

ModULar Tools for Integrating enhanced natural treatment SOLUTIONS in URban water CyclEs

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26. April 2024



MULTISOURCE
enhanced natural treatment solutions



MULTISOURCE

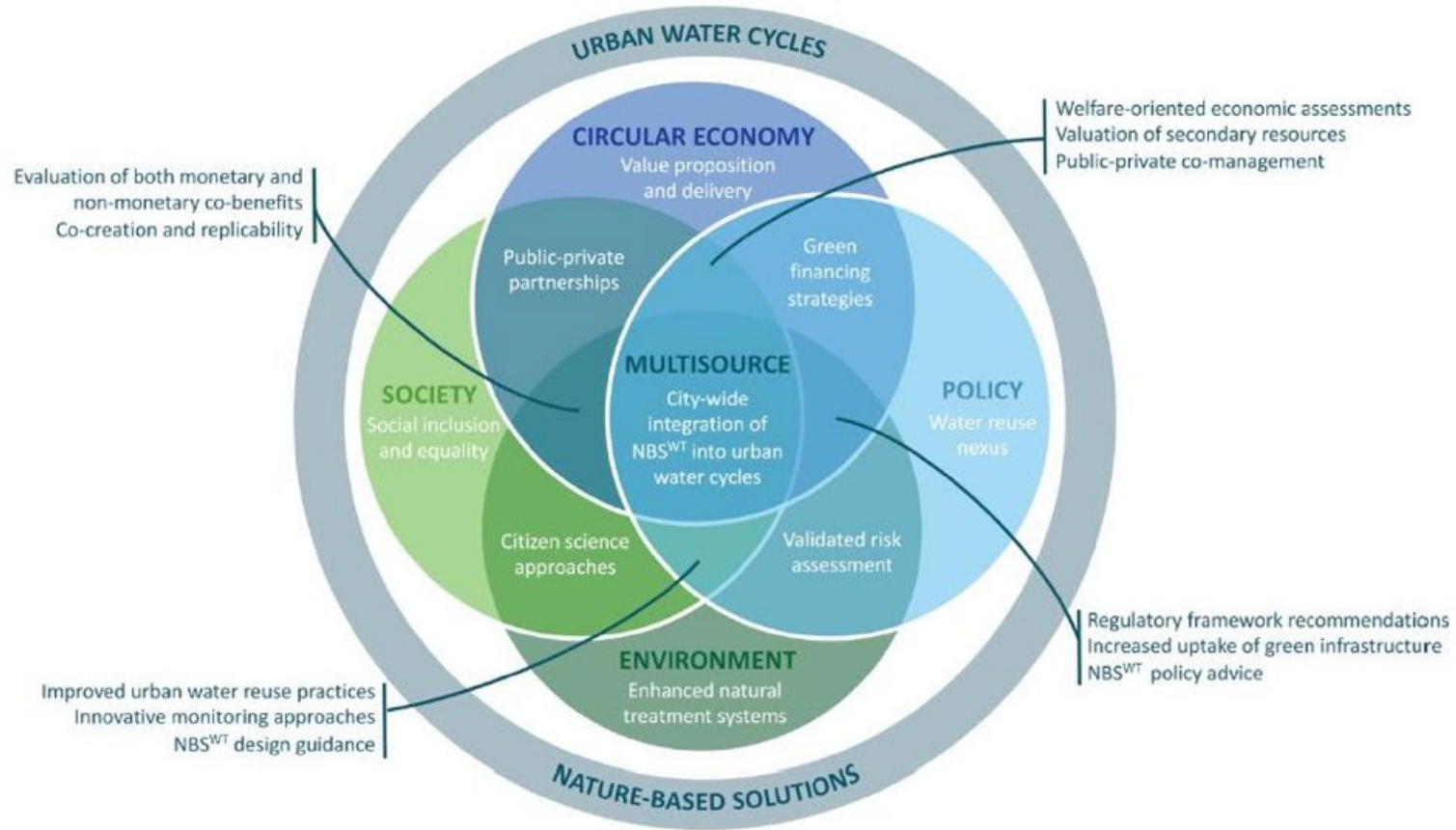
<https://youtu.be/KsL56UiTKk0>

AT A GLANCE

The overall objective of MULTISOURCE is to **facilitate the systematic, citywide planning of nature-based solutions for urban water treatment, storage and reuse.**



OVERALL CONCEPT



France – Raw domestic wastewater



Belgium – Pretreated wastewater



Italy – Combined Sewer Overflow



USA – High-strength wastewater



Spain – Greywater



Norway – Runoff



Germany – Rainwater





IMPACT AND RESULTS

1

Monitoring of seven
ENTS pilots in
operational
environments

2

MULTISOURCE NBSWT
Selection and Design
Tool

3

MULTISOURCE Planning
Platform, an open-
source urban water
planning tool that
enables systematic
planning of NBSWT on
a city-wide scale

