Wetlands delivering improved environmental outcomes

WaterCoG End Conference (online), 21-22th sep 2021

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Wetlands

"*areas of marsh, fen, peatland or water, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters*" (Ramsar Convention)

highly productive systems that play a fundamental and disproportionate role in providing a multitude of ecosystem services that sustain all life

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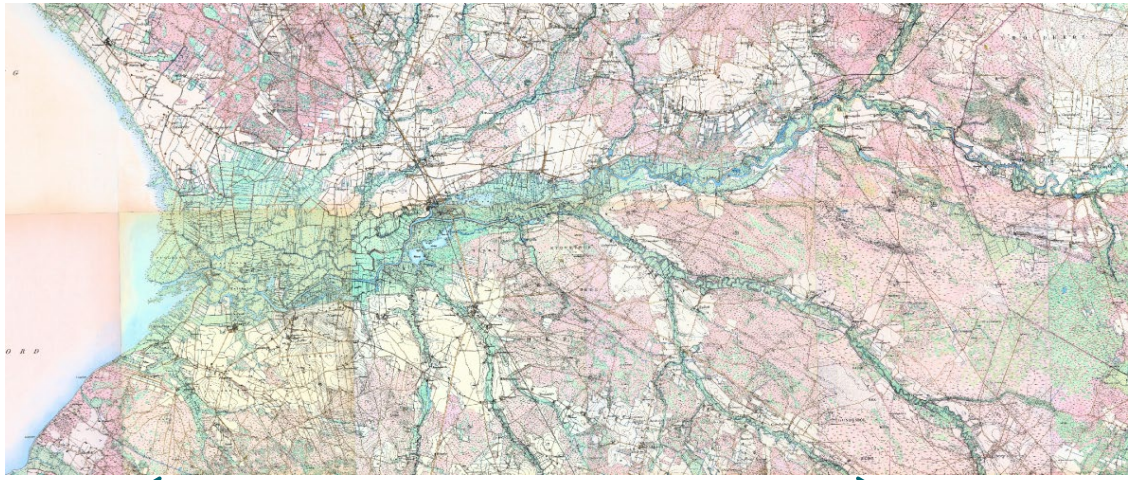
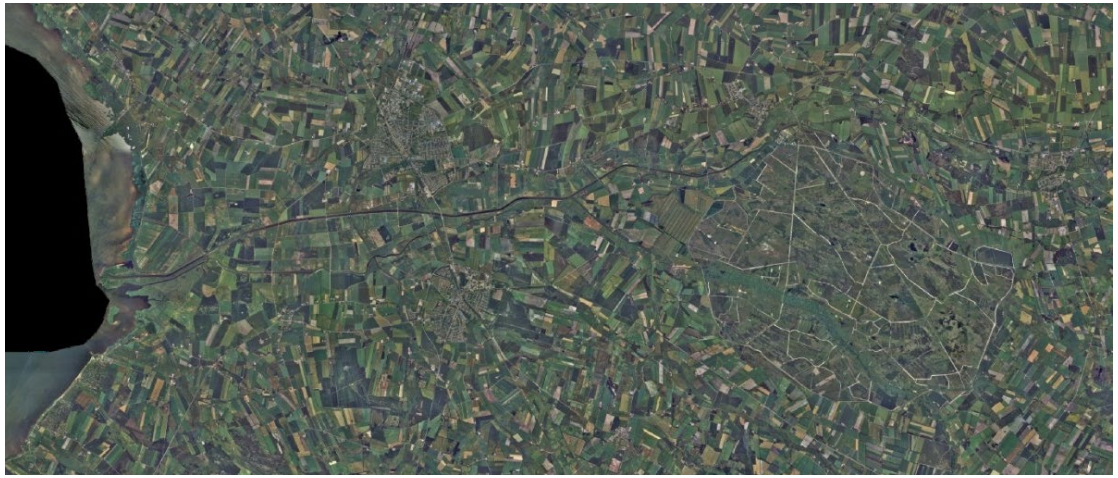
Wetland loss and degradation

disruption in structure, function and composition → loss of biodiversity and ecosystem services

