Optimising wastewater networks with DHI CityFlow Live

Lars-G Gustafsson

What is DHI CityFlow Live?

A **digital twin** for water in cities

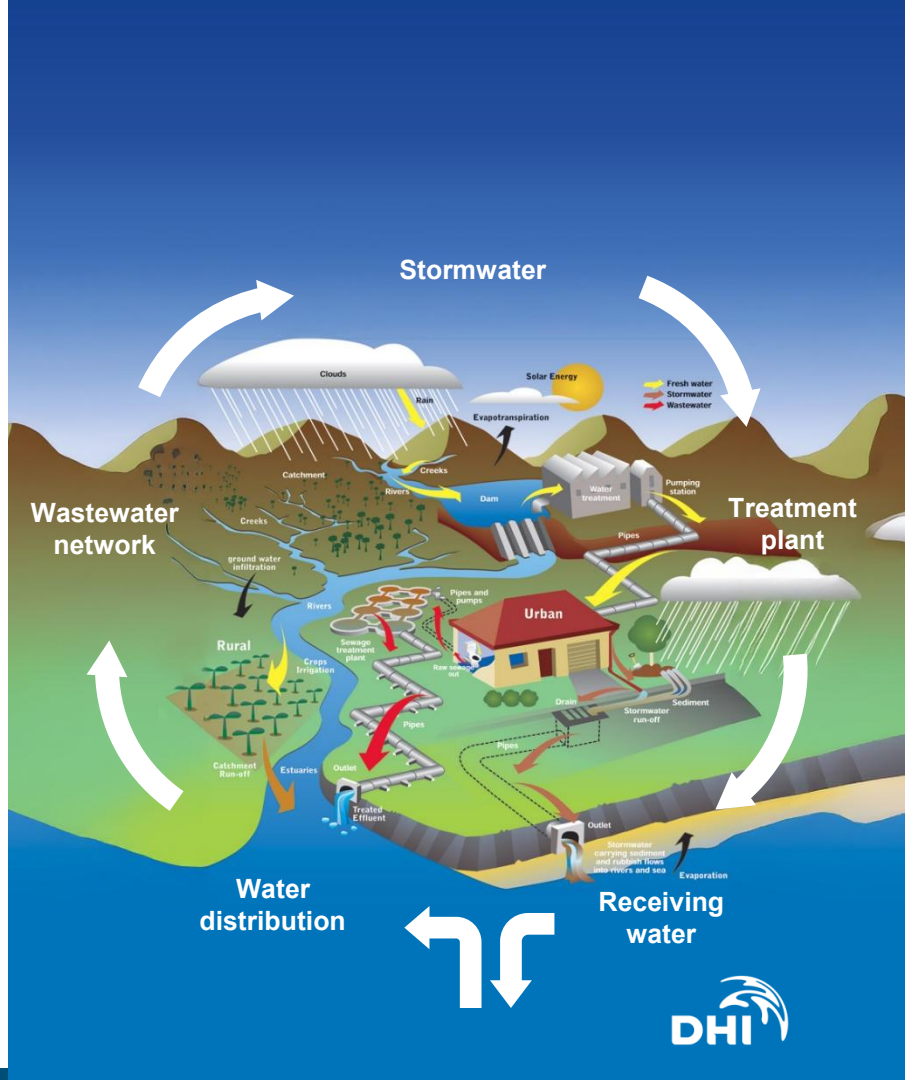
✓Connect **multiple model** domains

✓Connect to **SCADA** and **data**

✓Connect **planning** with **operations**

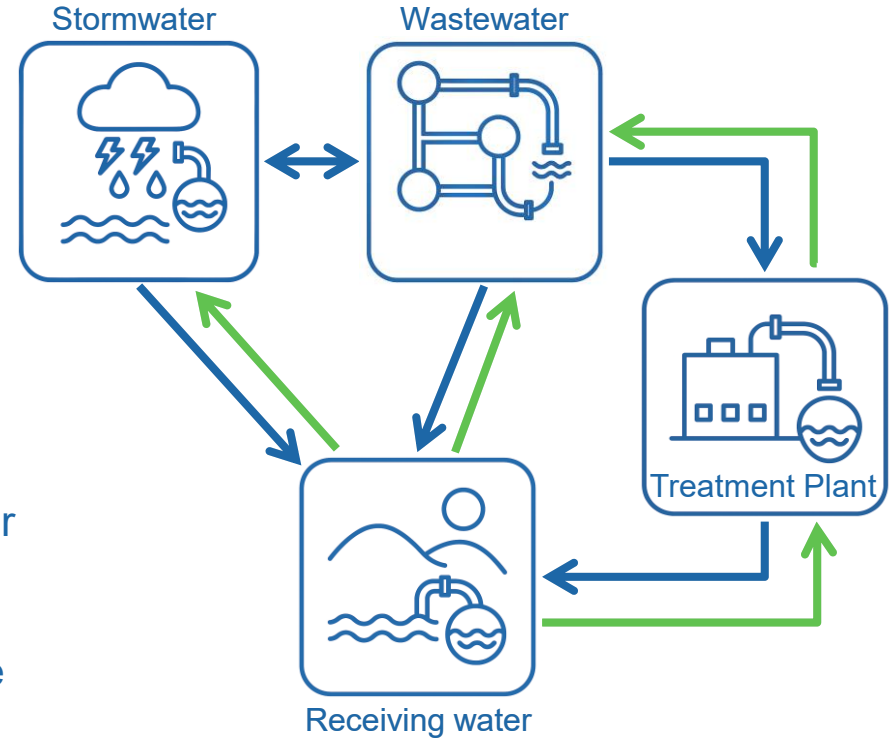
✓Connect the **organisation**

Enables **efficiency** and **compliance**



True integrated operation and planning

- ✓Assess how rain and weather impact your urban water networks
- ✓Assess how inflow/infiltration impact your operational treatment performance and effluents to receiving waters
- ✓Assess how sewer overflows and stormwater outlets impact receiving water quality
- ✓Assess and upgrade upstream infrastructure to align with environmental regulations and water quality goals



DHI CityFlow Live – a flexible module-based Ecosystem

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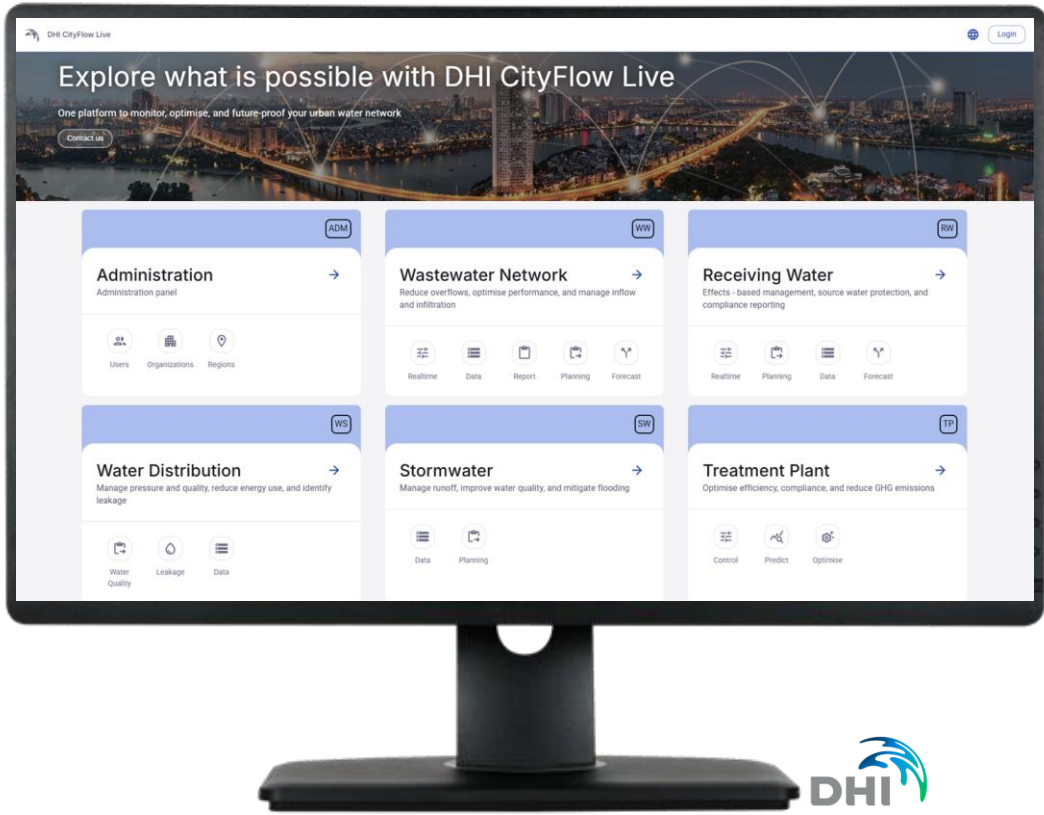
✓Start with your urgent needs

✓Grow into the Ecosystem as needed

✓Full cross-domain digital twin over time

DHI CityFlow Live – 5 integrated user domains

- ✓ Wastewater Network
- ✓ Treatment Plant
- ✓ Receiving Water
- ✓ Stormwater
- ✓ Water Distribution

