



Meteorologisk  
institutt

# Klimaendringene påvirker drikkevannet

Kan vi drikke vannet i springen i framtida?

Reidun Gangstø Skaland, klimaforsker

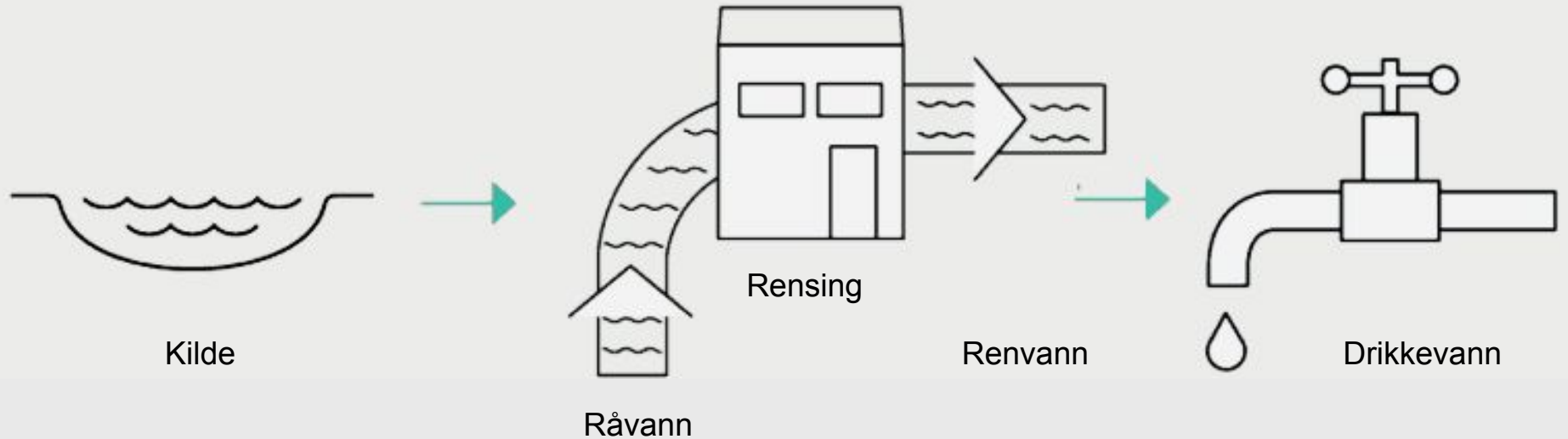
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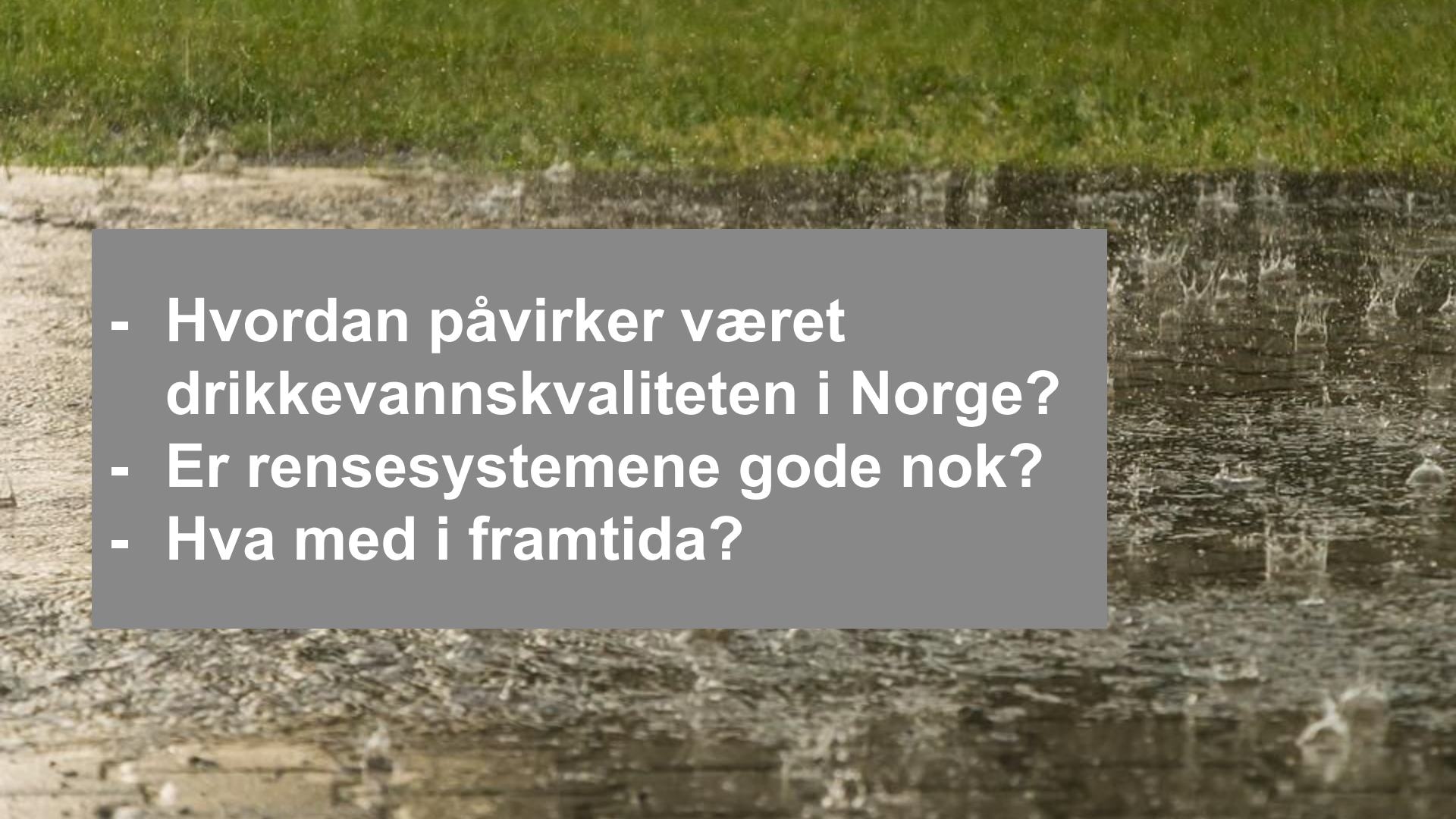




