

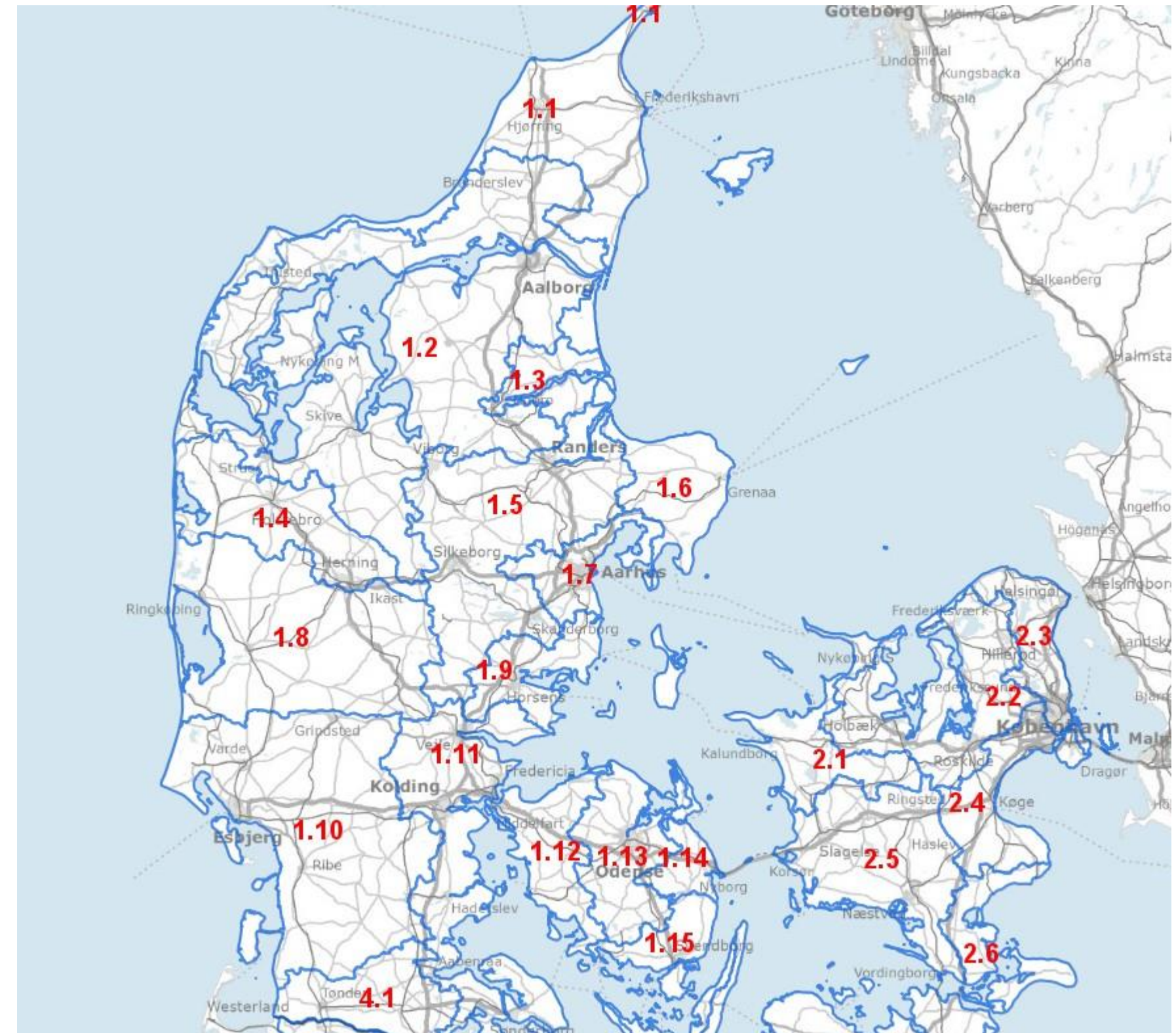
Wet land restoration and land consolidation – an example from the western part of Jutland, Denmark

Clearance workshop, Warsaw March 15th 2019.

Lene Moth, joint employee Ringkøbing-Skjern Municipality and [vestjysk](#) – an advisory farmer service.

