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**Titel:** Presentations  
**Sendt:** 10-02-2016 14:05:07  
**Bilag:** DHI presentation.pdf; Technical workshop re revisions to Danish N-regulation.pdf;

Dear [REDACTED]

Thank you for a very useful meeting on Friday.

As promised, I send you the two presentations.

Please do not hesitate to contact us if you have any further questions.

Kind regards

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-- AKT 2156062 -- BILAG 65 -- [ DHI presentation ] --

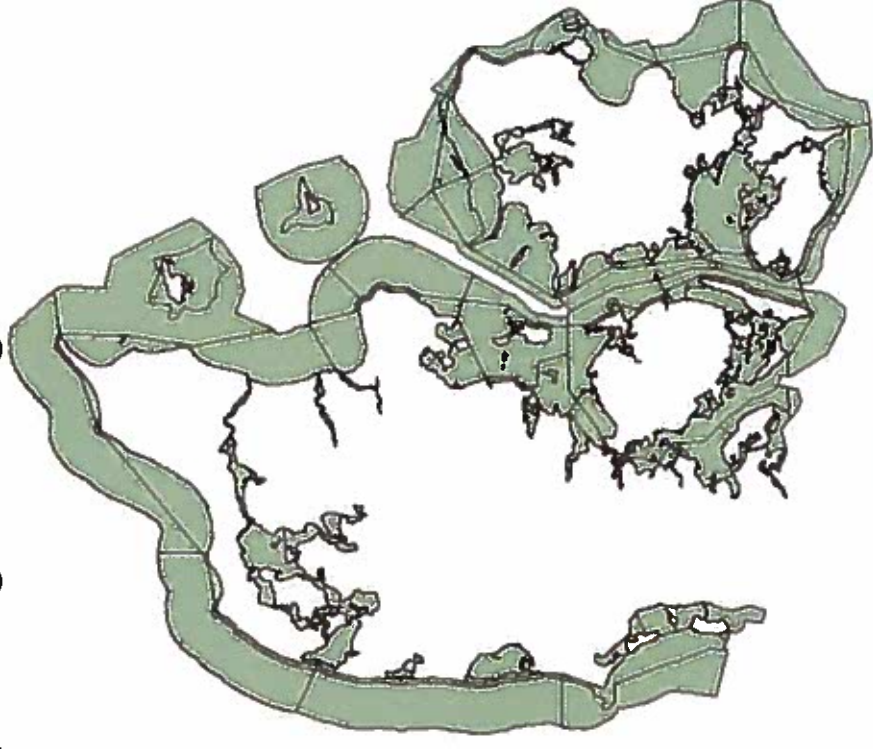
# Setting Water Framework Directive Nitrogen Reductions based on Models

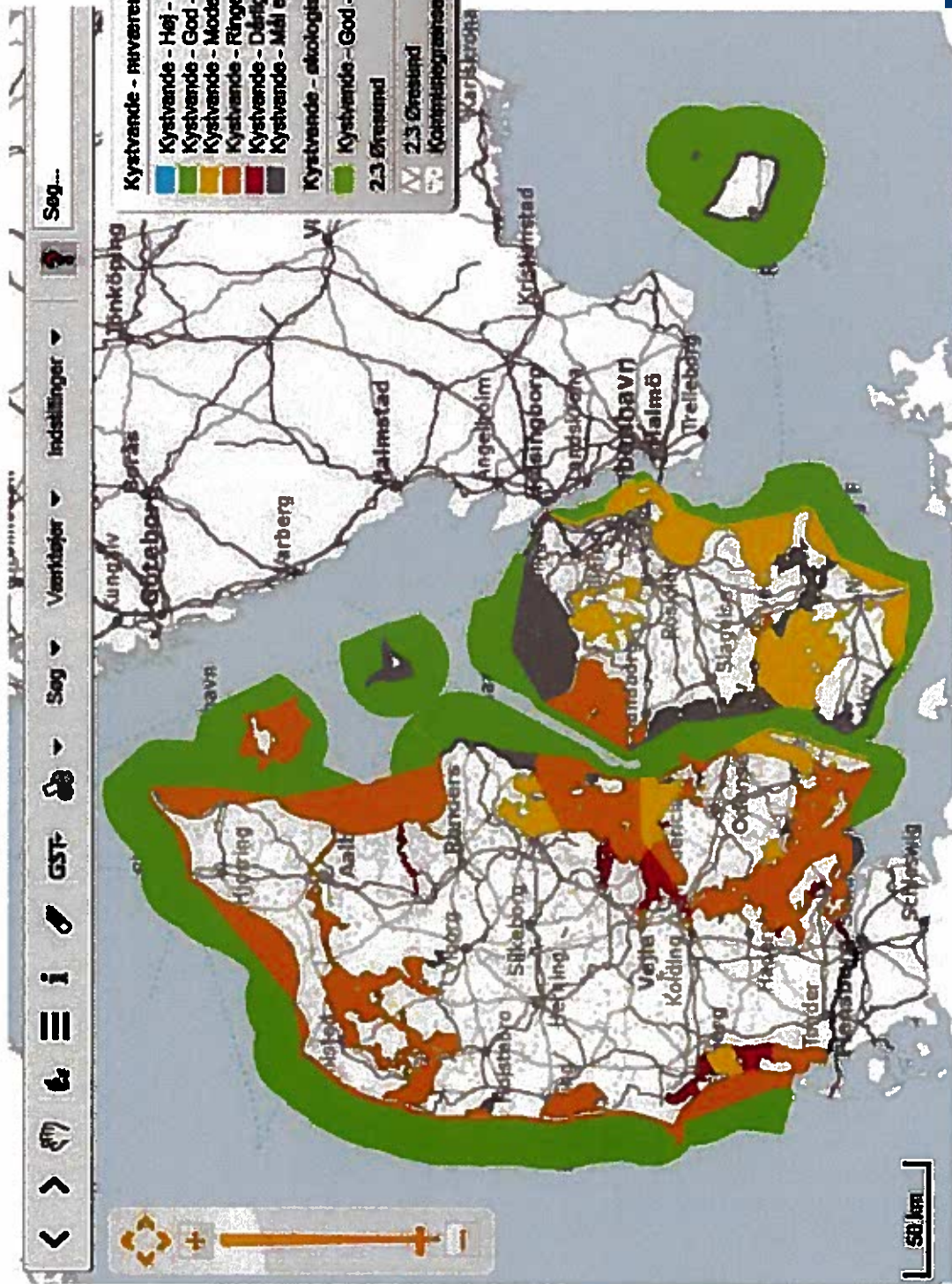
Anders Chr. Erichsen, Senior Engineer, Ecological and Environmental Department, DHI Denmark



## Objective of the development supporting the 2. generation

- Improve the tools for setting differentiated actions and estimate specific nitrogen target loads within each of the 119 water bodies
- Describe more inter-calibrated quality elements:
  - Summer chlorophyll-a
  - Eelgrass depth Limit proxy  $K_d$
- Provide spatial and temporal estimates of the indicators
- Include loads from neighboring catchments





## Setting Water Framework Directive Nutrient Reductions based on Models

- DHI and Aarhus University (AAU) have – together with the Danish EPA (the Nature Agency) – established the scientific foundation for the 2. generation of River Basin Management Plans in Denmark
- Stakeholder involvement
  - Steering committee (National Agencies, Agriculture, Seges, Local Government Denmark, Denmark's Society for Nature Conservation, DHI, AAU, GEUS)
  - Monitoring group (National NGOs, DMI, Coastal Authority, Seges, Aquaculture, Agriculture, etc.)
  - Working group (Seges, Denmark's Society for Nature Conservation, Danish Aquaculture, SDU, DTU Aqua)
  - Garage (DHI, AAU)

## Overarching messages

- Water plan models are objective
  - Data based (observations)
  - Builds on natural science
  - *State-of-the-art*
- Supports the recommendations from Eelgrass Group I + II
- Supports the recommendations from the Nature and Agriculture commission
- Addresses the part of the individual indicator that Denmark can regulate

# Model Tools

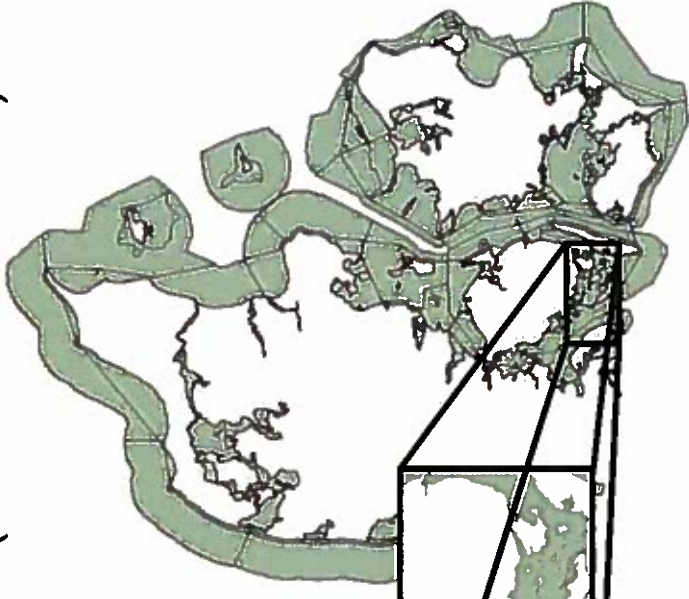
Statistical (Empiric)  
models



Mechanistic (Dynamic)  
models



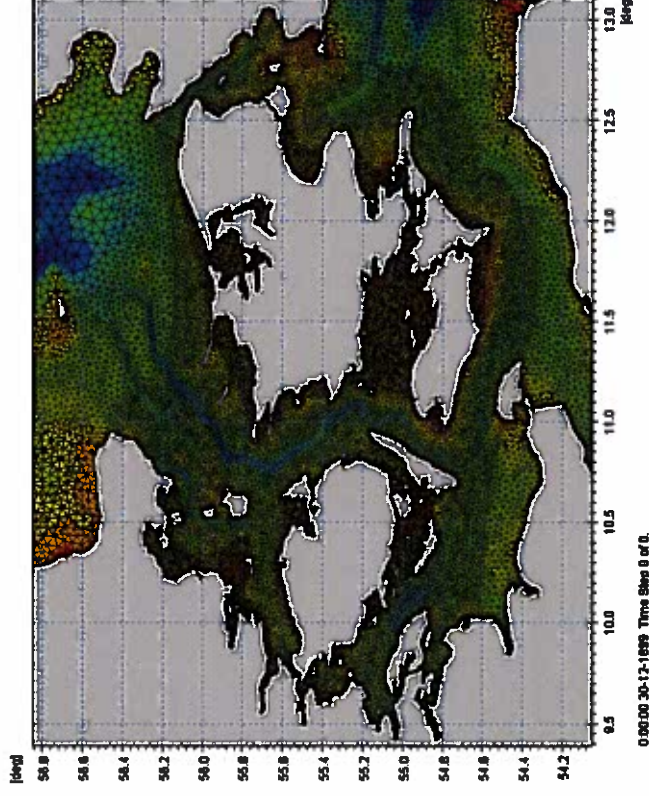
Meta analysis  
(areas with less data)



# Models and Measurements

- **Statistical models:**
  - Correlation between environmental parameter (nitrogen, phosphorous, chlorophyll-a, light) and external/physical factors (loads, temperature, wind, etc.)
  - Long time series (observations)
  - Validation of models (observations)
- **Mechanistic models:**
  - Casual links (differential equations)
  - Coupling of biological and physical knowledge from a specific water body (observations is part of equation development)
  - High spatial and temporal resolution
  - Validation of models (observations)

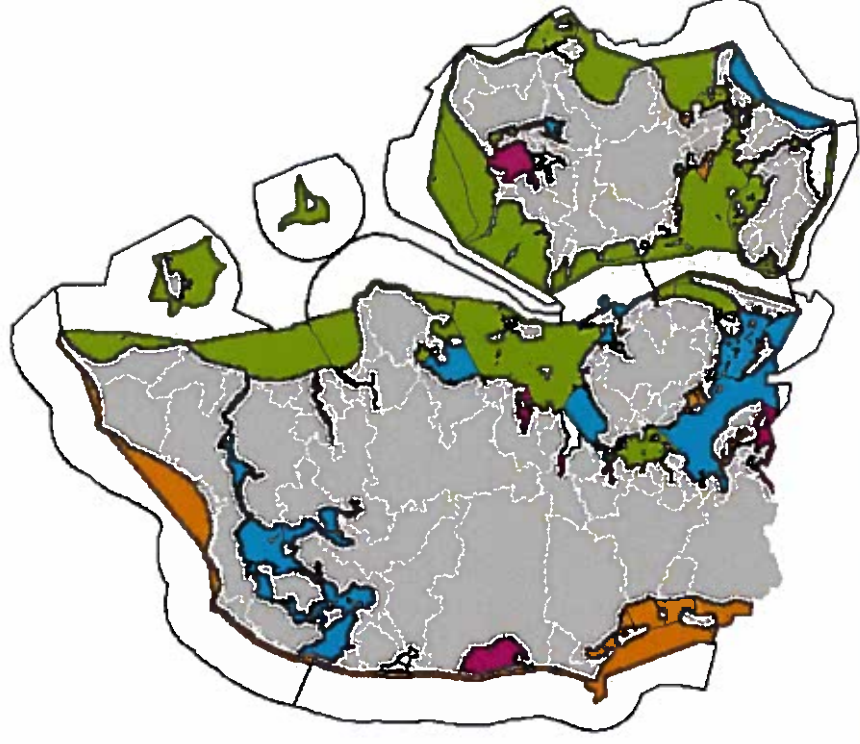
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## What did we achieve?

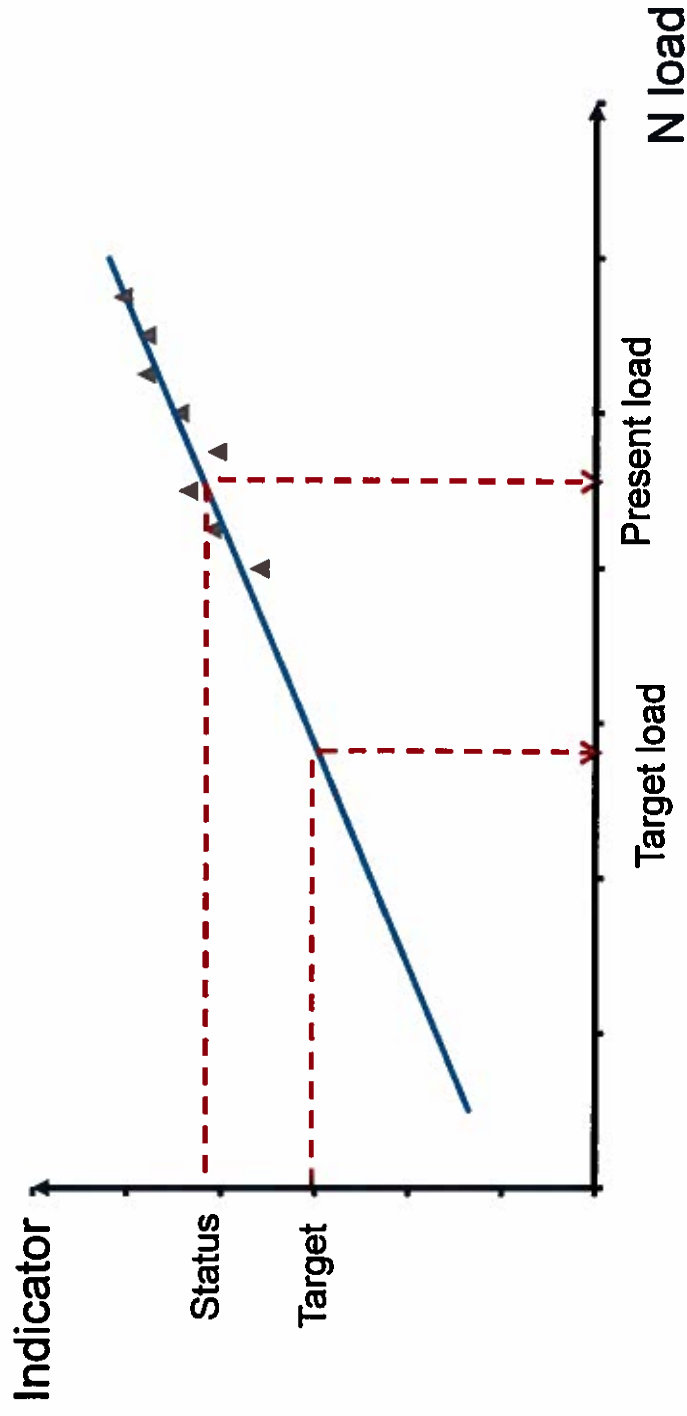
- Target loads and reduction targets estimated for 119 water bodies
- Development of specific models for a large number of Danish water bodies
- Water bodies covered by models: Approx. 90%
  - ...or 70% of the Danish catchment area
- Developed a basis for differentiated planning and targeted regulation
- Developed a platform for assessment of different anthropogenic and natural factors
- Developed a method to assess transport and interactions with neighboring countries