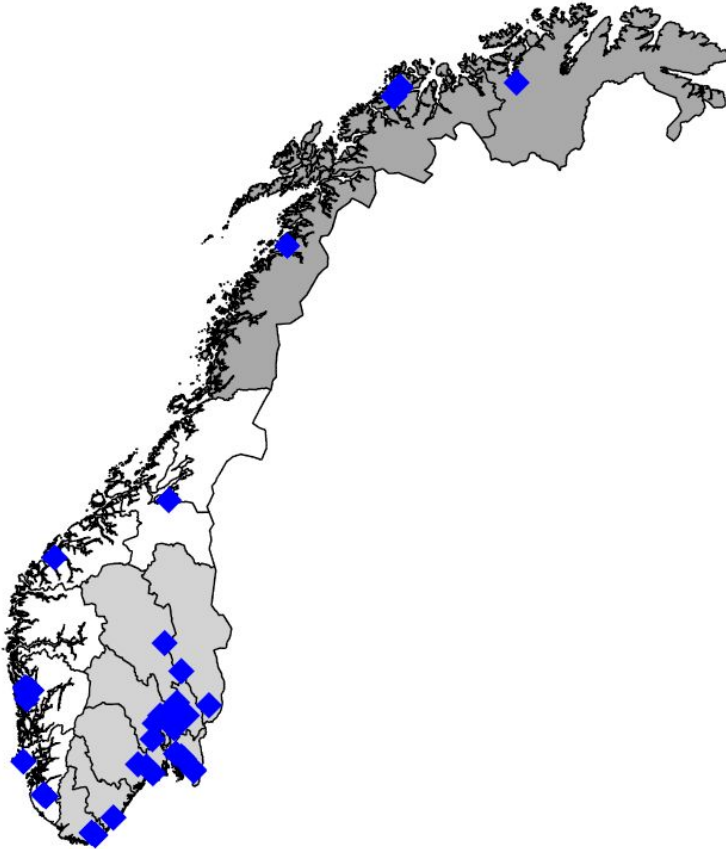
# Drikkevann - fra kilde til kran





- 
- Hvordan påvirker været drikkevannskvaliteten i Norge?
  - Er rensesystemene gode nok?
  - Hva med i framtida?