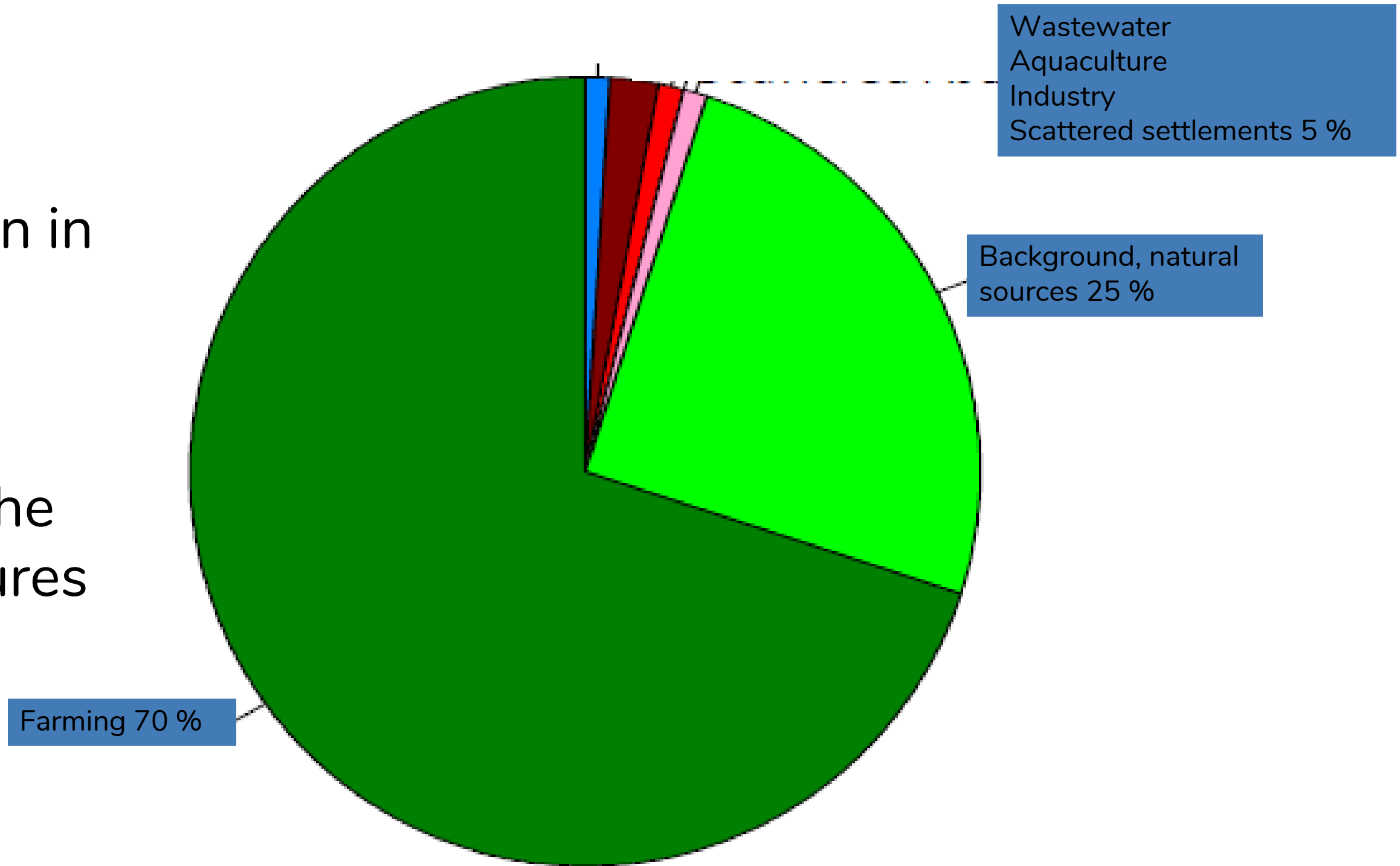
Introduction

- ✓ Who am I ?
 - Unique position between an local authority and a farmer organization
- ✓ The set up
 - The local authorities in Denmark are obliged to implement measures to reduce nutrient leaching to the coastal waters .
 - The land is often owned by private farmers.
- ✓ Catchment area level -water catchment steering committee
- ✓ Ringkøbing Fjord 1.8



