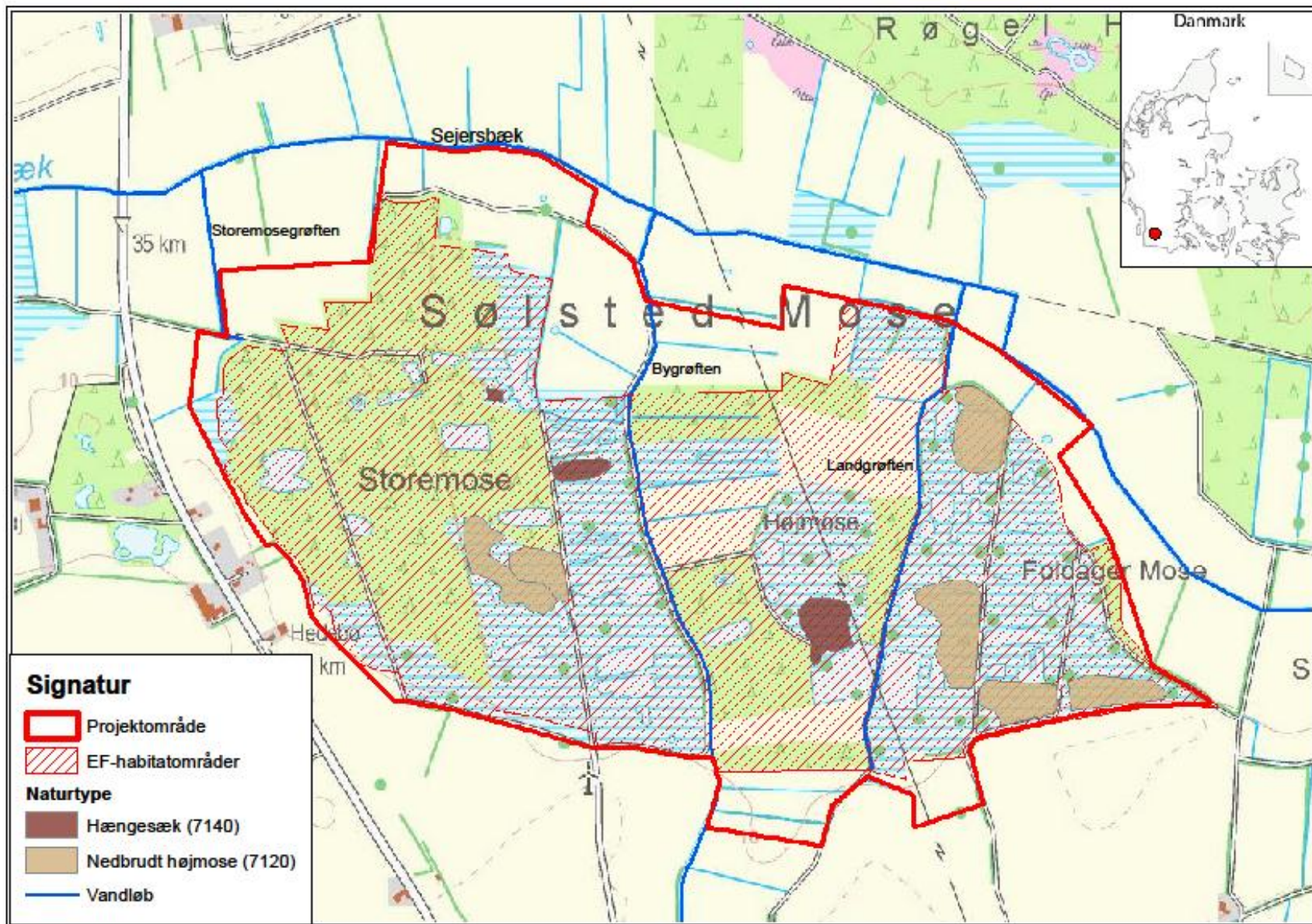




25 years experience with River Restoration Projects in Denmark

Change in the perception of
what a good quality project
must include









New legislation 1980-85 concerning

- watercourse maintenance
- River restoration
- Nature protection
- Ochre reduction
- Waste water (targets for reduction of nitrate, phosphate and organic matter)



Project types

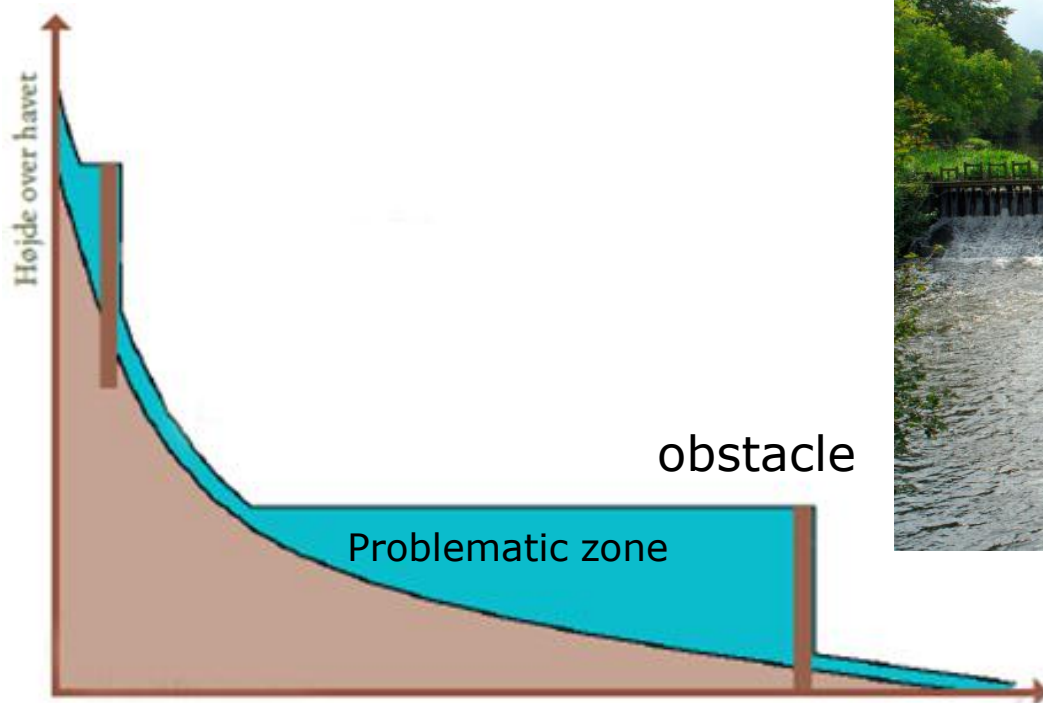
- Removal of barriers
- Remeandering
- Reopening of piped streams
- Reduce other pollution
- Improve physical condition
- combinations