# Data og metode: vannkvalitet



Koliforme  
bakterier



*E. coli*



Intestinale  
enterokokker



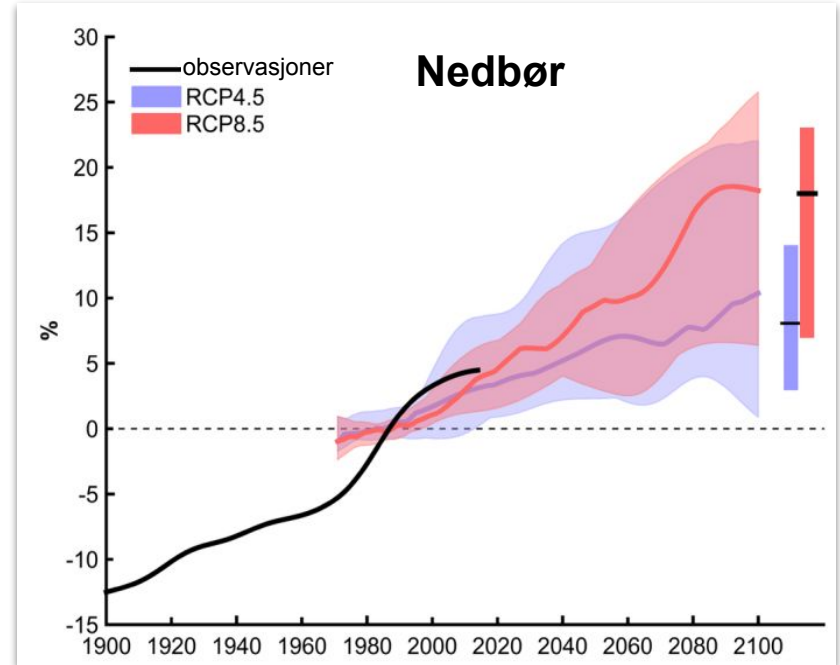
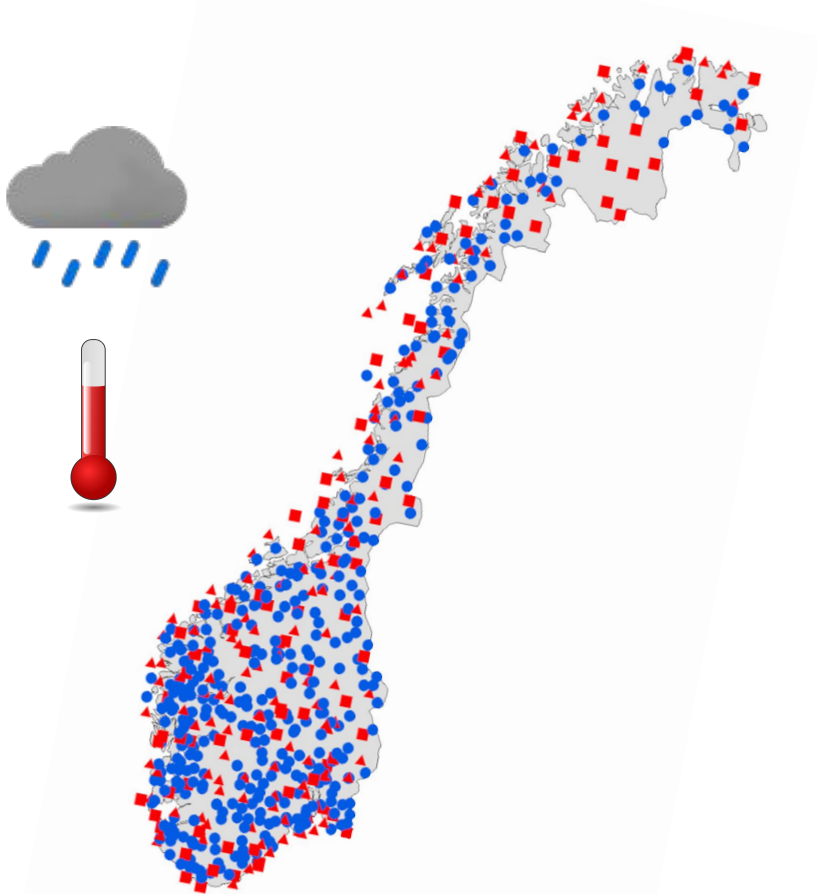
Farge



