

ReBorN- Restoration of Boreal Nordic Rivers



Monitoring and restoration of freshwater (mussel) habitats

Clervaux, Luxembourg

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County Administrative
Board of Norrbotten

- Background
- Restoration through time
- ReBorN – LIFE
- Results



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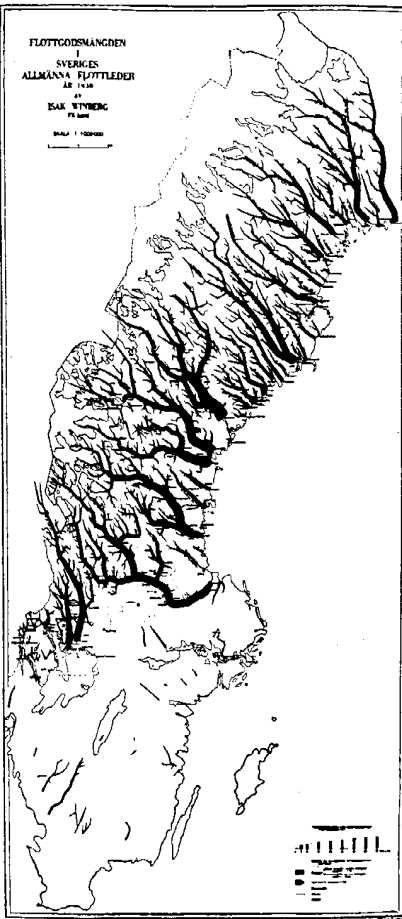


Why ReBorN?



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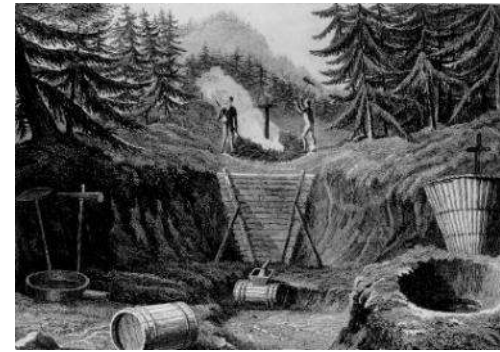
40 000 km river stretch have been used for timber floating in Sweden.

1750 – Cleaning of rivers to facilitate transport of barrels with tar.

The timber floating started in the county of Norrbotten 1840-1850.

1930 – Engine powered cranes are introduced.

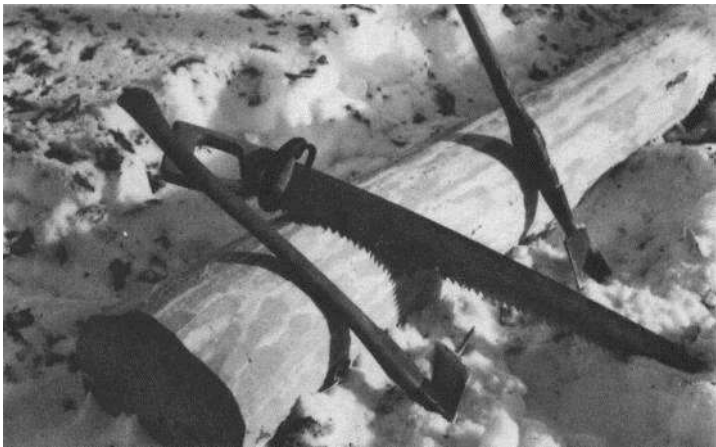
After WWII – caterpillars are introduced.



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Forestry



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Transportation



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Transportation



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Transportation problems



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Straithening and cleaning of rivers



