

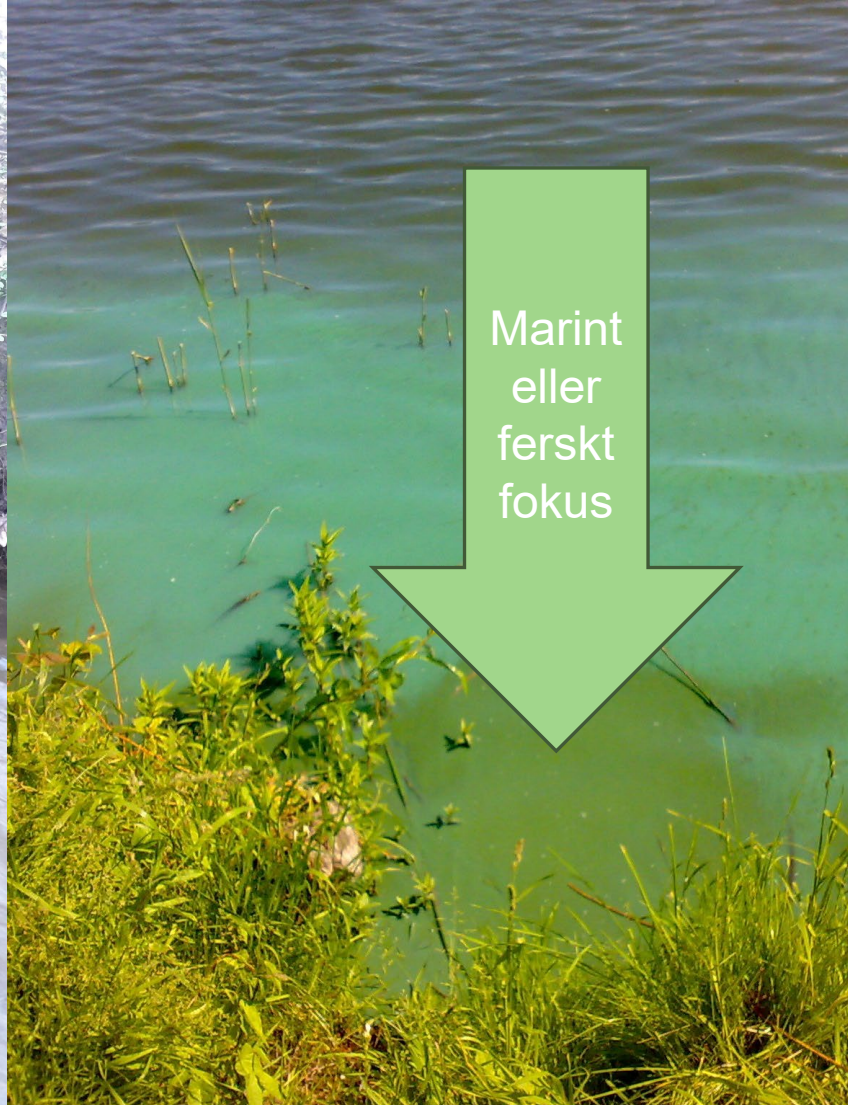


Samlet påvirkning af udledning til de enkelte recipienter

Sara Egemose og Lotte Reuss samt input fra bl.a. Vandcenter Syd og NOVAFOS



Punkt-
fokus



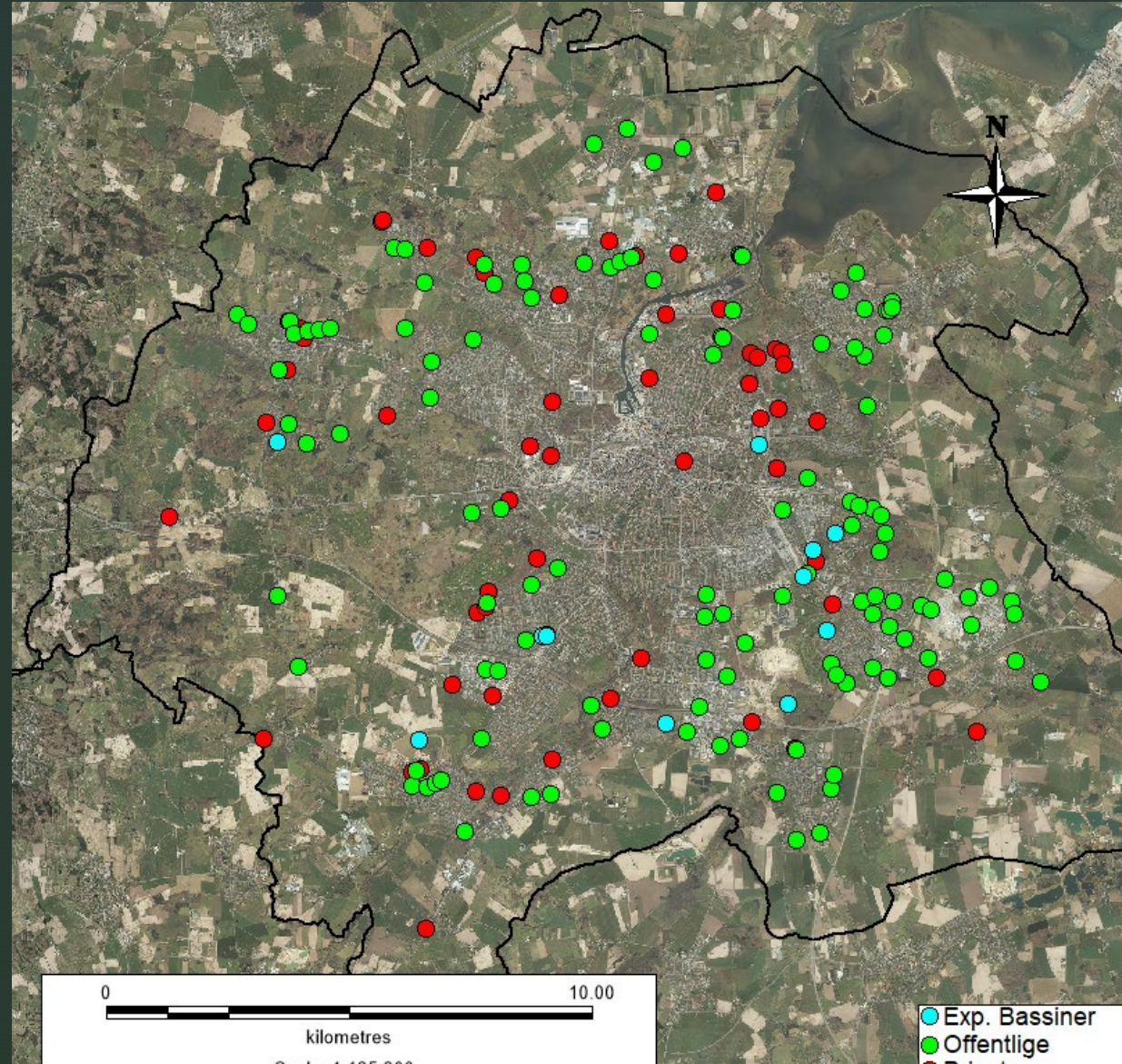
Marint
eller
ferskt
fokus



Brem-
serne
er
væk

Vandkvaliteten i vandløb = summen af x bekendte og ubekendte faktorer

Diffuse
udledninger og
punktudledninger
– hvad betyder
hvad, hvor og
hvorfor?



Akute og akkumulerede effekter

Erosion

Vandvol.

