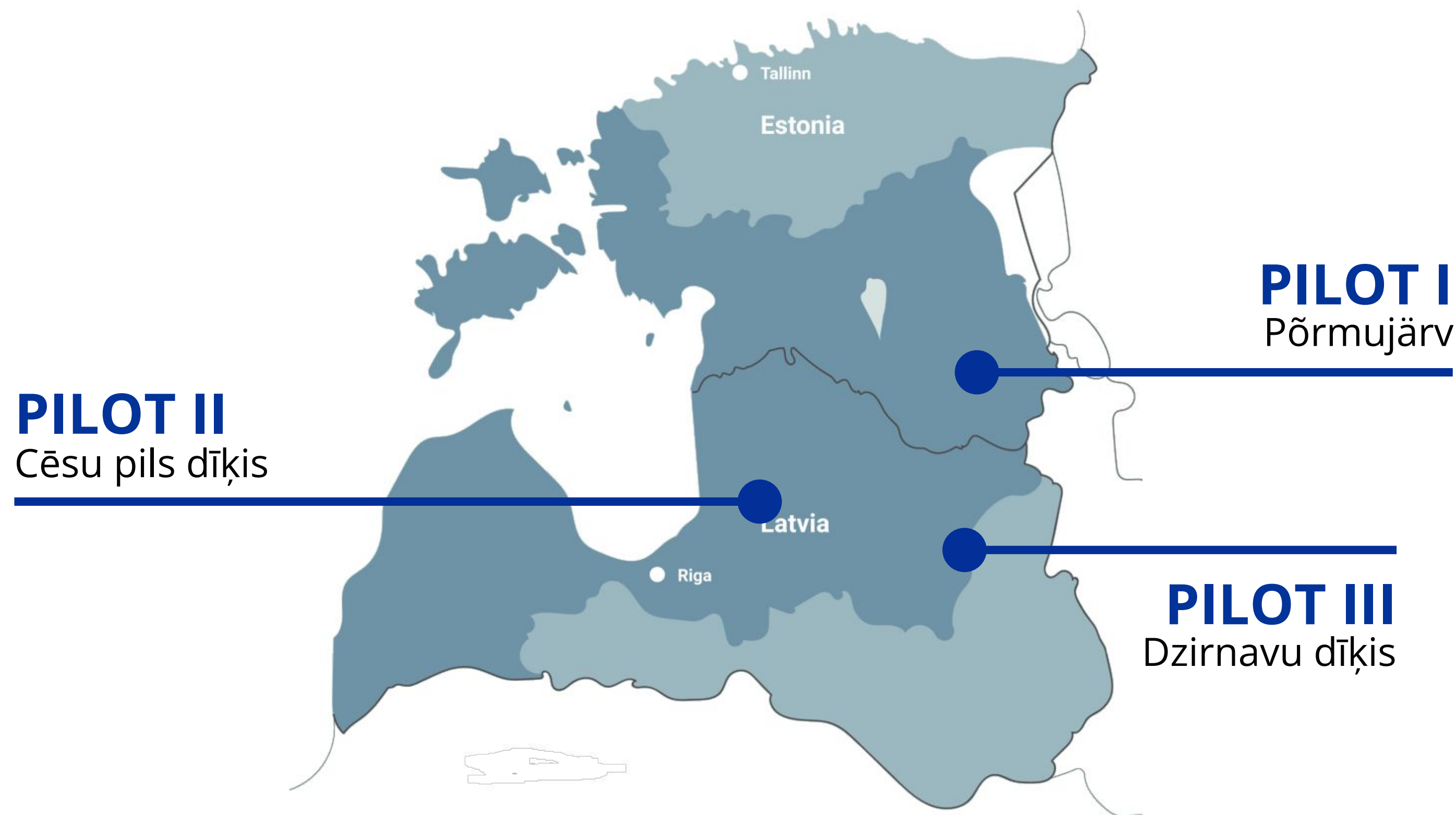
- Interreg EST-LAT
- Projekta partneri
  - Latvijas hidroekoloģijas institūts (vadošais partneris)
  - Stokholmas Vides institūts Tallinas centrs
  - Igaunijas Dzīvības zinātņu Universitāte
  - Latvijas Ornitoloģijas biedrība
  - SIA "ALPS ainavu darbnīca"
  - Gulbenes novada pašvaldība
  - Cēsu novada pašvaldība

Interreg



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Estonia – Latvia

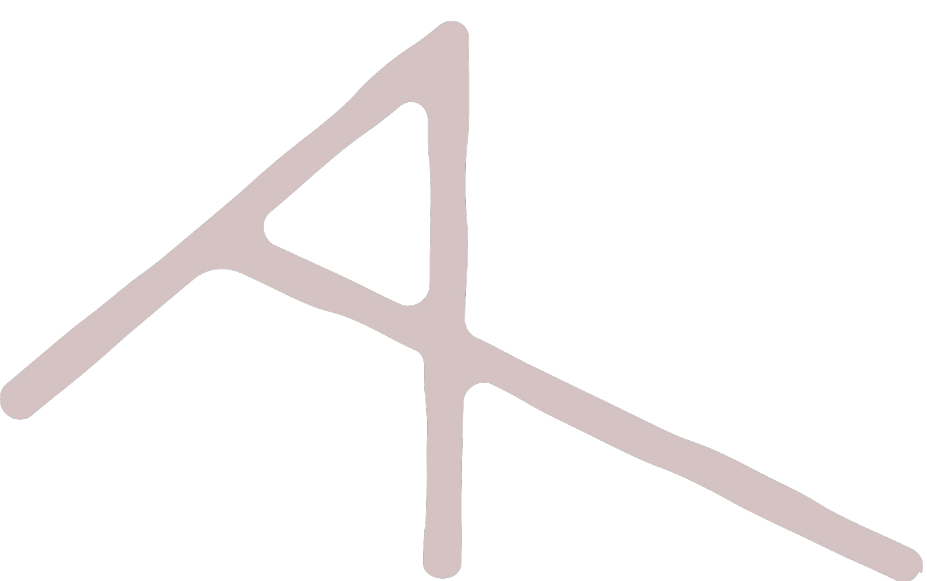


# Peldošo salu nozīme

- Ūdens kvalitātes uzlabošana
- Bioloģiskās daudzveidības uzlabošana
- Biotopu veidošana
- Zivju nārsta vietas
- Piesārņojošo vielu filtrēšana



Foto: BIOMATRIX WATER



# Peldošo salu nozīme

**BioFloat projekta mērķis:**

veicināt bioloģiskās daudzveidības  
saglabāšanu un uzlabot pilsētvides  
ūdens ekosistēmu veselības stāvokli