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Cleaning the rivers



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Before



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After



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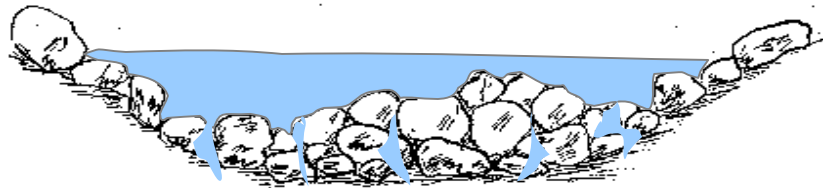
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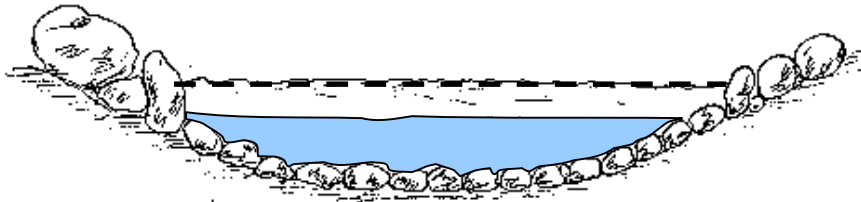
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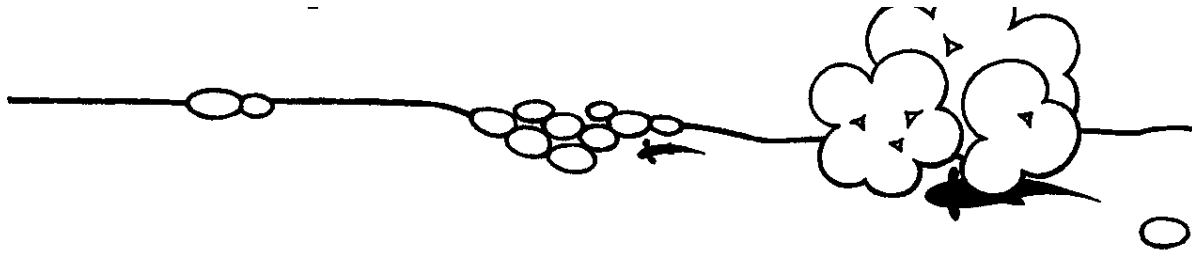
före rensningen.

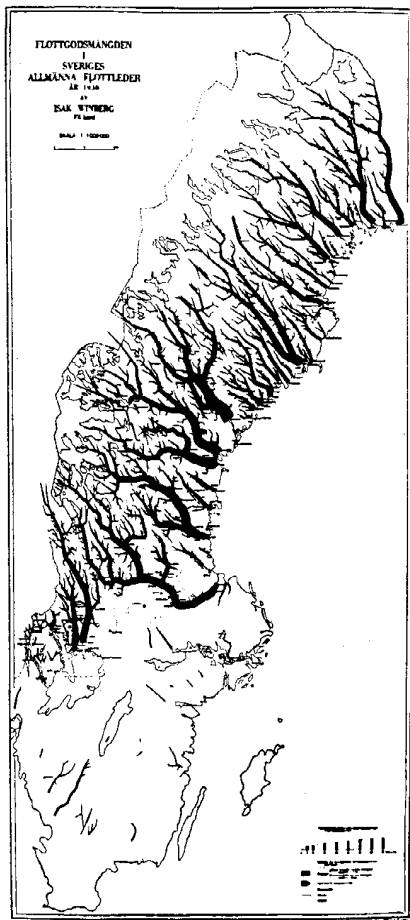
Before cleaning



efter rensningen.

After cleaning





In 1960 the timber floating decreased.

In 1970 the restoration of the rivers started in small scale.

The timber floating lasted longer in some rivers (Piteälven 1982, Klarälven 1991)



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In 1990 - creating constructions for sportfishing



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2010 ecosystem based restoration (whole drainage areas)



Migration barriers – Give access

Restoration – Create/recreate habitat

Information/Control means – Reduced risk of negative impact

Management – Long term sustainability

Development – Opportunity for economic growth in rural areas



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Project period 2016-2021

Budget 13 000 000 €

EU finances 60%

Project owner:

County Administrative Board of Västerbotten

Partners:

County Administrative Board of Norrbotten

Nordmaling municipality

Gällivare municipality

Swedish Forestry Agency

Swedish Agency for Marine and Water Management

Financiers:

Arvidsjaur municipality

Boden municipality

Jokkmokk municipality

Luleå municipality

Piteå municipality

Älvsbyn municipality

SCA Skog AB, Västerbotten

SCA Skog AB, Norrbotten

Sveaskog Förvaltnings AB Västerbotten

Sveaskog Förvaltnings AB Norrbotten



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Project areas

- Byskeälven
- Åbyälven
- Piteälven
- Råneälven
- Kalixälven
- Lögdeälven



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Project areas

In the County of Västerbotten 97,5 km river stretch will be restored

- River Lögdeälven 61,9 km
- River Lögdeälven tributaries 35,6 km

In the County of Norrbotten 104,5 km river stretch will be restored

- River Byskeälven 4,3 km (River Långträskälven)
- River Åbyälven 16,5 km (main channel)
- River Piteälven 36,9 km (River Stockforsälven & River Vitbäcken)
- River Kalixälven 13,3 km (River Linaälven & River Vassaraälven)
- River Råneälven 33,5 km (main channel + River Rutnajoki)