# Statistic Models



# Coorelation between loads and target loads/reductions



# Mechanistic Models



# ECO Lab template

## Biogeochemical Model (Inner Danish waters)

### Pelagic phase:

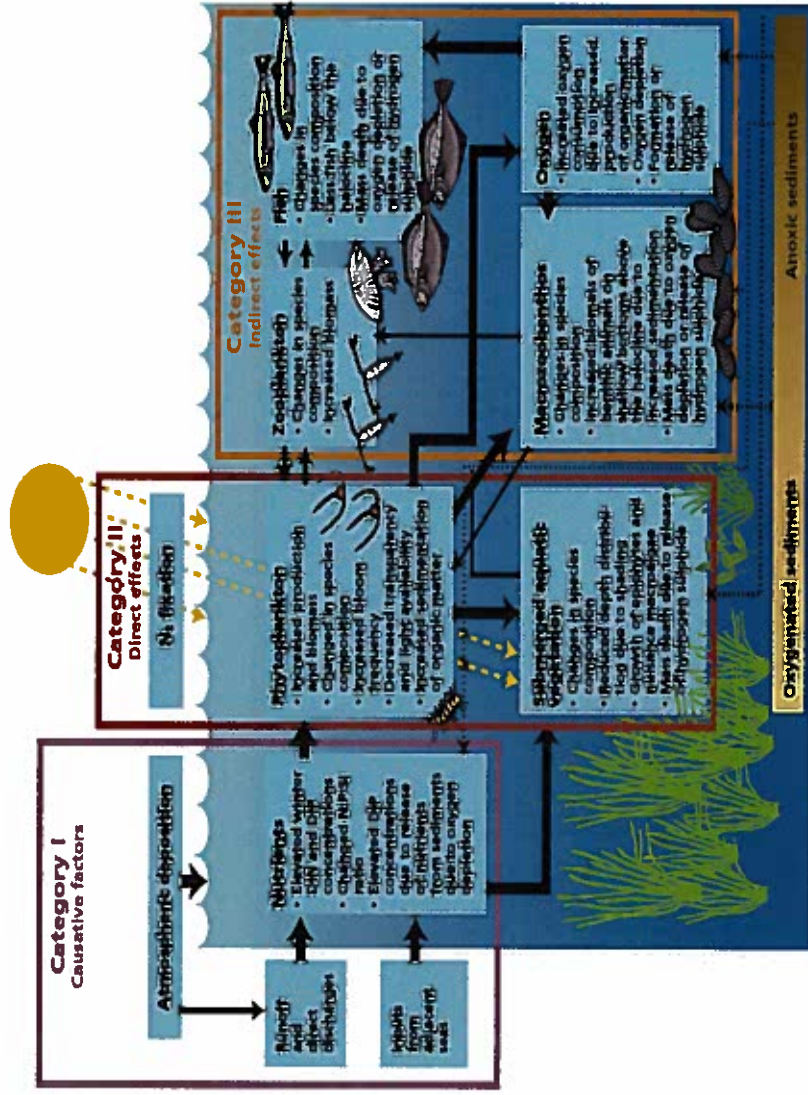
- Phytoplankton (C, N, P) – 3 groups
- Chlorophyll-a
- Zooplankton (C) – groups of micro & meso
- Detritus (C, N, P) - POM
- Ammonia (NH4)
- Nitrate and Nitrite (NOx)
- Inorganic P (PO4)
- Dissolved Oxygen
- DOM (C, N, P) – refractory and labile

### Sediment phase:

- Sediment organic material (C, N, P)
- Sediment inorganic nutrients (NH4, NOx, PO4)
- Iron bound P
- Reduced substance
- Sediment inorganic material

### Benthic primary production:

- Macro algae
- Sea grass
- Micro benthic algae



# Mechanistic models - Scenarios

**Status situation:** Estimation of summer chlorophyll-a (Maj-September) and summer  $K_d$  values (Marts-September):

- Danish N load: Present load
- Baltic Sea N load: Present Load
- Atmosphere N load: Present load

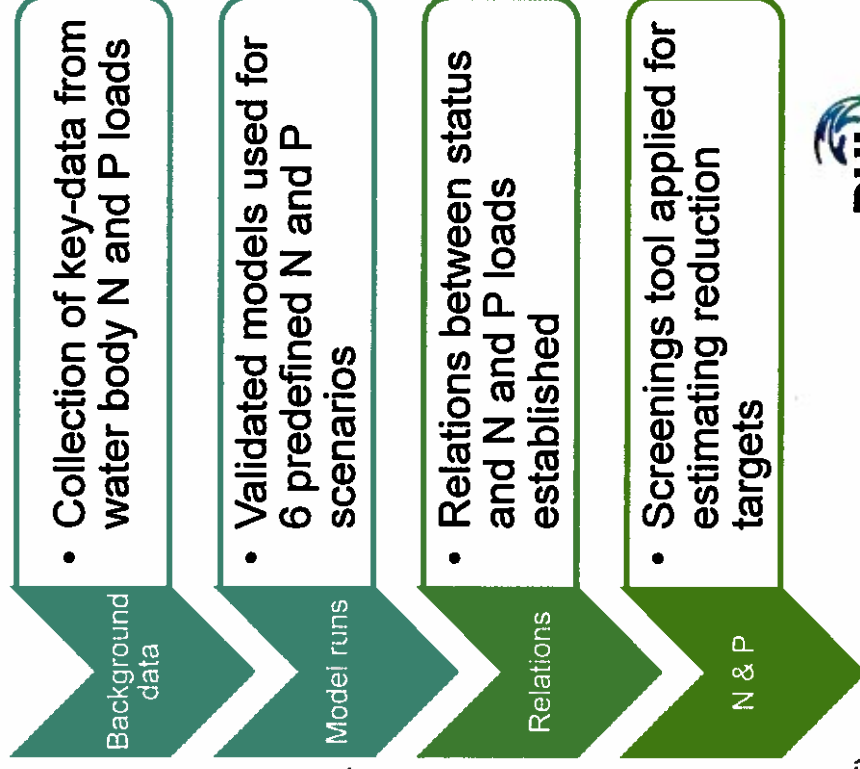
**Scenarios:** Estimation of summer chlorophyll-a (Maj-September) and summer  $K_d$  values (Marts-September):

- Danish N load : 15%, 30% or 60% reductions in DK N-load combined with 10-20% reductions in P-load
- Baltic Sea N load : BSAP
- Atmosphere N load : Göteborg Protocol

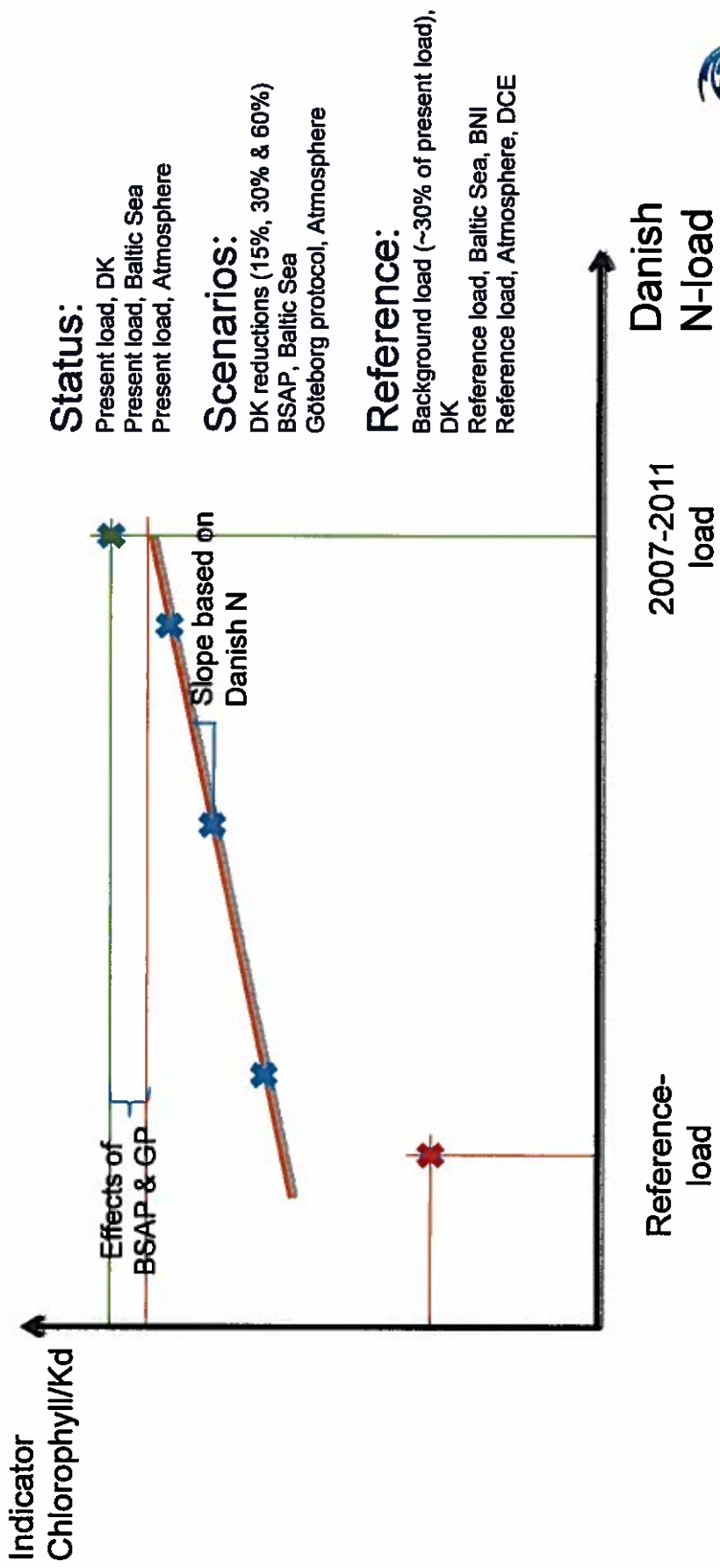
**Reference situation:** Estimation of summer chlorophyll-a (Maj-September) and summer  $K_d$  values (Marts-September) corresponding to a period approx. 100 years ago:

- Danish N load : Background load of N og P
- Baltic Sea N load : Loads corresponding to the period 1890-1910 based on BNI data

• Atmosphere N load : Modelled deposition corresponding to year 1900 (DCE)



# Screening Method



## Status:

- Present load, DK
- Present load, Baltic Sea
- Present load, Atmosphere

## Scenarios:

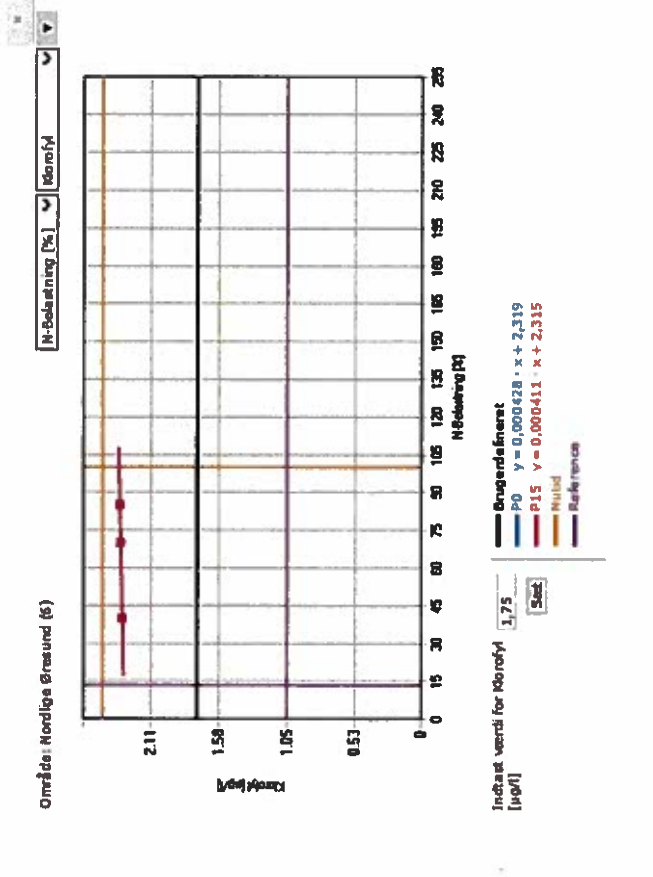
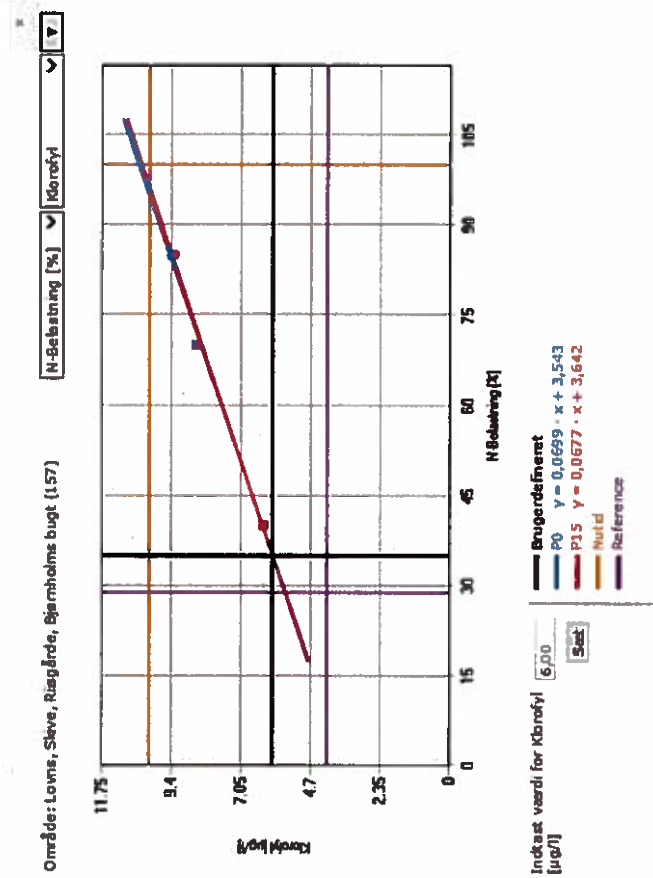
- DK reductions (15%, 30% & 60%)
- BSAP, Baltic Sea
- Göteborg protocol, Atmosphere

## Reference:

- Background load (~30% of present load), DK
- Reference load, Baltic Sea, BNI
- Reference load, Atmosphere, DCE