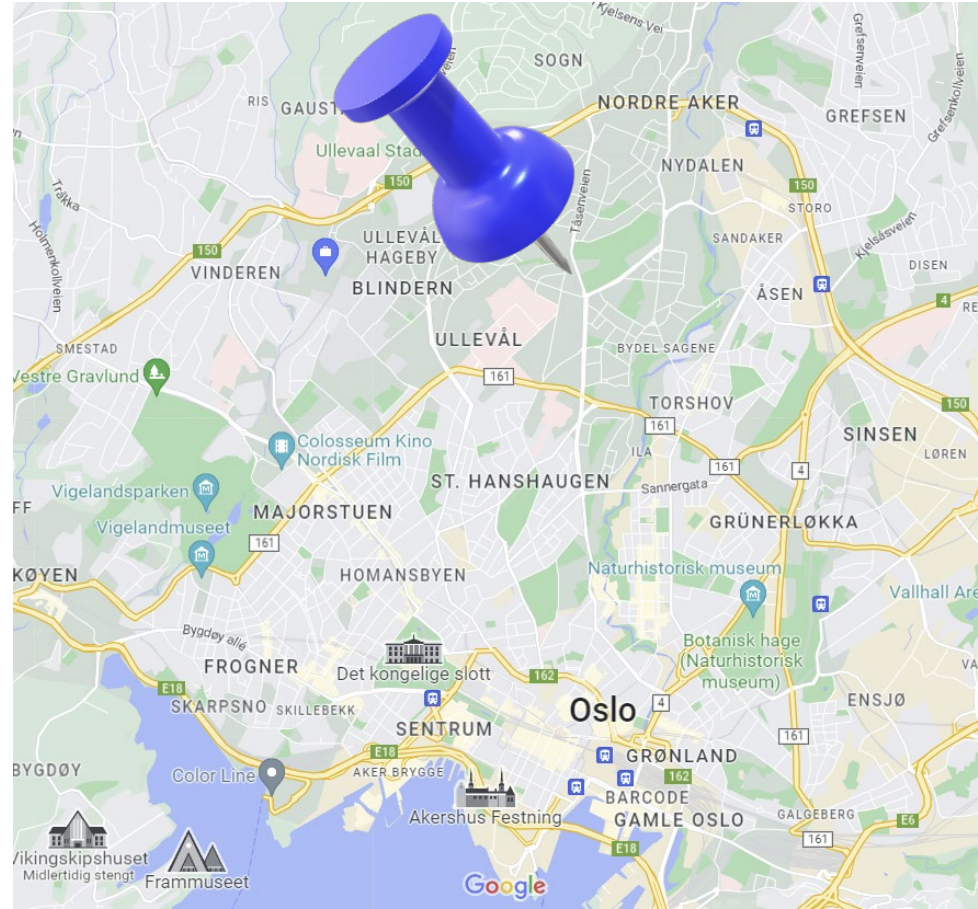
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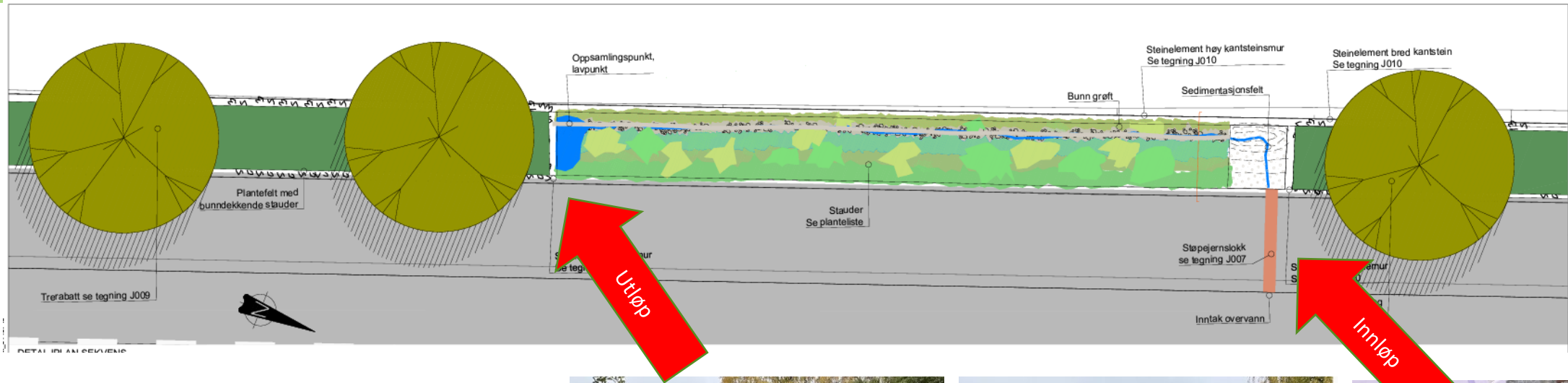
Case studies / roll-out
of MULTISOURCE tools
in partner cities