Toksicitet

Temperatur

Tilstopning gydebanks

Oversvømmelser

Ilt og lys

Udledning af stof

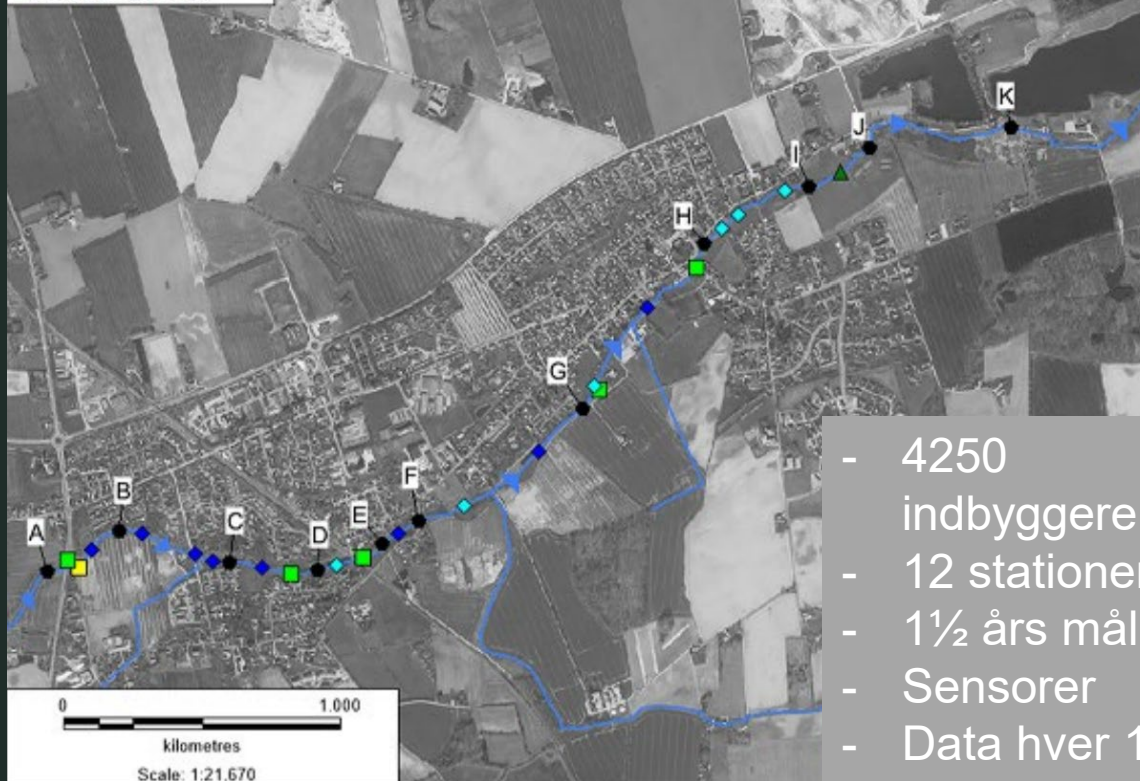
Bortskylning af dyr og planter



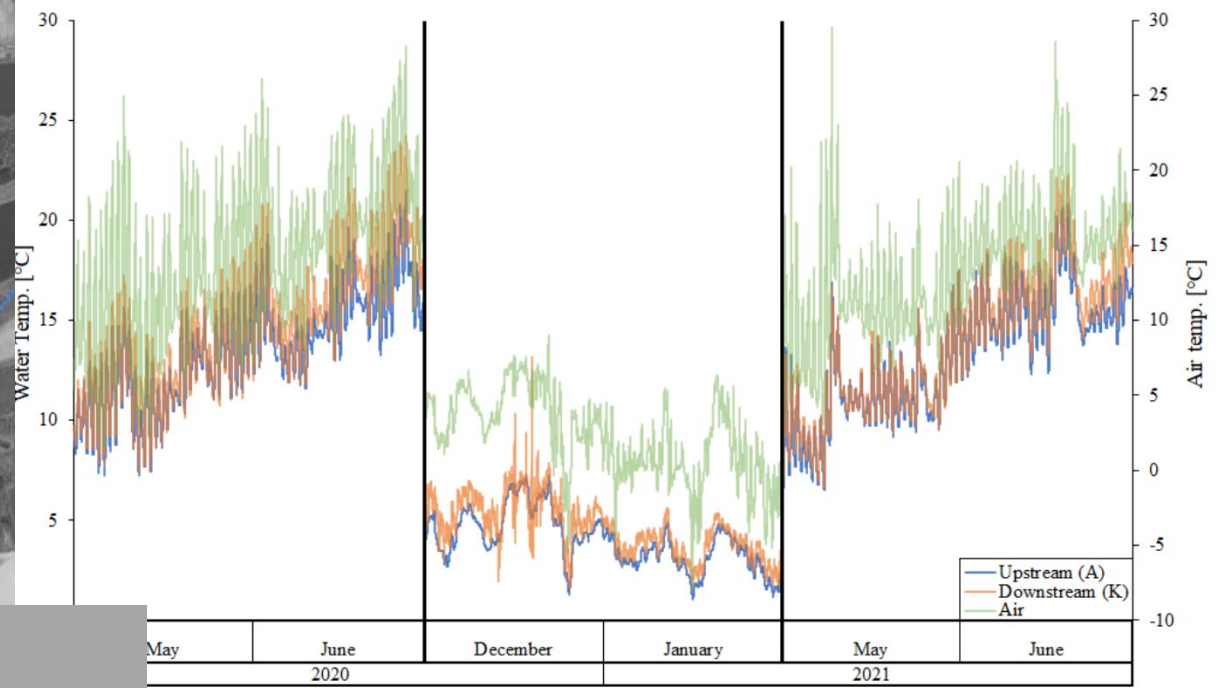
Temperatur i Vindinge Å igennem Aarslev

Loggers and outlet types:

- Logger
- Land
- ◆ Rain (+ basin)
- ◆ Rain (- basin)
- Common (+ basin)
- Common (overflow)
- ▲ Common (WWTP)



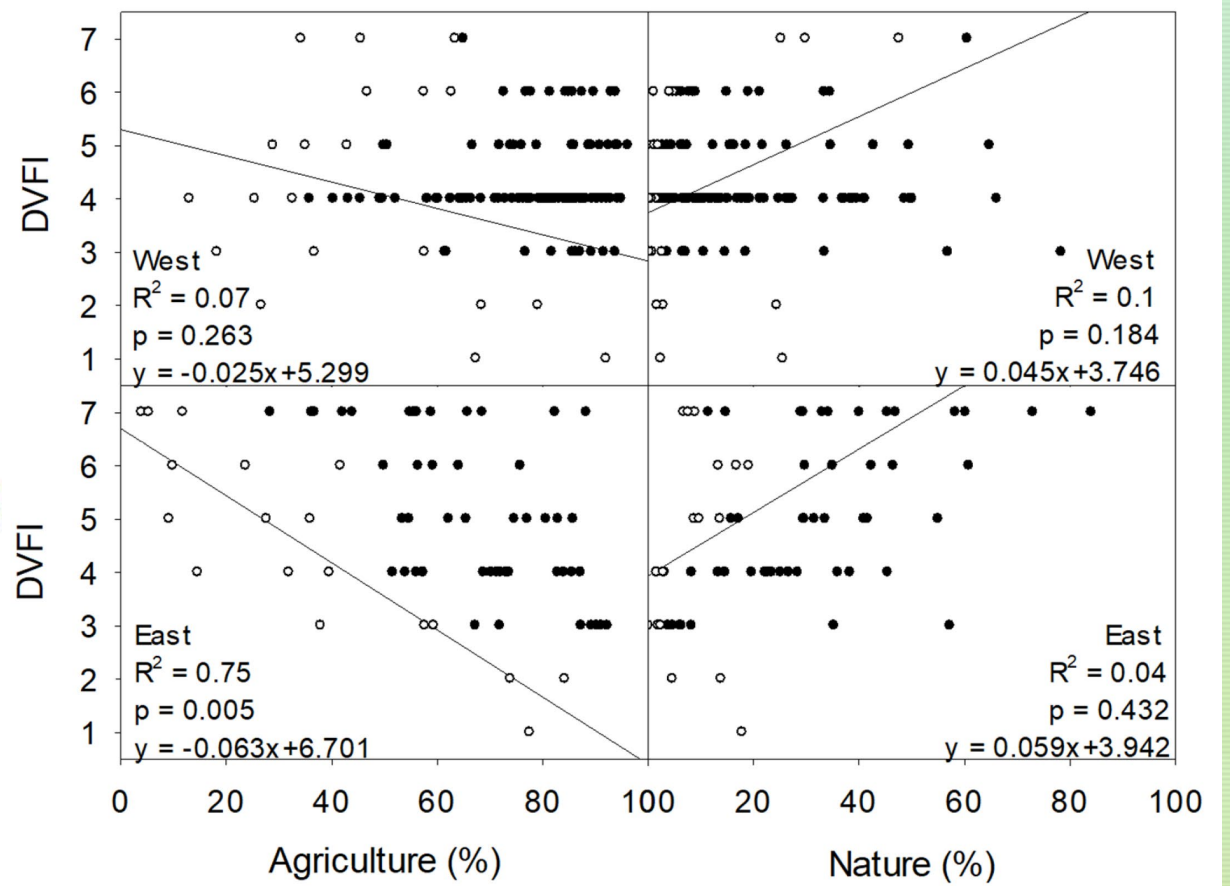
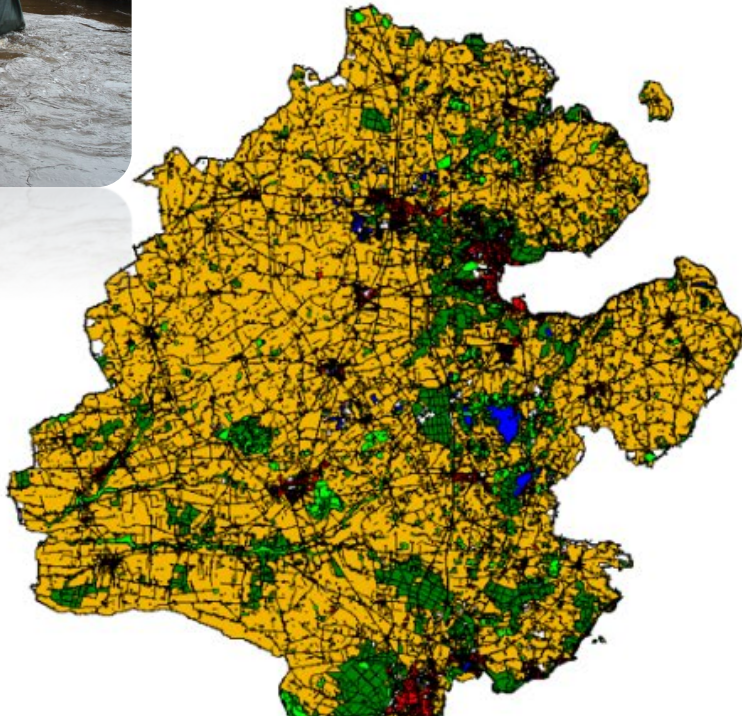
- 4250 indbyggere
- 12 stationer
- 1½ års måling
- Sensorer
- Data hver 10 m



- Byen har en varmeeffekt på vandløbet både i tørre og våde perioder
- Stigning i alle måneder (-marts) på 0,3-1,9 grader (mest om sommeren)
- "First heat effect" blev observeret
- Ingen forskelle afhængig af oplandstype
- Effekt?

Så det enkelte
udløb kan have
vidt forskellig
påvirkning
afhængig af
oplandets
sammensætning

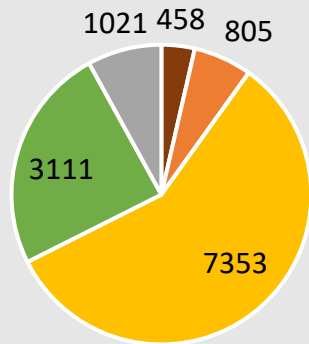




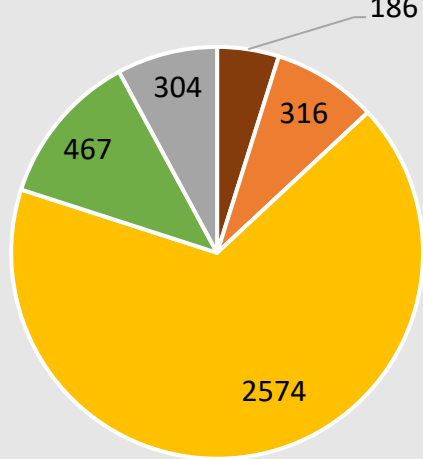
DVFI	Nature/Forest (%)	Combined Sewer (%)	Separate Sewer (%)	Scattered Houses (houses/km ²)
7	90 ± 13	0 ± 1	10 ± 13	2.4 ± 0.4
6	81 ± 20	1 ± 4	18 ± 20	3.7 ± 0.4
5	77 ± 26	4 ± 10	19 ± 23	3.9 ± 0.6
4	74 ± 30	5 ± 12	21 ± 26	5.4 ± 1
3	56 ± 34	16 ± 20	28 ± 25	4.9 ± 0.4
2	35 ± 26	28 ± 23	37 ± 24	2.3 ± 0.1
1	55 ± 32	16 ± 21	29 ± 29	5.4 ± 3.5

Opland (ha) ved Stavids Å

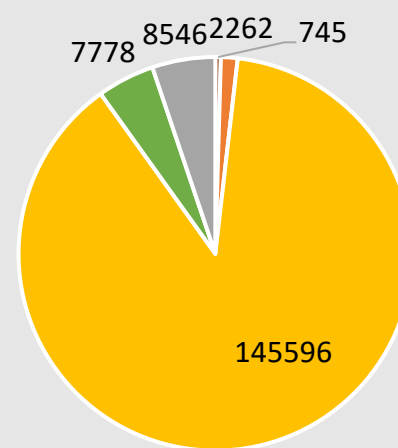
- Fælleskloakeret
- Separatkloakeret
- Landbrug
- Natur
- Andet