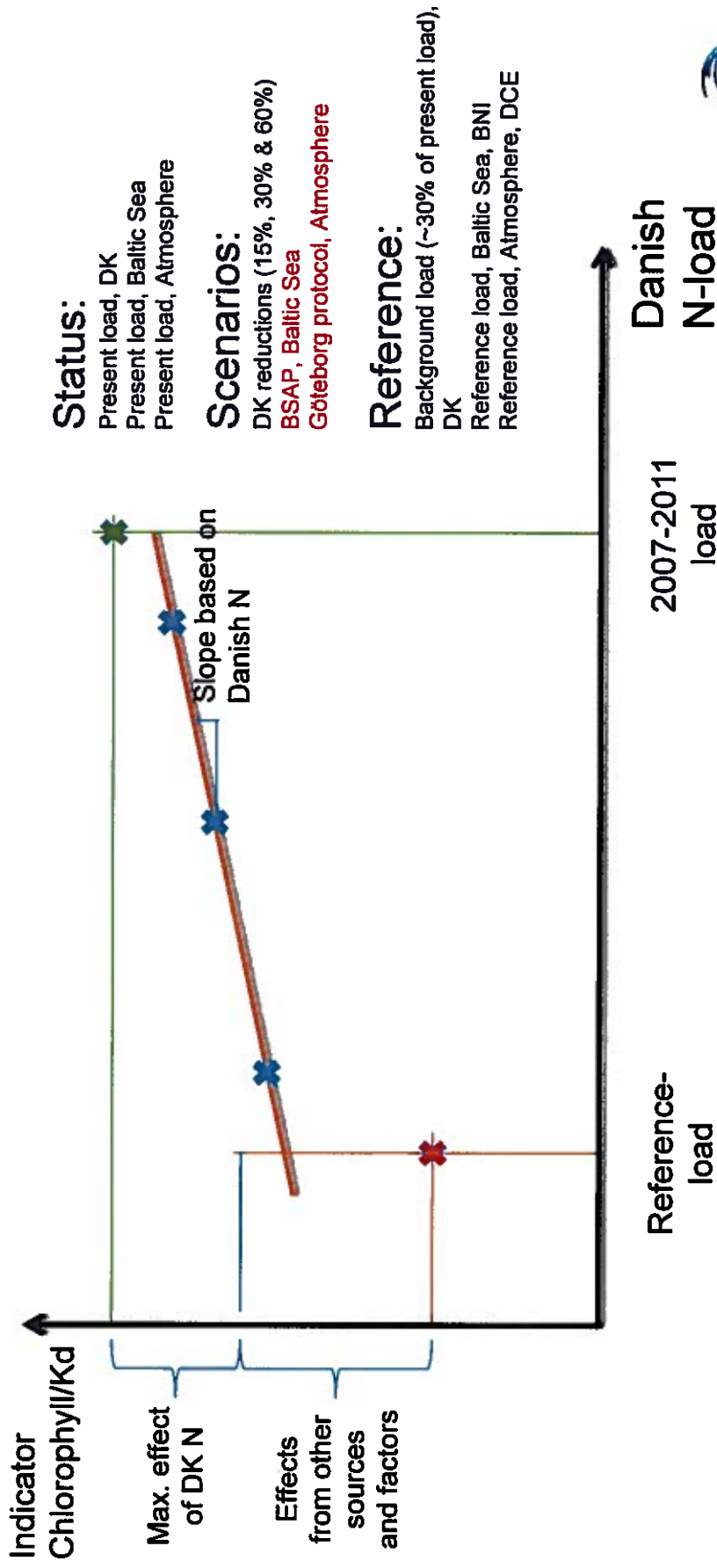


# Examples

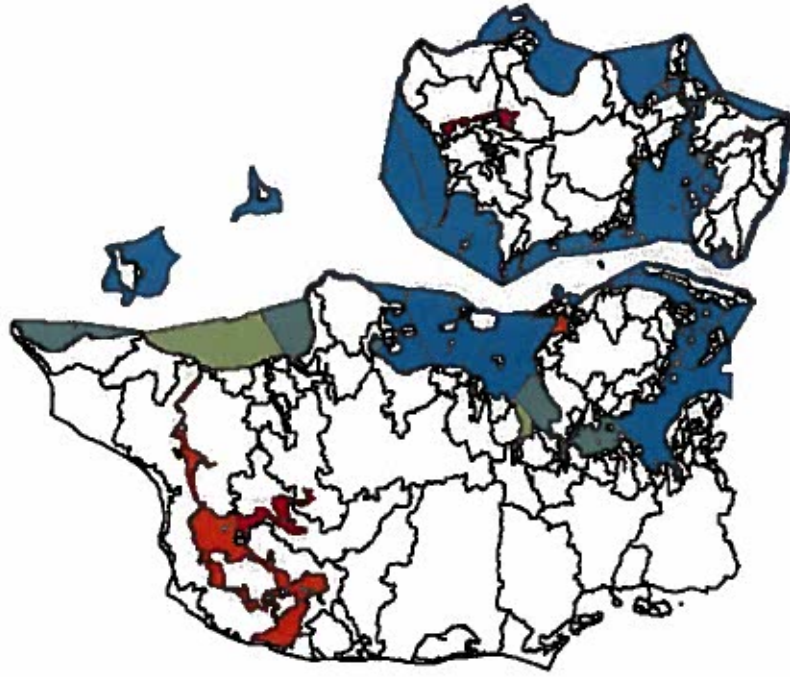




# Screening Method



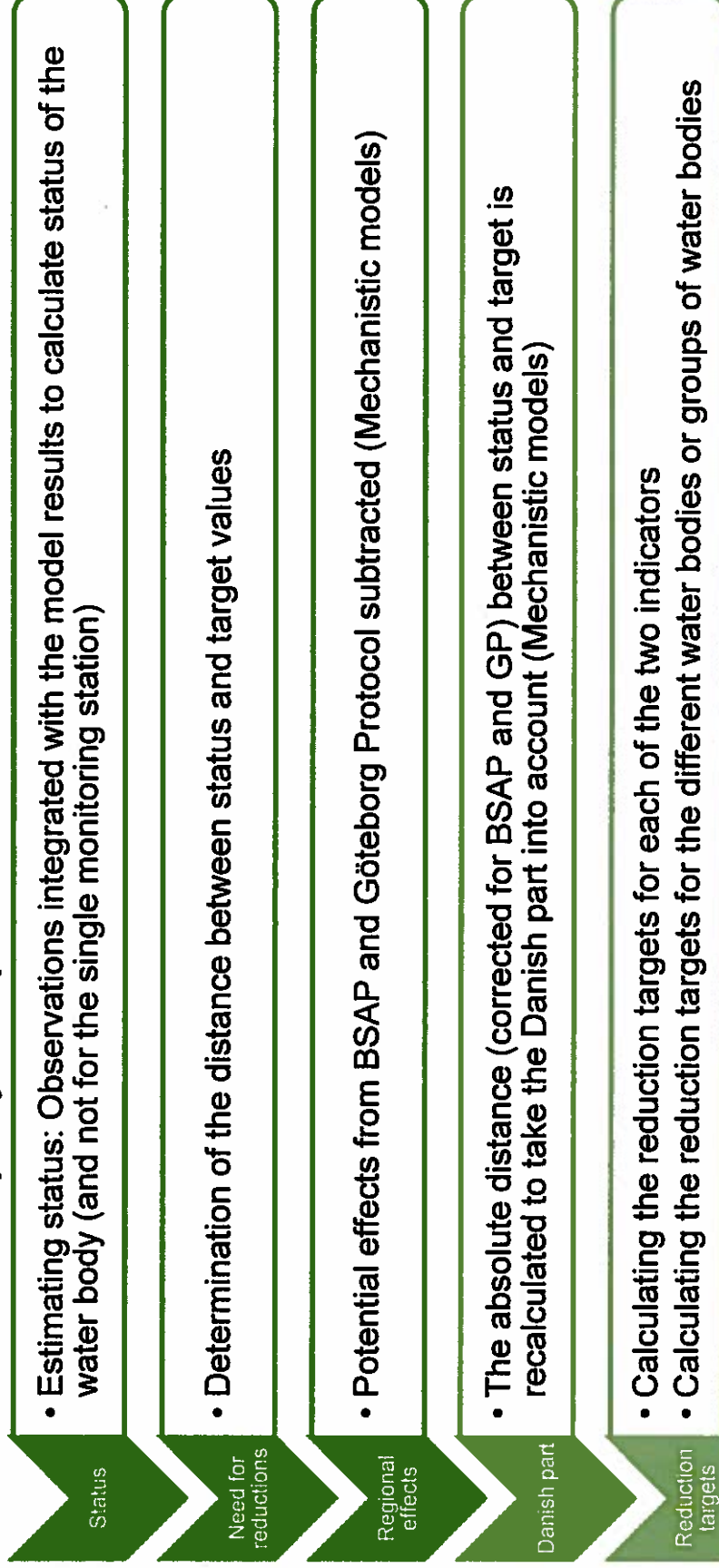
# Average part of chlorophyll explained by DK N (water body based data)



# N reductions

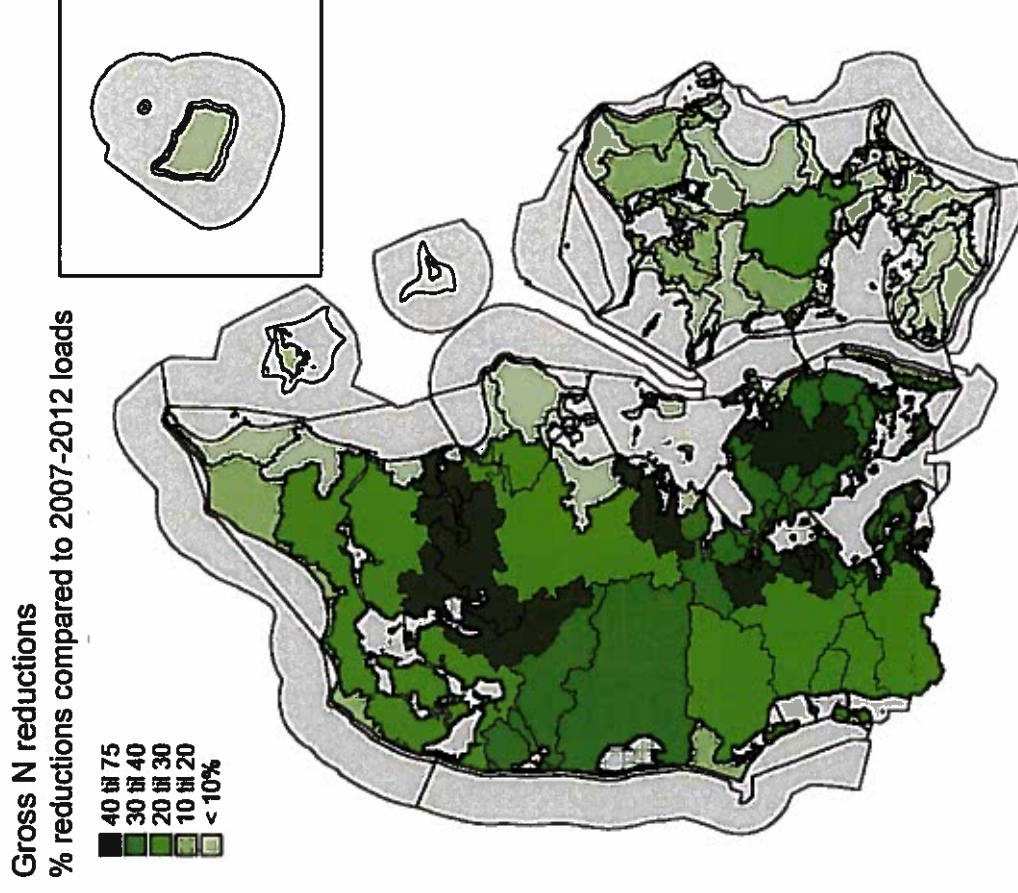


## Method – Step by step



## Reduction targets

- Targets to ensure GES
- Based on 2007-2012 loads



**Thank you for your attention ...**

Anders Chr. Erichsen ([aer@dhigroup.com](mailto:aer@dhigroup.com))





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# Technical workshop re: revisions to Danish N-regulation

Nitrogen regulation-  
workshop at DG ENVI  
5<sup>th</sup> of February

## **Agenda**

- **Models for estimation of target load**
- **Baseline**
- **'Uptake' on voluntary measures**
- **Compensatory measures**
- **Groundwater**
- **Adjustment to prohibition on soil tillage**
- **Draft Nitrate Action Plan**





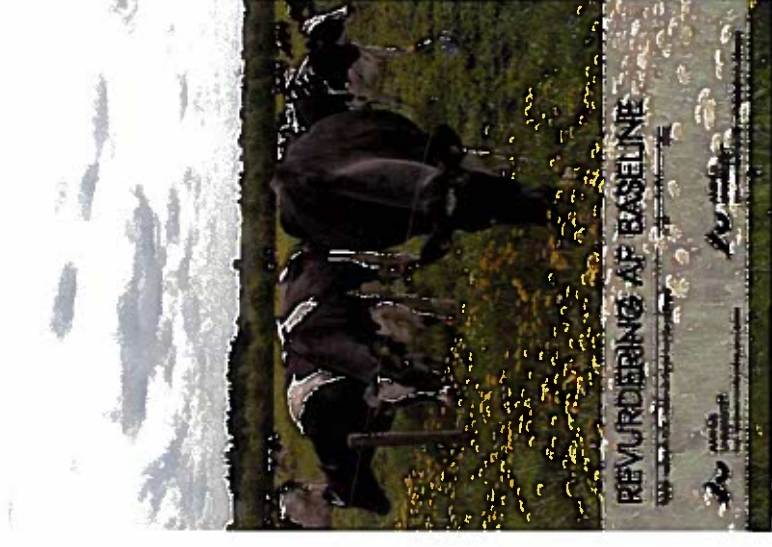
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# Baseline

Nitrogen regulation-  
workshop at DG ENVI  
5<sup>th</sup> of February

## **Baseline effects include:**

- Delayed effect of previous decisions:
  - Program of Measures 2009-2015
  - NEC directive
  - Political decision on energy and climate
- Effect of structural development
  - Reduced farmland (new roads and settlements)
  - Improved farming and improved crops with higher content of nitrogen
- Same baseline approach was used in water plans 2009-2015 and worked



# Baseline report – Aarhus University

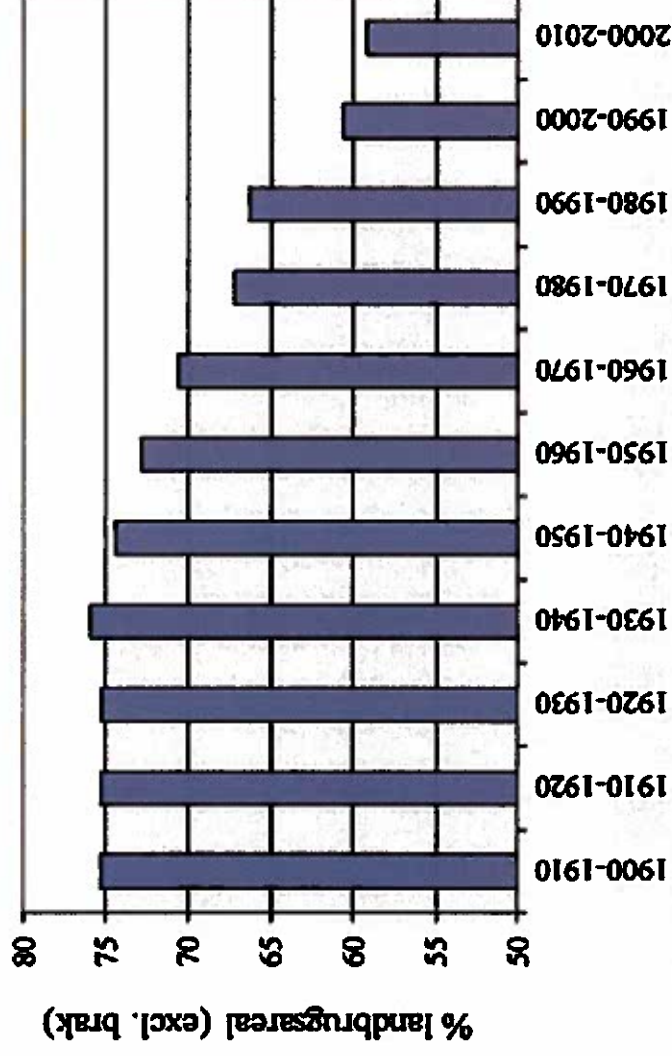
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## National estimate for leaching from measures and structural development 2013-2021

Measure	Area (hectares)	Reduced leaching from root zone in 2021 (tonnes N)	
		Min.	Max.
Reduced farmland	106.000	5,900	5,900
Energy crops	1.200	34	65
Growth in organic farming	17.000	285	1.000
Biogas of manure	-	1.300	1.300
New Environmental permits for farms	475.000	360	360
Reduced atmospheric deposition	Hole area	3.000	3.000
Reduced area with grazing cows	17.000	145	931
Improved nitrogen uptake in crops	All agricultural area	1.200	4.400
Economic optimized Nitrogen standard for crops	All agricultural area	-17,000	-17,000

## Reduced farmland:

- From 2006-2012 the farmland was reduced 10.000 hectares/year. The farmland was used for growing cities, roads etc.
- Figure shows the decreasing Danish share of farmland



## Reduced farmland:

- From 2006-2012 the farmland is reduced by 10,000 hectares/year for 2013-2015 and for 2016-2021 by 12.600 hectares/year. The farmland is used for growing cities, roads etc.
- Figure shows the decreasing share of farmland
- 1 hectare farmland out of cultivation gives a reduced leaching of 50 kg Nitrogen pr. Year
- Nitrogen leaching is reduced in 2021 by 5.900 tones

## **Reduced atmospheric deposition:**

- Model calculation of the changes in deposition in 2021 (NEC directive)
- Total Nitrogen deposition is reduced by 18% in 2021
- Reduced deposition will reduce Nitrogen leaching (35% of the deposition)
- Declining deposition result in 3,000 tonnes reduced nitrogen leaching.

## Measures from River Basins Managements Plans 2009-2015

Measure	Reduced outlet to marine water (Tonnes)
- Planned wetlands in WP 2009-2015	907
- Planned wastewater treatment in WP 2009-2015	164
-Delay in effect of former measures	288
<b>Total</b>	<b>1,359</b>

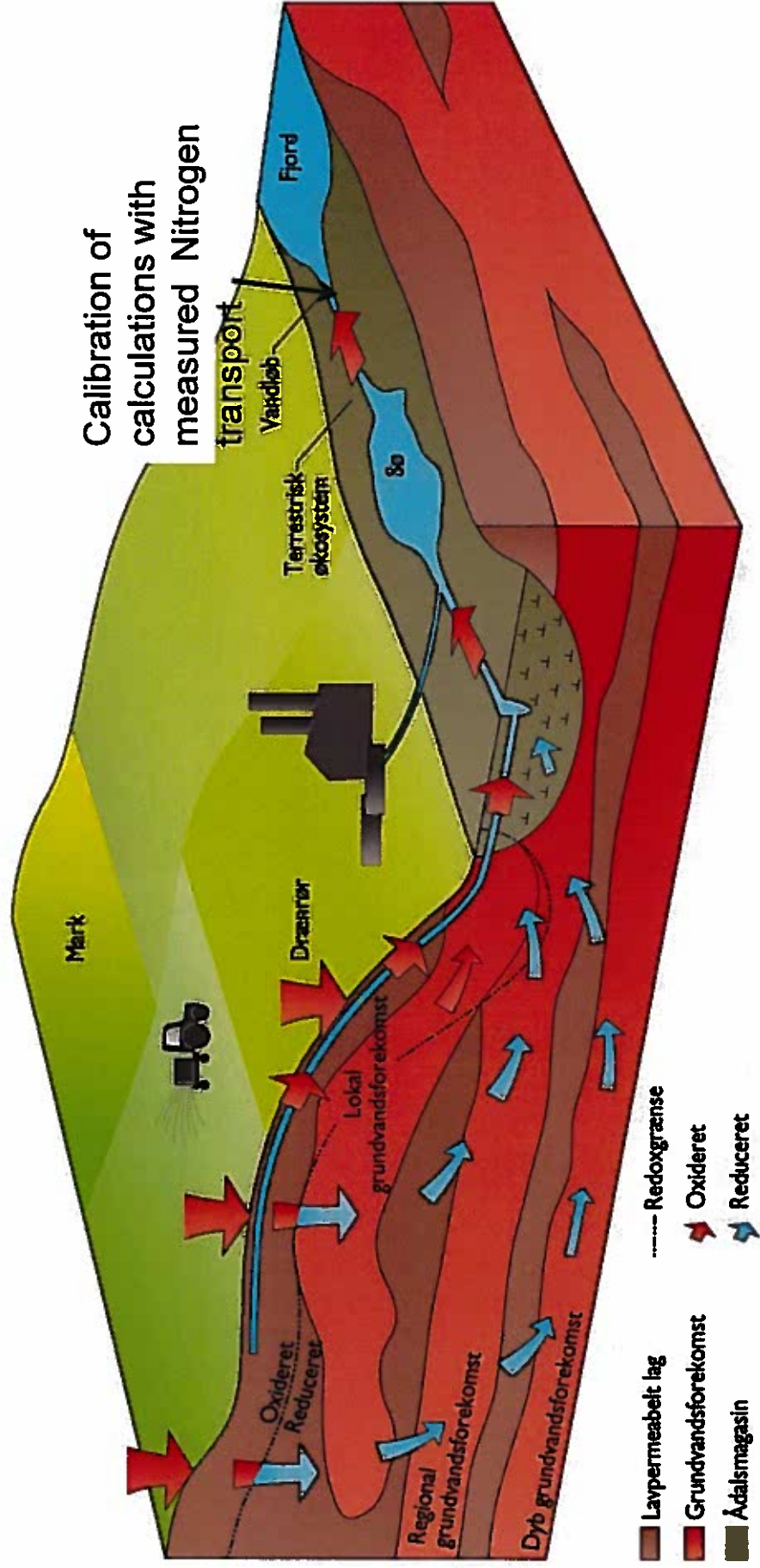
## Economical optimal Nitrogen standard

<b>Measure</b>	<b>Reduced outlet (Tonnes)</b>
- Growth in leaching due to Economical optimal Nitrogen Standard	-17.000
Effect in marine water	- 4.726