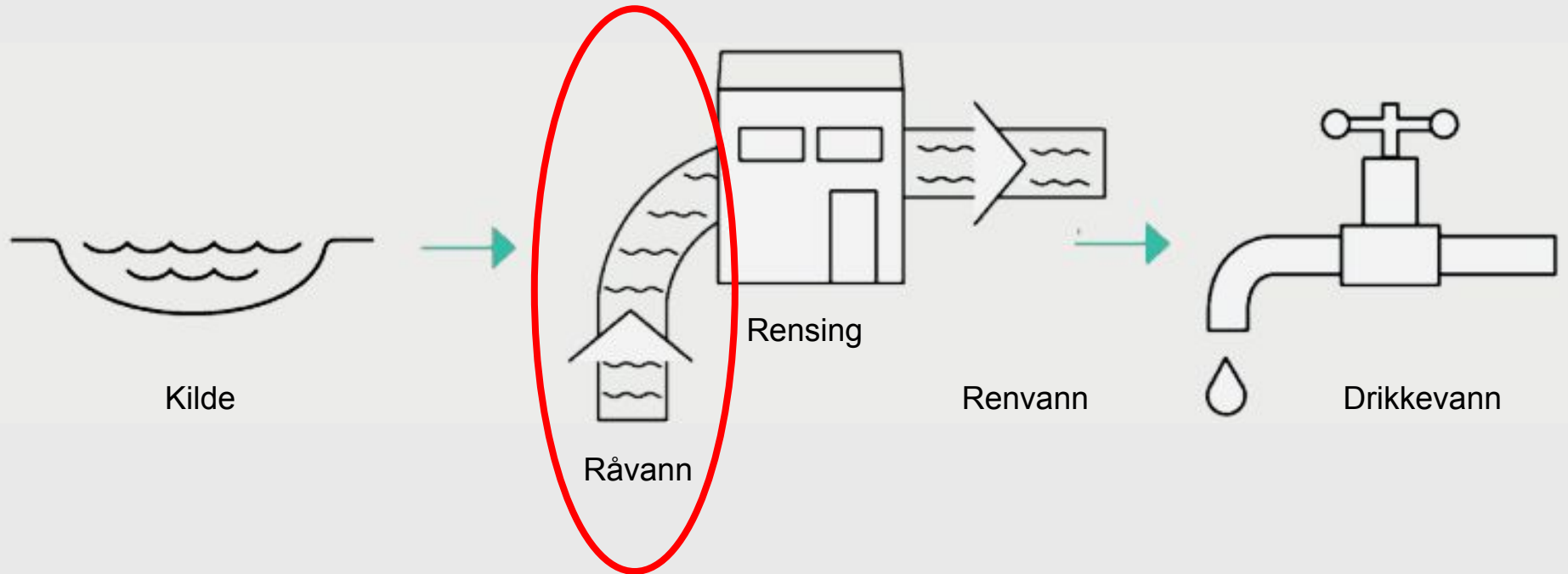
Turbiditet



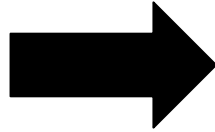
# Data og metode: vær og klimaendringer



# 1. Resultater for råvann



# Klar sammenheng mellom regn og vannkvalitet



Koliforme  
bakterier



*E. coli*



Intestinale  
enterokokker