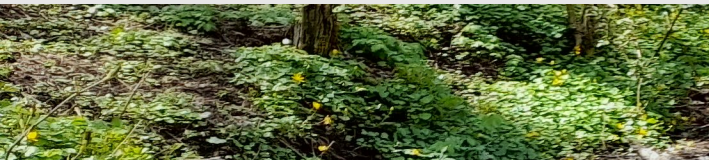
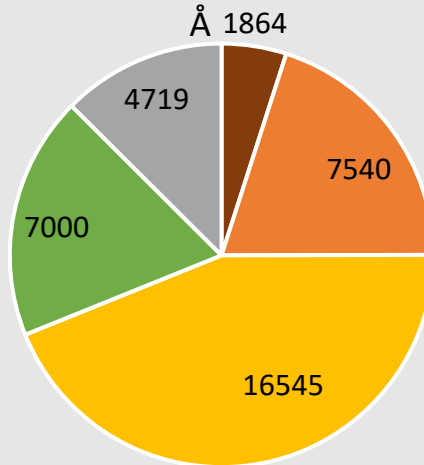
P bidrag (kg/år) ved Stavids Å



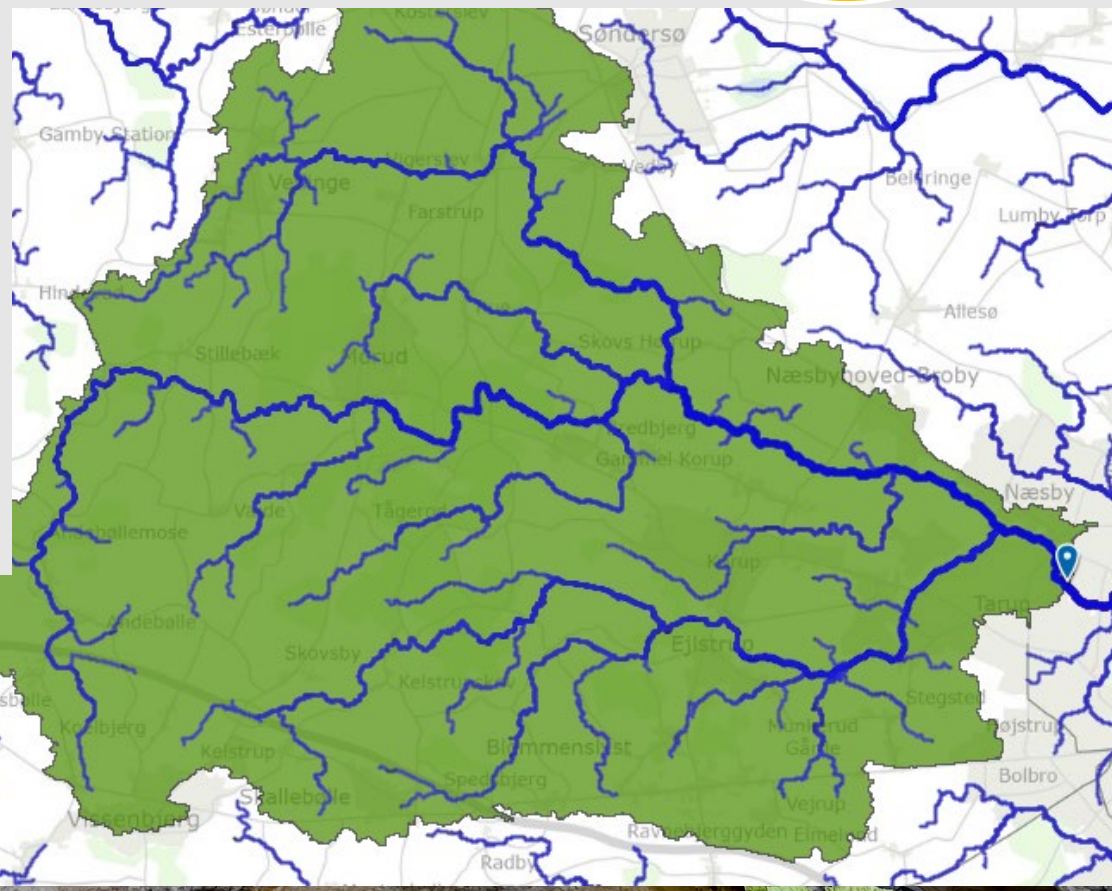
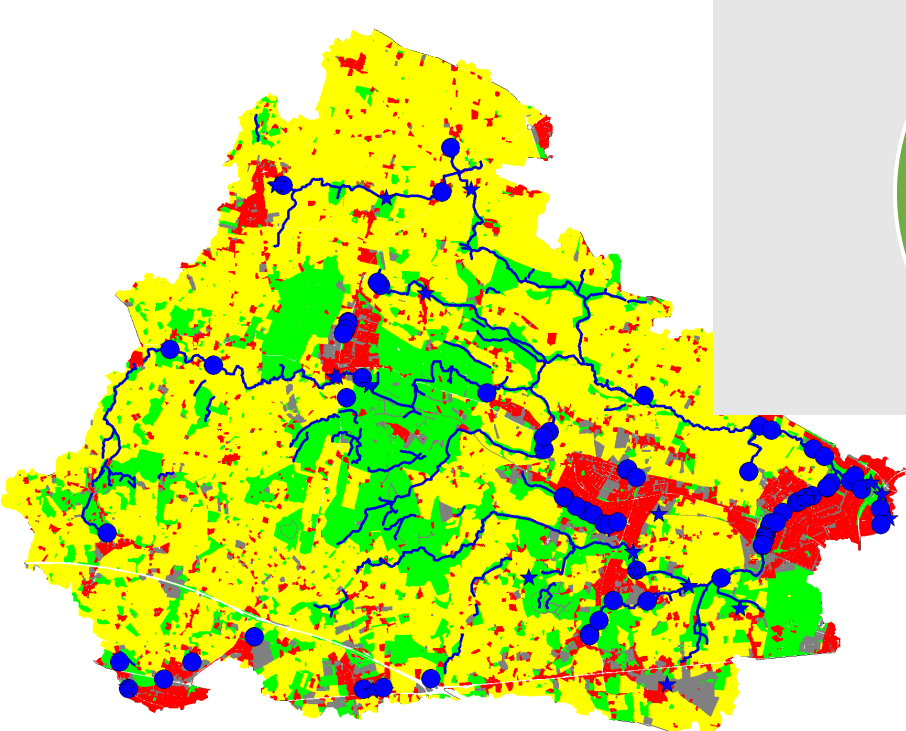
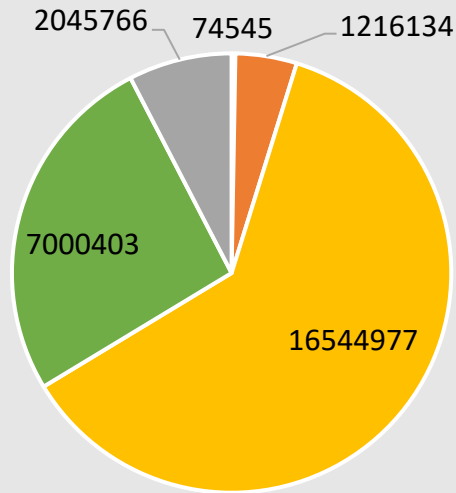
N bidrag (kg/år) ved Stavids Å

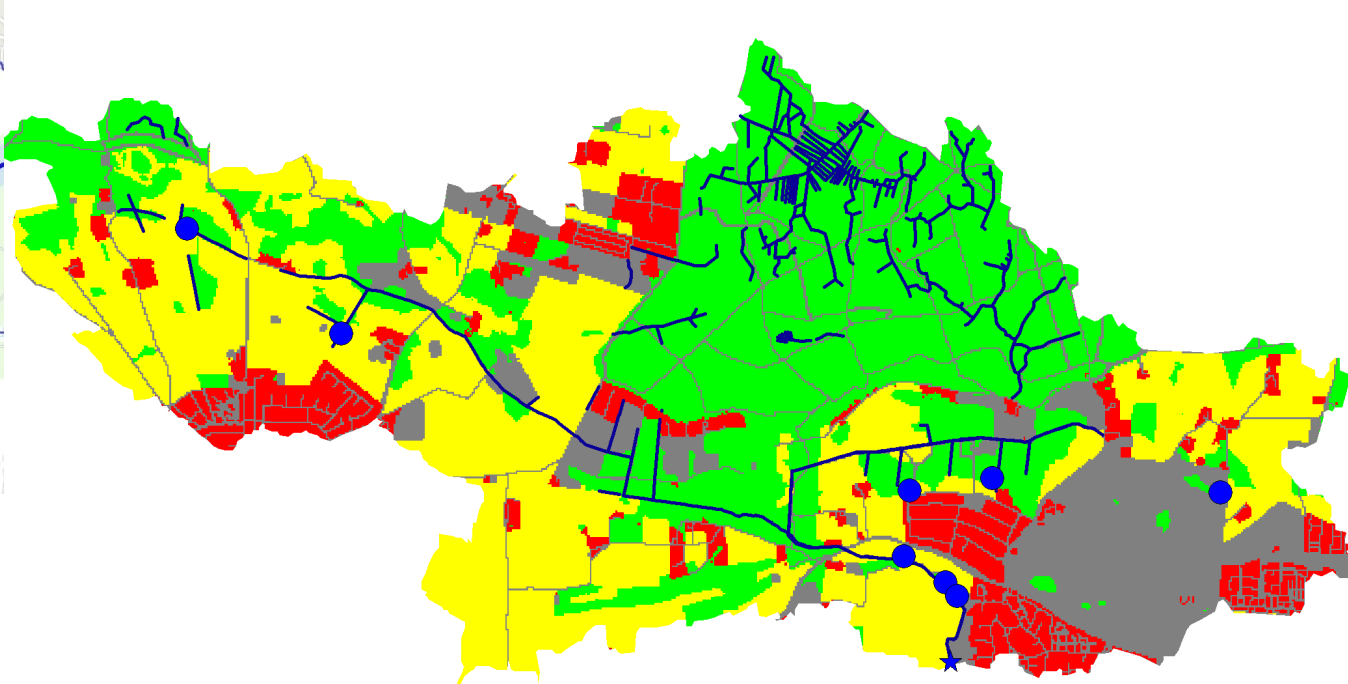
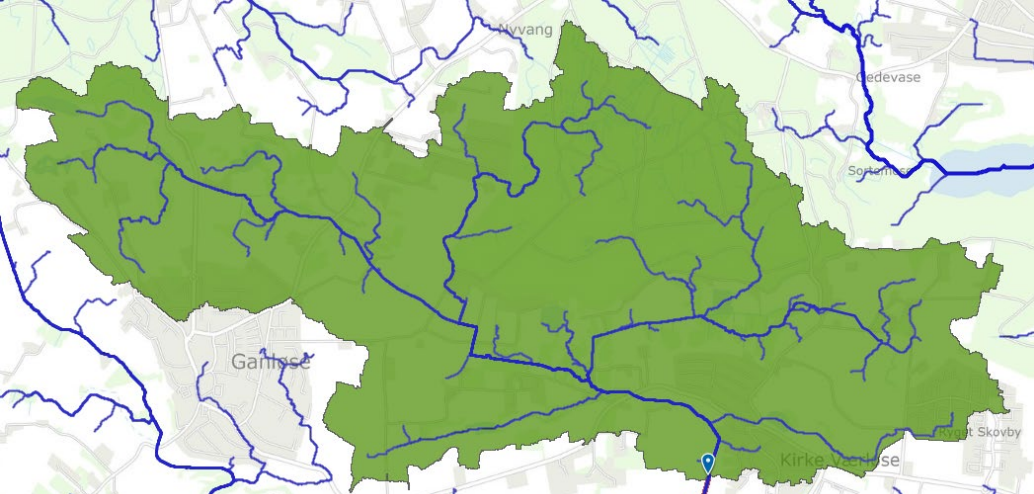