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Major objectives

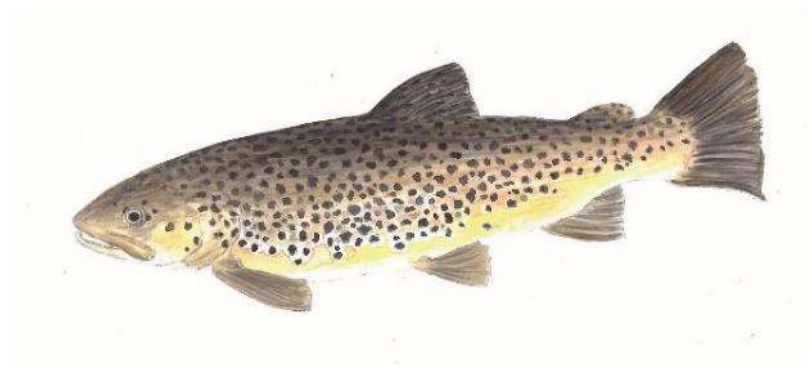
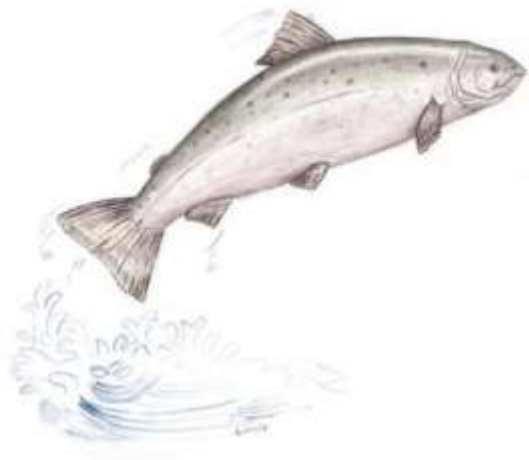
- Ecological restoration of 200 km rivers stretch
- Create 2 300 spawning beds for salmon and trout
- Monitoring of salmon, trout, freshwater pearl mussel and otter
- Monitoring of geomorphology and hydrology
- Wider considerations regarding forestry in connection to rivers – four demonstration areas
- Follow up of sale of fishing licenses
- Sustainable management of salmon and trout