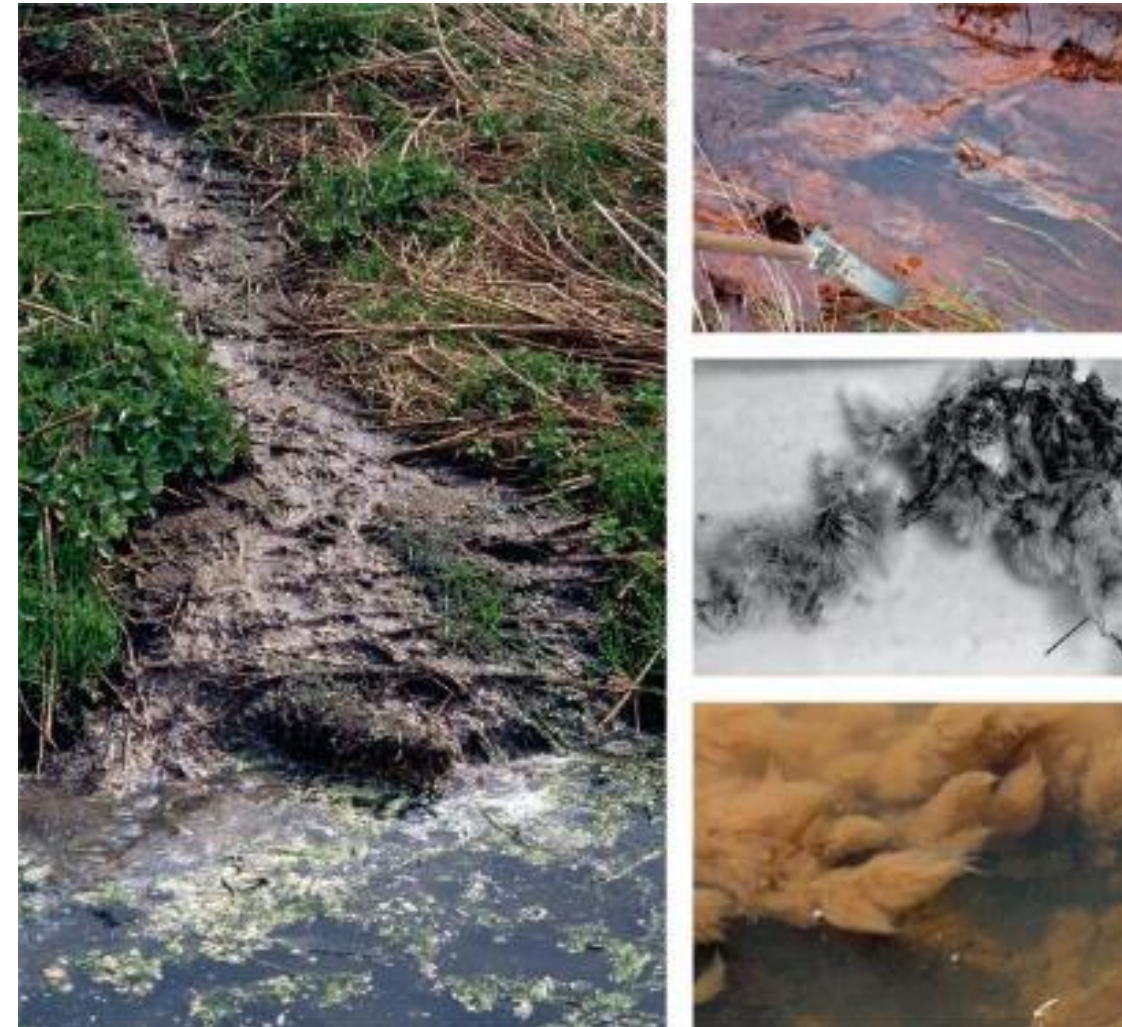
Content

- ✓ The history of environmental legislation in Denmark
 - European Union (EU)
 - Directives
- ✓ Agricultural impact on the environment and measures to reduce leaching of nutrients.



Where it all began

- ✔ Massive pollution of rivers and coastal waters – offset of the environmental regulation



Environmental regulation

✓ The history

- Action Plan for the Aquatic Environment (APAE)
 - 1987 The first APAE
 - 1998 The second APAE
 - 2004 The third APAE
- Nitrates Directive 1991- EU
- Water Frame Directive 2000 - EU
- Green Growth Agreement 2009
- River Basin Management plan 1 2009-2015
- Rive Basin Management Plan 2 2015-2021
- River Basin Management Plan 3 2021-2027