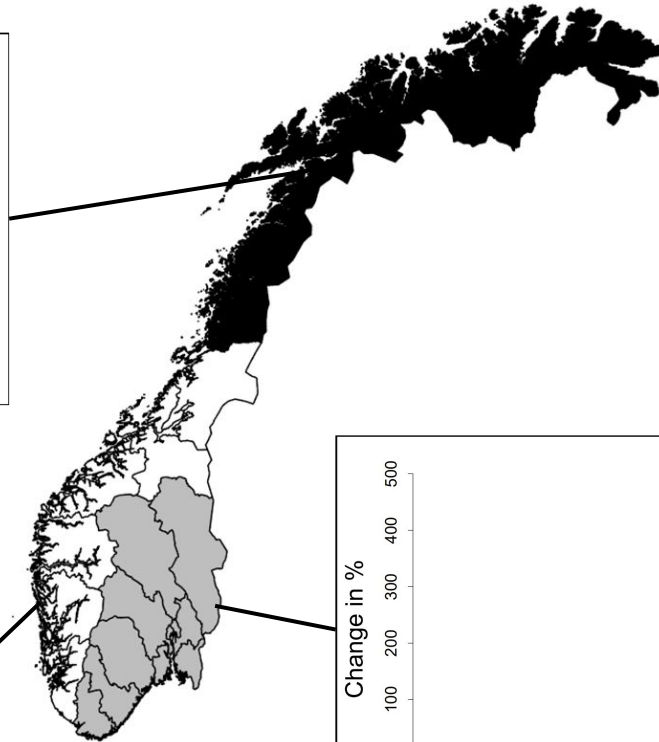
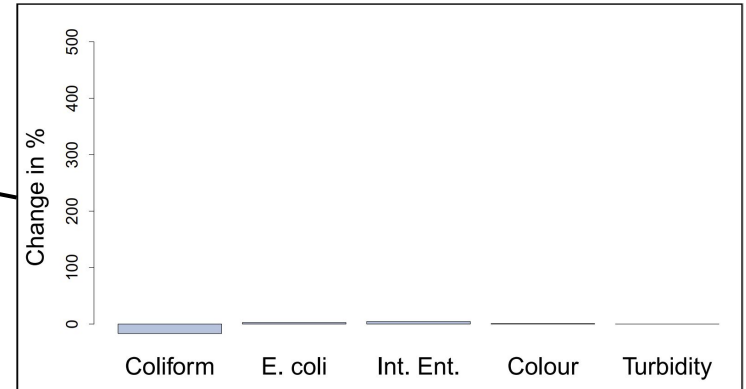
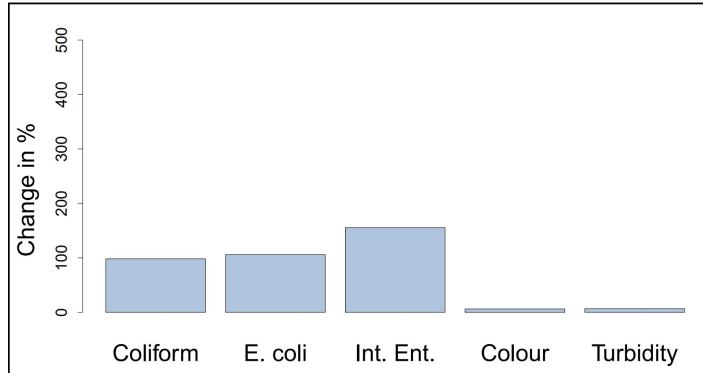
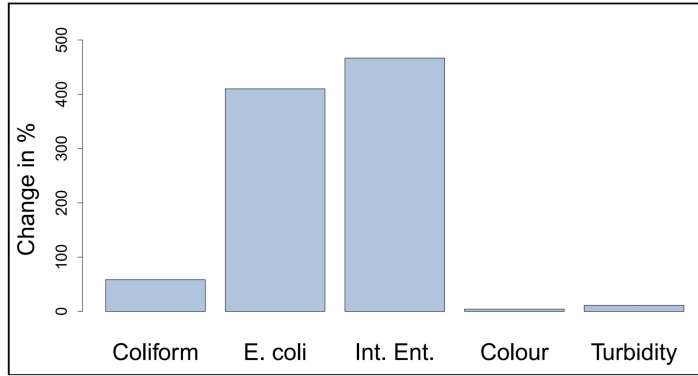
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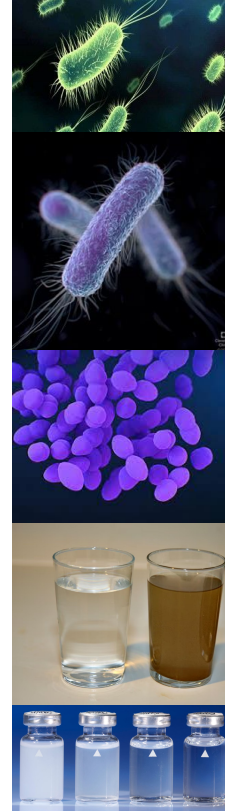
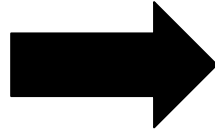
Turbiditet