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Target species



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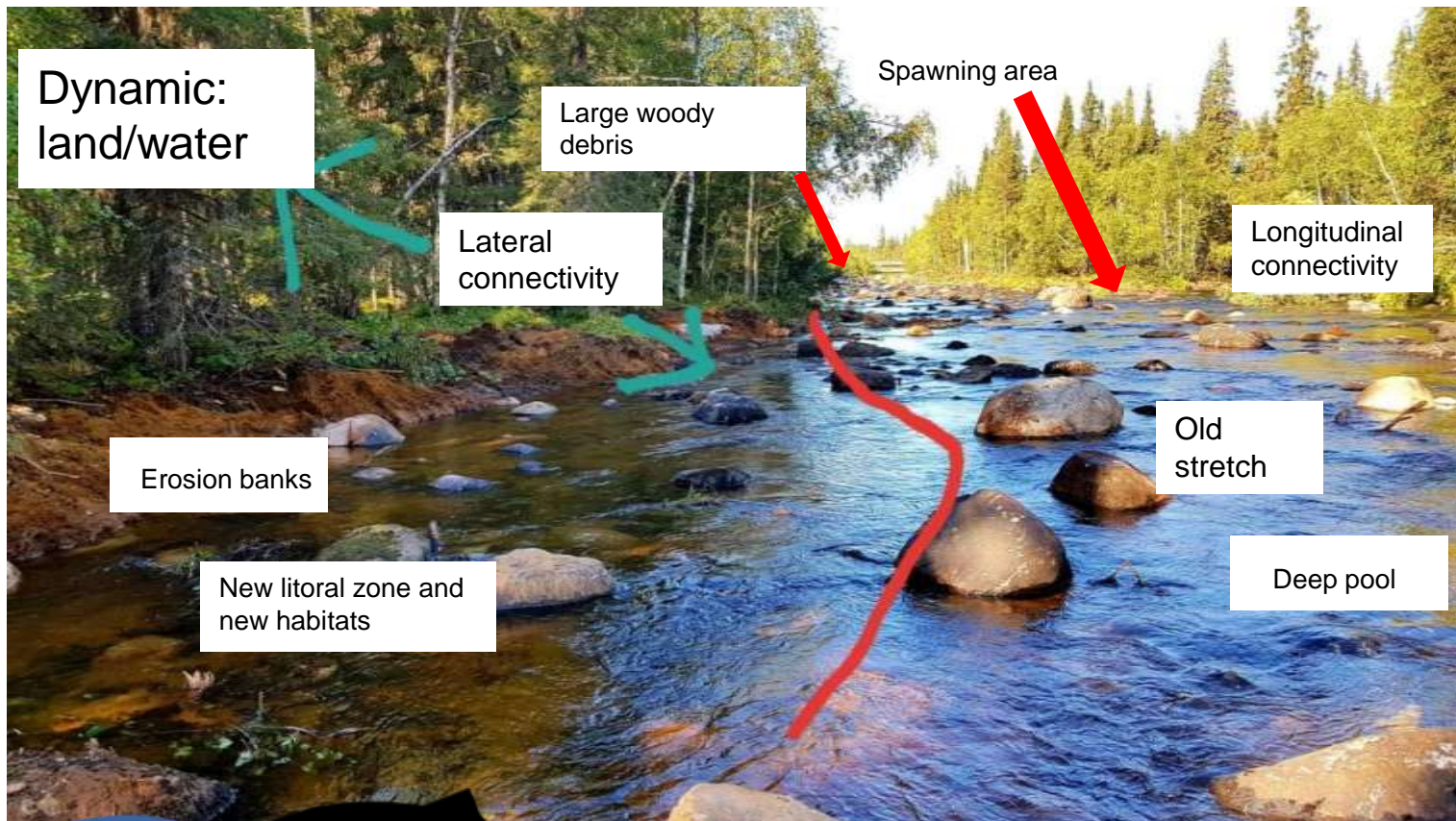
How do we do it?



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Focusing on recreating natural processes and many different habitats.