5

Policy
recommendations for
increased uptake of
urban NBS^{WT}

Hvor vi er i Oslo





- ÅDT 11400
- Innløp og utløp med ulikt design
- Vann infiltrerer grunnen
- Påvirker hvordan vi kan måle



Sensordata i sanntid (1 min) – GRAFANA internt bruk / SUPERSET eksternt bruk

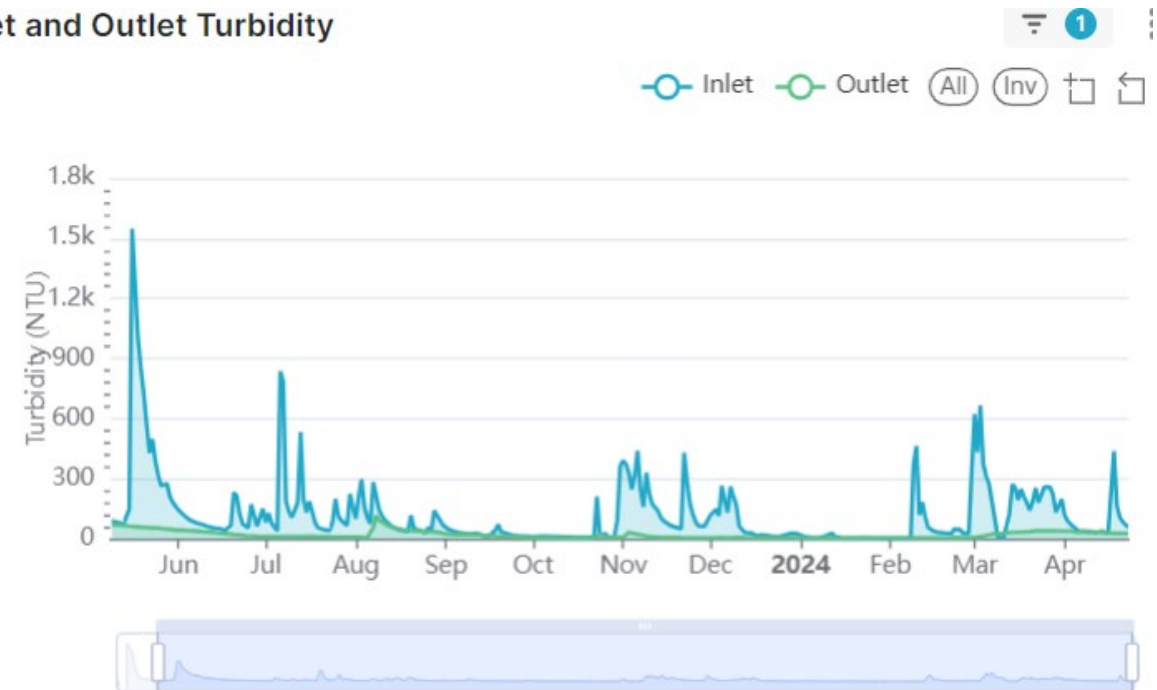


Sensordata i sanntid

Inlet and Outlet Conductivity

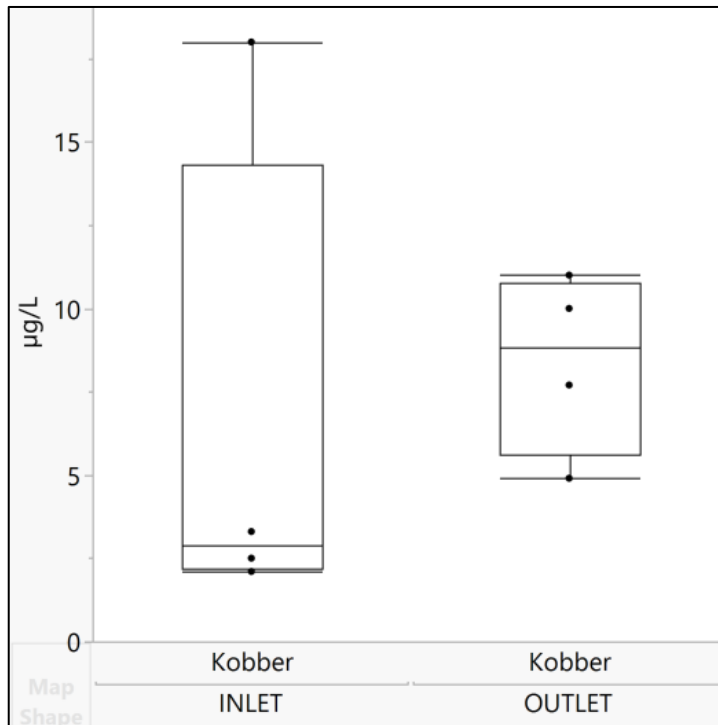


Inlet and Outlet Turbidity

