

# Arbejdet med nye virkemidler 2017

v. Frank Bondgaard, Seniorkonsulent Miljø og land på SEGES

SEGES



# Minivådområde med åbent bassin er på vej



# Matrice minivådområde - forskningsanlæg

Agwaplan



SupremeTech



iDræn



## 2 storskal og 4 mindre matrice minivådområder bygges i 2017/2018





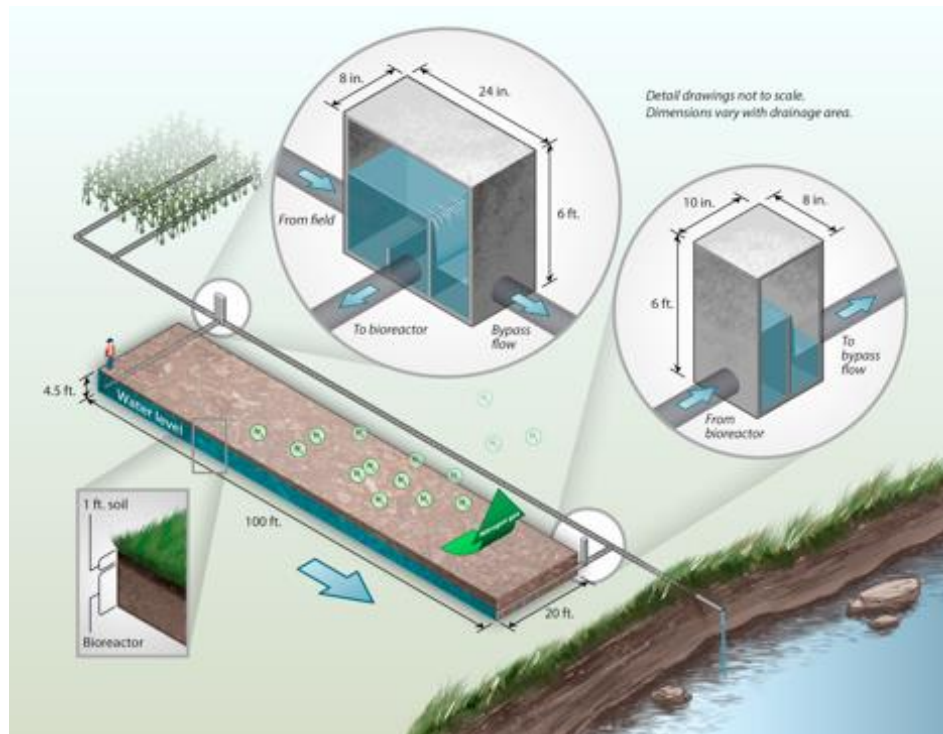
Ca. 120 hektar opland

**Gyldenholm på Sjælland**  
**Ca. 0,4 hektar Matrice**  
**minivådområde**

Drænvandet skal styres  
via 5 mindre bassiner



# Minnesota – Cascade woodchip bioreactor

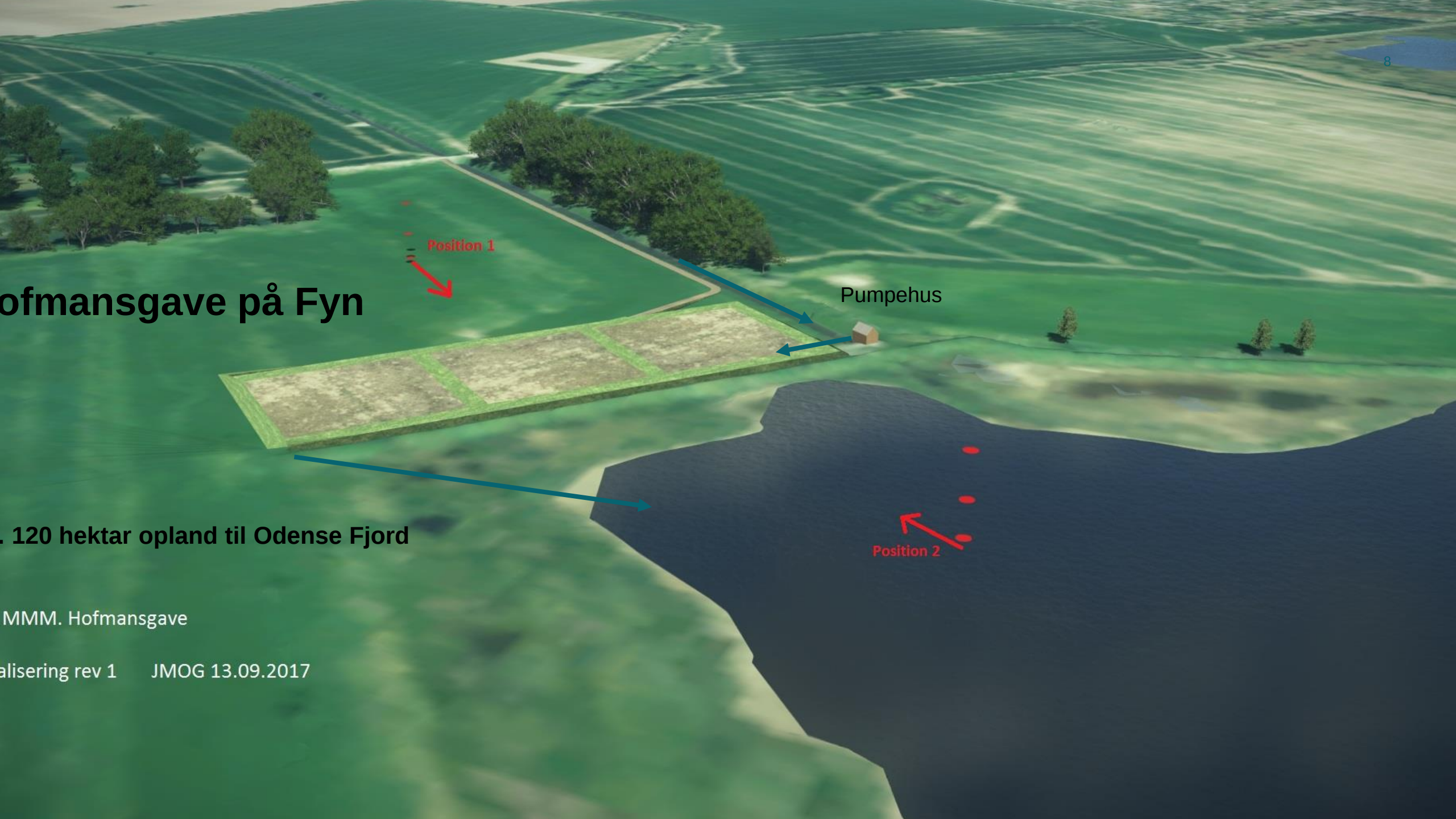


# Hofmansgave på Fyn

120 hektar opland til Odense Fjord

MMM. Hofmansgave

alisering rev 1 JMOG 13.09.2017



# Intelligente bufferzoner – 2 forskningsanlæg i 2017

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Sillerup



