



Ministry of Environment
and Food of Denmark
Department

National groundwater management in Denmark

Nordic WFD Conference
10 June 2019
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Agenda

1. Exemptions
2. Monitoring programme
3. Quantitative status assessments
4. Qualitative status assessments



Exemptions

- Exemptions used in 1st and 2nd RBMPs
- Quantitative and qualitative objectives
- WFD article 4, 4 (extension of deadlines)
- Technical feasibility (i) and natural conditions (iii)
- Technical feasibility due to lack of knowledge about the cause of the environmental problem, which does not make it possible to identify a solution
- Natural conditions such as the slow infiltration rate to groundwater bodies

4. The deadlines established under paragraph 1 may be extended for the purposes of phased achievement of the objectives for bodies of water, provided that no further deterioration occurs in the status of the affected body of water when all of the following conditions are met:

- (a) Member States determine that all necessary improvements in the status of bodies of water cannot reasonably be achieved within the timescales set out in that paragraph for at least one of the following reasons:
 - (i) the scale of improvements required can only be achieved in phases exceeding the timescale, for reasons of **technical feasibility**;
 - (ii) completing the improvements within the timescale would be disproportionately expensive;
 - (iii) **natural conditions** do not allow timely improvement in the status of the body of water.



Monitoring of groundwater

- **The Danish Environmental Protection Agency**
- **Geological Survey of Denmark and Greenland (GEUS)**



**Geological Survey of
Denmark and Greenland**

Purpose with data:

- **Chemical status**
- **Abstraction and flows**
- **Check if environmental regulation have the desired effect**
- **Data for the development of numerical models**
- **Risk assessments**



**Ministry of Environment
and Food of Denmark**
Environmental
Protection Agency



Monitoring programmes

GRUMO:

- >1000 wells (nitrate, pesticides, etc.)
- Water works
- Daily determination of groundwater levels in 150 wells



Land monitoring programme (LOOP):

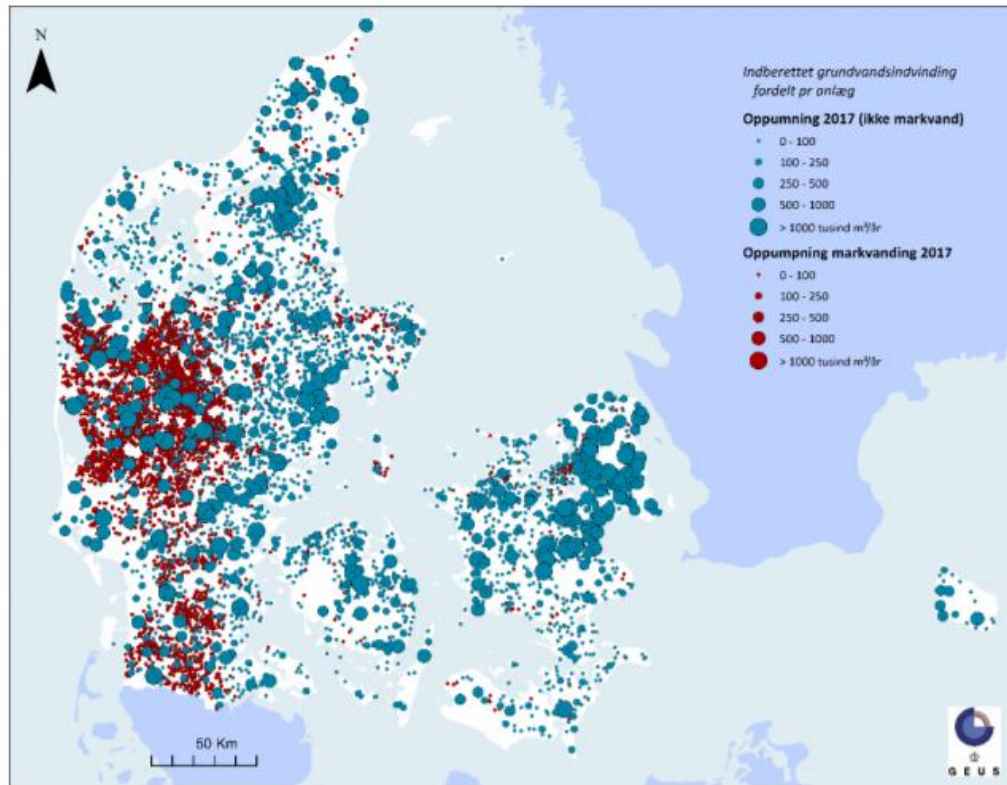
- Agricultural contribution of nutrients to the aquatic environment
- Agricultural practice, water from root zone and drainage water
- 6 samples a year in 20 wells in each of the five LOOP basins

Pesticide leaching assessment programme (VAP):