This is most often caused by human activities



Skjern river 1850



and 1995

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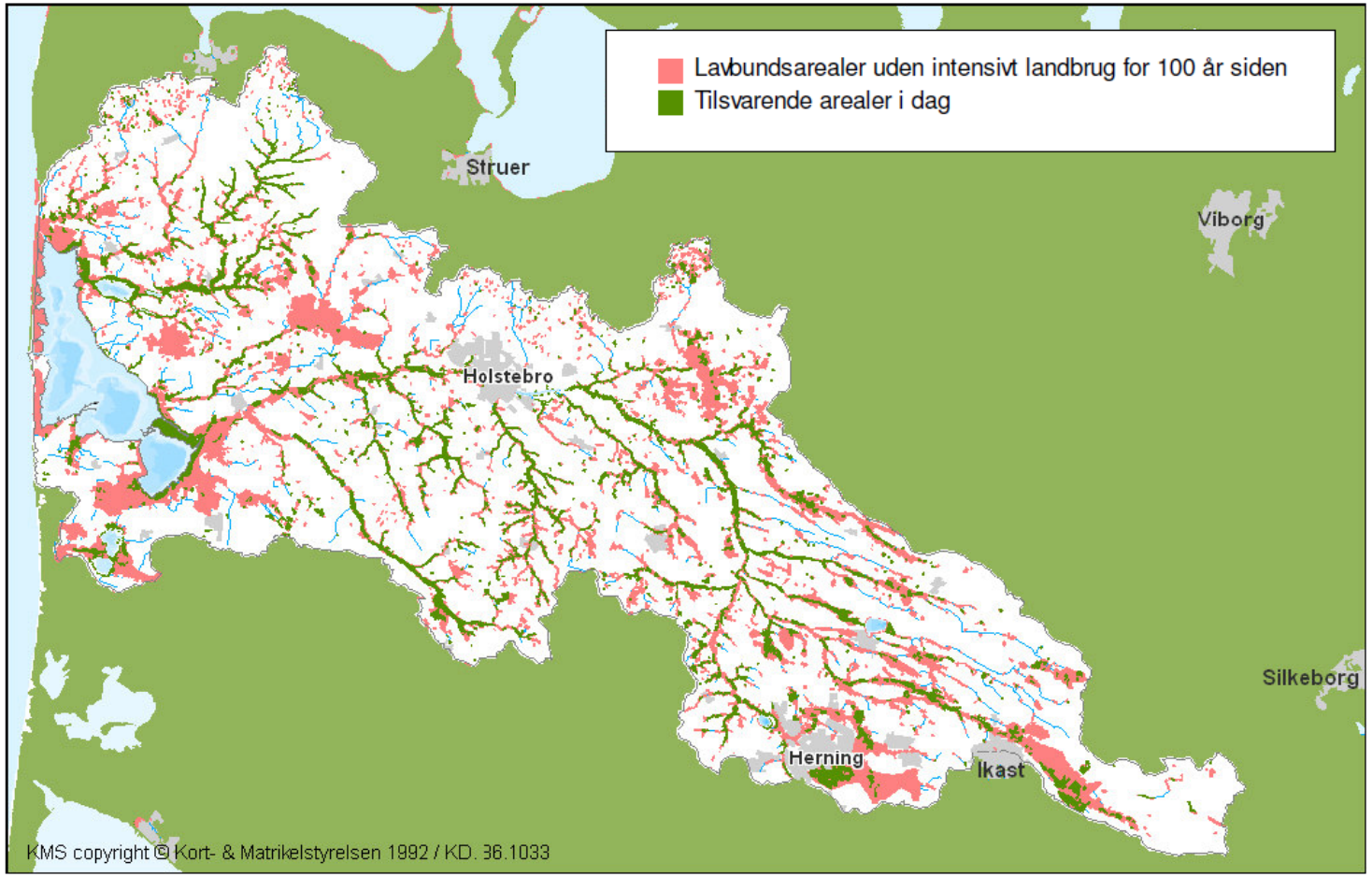
Wetland loss and degradation

Nissum Fjord catchment – loss of 17500 ha wetlands (24.000 ha to 6.500 ha)



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Wetland loss and degradation

Loss of ecosystems, habitats and biodiversity

Loss of nutrient retention in the landscape

Increased CO2 emissions

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Restoring degraded wetlands

"*the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed*"

1) the utilization of native wetland species in characteristic assemblages and functional groups,
2) self-sustaining and resilient wetland ecosystems integrated within the larger landscape
3) the reduction or elimination of the drivers of wetland degradation

Skjern Å river 1995 and 2020

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Restoring degraded wetlands in a Danish context