BI5 (kg/år) bidrag ved Stavids Å

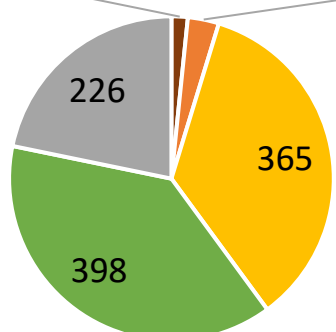


Vand (m³/år) ved Stavids Å

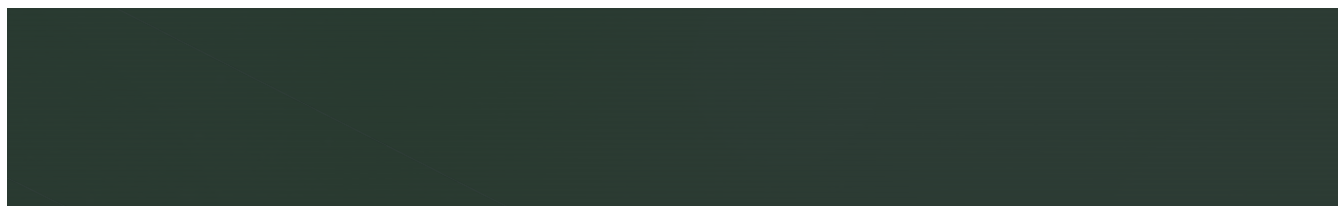




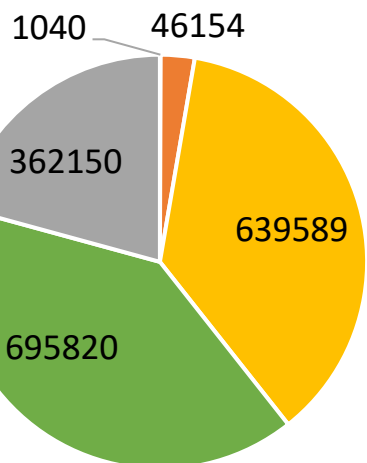
17 Opland (ha) til Bunds Å 32



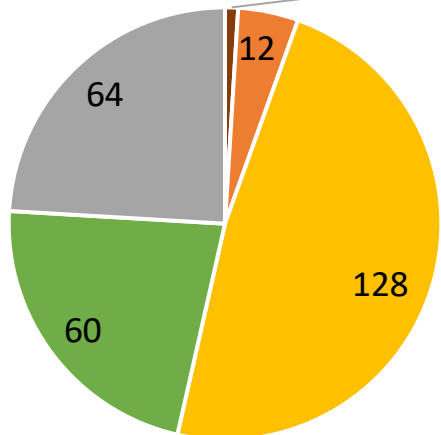
- Fælleskloakeret
- Separatkloakeret
- Landbrug
- Natur
- Andet



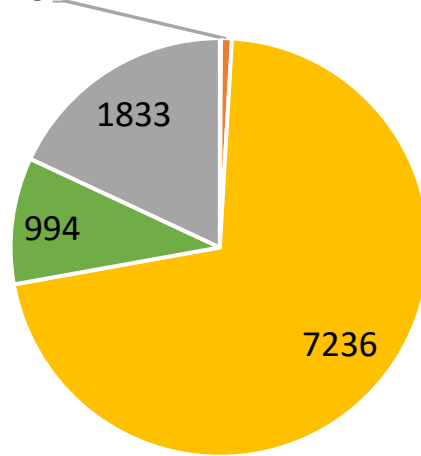
Vand (m³/år) til Bunds Å



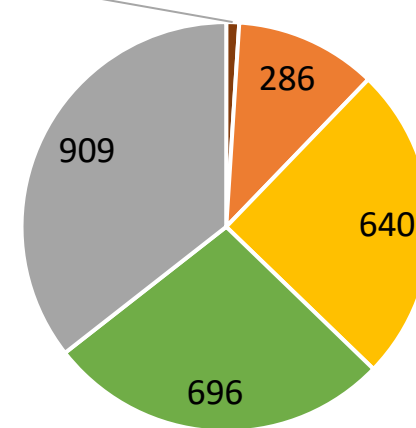
P bidrag (kg/år) til Bunds Å 3

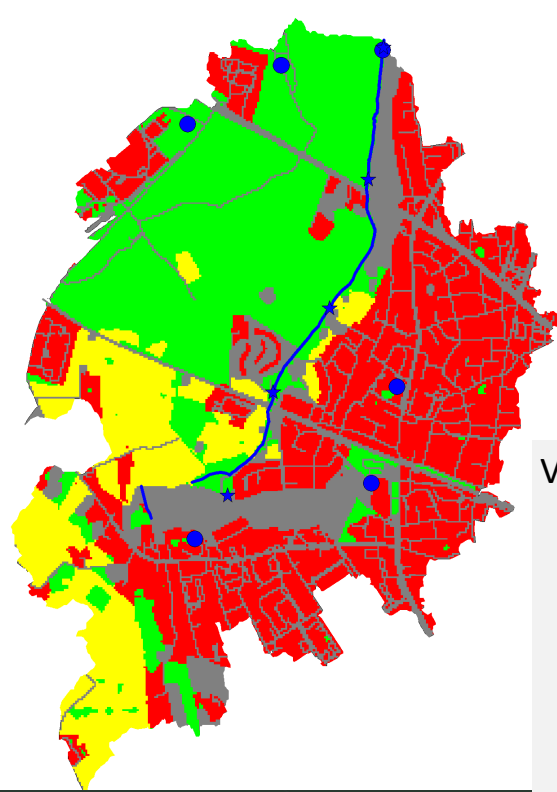
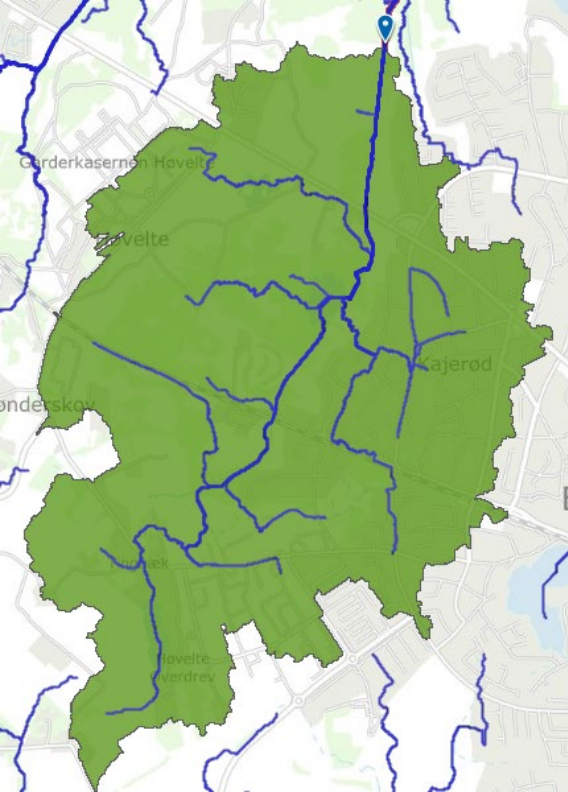


N bidrag (kg/år) til Bunds Å 86 g



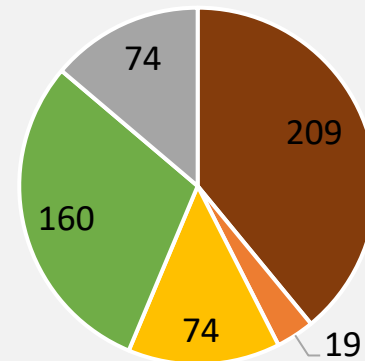
BI5 bidrag (kg/år) til Bunds Å



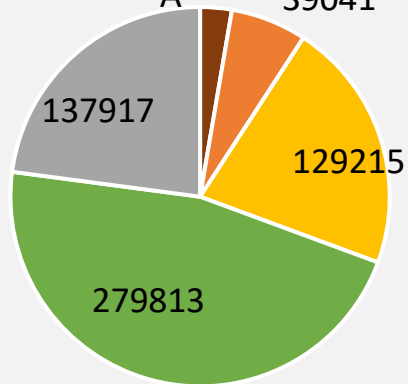


Opland (ha) v. Overløb 1 Kajerød Å

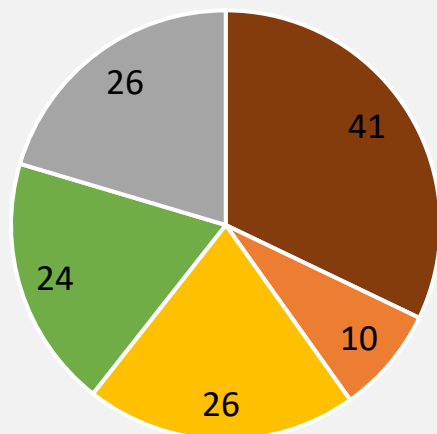
- Fælleskloakeret
- Separatkloakeret
- Landbrug
- Natur
- Andet