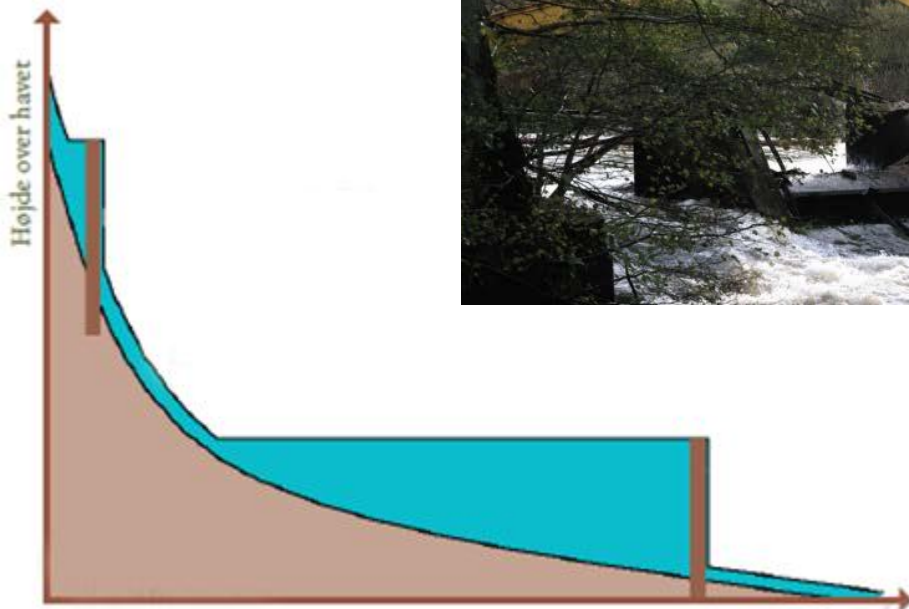


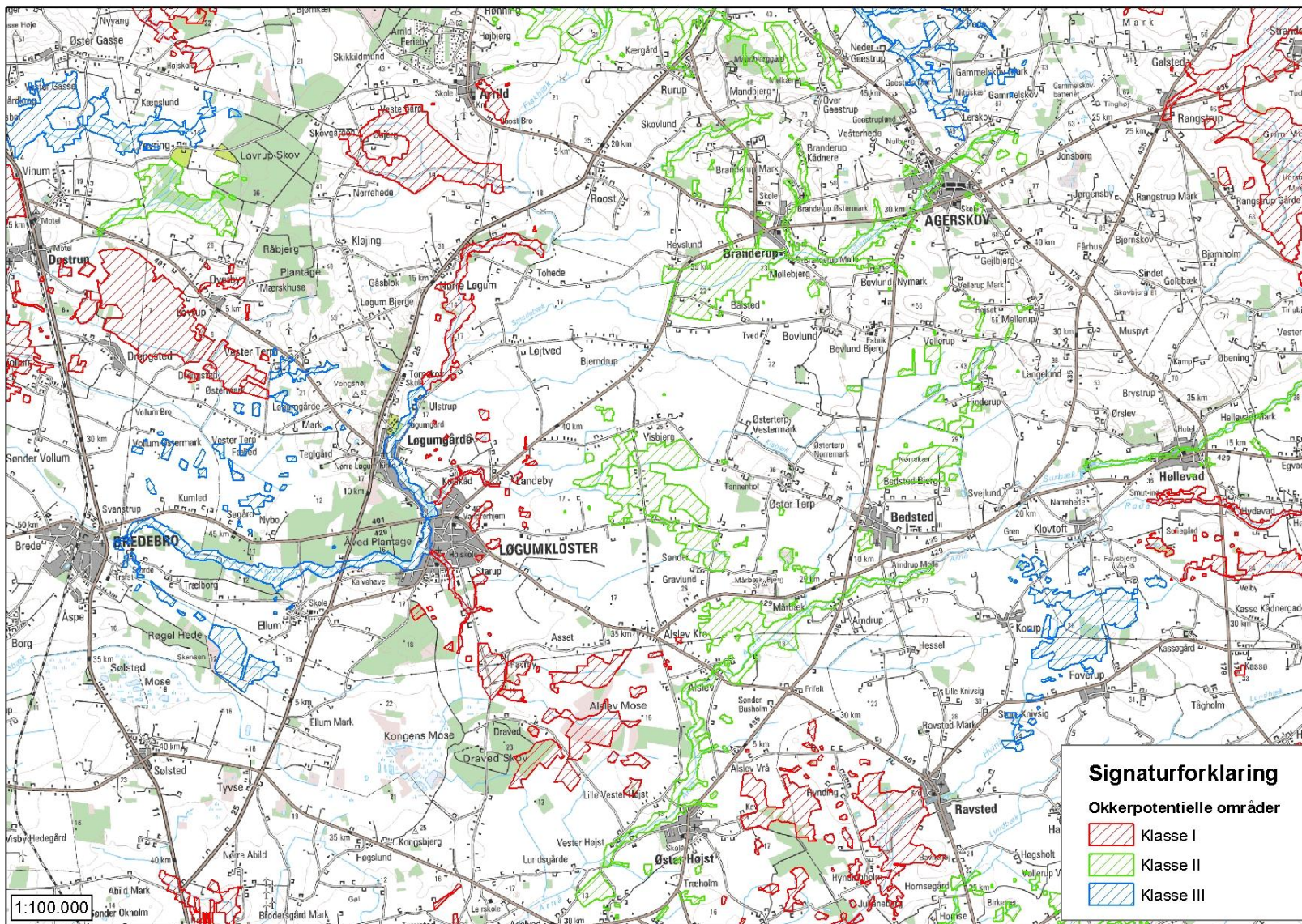




Problems caused by obstacles



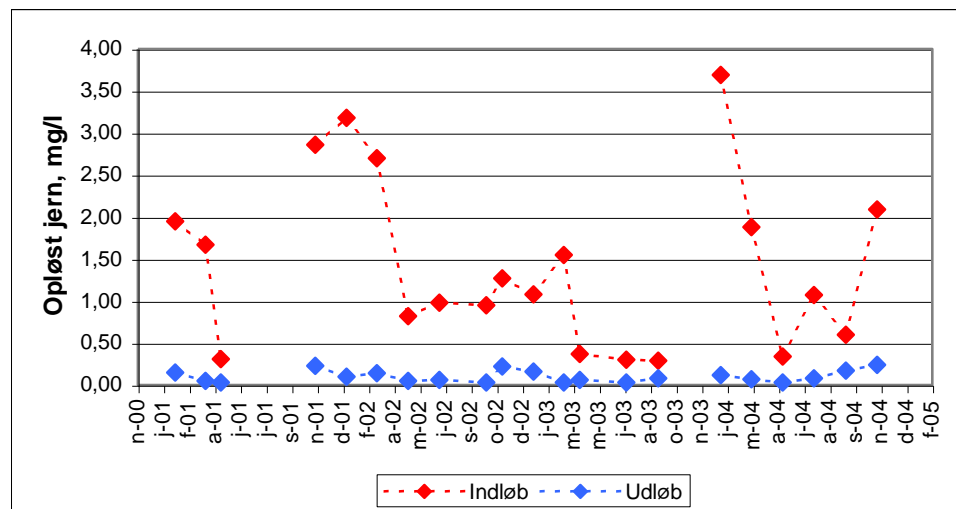


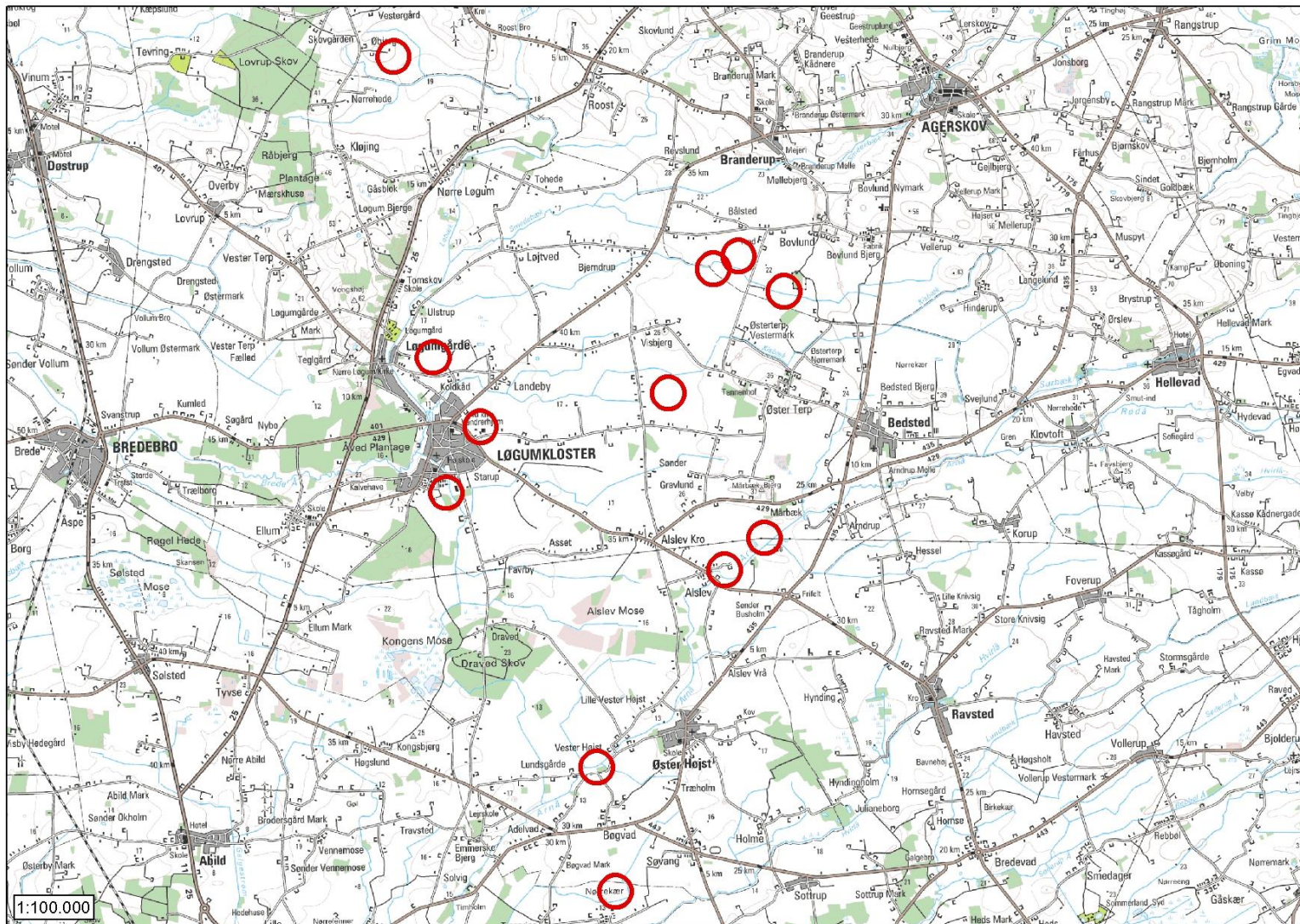






Effect of ochre lake

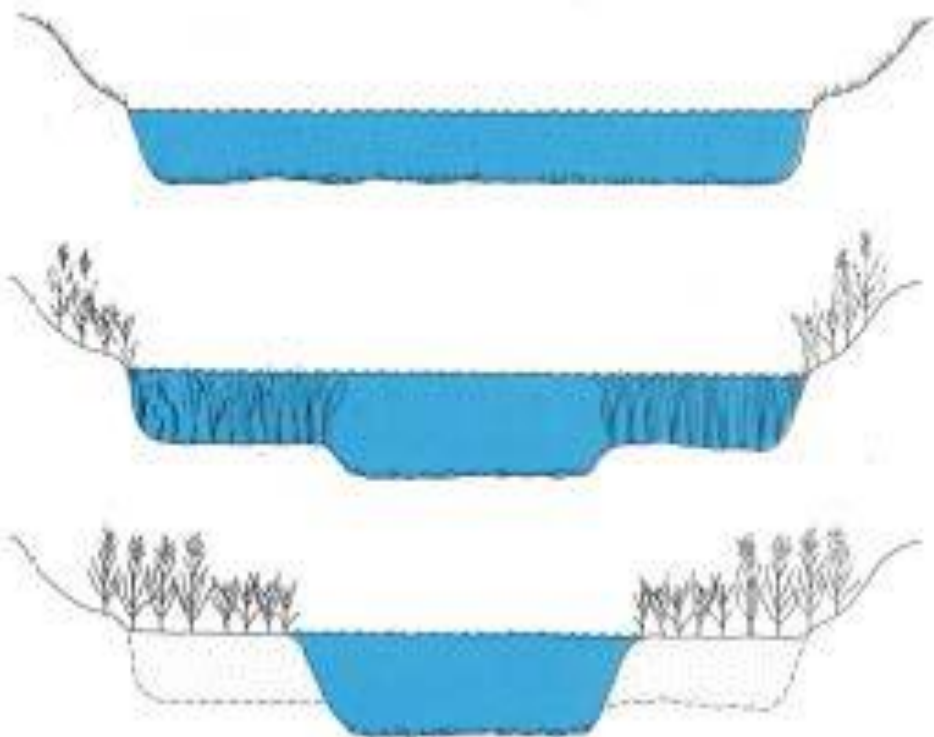