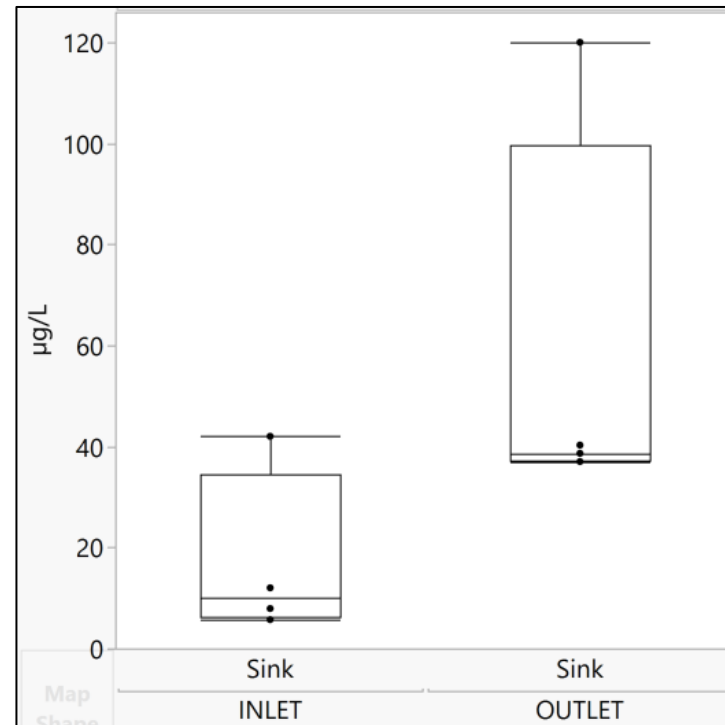


Metaller – tidsintegrert prøvetagning av episode

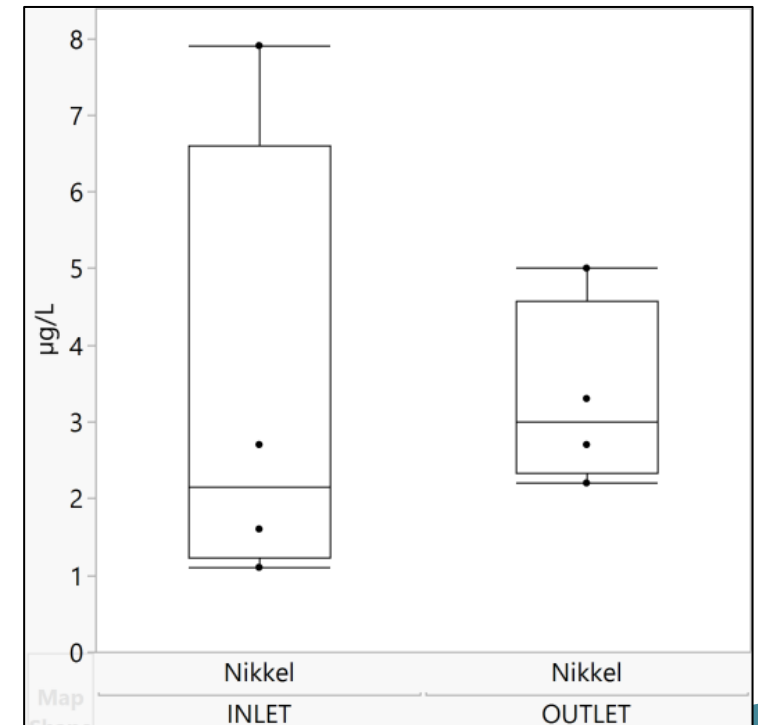
Kobber



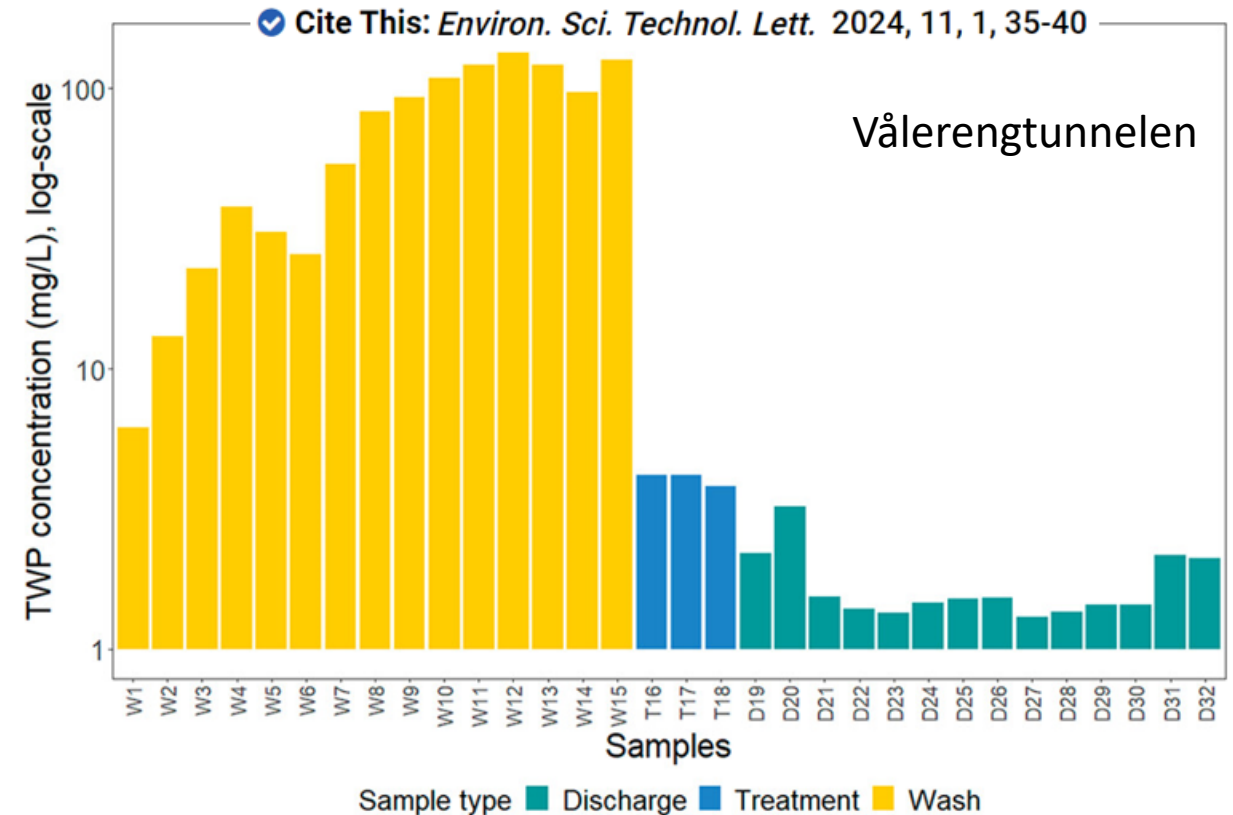
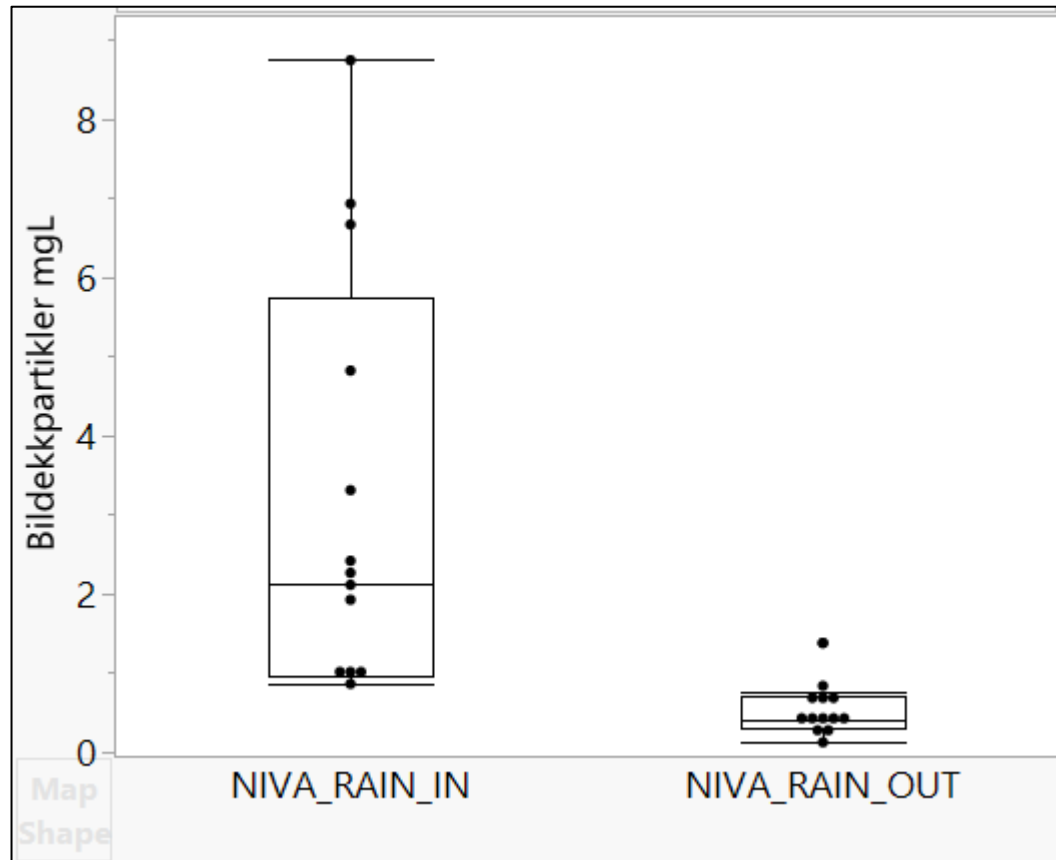
Sink