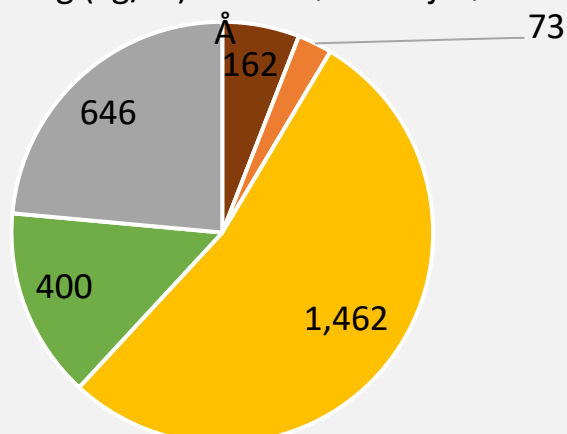
Vand (m³/år) v. Overløb 1 Kajerød Å



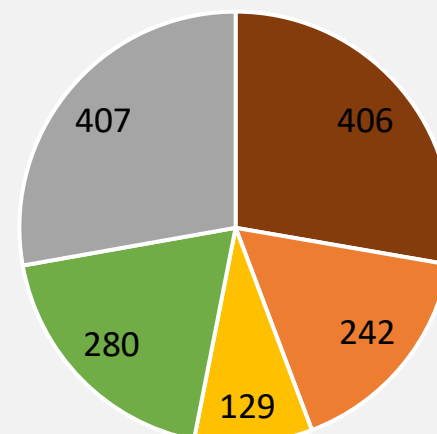
P-bidrag (kg/år) v. Overløb 1 Kajerød Å

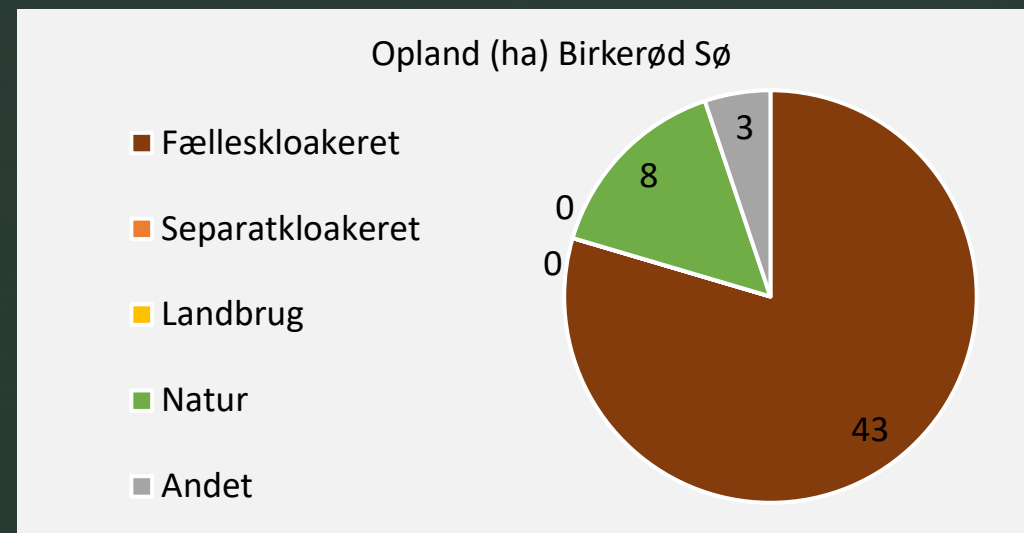
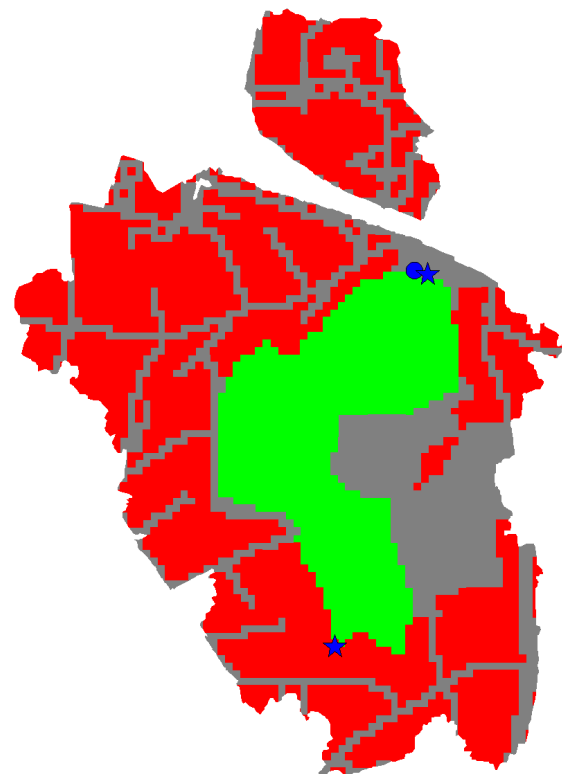
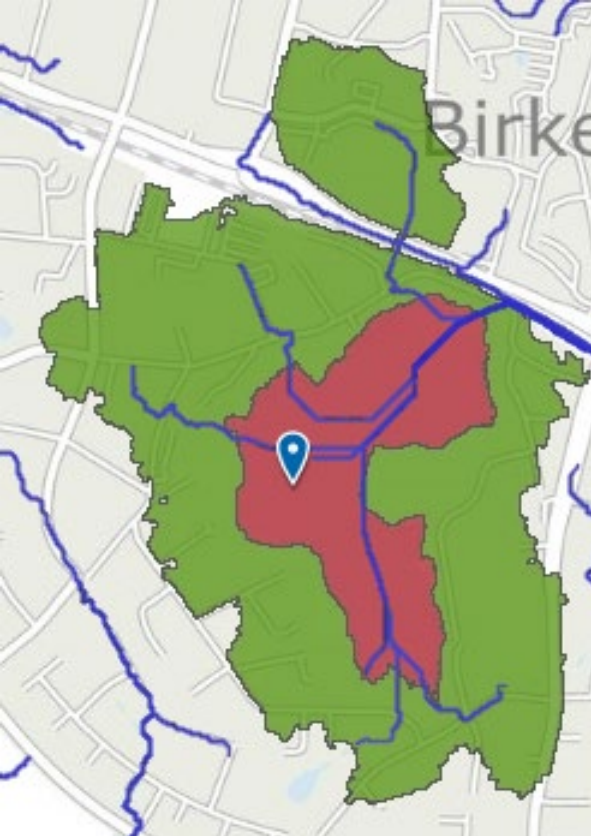


