



Reviving freshwater pearl mussel populations and their habitats

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County Administrative Board of Norrbotten

Project coordinator Sweden



International conference on protecting and restoring free-flowing rivers in Europe. April 15-17, 2024 Oosterpoort, Groningen, The Netherlands





Facts of LIFE Revives

- September 2021 – August 2027
- Total budget: 15,9 M € (EU 9,5 M €)
- 3 countries – 12 partners
- Total 69 rivers
- Natura 2000 areas
 - In Finland 10, Sweden 5, Estonia 2



Partners:



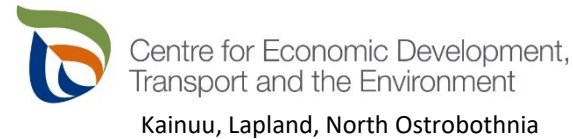
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Co-financiers:



•R. Erik and Bror Serlachius foundation sr



Coordinating beneficiary is University of Jyväskylä



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Freshwater pearl mussel is a highly endangered species

	No. of FPM-populations	No. of recruiting FPM-populations
Europe	~ 1 600 (2020)	?
Sweden	673 (2023)	338 (2023)
Finland	151 (2023)	85 (2023)
Estonia	1	1



River Fjaerelva, Norway Photo: Patrik Olofsson

¾ of Europe's FPM-rivers are situated in Sweden, Finland and Norway.



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Problems

- Migration barriers for host species, Atlantic salmon and Brown trout
- Morphological alterations, timber floating
- Siltation of river bottoms, land use, ditches



River Nuortejaurebäcken, Sweden

Photo: CABN



What do we want to achieve?

- Improve the ecological conditions in 69 target rivers.
- Representing 7 % of the FPM-populations in the three countries.
- Achieve favourable conservation status.