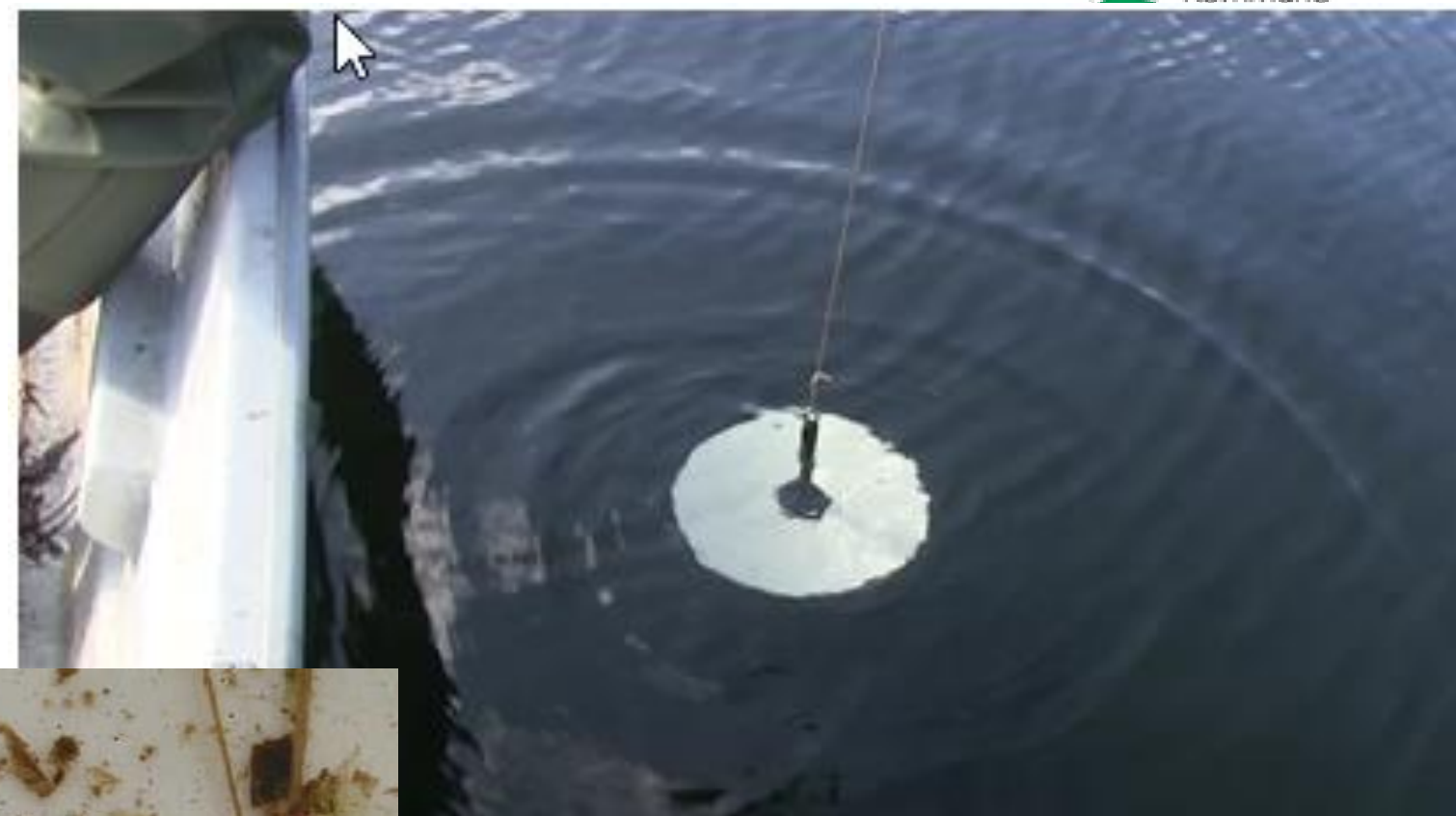
1985-2003: Reduction of N-load from 310.000 tons to 149.000 tons