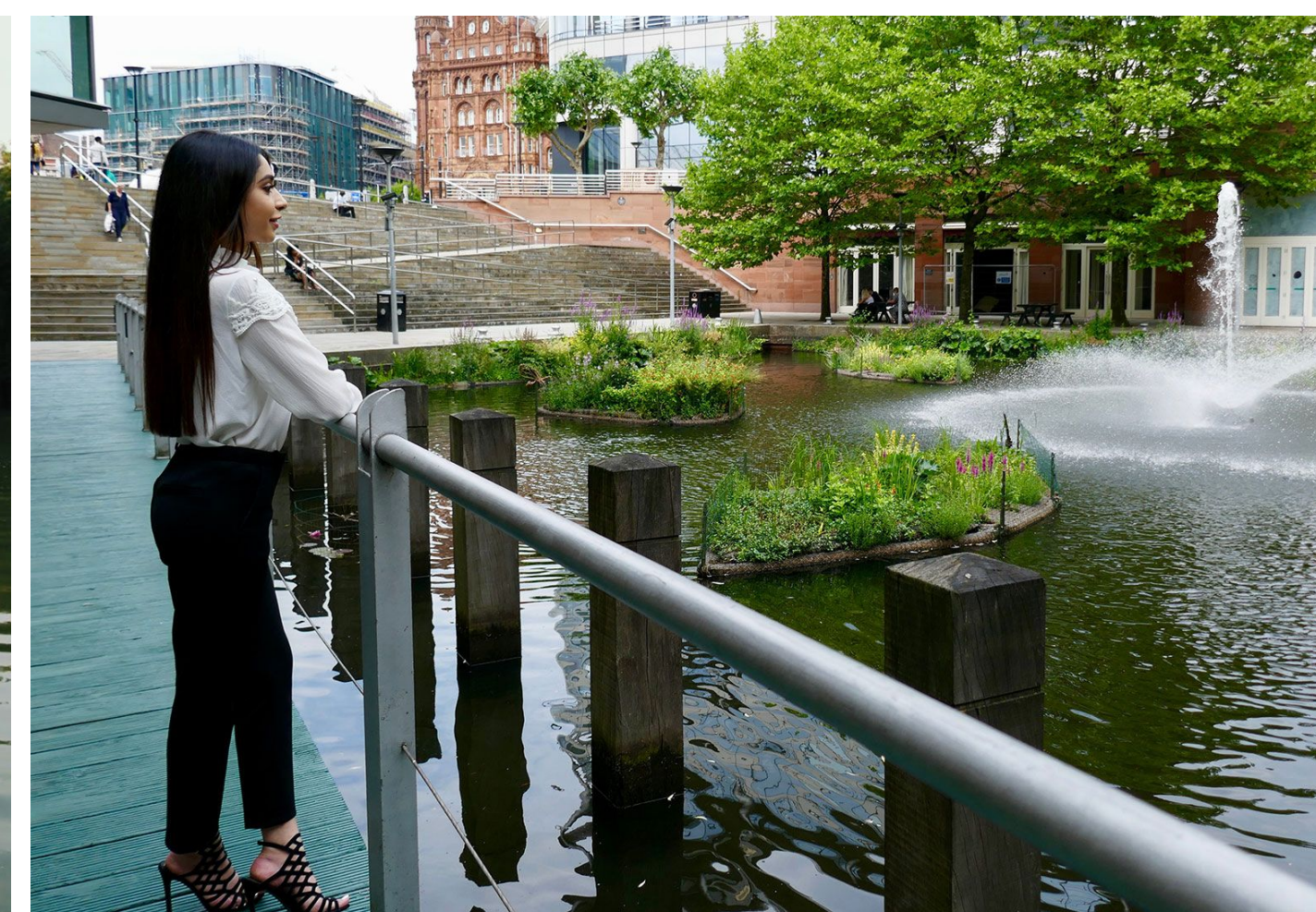
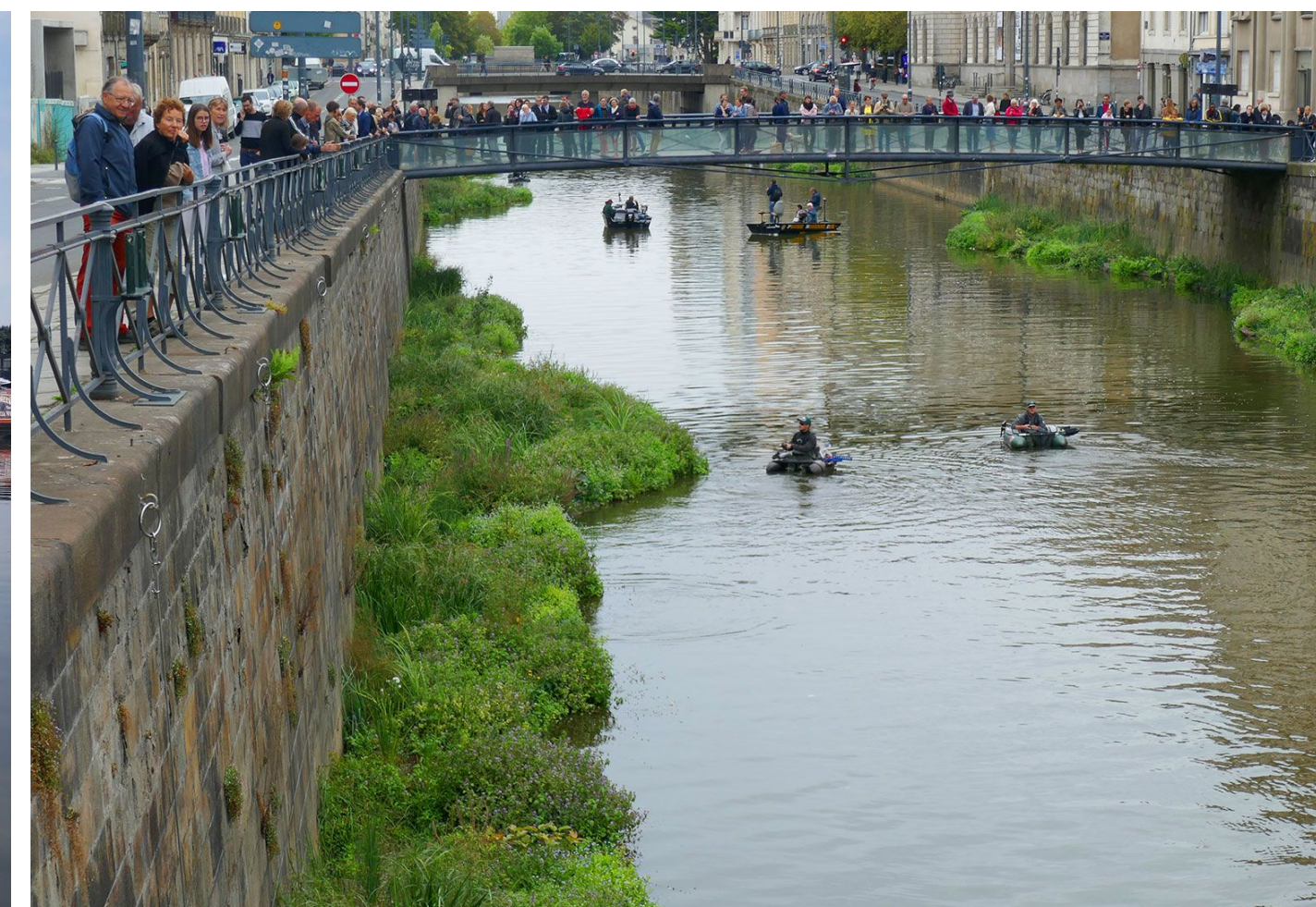
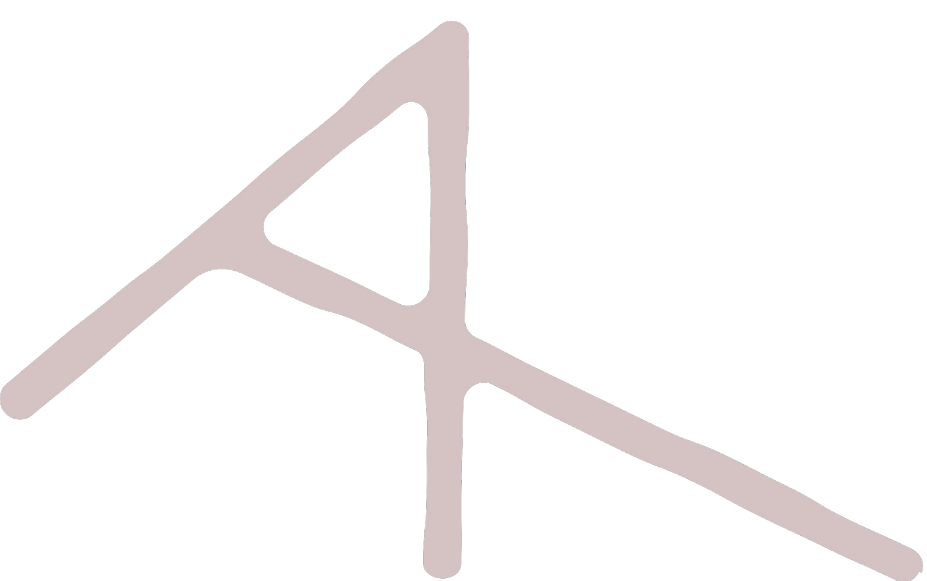