# Dårligere vannkvalitet i framtida p.g.a. mer regn



# Ingen sammenheng mellom temperatur og vannkvalitet (hele året)



Koliforme bakterier



*E. coli*



Intestinale enterokokker



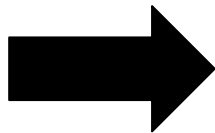
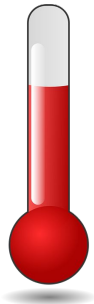
Farge



Turbiditet



# Klar sammenheng mellom temperatur og vannkvalitet (vinter)



Koliforme bakterier



*E. coli*



Intestinale enterokokker



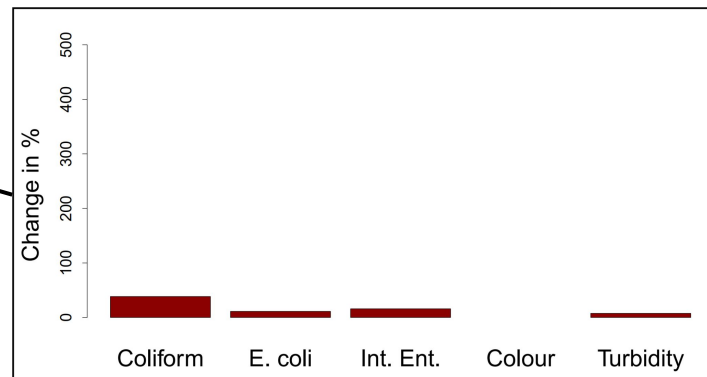
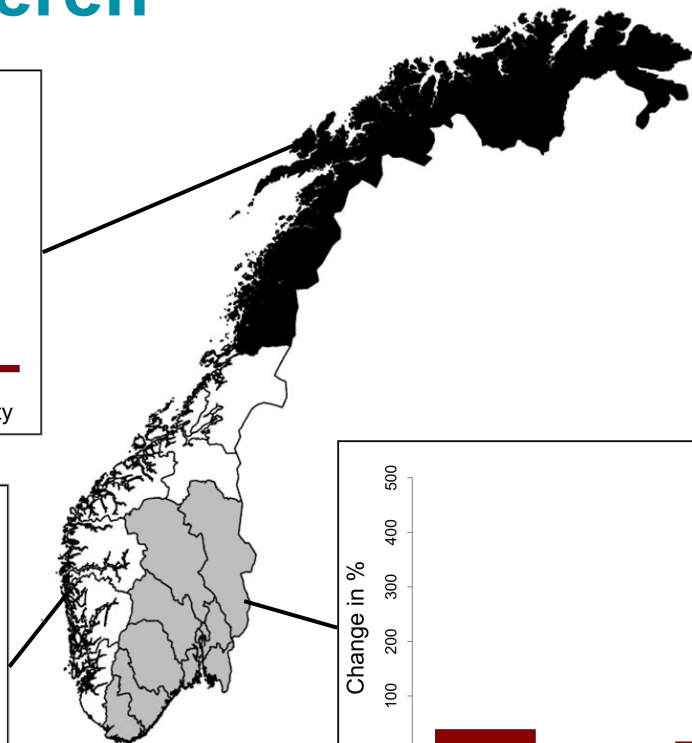
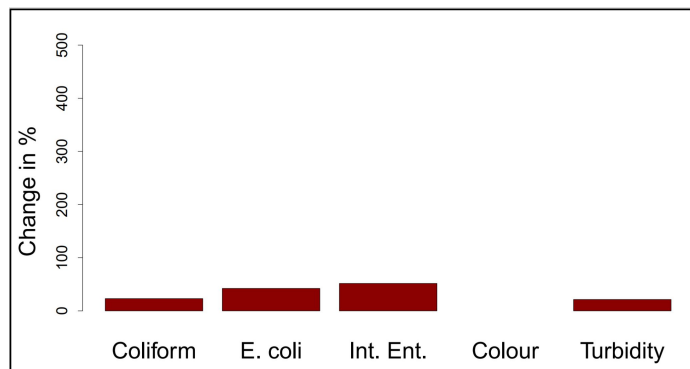
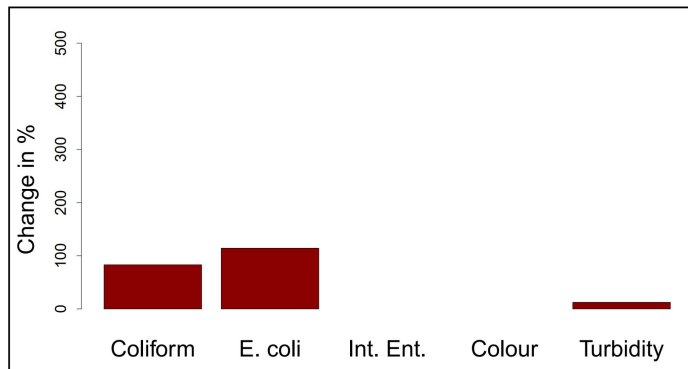
Farge