# Nitrogen transport and transformation

GEOLOGICAL SURVEY OF DENMARK AND GREENLAND AND AARHUS UNIVERSITY, 2015



# Map of nitrogen loss from surface to marine waters

Ministry of Environment and Food

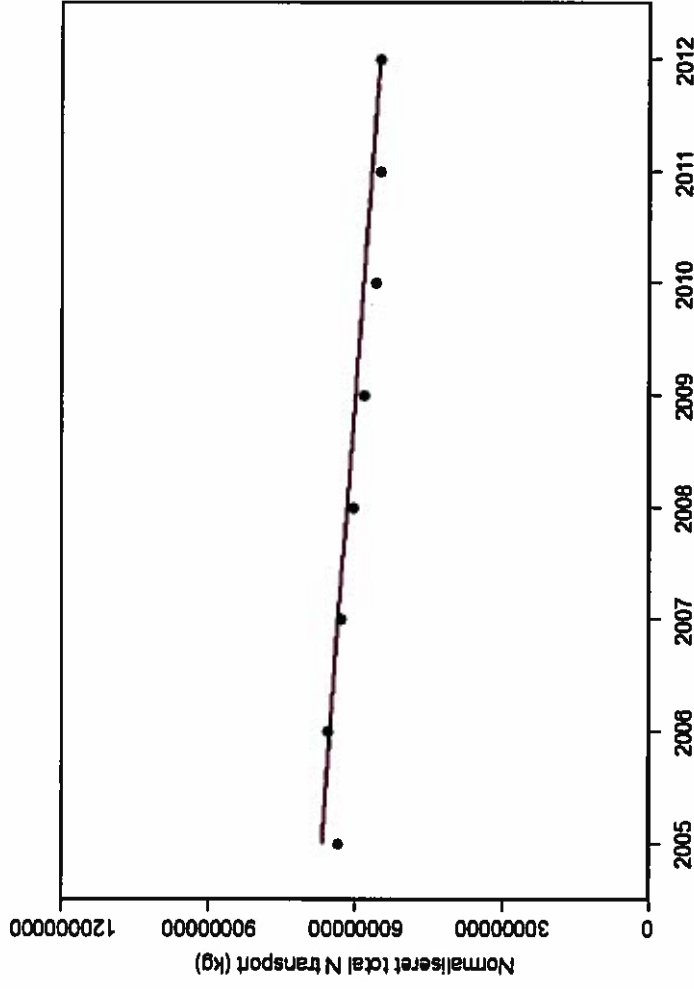


# Baseline report – Aarhus University

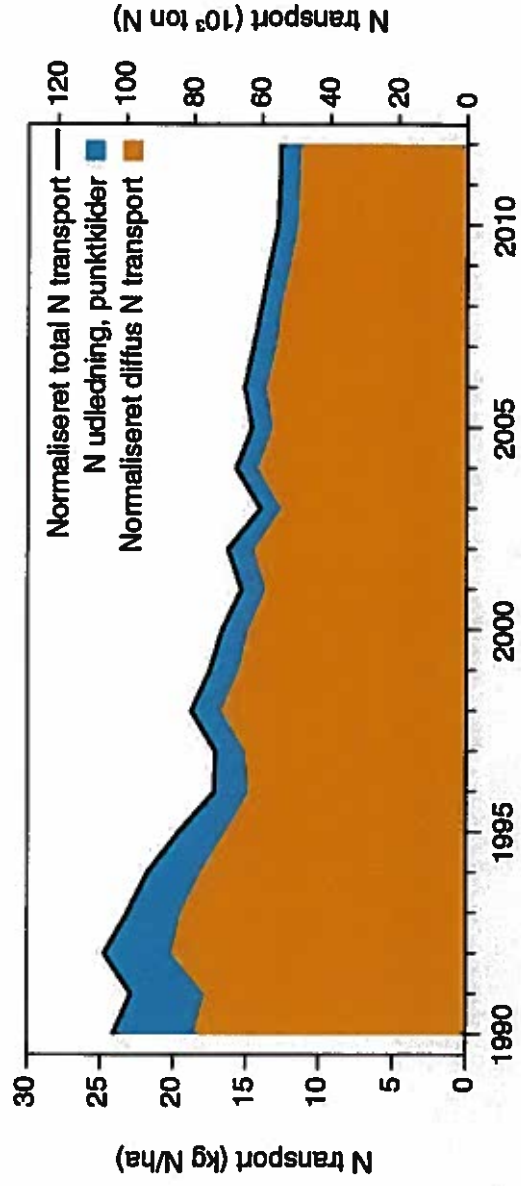
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<b>Measure</b>	<b>Reduced outlet to marine water (tonnes)</b>
- <i>atmospheric deposition</i>	894
- <i>Improved N uptake in crops</i>	851
- <i>Growth in area with organic farming</i>	169
- <i>Reduced area with grassing cattle</i>	145
- <i>Biogas of manure</i>	349
- <i>Environmental Permits for farmers with livestock</i>	100
- <i>Reduced farmland</i>	1,670
- <i>Constructed wetlands, improved wastewater treatment and delay of effect in 2 catchment areas</i>	1,359
- <i>Energy crops</i>	14
<b>Total baseline 2021 effect</b>	<b>5,551</b>

Statistical Trend analyze of measured nitrogen outlet from agricultural shows a significant decline (12,000 tones) in outlet from agricultural areas to surface water (2005-2012)



Also long term significant decline in outlet (1990-2012)





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# 'Uptake' on voluntary measures

Nitrogen regulation-  
workshop at DG ENVI  
5<sup>th</sup> of February

## Additional N-effect from extra collective nitrogen reducing measures (RDP 2017-2021)

### Summary:

- In order to reduce the loss of N to the aquatic environment in Denmark, extra RDP-funds are allocated to collective N-reducing measures in the period 2017-21 (summarized in the table below)

Additional RDP N-measures 2017-2021	Extra wetlands	Private afforestation	Mini wetlands	Accumulated TOTAL in 2021
N-effect (tonnes N)	385	150,5	899,9	1.435
Financial frame (mio. DKK)	500	175	550	1.225

- The additional N-reducing measures are in addition to the already planned RDP-based measures, which contribute with an N-effect of 1300 tonnes N in 2021

# The basis for extra wetlands (RDP 2017-2021)

- **Good uptake among farmers (existing scheme)**
  - Applications for 196 million DDK in 2015 (budget of 77,6 million DKK).
  - Applications for 137 million DDK in 2014 (budget of 77,6 million DKK).
- **100 percent refund of expenses for farmers**
  - The farmer can either sell his land to the Ministry, be compensated with another piece of land or obtain 20 years of compensation for loss of income from the land.
- **Usually no income loss involved for farmers**
  - Wetlands are usually established on the land least suitable for farming.
  - No maintenance requirement of wetlands after establishment.
- **New Ministry initiatives**
  - Mobile consulting team, partnerships with major Danish farmer associations and further involvement of local authorities in order to facilitate the measure.

# The basis for private afforestation (RDP 2017-2021)

## Good uptake among farmers (existing scheme)

- Applications for 36 million DKK in 2015 (budget of 38,8 million DKK).

## Improvement of existing measure

- The farmer can keep up his direct payment on the area (improved economic incentive).
- The lower limit for project areas eligible for grant is lowered from 5 to 2 hectares (a request from the industry).
- **Simplification and increased transparency**
  - Payments will be gathered in one investment rate instead of two (reduction of economic uncertainty).



# The basis for mini wetlands (RDP 2017-2021)

## New measure

- Consolidated, scientific N-effect (Aarhus University).
- In collaboration with Aarhus University, suitable locations for mini wetlands are currently being identified.
- SEGES estimates the potential for mini wetlands to be up to 10.000 installations (the adopted budget of the measure corresponds to 1000 installations in 2021).
- SEGES has indicated a willingness to assist in the education of agricultural advisors and hereby support the applications from farmers.

## Incentives for farmers

- Suitable locations for mini wetlands will usually be on farmland only extensively used (periodically wet).
- Farmers will be compensated for the creation of mini wetlands.
- The ministry is currently uncovering potential ways of making the measure more attractive, e.g. the possibility for farmers to use mini wetlands as a mean to meet the regulation requirements under the new targeted N-regulation, following the maintenance period (3 years).

\*SEGES: The newly amalgamated Knowledge Centre for Agriculture and the Danish Pig Research Centre under the Danish Agriculture & Food Council.



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# Compensatory measures

Nitrogen regulation-  
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5<sup>th</sup> of February

# Targeted catch crop scheme – I

- From 2017 a targeted scheme resulting in the sowing of extra catch crops will be launched.
- The scheme will function under the de minimis regulation
- The Danish government has:
  - Secured political backing for the scheme and
  - Allocated substantial economic resources.
- Development of the specifics of the model is presently underway.

# Targeted catch crop scheme – II

- Targeted areas with risk of deterioration of both ground- and surface water conditions.
- The data identifying these areas is currently being developed and is expected to be available in May/June 2016.
- The scheme is expected to:
  - Cover 85.000 ha. in 2017 and 72.500 ha. in 2018.
  - Have an effect of 818 tons of nitrogen in 2017 and 693 in 2018.

# **Targeted catch crop scheme – III**

- **The incentive of farmers to participate will be substantial:**
  - **A scheme under de minimis enables the setting of a price corresponding to demand.**
  - **The scheme could be available through the Common Application scheme for area based payments, both familiar to and convenient for all farmers.**
  - **The Danish Agriculture & Food Council assesses that demand for such a scheme exists and has agreed to help promote it.**

# EFA-model – I

- **Two important regulatory changes:**
  - **1. The annulment of the buffer strips**
    - **EFA requirements must continue to be met, either by maintaining buffer strips, or by using alternative EFA-elements.**
    - **Danish farmers will continue to meet their EFA requirements**
  - **2. From 2016, the flexibility of using the following EFA elements as alternatives to compulsory national catch crops is removed:**
    - **Fallow land**
    - **Short rotation coppice**
    - **Buffer strips**

# EFA-model – II

- Ad 1:
- EFA requirements can be met using the following elements:
  - Fallow land (1,0)
  - Short rotation coppice (0,3)
  - Catch crops (0,3)
  - Buffer strips (1,5)
- Analysis from Aarhus University with six scenarios representing future EFA compliance.
  - The scenarios span from 330 tonnes to 1694 tonnes per year.
  - The two outliers are removed, leaving a span of 363 – 1160 tonnes.
- The effect is estimated to be the median of the range between the remaining top and bottom scenario (761 tonnes N per year).



# EFA-model – III

- **Ad 2:**
- **The effect of barring the use of fallow land and short rotation coppice as alternatives to mandatory catch crops.**
  - **Estimated to be the sowing of an additional 11.000 ha catch crops**
  - **An annual effect of 105 tonnes.**
- **An additional 330 ton reduction in 2016 (in total 1197 ton), due to the assessment that buffer strips will not be plowed until mid 2016.**



# EFA-model – IV

	2016	2017	2018
EFA-compliance (Ad1)	761	761	761
Barring of fallow & coppice (Ad2)	105	105	105
6 months effect of buffers	330	0	0
<b>Total</b>	<b>~1197</b>	<b>866</b>	<b>866</b>



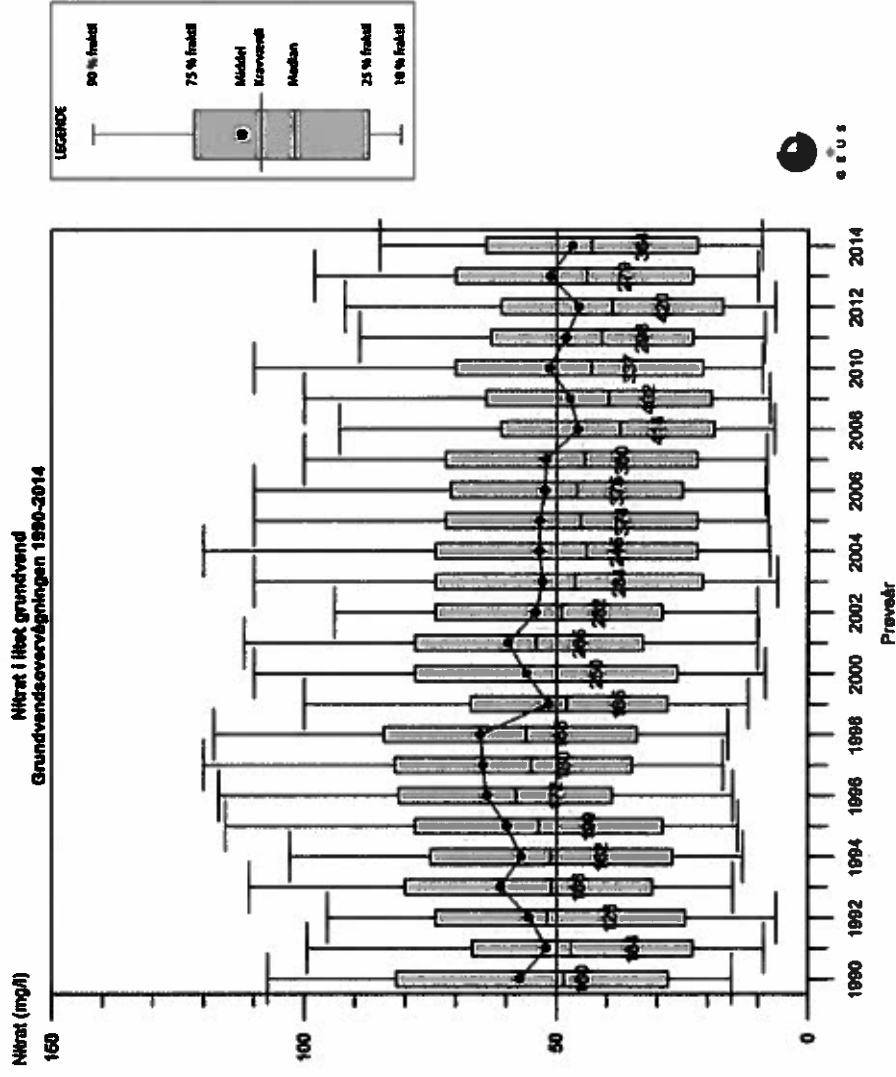
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# Groundwater

Nitrogen regulation-  
workshop at DG ENVI  
5<sup>th</sup> of February

# Nitrate in oxic groundwater

Ministry of Environment and Food



- Figure shows the development of nitrate in the oxic groundwater
- Generally positive trend
- In some places still exceeding the quality standard

# Preliminary assessment

Ministry of Environment and Food

- Lifting the reduced general fertilization standards for nitrogen is expected to result in increased Nitrogen leaching to groundwater
- **Following compensatory measures are to be implemented:**
  - Baseline measures
  - Changes in national regulation of mandatory catch crops
  - Assessing solutions to prevent deterioration in 2016
  - A new voluntary targeted land lease scheme of catch crops to cover additional needs in 2017-18 (De-minimis)
    - Preliminary assessment of additional need up to 85.000 ha in 2017 and up to 72.000 ha in 2018.

## **Scientific basis for impact on groundwater bodies**

Ministry of Environment and Food

**Expected findings from survey:**

- **Linking results from the National Nitrogen Model to individual groundwater bodies:**
  - a. **Estimating Nitrogen leaching for each year until 2021 including relevant baseline effects – with and without lifting of the reduced general fertilization standards for Nitrogen**
  - b. **Estimating the increase in the loads of Nitrogen and the concentrations in groundwater recharge**
  - c. **Estimating the extent of the oxic zones within each groundwater body**
  - d. **Estimating the need and location of additional catch crops for each groundwater body**



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# Adjustment to prohibition on soil tillage

Nitrogen regulation-  
workshop at DG ENVI  
5<sup>th</sup> of February

## **Adjustment to prohibition on soil tillage (I)**

### **Expected effect of new exemptions on N-leaching**

- Increased N-leaching resulting from new exemptions: approx. 66 tonnes N/yr.
  - Based on assessments from the National Centre for Food and Agriculture at Aarhus University (AU/DCA)
- Expected effect of adjusted prohibition: approx. 275 tonnes N/yr.
- AU/ DCA is currently calculating the adjusted effect of the prohibition with different setup scenarios.

## **Adjustment to prohibition on soil tillage (II)**

### **Setup and rationale behind three new areas of exemptions**

1. On areas preceding the cultivation of sugar beets
  - Corresponding areas will be exempted from the prohibition
  - Rationale: To allow for a proper preparation of the seedbed
2. On soil types with a high relative content of clay
  - Earliest tilling on corresponding areas will be moved from 1 November to 1 October
  - Rationale: To avoid soil compaction
3. Following harvest of maize on sandy soils
  - Earliest tilling on corresponding areas will be moved from 1 February to 1 November, thus being consistent with earliest tilling on clay soils
  - Rationale: To allow for mechanical pest control against the European Corn Borer, which is a new pest in Denmark





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# Draft Nitrate Action Plan

Nitrogen regulation-  
workshop at DG ENVI  
5<sup>th</sup> of February

## **Good Agricultural Practice & Nitrates Action Programme**

- **No application of liquid animal manure or digestate from harvest, but no later than October 1 & until Feb 1**
- Extension of application period in autumn until Oct 1 or 15 under certain conditions (e.g. seeding of winter rape, grass, sugar beets, etc. or in case of heavy local summer rainfalls)
- **No application of solid manure, silage liquor or mineral fertilizer from Nov 15 – Feb 1**
- **No application of animal manure, digestate or mineral fertilizer on slope areas with a gradient >6 degrees & within 20 meters from a water course, lake (>100 m<sup>2</sup>) or coast line.**
- Allowed application of liquid mineral fertilizer & injection of liquid animal manure in parallel direction to the bank/shore/coast on slope areas with a gradient >6 & <12 degrees
- **No application of animal manure, digestate, silage liquor, processing waters or mineral fertilizer to water-saturated, flooded, frozen or snow-covered grounds**

# Good Agricultural Practice & Nitrates Action Programme

- **No application of animal manure, digestate, silage liquor, processing waters or mineral fertilizer within 2 meters broad buffer strips around natural lakes (with tributary/outflow or >100 m<sup>2</sup>) and along open, natural water courses as well as around artificial lakes & watercourses, which according to the river basin managements plans should reach good ecological potential or higher**
- **Capacity of the storage tanks corresponding to no less than 6 months production**
- **Solid, impermeable floors & well-functioning drainage system in animal stables & other similar constructions on farm**
- **Requirements for storage of solid manure/compost/silage liquor, etc.**
- **Ban on slurry broad spreading – liquid animal manure & digestate has to be applied with trail hose/shoe or injected**
- **Injection obligatory on bare soil & fodder grass fields (technologies listed by the EPA can substitute slurry injection, e.g. acidification)**

# Good Agricultural Practice & Nitrates Action Programme

- **Obligation for all farms (>10 ha) to establish catch crops on at least 10% of their fields' area over the winter season**
- **Obligation for farms with high livestock density (> 0.8 LU/ ha) to establish catch crops on 14% of their fields' area**
- **N in incorporated catch crops is accounted for with up to 25 kg N/ha in the following year**
  
- **Obligatory fertilizing planning in the national (IT-based) Fertilizer Accounting system for all farms following certain criteria**  
> → **approx. 40.000 holdings (=90%) registered with fertilizer accounts**
  
- **Nationwide fixed nitrogen application standards.**
  - **The current reduction of application standards will be lifted and by crop season 2016/17 the application standards will correspond to economic optimal level.**

## **Good Agricultural Practice & Nitrates Action Programme**

### **Expected changes in the NAP, spring 2016:**

- **Lifting of the reduced nitrogen application standards (Annex III, 1,3)**
- **Lifting of the reduction of the nitrogen application standards stepwise by two thirds in spring 2016 during the current crop season 2015/16 and by the remaining one third in the following crop season 2016/17.**
- **Compensatory measures will be established.**
- **Removal of the requirement for overflow alarms and barriers for certain storage vessels**
- **These requirements will be removed from the Nitrates Action Programme, but will continue to be maintained as an obligatory national requirement for the farmers.**

# Good Agricultural Practice & Nitrates Action Programme

## Changes in regulation expected to imply some changes of the NAP - longer perspective

### 2017

Harmony rules and altered phosphor regulation

The harmony rules for holdings producing slaughter pigs will be lifted from 1.4 LU/ha to 1.7 LU/ha. Due to this alignment of the harmony rules, a new regulation addressing phosphor will be introduced.

The current limit at 1.4 LU/ha also implies for fur animals and poultry, since the manure from these animal types contain a relatively large amount of phosphorus. However, if a new regulation of phosphor can handle this challenge, the harmony rules for these types of animals may also be aligned.

New and more emission based regulation of livestock holdings

The current environmental approval for livestock holdings will only cover the housing system, storage facility etc., whereas the spreading of manure from the holding will be regulated by general rules and registrations in the fertilizer accounts. This will ensure a more flexible and emission based regulation.