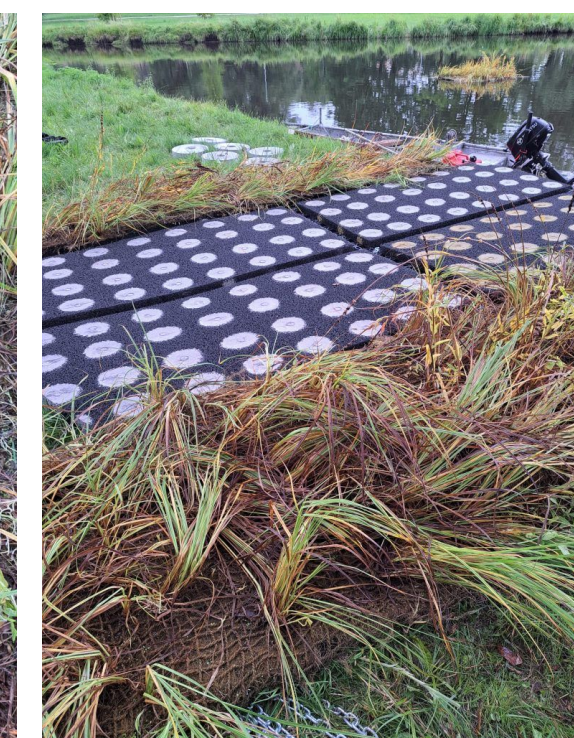
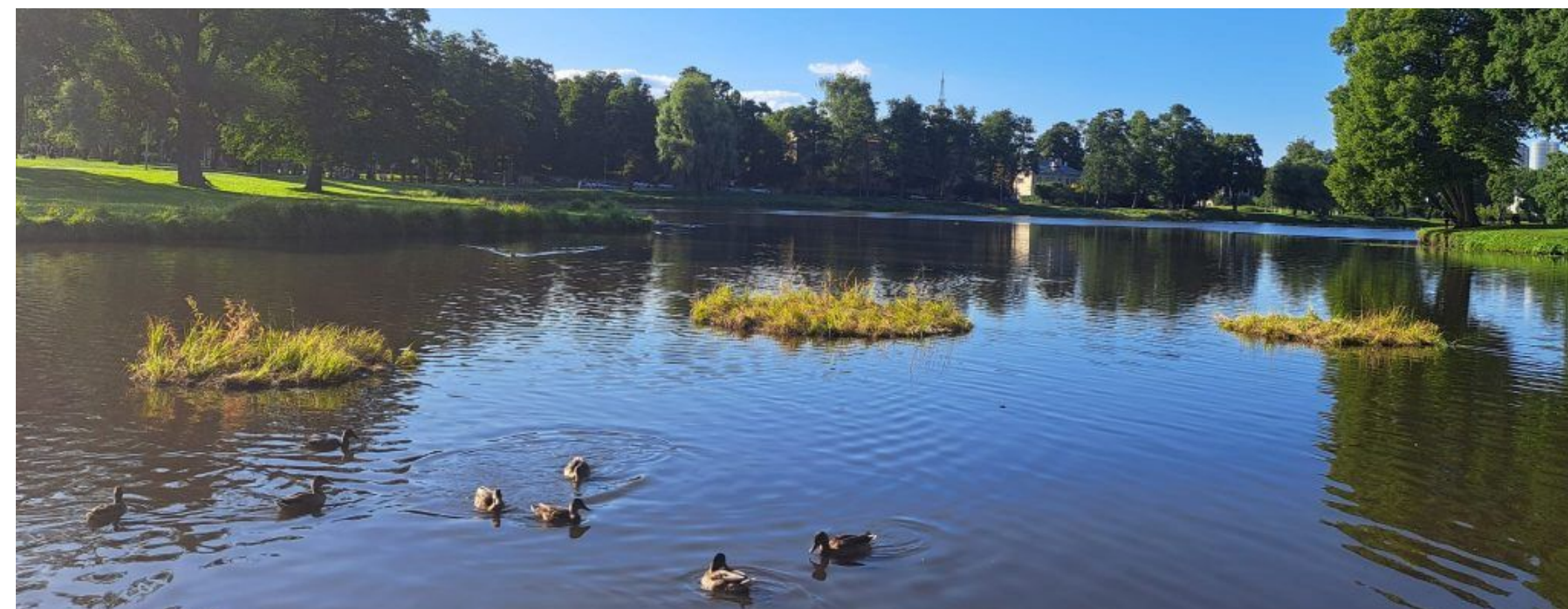