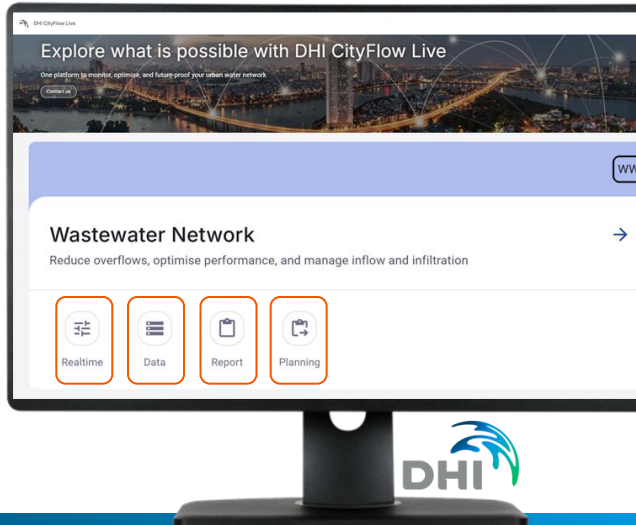


DHI CityFlow Live – Wastewater Network

- ✓ Monitoring Data
- ✓ Overflow Reporting
- ✓ Forecasting
- ✓ Real Time Control
- ✓ Strategic Planning

Example of use cases and workflows

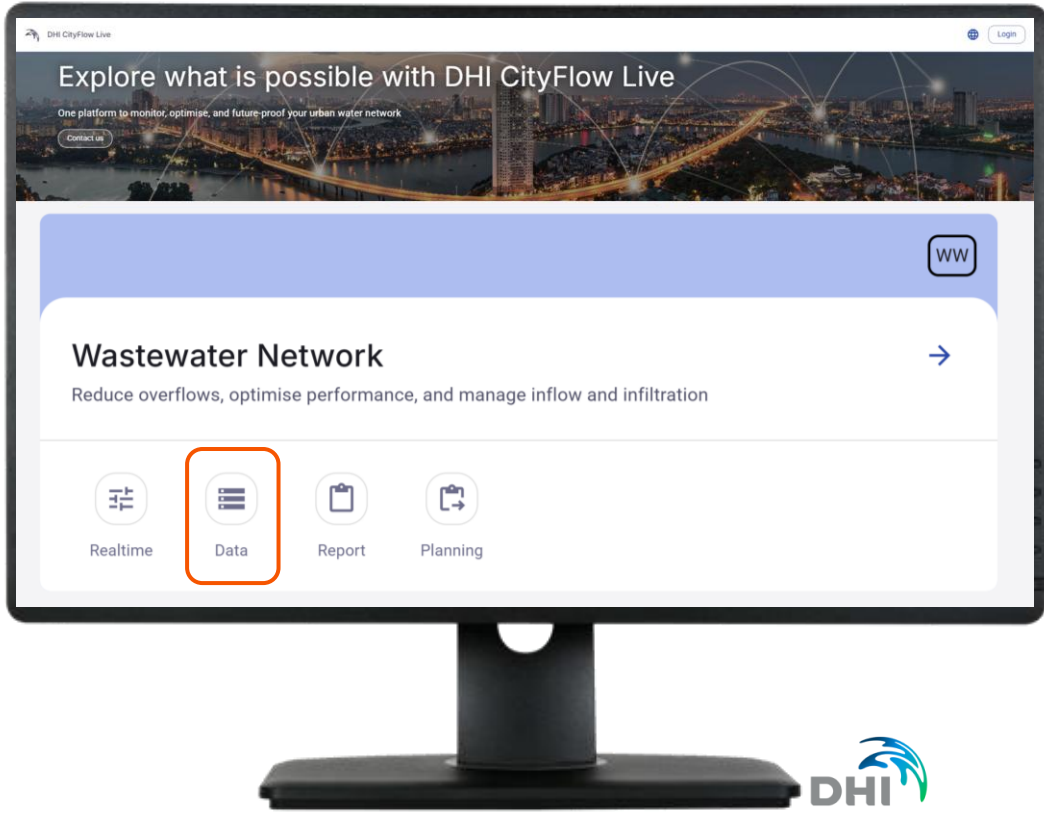
1. What monitoring sites show the highest wet weather inflow/infiltration
2. What is the effect of implemented I&I projects?
3. What is the sewer overflow status 2025? Where was the highest phosphorous loads?
4. What is the impact of overflows on receiving water quality?
5. What does the flow forecast show the coming days?
6. What planned I&I projects is estimated to have the best cost/benefit ratio?



Use case 1: *Find the areas with highest wet weather inflow/infiltration*

Workflow:

- Toggle between I&I KPI's in map view
- Select points/area of interest
- Move to chart and table view and inspect
- View details in rain analyses and time series view



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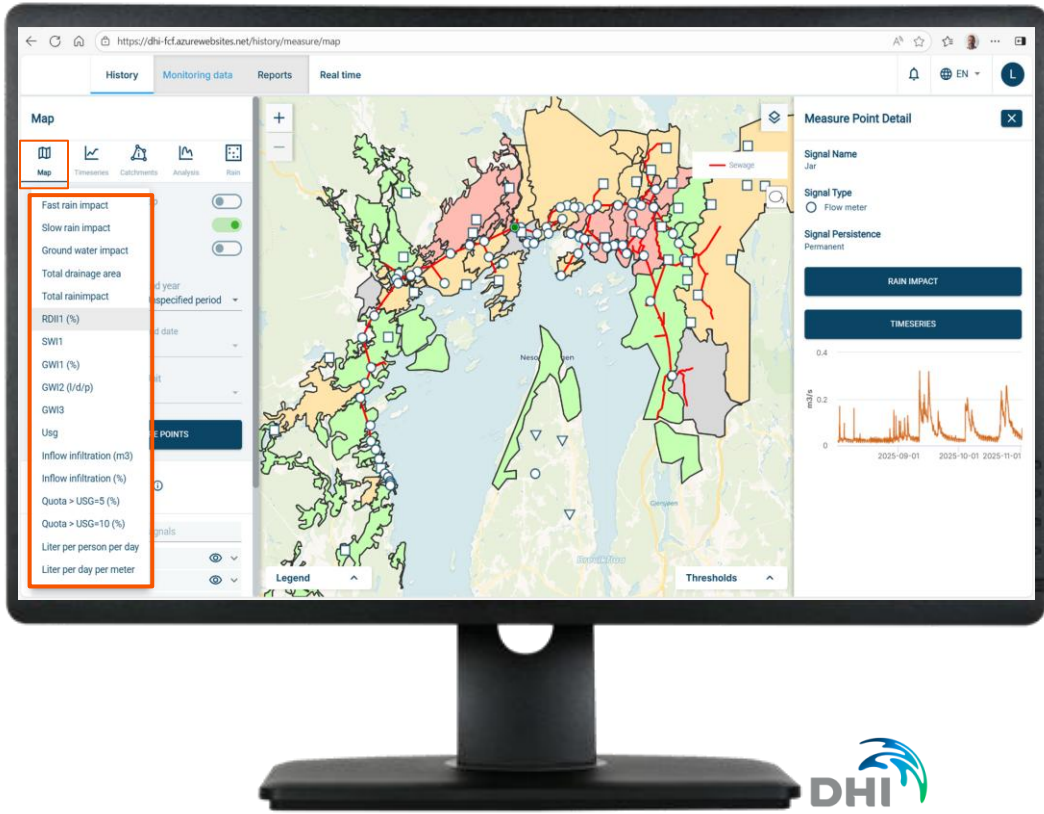

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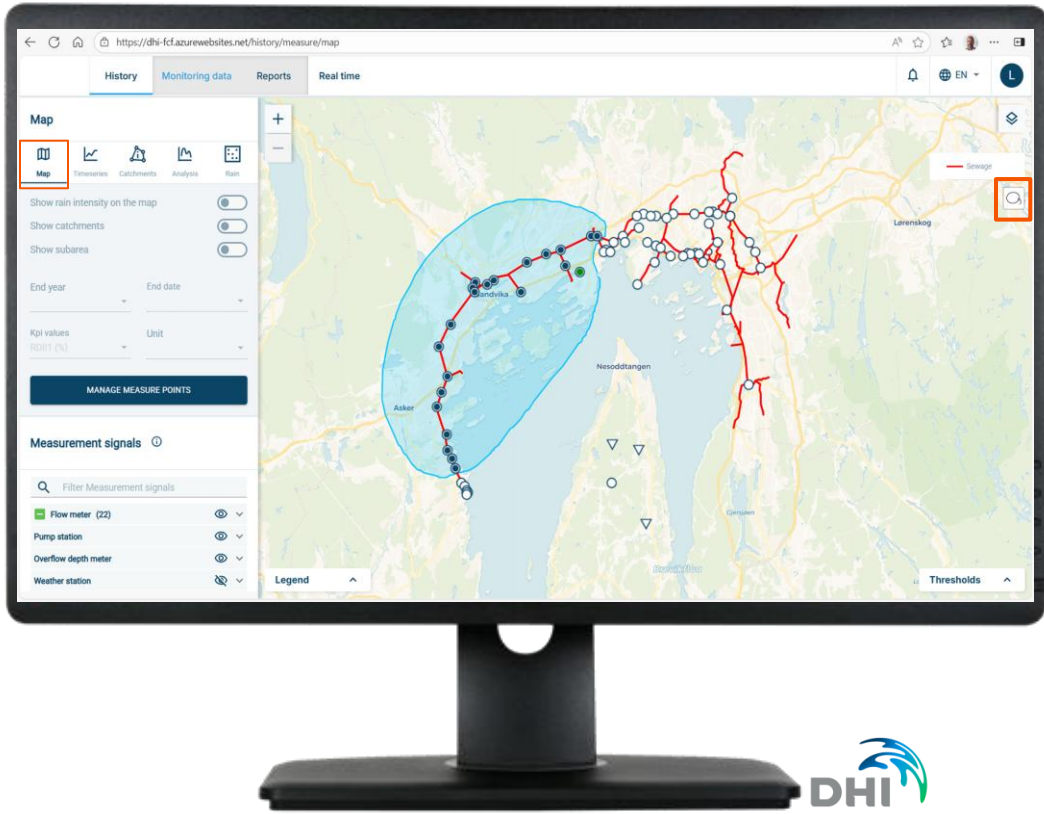