### 2018

Targeted regulation of nitrogen

The future targeted regulation of nitrogen is expected to be implemented from 2018 and onwards.

RE: Possible 3rd Danish presentation concerning renewal of the derogation - NC meeting on 29 Feb 2016

**To:** Lidde Bagge Jensen (lidbj@mst.dk)  
**Cc:** Helle Bach Rungø (helba@mst.dk), Line Andersen (land@mfvm.dk), Poul Hoffmann (NaturErhvervstyrelsen) (PHOF@naturerhverv.dk), mehch@mst.dk (mehch@mst.dk), Christian Vind (chwin@mfvm.dk), [redacted] Christel (wibch@mst.dk), Olsen, Hans Peter (hapo@mst.dk)  
**Fra:** [redacted]  
**Titel:** RE: Possible 3rd Danish presentation concerning renewal of the derogation - NC meeting on 29 Feb 2016  
**Sendt:** 04-02-2016 16:44:12

Dear Lidde,

Thank you for your message.

We also take note that you have sent to [redacted] the Request for renewal of the derogation. As mentioned in previous occasions, at the current stage, we consider that further discussion is needed before a third and last presentation could take place.

We are of course available to discuss on the margin of tomorrow's technical workshop, which, as mentioned yesterday in the phone call with Line, would only touch on technical aspects concerning the baseline report and other elements related to the notes that Denmark shared with the Commission.

Looking forward to tomorrow's workshop.

Best regards

[redacted]

[redacted]



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---

**From:** Lidde Bagge Jensen [mailto:lidbj@mst.dk]  
**Sent:** Wednesday, February 03, 2016 9:11 PM  
**To:** [redacted]  
**Cc:** Hans Peter Olsen; Wibke Christel; Christian Vind (MFVM-DEP); Line Andersen (MFVM-DEP); Helle Bach Rungø; Mette Hee Christensen; Poul Hoffmann (NaturErhvervstyrelsen); Lidde Bagge Jensen  
**Subject:** Possible 3rd Danish presentation concerning renewal of the derogation - NC meeting on 29 Feb 2016

Dear [redacted]

Thank you for sending the draft agenda for the 63<sup>rd</sup> meeting in the Nitrates Committee on February 29<sup>th</sup> 2016.

Concerning the meeting in the Nitrates Committee, we would like to emphasize that it is of great importance to Denmark to have the possibility to give the 3<sup>rd</sup> Danish presentation in connection to the Danish request for renewal of the derogation. Therefore we hope that the draft agenda can be revised including the Danish presentation.

We realize that a bilateral meeting has been scheduled on Friday, February 5<sup>th</sup>, and hope that a possible presentation from Denmark may be clarified as a result of the meeting.

With respect to our preparation of the presentation, we would like to suggest the following main elements and outline for the presentation:

- Recapitulation of the main elements of the Danish action programme, which are currently in place and which are expected to be the revised action programme until the introduction of a new regulation of livestock production including a new regulation of phosphor which is expected to be in place in 2017 and introducing a more targeted regulation expected in 2018 – taking into account the lifting of the reduced nitrogen application standards decided in the political agreement of 22 December 2015
- Repetition of main conclusions from the national monitoring program, highlighting the results comparing farms using the derogation and farms limited by the conditions given in the Nitrates directive
- Prognosis for the development of the status of the Danish aquatic environment in the coming years
- Description of the terms and conditions in the Danish derogation for cattle farms, as it is requested to be renewed

Do you have any remarks or suggestions regarding the overall structure and/or content of the presentation?

We are looking forward to your reply – thanks a lot in advance!

Best regards

**Wibke & Lidde**

**Wibke Christel**

Technical Administrator, PhD | Agriculture  
+45 93 59 70 44 | [wibch@mst.dk](mailto:wibch@mst.dk)

**Ministry of Environment and Food**

Environmental Protection Agency | Strandgade 29 | DK-1401 Copenhagen K | phone: +45 72 54 40 00 | [mst@mst.dk](mailto:mst@mst.dk) | [www.mst.dk](http://www.mst.dk)

**Lidde Bagge Jensen**

Head of Function  
Industry and Agriculture  
Phone: (+45) 41 31 85 60  
[lldbj@mst.dk](mailto:lldbj@mst.dk)

**Danish Ministry of Environment and Food**

Environmental Protection Agency  
Strandgade 29  
DK - 1401 Copenhagen K  
Phone: (+45) 72 54 40 00  
[www.mst.dk](http://www.mst.dk)



7-AN-2130002 - DLRG 00 - [REDACTED] Follow-up notes to the meeting 8th of January. ]  

---

**To:** Christian Vind (chvin@mfvm.dk)  
**Cc:** [REDACTED] Line Andersen (land@mfvm.dk)  
**Fra:** [REDACTED]  
**Titel:** RE: Follow-up notes to the meeting 8th of January.  
**Sendt:** 29-01-2016 17:04:19

Dear Christian Vind,

Following up on [REDACTED] email, I confirm that the workshop can take on Friday 5 February, from 10:00 to 13:00. We could either arrange for the workshop to take place here in the DG environment premises or via videoconference. Which option would suits you the best?

From our side we would be interested in learning about 'The baseline report', and in particular the expected nitrogen load changes in both in the 'frozen policy scenario' and in scenario including the planned changes to the Danish regulation. The workshop would be also the occasion to discuss the technical information underpinning the follow-up notes sent on 19 January.

For DG ENV, the workshop will be attended by [REDACTED] might be able to join.

Best regards,

[REDACTED]

[REDACTED]



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---

**From:** Christian Vind (MFVM-DEP) [mailto:chvin@mfvm.dk]  
**Sent:** Friday, January 29, 2016 8:29 AM  
**To:** [REDACTED]  
**Cc:** Line Andersen (MFVM-DEP) [mailto:land@mfvm.dk]  
**Subject:** SV: Follow-up notes to the meeting 8th of January.

Dear [REDACTED]

Thank you very much. We are looking forward to advance the dialog and answer your questions next Friday.

We will discuss the details with [REDACTED]

Best regards,  
Christian Vind

---

**Fra:** [REDACTED]  
**Sendt:** 28. januar 2016 17:25  
**Til:** Christian Vind (MFVM-DEP) [mailto:chvin@mfvm.dk]  
**Cc:** Line Andersen (MFVM-DEP) [mailto:land@mfvm.dk]  
**Emne:** RE: Follow-up notes to the meeting 8th of January.

Dear Christian Vind,

Thank you for your message and for sharing further documents related to nitrogen regulation in Denmark, which required further assessment and internal discussion during the last week. In addition I was taken in meetings most of the past few days.

Following your proposal, and as conveyed by my Director in the phone call with Deputy Permanent Secretary Mikkelsen, my colleagues would be available for a technical workshop to further understand elements concerning the documents you have sent (e.g. follow-up notes and the baseline report and its revision).

We are trying to find a room for Friday 5 February, from 10:00 to 13:00.

My colleague [REDACTED] (in copy) will contact you soon to define the details of the workshop.

Best regards

[REDACTED]  
Andrea VETTORI  
[REDACTED]



European Commission

DG Environment

Unit ENV B.1 - Agriculture, Forestry and Soils

Office: BU-5 05/175

Mail address: Rue de la Loi 200, B-1049 Brussels

Tel: (+32) 2 29 55603

E-mail: andrea.vettori@ec.europa.eu

Web address: Avenue de Budaörs 3 (metro Paulinien)

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---

**From:** Christian Vind (MFVM-DEP) [mailto:chvin@mfvm.dk]  
**Sent:** Monday, January 25, 2016 2:00 PM  
**To:** [REDACTED]  
**Cc:** Lise Andersen (MFVM-DEP)  
**Subject:** VS: Follow-up notes to the meeting 8th of January.

Dear [REDACTED]

I have just tried to reach you by phone.

I would like to follow-up on my mail form last week and hope that you have considered our proposal of a technical workshop, if you still have questions to the policies or the scientific work there are built upon.

Please call back if possible, I am available the rest of the afternoon.

Regards,  
Christian

+45 4131 8487

---

**Fra:** Christian Vind (MFVM-DEP)  
**Sendt:** 19. januar 2016 12:36  
**Til:** [REDACTED]  
**Cc:** Lise Andersen (MFVM-DEP); Hans Peter Oisen; Sofus Rex (MFVM-DEP); [REDACTED]  
Sofus Rex (MFVM-DEP)  
**Emne:** Follow-up notes to the meeting 8th of January.

Dear [REDACTED]

Thank you for the very fruitful meeting the 8<sup>th</sup> of January.

To answer some of you question I have attached 4 follow-up notes on:

- A) The adjustment of the "harmony rules"
- B) The adjustment of prohibition on soil tillage
- C) The effect regarding statutory buffer strip
- D) On targeted nitrogen regulation.

On top of that, a number of research-paper lies behind the effects described in the notes. The Danish RBMPs are based on extensive research from Aarhus University and DHI. Below is a list of the key rapports prepared leading up to the draft RBMPs as published in December 2021:

The baseline report is a technical report authored by the University of Aarhus. The report estimates the expected change in nitrogen load in the period 2013-2021 based on a 'frozen policy scenario'. In accordance with the planned changes to regulation, the University of Aarhus has published a [revision](#) of the original report.

The target load in the Danish coastal water bodies is a result of statistical and mechanistic modelling done by the University of Aarhus and DHI. The models are described in three reports: [Part I](#) – summary, [Part II](#) – mechanistic models, and [Part III](#) – statistical models. A set of minor revisions have been made to the original models, which are expected to be published during the spring.

All of the scientific reports behind the draft RBMPs is available via [this link](#).

It is important to us, that we answer all your questions as detailed as required, and would therefore propose a technical workshop – either as a meeting in Bruxelles or Copenhagen or via video-link. If you are interested, we could invite some of the scientists to the talks as well. A possible date could be sometime in the last week of January (25. – 29. Of January), so that we hopefully can make sure that there are no unanswered questions left when we reach the meeting in the Nitrates committee late February.

You are also more than welcome to send written questions to the notes that we send the 7<sup>th</sup> of January and to the follow-up notes if that is more convenient for you with written questions and answers and please let us know if there are specific parts of the scientific documents that you would like translated.

Regards,  
Christian Vind

Best regards

**Christian Vind**  
| Landbrug og miljø  
+45 41 31 84 87 | [chvin@mfvn.dk](mailto:chvin@mfvn.dk)

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The Department | Slotsholmsgade 12, 1216 Copenhagen K | Tlf. +45 33 92 33 01 | [mfvn@mfvn.dk](mailto:mfvn@mfvn.dk) | [www.mfvn.dk](http://www.mfvn.dk)

AKT 2-15002 - Bilag 10 - [REDACTED] Follow-up notes to the meeting 8th of January. ]

---

**Til:** Christian Vind (chvin@mfvm.dk)  
**Cc:** Line Andersen (land@mfvm.dk), Jakob Riiskjær Nygård (jam@mfvm.dk), Lidde Bagge Jensen (lidbj@mst.dk), [REDACTED]  
**Fra:** [REDACTED]  
**Titel:** RE: Follow-up notes to the meeting 8th of January.  
**Sendt:** 02-02-2016 18:32:21

Dear Christian,

Thank you, we acknowledge the receipt of the hardcopies of the materials.

In addition to the baseline report, we would welcome further elaboration on the following topics:

- Expected increase in nitrates concentration in individual groundwater bodies
- Effect of buffer strips and catch crops (compulsory and in EFA areas) on water quality
- Setup of the new exceptions to the prohibition on soil tillage
- Ammonia and greenhouse gases emissions expected as a result of the phasing out of fertilization standards reductions

In the note "Revision of the Danish Nitrate Action Programme", 2016, J.nr. 001-14111 Ref. lidbj/phof (NAER), an outline is presented of the expected contents of the Danish Nitrates Action Programme as of 1 August 2016 and onwards. The note mentions that further changes in the Order 1318 (26/11/15) that may concern measures implementing the Nitrates Directive are expected.

Could you please clarify if these changes are among the ones already presented in the previous notes? If not, we would appreciate if more information about them could be provided during the workshop.

Best regards,

[REDACTED]

---

**From:** Christian Vind (MFVM-DEP) [mailto:chvin@mfvm.dk]  
**Sent:** Tuesday, February 02, 2016 9:05 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]; Lidde Bagge Jensen; Line Andersen (MFVM-DEP); Jakob Riiskjær Nygård (MFVM-DEP)  
**Subject:** VS: Follow-up notes to the meeting 8th of January.

Dear [REDACTED]

We are looking forward to the workshop on Friday. In order to bring to right experts, we would very much appreciate if you could sent us your questions beforehand or point to the themes or papers you want elaborated in addition to the "baseline rapport".

Since we have sent you quite a few notes and papers, we have asked the permanent representation of Denmark to bring you a number of hard copies of the material. You should receive them today.

Best regards,  
Christian

---

**Fra:** Christian Vind (MFVM-DEP)  
**Sendt:** 1. februar 2016 08:59  
**Til:** [REDACTED]  
**Cc:** Line Andersen (MFVM-DEP); [REDACTED]; Lidde Bagge Jensen  
**Emne:** SV: Follow-up notes to the meeting 8th of January.

Dear [REDACTED]

Thank you for your email. We would prefer an actual meeting, and are happy to visit you in the DG environment premises.

We will be prepared to elaborate on "The baseline rapport" and of course any other questions you might have.

A have attached 3 new notes to this mail, which are the last notes, to follow up on our previous discussions.

- A note on the content of the new Danish Nitrate Plan
- A note on measures ensuring the protection of groundwater
- A note on nitrogen effects from extra RDP funds for the period 2017-2021 to additional collective Nitrogen-reducing measures

We will get back to you, with the names of those who will attend from our side.

Best regards,  
Christian

Med venlig hilsen

Christian Vind  
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+45 41 31 84 87 | chvin@mfvm.dk

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**Fra:** [REDACTED]  
**Sendt:** 29. januar 2016 17:04  
**Til:** Christian Vind (MFVM-DEP)  
**Cc:** Line Andersen (MFVM-DEP); [REDACTED]  
**Emne:** RE: Follow-up notes to the meeting 8th of January.

Dear Christian Vind,

Following up on [REDACTED] email, I confirm that the workshop can take on Friday 5 February, from 10:00 to 13:00. We could either arrange for the workshop to take place here in the DG environment premises or via videoconference. Which option would suits you the best?

From our side we would be interested in learning about 'The baseline report', and in particular the expected nitrogen load changes in both in the 'frozen policy scenario' and in scenario including the planned changes to the Danish regulation. The workshop would be also the occasion to discuss the technical information underpinning the follow-up notes sent on 19 January.

For DG ENV, the workshop will be attended by [REDACTED] might be able to join.

Best regards,

[REDACTED]

[REDACTED]



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---

**From:** Christian Vind (MFVM-DEP) [mailto:chvin@mfvm.dk]  
**Sent:** Friday, January 29, 2016 8:29 AM  
**To:** [REDACTED]  
**Cc:** Line Andersen (MFVM-DEP); [REDACTED]  
**Subject:** SV: Follow-up notes to the meeting 8th of January.

Dear [REDACTED]

Thank you very much. We are looking forward to advance the dialog and answer your questions next Friday.

We will discuss the details with [REDACTED]

Best regards,  
Christian Vind

---

**Fra:** [REDACTED]  
**Sendt:** 28. januar 2016 17:25  
**Til:** Christian Vind (MFVM-DEP)  
**Cc:** Line Andersen (MFVM-DEP); [REDACTED]  
**Emne:** RE: Follow-up notes to the meeting 8th of January.

Dear Christian Vind,

Thank you for your message and for sharing further documents related to nitrogen regulation in Denmark, which required further assessment and internal discussion during the last week. In addition I was taken in meetings most of the past few days.

Following your proposal, and as conveyed by my Director in the phone call with Deputy Permanent Secretary Mikkelsen, my colleagues would be available for a technical workshop to further understand elements concerning the documents you have sent (e.g. follow-up notes and the baseline report and its revision).

We are trying to find a room for Friday 5 February, from 10:00 to 13:00.

My colleague [REDACTED] (in copy) will contact you soon to define the details of the workshop.

Best regards



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---

**From:** Christian Vind (MFVM-DEP) [mailto:chvin@mfvm.dk]  
**Sent:** Monday, January 25, 2016 2:00 PM  
**To:** [REDACTED]  
**Cc:** Line Andersen (MFVM-DEP)  
**Subject:** VS: Follow-up notes to the meeting 8th of January.

Dear [REDACTED]

I have just tried to reach you by phone.

I would like to follow-up on my mail from last week and hope that you have considered our proposal of a technical workshop, if you still have questions to the policies or the scientific work there are built upon.

Please call back if possible, I am available the rest of the afternoon.

Regards,  
Christian

+45 4131 8487

---

**Fra:** Christian Vind (MFVM-DEP)  
**Sendt:** 19. januar 2016 12:36  
**Til:** [REDACTED]  
**Cc:** Line Andersen (MFVM-DEP); Hans Peter Olesen; Sofus Rex (MFVM-DEP); [REDACTED]; Sofus Rex (MFVM-DEP)  
**Emne:** Follow-up notes to the meeting 8th of January.

Dear [REDACTED]

Thank you for the very fruitful meeting the 8<sup>th</sup> of January.

To answer some of you question I have attached 4 follow-up notes on:

- A) The adjustment of the "harmony rules"
- B) The adjustment of prohibition on soil tillage
- C) The effect regarding statutory buffer strip
- D) On targeted nitrogen regulation.

On top of that, a number of research-paper lies behind the effects described in the notes. The Danish RBMPs are based on extensive research from Aarhus University and DHI. Below is a list of the key rapports prepared leading up to the draft RBMPs as published in December 2021:

'The baseline report' is a technical report authored by the University of Aarhus. The report estimates the expected change in nitrogen load in the period 2013-2021 based on a 'frozen policy scenario'. In accordance with the planned changes to regulation, the University of Aarhus has published a revision of the original report.

The target load in the Danish coastal water bodies is a result of statistical and mechanistic modelling done by the University of Aarhus and DHI. The models are described in three reports: [Part I](#) – summary, [Part II](#) – mechanistic models, and [Part III](#) – statistical models. A set of minor revisions have been made to the original models, which are expected to be published during the spring.

All of the scientific reports behind the draft RBMPs is available via this [link](#).

It is important to us, that we answer all your questions as detailed as required, and would therefore propose a technical workshop – either as a meeting in Bruxelles or Copenhagen or via video-link. If you are interested, we could invite some of the scientists to the talks as well. A possible date could be sometime in the last week of January (25. – 29. Of January), so that we hopefully can make sure that there are no unanswered questions left when we reach the meeting in the Nitrates committee late February.

You are also more than welcome to send written questions to the notes that we send the 7<sup>th</sup> of January and to the follow-up notes if that is more convenient for you with written questions and answers and please let us know if there are specific parts of the scientific documents that you would like translated.