Foto: BIOMATRIX WATER



# Pieredze Latvijā



## Dabīgas peldošās salas

Latvijas ainavas dārgums - Ungurpils ezera peldošās salas

## Mākslīgas peldošās salas

MadCity Riga-2022 - Māras dīķa salas

# Pieredze salu veidošanā



Foto: Flora Float

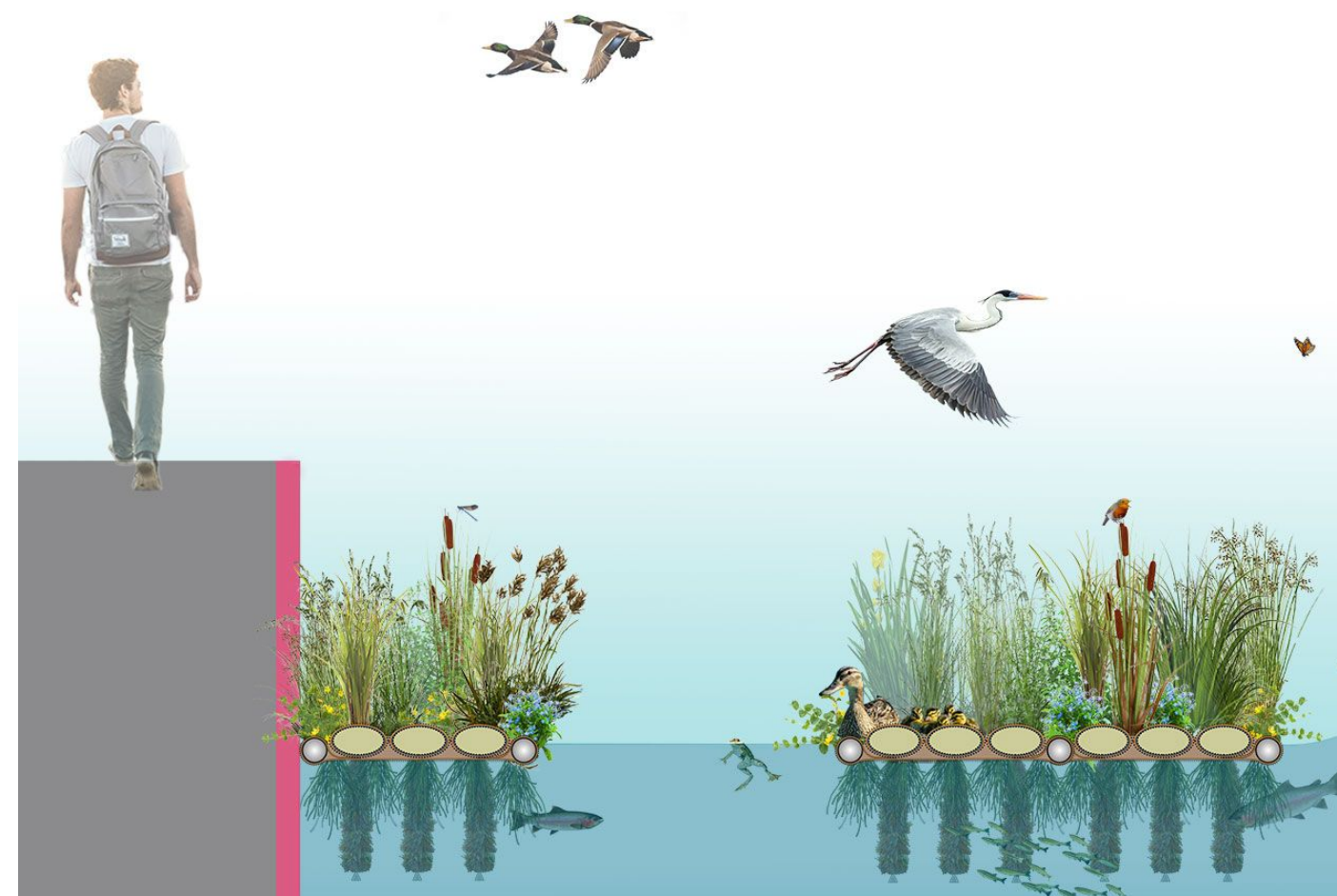


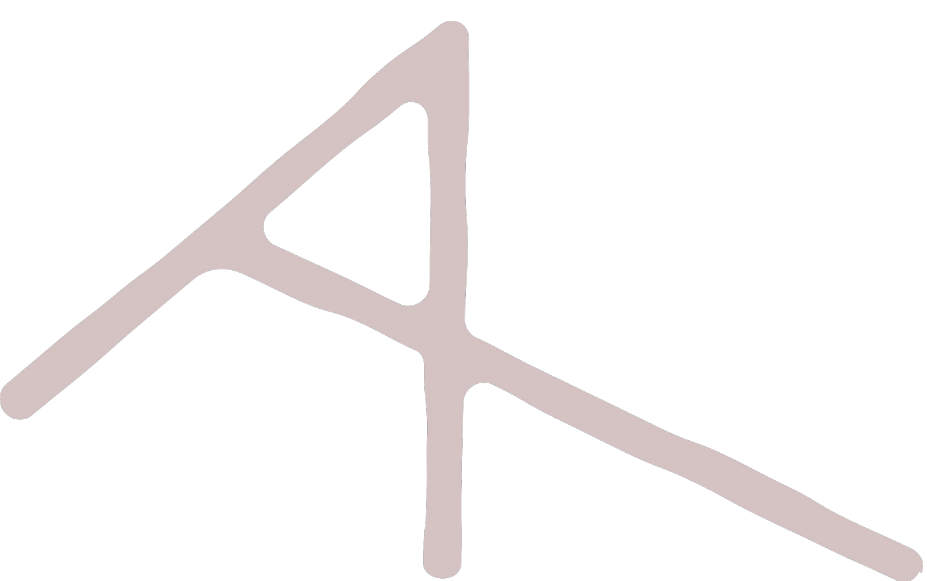
Foto: BIOMATRIX WATER



Foto: Blumberg Engineers

# Pieredze Rakverē

- CleanEST projekts
- Lineāra ūdens tilpe, kurā sistemātiski izvietotas vairākas salas
- Lielas, dažādu formu salas
- Projekts varāku gadu garumā
- Monitorings



# Mūsu pieredze

- Vadlīniju izstrāde
- Starpnozaru sadarbība
- Pašvaldību nosacījumi
- Ilgtspējīgs risinājums
- Finances
- Modulāritāte, peldspēja
- Putni un kukaiņi

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### Islands visual identity description (feasibility study - 2nd revision)


ALPS landscape atelier  
ALPS ainavu darbnīca



Project «BioFloat» (EE-LV00026),  
Interreg VI-A Estonia-Latvia Programme  
2021-2027




### Main considerations




**Location**

- Water quality and depth:** the current water quality, nutrient levels, and depth to determine the specific remediation needs and to select appropriate plants.
- Hydrology:** the water flow patterns, currents, and potential for flooding or drought, which can affect the stability and positioning of the island.
- Human activity:** the level of human activity, such as boating, fishing, or swimming, which may impact the island's placement and design.




**Buoyancy**

- Material selection:** materials for the base that provide adequate buoyancy and durability. Common materials include recycled plastics, foam, and natural fibers like coconut coir.
- Load-bearing capacity:** the structure can support the weight of the plants, substrate, and any additional elements like walkways or seating.
- Stability:** the island can remain stable under varying water levels and weather conditions.




**Plant selection**

- Native species:** prioritize native plants that are adapted to local conditions and will support local biodiversity.
- Plant types:** a mix of emergent, submerged, and floating plants to maximize ecological benefits.
- Growth and maintenance:** plants that require minimal maintenance and can thrive in the water body's specific conditions.



**Design and construction**

- Size and shape:** determine the optimal size and shape of the island based on the water body's size, intended ecological functions, and aesthetic goals.
- Anchoring system:** a robust anchoring system to keep the island in place. Options include tethering to the shore or using underwater anchors.
- Modularity:** a modular design that allows for easy expansion, relocation, or repairs.



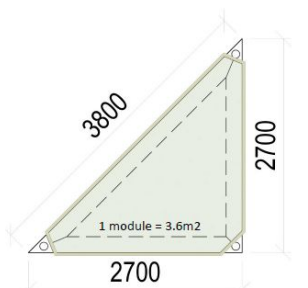
**Long-term maintenance**

- Monitoring:** a monitoring plan to regularly assess water quality, plant health, and structural integrity.
- Maintenance plan:** a maintenance plan that includes routine inspections, plant care, and repairs.