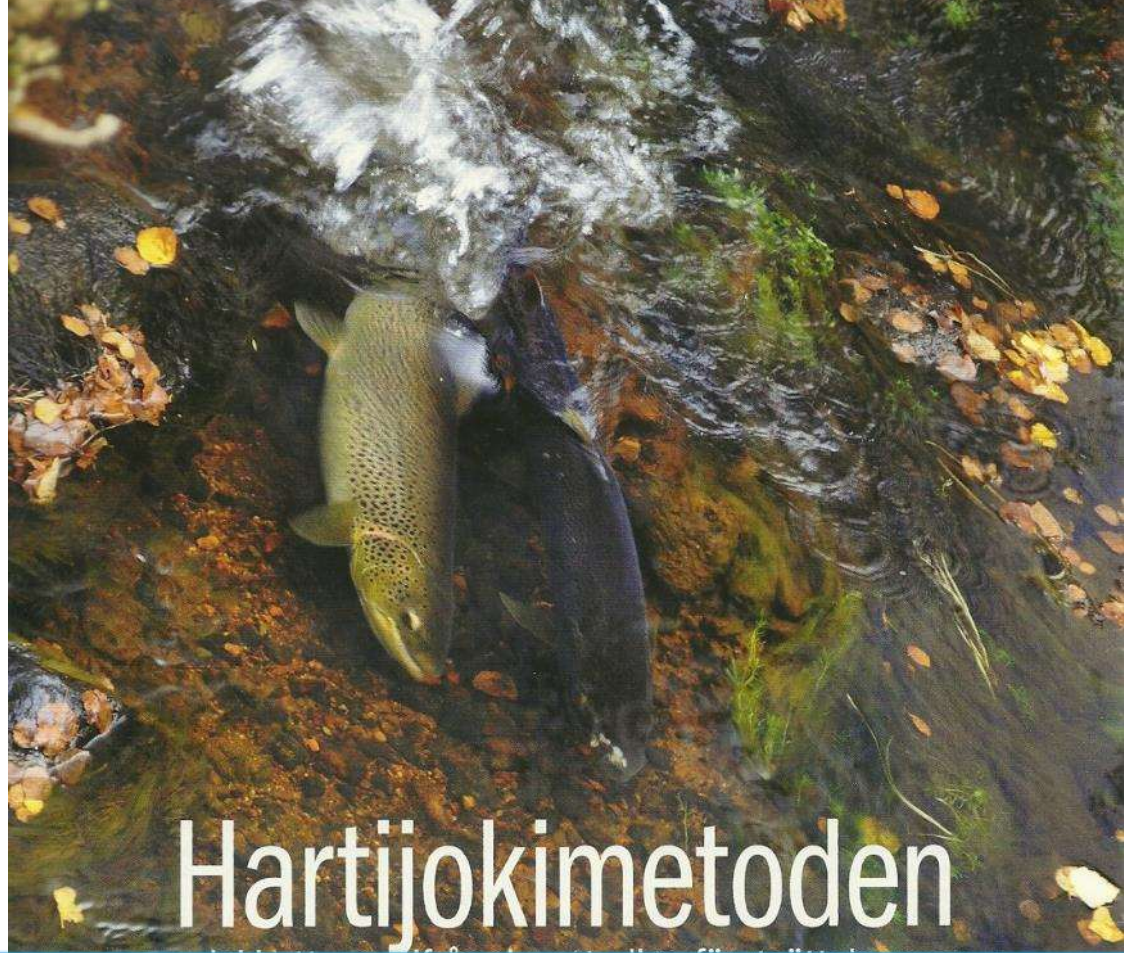


Spawning beds – "Hartijoki method"



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Hartijokimetoden

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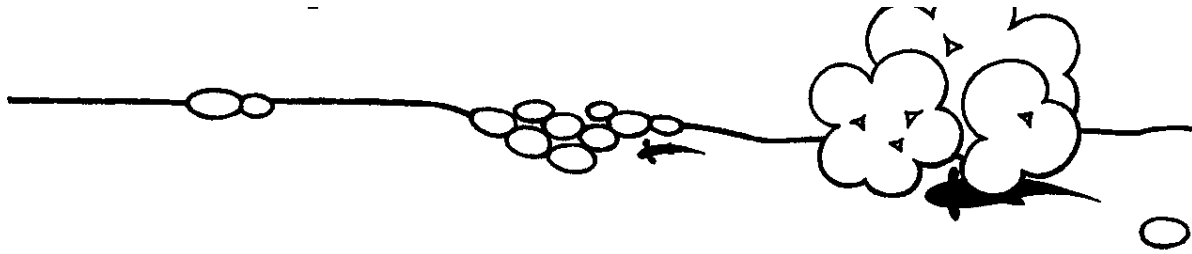


Larger spawning areas in larger rivers. Prepared with excavator then adjusted by hand.