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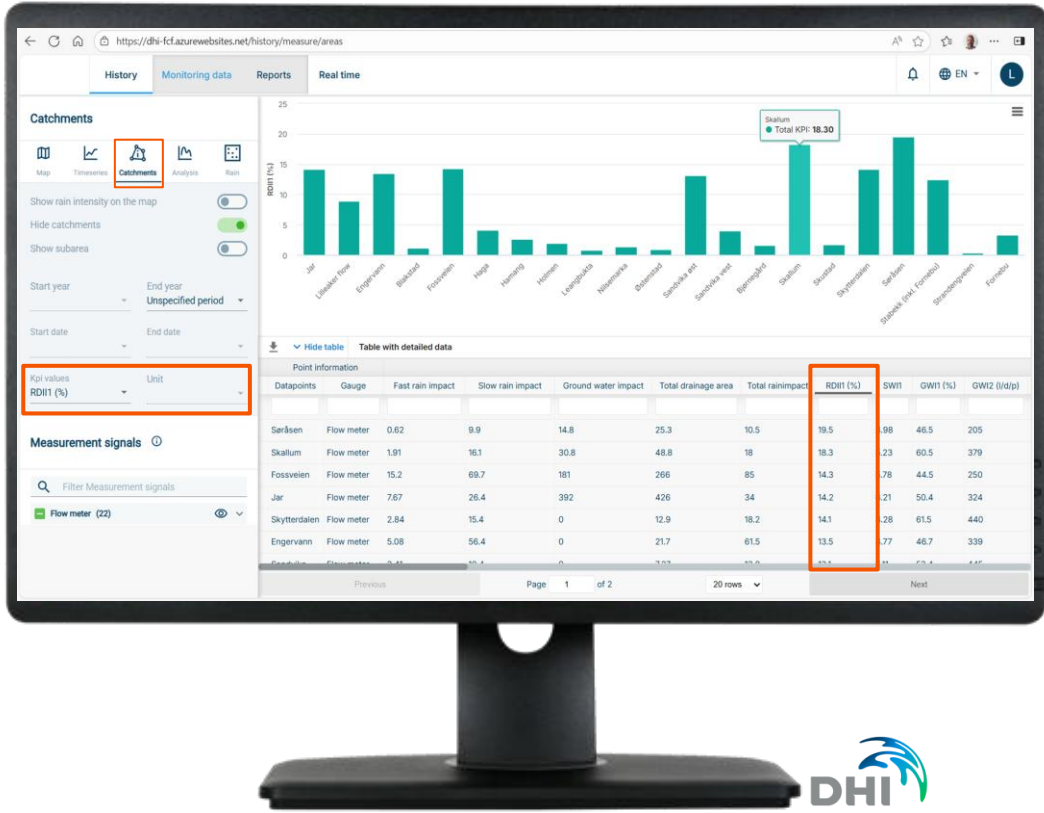

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Live demo

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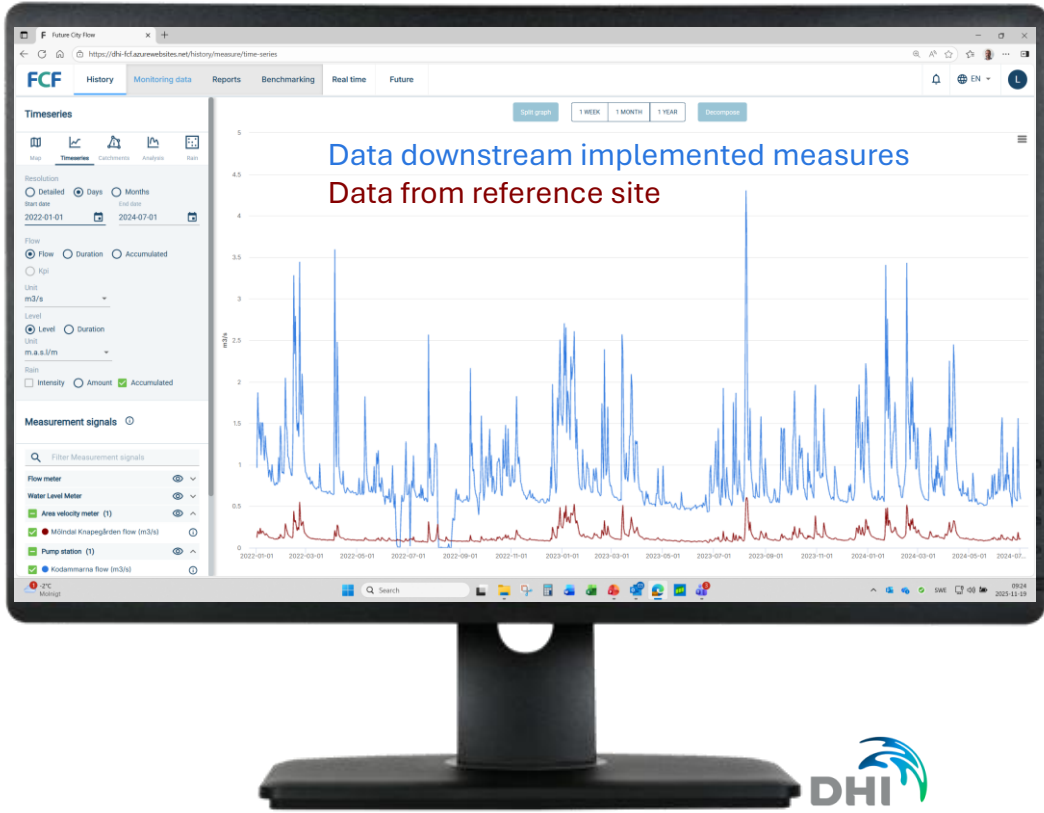
Use case 2: *What is the effect of implemented inflow/infiltration projects?*

Workflow:

- Select the monitoring sites and catchments of interest
- Inspect the measured flow data for a relevant period before and after implemented changes
- Swap between KPI's of interest and analyse the results