change in the watercourse maintenance

- Roles for all streams on considerate maintenance
- In the new water course law from 1982 there is demands to quality of the streams







Stream	Trout before project	Trout after project
Tydebæk	6	123
Hyrup Bæk	16	99
Valsbæk	1	162

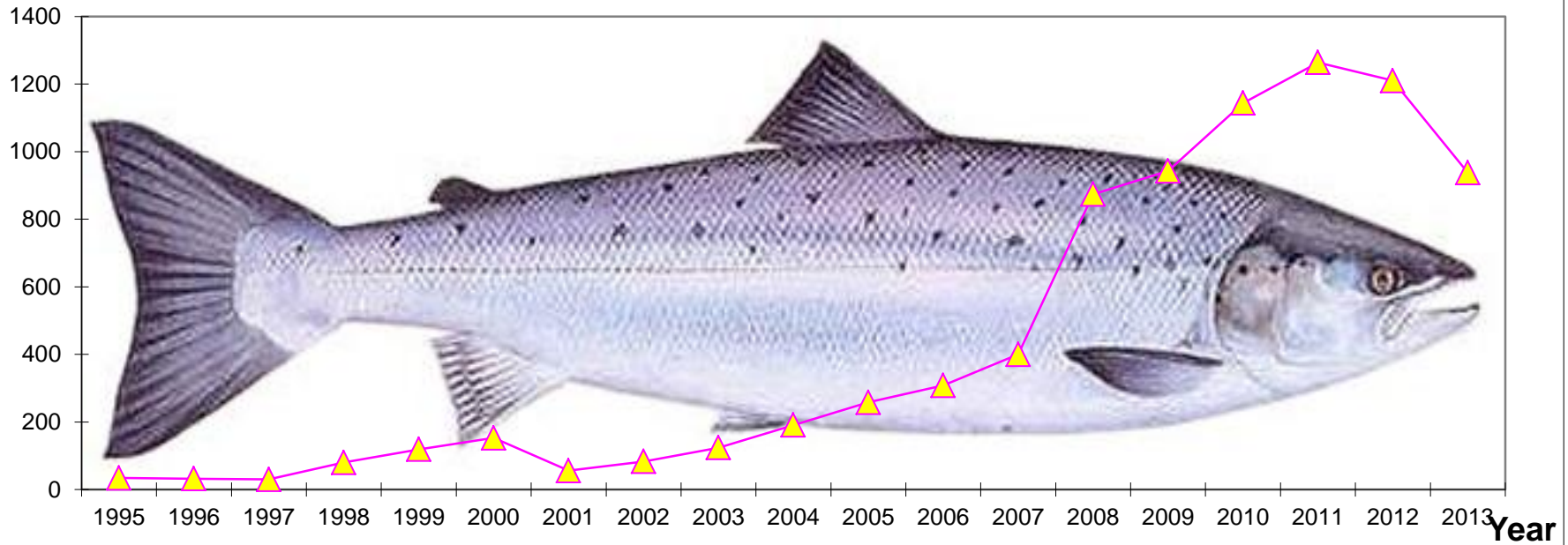




Salmon in River Skjern

Caught with fishing rod

Caught salmon in River Skjern





Use the right layer: 20-30 cm !

Larger stream: Gravel size: 75 % 16-32 mm and 25 % 33-64 mm

Small stream with width less than 1 meter:
Gravel size: 85 % 6-32 mm and 15 % på 33-64 mm