2008: Evaluation 30.400 tons P to 15.200 tons P
– no change in N

Good ecological status

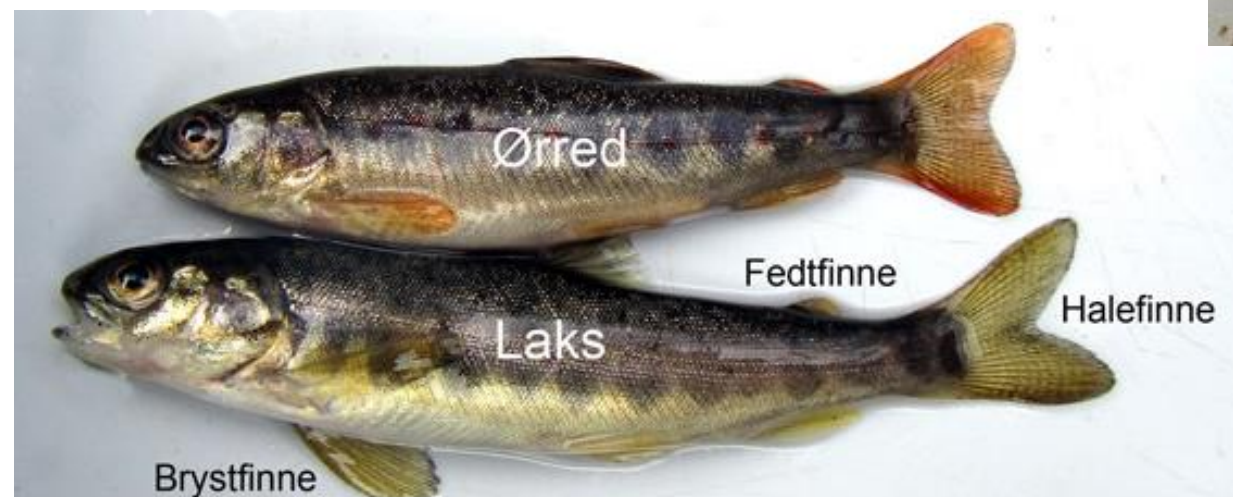
✓ Coastal waters

- Clarity of water – secchi depth



✓ Rivers and streams

- Macro fauna index
- Fish index
- Plant index



Status in Denmark (Carl Kristian Hoffmann)

History

Before year 1900: **7460 km² wetlands**
 >1400 km² shallow lakes

Today:

569 km² wetlands
586 km² shallow lakes

Status 2018

14000 ha new wetlands has been established since 2006 (140 km²)
6000 ha new lake projects (60 km²)

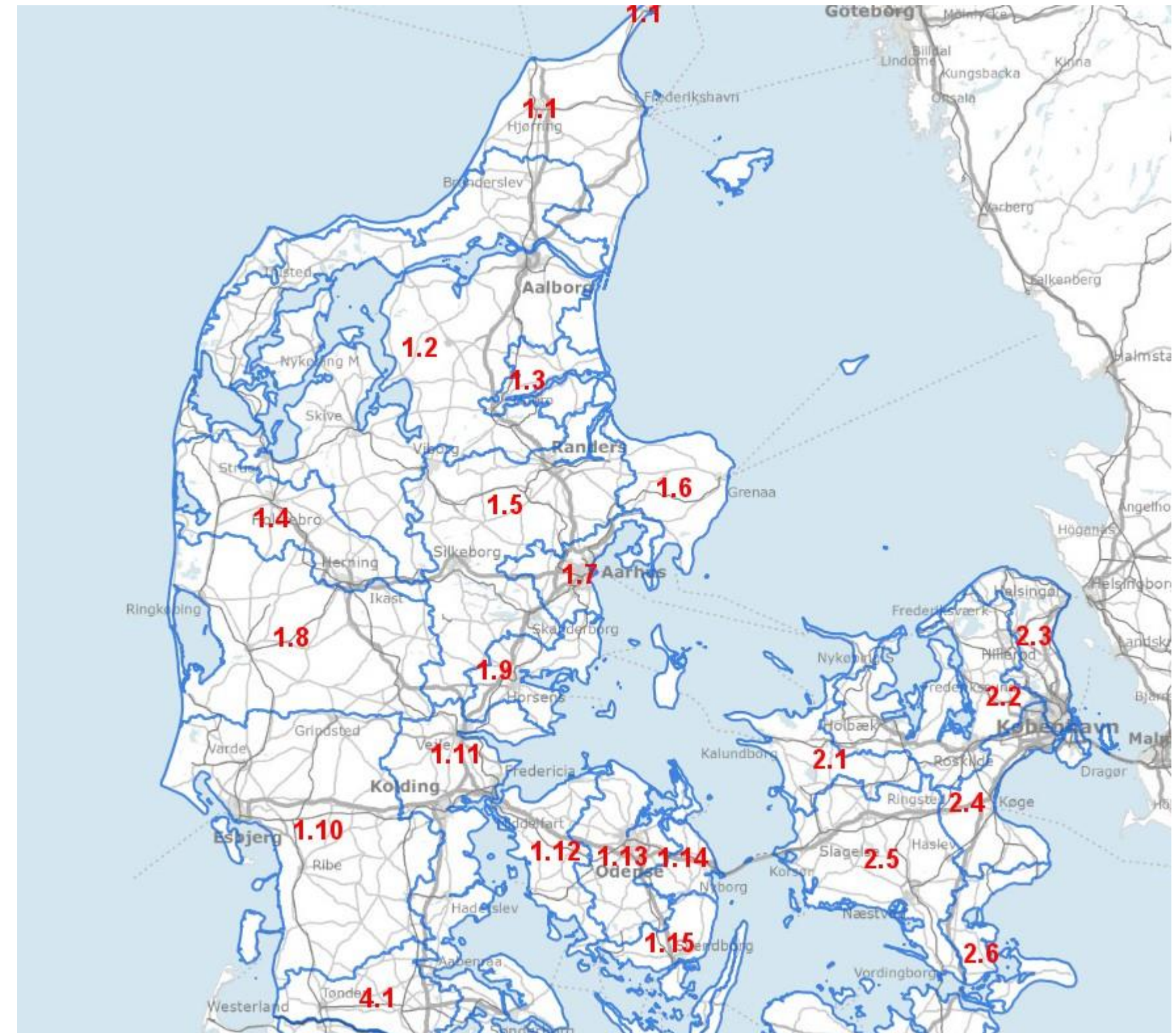
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Wet land restoration - how is it done?