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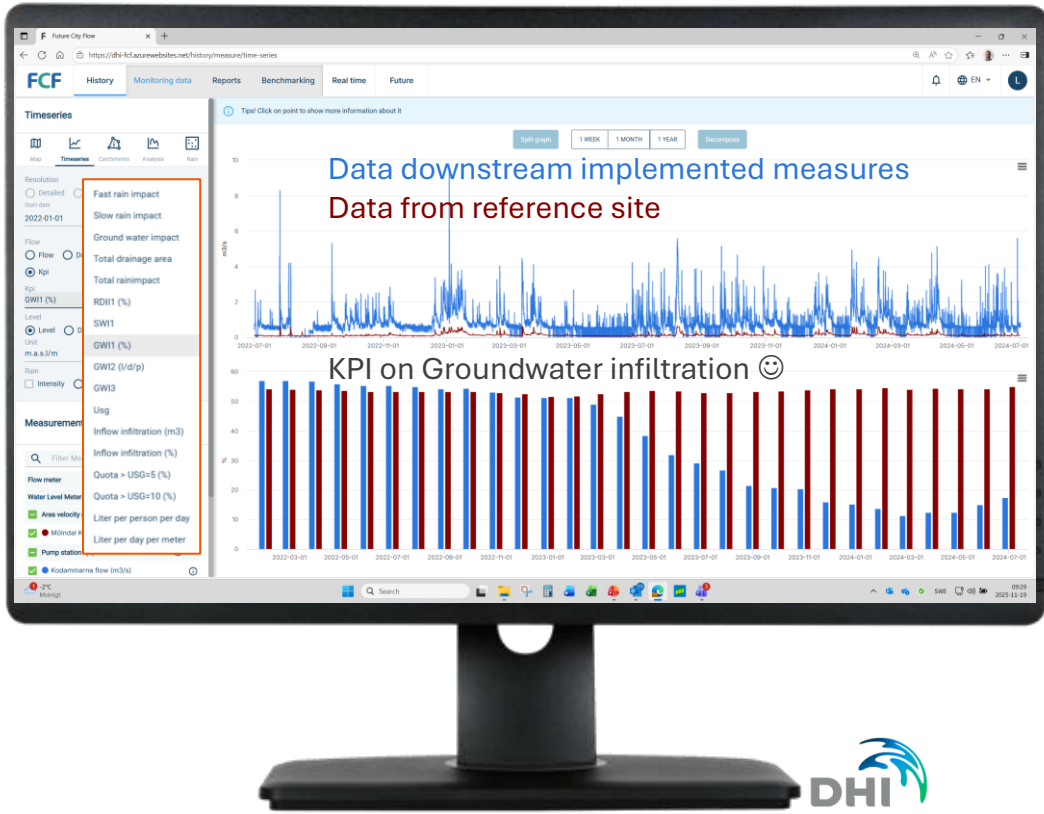
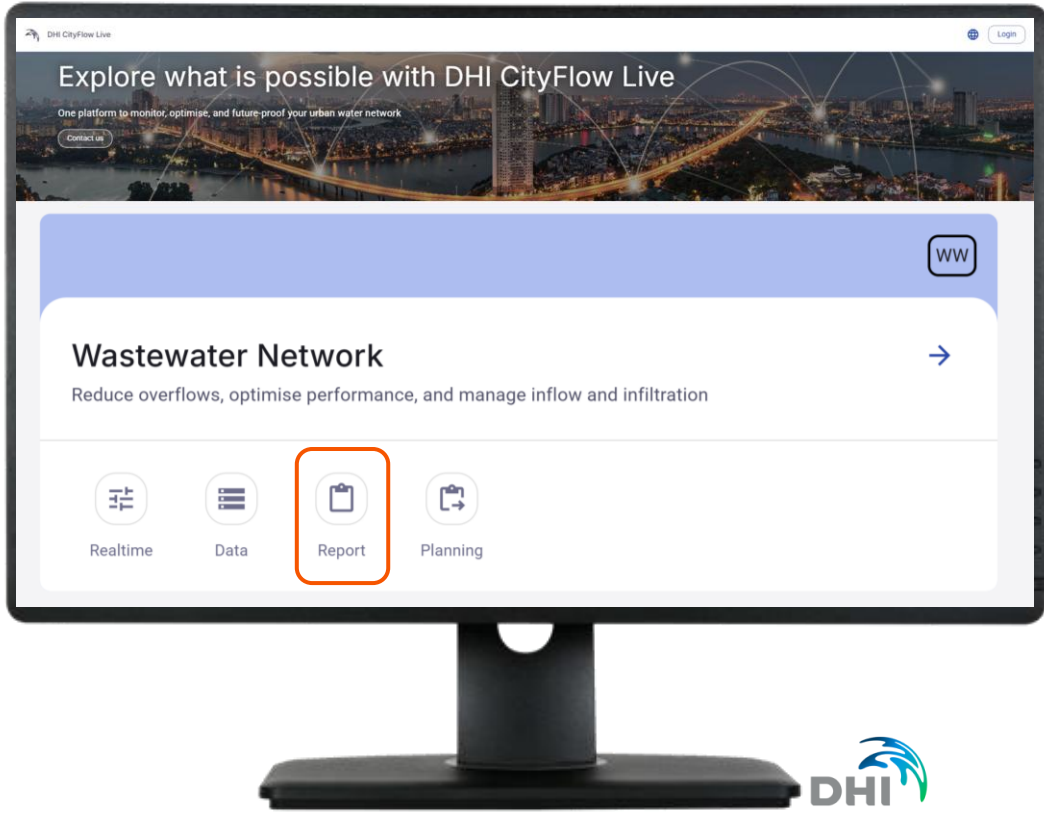


Use case 3: *What is the sewer overflow status 2025? Where was the highest phosphorous loads? How was it distributed per month?*

Workflow:

- Load area and period and inspect summary view
- Go to table view and rank based on item of interest
- Plot the monthly volumes of selected points



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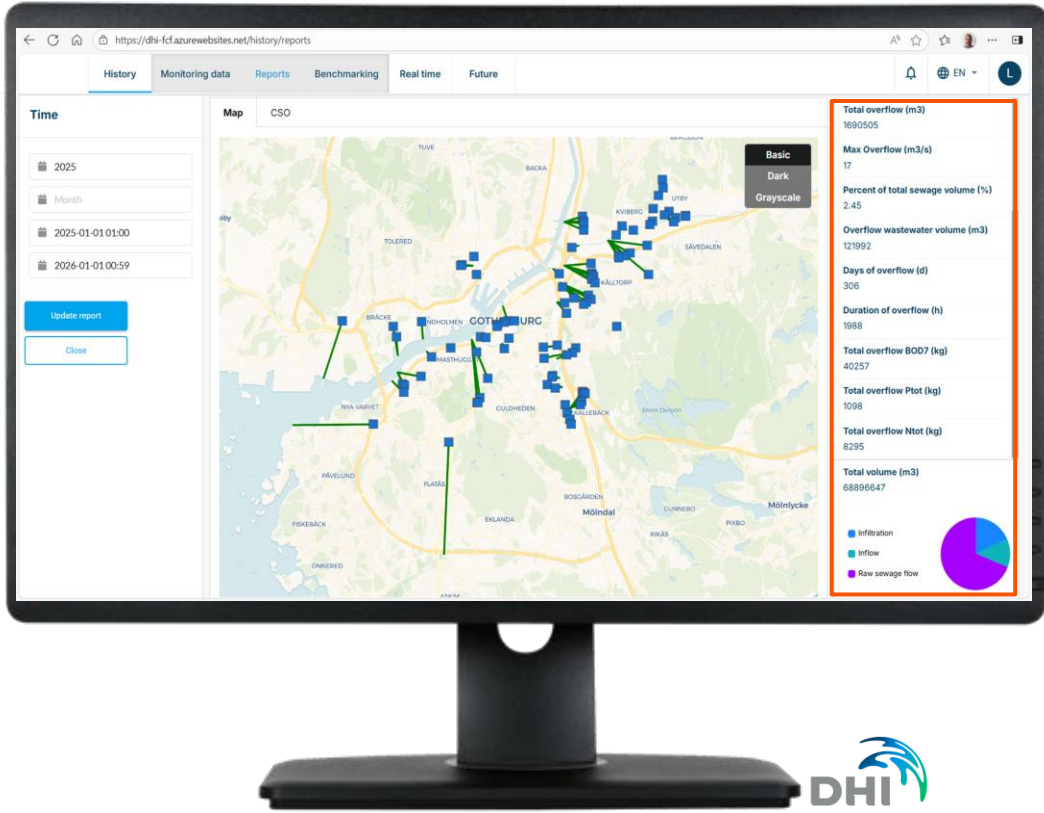

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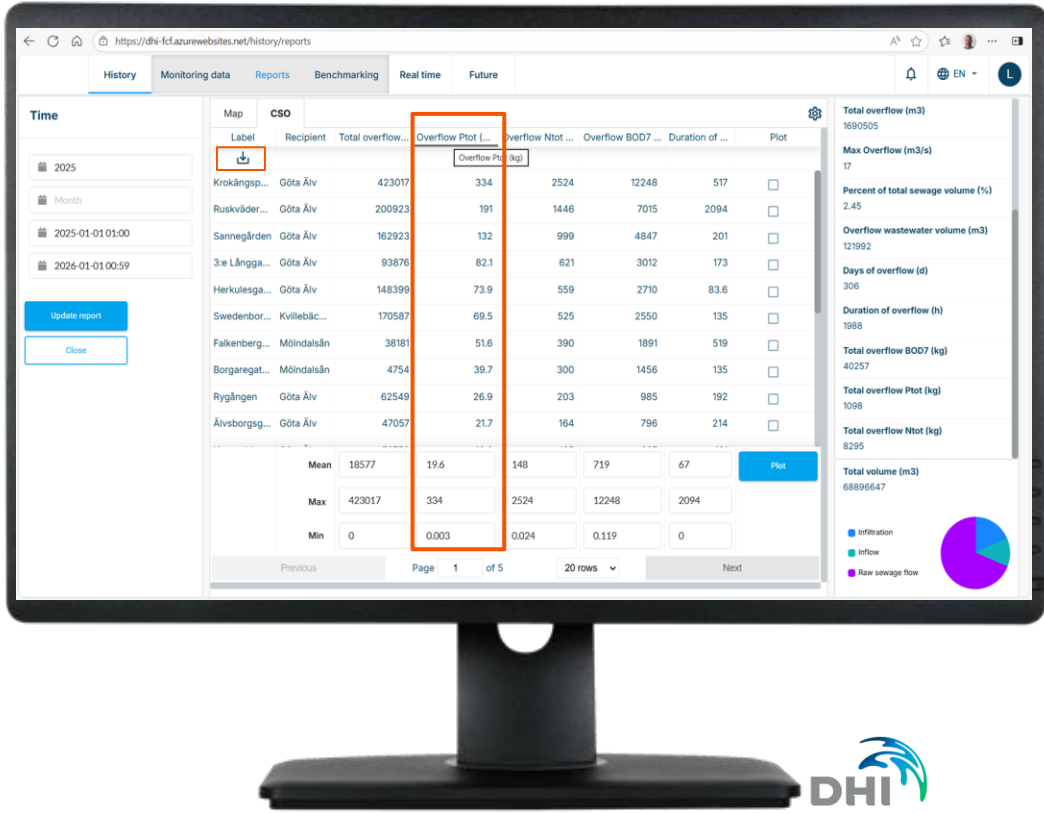