Regards,  
Christian Vind

Best regards

**Christian Vind**  
| Landbrug og miljø  
+45 41 31 84 87 | [chvin@mfvn.dk](mailto:chvin@mfvn.dk)

**Ministry of Environment and Food**  
The Department | Slotsholmsgade 12, 1216 Copenhagen K | Tlf. +45 33 92 33 01 | [mfvn@mfvn.dk](mailto:mfvn@mfvn.dk) | [www.mfvn.dk](http://www.mfvn.dk)

**To:** Christian Vind (chvin@mfvm.dk)  
**Cc:** [redacted] Line Andersen (land@mfvm.dk)  
**Fra:** [redacted]  
**Titel:** RE: Follow-up notes to the meeting 8th of January.  
**Sendt:** 29-01-2016 17:04:19

Dear Christian Vind,

Following up on [redacted] email, I confirm that the workshop can take on Friday 5 February, from 10:00 to 13:00. We could either arrange for the workshop to take place here in the DG environment premises or via videoconference. Which option would suits you the best?

From our side we would be interested in learning about 'The baseline report', and in particular the expected nitrogen load changes in both in the 'frozen policy scenario' and in scenario including the planned changes to the Danish regulation. The workshop would be also the occasion to discuss the technical information underpinning the follow-up notes sent on 19 January.

For DG ENV, the workshop will be attended by desk officers from the Agriculture, Soil and Forest and the Water Units. Also colleagues from the Air Unit might be able to join.

Best regards,

[redacted]  
[redacted]  
  
[redacted]  
[redacted]

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---

**From:** Christian Vind (MFVM-DEP) [mailto:chvin@mfvm.dk]  
**Sent:** Friday, January 29, 2016 8:29 AM  
**To:** [redacted]  
**Cc:** Line Andersen (MFVM-DEP); [redacted]  
**Subject:** SV: Follow-up notes to the meeting 8th of January.

Dear [redacted]

Thank you very much. We are looking forward to advance the dialog and answer your questions next Friday.

We will discuss the details with [redacted]

Best regards,  
Christian Vind

---

**Fra:** [redacted]  
**Sendt:** 28. januar 2016 17:25  
**Til:** Christian Vind (MFVM-DEP)  
**Cc:** Line Andersen (MFVM-DEP); [redacted]  
**Emne:** RE: Follow-up notes to the meeting 8th of January.

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Following your proposal, and as conveyed by my Director in the phone call with Deputy Permanent Secretary Mikkelsen, my colleagues would be available for a technical workshop to further understand elements concerning the documents you have sent (e.g. follow-up notes and the baseline report and its revision).

We are trying to find a room for Friday 5 February, from 10:00 to 13:00.

My colleague [redacted] (in copy) will contact you soon to define the details of the workshop.



Best regards



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---

**From:** Christian Vind (MFVM-DEP) [mailto:chvin@mfvm.dk]  
**Sent:** Monday, January 25, 2016 2:00 PM  
**To:** [Redacted]  
**Cc:** Line Andersen (MFVM-DEP)  
**Subject:** VS: Follow-up notes to the meeting 8th of January.

Dear [Redacted]

I have just tried to reach you by phone.

I would like to follow-up on my mail form last week and hope that you have considered our proposal of a technical workshop, if you still have questions to the policies or the scientific work there are built upon.

Please call back if possible, I am available the rest of the afternoon.

Regards,  
Christian

+45 4131 8487

---

**Fra:** Christian Vind (MFVM-DEP)  
**Sendt:** 19. januar 2016 12:36  
**Til:** [Redacted]  
**Cc:** Line Andersen (MFVM-DEP); Hans Peter Olsen; Sofus Rex (MFVM-DEP); [Redacted]; [Redacted]  
**Emne:** Follow-up notes to the meeting 8th of January.

Dear [Redacted]

Thank you for the very fruitful meeting the 8<sup>th</sup> of January.

To answer some of you question I have attached 4 follow-up notes on:

- A) The adjustment of the "harmony rules"
- B) The adjustment of prohibition on soil tillage
- C) The effect regarding statutory buffer strip
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It is important to us, that we answer all your questions as detailed as required, and would therefore propose a technical workshop – either as a meeting in Bruxelles or Copenhagen or via video-link. If you are interested, we could invite some of the scientists to the talks as well. A possible date could be sometime in the last week of January (25. – 29. Of January), so that we hopefully can make sure that there are no unanswered questions left when we reach the meeting in the Nitrates committee late February.

You are also more than welcome to send written questions to the notes that we send the 7<sup>th</sup> of January and to the follow-up notes if that is more convenient for you with written questions and answers and please let us know if there are specific parts of the scientific documents that you would like translated.

Regards,  
Christian Vind

Best regards

**Christian Vind**  
| Landbrug og miljø  
+45 41 31 84 87 | [chvin@mfvm.dk](mailto:chvin@mfvm.dk)

**Ministry of Environment and Food**  
The Department | Slotsholmsgade 12, 1216 Copenhagen K | Tlf. +45 33 92 33 01 | [mfvm@mfvm.dk](mailto:mfvm@mfvm.dk) | [www.mfvm.dk](http://www.mfvm.dk)

AK12150002 - BREK 71 - [REDACTED] Follow-up notes to the meeting 8th of January. ]  

---

**To:** Line Andersen (land@mfvm.dk)  
**Cc:** [REDACTED]  
**Frå:** [REDACTED]  
**Titel:** RE: Follow-up notes to the meeting 8th of January.  
**Sendt:** 03-02-2016 12:57:40

Dear Line,

Following up on our phone call, I put in copy [REDACTED] You can liaise with her for the names/info of the workshop participants.

Best regards  
[REDACTED]

---

**From:** [REDACTED]  
**Sent:** Tuesday, February 02, 2016 6:32 PM  
**To:** 'Christian Vind (MFVM-DEP)'  
**Cc:** [REDACTED] Lidde Bagge Jensen; Line Andersen (MFVM-DEP); Jakob Riiskjær Nygård (MFVM-DEP)  
**Subject:** RE: Follow-up notes to the meeting 8th of January.

Dear Christian,

Thank you, we acknowledge the receipt of the hardcopies of the materials.

In addition to the baseline report, we would welcome further elaboration on the following topics:

- Expected increase in nitrates concentration in individual groundwater bodies
- Effect of buffer strips and catch crops (compulsory and in EFA areas) on water quality
- Setup of the new exceptions to the prohibition on soil tillage
- Ammonia and greenhouse gases emissions expected as a result of the phasing out of fertilization standards reductions

In the note "Revision of the Danish Nitrate Action Programme", 2016, J.nr. 001-14111 Ref. liddj/phof (NAER), an outline is presented of the expected contents of the Danish Nitrates Action Programme as of 1 August 2016 and onwards. The note mentions that further changes in the Order 1318 (26/11/15) that may concern measures implementing the Nitrates Directive are expected.

Could you please clarify if these changes are among the ones already presented in the previous notes? If not, we would appreciate if more information about them could be provided during the workshop.

Best regards,  
[REDACTED]

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**From:** Christian Vind (MFVM-DEP) [mailto:chvin@mfvm.dk]  
**Sent:** Tuesday, February 02, 2016 9:05 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED] Lidde Bagge Jensen; Line Andersen (MFVM-DEP); Jakob Riiskjær Nygård (MFVM-DEP)  
**Subject:** VS: Follow-up notes to the meeting 8th of January.

Dear [REDACTED]

We are looking forward to the workshop on Friday. In order to bring to right experts, we would very much appreciate if you could sent us your questions beforehand or point to the themes or papers you want elaborated in addition to the "baseline rapport".

Since we have sent you quite a few notes and papers, we have asked the permanent representation of Denmark to bring you a number of hard copies of the material. You should receive them today.

Best regards,  
Christian

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**Frå:** Christian Vind (MFVM-DEP)  
**Sendt:** 1. februar 2016 08:58  
**Titel:** [REDACTED]  
**Cc:** Line Andersen (MFVM-DEP); [REDACTED] Lidde Bagge Jensen  
**Emne:** SV: Follow-up notes to the meeting 8th of January.

Dear [REDACTED]

Thank you for your email. We would prefer an actual meeting, and are happy to visit you in the DG environment premises.

We will be prepared to elaborate on "The baseline rapport" and of course any other questions you might have.

A have attached 3 new notes to this mail, which are the last notes, to follow up on our previous discussions.

- A) A note on the content of the new Danish Nitrate Plan
- B) A note on measures ensuring the protection of groundwater
- C) A note on nitrogen effects from extra RDP funds for the period 2017-2021 to additional collective Nitrogen-reducing measures

We will get back to you, with the names of those who will attend from our side.

Best regards,  
Christian

Med venlig hilsen

**Christian Vind**  
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---

**Fra:** [REDACTED]  
**Sendt:** 29. januar 2016 17:04  
**Til:** Christian Vind (MFVM-DEP)  
**Cc:** Line Andersen (MFVM-DEP); [REDACTED]  
**Emne:** RE: Follow-up notes to the meeting 8th of January.

Dear Christian Vind,

Following up on [REDACTED] email, I confirm that the workshop can take on Friday 5 February, from 10:00 to 13:00. We could either arrange for the workshop to take place here in the DG environment premises or via videoconference. Which option would suits you the best?

From our side we would be interested in learning about 'The baseline report', and in particular the expected nitrogen load changes in both in the 'frozen policy scenario' and in scenario including the planned changes to the Danish regulation. The workshop would be also the occasion to discuss the technical information underpinning the follow-up notes sent on 19 January.

For DG ENV, the workshop will be attended by [REDACTED] [REDACTED] might be able to join.

Best regards,

[REDACTED]  
[REDACTED]  
  
[REDACTED]

*The views expressed are purely those of the writer and may not in any circumstances be regarded as stating an official position of the European Commission. This message may contain personal and other confidential data that are entrusted to the recipients specified in the header of the message.*

---

**From:** Christian Vind (MFVM-DEP) [<mailto:chvin@mfvm.dk>]  
**Sent:** Friday, January 29, 2016 8:29 AM  
**To:** [REDACTED]  
**Cc:** Line Andersen (MFVM-DEP); [REDACTED]  
**Subject:** SV: Follow-up notes to the meeting 8th of January.

Dear [REDACTED]

Thank you very much. We are looking forward to advance the dialog and answer your questions next Friday.

We will discuss the details with [REDACTED]

Best regards,  
Christian Vind

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**Fra:** [REDACTED]  
**Sendt:** 28. januar 2016 17:25  
**Til:** Christian Vind (MFVM-DEP)  
**Cc:** Line Andersen (MFVM-DEP); [REDACTED]

Emne: RE: Follow-up notes to the meeting 8th of January.

Dear Christian Vind,

Thank you for your message and for sharing further documents related to nitrogen regulation in Denmark, which required further assessment and internal discussion during the last week. In addition I was taken in meetings most of the past few days.

Following your proposal, and as conveyed by my Director in the phone call with Deputy Permanent Secretary Mikkelsen, my colleagues would be available for a technical workshop to further understand elements concerning the documents you have sent (e.g. follow-up notes and the baseline report and its revision).

We are trying to find a room for Friday 5 February, from 10:00 to 13:00.

My colleague [redacted] (in copy) will contact you soon to define the details of the workshop.

Best regards



Disclaimer: "This message does not constitute a formal communication and the views expressed are purely those of the writer and may not in any circumstances be regarded as stating an official position of the European Commission."

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**From:** Christian Vind (MFVM-DEP) [mailto:chvin@mfvm.dk]  
**Sent:** Monday, January 25, 2016 2:00 PM  
**To:** [redacted]  
**Cc:** Line Andersen (MFVM-DEP)  
**Subject:** VS: Follow-up notes to the meeting 8th of January.

Dear [redacted]

I have just tried to reach you by phone.

I would like to follow-up on my mail from last week and hope that you have considered our proposal of a technical workshop, if you still have questions to the policies or the scientific work there are built upon.

Please call back if possible, I am available the rest of the afternoon.

Regards,  
Christian

+45 4131 8487

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**Fra:** Christian Vind (MFVM-DEP)  
**Sendt:** 19. januar 2016 12:36  
**Til:** [redacted]  
**Cc:** Line Andersen (MFVM-DEP); Hans Peter Olsen; Sofus Rex (MFVM-DEP); [redacted]  
**Emne:** Follow-up notes to the meeting 8th of January.

Dear [redacted]

Thank you for the very fruitful meeting the 8<sup>th</sup> of January.

To answer some of you question I have attached 4 follow-up notes on:

- A) The adjustment of the "harmony rules"
- B) The adjustment of prohibition on soil tillage
- C) The effect regarding statutory buffer strip
- D) On targeted nitrogen regulation.

On top of that, a number of research-paper lies behind the effects described in the notes. The Danish RBMPs are based on extensive research from Aarhus University and DHI. Below is a list of the key rapports prepared leading up to the draft RBMPs as published in December 2021:

'The baseline report' is a technical report authored by the University of Aarhus. The report estimates the expected change in nitrogen load in the period 2013-2021 based on a 'frozen policy scenario'. In accordance with the planned changes to regulation, the University of Aarhus has published a revision of the original report.

The target load in the Danish coastal water bodies is a result of statistical and mechanistic modelling done by the University of Aarhus and DHI. The models are described in three reports: Part.I – summary, Part.II – mechanistic models, and Part.III – statistical models. A set of minor revisions have been made to the original models, which are expected to be published during the spring.

All of the scientific reports behind the draft RBMPs is available via this link.

It is important to us, that we answer all your questions as detailed as required, and would therefore propose a technical workshop – either as a meeting in Bruxelles or Copenhagen or via video-link. If you are interested, we could invite some of the scientists to the talks as well. A possible date could be sometime in the last week of January (25. – 29. Of January), so that we hopefully can make sure that there are no unanswered questions left when we reach the meeting in the Nitrates committee late February.

You are also more than welcome to send written questions to the notes that we send the 7<sup>th</sup> of January and to the follow-up notes if that is more convenient for you with written questions and answers and please let us know if there are specific parts of the scientific documents that you would like translated.

Regards,  
Christian Vind

Best regards

Christian Vind  
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+45 41 31 84 87 | chvin@mfv.dk

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The Department | Slotsholmsgade 12, 1216 Copenhagen K | Tlf. +45 33 92 33 01 | mfv@mfv.dk | www.mfv.dk

**Til:** Christian Vind (chvin@mfvm.dk)  
**Cc:** Helle Bach Rungø (helba@mfvm.dk), Sofus Rex (sofur@mfvm.dk) [REDACTED]  
**Fra:** [REDACTED]  
**Titel:** RE: Follow up on bilateral meeting with the Commission on Nitrate Action Programme november 27.th 2015  
**Sendt:** 15-12-2015 13:43:02

Dear Christian Vind,

We would be available for a videoconference tomorrow, Wednesday 16 December, from 17:00 to 18:00. If this date and time is suitable for you, I will then follow up with the technical details to set-up the videoconference.

Best regards

[REDACTED]



[REDACTED]

*The views expressed are purely those of the writer and may not in any circumstances be regarded as stating an official position of the European Commission. This message may contain personal and other confidential data that are entrusted to the recipients specified in the header of the message.*

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**From:** Christian Vind (MFVM-DEP) [mailto:chvin@mfvm.dk]  
**Sent:** Tuesday, December 15, 2015 8:46 AM  
**To:** [REDACTED]  
**Cc:** Helle Bach Rungø (MFVM-DEP); Sofus Rex (MFVM-DEP)  
**Subject:** VS: Follow up on bilateral meeting with the Commission on Nitrate Action Programme november 27.th 2015 (MFVM Id nr.: 2059850)

Dear [REDACTED]

I have tried to contact you by phone but have not been succesful.

Thus with reference to the enclosed notes on the future regulation of nitrates in Denmark, I would like to enquire whether it would be possible to set up a video conference meeting on Thursday the 17th of December, where we on a technical level can explain our solution and discuss any questions you may have regarding the notes. Our colleagues have already been in contact with [REDACTED] from DG Agri with this proposal, and they are willing to conduct such a meeting in collaboration with you at DG Envi. Please see attached correspondance (please note that Wednesday have changed to Thursday).

In reference to this we have through our permanent representation also proposed a bilateral meeting on the 6th of January 2016 at directors-level between our Deputy Permanent Secretary Anders Mikkelsen and Director Humberto Delgado-Rosa as a further follow up on the meeting we had the 27th. of November 2015 as well as on the basis of the more technical video-conference meeting we propose on Thursday.

We are fully aware of the tight schedule, but hope that you may appreciate the relevance of these meetings and thus be able to find the time.

Please do not hesitate to contact me or my colleague, Helle Bach Rungø, with questions both practical and otherwise.

Best regards

Christian Vind

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Med venlig hilsen  
Best regards

Christian Vind  
| Landbrug og miljø  
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The Department | Slotsholmsgade 12, 1216 Copenhagen K | Tlf. +45 33 92 33 01 | mfvm@mfvm.dk | www.mfvm.dk

---

**Til:** [REDACTED]

Cc: [REDACTED], Anders Mikkelsen (ami@mfv.dk),  
Christian Vind (chvin@mfv.dk), Sofus  
Rex (sofur@mfv.dk), Olsen, Hans Peter (hapol@mst.dk), Lidde Bagge Jensen (lbbj@mst.dk), Marie  
Guidborg (magu@naturerhverv.dk), Louise Piester (DEP) (loj@fv.dk), Lars Kolze  
(NaturErhvervstyrelsen (LAK@naturerhverv.dk), jakm@naturerhverv.dk (jakm@naturerhverv.dk), Mette  
Lise Jensen (melje@nst.dk), Thomas Bruun Jessen (tbr@nst.dk), Jesper Wulff Pedersen (jwp@mfv.dk)

Fra: Helle Bach Rungø (helba@mfv.dk)

Titel: Follow up on bilateral meeting with the Commission on Nitrate Action Programme november 27.th 2015

Sendt: 14-12-2015 16:27:19

Dear [REDACTED]

Thank you, [REDACTED] for a very fruitful discussion at the bilateral meeting between the Commission and the Danish delegation on November 27<sup>th</sup>. And also thanks to DG Agri for a number of very constructive talks.

As background material for a technical discussion, which we are just about to set up with you, we hereby enclose:

- a note on a model for intermediate compensatory measures to avoid increased N emission
- a note on the future regulation of the loss of plant nutrients to the aquatic environment in Denmark

We hope that this material will clarify the key issues of the future regulation of nitrates in Denmark. We look forward to discussing the details of the notes with you, and will contact you shortly with regards to planning of a technical meeting later this week.