- ✔ Find the right place – pumped areas
- ✔ Is it technically possible - does it meet the criteria
 - Pipelines, cultural history sites, protected species
 - 90 kg N/ha/year
 - Cost effective, max 175 euro/kg N
- ✔ Real estate survey – what do the farmers think?
 - Voluntary participation
 - Compensation

Choice of compensation

- ✔ Keep the land and receive compensation for income loss for 20 years – amount depending on type of crop
 - Cereal (wheat, corn, barley etc.) 467 euro/ha/year
 - Grass 240 euro/ha/year
 - Heath, bog, meadows 40 euro/ha/year

- ✔ Sell the land
 - With an option to buy back the land – right of preemption

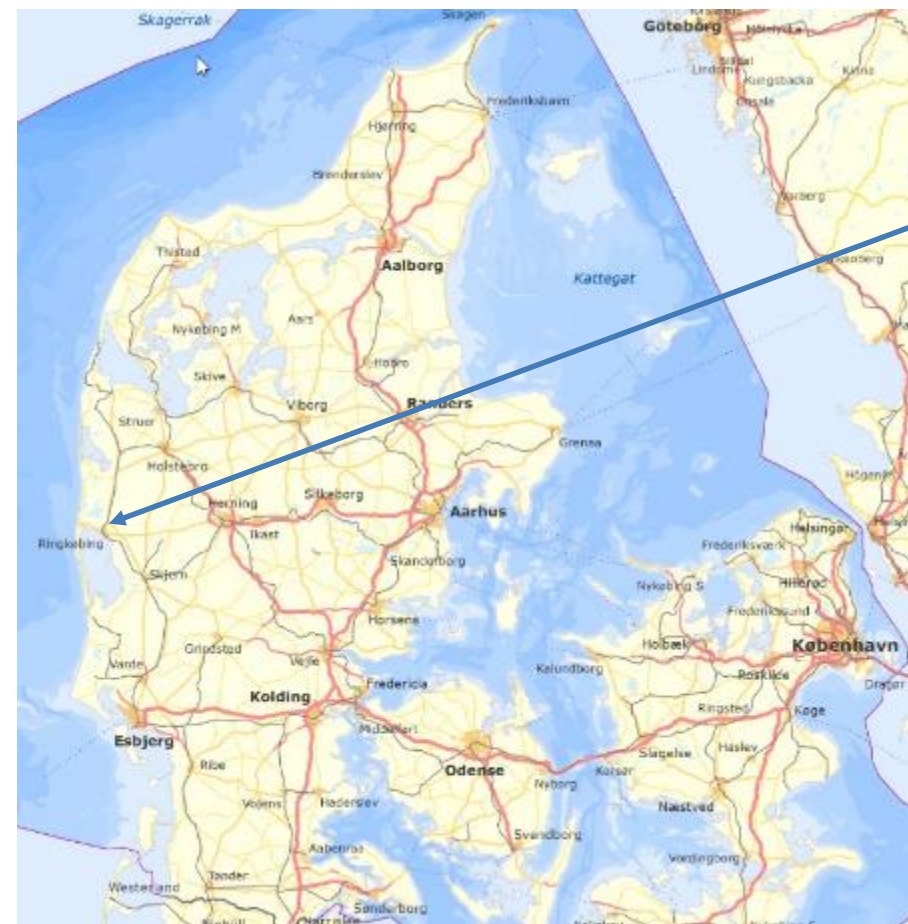
- ✔ Substitute land through land consolidation