*Rush hour in River Koutusjoki, Finland
Photo: Panu Oulasvirta, Alleco OY*



Actions in LIFE Revives

In-stream habitat restoration

- Restoring rapids



Photo: MHPWF



Photo: CABN

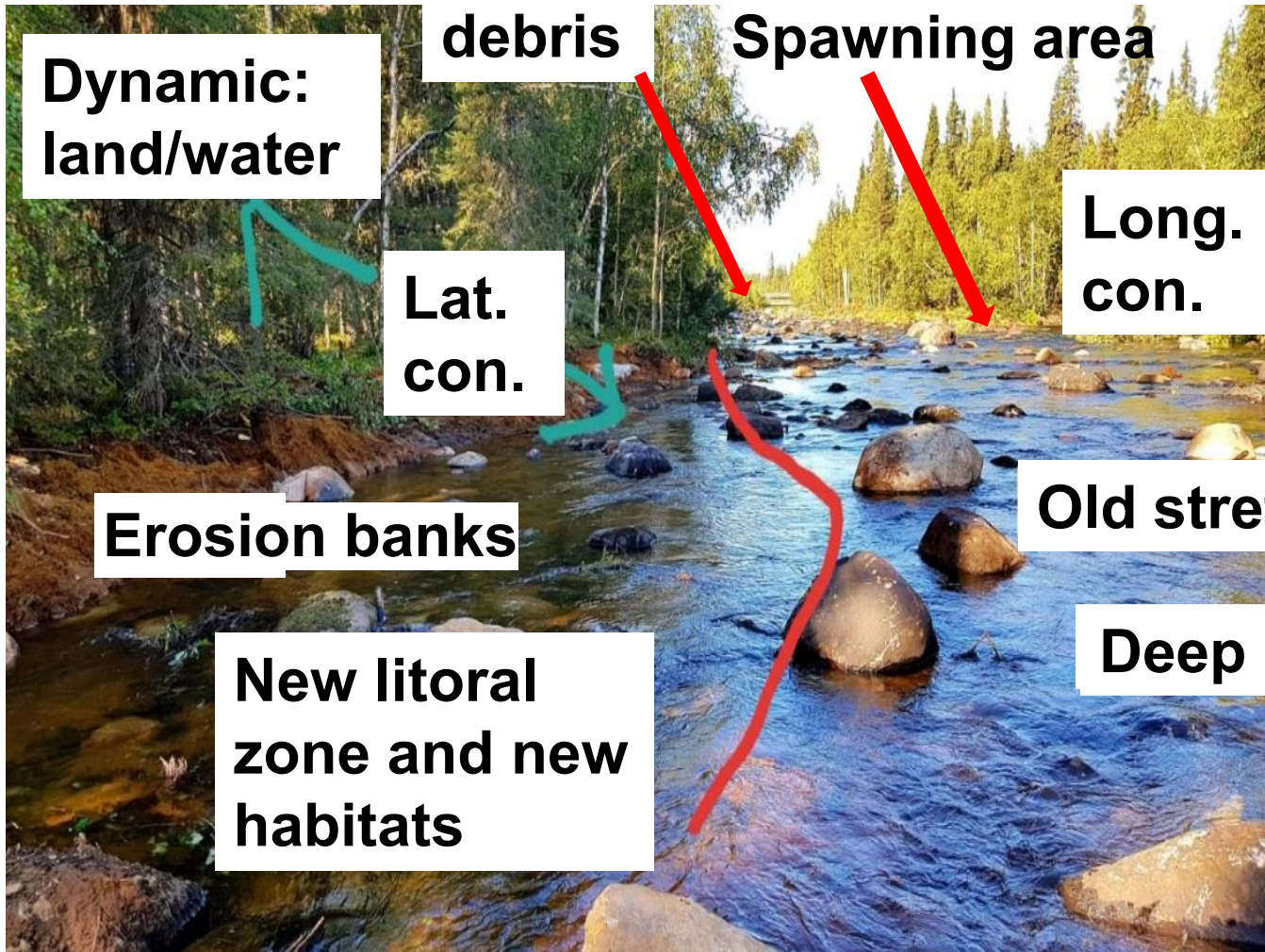


Actions in LIFE Revives

In-stream habitat restoration

- Restoring rapids

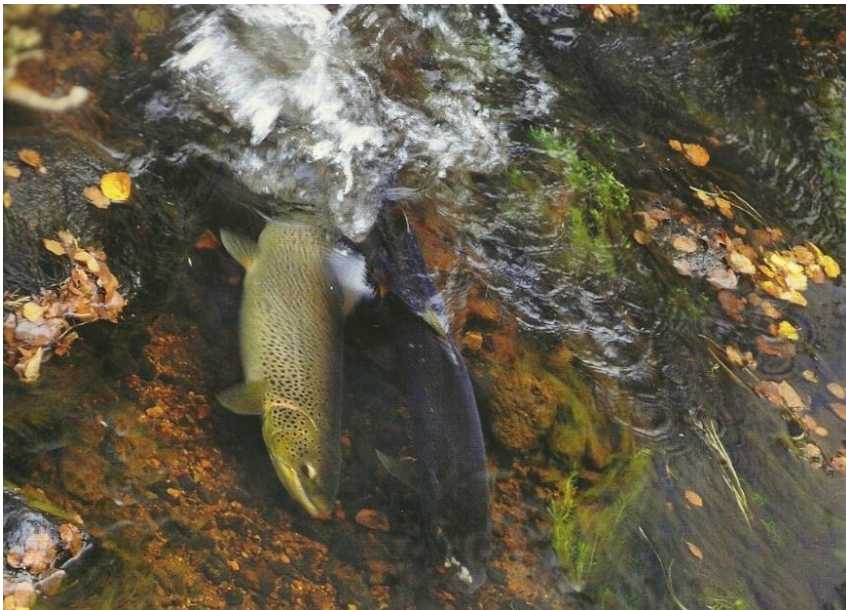
54 KM



Actions in LIFE Revives

In-stream habitat restoration

- Restoring rapids
- Restoring spawning beds



3246 pcs

~20 000 m²

Photos: Patrik Olofsson and Mikael Nilsson, Fiskmiljö



Actions in LIFE Revives

In-stream habitat restoration

- Restoring rapids
- Restoring spawning beds
- Re-watering original river beds

12,5 ha



Photo: CABV



Photo: CABV



Photo: MHPWF

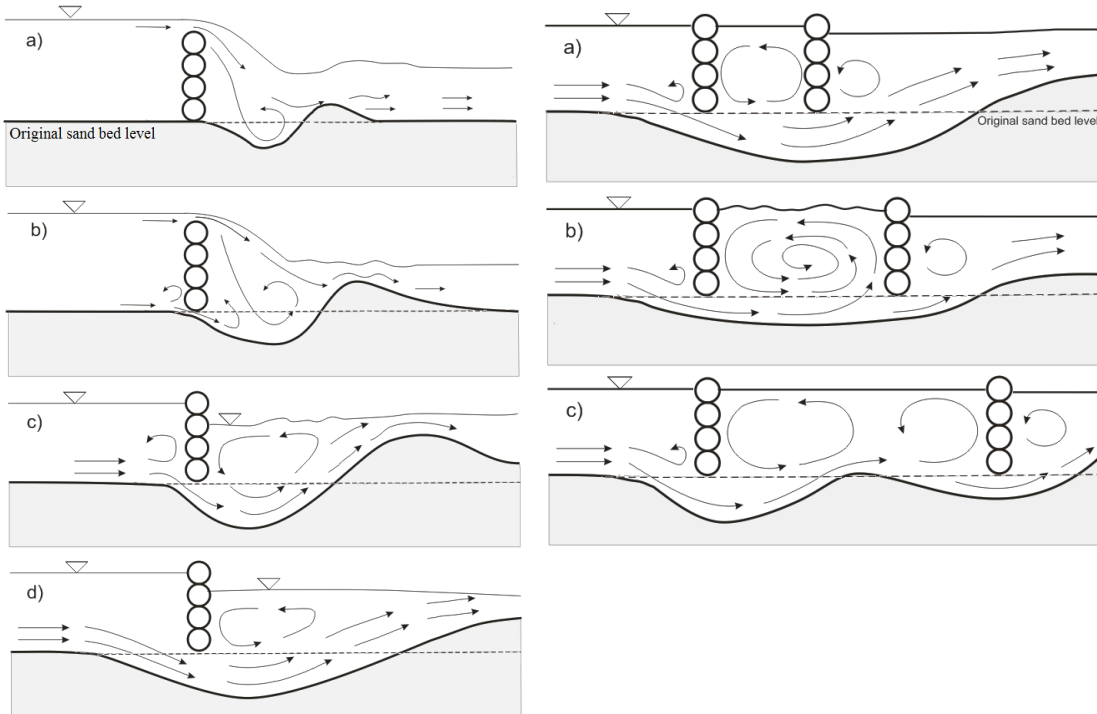


Actions in LIFE Revives

In-stream habitat restoration

- Restoring rapids
- Restoring spawning beds
- Re-watering original river beds
- Restoration by woodmaterial

62 km



Tammela, Simo , Marttila, Hannu , Dey, Subhasish and Kløve, Bjørn(2010) 'Effect and design of an underminer structure', Journal of Hydraulic Research, 48: 2, 188 — 196



Actions in LIFE Revives

Migration barriers and sediment pools

- Migration barriers (dams)



River Bergmyrbäcken, Sweden. Photo: CABN



Actions in LIFE Revives

Migration barriers and sediment pools

- Migration barriers (dams)



River Bergmyrbäcken, Sweden. Photo: CABN



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Actions in LIFE Revives

Migration barriers and sediment pools

- Migration barriers (dams)



River Bergmyrbäcken, Sweden. Photo: CABN



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Actions in LIFE Revives

Migration barriers and sediment pools

- Migration barriers (dams)



River Bergmyrbäcken, Sweden. Photo: CABN





Actions in LIFE Revives

Migration barriers and sediment pools

- Migration barriers (dams)
- Migration barriers (culverts)

River Ljusträskbäcken, Sweden. Photos: CABN



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Actions in LIFE Revives

Migration barriers and sediment pools

- Migration barriers (dams)
- Migration barriers (culverts)