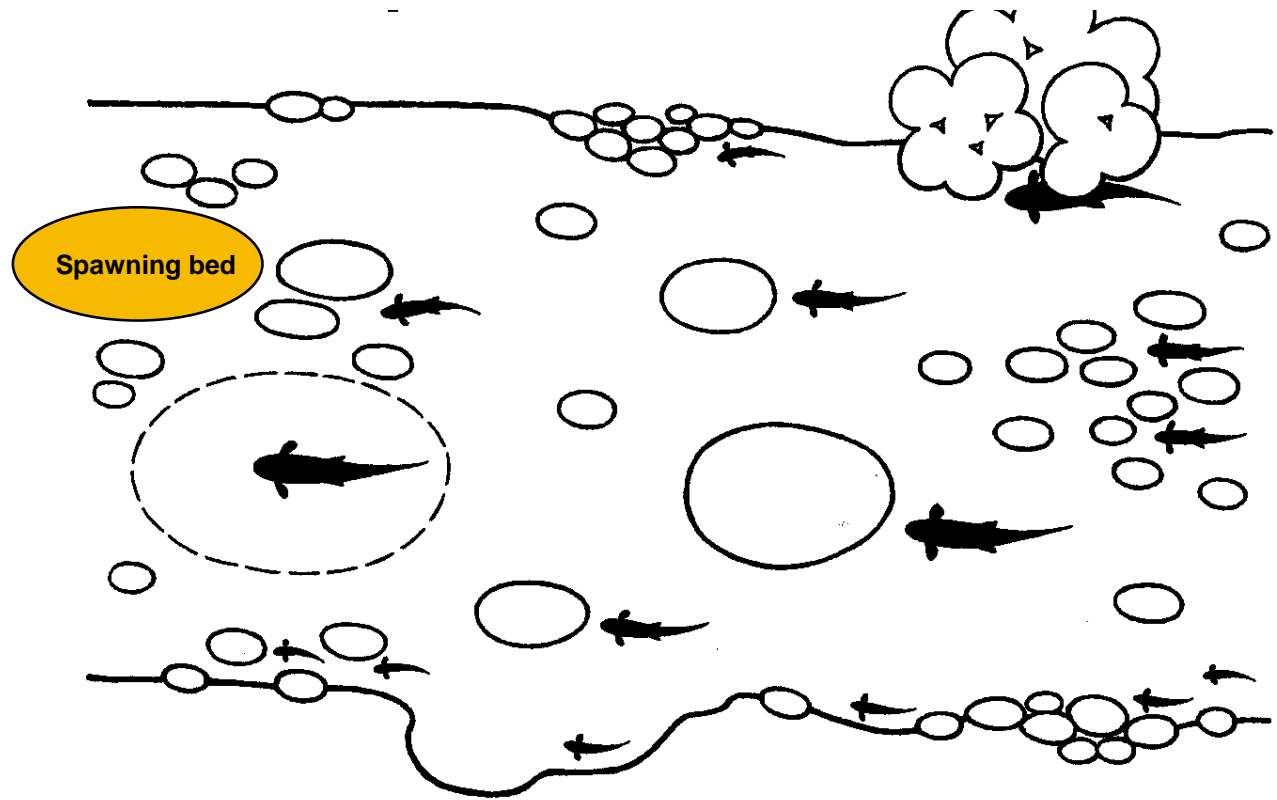
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Education of foremen

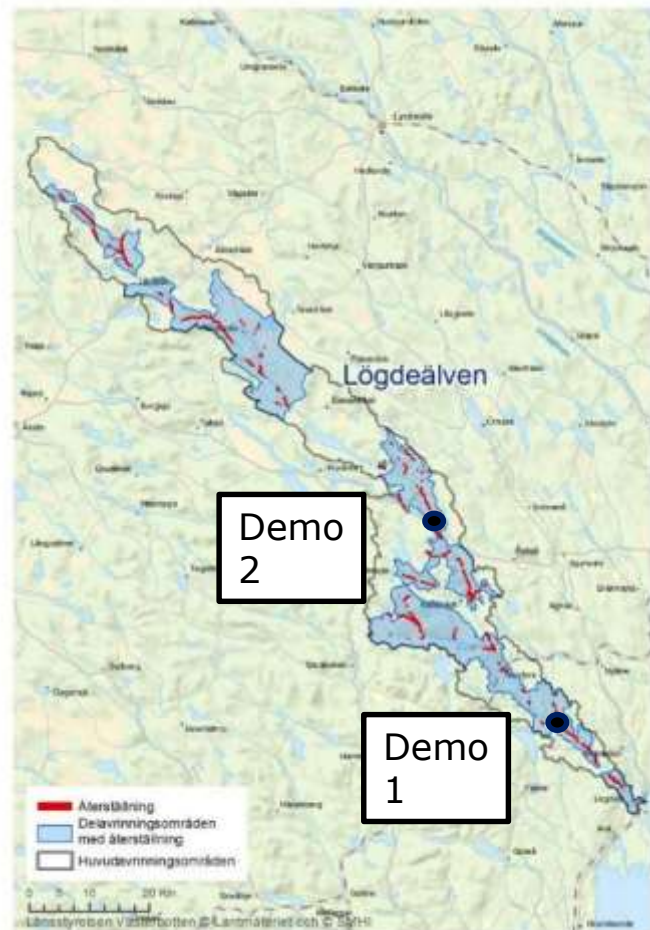
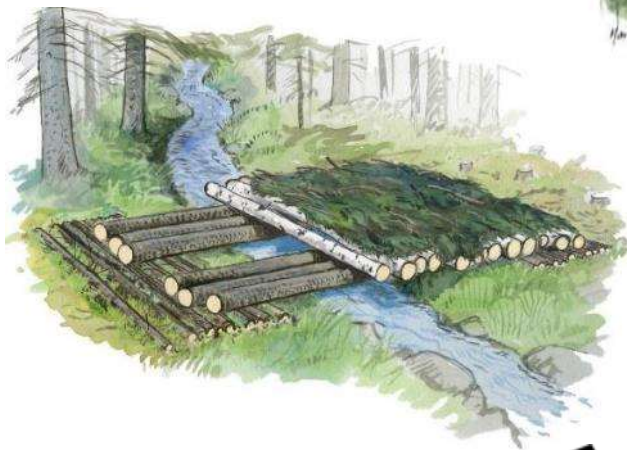
So far more than 30 people have been trained.