Nikkel



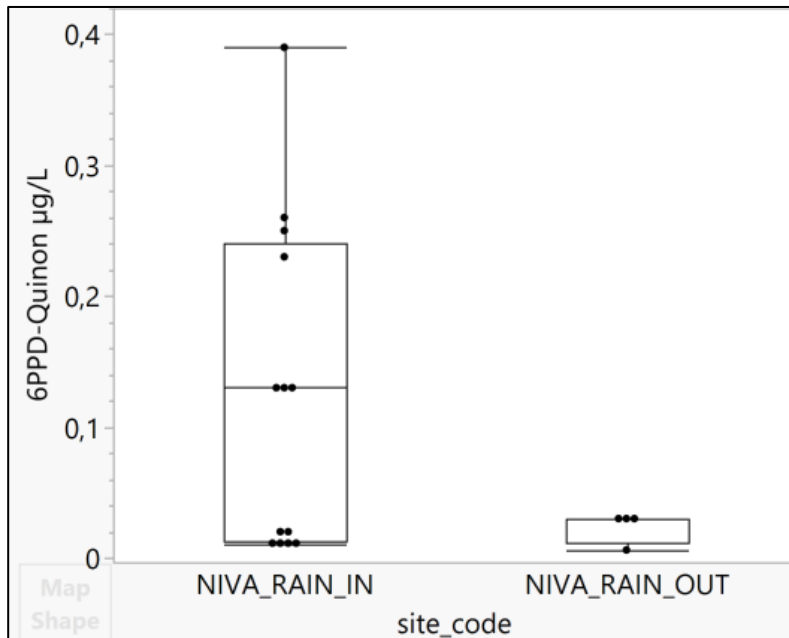
Bildekkpartikler – tidsintegret prøvetagning av episode



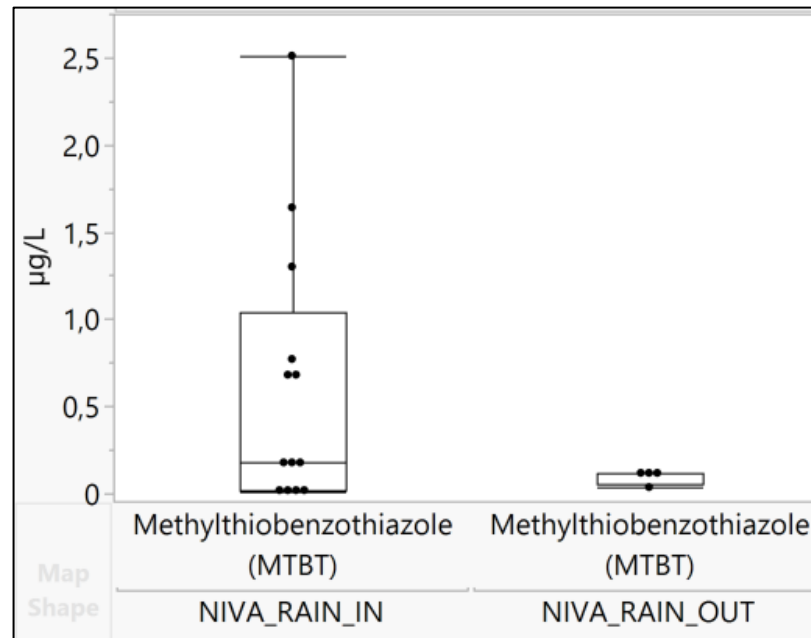
Bar plot showing the tire wear particle (TWP) concentrations measured during the tunnel wash event (yellow, ~1 h), during treatment (blue, days 7, 14, and 21), and during the discharge of treated tunnel wash water (green, ~3.5 h). The y-axis is log-scaled to better show the variation in TWP concentrations. All data can be found in Table S5.