River Norssipurun, Finland. Photos: MHPWF





Actions in LIFE Revives

Migration barriers and sediment pools

- Migration barriers

50 pcs



River Norssipurun, Finland. Photos: MHPWF





Photo: MHPWF



Photo: Patrik Olofsson

Actions in LIFE Revives

Migration barriers and sediment pools

- Migration barriers
- Sediment pools

28 pcs

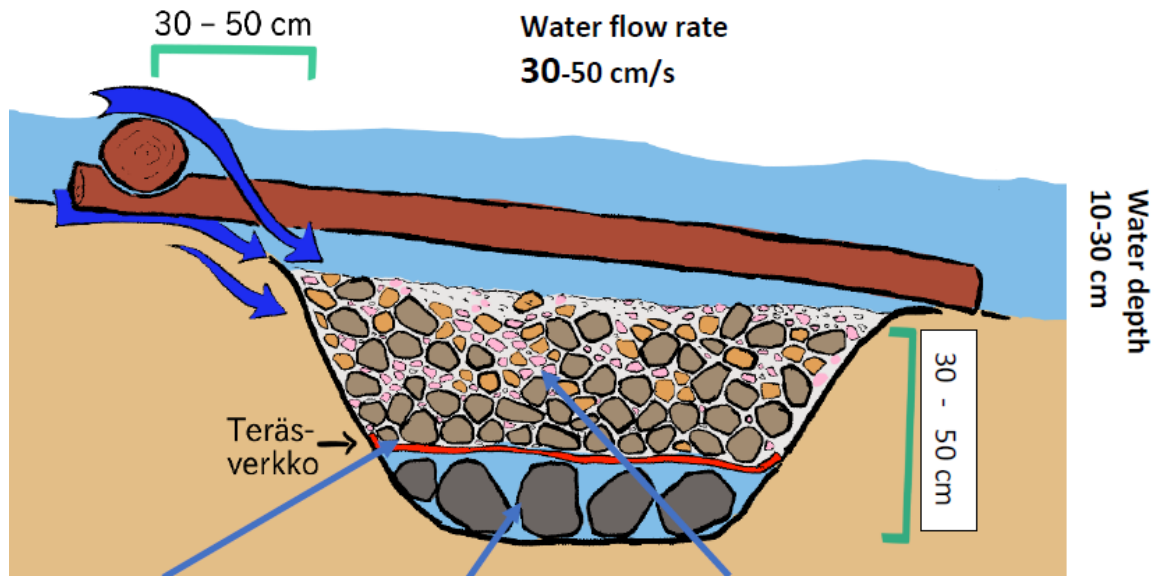


Actions in LIFE Revives

Creation of FPM-kindergartens

Indicative structure drawing

Side



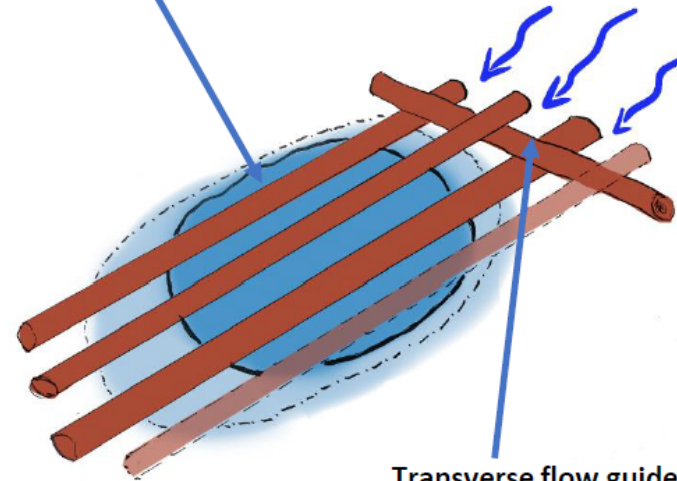
Steel net
Size 0,5–1,5 m²
Mesh 20x20 mm

Layer of c.a.
100 mm diamtr.
stones as the
lowest layer
to improve
bottom flow

Sieved gravel (5-50 mm diamtr.)
on top of steel mesh.
(On top of the steel mesh,
layer of >20 mm fractions)

Above

Longitudinal current guides
distribute the flow more evenly to the kindergarten
and "eliminate" fish spawning