Best regards,

**Helle Bach Rungø**  
Agriculture and Environment  
+45 91 36 58 59 | helba@mfv.dk

**Ministry of Environment and Food of Denmark**  
Ministry Department | Børgsgade 4 | 1215 København K | Tlf. +45 72 54 60 00 | mim@mim.dk | www.mfv.dk



**To:** Lidde Bagge Jensen (lidsj@mst.dk)  
**Cc:** Marie Guldborg (magu@naturerhverv.dk), jakm@naturerhverv.dk (jakm@naturerhverv.dk), Sofus Rex (sofur@mfvm.dk), Mette Lise Jensen (melje@nst.dk), Christian Vind (chvin@mfvm.dk), Thomas Bruun Jessen (tbr@nst.dk), lopies@naturerhverv.dk (lopies@naturerhverv.dk), Helle Bach Rungø (helba@mfvm.dk), Olsen, Hans Peter (hapol@mst.dk)  
**Fra:** [REDACTED]  
**Titel:** RE: Bilateral meeting with the Commission on Nitrate Action Programme in november 2015  
**Sendt:** 12-11-2015 10:06:17

Dear Lidde,

As agreed, we have set the meeting date for the 27th. Regarding the agenda, we agree with your proposal.

We are looking forward to the background material and the list of participants.

Best regards



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**From:** Lidde Bagge Jensen [mailto:lidsj@mst.dk]

**Sent:** Wednesday, November 11, 2015 1:48 PM

**To:** [REDACTED]

**Cc:** Hans Peter Olsen; Helle Bach Rungø (MFVM-DEP); Christian Vind (MFVM-DEP); Jakob Møgelvang (NaturErhvervstyrelsen); lopies@naturerhverv.dk; 'magu@naturerhverv.dk'; Mette Lise Jensen; Thomas Bruun Jessen; Sofus Rex (MFVM-DEP)

**Subject:** SV: Bilateral meeting with the Commission on Nitrate Action Programme in november 2015

Dear [REDACTED]

Thank you for suggesting possible dates for a bilateral meeting. A meeting on November 27th will suit us very well.

As we briefly talked about on the phone this monday, we fully understand, that the Commission wishes to focus the discussion on the substance of the Nitrate Action Programme measures and therefore representatives from DG Agriculture will not be attending this meeting.

We hereby enclose a suggestion for the agenda for the meeting.

Please let us know, if the suggested agenda rises any questions or remarks.

Prior to the meeting, we expect to send you further background material and we will also inform you of the participants attending from Denmark.

Best regards

Lidde

Lidde Bagge Jensen  
Head of Function  
Industry and Agriculture  
Phone: (+45) 41 31 85 60  
lidsj@mst.dk

Danish Ministry of Environment and Food  
Environmental Protection Agency  
Strandgade 29  
DK - 1401 Copenhagen K  
Phone: (+45) 72 54 40 00  
www.mst.dk

---

**Fra:** [REDACTED]

**Sendt:** 6. november 2015 15:56

**Til:** Lidde Bagge Jensen

**Cc:** Hans Peter Olsen; Helle Bach Rungø (MFVM-DEP); magu@naturerhverv.dk; jore@naturerhverv.dk; Thomas Bruun Jessen;

**Emne:** RE: TIL KOMM: Udkast til svar til Kommissionen: DK presentation - 62nd Nitrates Committee - 1 December

Dear Lidde,

Thank you for having confirmed Denmark second presentation at the next Nitrates Committee.

Regarding your request for a bilateral meeting during the last week of November, we are available either on the 26<sup>th</sup> or on the 27<sup>th</sup> in the afternoon, from 15:00 to 17:00. Would one of these dates suit you?

Considering the limited time available, we would like to focus the discussion on the substance of the Nitrate Action Programme measures. Based on the outcome of the discussion, we will certainly coordinate thereafter with our agricultural colleagues.

Best regards,

[Redacted]

[Redacted]



[Redacted]

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**From:** Lidde Bagge Jensen [mailto:liddbj@mst.dk]  
**Sent:** Thursday, October 29, 2015 11:29 AM  
**To:** [Redacted]  
**Cc:** Hans Peter Olesen; Helle Bach Rungø (MFVM-DEP); 'magu@naturerhverv.dk'; Joan Reimann (NaturErhvervstyrelsen); Thomas Bruun Jessen  
**Subject:** VS: TIL KOMM: Udkast til svar til Kommissionen: DK presentation - 62nd Nitrates Committee - 1 December

Dear [Redacted]

We hereby confirm that Denmark will give the second presentation on the derogation request on the Nitrates Committee meeting on December 1st 2015.

We would also like to inquire, whether it will be possible to arrange a bilateral meeting with the Commission at the end of November prior to the meeting in the Nitrates Committee?

Representatives from Denmark are currently having meetings with the Commission, DG Agri, on different possibilities concerning financing measures in relation to mandatory requirements in the water management plans. We therefore suggest that a possible meeting with the Commission by the end of November also includes participants from DG Agri, as a coming revision of the Nitrates Action Programme and possible financing of measures are all included in an overall solution for a more targeted regulation of nitrate in Denmark in the future.

If such a meeting is possible, will you kindly suggest possible dates, preferably during the last week of November?

Please, do not hesitate to contact me, if the above rises any questions or reflections.

We are looking forward to your reply.

Best regards

Lidde

Lidde Bagge Jensen  
Head of Function  
Industry and Agriculture  
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Environmental Protection Agency  
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**Fra:** Marco.BONETTI@ec.europa.eu [mailto:Marco.BONETTI@ec.europa.eu]

**Sendt:** 23. oktober 2015 17:16  
**Til:** Lidde Bagge Jensen  
**Emne:** DK presentation - 62nd Nitrates Committee - 1 December

Dear Lidde,

Could you please kindly confirm if Denmark is going to make its second presentation on the derogation request at the next Nitrates Committee of December the 1<sup>st</sup>?

Kind regards



7-101-2-130002 - 0112/15/14 - [REDACTED] Agenda and participants for meeting on 25/9-15 ]-1

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**To:** Wibke Christel (wibch@mst.dk)  
**Cc:** Helle Bach Rungø (helba@mfvm.dk), Christian Vind (chvin@mfvm.dk), Poul Hoffmann (NaturErhvervstyrelsen) (PHOF@naturerhverv.dk), Lidde Bagge Jensen (ldbj@mst.dk), Olsen, Hans Peter (hansp@mfvm.dk)  
**Fra:** [REDACTED]  
**Titel:** RE: Agenda and participants for meeting on 25/9-15  
**Sendt:** 21-09-2015 10:54:32

Dear Wibke,

Thank you for your message. The proposed agenda is fine for us.

Best regards

[REDACTED]

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**From:** Wibke Christel [mailto:wibch@mst.dk]  
**Sent:** Friday, September 18, 2015 3:21 PM  
**To:** [REDACTED]  
**Cc:** Lidde Bagge Jensen; Hans Peter Olsen; Poul Hoffmann (NaturErhvervstyrelsen); Helle Bach Rungø; Christian Vind  
**Subject:** Agenda and participants for meeting on 25/9-15

Dear [REDACTED]

As promised earlier, I would hereby like to send you our suggestion for an agenda for our meeting on Friday, the 25<sup>th</sup> of September 2015 (10:45am – 1:45pm):

1. Status of the aquatic environment & development of the water quality in Denmark, incl. use of the current derogation
2. Overall thoughts on expected changes in the new Danish Nitrates Action Program
3. Possible timeframe for revision of the Action Program & the derogation, incl. formalities regarding the extension of the current Program for a limited period of time
4. Misc.

The participants from the Danish side will be the following:

- Christian Vind
- Hans Peter Olsen
- Helle Bach Rungø
- Poul Christen Hoffmann
- Lidde Bagge Jensen
- Wibke Christel

I will get back to you with all the delegations passport/ID-numbers as well as dates of birth early next week, as I am still in the process of collecting these information from everyone.

Best regards

**Wibke Christel**  
Technical Administrator, PhD | Agriculture  
+45 72 54 41 48 | wibch@mst.dk

**Ministry of Environment and Food**  
Environmental Protection Agency | Strandgade 29 | DK-1401 Copenhagen K | phone: +45 72 54 40 00 | mst@mst.dk | www.mst.dk

ARK 2.130002 - Bilag 7.5 - [Request for renewal of the derogation for Denmark]  
Til: [Redacted]  
Cc: Line Andersen (land@mivm.dk), Poul Hoffmann (NaturErhvervsstyrelsen) (PHOF@naturerhverv.dk), Lilde Bagge Jensen (libj@mst.dk),  
[Redacted]  
Christian Vinde (cvin@mivm.dk)  
Fra: Olsen, Hans Peter (hapol@mst.dk)  
Titel: Request for renewal of the derogation for Denmark  
Sendt: 04-02-2016 16:03:01  
Bilag: Request for renewal of derogation\_Feb 2016.pdf;

Dear [Redacted]

Please find the formal request for a renewal of the Danish derogation from the Nitrates Directive attached to this e-mail.

Do not hesitate to contact us if you have questions regarding this request.

Yours sincerely,  
Hans Peter Olsen

Hans Peter Olsen  
Head of Division | Industry and Agriculture  
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and Food of Denmark**  
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Protection Agency

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1160 Brussels  
Belgium

Danish Environmental  
Protection Agency, Industry  
and Agriculture  
J.nr. MST-12412-00100  
Ref. mehch/lidbj  
4 February 2016

**Request for renewal of the Commission Decision of 23 October 2012  
concerning derogation under paragraph 2(b) of Annex III in Directive  
91/676/EEC**

On 20 June 2012 the Danish Ministry of Environment and Food requested an extension of the derogation pursuant to paragraph 2(b) of Annex III in the Nitrates Directive.

The Commission approved the Danish request by adopting Commission Decision of 23 October 2012 (2012/659/EC) for the fourth time. The derogation is valid until 31 July 2016.

The first Decision concerning request for derogation was adopted on 18 November 2002 (2002/915/EC), the second Decision was adopted on 5 April 2005 (2005/294/EC) and the third Decision was adopted on 8 August 2008 (2008/664/EC).

Based on the fact that

- the fulfilled prerequisite where the utilisation of the derogation is in compliance with the overall objective of the National Action Programme and the Nitrates Directive,
- the available data indicating compliance with the conditions for the use of the derogation,
- the derogation at individual cattle farm level is subject to comprehensive inspection,

it is hereby requested by the Danish Ministry of Environment and Food that the Commission decides to renew the Danish derogation under the Nitrates Directive.

In accordance with the procedure stipulated in article 9 of the Decision, the Danish Government hereby requests for a renewal of the Commission Decision of 23 October 2012 (2012/659/EC).

Conditions in the requested renewed derogation are expected to be based on the set of terms and constraints given in the current Danish derogation with the exception of the lifting of the condition in art 5, litra 1, with regards to the nitrogen maximum application standards which currently are to be fixed at least 10% below economic optimum. The alteration of this condition is due to the political Food and Agricultural agreement of 22 December 2015. The environmental effect of this decision will be compensated by intermediate compensatory measures to avoid deterioration of the aquatic environment (surface waters and groundwater).

Requesting a renewal of the derogation on the above mentioned conditions is based on the view that the conditions both take the needs for protection of the aquatic environment and the typical Danish farming practice into consideration in a well-balanced way.

Following the obligation for reporting of the derogation (Article 7 and 9), the Danish authorities have annually sent the respective reports the Commission. As presented in the reports, farming under the derogation has not led to disadvantageous environmental effects and the compliance rate with the constraints is very high, as demonstrated by the data on inspections. The latest data on derogation farms complying with the Commission Decision 2012/659/EC will be reported to the Commission later in February 2016. In this connection, we will elaborate on the status for the derogation being in compliance with the objective of the Nitrates Directive and the conditions of the present derogation.

Please do not hesitate to contact Ms. Lidde Bagge Jensen or myself for further questions or clarifications.

Yours sincerely,



Hans Peter Olsen  
Head of Division, Industry and Agriculture  
Danish Environmental Protection Agency  
+45 72544108  
hapol@mst.dk

Final Danish presentation for NC\_20151201 - Danish presentation #2\_nitrates action...

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**To:** [REDACTED]  
**Cc:** Poul Hoffmann (NaturErhvervstyrelsen) (PHOF@naturerhverv.dk), Olsen, Hans Peter (hapol@mst.dk), jakm@naturerhverv.dk (jakm@naturerhverv.dk), Lisbeth Gudik-Sørensen (NaturErhvervstyrelsen) (ligs@naturerhverv.dk), Lidde Bagge Jensen (lidbj@mst.dk), Helle Bach Rungø (helba@mfvm.dk)  
**Fra:** Wibke Christel (wibch@mst.dk)  
**Titel:** Final Danish presentation for NC\_20151201 - Danish presentation #2\_nitrates action programme  
**Sendt:** 30-11-2015 14:00:13  
**Bilag:** NC\_20151201\_Danish presentation #2\_nitrates action programme.pptx;

Dear [REDACTED]

Following up upon the pdf-version, which we had sent to you last week for the interpreters, you get hereby the final version of the Danish presentation, concerning the Nitrates Action programme as a Powerpoint-file with animations.  
We would be thankful, if you could load the file onto the computer for the NC-meeting tomorrow morning, but we will also make sure to bring it on a USB-stick.

Looking forward to seeing you tomorrow!  
Best regards from Copenhagen

Wibke & Lidde

**Wibke Christel**  
Technical Administrator, PhD | Agriculture  
+45 93 59 70 44 | wibch@mst.dk

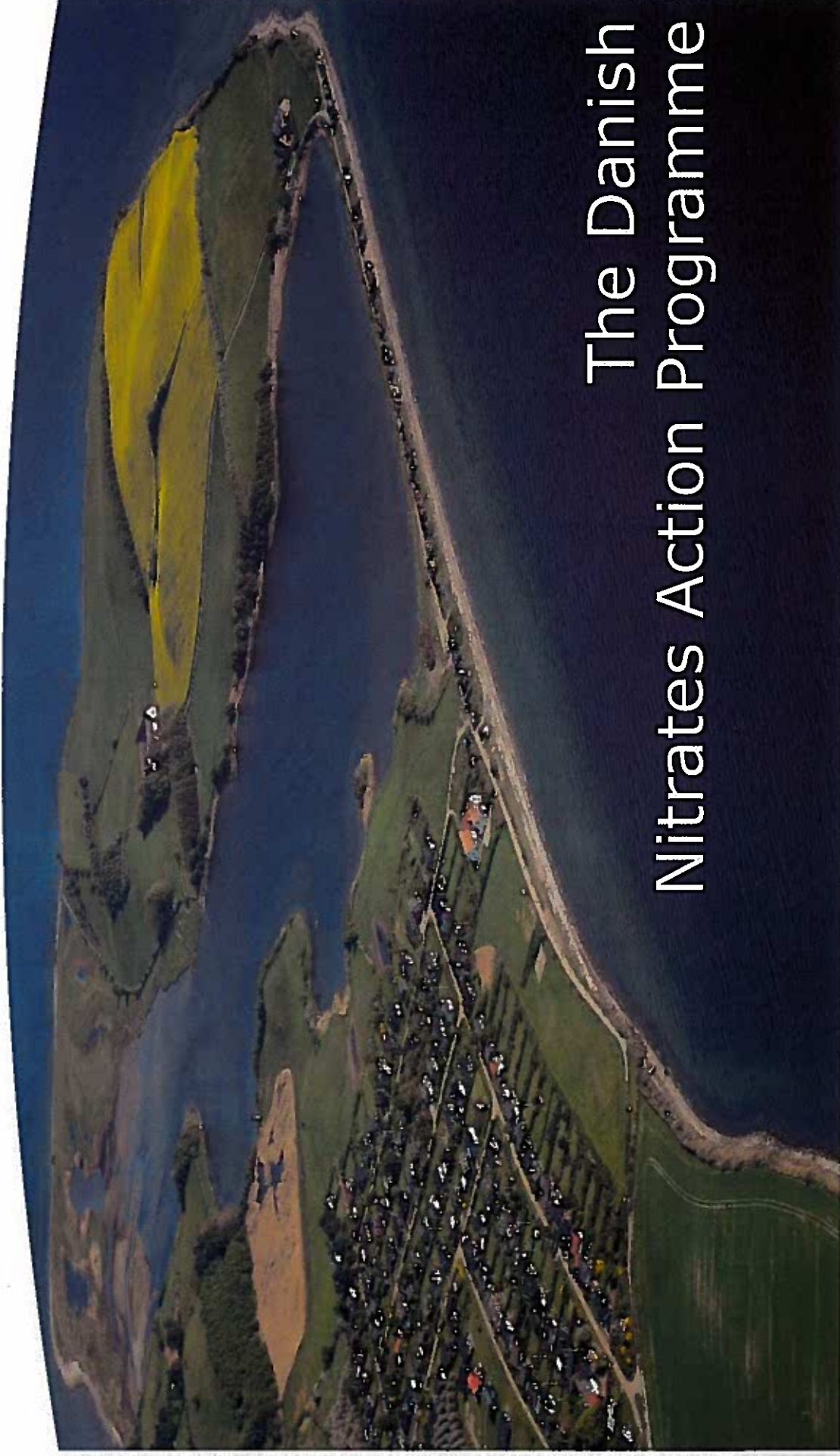
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## 2<sup>nd</sup> presentation in connection with the request for renewal of the Danish derogation from the Nitrates Directive

Brussels - 01 December 2015

Ministry of Environment and Food



# The Danish Nitrates Action Programme

# 2<sup>nd</sup> presentation in connection with the request for renewal of the Danish derogation from the Nitrates Directive

Ministry of Environment and Food

Brussels - 01 December 2015

1

Introduction  
& Basics

2

Overview on the  
elements of the Danish  
Implementation of the  
Nitrates Directive

3

Protection of the aquatic  
environment in other  
environmental regulation

## Outline of the presentation

# The Danish case

Brussels - 01 December 2015

**Population: 5.6 million (2013)**  
**Total land area: 43.000 km<sup>2</sup>**  
**62 % agricultural land**

**Since 1992:**  
**The whole national territory of Denmark has been assigned as Nitrate Vulnerable Zone (Art. 3)**

**Conclusions from presentation of State & trends in Danish water quality (1990-2013):**

- 43% reduction in N field balance
- 80% reduction in P field balances
- 40-50% reduction in nitrate concentration in upper oxic groundwater
- 43% reduction of N load from diffuse sources to coastal & marine waters
- 50% reduction of N concentration in lakes & coastal waters



# Danish National regulation implementing the Nitrates Directive

Brussels - 01 December 2015

There are 4 **statutory orders**, which contain the main legal elements of the Danish way of implementing:

**#594: Order on commercial livestock, livestock manure, silage, etc. (05/15)**  
("Bekendtgørelse om erhvervsmæssigt dyrehold, husdyrgødning, ensilage m.v.")