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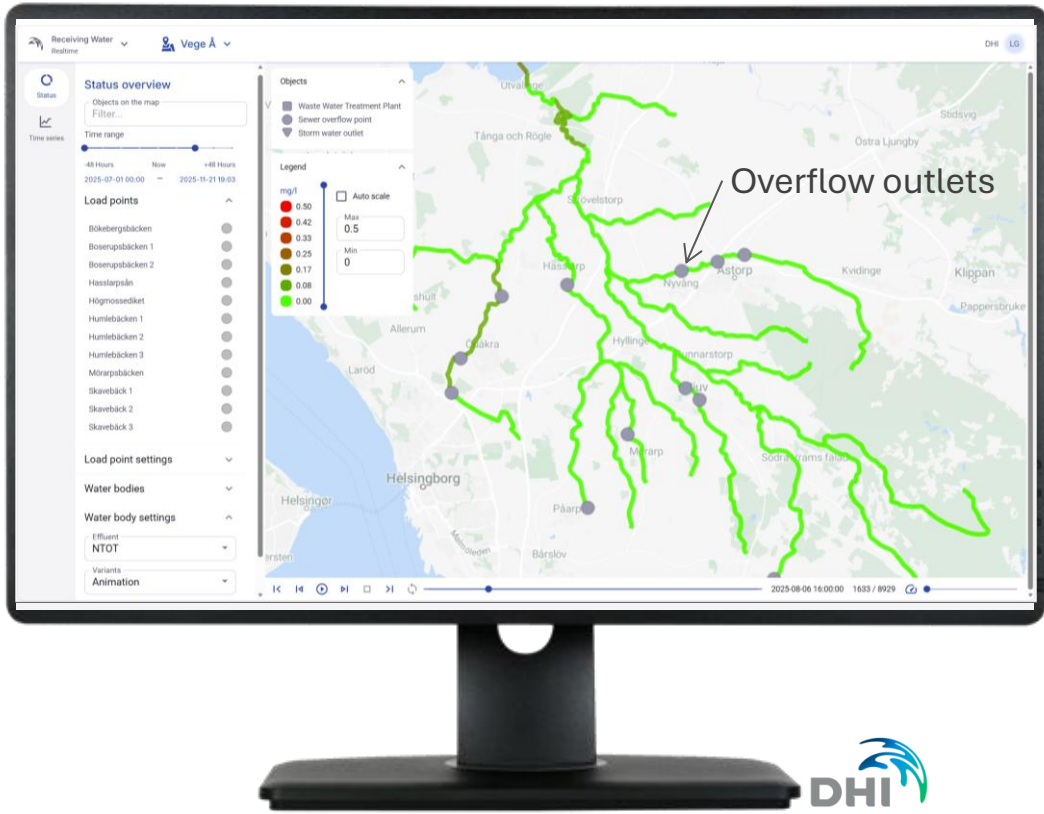
Workflow:

- View overflows and pollution transport for period of interest
- Find periods with critical impact on receiving water quality
- Inspect spatial impact
- Analyse dynamics during events



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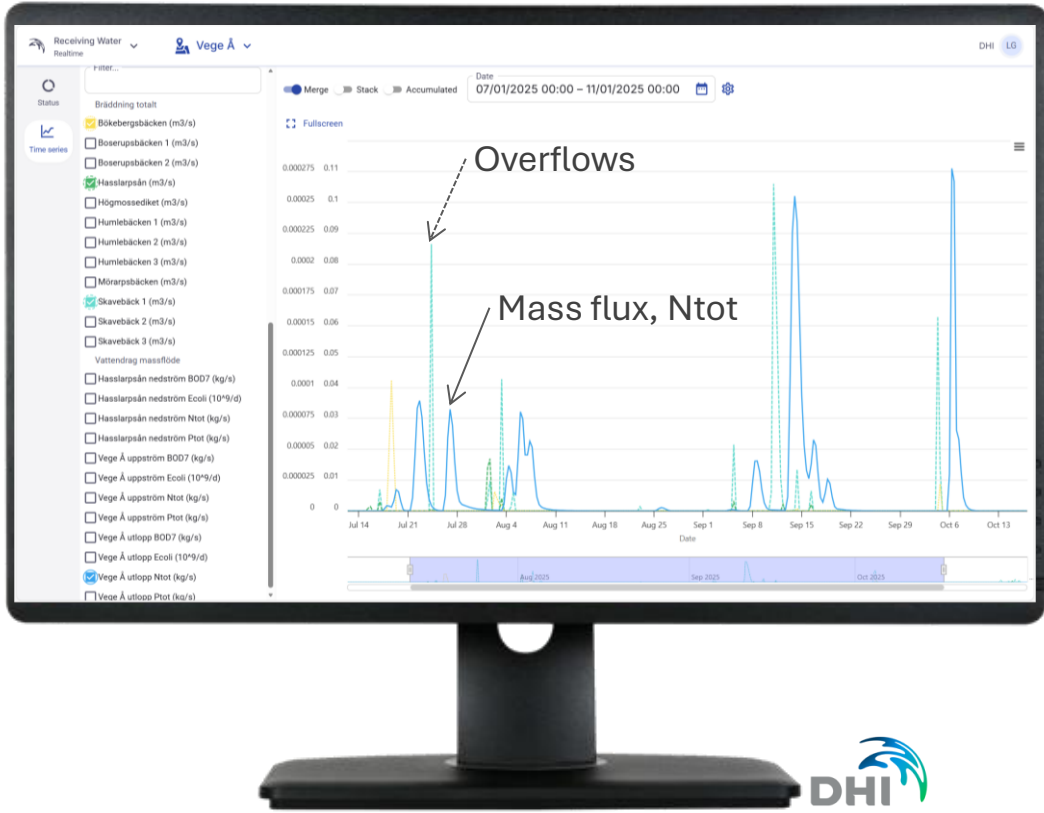

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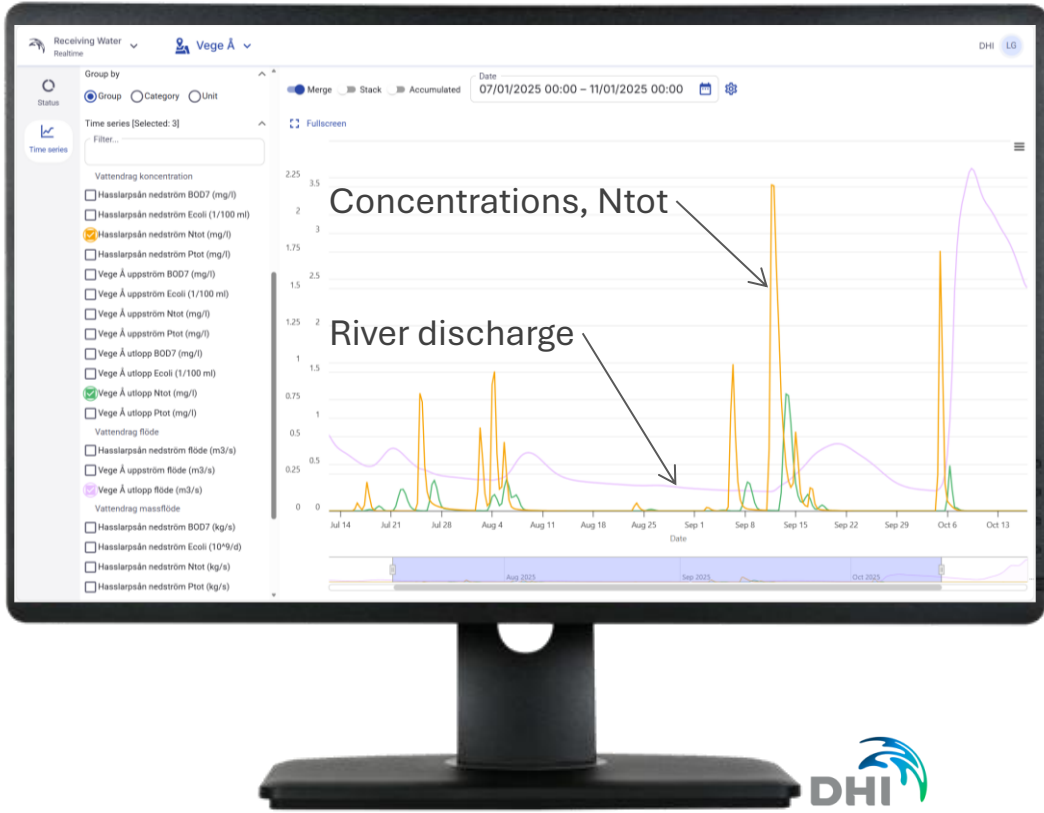