Recomandations from DTU Aqua







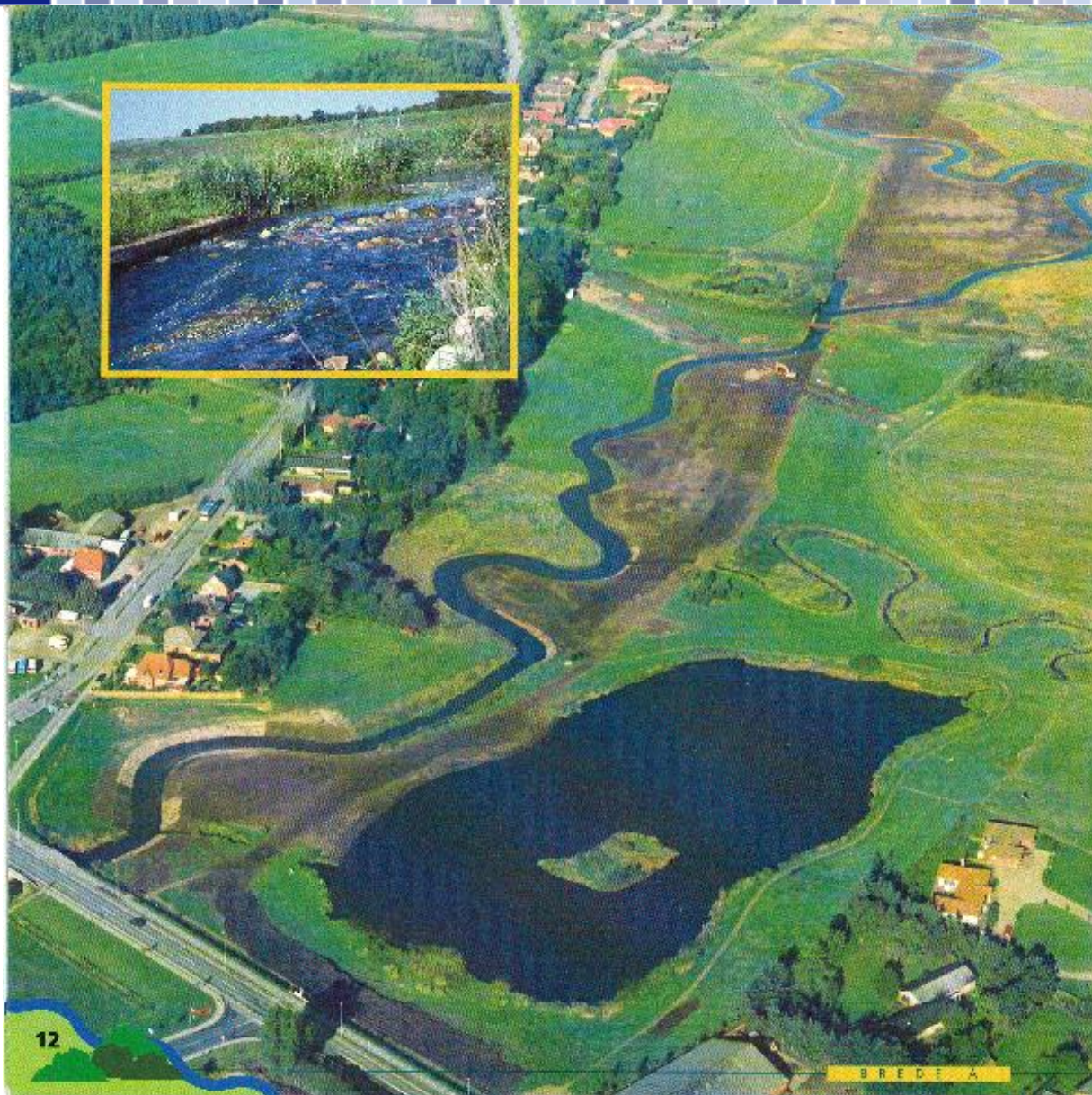
For every 5 cm obstacle you can create a spawning area with a length of:

about 10 m in small streams (3 m's width) (5 promille)

about 17 m for streams with a width of 3-8 m (3 promille)

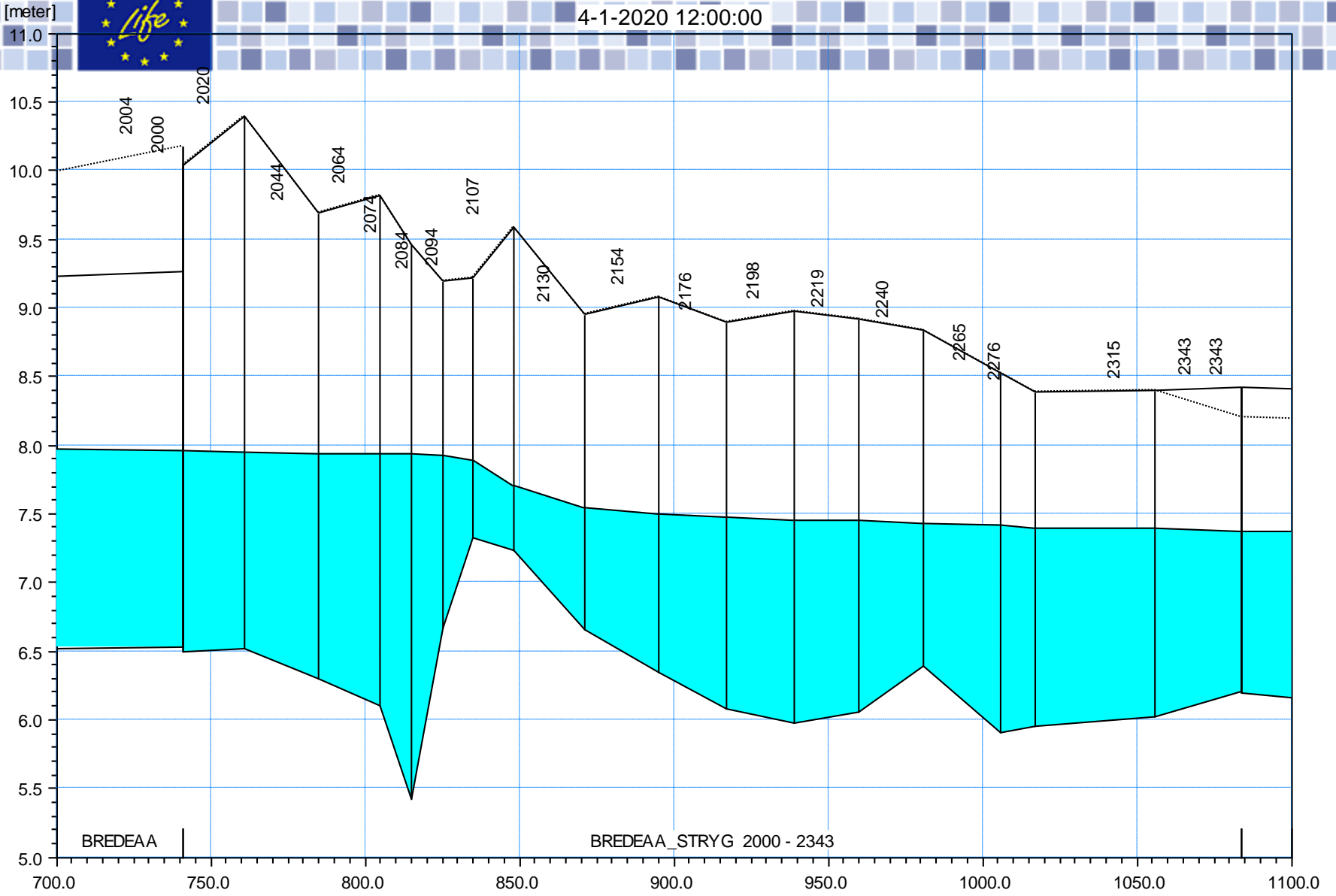
about 25-50 m in larger streams (1-2 promille)