Effect: 188 ± 97 kg N/ha/y

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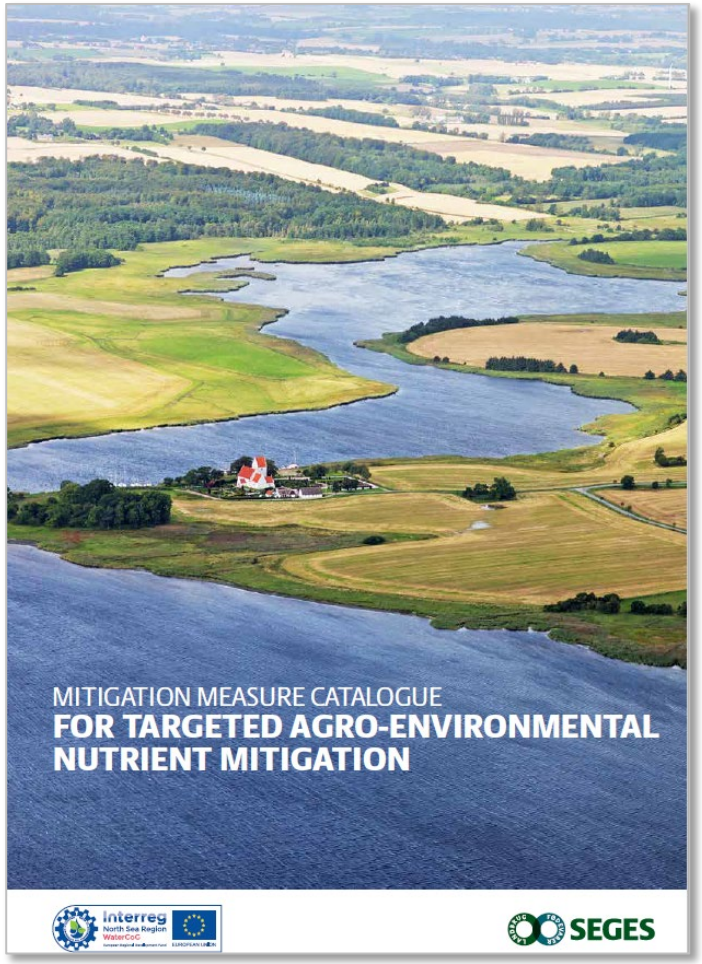
Restoring degraded wetlands in a Danish context

Two main types

1) River and wetland restauration (restore) – 20-year experience
   - Land out of production, River meandering, Raise water level
2) Semi-natural wetlands (constructed wetland, drain filter solutions)
   1) Mini wetland / Constructed wetland (new program in 2015)
   2) Bioreactor (wood chips)
   3) Integrated Buffer Zone (IBZ)
   4) Saturated Buffer Zone



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Mini wetland / constructed wetland

2015: Government decision for a new program:
Approx. 1500 mini wetlands to be implemented within 3 years

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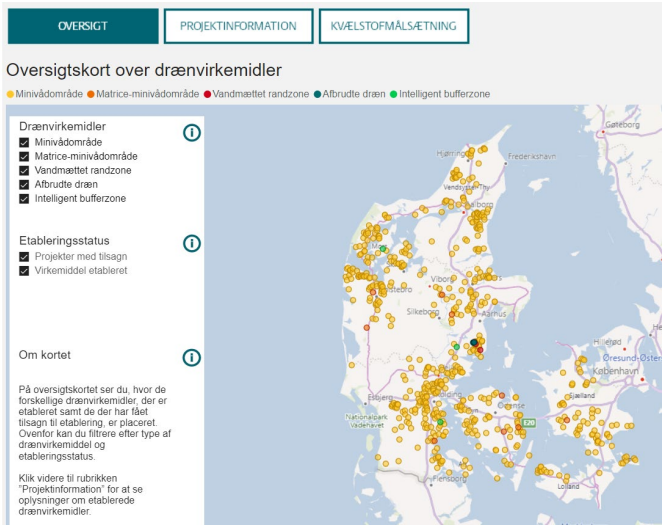
Catchment officers in Denmark

2016: Local Pilot Hagens Møllebæk - Test the “Catchment officer” concept

2 measures implemented:

1 saturated buffer zone and 1 Integrated bufferzone



2017: Catchment Officer concept became a national program - assign 28 Catchment Officers (both part- and fulltime)

2018-2020: 614 granted applications for constructed wetlands (equivalent to approximately 264 ton N)

Map:
https://app.powerbi.com/view?r=eyJrIjoiNjBiN2JiMDktNWQ1ZS00OGMxLWE1YTItZjYzZDFhMWUzODJjIiwidCI6IjUyYzQ1MzEzLTNiYjEtNDNlZi04MTI0LThjOGFmYzllNzc5YyIsImMiOjh9

2018-2021: Effort made on the fjord- and catchment-based approach (local based water action plan)