Lillerup



Sillerup i september 2017



# Afbrudte dræn – Fensholt ved Odder og Gunderslevholm

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## Cleaning Iowa's Waters with Saturated Buffers in Iowa Watersheds

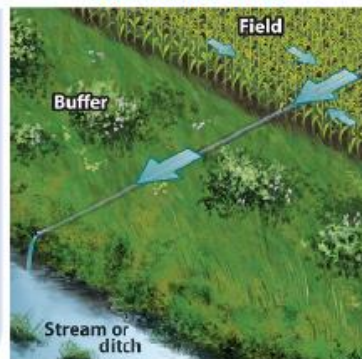
Working with private land-owners in Iowa Water Quality Initiative Watersheds, saturated buffers are being established and monitored as a nitrate management practice within tile-drained watersheds.



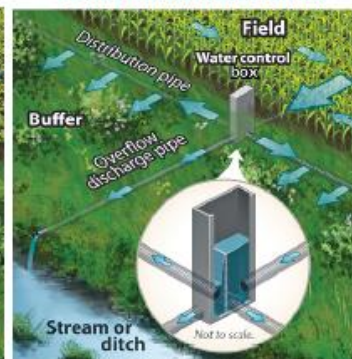
### Tile-drained lands

Underground pipes divert water from cropland, reducing stress on plants. A box diverts water flow into the buffer, increasing the shallow groundwater level and nutrient removal. This is a saturated buffer.