Turbiditet



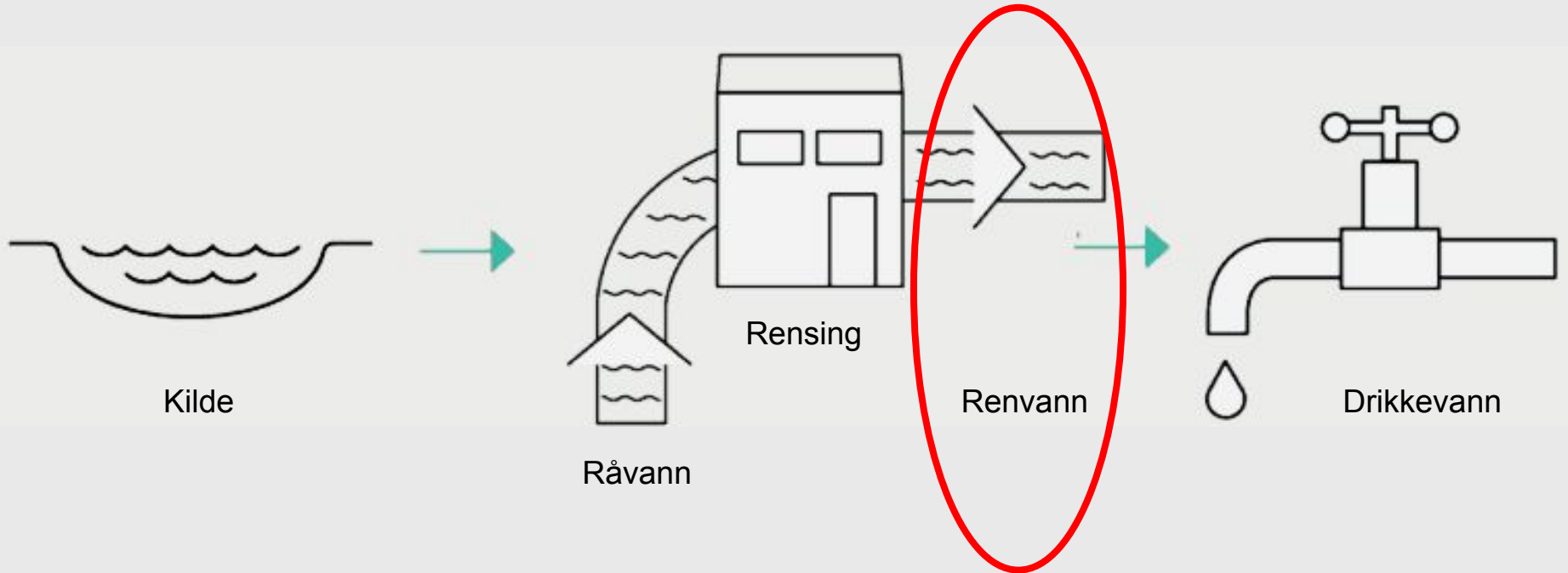
# Dårligere vannkvalitet i framtida p.g.a. økt temperatur om vinteren