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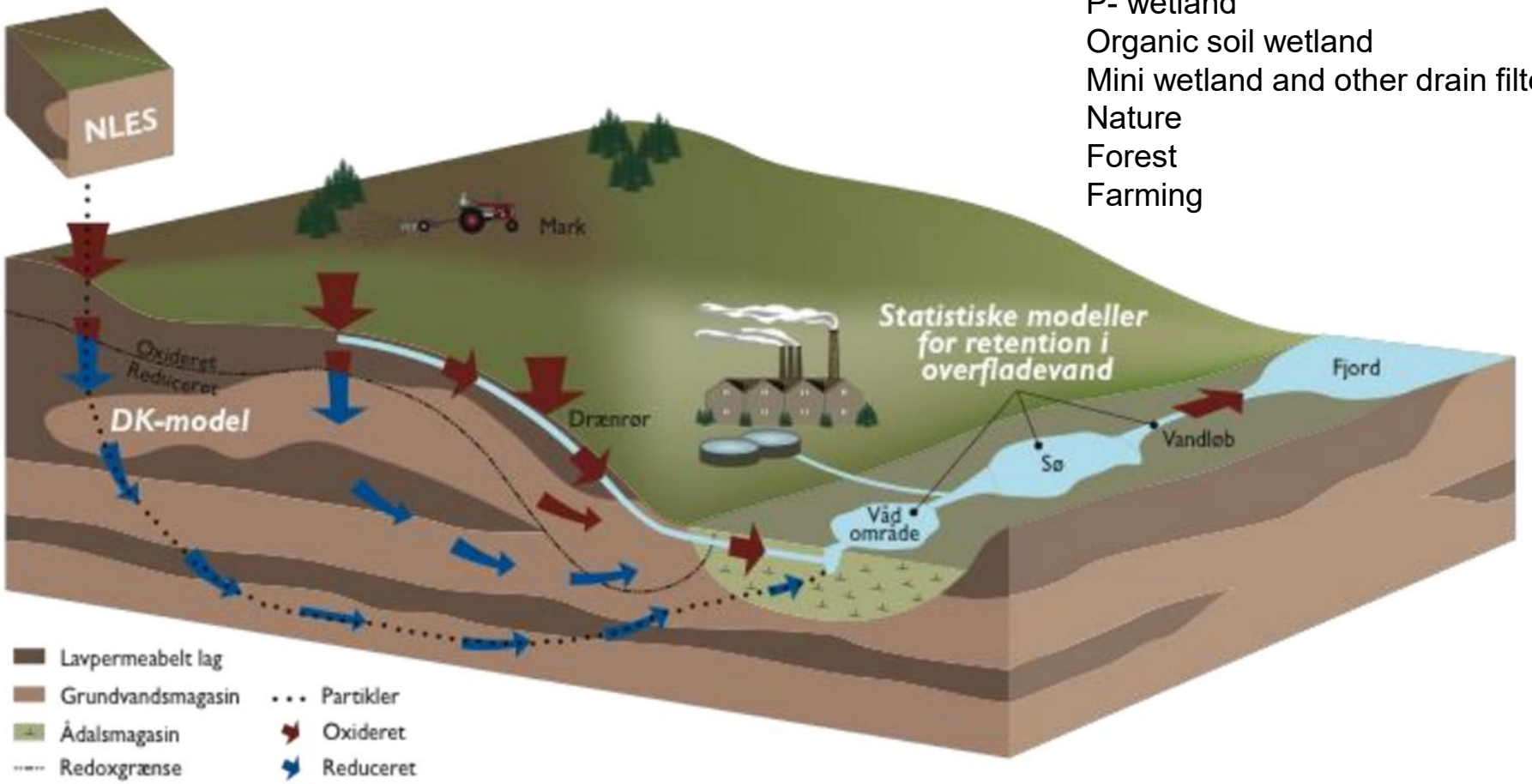
Restoring degraded wetlands in a Danish context

N- wetland
P- wetland
Organic soil wetland
Mini wetland and other drain filter solutions
Nature
Forest
Farming



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Optimized cooperation regarding nitrogen measures

- Via WaterCoG SEGES Chaired a national working group in 2020.
  - 18 Participants from
    - Municipalities
    - Catchment Officers
    - The Danish Nature Agency
    - The Danish Environmental Protection Agency
    - The Danish Agency for Agriculture
    - The Danish Agriculture & Food Council
    - Local Government Denmark
  - 14 online meeting and a workshop
  - Report with new governance structure for cooperation handed over to Ministry dec. 2020
  - August 2021: a draft for a new governance structure by ministry
    - Strengthening: regional cooperation and planning, better help (task force/experts), better interaction between top, middle, local level

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Thank you for your attention

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