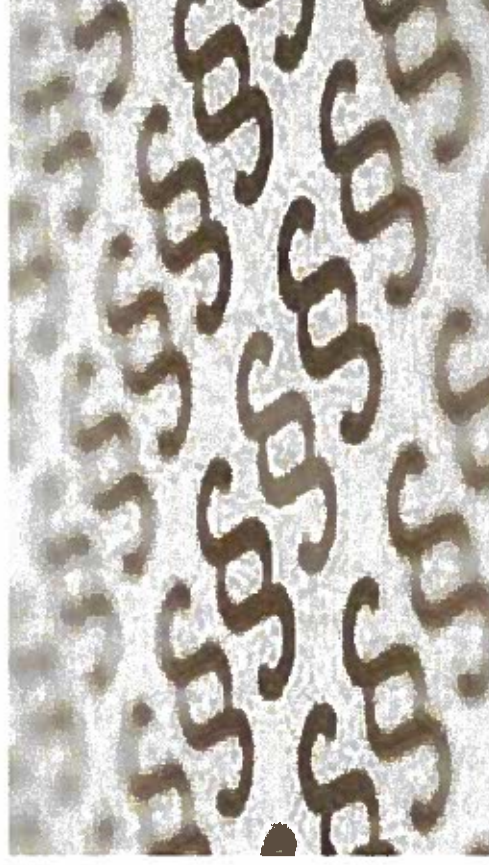
**#500: Consolidated Act on farms' use of fertilizer and on plant cover (05/13)**  
("Bekendtgørelse af lov om jordbrugets anvendelse af gødning og om plantedække")

**#929: Order on farms' use of fertilizer in the planning period 2015/2016 (05/15)**  
("Bekendtgørelse om jordbrugets anvendelse af gødning i planperioden 2015/2016")

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Overview on the elements of the Danish Implementation of the Nitrates Directive

**#973: Order on plant cover and cultivation-related measures (08/15)**  
("Bekendtgørelse om plantedække og dyrkningsrelaterede tiltag")



# Good Agricultural Practice & Nitrates Action Programme

Brussels - 01 December 2015

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Overview on the elements of the Danish Implementation of the Nitrates Directive



- **No application of liquid animal manure or digestate after harvest & until Feb 1**
- Extension of application period in autumn until Oct 1 or 15 under certain conditions (e.g. seeding of winter rape, grass, sugar beets, etc or in case of heavy local summer rainfalls)
- **No application of solid manure, silage liquor or mineral fertilizer from Nov 15 – Feb 1**



- **No application of animal manure, digestate or mineral fertilizer on slope areas with a gradient >6 degrees & within 20 meters from a water course, lake (>100 m<sup>2</sup>) or coast line.**
- Allowed application of liquid mineral fertilizer & injection of liquid animal manure in parallel direction to the bank/shore/coast on slope areas with a gradient >6 & <12 degrees



- **No application of animal manure, digestate, silage liquor, processing waters or mineral fertilizer to water-saturated, flooded, frozen or snow-covered grounds**

# Good Agricultural Practice & Nitrates Action Programme

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Overview on the elements of the Danish Implementation of the Nitrates Directive

- **No application of animal manure, digestate, silage liquor, processing waters or mineral fertilizer within 2 meters broad buffer strips around natural lakes (with tributary/outflow or >100 m<sup>2</sup>) and along open, natural water courses as well as around artificial lakes & watercourses, which according to the river basin managements plans should reach good ecological potential or higher**



- **Minimum 100 meters distance of slurry tank to open water courses or lakes (>100 m<sup>2</sup>), etc.**
- **Capacity of the storage tanks corresponding to no less than 6 months production**
- **Solid, impermeable floors & well-functioning drainage system in animal stables & other similar constructions on farm**
- **Requirements for storage of solid manure/compost/silage liquor, etc.**



- **Ban on slurry broad spreading – liquid animal manure & digestate has to be applied with trail hose/shoe or injected**
- **Injection obligatory on bare soil & fodder grass fields (technologies listed by the EPA can substitute slurry injection, e.g. acidification)**
- **Incorporation of solid manures as soon as possible, but at the latest 6 hours after application**



# Good Agricultural Practice & Nitrates Action Programme

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Overview on the elements of the Danish Implementation of the Nitrates Directive

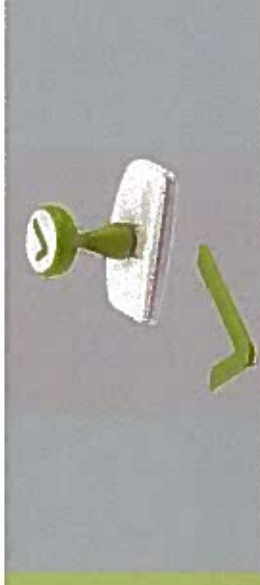
- **Obligation for all farms (>10 ha) to establish catch crops on at least 10% of their fields' area over the winter season**
- **Obligation for farms with high livestock density (> 0.8 LU/ ha) to establish catch crops on 14% of their fields' area**
- **N in incorporated catch crops is accounted for with up to 25 kg N/ha in the following year**



- **Obligatory fertilizing planning in the national (IT-based) Fertilizer Accounting system for all farms with a annual gross turnover > DKK 50 000 (= approx. 6700 €) &**
  - livestock of > 10 livestock units (1 LU=100 kg N ex storage)
  - animal density > 1.0 LU/ha
  - reception of > 25 tons animal manure or other organic fertilizer within one planning period
  - voluntarily for other farms to avoid tax on N-fertilizer
- **→ approx. 40.000 holdings (=90%) registered with fertilizer accounts**



- **Nationwide fixed nitrogen application standards** depending on:
  - crop,
  - soil type,
  - irrigation scheme etc,



# The obligatory Fertilizer Accounting System

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Overview on the elements of the Danish Implementation of the Nitrates Directive



## Registration of Information on:

- type of crops & the N standard norm for the respective crops (based on nationally centralized calculation of the economic optimum)
- type of livestock & the N resulting from livestock production
- use of fertilizers – both manure & commercial fertilizer
- delivery of fertilizer & exchange of fertilizer or manure
- establishment of catch crops
- number of livestock units (coupled to the national central animal husbandry register)
- general facts on the holding, i.e. address, stable construction, etc

## A maximum N-quota is automatically calculated

for each registered farm on the basis of:

- choice of crops in the planning period
- size of cultivated area with the crops
- pre-crops composition
- soil type (sandy vs. loamy soils)
- expected yields
- irrigation of the fields
- N forecast

## Setting of share of manure-N, to be accounted for:

type of animal manure	efficiency
pig slurry	75 %
cattle slurry	70 %
mink/poultry manure	70 %
deep litter	45 %
liquid fraction after manure processing	85 %

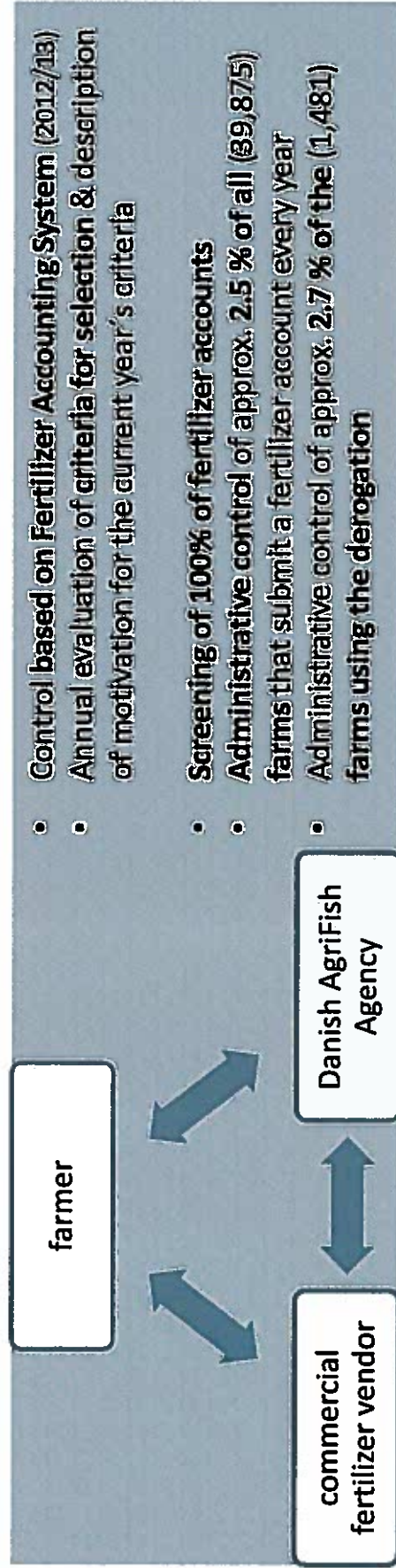


# Administrative control & farm inspections

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## Overview on the elements of the Danish Implementation of the Nitrates Directive



### On-farm inspections by the Danish AgriFish Agency

- **Control of regulations on limitation of the land application of fertilizers**
- **On-farm inspections on approx. 1.2 % of all farms that submit a fertilizer account every year**
- **On-farm inspections on approx. 6.9 % of the farms using the derogation**
  - **50 inspections in january – february**
  - **52 general inspections**

# Examples of other protective measures

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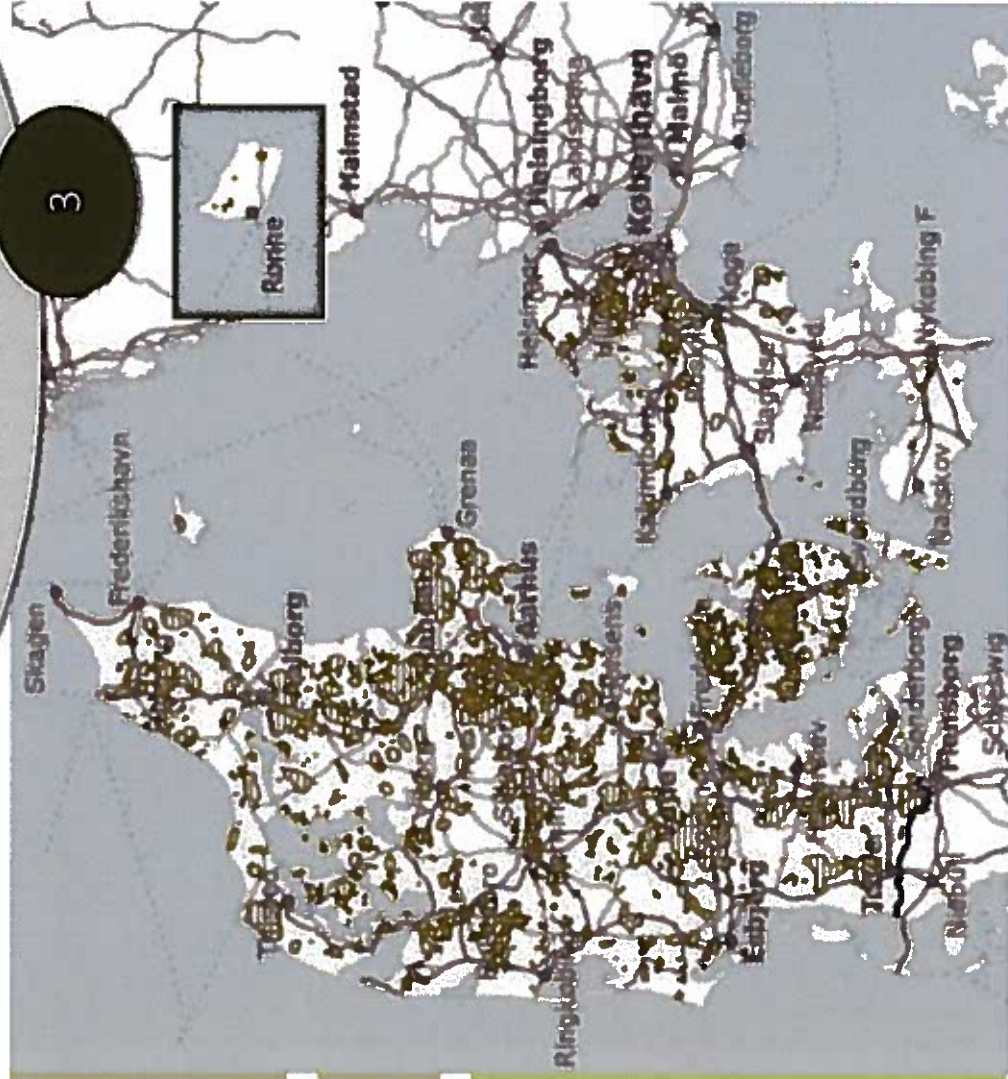
**Nationwide mapping of areas of special drinking water interests & catchments to public water supplies → delineation of “nitrate-sensitive areas for drinking water abstraction” (NFI)**

**covering approx. 19% of the Danish territory**

- Farmers can be obliged to use measures, which secure a sufficiently low nitrate concentration in the root zone water, e.g. by
- establishment of additional catch crops, or
  - alternative on-site means, which have been proven to reduce nitrate leaching

Protection of the aquatic environment in other environmental regulation

3

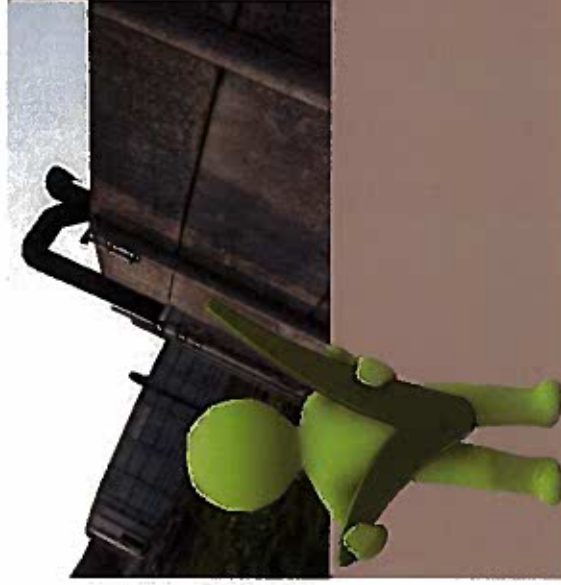


# Examples of other protective measures

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Protection of the aquatic environment in other environmental regulation

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## "Slurry tank inspections"

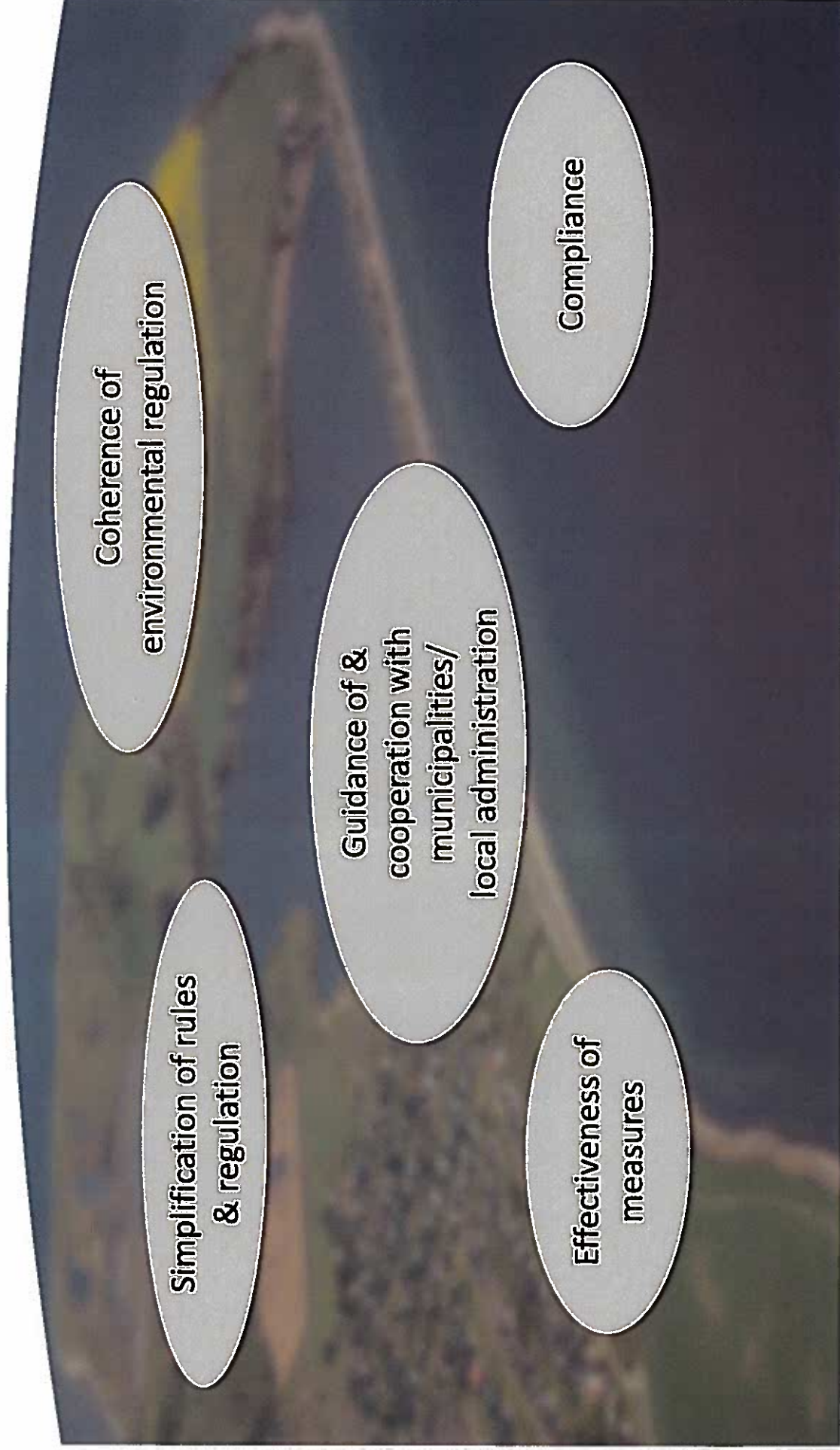
- Farmers are obliged to ensure an **inspection of their containers (with a capacity >100m<sup>3</sup>) at least every 10 years by an authorized inspector**
- applies to **all open and closed tanks** for storage of liquid animal manure & silage liquor
- Inspection obligatory **every 5 years**, if slurry tank is located within <100 meters distance to an open water course or lake (>100m<sup>2</sup>)

## "Authorized inspectors"

- inspectors with **special training & official authorization** check approx. 2,300 tanks annually in terms of **quality, condition & stability of concrete walls**, etc.
- **Immediate repairs & report** to the central inspection secretariat & respective municipality, possibly including some stipulations

# Further development of Danish regulation – focus & priority areas:

Brussels - 01 December 2015



Ministry of Environment and Food

Thank you for your attention!



Questions are welcome!