Information from DTU Aqua





4-1-2020 12:00:00

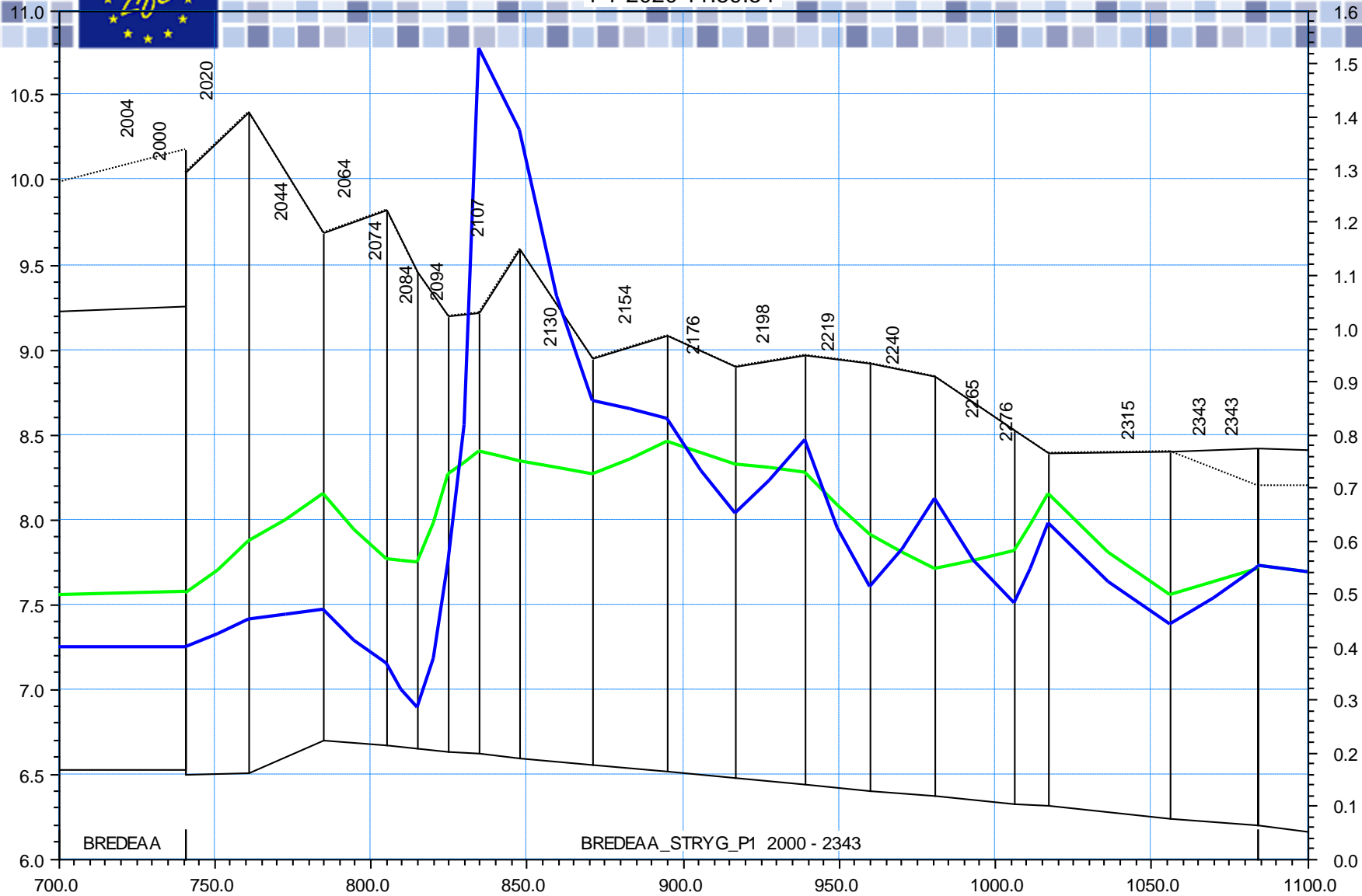


Budapest, 18 June 2013
Brunhilde Rack

[meter]



4-1-2020 11:59:54



BREDEAA

BREDEAA_STRYG_P1 2000 - 2343



En "indskudt" sø – Egå Eng sø



Egå ca. 1860



Egå Eng sø 2009



Year loss of outgoing young trout (%)