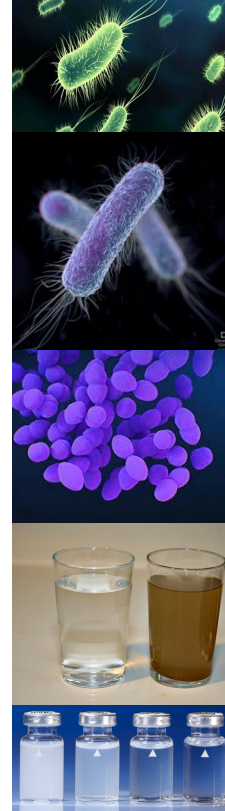
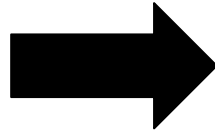




## 2. Resultater for renvann



# Liten sammenheng mellom regn og vannkvalitet



Koliforme bakterier



*E. coli*



Intestinale enterokokker



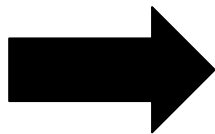
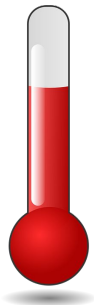
Farge



Turbiditet



# Ingen sammenheng mellom temperatur og vannkvalitet



Koliforme bakterier



*E. coli*



Intestinale enterokokker



Farge



Turbiditet



# Konklusjoner - råvann

## **Mer regn:**

- flere sykdomsbakterier, brunere og skitnere vann
- klar forverring av vannkvaliteten i framtida i vest og i nord

## **Økt temperatur:**

- dårligere vannkvalitet på vinteren, på grunn av mindre is
- klar forverring av vannkvaliteten i framtida om vinteren

# Konklusjoner - renvann

- Liten sammenheng mellom vær og vannkvalitet
- Vannverkene i studien klarer å rense vannet bra i dag
- Kun store vannverk inkludert i studien
  - mindre og private vannverk er mer sårbare for forurensing
- Gode og tilpassede rensesystemer er viktig i framtida
- Rørsystemene som frakter renvannet ut må også fungere

Takk for meg!

## Mer informasjon:

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One Health

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### Heavy weather events, water quality and gastroenteritis in Norway

Bernardo Guzman Herrador<sup>a</sup>, Vidar Lund<sup>a</sup>, Wenche Fonahn<sup>a</sup>, Hege Hisdal<sup>c</sup>, Hans Olav Hygen<sup>b</sup>,  
Susanne Hyllestad<sup>a</sup>, Zuzana Nordeng<sup>a,\*</sup>, Reidun Gangstø Skaland<sup>b</sup>, Linda Selje Sunde<sup>a</sup>,  
Line Vold<sup>a</sup>, Richard White<sup>a</sup>, Wai Kwok Wong<sup>c</sup>, Karin Nygård<sup>a</sup>

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### Impacts of climate change on drinking water quality in Norway

R. G. Skaland<sup>id</sup><sup>a,\*</sup>, B. G. Herrador<sup>b</sup>, H. Hisdal<sup>id</sup><sup>c</sup>, H. O. Hygen<sup>id</sup><sup>a</sup>, S. Hyllestad<sup>b</sup>, V. Lund<sup>b</sup>, R. White<sup>id</sup><sup>b</sup>,  
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