N-bidrag (kg/år) v. Overløb 1 Kajerød Å

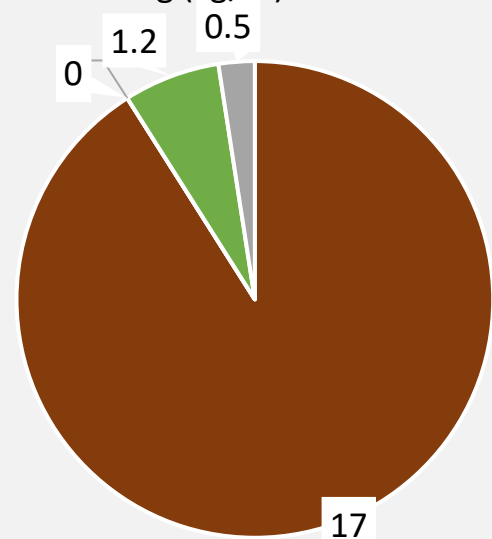


BI5-bidrag (kg/år) v. Overløb 1 Kajerød Å

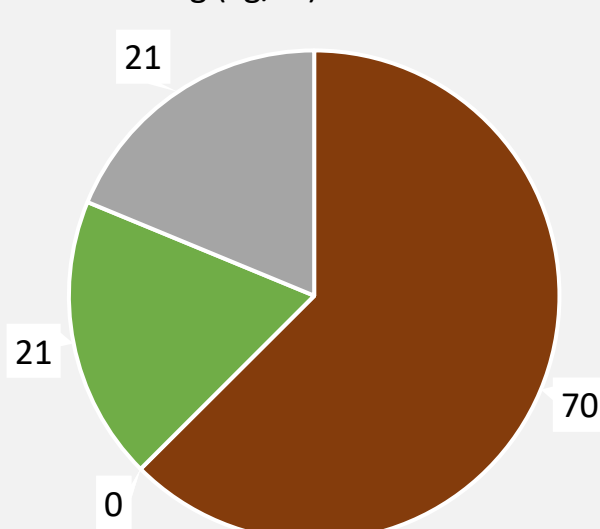




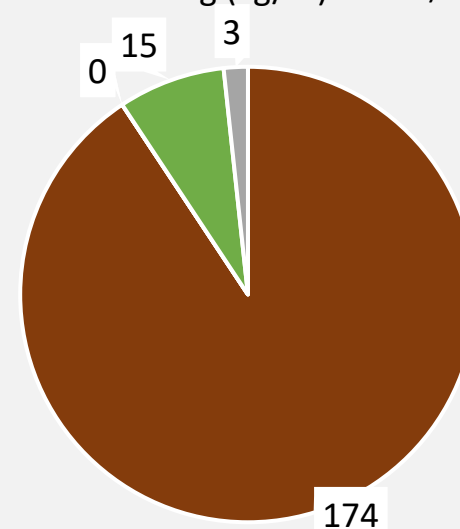
P bidrag (kg/år) Birkerød Sø



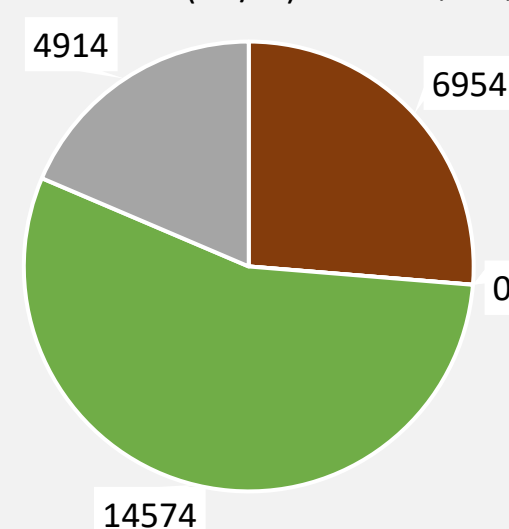
N bidrag (kg/år) Birkerød Sø



BI5 bidrag (kg/år) Birkerød Sø



Vand (m³/år) til Birkerød Sø



Total P kg/ha



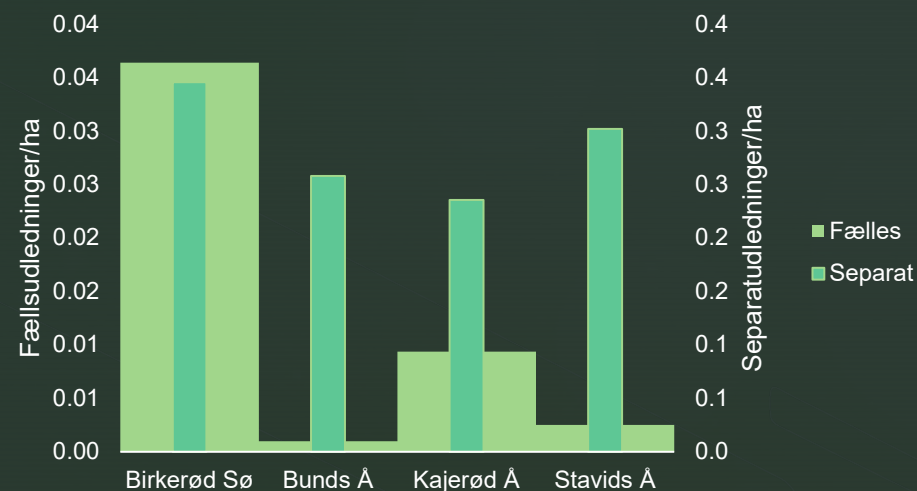
Total BI5 kg/ha



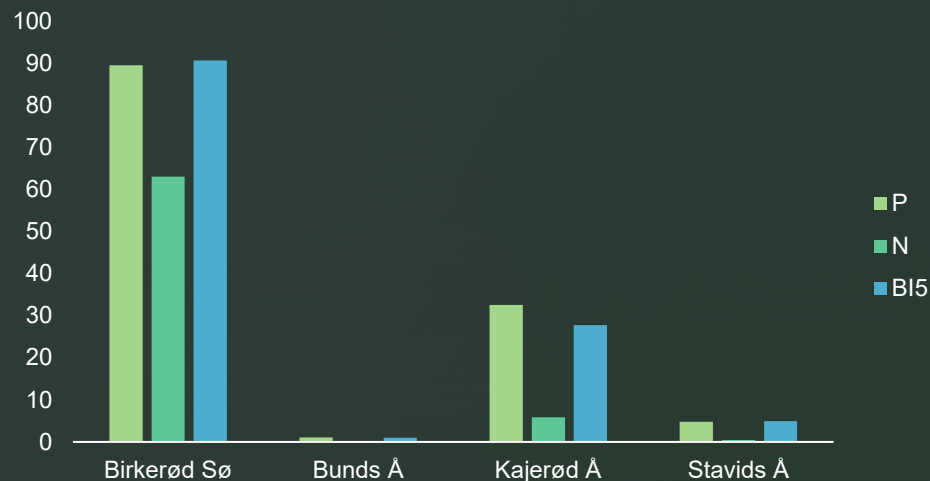
Total N kg/ha



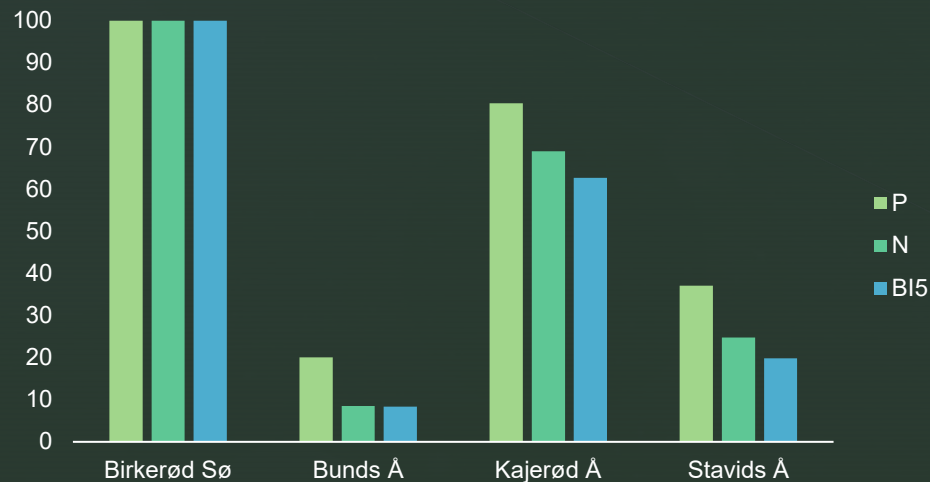
Antal udledninger/ha



Overløb/total afstrømning (%)

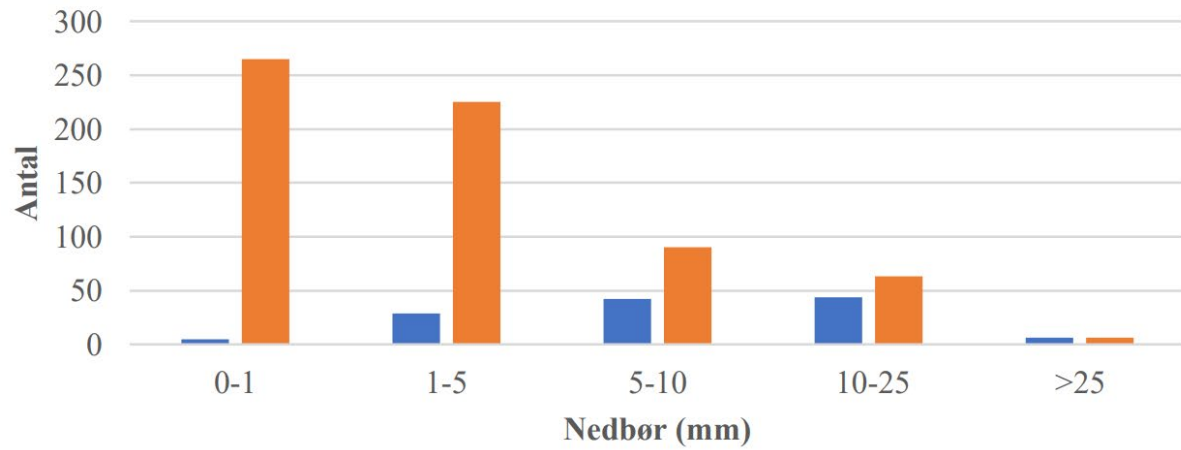


Overløb/RBU-afstrømning (%)

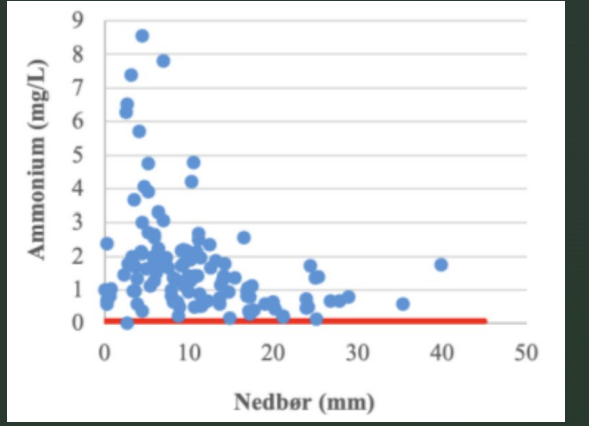
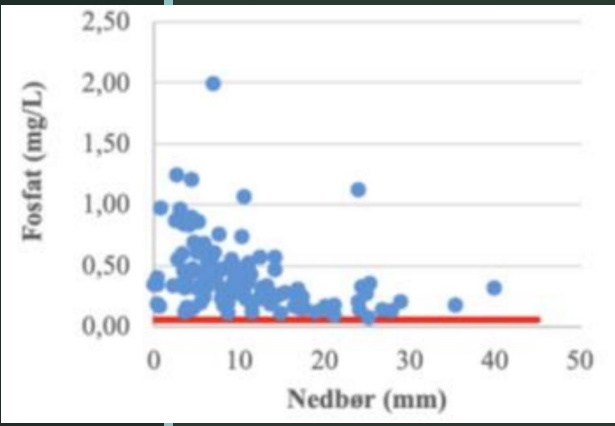
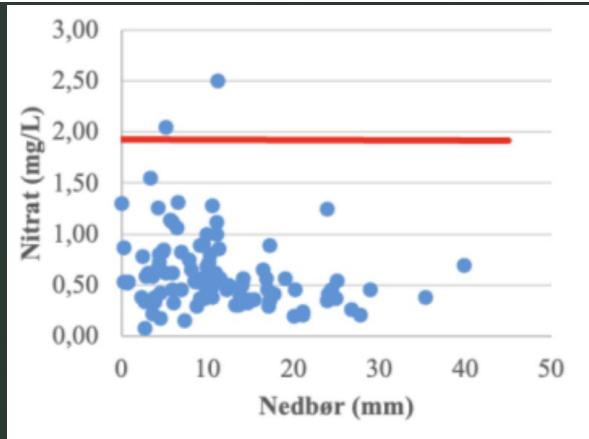
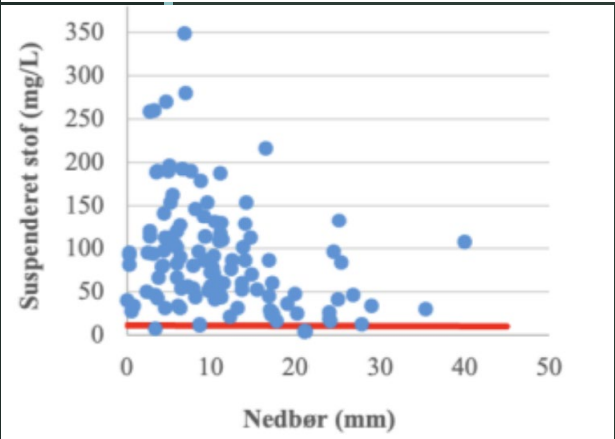


	2021	2022	2024
Bunds Å			
DFI	15	21	17
DVFI	5	5	5
Kajerød Å			
DFI	19	17	24
DVFI	3	4	5
Stavids Å			
DFI	18	19	20
DVFI	4	6	5

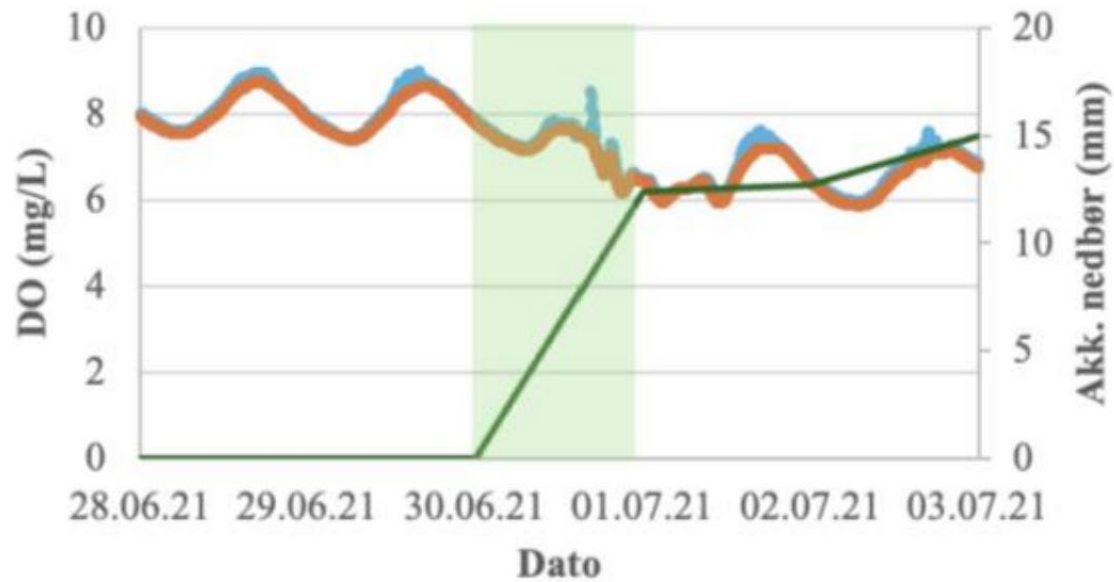
Både samlet set og som andel af den samlede udledning via regnbetingede udledninger kan overløb betyde alt eller lidt, og andre parametre påvirker måske også?