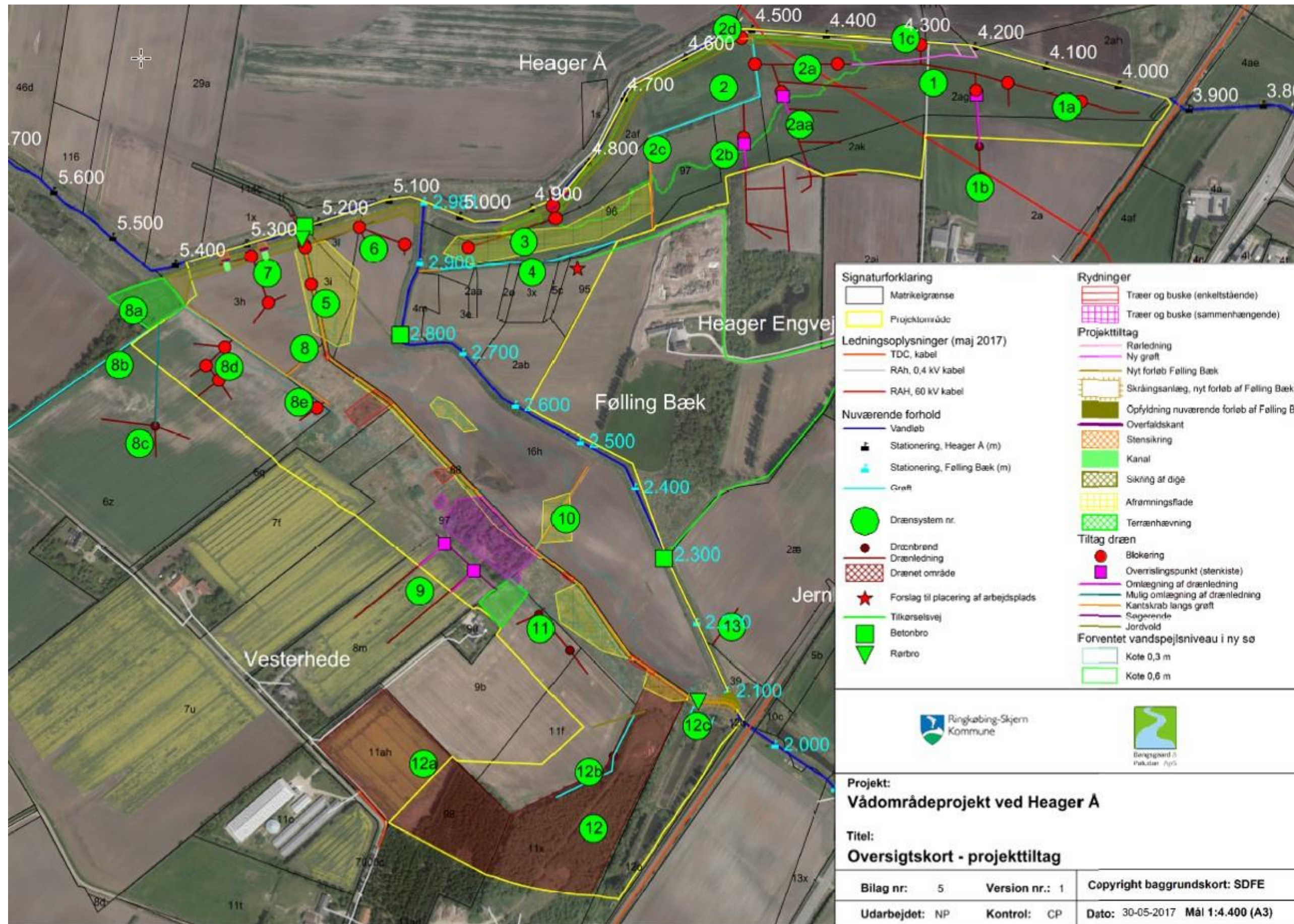
Land consolidation

- ✓ **Land consolidation** is the reallocation of parcels with the aim for the landowners to obtain larger parcels at one or more places in exchange of their former smaller and fragmented **land** plots. The word “**land consolidation**” comes from the Latin “commassatio” (grouping).
- ✓ Used now to solve an environmental problem
- ✓ Land evaluation - how much is the land worth?
 - Land owner committee
 - Local consultant
 - Planner and valuation expert from the Danish Agricultural Agency
 - Best field in the area rated 100