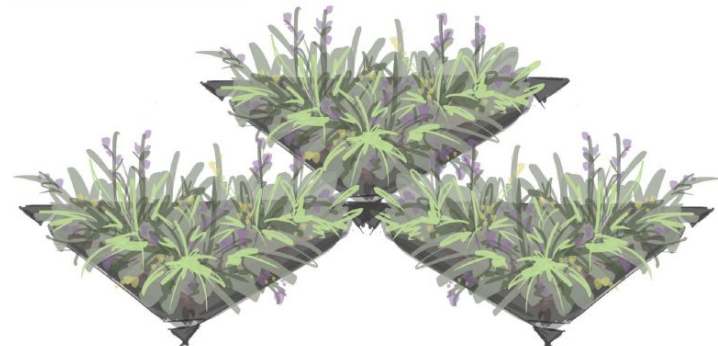
Interreg VI-A Estonia-Latvia Programme 2021-2027  
project BioFloat (EE-LV00026). 6

### Connectivity

Trinagular module



Connectivity of modules




Connectivity of modules:

- Modular design:** The island is composed of triangular modules, allowing for flexible assembly into various shapes and sizes to suit different water bodies and design needs.
- Corner connections:** Modules are connected at their corners, providing stability and ease of assembly/disassembly.
- Interchangeability:** Individual triangles can be easily replaced or removed if damaged, ensuring the rest of the island remains intact and functional.
- Scalability:** The modular approach allows for easy expansion or reconfiguration of the island by adding or rearranging triangular units.
- Ease of maintenance:** Damaged or worn-out modules can be detached and repaired or replaced without disturbing the overall structure of the island.
- Structural integrity:** The corner connections are designed to maintain the island's stability and buoyancy, even when individual modules are removed or replaced.

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project BioFloat (EE-LV00026). 10

### Pilot III - Dzirnavu pond

  
Location



**Location:**

- it must be about in the middle of the water body;
- island should be visible and accessible from both coasts;
- form and size are variable based on technical capabilities and budget, which also affects the exact location of island.

**Focus:**

- The focus of this floating island is reduce pollutants, but the island should also fulfill an aesthetic function (must be visually attractive) in order to draw the attention of the inhabitants (and also guests) to this body of water and subsequently also to its development (cleaning, updating the tourism function, recreation for the visitors of the function, etc.).

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Autors: ALPS ainavu darbnīca

# Mūsu rezultāts



Autors: ALPS ainavu darbnīca

## Augu izlasei

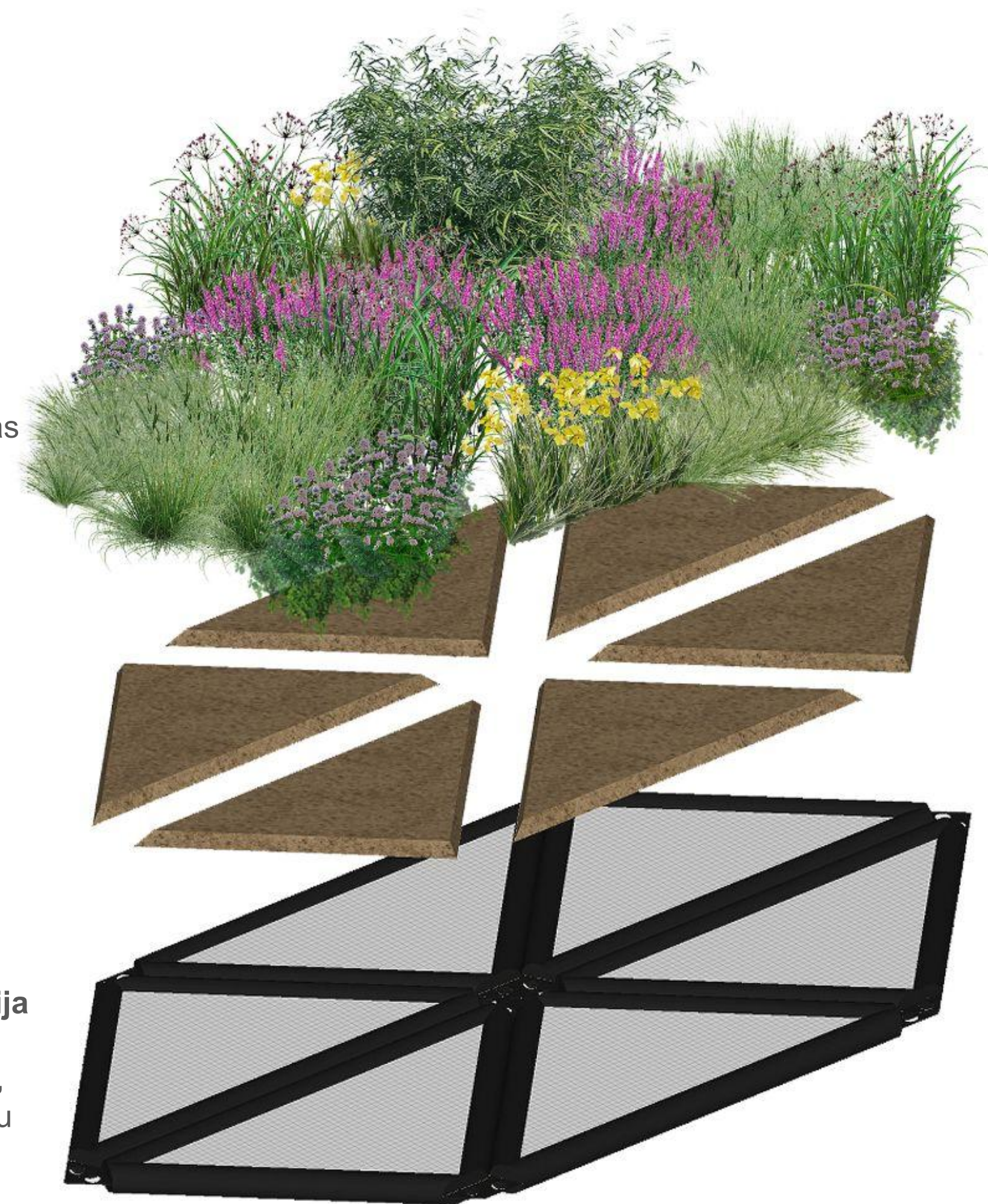
Veido peldošās salas  
vizuālo tēlu

## Augsnes slānis

Auglīga vide augu  
attīstībai

## Peldošā konstrukcija

Rūpnieciski ražota,  
nodrošina peldspēju



# Mūsu pieredze

- Augu klāsta izvēle atbilstoši:
  - piesārņojuma veidiem,
  - pilotvietu uzstādītajiem mērķiem,
  - reālai pieejamībai

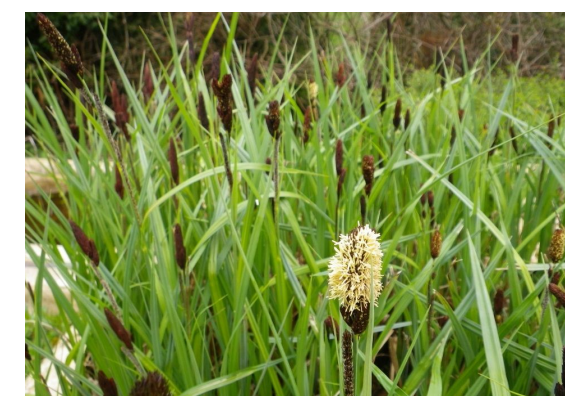
## Option 1 - More decorative approach

### Plant selection

Grasses



*Carex rostrata*  
(Ag, Zn, Ti, Pd, Ca,Cu),  
H: 0.30 -1.00m



*Carex acutiformis*  
(N, P)  
H: 0.50 -1.20m



*Carex echinata*  
(Sr,Cu, Ca)  
H: 0.10 -0.40m



*Juncus effusus L.*  
(Cu)  
H: 0.30- - 1m



*Scirpus lacustris L.*  
(Cu, Cr, Mn),  
H: 1.00 - 2.50m



*Salix viminalis*  
(Cd, Cr, Cu, Pb, Ag, Sr, U,  
Zv, As), H: 2.00 - 8.00m,  
W: 2.00 - 3.00m