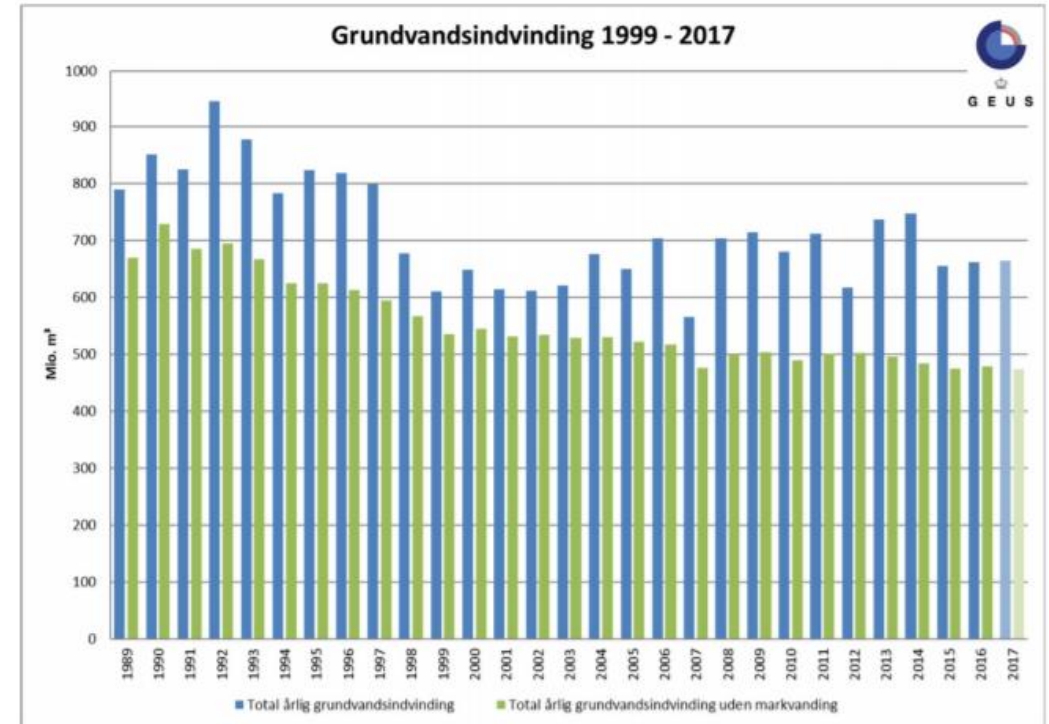
- Investigate if pesticides or degradations leach into groundwater above threshold values
- Fields representing varying soil- and climatic conditions in Denmark



Quantitative status assessments



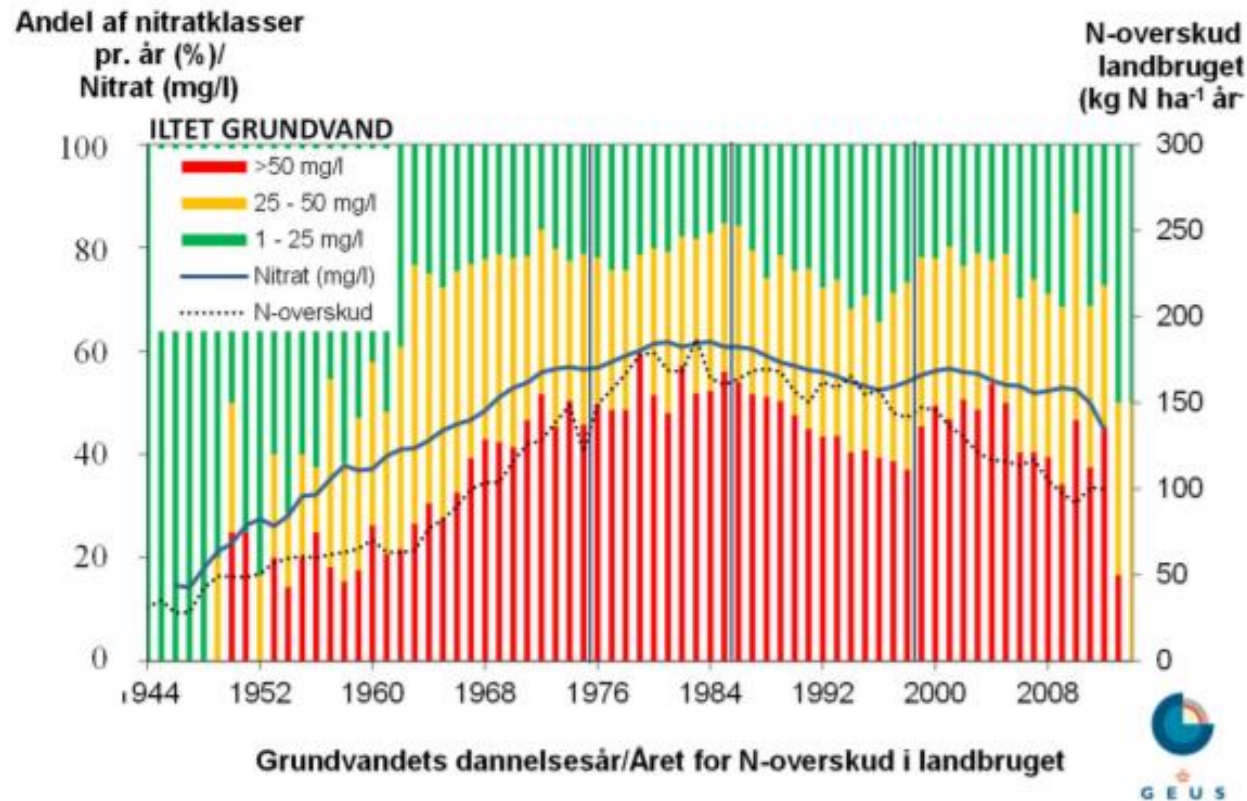
Groundwater abstraction in 2017 from agricultural wells (7206) and wells from water works (4566).



Total yearly groundwater abstraction (blue) and without abstraction for agricultural irrigation (green).



Qualitative status assessments



Oxidated groundwater in GRUMO-intakes. Blue line: 5-year moving average of nitrate. Proportion of samples in three nitrate classes (>50 mg/l, 25-50 mg/l and 1-25 mg/l). Black vertical lines mark different periods. Dotted line: N-surplus from agricultural production.



Questions?