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Demonstration areas - forestry



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Information meetings



Reached more than 2000 people!



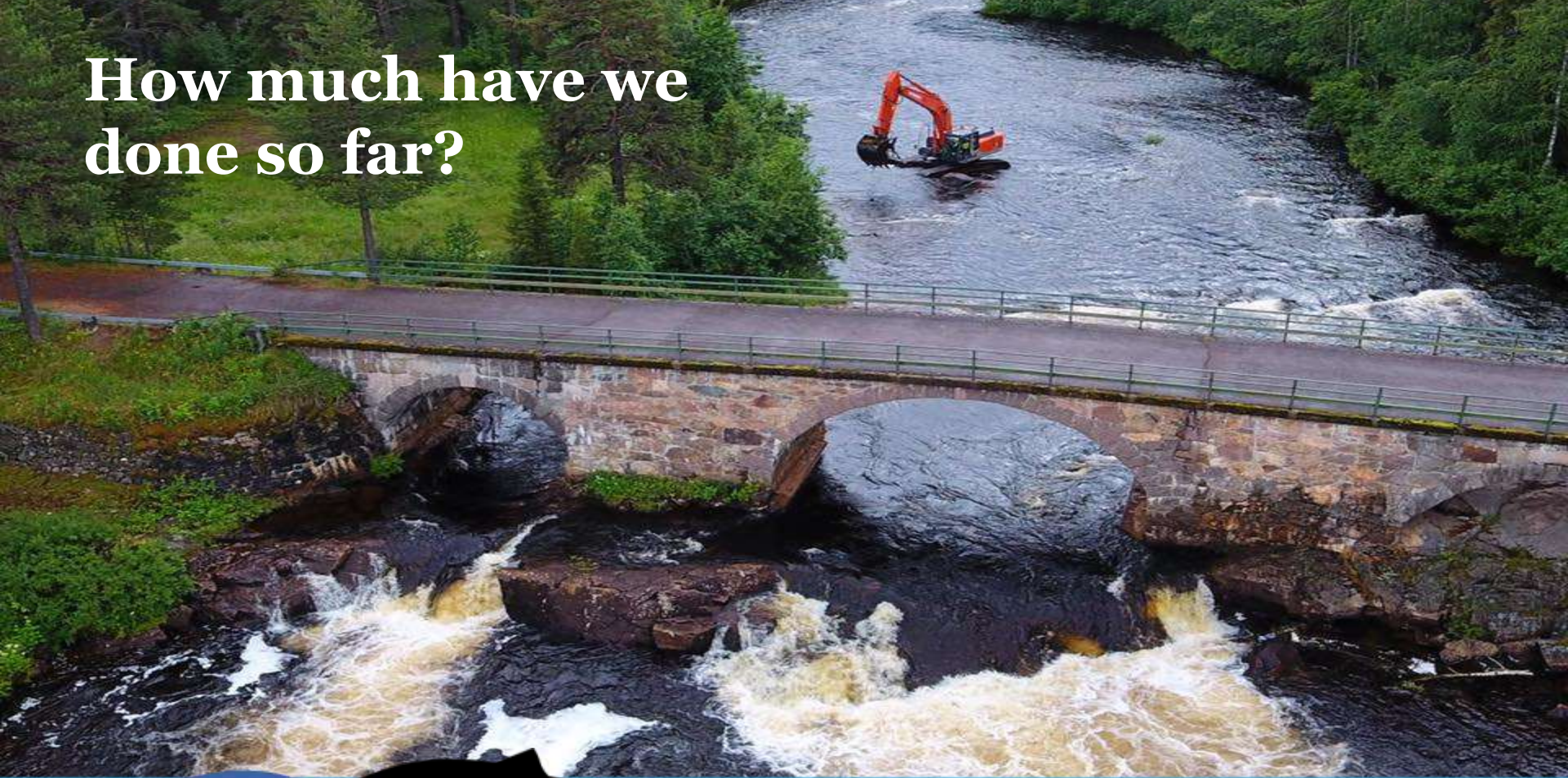
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Media