Organiske stoffer – tidsintegrert prøvetagning av episode

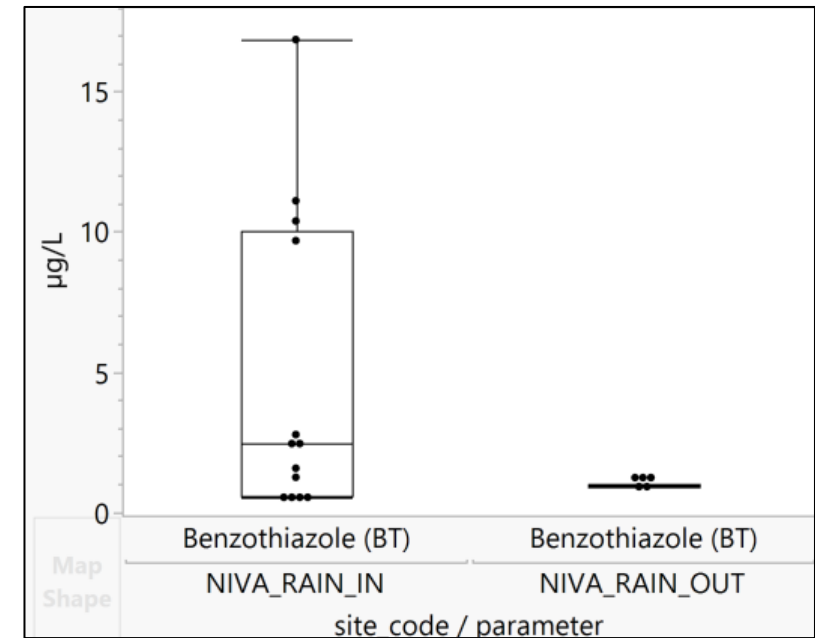
6PPD-Q (bildekkstoff)



MTBT (bildekkstoff)

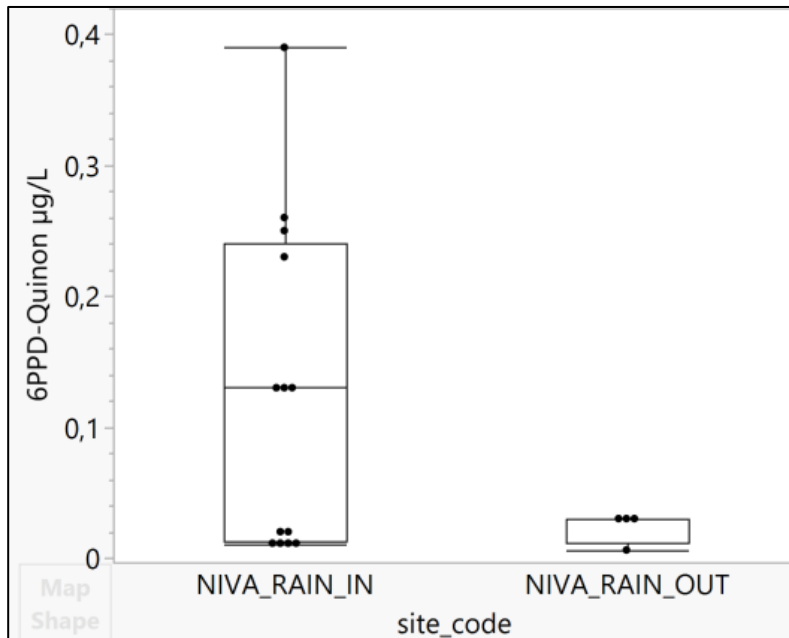


Benzothiazol (bildekkstoff)