Perennials



*Iris pseudacorus* (Cu,  
Cd),  
H: 0.80 - 1.00m



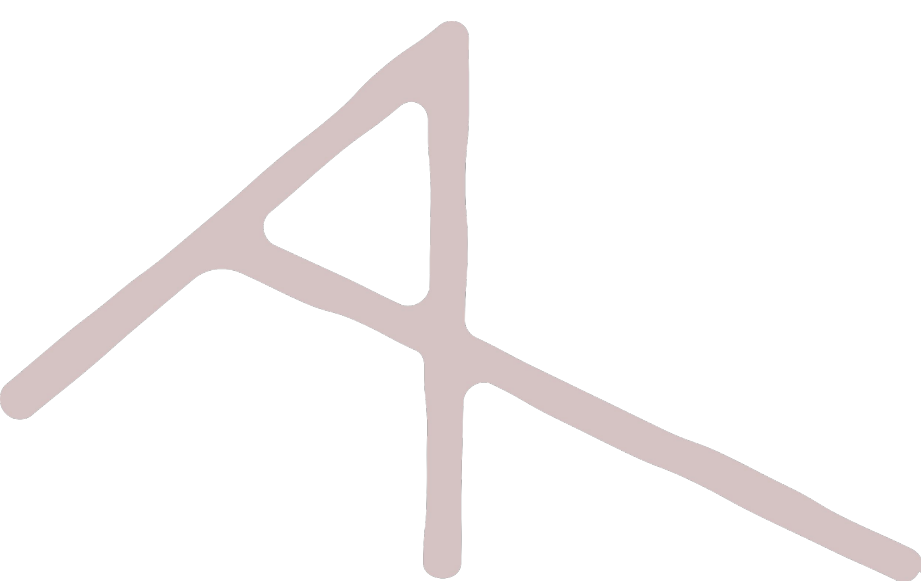
*Butomus umbellatus L.*  
(Cu, Pb, Cd, Hg)  
H: 0.60 - 1.40m



*Lythrum salicaria L.*  
(Ni,Pb, Cu)  
H: 0.40 - 1.20m

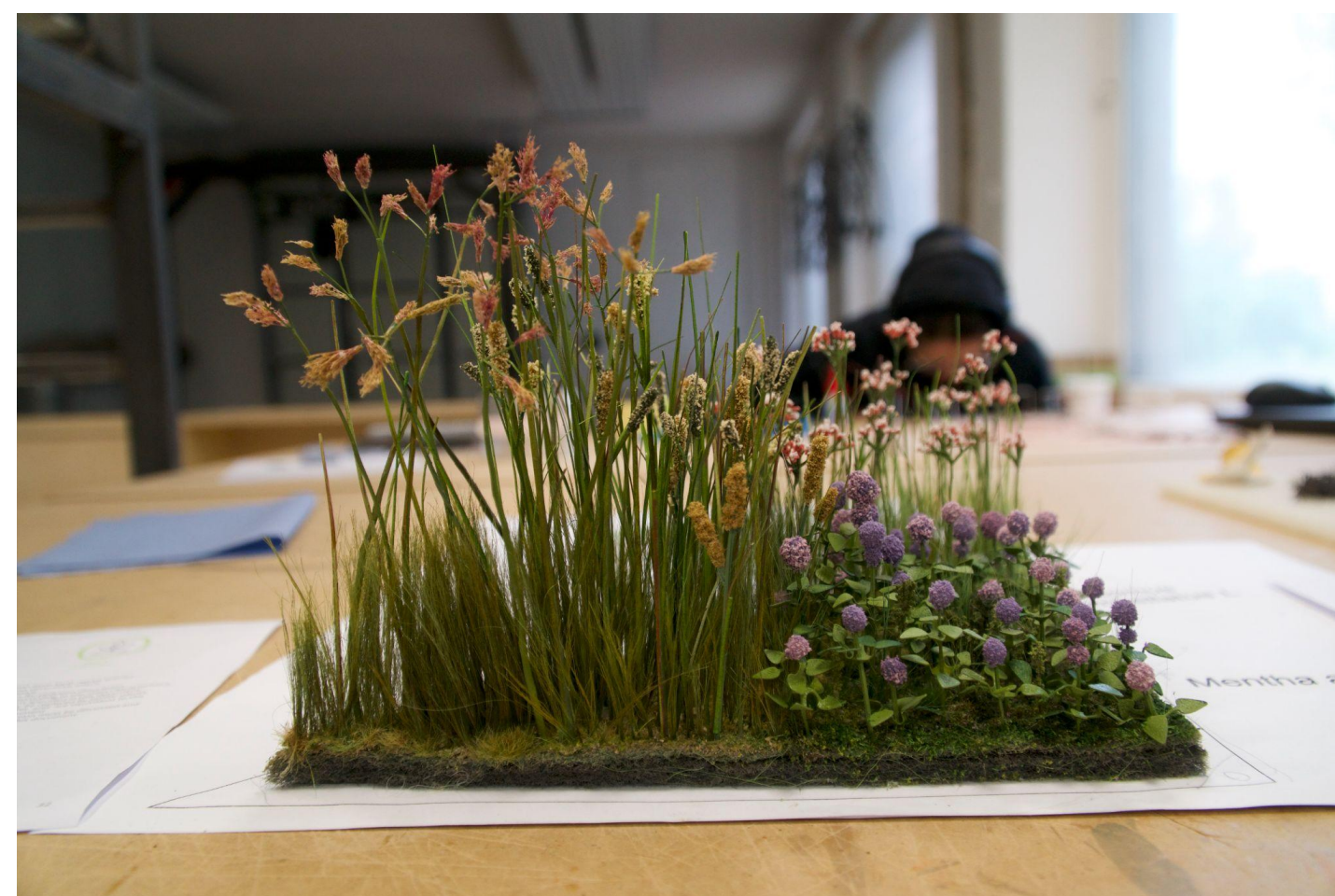
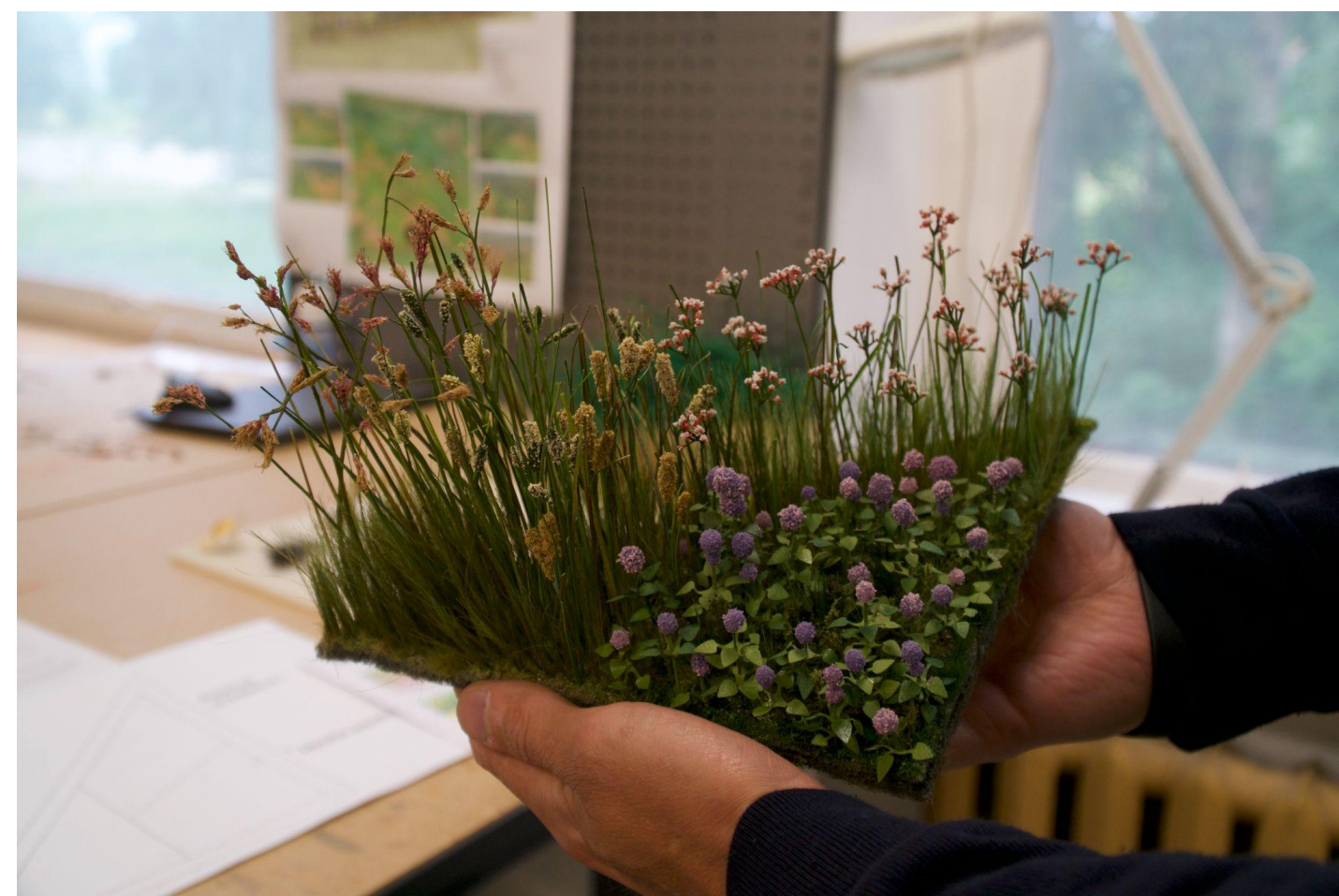