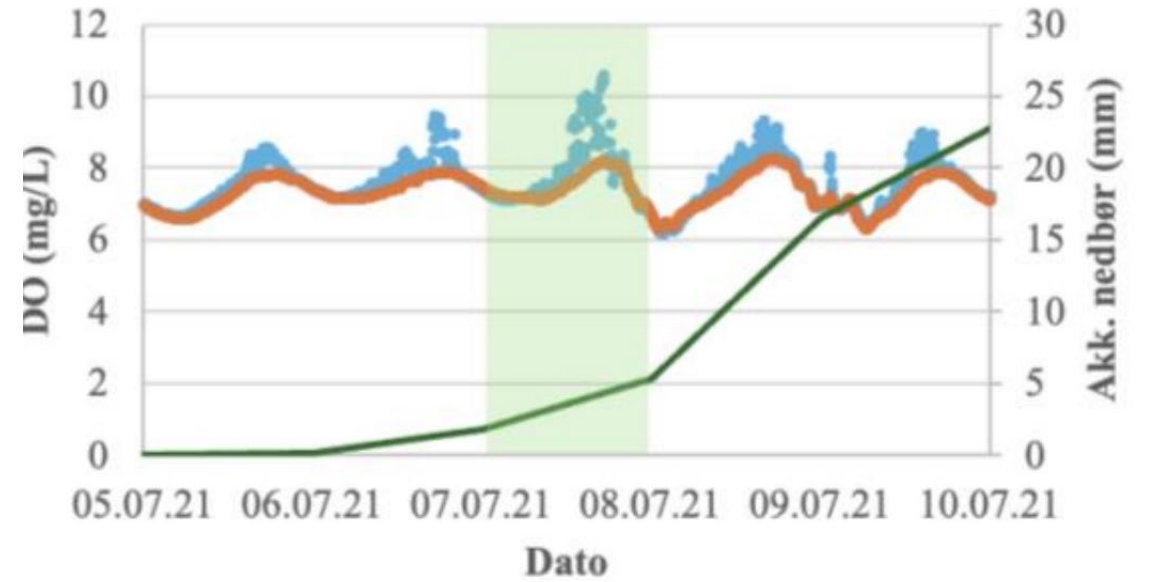
■ Overløb
■ Nedbørsdage

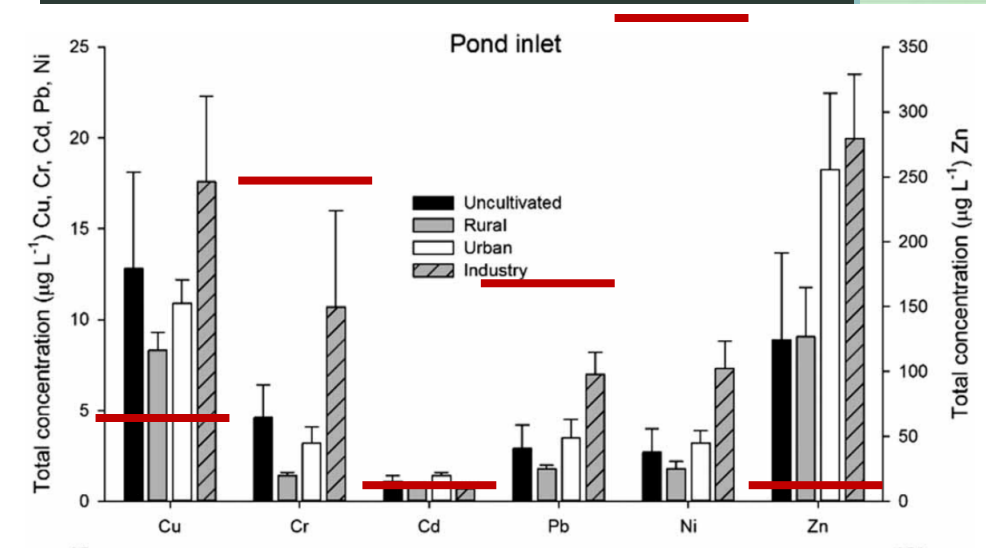
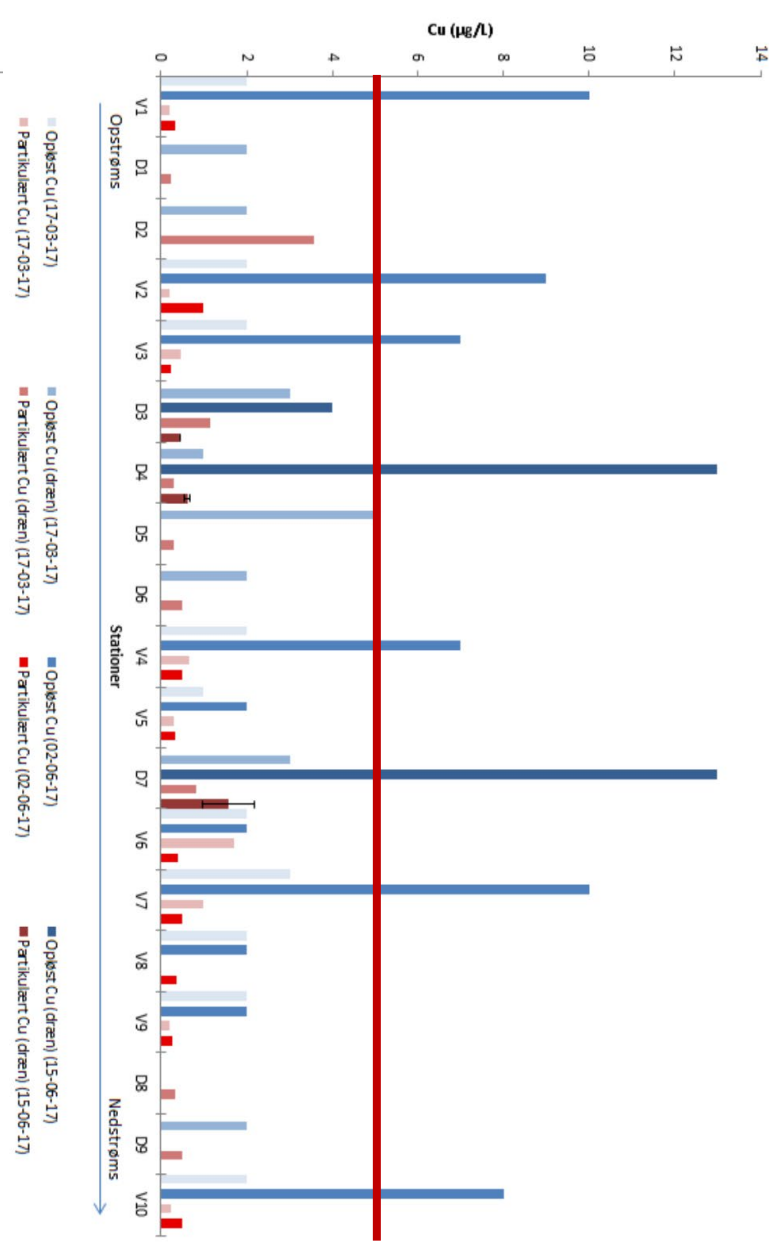
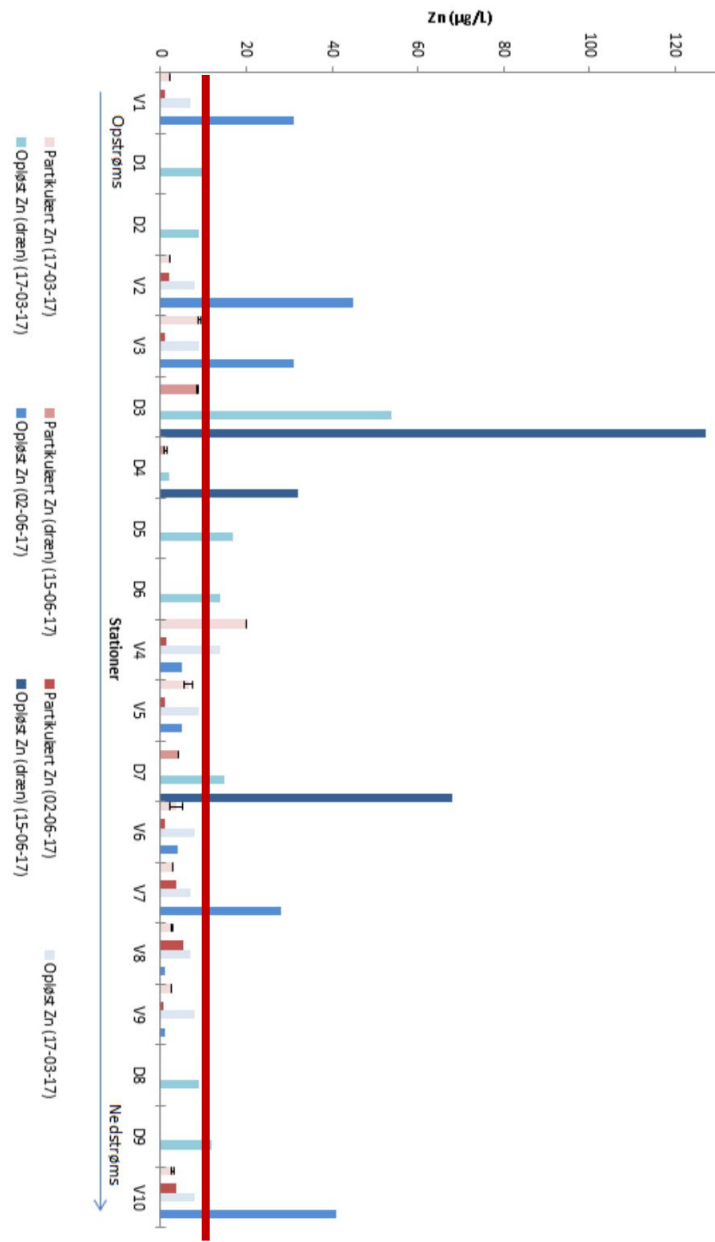