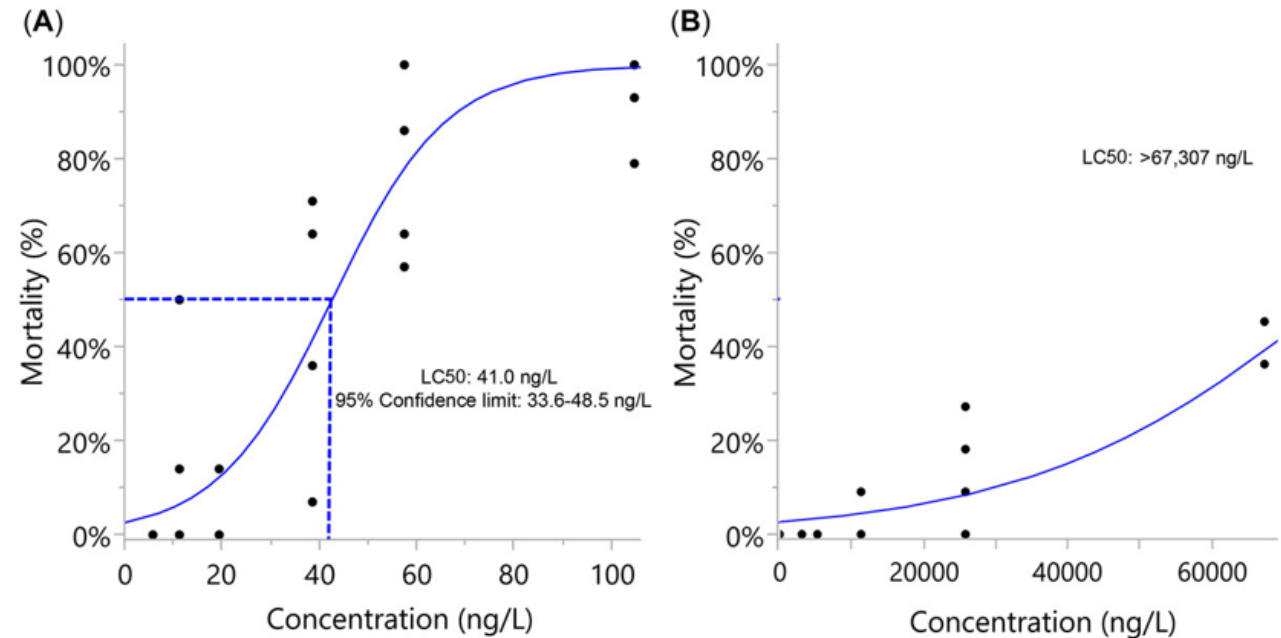


Organiske stoffer – tidsintegret prøvetagning av episode

6PPD-Q (bildekkstoff)



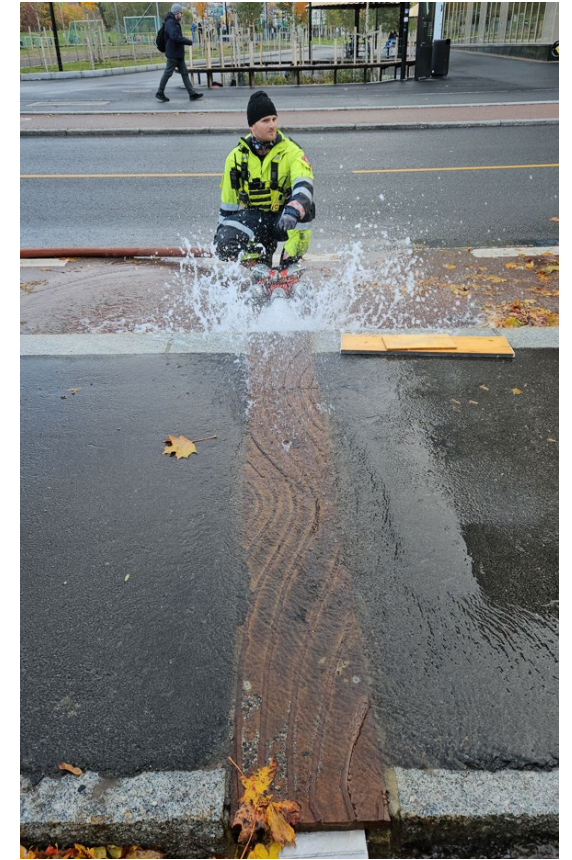
Acute Toxicity of 6PPD-Quinone to Early Life Stage Juvenile Chinook (*Oncorhynchus tshawytscha*) and Coho (*Oncorhynchus kisutch*) Salmon



Enviro Toxic and Chemistry, Volume: 42, Issue: 4, Pages: 815-822, First published: 24 January 2023, DOI: (10.1002/etc.5568)

Neste steg...

- Avslutte måleprogram sommer 2024
- Evaluere funksjon av regnbed → 2025)
 - Teknisk → hydraulisk og rensesfunksjon
 - Folks opplevelse av regnbedet (spørreskjema)





Læringsfilm – håndtering av forurenset veivann



Download

Other communication tools



MULTISOURCE General Overview



A4 format leaflet



Roll up banner for conferences and events



General MULTISOURCE poster



MULTISOURCE Poster with Work Package structure



MULTISOURCE poster with Work Packages description



MULTISOURCE poster with Work Packages description



MULTISOURCE Official Video



#1 MULTISOURCE Splashdown Webinar



#2 MULTISOURCE Splashdown Webinar



#3 MULTISOURCE Splashdown Webinar



#4 MULTISOURCE Splashdown Webinar



MULTISOURCE

<https://multisource.eu/communication-tools/>

<https://www.niva.no/en/projects/multisource>

Takk for at du hørte på



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- Takk til alle fra Oslo kommune og NIVA som bidrar i Multisource!
 - Stina K. Karlstrøm, Marie L. Holmqvist (BYM), Karin Dalberg (BYM, byggeprosjektet)
 - Knut E. Tollefsen, Jannicke Moe, Elisabeth Rødland, Line J. Barkved, Ashenafi Gragne, Muhammad Umar, Uta Brandt, Simen Stene, Anne L. Ribeiro, Gabrielle Hairabedian,....) (NIVA)