#### CONVENTIONAL OUTLET



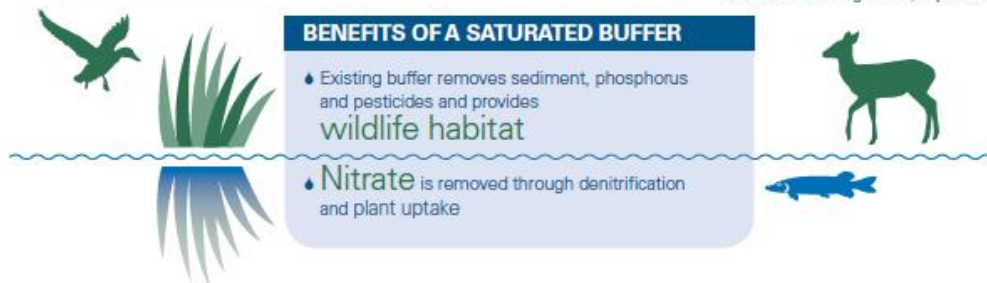
#### OUTLET with SATURATED BUFFER



Source: Frankenburger et al., unpublished

### BENEFITS OF A SATURATED BUFFER

- Existing buffer removes sediment, phosphorus and pesticides and provides wildlife habitat
- Nitrate is removed through denitrification and plant uptake



SEGES

IOWA STATE UNIVERSITY  
Extension and Outreach

WQ 0005 October 2015

Fakta ark fra Iowa som har givet inspiration til virkemiddelkataloget i Danmark

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Drænvirkemidler som et forretningsområde

for Wetlands, Ponds, Lakes, Controlled Drainage, & Sub-Irrigation

### Agri Drain Smart Drainage System®

The Smart Drainage System® is a remotely programmable, solar powered unit that allows users to manage the outflow from the drainage systems, monitor and record rainfall data, water level in the soil profile, flow rates, and more.



#### Drainage Water Management

Drainage water management conserves water, increases yields, and reduces fertilizer and nutrient loss to streams by 30 to 50%. This practice is most cost effective on a 0-1% slope with mains installed on the steepest grades and laterals installed on the contour. Structures are then installed in the main every 1' to 2' of elevation change.

#### Sub-Irrigation

A sub-irrigation system delivers water to your crop's root system, reduces crop stress during dry periods by adding water through your drainage system, and increases yields by as much as 64%. Sub-irrigation works for odd-shaped fields that aren't practical

for traditional overhead irrigation systems, increases water-use efficiency, and lowers irrigation energy bills.

When used in conjunction with drainage water management, sub-irrigation improves water quality by decreasing drainage water volume, therefore reducing fertilizer and nutrient loss to streams by as much as 30 to 50%.



Call for a FREE catalog or informational packet about Drainage Water Management.



| INLINE WATER LEVEL CONTROL STRUCTURE* |             |       |          |            |            |            |            |            |            |            |
|---------------------------------------|-------------|-------|----------|------------|------------|------------|------------|------------|------------|------------|
| Pipe Size                             | Inside Dim. |       | HEIGHT   |            |            |            |            |            |            |            |
|                                       | Width       | Depth | 2'       | 3'         | 4'         | 5'         | 6'         | 8'         | 10'        | 12'        |
| 4"                                    | 8"          | 10"   | \$428.05 | \$482.65   | \$537.25   | \$590.76   | \$665.84   | \$815.44   | \$933.54   | \$1,092.48 |
| 6"                                    | 8"          | 10"   | \$436.79 | \$491.39   | \$544.90   | \$600.59   | \$673.72   | \$824.89   | \$1,025.30 | \$1,101.79 |
| 8"                                    | 11 1/4"     | 12"   | \$464.09 | \$537.25   | \$609.32   | \$716.02   | \$778.32   | \$974.87   | \$1,259.81 | \$1,333.08 |
| 10"                                   | 14"         | 16"   | \$510.96 | \$602.81   | \$695.80   | \$826.44   | \$905.90   | \$1,150.48 | \$1,350.39 | \$1,550.29 |
| 12"                                   | 16"         | 20"   | \$614.15 | \$721.88   | \$828.48   | \$982.42   | \$1,094.34 | \$1,472.04 | \$1,644.43 | \$1,952.12 |
| 15"                                   | 20"         | 24"   | \$786.92 | \$867.79   | \$1,052.03 | \$1,210.24 | \$1,368.46 | \$1,683.64 | \$2,019.68 | \$2,314.02 |
| 18"                                   | 24"         | 28"   | \$997.12 | \$1,190.12 | \$1,381.87 | \$1,587.22 | \$1,765.36 | \$2,150.10 | \$2,533.58 | \$2,918.33 |
| 24" P"                                | 31"         | 39"   | N/A      | \$1,615.27 | \$1,770.87 | \$2,029.46 | \$2,286.81 | \$2,795.28 | \$3,319.94 | N/A        |
| 24" PT"                               | 31"         | 39"   | N/A      | \$1,720.48 | \$2,030.70 | \$2,289.30 | \$2,547.90 | \$3,063.84 | \$3,581.04 | N/A        |