The wet land Heager Å-Følling Bæk

- ✔ Started in 2010 – finished in 2017 – long difficult process
- ✔ 46 ha
- ✔ 14 landowners/farmers
- ✔ Reduction of 6.300 kg N/year





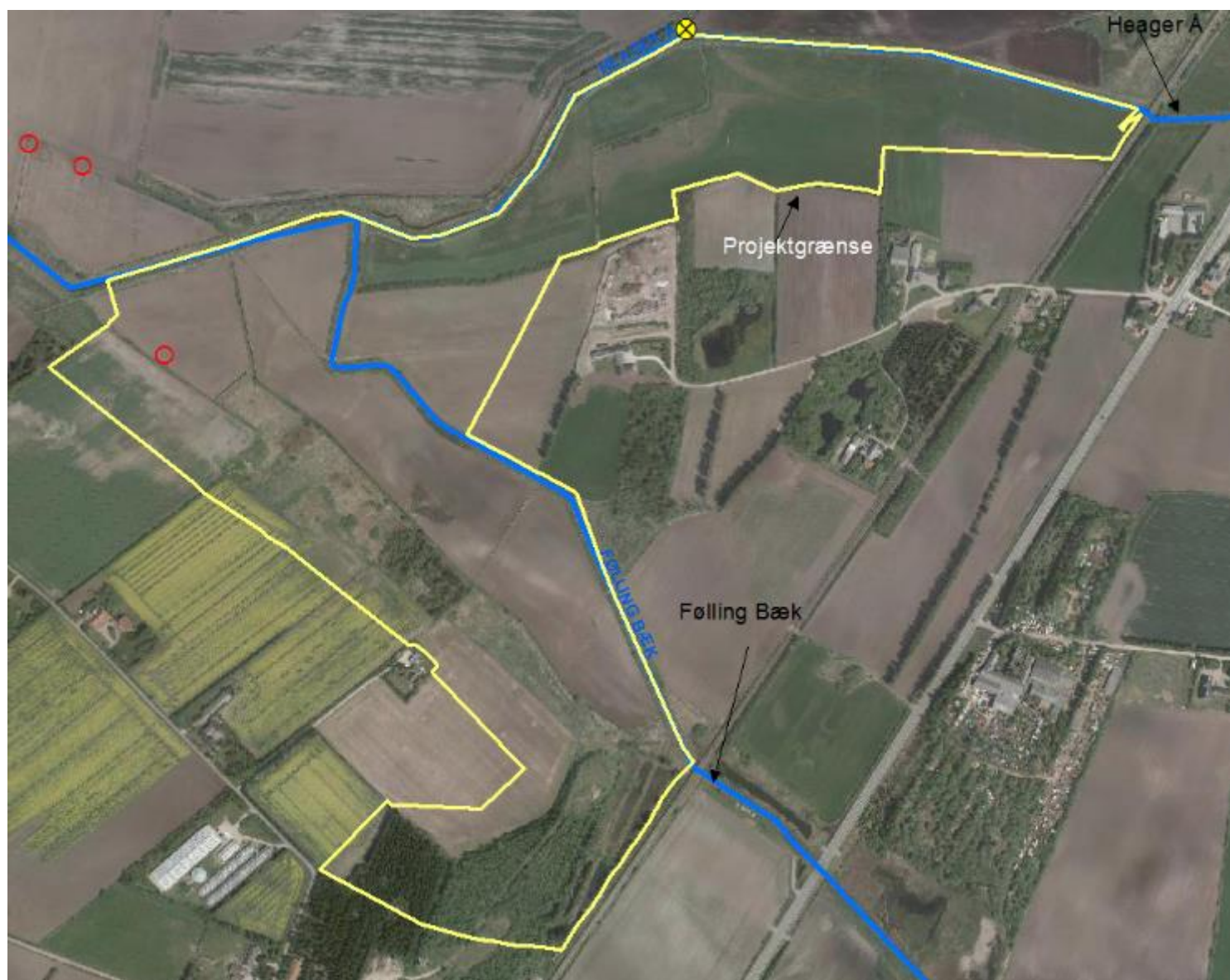
The construction

- ✔ Removal of drain and ditches
- ✔ Inlet and outlet
- ✔ Disconnect the pump



Before and after

- ✓ <https://www.rksk.dk/Files/Images/Om%20Kommunen/Projektsider/vaado mraader/dronefilm.MOV>



Take home messages

- ✔ Be patient
- ✔ Meet the farmers face to face
- ✔ Don't make promises you can't keep
- ✔ You cannot know everything – involve other professionals.

Thank you for your attention