Transverse flow guide
forces the flow
from top to bottom

Illustrations: MHPWF





Photo: Patrik Olofsson

Actions in LIFE Revives

Creation of FPM-kindergartens

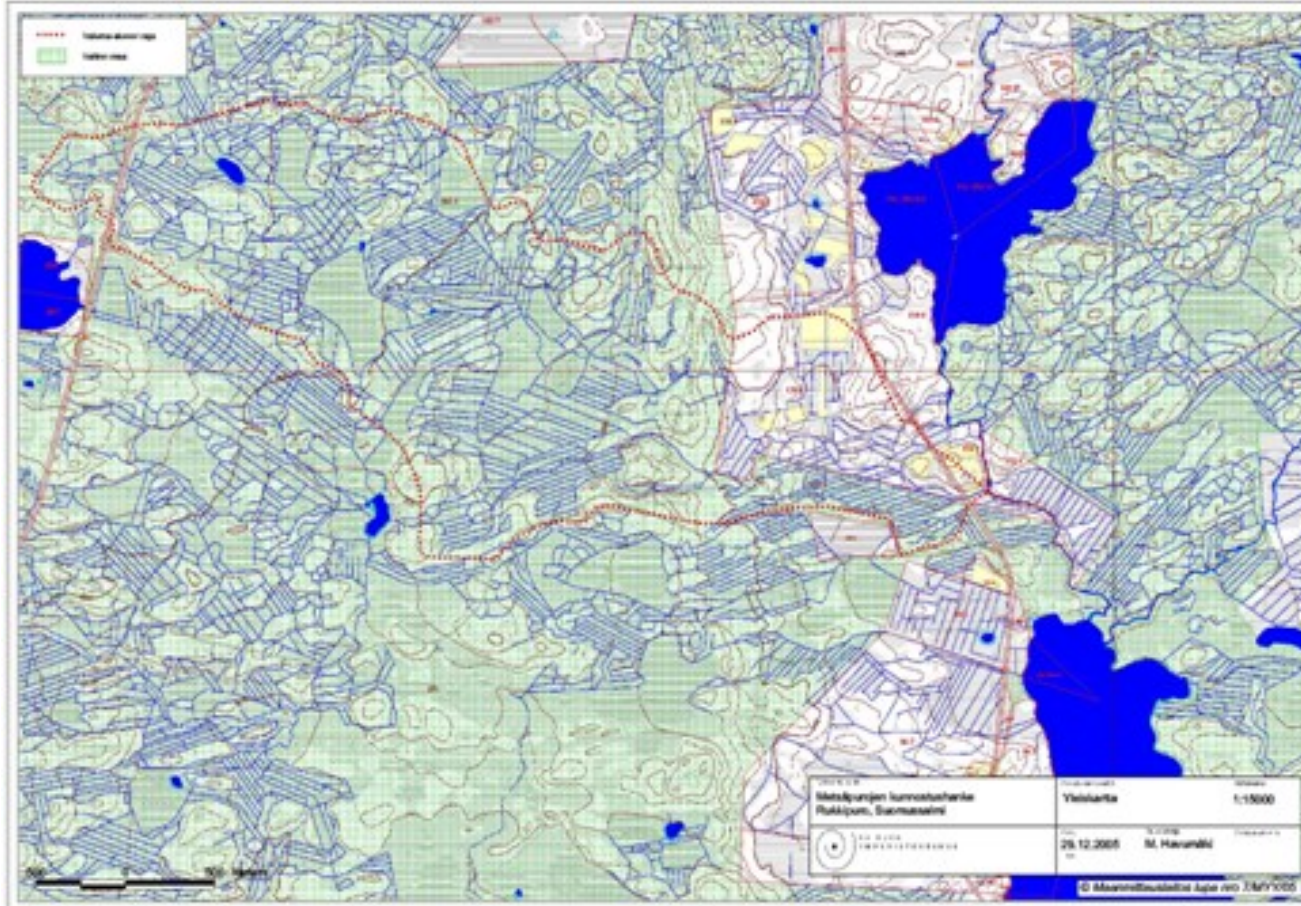
243 pcs



Actions in LIFE Revives

Water management of catchment area

- Blocking ditches



Finland 2023



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Actions in LIFE Revives

Water management of catchment area

- Blocking ditches

370 pcs



Photos: Patrik Olofsson



Actions in LIFE Revives

Water management of catchment area

- Blocking ditches
- Creation of wetlands and runoff water treatment

6 + 2 pcs



Photo: Fiskmiljö



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Actions in LIFE Revives

Water management of catchment area

- Blocking ditches
- Creation of wetlands and runoff water treatment **8,5 + 2 km**
- Making/widening buffer zones, bank protection and structure liming **520 ha**



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Actions in LIFE Revives

Breeding of FPM – Ex situ

Two breeding stations:

- Konnevesi Research Station, University of Jyväskylä, Finland
- Põlula fishfarm, Estonia