*Mentha aquatica L.*  
(Pb, Cd),  
H: 0.20 - 0.70 m



# Makets

- Kā runāt par peldošām salām, pirms tās radītas
- Maketu darbnīca MAQUETTICA.EU



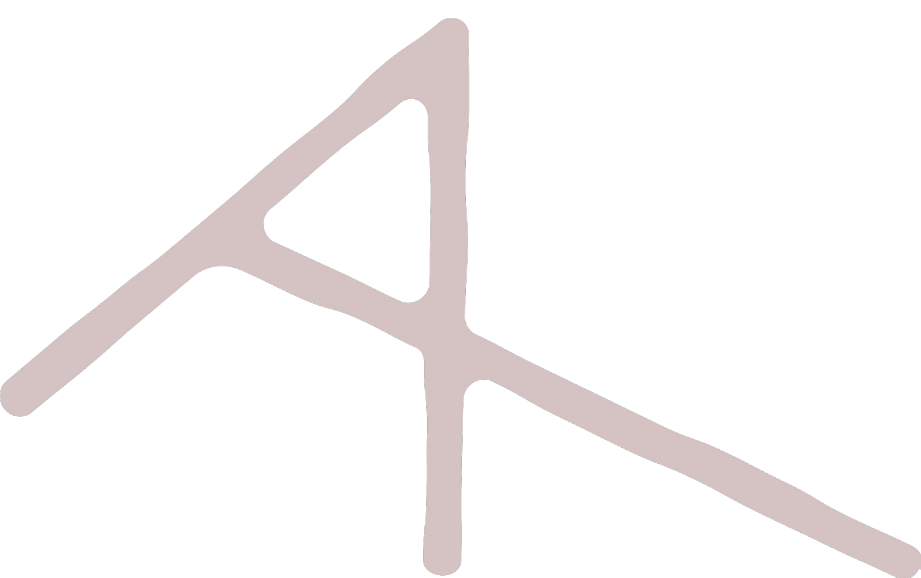
Maketu darbnīca MAQUETTICA.EU

# Sabiedrības iesaiste

- Jautājumi par kompleksu ūdenstilpņu apsaimniekošanu
- Komunikācija
- Pozitīvi – skeptiski noskaņoti :)
- Atbalsta ūdenstilpņu izpēti un monitoringu
- Pilotteritorijas maiņa