10-25 mm



1-5 mm

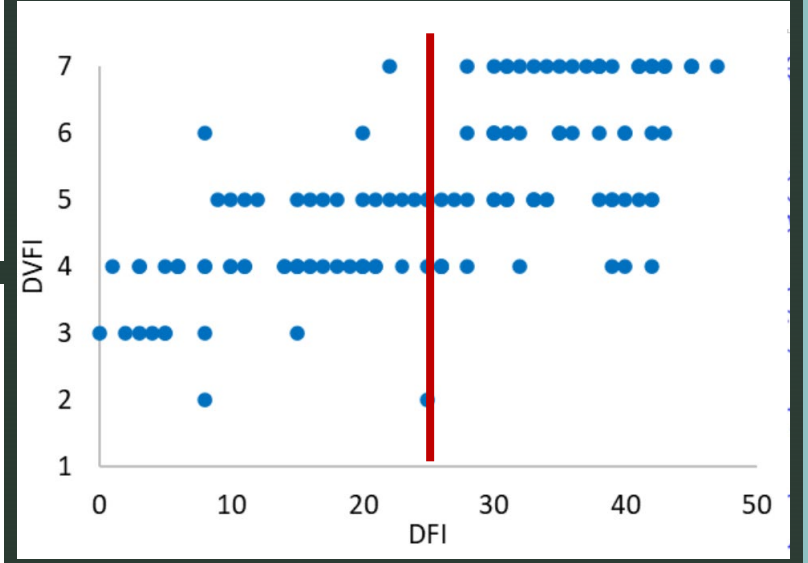
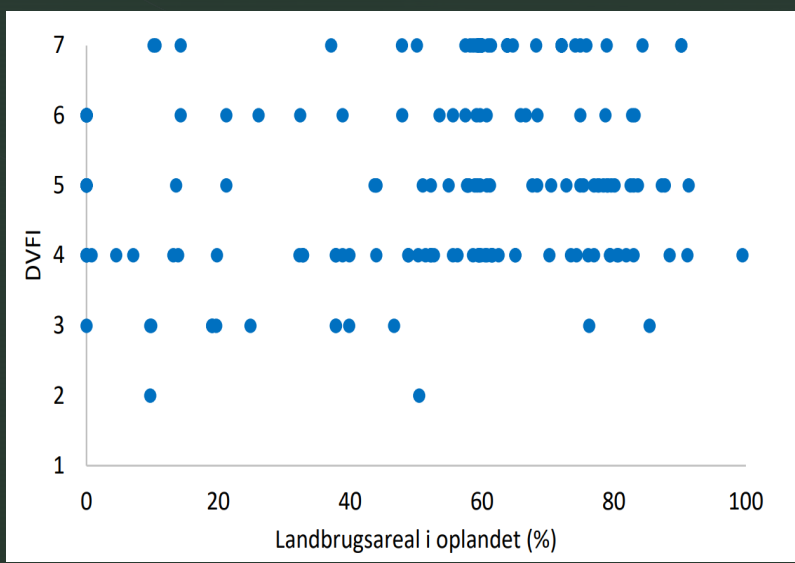
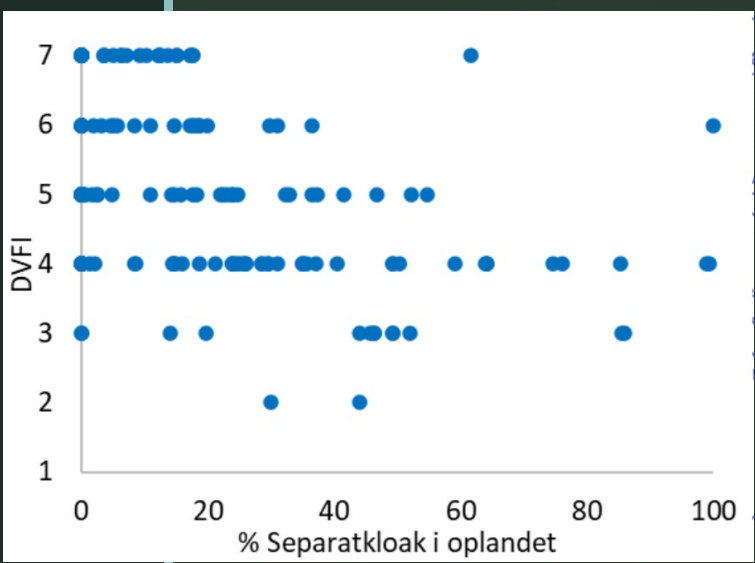
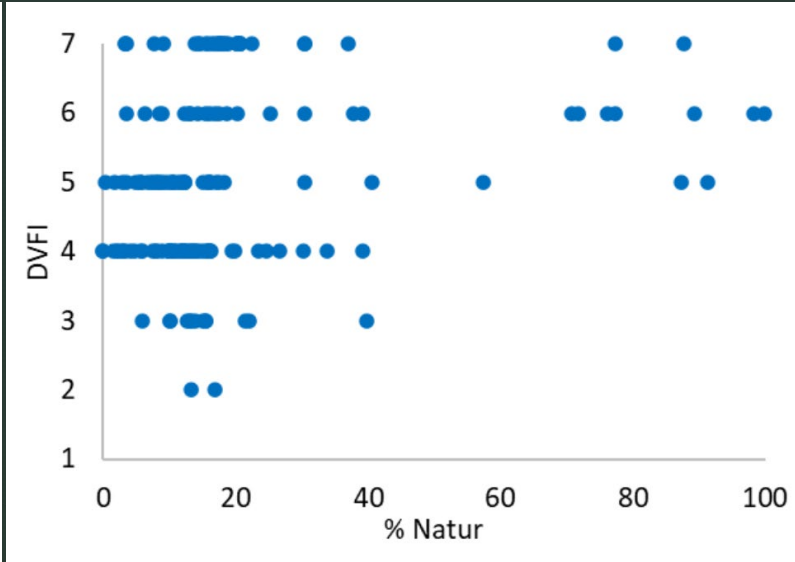
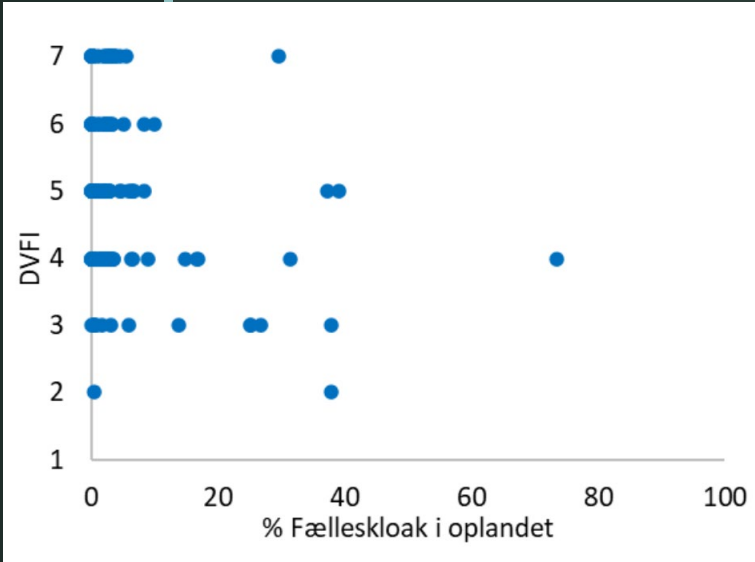




Egemose 2014,
Bek 796

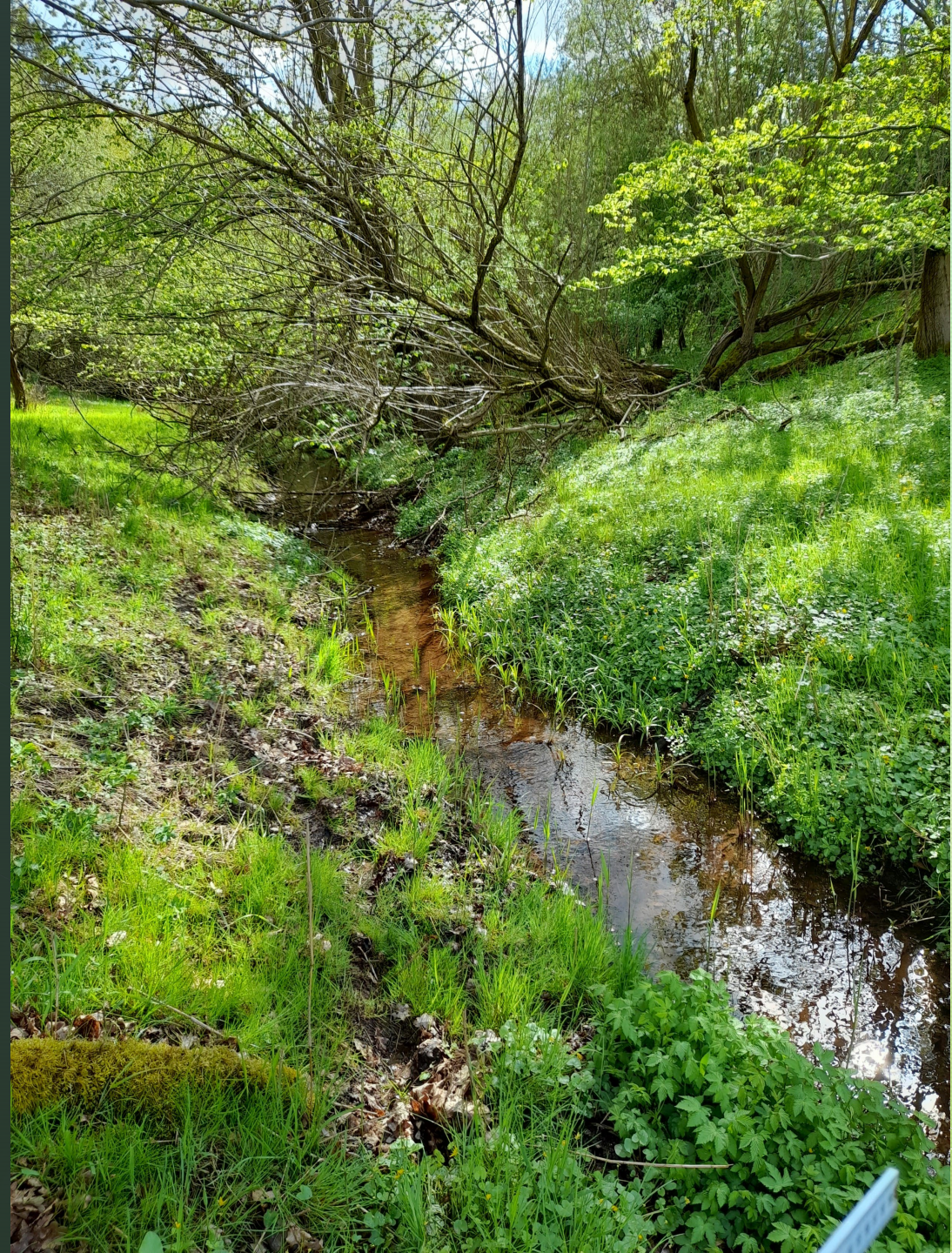


Oplandsanalyse af 140 vandløbsstationer i Aarhus Kommune



.....så:

- Vandkvaliteten i et vandløb er et resultat af de samlede påvirkninger
- Sammensætningen og anvendelsen af det konkrete opland er vigtigt
- Der er stor forskel fra opland til opland mht. hvor meget bidraget fra overløb betyder både når man ser totalt set og når man ser på overløbenes bidrag af de regnbetingede udledninger
- Ifht. løsninger bør man fokusere både holistisk (hvilket kræver overblik) og lokalt





Tak!

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