2005	0
2006	0
2007	71
2009	82
2010	79
2011	90

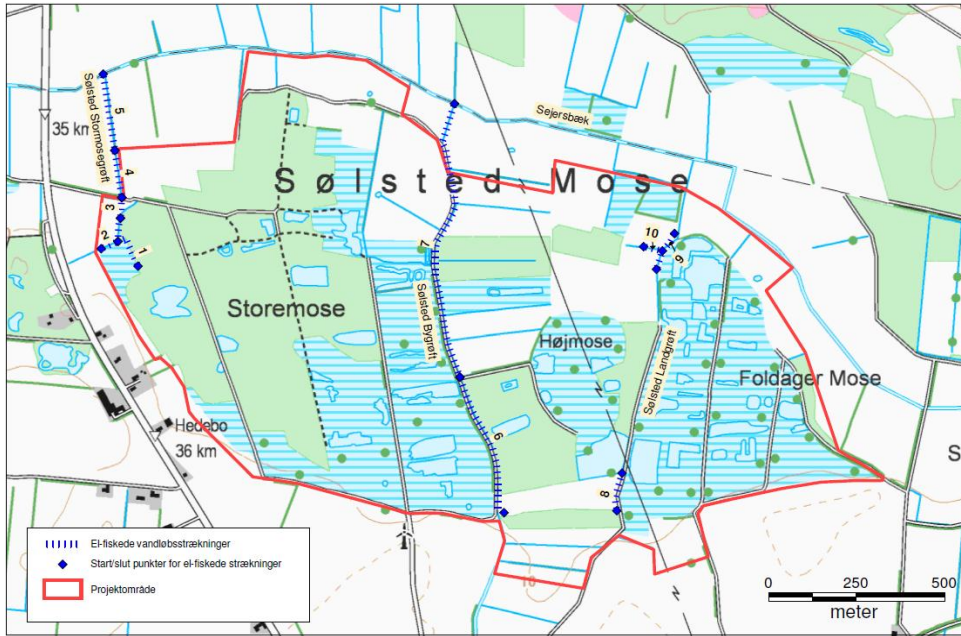
Data from Anders Koed, DTU Aqua



Ecologic status of stream in Denmark

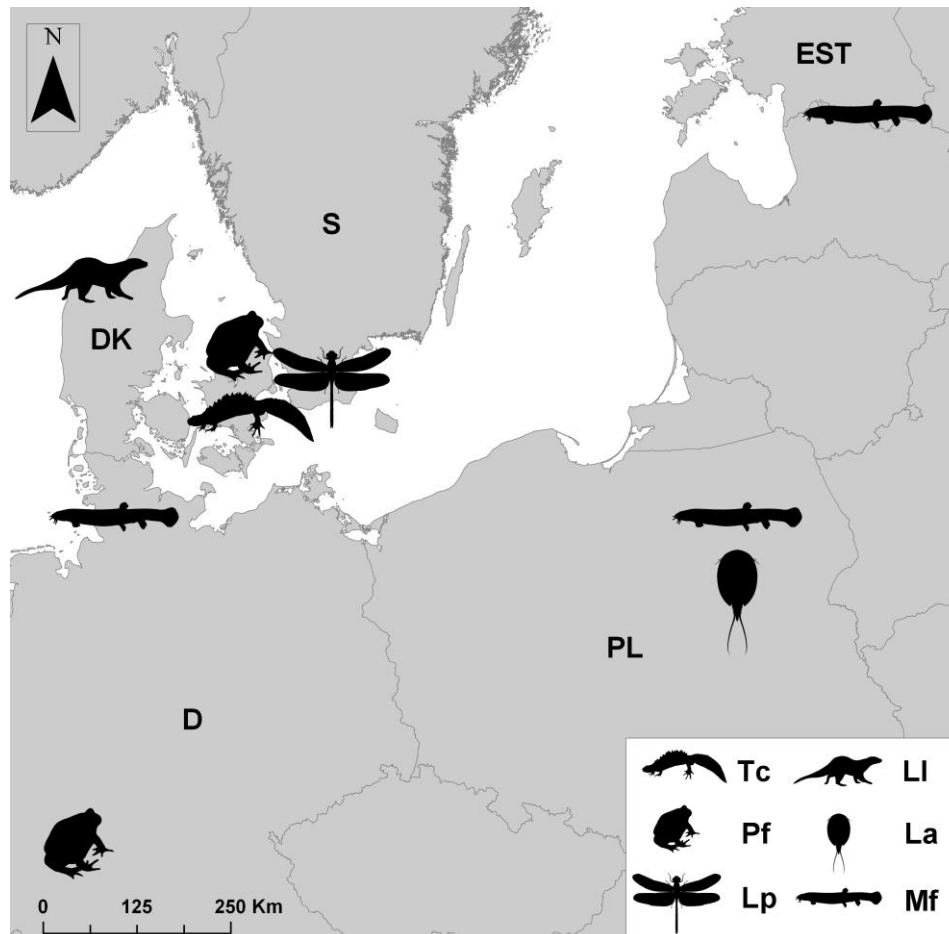


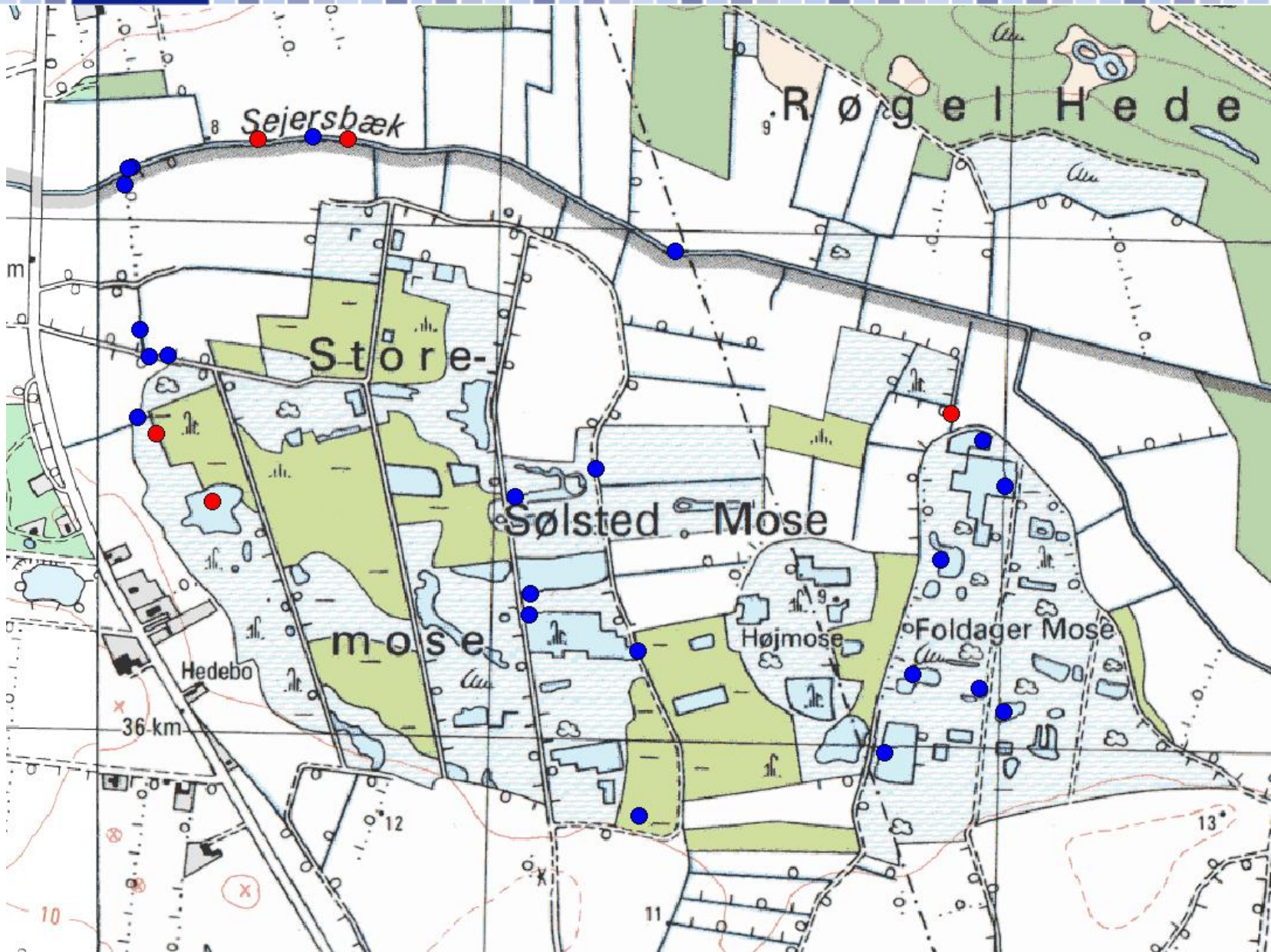


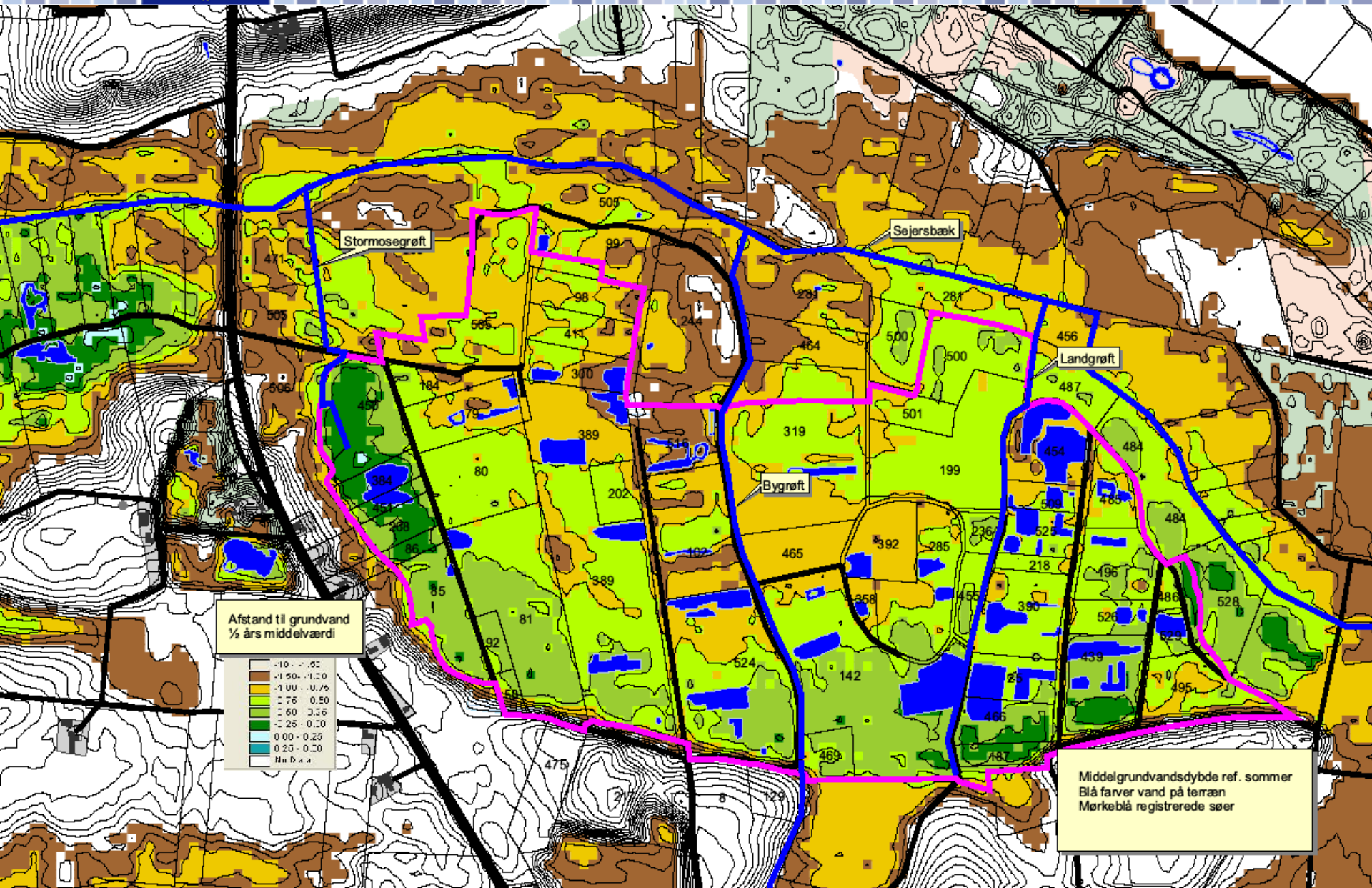




DNA studies







Afstand til grundvand
1/2 års middelværdi

-10 - -1,52
-1,50 - -1,20
-1,00 - -0,75
-76 - 0,00
-60 - 3,56
-25 - 0,20
0,00 - 0,25
0,23 - 0,20
Nr 644

Middelgrundvandsdybde ref. sommer
Blå farver vand på terræn
Mørkeblå registrerede søer