How much have we
done so far?



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Restored 2016 - 2018

49,4 % restored

28,3 % spawning
beds created



County	River	Restored (m)	Spawning areas (m2)	No. of spawning beds
BD	Råneälven	1 141		
BD	Solälven	7 120	200	33,3
BD	Rutnajoki	695	45	7,5
BD	Lina/Vassara	17 238	3257	542,8
BD	Stockforsälven	5 504	155	25,8
BD	Långträskälven	4 895	200	33,3
BD	Vitbäcken	8 544		
BD	Åbyälven	4 396	55	9,2
AC	Lögdeälven	35 091		
AC	Storbäcken	1 715		
AC	Stormyrbäcken	103		
AC	Alskabäcken	1 855		
AC	Kroknorsbäcken	442		
AC	Mossavattsbäcken	878		
AC	Blåbergsjöbäcken	1 432		
AC	Karlsbäcken	3 991		
AC	Strömbäcken	2 948		
AC	Mjösjöån	1 774		
Total:		99 762	3 912	652,0

BD=Norrbottn
AC=Västerbotten



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Monitoring

Drones –recreated wet area

Electro fishing – abundance of fish

Freshwater pearl mussel – number of glochidia larva on trout and salmon and proportion infected fishes

Hydromorphology – bottom structure, velocity etc.



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Some results

During the weeks 22-24 of 2017 electrofishing was done at 35 sites in 13 different rivers within the ReBorN-project.

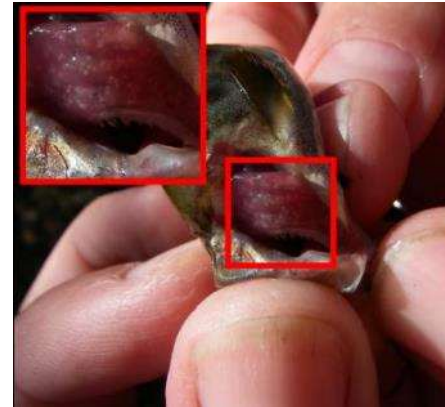
In all the studied rivers where glochidia infection was registered, the overall infestation rate was above 20 %, except one river (10%).

The number of glochidia larvae on each fish was in general very low. 74 % of all infected fishes in the study had between 1-10 larvae and only 4 % of the fishes had more than 50 larvae attached to their gills.

Salmon seems to act as host fish in River Lögdeälven, Åbyälven and Råneälven.

Standardized electro fishing conducted in the autumn 2017.

Follow up will take place 2020 and 2021.



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Some results

Reports are available for downloading at the website:

www.rebornlife.org

Biological data compilation on salmon and trout status of rivers within ReBorn-LIFE (LIFE15 NAT/SE/000892)

Stefan Larsson, County Administrative Board of Västerbotten 2017-09-22



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Pre-restoration study of freshwater pearl mussel glochidia larvae on salmon and trout in rivers within ReBorn-LIFE (LIFE15 NAT/SE/000892)

Patrik Olofsson, County Administrative Board of Norrbotten 2018-05-08



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Some results

Small populations with low recruitment of freshwater pearl mussel in most of the project rivers.

Larger populations in River Lögdeälven and River Råneälven. Not fully surveyed.

So far more than 7 000 mussels have been moved before restoration work started. Most of them from River Lögdeälven.

New fpm-population found in River Rutnajoki 2018.



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”If it weren’t for the rocks in its bed, the stream would have no song” – Carl Perkins



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Thank you for your attention!



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www.rebornlife.org



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Board of Norrbotten



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