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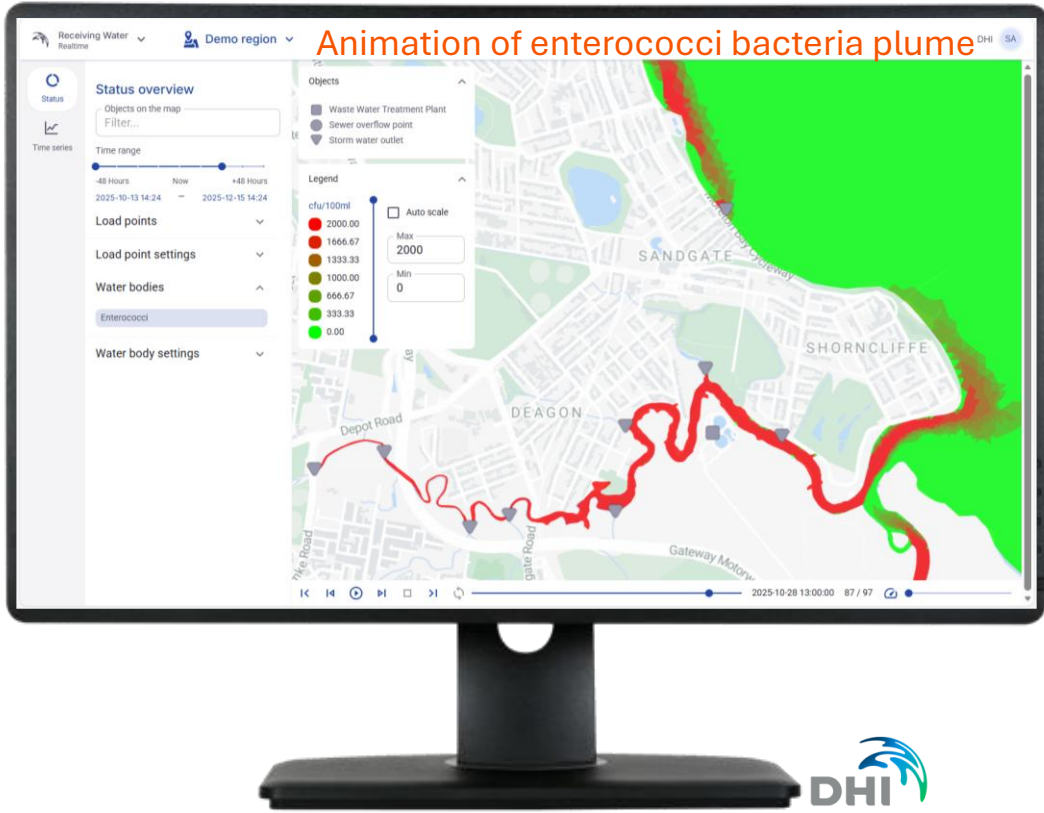
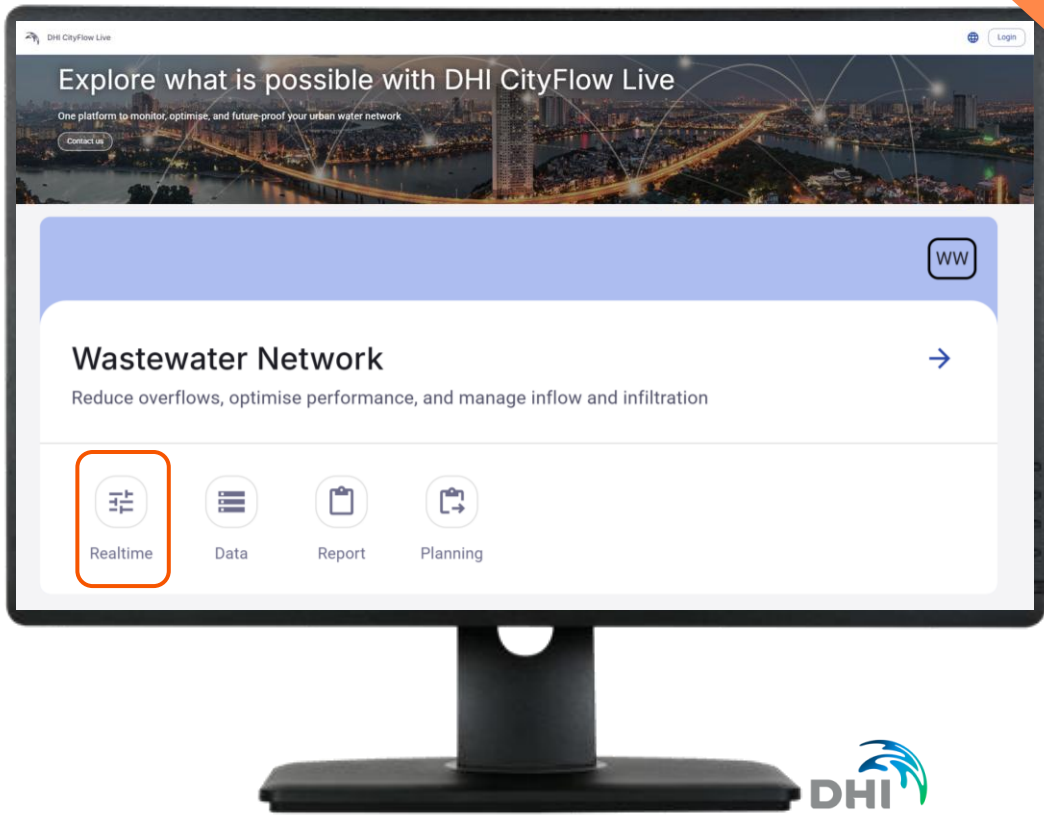


Live demo

Use case 5: *What does the flow forecast show the coming days? Will inflow exceed treatment capacity? What about CSO risks?*

Workflow:

- View the status indicators in the map view
- Click the objects that indicate risk and inspect the forecast
- Go to detailed forecast view and check details of your interest



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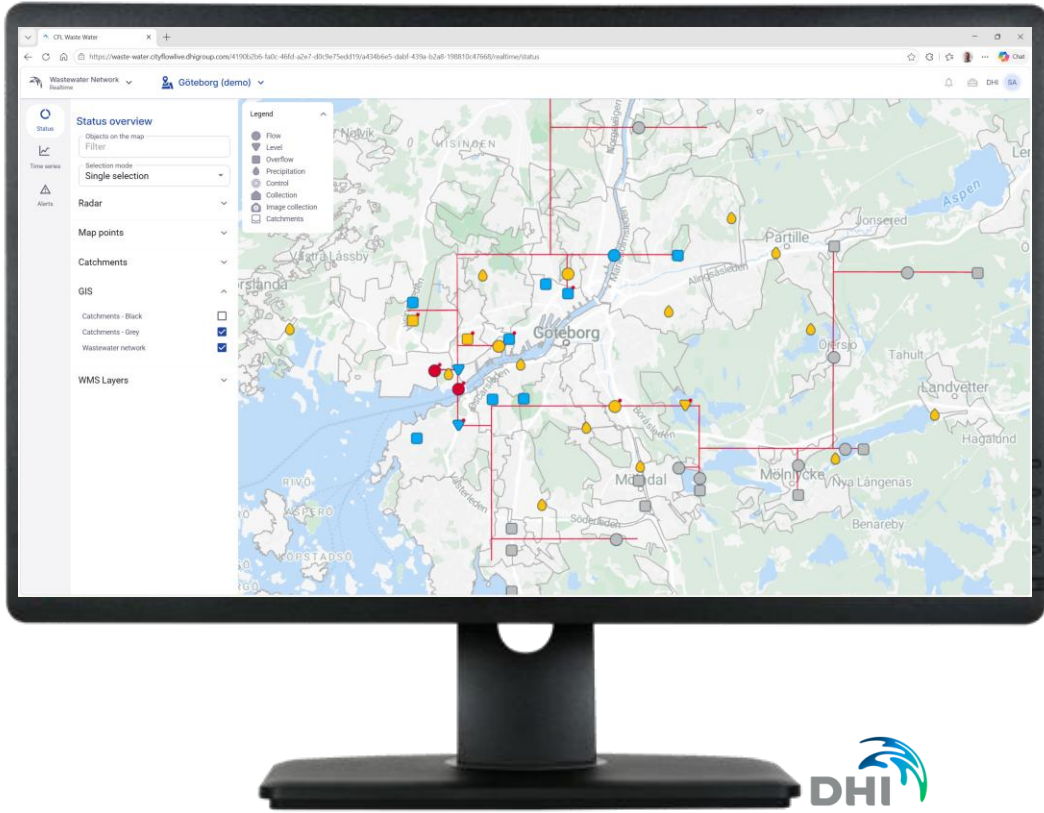

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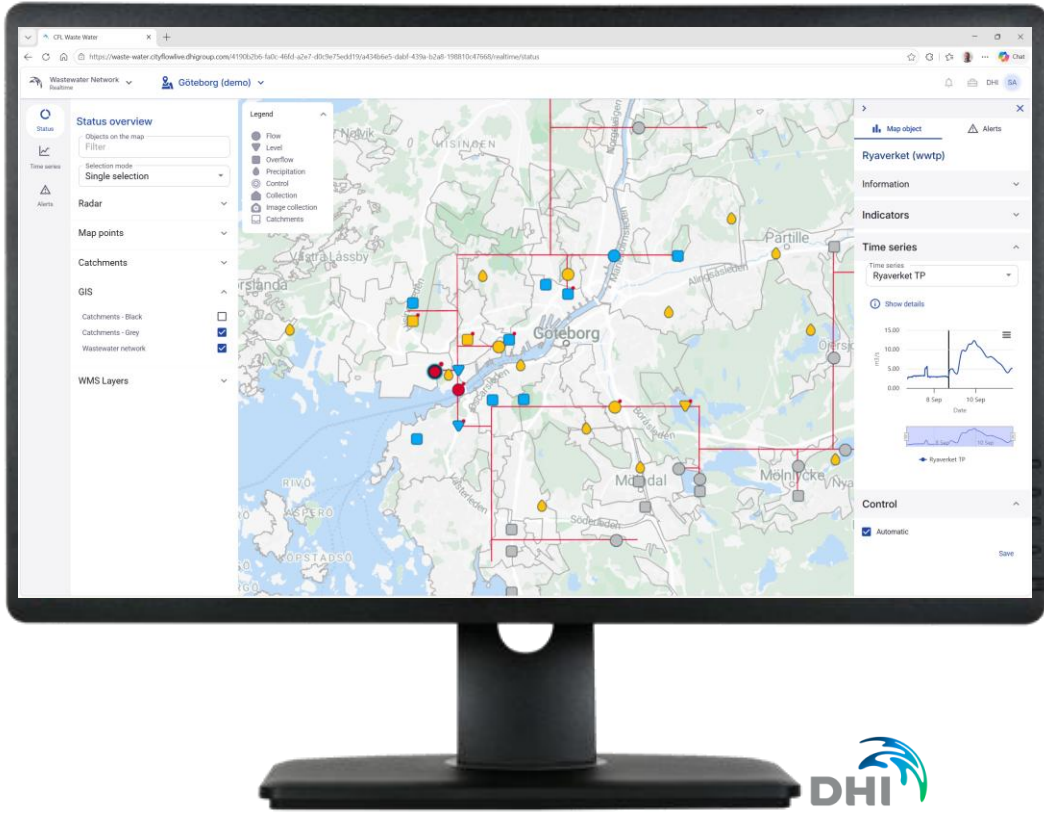