Photos: University of Jyväskylä



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Actions in LIFE Revives

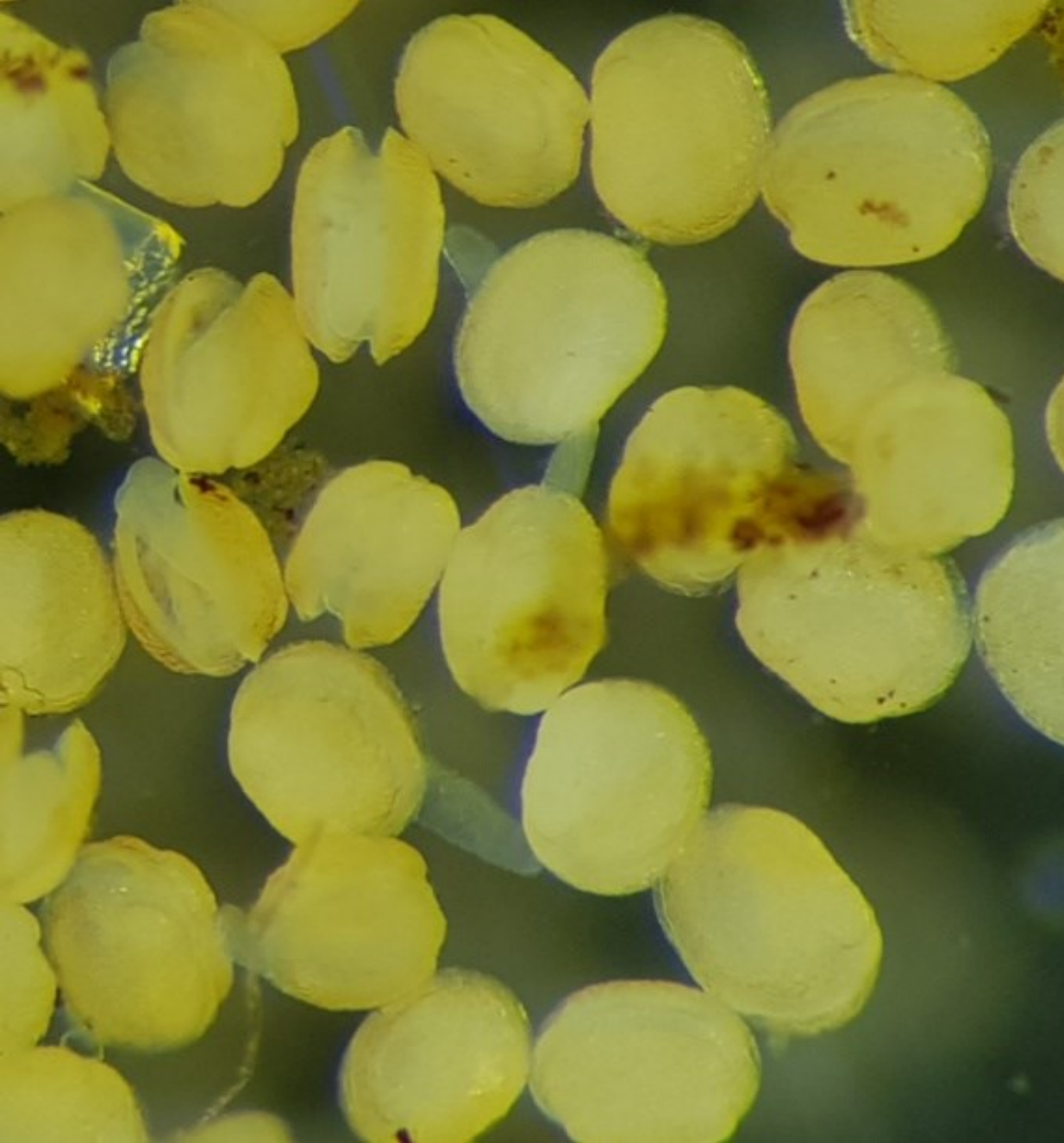
Breeding of FPM – In situ

River Åbyälven in Sweden.

Yearly infect approximately 300 young Atlantic Salmon with FPM glochidia larvae.

Photos: CABN and SAA





Actions in LIFE Revives

Breeding of FPM

~ 1 500 000 juvenile mussels
released to the rivers

Photo: University of Jyväskylä



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Actions in LIFE Revives

Engaging schools and the youth

- 177 school visits/field trips

3800 persons



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Photos: Tobias Hellman



Kuva/Photo: Rami Laaksonen, Tapio van Ooik

Actions in LIFE Revives

Using dog to find new unknown FPM populations

- Hessu – trained by CEDTE – Southwest Finland



Film



<https://www.youtube.com/watch?v=hkjHGO099XA>

[Website: LIFE Revives: Reviving freshwater pearl mussel populations and their habitats — LIFE Revives \(jyu.fi\)](https://www.facebook.com/LIFERevives)



<https://www.facebook.com/LIFERevives>



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Thank you!

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