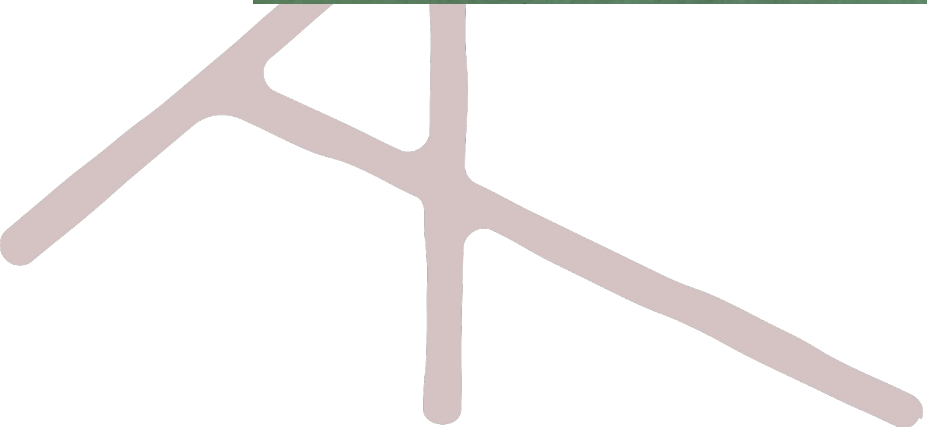
Tikšanās ar iedzīvotājiem Gulbenē



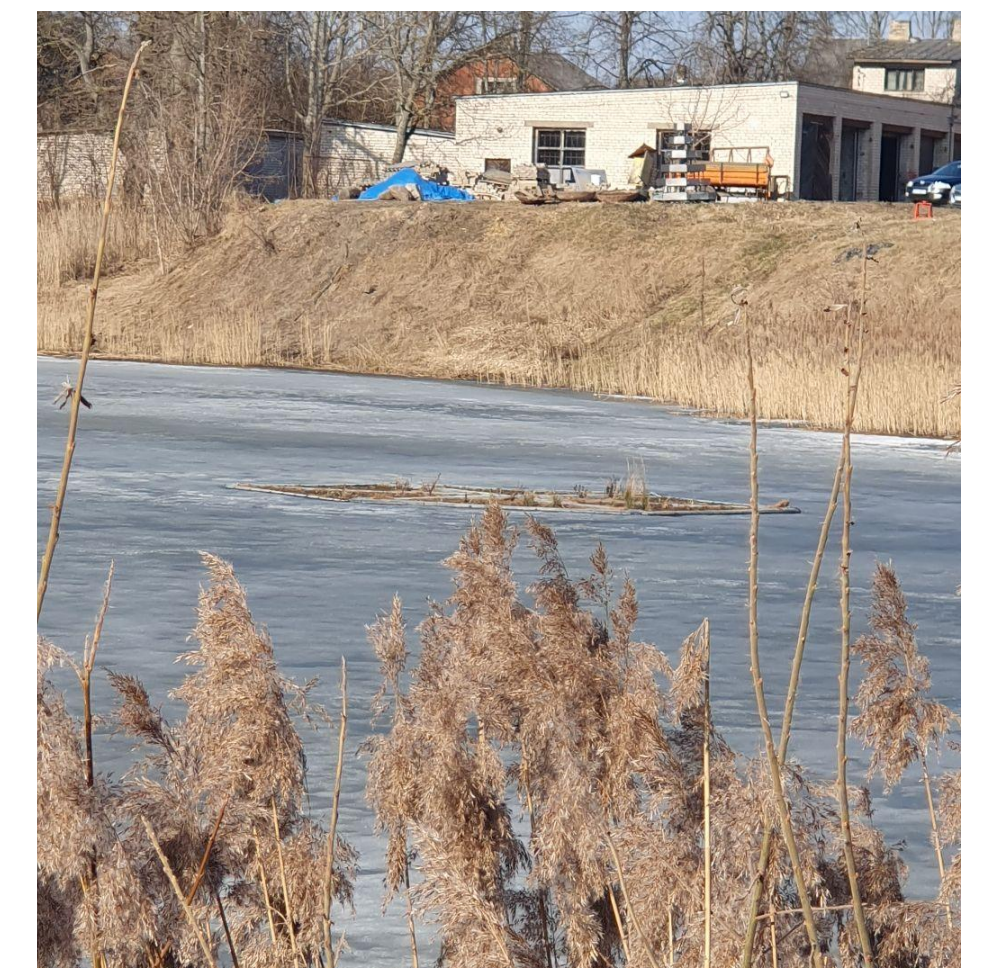
# Põrmujärv ezers



Salu bŭvēšana Igaunijā



# Gulbenes Dzirnavu dīķis



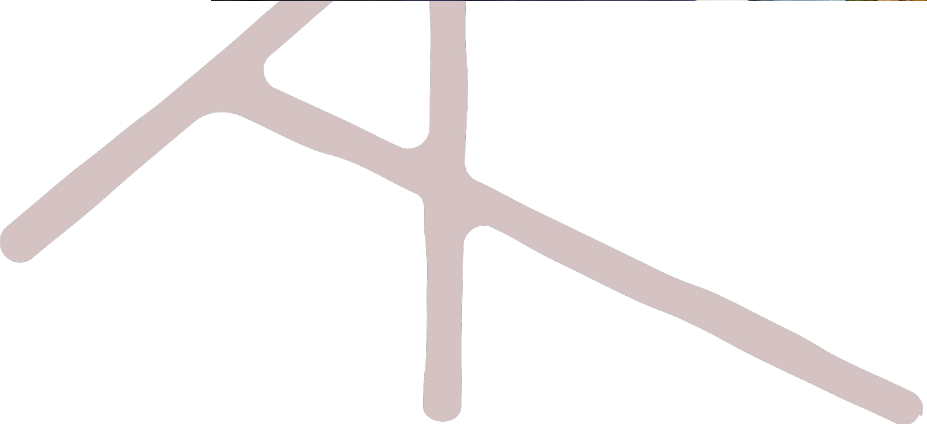
Salu būvēšana Latvijā



# Cēsu pils dīķis



Sala rudenī



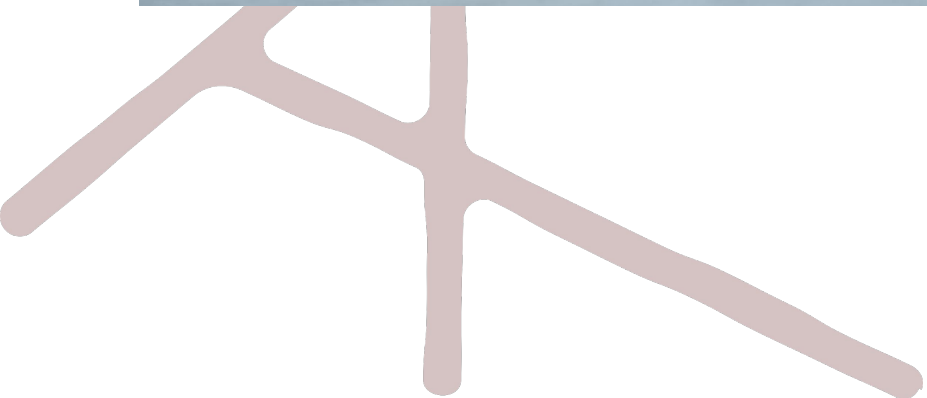
# Cēsu pils dīķis



Sala ziemā



Sala pavasarī



# Secinājumi

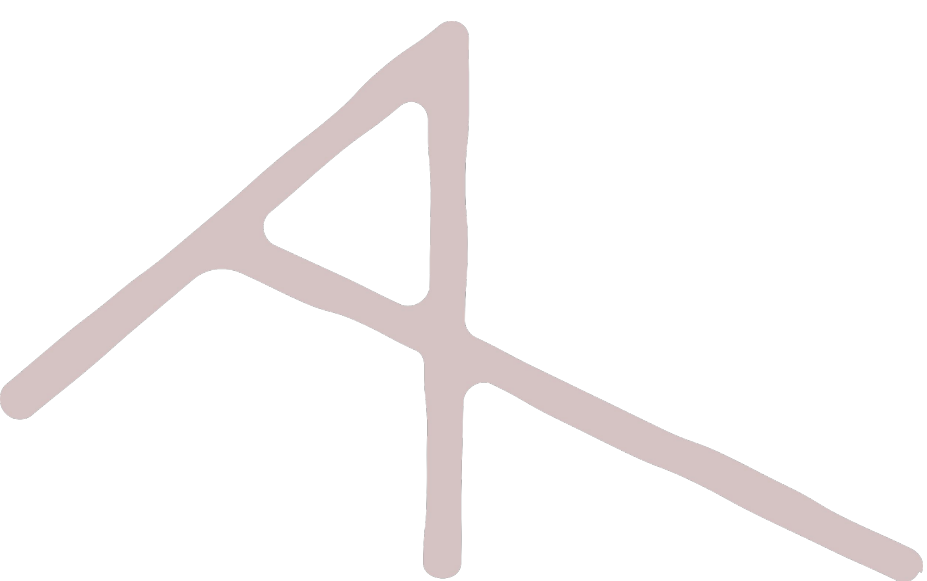
- Pilotprojekts – eksperiments
- Grūdiens ūdens objektu kompleksā plānošanā un apsaimniekošanā
- Izglītošana un tēmas aktualizēšana
- Peldošā sala – mazs, vērtīgs posms ceļā uz ūdeņu kvalitāti

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Paldies par uzmanību