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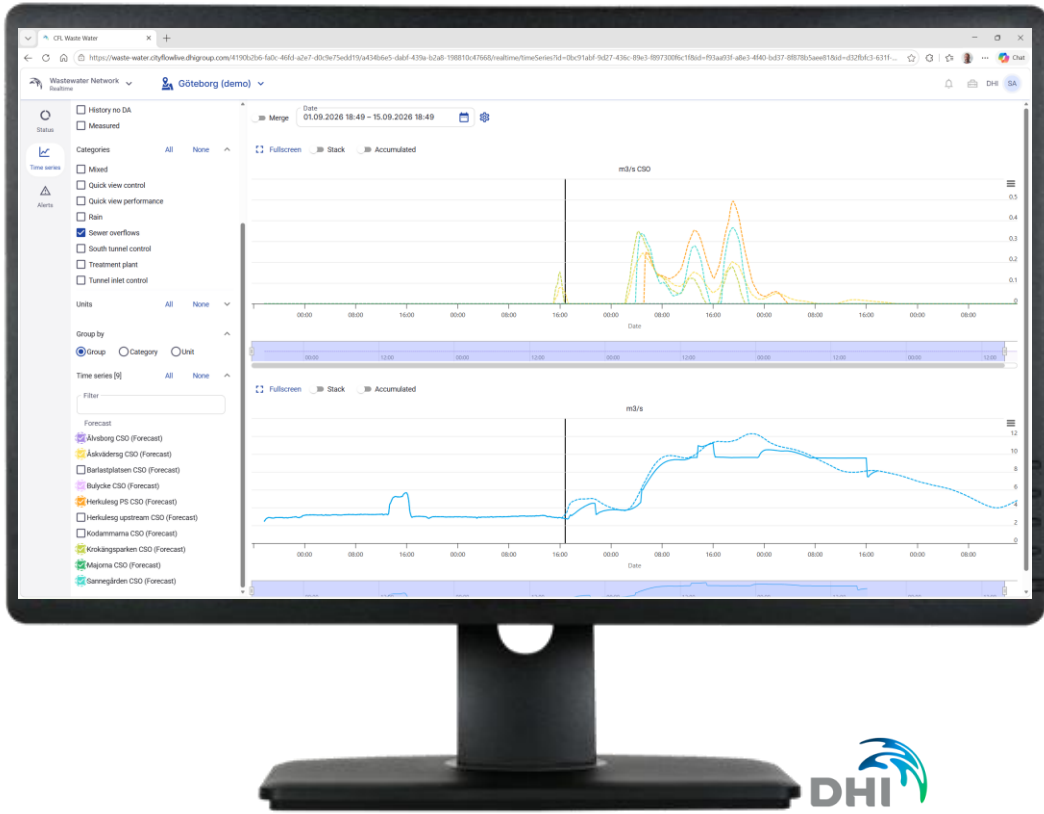
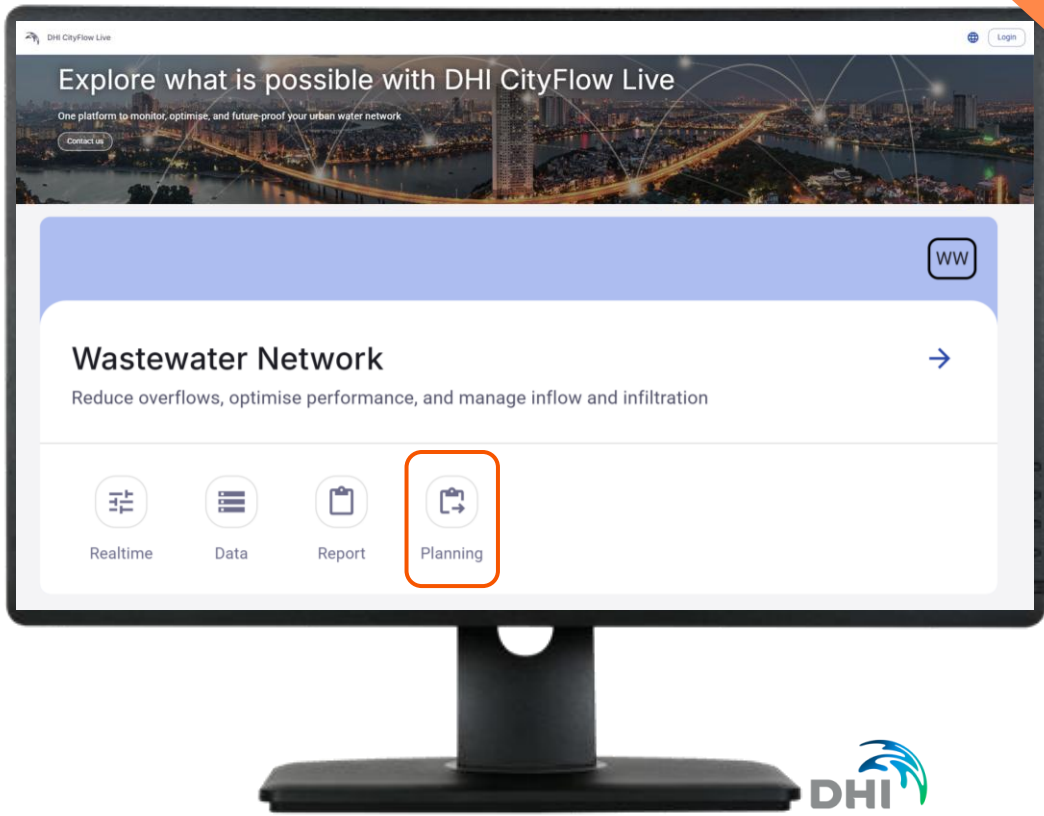


Live demo

Use case 6: *What I&I projects is estimated to have the best cost/benefit ratio for reducing sewer overflows and rainfall impact?*

Workflow:

- Go to show/compare view and select project scenarios
- Toggle between benefit options and see overview of results
- Select project of your choice and inspect



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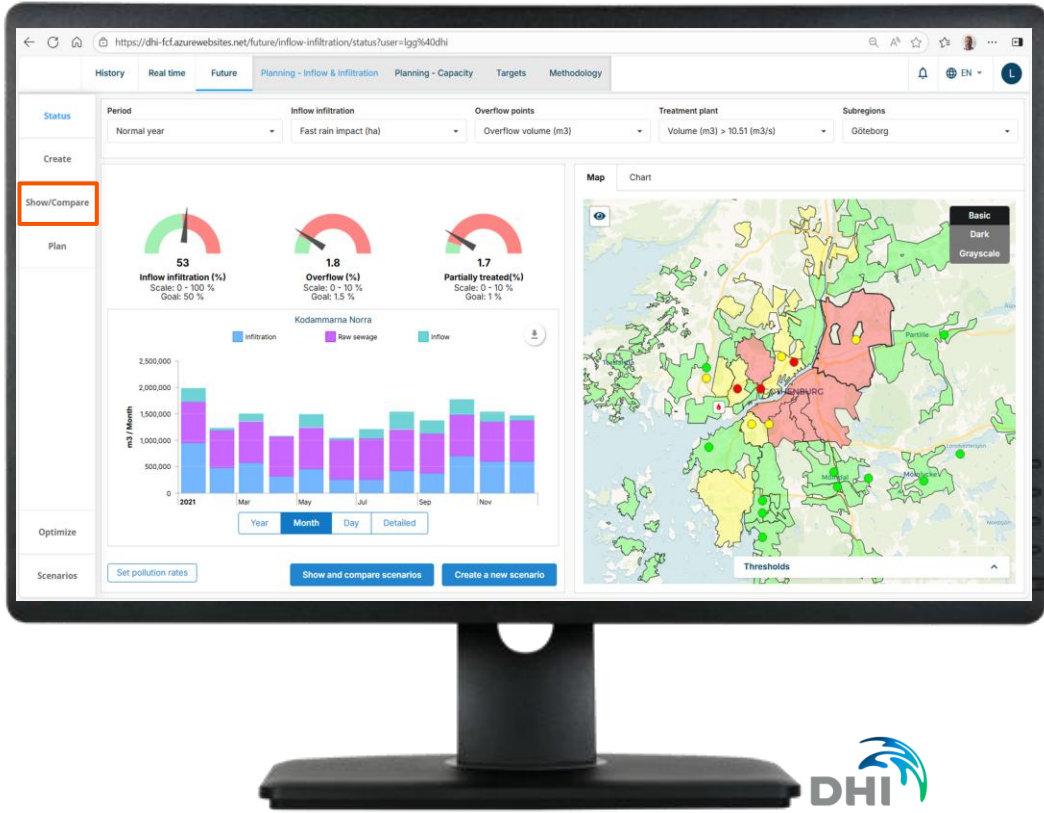