Prices shown for 4"-18" pipe size include connection to corrugated plastic tubing, PVC, or CMP.

\*On 24" pipe size: P signifies connection to PVC, CMP, etc.; PT signifies connection to corrugated plastic tubing.

Larger CMP structures also available.  
Call for details on custom sizes and pricing.

Call Agri Drain at 1-800-232-4742 5



# Mættede randzoner

Opland på 180 hektar

Kontrolbrønd

Rørgræs

Elefantgræs

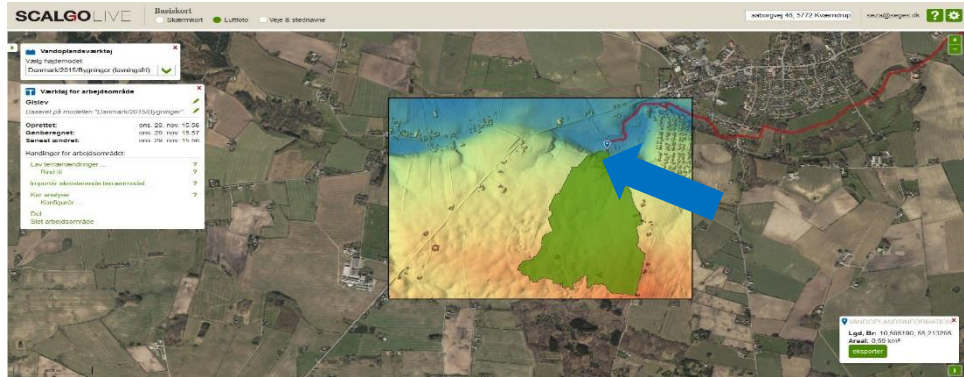
Græs

Tagrør

Kontrolbrønd



# Små lokale vådområder



# Paludikultur i Holland - sumpdyrkning

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SEGES

J. Pijlman. & J. Geurts

Radboud University



# Landskab og dræn bestemmer hvor mange og hvilke miljøtiltag der reelt kan være i et opland

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Potentielt sted  
for afbrudte dræn

Mættet randzone

Minivådområde

Intelligent bufferzone

Potentielt sted for et minivådområde  
– opland ca.100 hektar

# Andre virkemidler

Kvælstof- og fosforvådområder. Kulstofrige lavbundslande [www.vådområder.dk](http://www.vådområder.dk)

Små lokale vådområder/okkerbassiner

Paludikultur – sumpkulturer

Dræn fosfor filtre

Simple fosfor sedimentationsbassiner

Dobbeltprofiler

Mini ådale

Har du en ide ?



# Film om virkemidler

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## Film om målrettet miljøindsats i landbruget:

<https://www.landbrugsinfo.dk/Miljoe/miljoetiltag/Sider/Filmomdenmaalrettedemiljoeindsatsilandbruget.aspx>

Minivådområder med åbent bassin: <https://youtu.be/EUlnYyN-ek>

Matrice minivådområder: <https://www.youtube.com/watch?v=kP9tutNzmDk&t=34s>

Intelligente bufferzoner: <https://www.youtube.com/watch?v=eDFtSreZ05w&t=13s>

Afbrudte dræn: <https://www.youtube.com/watch?v=DEDZp-8LpRA&t=52s>

Mættede randzoner I : [https://www.youtube.com/watch?v=jg77RM\\_YhCE](https://www.youtube.com/watch?v=jg77RM_YhCE)

Mættede randzoner II: <https://www.youtube.com/watch?v=bilHvB4DgxQ>