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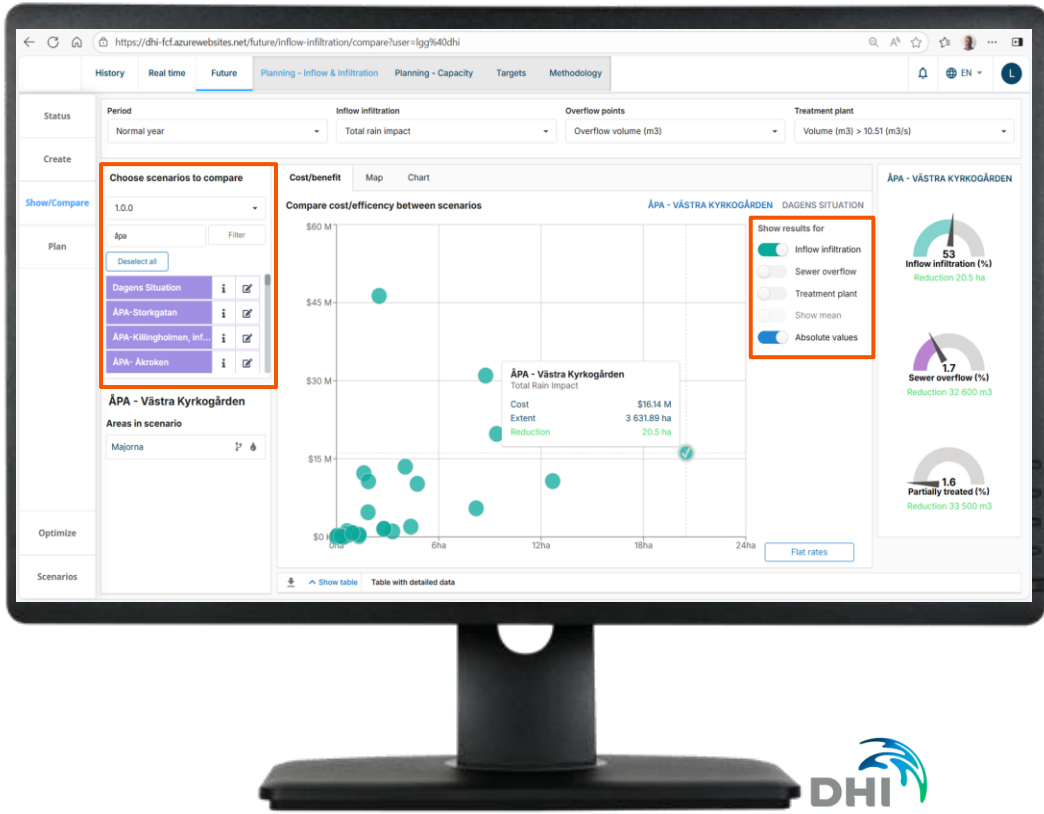

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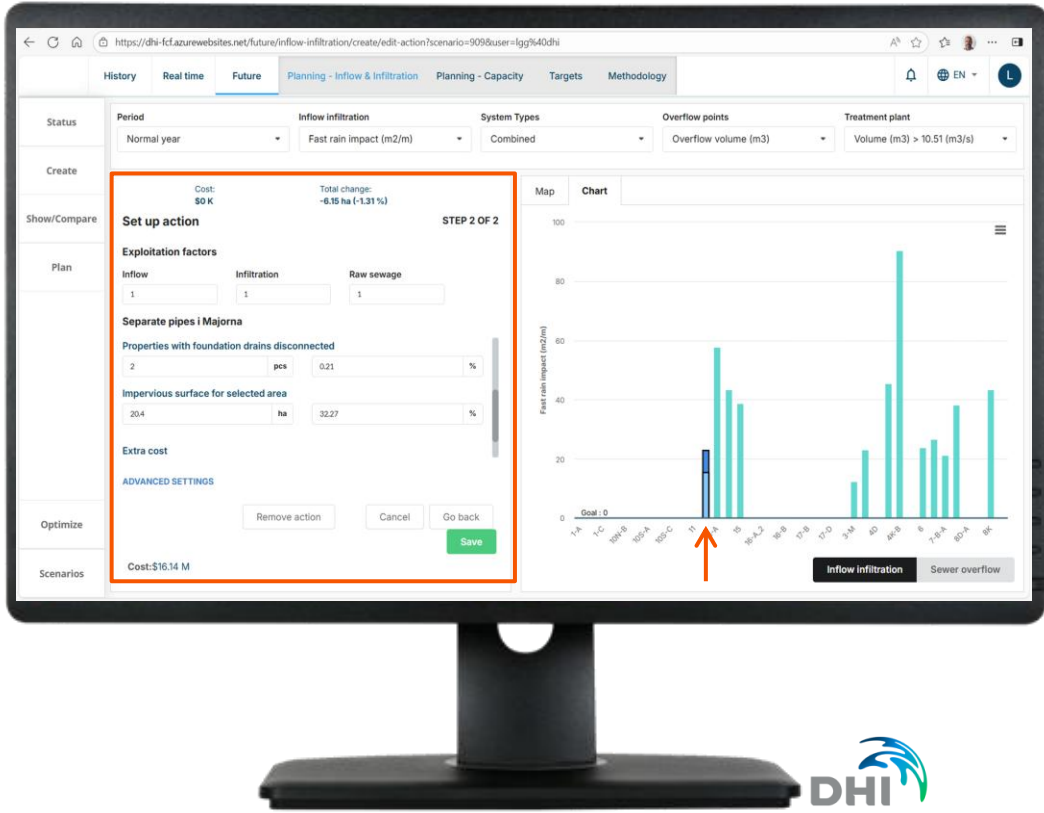
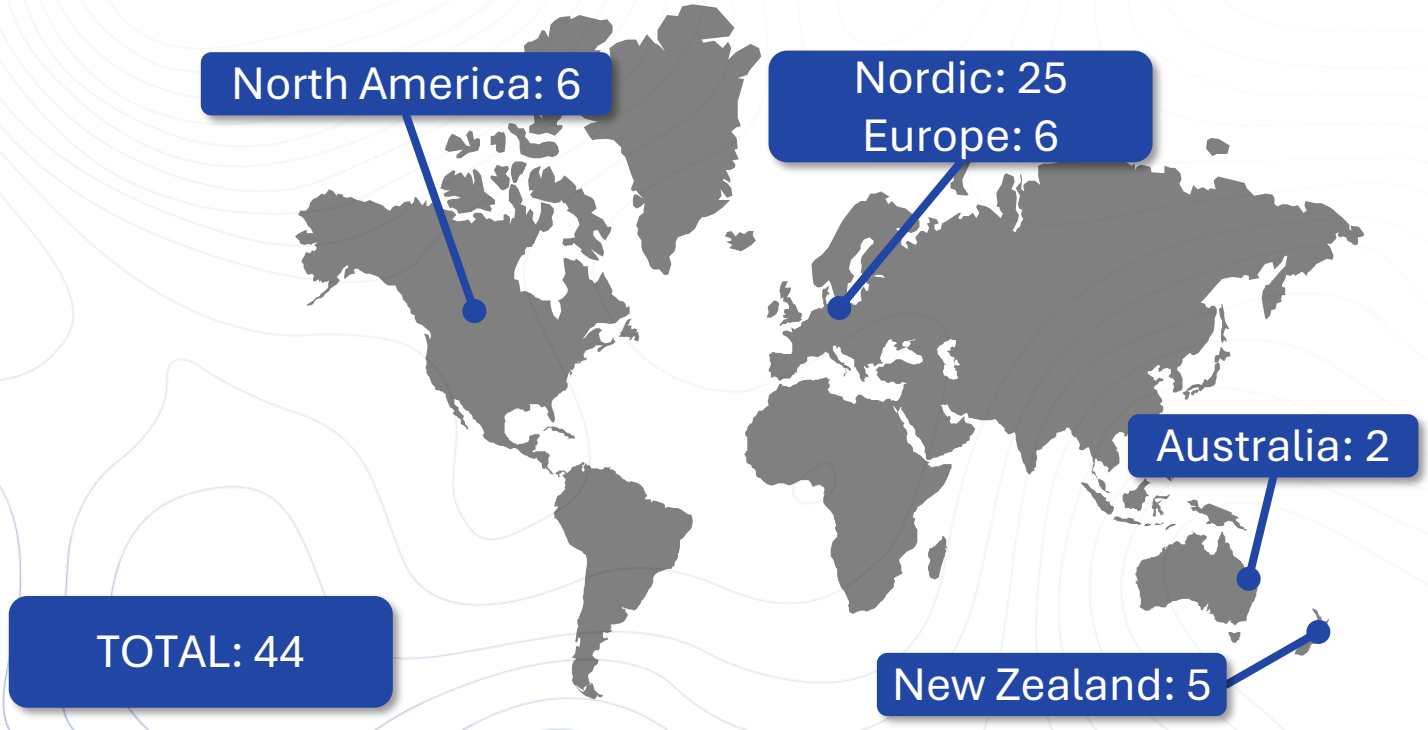


DHI CityFlow Live – current geographical coverage



Thanks for your attention

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Q&A
DHI